**Courses – ECTS Credits**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Semester | Code | Course Name | T | P | Crd | ECTS |
| 1 | 151511186 | Physics I | 3 | 0 | 3 | 3 |
| 1 | 151511187 | Physics [laboratory](http://tureng.com/search/laboratory) I | 0 | 2 | 1 | 2 |
| 1 | 151511199 | Mathematics I | 4 | 0 | 4 | 5 |
| 1 | 151511200 | General Geology I | 2 | 0 | 2 | 3 |
| 1 | 151511188 | Chemistry I | 3 | 0 | 3 | 3 |
| 1 | 151511189 | [Chemistry Laboratory I](file:///C:\Users\OZLEN\AppData\Local\Microsoft\Windows\Temporary%20Internet%20Files\Content.Outlook\DSBXEAZL\Ing%20%20ders%20listesi.docx#KimyaLab_TR) | 0 | 2 | 1 | 2 |
| 1 | 151511201 | Usage of Basic Information Technologies | 2 | 0 | 2 | 3 |
| 1 | 151011209 | English I | 3 | 0 | 0 | 3 |
| 1 | 151511181 | Turkish language I | 2 | 0 | 0 | 2 |
| 1 | 151511185 | Seminar I (Foreign student) | 2 | 0 | 0 |  |
| 1 |  | Social Elective I | 2 | 0 | 2 | 2 |
| 1 | 151511202 | Entrance to Geological Engineering | 2 | 0 | 2 | 3 |
|  |  | **Total** | **25** | **4** | **20** | **31** |

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| --- | --- | --- | --- | --- | --- | --- |
| Semester | Code | Course Name | T | P | Crd | ECTS |
| 2 | 151512183 | [Physics II](http://ects.ogu.edu.tr/ects/dersler.aspx?ID=3087) | 3 | 0 | 3 | 3 |
| 2 | 151512184 | [Physics laboratory II](http://ects.ogu.edu.tr/ects/dersler.aspx?ID=3086) | 0 | 2 | 1 | 2 |
| 2 | 151512193 | [Mathematics II](http://ects.ogu.edu.tr/ects/dersler.aspx?ID=3085) | 4 | 0 | 4 | 5 |
| 2 | 151512110 | General Geology II | 2 | 0 | 2 | 3 |
| 2 | 151512194 | Analytical Chemistry | 2 | 2 | 3 | 4 |
| 2 | 151012210 | English II | 3 | 0 | 0 | 3 |
| 2 | 151512182 | Turkish language 1I | 2 | 0 | 0 | 2 |
| 2 |  | Seminar II (Foreign student) | 2 | 0 | 0 |  |
| 2 | 151512195 | Professional Drawing | 2 | 0 | 2 | 3 |
| 2 | 151512xxx | Informatics Elective | 2 | 2 | 3 | 4 |
|  |  | **Total** | **22** | **6** | **18** | **29** |

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| --- | --- | --- | --- | --- | --- | --- |
| Semester | Code | Course Name | T | P | Crd | ECTS |
| 3 | 151513552 | Engineering Mechanics | 3 | 0 | 3 | 5 |
| 3 | 151513556 | General Mineralogy | 2 | 2 | 3 | 5 |
| 3 | 151513557 | Principles of Stratigraphy | 3 | 0 | 3 | 4 |
| 3 | 151513558 | StructuralGeology-Tectonic | 2 | 2 | 3 | 5 |
| 3 | 151513559 | Special Applications on Computer | 1 | 2 | 2 | 3 |
| 3 | 151513560 | General Geophysics | 2 | 0 | 2 | 3 |
| 3 | 151011208 | History of Turkish Revolution and Principles of Kemal Atatürk 1 | 2 | 0 | 2 | 2 |
| 3 | 151513561 | Engineering Mathematics | 3 | 0 | 3 | 4 |
|  |  | **Total** | **18** | **6** | **21** | **31** |

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| --- | --- | --- | --- | --- | --- | --- |
| Semester | Code | Course Name | T | P | Crd | ECTS |
| 4 | 151514561 | Geostatistics | 2 | 0 | 2 | 3 |
| 4 | 151514556 | Optical Mineralogy | 2 | 2 | 3 | 5 |
| 4 | 151514557 | Topography | 2 | 2 | 3 | 5 |
| 4 | 151514558 | Paleontology | 2 | 2 | 3 | 5 |
| 4 | 151514210 | Mechanics of Materials | 3 | 0 | 3 | 4 |
| 4 | 151514562 | Field Geology | 1 | 4 | 3 | 5 |
| 4 | 151012209 | History of Turkish Revolution and Principles of Kemal Atatürk II | 2 | 0 | 2 | 2 |
|  |  | **Total** | **14** | **10** | **19** | **29** |

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| --- | --- | --- | --- | --- | --- | --- |
| Semester | Code | Course Name | T | P | Crd | ECTS |
| 5 | 151515328 | Petrography of Igneous Rocks | 2 | 2 | 3 | 5 |
| 5 | 151515329 | Rock Mechanic | 2 | 2 | 3 | 5 |
| 5 | 151515330 | Drilling Science | 1 | 2 | 2 | 3 |
| 5 | 151515331 | Professional English I | 2 | 0 | 2 | 3 |
| 5 |  | Technical Elective I | 2 | 0 | 2 | 3 |
| 5 | 151515332 | Scientific Presentation Techniques | 2 | 0 | 2 | 3 |
| 5 | 151515333 | Hydrogeology | 2 | 2 | 3 | 4 |
| 5 |  | Social Elective II | 2 | 0 | 2 | 3 |
|  |  | **Total** | **15** | **8** | **19** | **29** |

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| Semester | Code | Course Name | T | P | Crd | ECTS |
| 6 | 151516301 | Soil mechanics | 3 | 0 | 3 | 4 |
| 6 | 151516311 | Sedimantology | 3 | 0 | 3 | 4 |
| 6 | 151516329 | [Geochemistry](file:///C:\Users\OZLEN\AppData\Local\Microsoft\Windows\Temporary%20Internet%20Files\Content.Outlook\DSBXEAZL\Ing%20%20ders%20listesi.docx#IngYazTek_TR) | 3 | 0 | 3 | 5 |
| 6 | 151516330 | Geological Mapping | 2 | 4 | 4 | 6 |
| 6 | 151516331 | Professional English II | 2 | 0 | 2 | 3 |
| 6 |  | Technical Elective II | 2 | 0 | 2 | 3 |
| 6 | 151516334 | Petrography of Metamorphic Rocks | 2 | 2 | 3 | 5 |
|  |  | **Total** | **17** | **6** | **20** | **30** |

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| --- | --- | --- | --- | --- | --- | --- |
| Semester | Code | Course Name | T | P | Crd | ECTS |
| 7 | 151517400 | Engineering Geology | 3 | 0 | 3 | 5 |
| 7 | 151517615 | Seminar | 0 | 2 | 1 | 2 |
| 7 | 151517402 | Earthquake Geology | 2 | 0 | 2 | 3 |
| 7 | 151517616 | Fuel Geology | 3 | 0 | 3 | 4 |
| 7 | 151517617 | Ore Deposits | 3 | 0 | 3 | 4 |
| 7 |  | Technical Elective III | 3 | 0 | 3 | 4 |
| 7 |  | Design Elective | 2 | 2 | 3 | 5 |
| 7 | 151517622 | Occupational Health and Safety I | 2 | 0 | 2 | 3 |
|  |  | **Total** | **18** | **4** | **20** | **30** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Semester | | Code | | | | Course Name | | | | T | P | | Crd | | | ECTS |
| 8 | | 151518529 | | | | Professional Law | | | | 3 | 0 | | 3 | | | 4 |
| 8 | | 151518422 | | | | Historical Geology | | | | 2 | 0 | | 2 | | | 3 |
| 8 | | 151518530 | | | | Entrepreneurship | | | | 2 | 0 | | 2 | | | 3 |
| 8 | | 151518514 | | | | Geology of Turkey | | | | 3 | 0 | | 3 | | | 4 |
| 8 | |  | | | | Technical Elective IV | | | | 3 | 0 | | 3 | | | 4 |
| 8 | |  | | | | Technical Elective V | | | | 2 | 0 | | 2 | | | 3 |
| 8 | |  | | | | Case Studies | | | | 1 | 4 | | 3 | | | 6 |
| 8 | | 151518537 | | | | Occupational Health and Safety II | | | | 2 | 0 | | 2 | | | 3 |
|  | |  | | | | **Total** | | | | **18** | **4** | | **20** | | | **30** |
| **Social Elective I** | | | | | | |
| 151511204 | | | Photography | | | |
| 151511203 | | | Fırst aıd | | | |
| **Informatics Elective I** | | | | | | | | |
| 151512187 | | | | Usages of Basic Information Technology | | | | |
| 151512196 | | | | MATLAB | | | | |
| **Technical Elective I** | | | | | | | |
| 2+0 | 151515317 | | | | Remote Sensing | | |
| 2+0 | 151515320 | | | | Micropaleontology | | |
| 2+0 | 151515313 | | | | Under Surveying | | |
| 2+0 | 151515310 | | | | Volcanology | | |
|  | | | | | | | | | | | | | |
| **Technical Elective II**   |  |  |  | | --- | --- | --- | | 2+0 | 151516323 | New Technologies on Field Studies | | 2+0 | 151516332 | Hydrochemistry and water quality | | 2+0 | 151516308 | Archaeogeology | | 2+0 | 151516310 | Geographic Information Systems | | 2+0 | 151516322 | Medical Geology | | 2+0 | 151516333 | Environmental Geology | | | | | | | | | | | | | | |
| **Technical Elective III**   |  |  |  | | --- | --- | --- | | 3+0 | 151517618 | Global Tectonic | | 3+0 | 151517619 | Industrial Raw Materials | | 3+0 | 151517620 | Morphotectonic | | 3+0 | 151517621 | Soil Investigations | | | | | | | | | | | | | | | |
| **Technical Elective IV**   |  |  |  | | --- | --- | --- | | 3+0 | 151518531 | Ore Microscopy | | 3+0 | 151518532 | Sedimentary Petrography | | 3+0 | 151518533 | Ore Geology |   **Technical Elective V**   |  |  |  | | --- | --- | --- | | 2+0 | 151518xxx | Tracer techniques in hydrogeology and Environmental isotopes | | 2+0 | 151518xxx | Gemology | | 2+0 | 151518xxx | Mineral Deposits of Turkey | | | | | | | | | | | | |

**Case Studies**

|  |  |
| --- | --- |
| 151518516 | Ore Depozits Case Studies |
| 151518517 | Earthquake Geology Case Studies |
| 151518518 | Mineralogy Case Studies |
| 151518519 | Sedimantology Case Studies |
| 151518520 | Hydrogeology Case Studies |
| 151518521 | General Geology Case Studies |
| 151518522 | Engineering Geology Case Studies |
| 151518523 | Active Fault Case Studies |
| 151518524 | Ore Geology Case Studies |
| 151518515 | Geochemistry Case Studies |
| 151518527 | Petrography Case Studies |

**T.C. ESKIŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGİCAL ENGINEERİNG DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
| --- | --- |
| **SEMESTER** | Fall |

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| --- | --- | --- | --- |
| **COURSE CODE** | 151511186 | **COURSE NAME** | Physics I |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 1 | 3 | | 0 | 0 | | | 3 | 3 | | COMPULSORY (X)  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
| X | |  | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 40 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Measurement and units; vectors; Kinematics; Dynamics; Work and Energy; Linear Momentum and Collisions; Rotational Motion; Equilibrium; Oscillatory Motion | | | | | | |
| **COURSE OBJECTIVES** | | | | | To teach the basic concepts and laws of physics and practices of daily life. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | In practice, varieties of physical systems to recognize and solve problems and at the same time improve their ability to practice in daily life. Using them, students will realize the role of physics in applied sciences such as health sciences and engineering. | | | | | | |
| **COURSE OUTCOMES** | | | | | Students realize of the variety problems of physical systems and solve these problems.  Understands the importance of measurement and the units.  Physical systems apply in their personal daily life.  Recognizes the role of physics in engineering and health sciences.  The basic laws of physics and concepts. | | | | | | |
| **TEXTBOOK** | | | | | Sears and Zemansky’s UNIVERSITY PHYSICS WITH MODERN PHYSICS 12TH Edition, PEARSON Addison Wesley (2008). | | | | | | |
| **OTHER REFERENCES** | | | | | **Halliday, D. , Resnick, R., & Walker, J. (2006) 6th ed.** Fundamentals of Physics. New York: John Wiley & Sons, Inc. Serway, R.A. (1990). Physics for Scientists and Engineers. Philadelphia: Saunders College Publishing. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Measurement and units |
| 2 | Vectors |
| 3 | Motion in One Dimension |
| 4 | Motion in Two Dimensions |
| 5 | Newton’s Laws |
| 6 | Work and Power |
| 7 | Energy |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Linear Momentum and Collisions |
| 11 | Rotational Motion |
| 12 | Applications of Rotational Motion |
| 13 | Equilibrium |
| 14 | Oscillatory Motion |
| 15,16 | Final Exam |

|  |  |  |  |  |
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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **x** |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  | **X** |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | **X** |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  | **X** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  | **X** |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **X** |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **X** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **X** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  |  | **X** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | **X** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  | **X** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |

**Signature(s)**:

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGİCAL ENGINEERİNG DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
| --- | --- |
| **SEMESTER** | Fall |

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| --- | --- | --- | --- |
| **COURSE CODE** | 151511187 | **COURSE NAME** | Physics Lab I |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 1 | 0 | | 0 | 2 | | | 1 | 2 | | COMPULSORY (X)  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
| X | |  | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | |  | |  |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | | 5 | | 40 |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | General instructions; measurements; free fall and projectile motion; Newton’s second law; the simple pendulum and moment of inertia; hooke’s law and spiral spring; viscosity | | | | | | |
| **COURSE OBJECTIVES** | | | | | learning the basic principles and concepts of physics | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To use existing technology and to produce new technologies. | | | | | | |
| **COURSE OUTCOMES** | | | | | To explain natural phenomena and analysis learn the science of physics, Understanding of scientific method and research skills. | | | | | | |
| **TEXTBOOK** | | | | | M.C.Baykul, E.Alğın, S.Eroğlu, C.Aşıcı, Physics I-II Lab Manuel foe scientist and engineers, Eskisehir Osmangazi University | | | | | | |
| **OTHER REFERENCES** | | | | | Ekem, N. Ve Şenyel, M., **Fizik I-II Deneyleri** | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | General instructions |
| 2 | measurements |
| 3 | free fall and projectile motion |
| 4 | free fall and projectile motion |
| 5 | Newton’s second law |
| 6 | Newton’s second law |
| 7 | the simple pendulum and moment of inertia |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | the simple pendulum and moment of inertia |
| 11 | hooke’s law and spiral spring |
| 12 | hooke’s law and spiral spring |
| 13 | viscosity |
| 14 | viscosity |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **x** |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  | **X** |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | **X** |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  | **X** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **X** |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **X** |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **X** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **X** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  |  | **X** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | **X** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  | **x** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKIŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGİCAL ENGINEERİNG DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
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| **SEMESTER** | Fall |

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| --- | --- | --- | --- |
| **COURSE CODE** | 151511199 | **COURSE NAME** | Calculus 1 |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 1 | 4 | | 0 | - | | | 4 | 5 | | COMPULSORY (X)  ELECTIVE ( ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | | X | | | |  | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | |  | | |  |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Functions, Limits and Continuity, Derivation and Applications of differentiation, Definite and indefinite integrals, Applications of integration, improper integrals, polar coordinates | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The main of the course is to introduce the concepts and techniques involved in the basic topics listed in this lecture and to develop skills in applying those concepts and techniques to the solution of problems | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To apply theoretical and practical knowledge on solving and modeling of engineering problems by using sufficient knowledge of engineering subjects related with mathematics | | | | | | | |
| **COURSE OUTCOMES** | | | | | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | | | | | | | |
| **TEXTBOOK** | | | | | Balcı, M.,2008, Genel Matematik 1, Balcı Yayınları,Ankara | | | | | | | |
| **OTHER REFERENCES** | | | | | Balcı, M.,2007, Genel Matematik Problemleri 1, Balcı Yayınları, Ankara | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | | |

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| --- | --- |
| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Functions |
| 2 | Essential functions and their graphs |
| 3 | Trigonometric, Exponential, Logarithmic and Hyperbolic functions |
| 4 | Limits |
| 5 | Continuity |
| 6 | Derivatives and differentiation formulas |
| 7 | Derivatives of Trigonometric, Exponential, Logarithmic and Hyperbolic functions |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | L’Hospital’s Rule, A geometric approach to the derivative, problems involving maxima and minima |
| 11 | Drawing curve, indefinite integrals |
| 12 | Integration formulas, definite integrals |
| 13 | Applications of integration |
| 14 | Improper integrals, polar coordinates |
| 15,16 | Final Exam |

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| --- | --- | --- | --- | --- |
| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  |  | **X** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  | **X** |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **X** |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **X** |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **X** |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **X** |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **X** |  |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **X** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility | **X** |  |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **X** |  |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **X** |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
| --- | --- |
| **SEMESTER** | Fall |

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| --- | --- | --- | --- |
| **COURSE CODE** | 151511200 | **COURSE NAME** | General Geology I |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 1 | 2 | | 0 | 0 | | | 2 | 3 | | CORE (√) ELECTIVE ( ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
| x | |  | | | | ( x ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (Application) | | | |  | | |  |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Brief History of Geological Sciences, its place among other sciences, its existing paradigmes, basic researh methods in Earth Sciences, Description and nomenclature of main rock types (magmatic, sedimentary, metamorphic) | | | | | | | |
| **COURSE OBJECTIVES** | | | | | Teaching the aim and tools of Geological Sciences, along with its historical developmenyt and modern paradigmes (such as Plate Tectonics); Equip the students with knowledge of minerals and content of basic rock types as well as their structure and origin. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To provide a basis in term of terminology and purposes of future core courses, and particulary teach organic relations between those disiplines. | | | | | | | |
| **COURSE OUTCOMES** | | | | | Enlighten student about the historical development and methodologies of the Earth Sciences; provide concious as such that the Earth form a system with other sub-systems (i.e. Hydrosphere, Atmosphere and Biosphere); teach also about description and nomenclature of minerals and main rock types. | | | | | | | |
| **TEXTBOOK** | | | | | Fiziksel Jeoloji, 2005, James Monroe and Reed Wicander. JMO Çeviri Serisi No: 1 ; Earth (Tarbuck ve Lutgens, 1999) | | | | | | | |
| **OTHER REFERENCES** | | | | | Ketin, 1986. Genel Jeoloji | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Datashow; mineral and rock hand specimens | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introductory Speech: Development and Purposes of Geological Sciences |
| 2 | History of Geology |
| 3 | Inner structure of Earth |
| 4 | Matters and Minerals |
| 5 | Minerals: classification, cheistry and crystal structures |
| 6 | Magmatic rocks: cristallization and mineralogical and chemical composition |
| 7 | Magmatic rocks and Plate Tectonics |
| 8 | Midterm Exam |
| 9 | Midterm Exam |
| 10 | Sedimentary rocks and their classification |
| 11 | Sedimentary rocks and their classification |
| 12 | Sedimentary Depositional Environments |
| 13 | Metamorphism: Rocks types and links to plate tectonics |
| 14 | Metamorphism: Rocks types and links to plate tectonics |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ x ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ x ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ x]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ x ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ x ]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ x ]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ x ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Faruk Ocakoğlu | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **CODE** | 1515111188 | **NAME** | Chemistry |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 1 | 3 | 0 | | 0 | | 3 | | 3 | CORE (x ) ELECTIVE ( ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
| x | | |  | | | |  | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 50 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 50 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | The properties of material and measurements, atoms and atomic theory, periodic table chemical compounds, chemical reactions stoichiometry, gases and gas mixtures, chemical thermodynamics. | | | | | | | |
| **AIMS OF THE COURSE** | | | | | To introduce the main subjects of chemistry, to give the fundamentals of chemistry to the engineering students. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | To gain the basic knowledge and concepts of chemistry and to understand the relation of chemistry with other sciences and engineering, to gain the capability to define and solve the problems of chemistry. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | By the end of this course the students will be able to:   1. Define, classify and explain the properties of materials, 2. Explain the concepts of atoms and atomic theory, 3. Explain and use the mole concepts and the Avogadro’s law, 4. Explain and classify the chemical compounds, 5. Define, explain and use the relationship of the gaseous state, the properties of gases and gas laws, 6. Define the basic concepts of thermodynamics, explain the law of thermodynamics and use them in solving the thermochemistry problems. | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Petrucci, H., Harwood, W. S., Herring, F. G., 2002 **“**Genel Kimya: İlkeler ve Modern Uygulamalar” (I. Cilt), Çeviri Editörleri: Uyar. T., Aksoy, S., Palme Yayıncılık, Ankara. | | | | | | | |
| **OTHER REFERENCES** | | | | | 1. Mortimer**,** C. E. , 1988, **Modern Üniversite Kimyası,** I. ve II. Cilt, Çağlayan Kitabevi, İstanbul  2. Sienko, M. J., Plane, R. A., 1983, **Temel Kimya**, Savaş Yayınları, Ankara.  3. Erdik, E., Sarıkaya, Y., 1987, **Temel Üniversite Kimyası**, Hacettepe Taş Kitapçılık, Ankara. | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | | Explain topics and solving related problems. | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Matter-Its properties and measurement. The scope of chemistry, the scientific method, properties and classification of matter, measurements of matter, uncertainties in scientific measurements. |
| 2 | Atoms and the atomic theory, early chemical discoveries and the atomic theory, electrons and other discoveries in atomic physics, atomic masses, chemical elements. |
| 3 | Introduction to the periodic table, the concept of the mole, the Avogadro constant, using the mole concept in calculation. |
| 4 | Chemical compounds, types of chemical compounds and their formulas, the mole concept and chemical compounds, composition of chemical compounds. |
| 5 | Chemical compounds; oxidation states; A useful toll in describing chemical compounds, naming organic and inorganic compounds. |
| 6 | Chemical reactions and chemical equation, the chemical equation and stoichiometry, chemical reaction in solution. |
| 7 | Chemical reactions and chemical equation, Determining the limiting reactant, other practical matters. |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Gases: Properties of gases; gas pressure, the simple gas laws |
| 11 | Gases: Aplication of the ideal gas equation. |
| 12 | Gases in chemical reaction, mixtures of gases, kinetic-molecular theory of gases, non-ideal gases. |
| 13 | Thermochemistry, getting started; some terminology, work, heat, heat of reaction and calorimetry. |
| 14 | Thermochemistry: The first law of thermodynamics, heat of rection. ∆E and ∆H, Indirect determination of ∆H, Hess’s law, standard enthalpies of formation, fuels as sources of energy. |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  | X |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  | X |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | X |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  | X |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  | X |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  | X |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  | X |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  | X |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  | X |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | X |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  | X |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:**

**Signature**: **Date:**

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **CODE** | 1515111189 | **NAME** | Chemistry Laboratory |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 1 | 0 | 0 | | 2 | | 1 | | 2 | CORE (x ) ELECTIVE ( ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
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| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | |  |  | |
| Quiz | | | | |  |  | |
| Homework | | | | | 1 | 70 | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 30 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | Verification of the Law of Definite Proportions, calculation of the ideal gas constant and the molar volume of a gas, calculation of the equivalent weight and atomic mass of a metal, qualitative analysis, titrimetric analysis, Charles’ Law | | | | | | | |
| **AIMS OF THE COURSE** | | | | | To give the abilities to obtain, evaluate, discuss, report and submit the experimental data by performing the experiments which are the applications of the knowledge of chemistry gained in the chemistry course and to achieve this in accordance with laboratory saffetly rules. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | Providing the experimental chemistry knowledge and the abilities to obtain, evaluate, discuss, report and submit the experimental data, understanding the profesional and ethical responsibility, being able to achive the study in groups, to conduct efficiend oral and written communication, understanding the impotance of life-long learning. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | By the end of this course the students will be able to obtain, analyze, discuss and submit the result of the following experiments.   1. Verification of the the Law of Definite Proportions, 2. Calculation of the ideal gas constant and the molar volume of a gas, 3. Calculation of the equivalent weight and atomic mass of a metal, 4. Qualitative analysis, 5. Titrimetric analysis, 6. Charles’ Law | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | İnel, O. , **Genel Kimya Laboratuvar Kılavuzu**, Eskişehir | | | | | | | |
| **OTHER REFERENCES** | | | | | All chemistry and general chemistry lab. Textbooks | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | | Laboratory equipments and experimental setups | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction |
| 2 | Establishing the experimental study groups |
| 3 | Explanations on the laboratory and safety rules and related subjects |
| 4 | Obtaining, evaluation, discussion and reporting the experimental data |
| 5 | Verification of the Law of Definite Proportions |
| 6 | Calculation of the ideal gas constant and the molar volume of a gas |
| 7 | Calculation of the equivalent weight and atomic mass of a metal |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Qualitative analysis |
| 11 | Titrimetric analysis |
| 12 | Charles’ Law |
| 13 | Make up of missed experiments |
| 14 | Make up of missed experiments |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  | X |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  | X |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | X |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  | X |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | X |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | X |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | X |  |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  | X |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  | X |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  | X |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  | X |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:**

**Signature**:

**Date:**



**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **CODE** | 151511201 | **NAME** | Information Technologies |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 1 | 2 | 0 | | - | | 2 | | 3 | CORE (x ) ELECTIVE ( ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
| √ | | |  | | | |  | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 40 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 60 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | Computer hardware, Basic concepts and software information, Windows XP and Windows 7 operating system, General information about the Microsoft Office 2003, 2007, 2010 (Word, Excel, Powerpoint) | | | | | | | |
| **AIMS OF THE COURSE** | | | | | In this age of so-called information age, to follow the rapid development of computer science, to learn Windows operating system and Office programs which used for each occupational area, Ensure effective use of the Internet, which has become a part of our lives. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | Widely used in the field of engineering data analysis using Microsoft Excel, Power Point presentations, Word and report writing and so on., The internet and the ability to gain quick access to communication and information. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | 1. Computer hardware definitions, explains the usage, 2. Defines the operating system, 3. Windows XP and Win7 differences / similarities between say, 4. Uses MS Word, 5. Uses MS Excel, engineering calculations, implements, 6. Uses MS Powerpoint. | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Bal, H.Ç., 2006, Bilgisayar ve İnternet Kullanımı XP, abp Yayınevi, 10. Basım, Trabzon. | | | | | | | |
| **OTHER REFERENCES** | | | | | Other books related to course topics.The functioning of course the internet as a source of help | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | | Each student is provided a computer internet connection, for lectures projector. | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Introduxtion |
| 2 | Windows XP, 7 |
| 3 | Windows XP, 7 |
| 4 | Microsoft Word |
| 5 | Microsoft Word |
| 6 | Microsoft Excel |
| 7 | Microsoft Excel |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Microsoft Excel |
| 11 | Internet |
| 12 | Microsoft Power Point |
| 13 | Microsoft Power Point |
| 14 | Microsoft Power Point |
| 15,16 | Final Exam |

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| --- | --- | --- | --- | --- |
| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ ]** | **[x ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[x ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:** Asst. Prof. Hüseyin SENDİR

**Signature**:  **Date:**

 **T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
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| **SEMESTER** | Fall |

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| **CODE** | 151011209 | **NAME** | ENGLISH I |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 1 | 3 | 0 | | 0 | | 0 | | 3 | CORE (x ) ELECTIVE ( ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
|  | | |  | | | |  | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 40 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 60 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | Fundamental concepts and knowledge | | | | | | | |
| **AIMS OF THE COURSE** | | | | | This lesson is programmed to give the basic vocabulary and grammar and make the students hear, understand, speak and write in English at elementary level. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | This course is aimed at :  Using the basic grammar rules  The ability to use the target language in an English setting  Understanding and making dialogues  The ability to understand what’s read  The ability to communicate with English-speaking people  The ability to write in the target language. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | At the end of the course studends are able to :  Use the basic grammar rules  Understand and make dialogues  Read and apprehend reading materials  Communicate through writing and speaking | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | 1. Essential English, Beginner Student’s Book, Richmond Publishing 2. Essential English, Workbook, Richmond Publishing | | | | | | | |
| **OTHER REFERENCES** | | | | | 1. Murphy, R., 2004, **English Grammar in Use**, Cambridge University Press, 2. **Dictionary of Contemprary English**, Longman.  Start Up Comprehensive English Practice, 2007, Nüans Publishing | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | | Course book, workbook, CD player, loudspeakers, dictionary. | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Subject Pronouns, indefinite article, a/an, *To be*, NICE TO MEET YOU |
| 2 | Verb be ( am, is, are ) I’M FINE THANKS |
| 3 | Plurals, Wh questions, this, that, these, those WHAT IS THIS IN ENGLISH ? |
| 4 | Verb be, Wh questions, Nationalities WHERE ARE YOU FROM |
| 5 | Modals: can, can’t I’M A JOURNALIST |
| 6 | Prepositions of time and place. On, in, at ALL ABOUT YOU |
| 7 | Simple present tense. Who IN PARIS ON THURSDAY |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Possessive pronouns, Possessive ‘s HOW OLD IS HE ? |
| 11 | Present Simple tense, questions, short answers HIS MUSIC, HER SHOW, THEIR CHARITIES |
| 12 | Present simple, DO YOU HAVE A BIG FAMILY ? |
| 13 | Present Simple, Wh questions MEET YOUR PERFEC PARTNER |
| 14 | Present Simple, Revision WHAT DO YOU DO AT THE WEEKEND |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  |  |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **X** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  |  |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:**

**Signature**:  **Date:**

**T.C. ESKIŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGİCAL ENGINEERİNG DEPARTMENT**

#### COURSE INFORMATION FORM

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| --- | --- |
| **SEMESTER** | Fall |

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| **COURSE CODE** | 151511181 | **COURSE NAME** | Turkish Language I |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 1 | 2 | | 0 | 0 | | | 0 | 2 | | COMPULSORY (X)  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
| X | |  | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 40 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Definition of language, language families on the world and Turkish’s place among the world languages, the historical development of Turkish written language, phonetic word recognition events in Turkish. Gain the ability to write proper composition. | | | | | | |
| **COURSE OBJECTIVES** | | | | | Informing students about the current state of development and the richness of Turkish language, bring awareness of a national language, literally to know about the subtleties about Turkish and be able to use them in their daily lives to ensure. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Provides to students speak and write Turkish correctly write in their daily lives, gain the ability to express themselves in the best way to themselves and their works in their jobs. | | | | | | |
| **COURSE OUTCOMES** | | | | | Students will express language families on the world and Turkish’s place among the world languages. Define the rules of Turkish. Makes a difference to sound events  Apply the spelling rules.  Spelling rules apply.  Create written and oral composition. Use the language correctly. | | | | | | |
| **TEXTBOOK** | | | | | 1. Kültür, M. E., 1997, **Üniversiteler İçin Türk Dili,** Bayrak Yayınları, İstanbul. | | | | | | |
| **OTHER REFERENCES** | | | | | 1. Kaplan, M., 1993, **Kültür ve Dil**, 8. baskı, Dergah Yayınları, İstanbul. 2. Fuat, M., 2001, **Dil Üstüne**, Adam Yayınları, İstanbul. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | DVD, VCD, projector, computer | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Definition and Characteristics of Language |
| 2 | Languages on the world and Turkish’s place among the world languages from origin and structure sides |
| 3 | Language Importance for culture and nationality, Language Policies |
| 4 | Speech Language and Specifications (Polish, Accent, Oral) |
| 5 | Writing Language and Specifications |
| 6 | Classification of Sounds |
| 7 | Volume Changes, Sound Events |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Rules of Writing |
| 11 | Rules of Writing |
| 12 | Rules of Writing |
| 13 | Written Composition Studies |
| 14 | Studies of planned essay writing |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  |  |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **x** |  |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  | **x** |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  |  |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151511204 | **COURSE NAME** | FIRST AID |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 1 | 2 | | 0 | 0 | | | 2 | 2 | | CORE () ELECTIVE ( √ ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
| x | |  | | | | ( x ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (Application) | | | |  | | |  |
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| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | In this course, the subjects of first aid, that must be known by all individuals of the community, will be taught. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | To give knowledge and ability about the important (often seen) subjects of first aid. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To be able to help to people in the situations needing first aid to save the life or lessen the injuries. | | | | | | | |
| **COURSE OUTCOMES** | | | | | Skill to apply the anatomic knowledge  Skill to analyze the datum.  Skill to have active written / oral communication.  Skill to work in group  To realize the professional responsibility  Skill to use school materials which are selected according to the topic. | | | | | | | |
| **TEXTBOOK** | | | | | Güler Ç., Bilir N. Temel İlkyardım (C-D düzeyleri) T.C.Sağlık Bakanlığı Sağlık Projesi Genel Koordinatörlüğü Çevre Sağlığı Temel Kaynak Dizisi, No:14, Aydoğdu Ofset, Ankara, 1994. (in Turkish) | | | | | | | |
| **OTHER REFERENCES** | | | | | Tülek, A. Ve Anık, N. 2008 Temel İlk yardım Uygulamaları Ders notları ESOGÜ SHMYO Eskişehir | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Barco vision, power point presentation, Basic Life Support maquette, wound maquette, ateles used in analysis, first aid bag, and other equipments.  Computer | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | First aid, emergency care, 6 T rule in first aid, the responsibilities of first aider, first aid bag, primary target of first aid. |
| 2 | Transportation of sick and injured |
| 3 | . The reasons of airway congestion and first aid. |
| 4 | Cardio-pulmoner resuscitation [Basic life support](http://tureng.com/search/basic%20life%20support) (Airway-Breathing-Circulation – ABC). |
| 5 | Cardio-pulmoner resuscitation students practices |
| 6 | Bleedings (internal and external bleedings – nose, ear bleedings) and first aid. |
| 7 | First aid in shocking, fainting, convulsion and coma.,in frostbite |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | First aid in burns |
| 11 | First aid in environmental emergencies (Heat stroke, freeze) |
| 12 | First aid in broken bones, dislocation and strains |
| 13 | First aid for poisoning |
| 14 | First aid for animal bites First aid in special diseases. |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[x ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[x ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[x ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ x]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[x ]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ x ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151511203 | **COURSE NAME** | PHOTOGRAPHY |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 1 | 2 | | 0 | 0 | | | 2 | 2 | | CORE () ELECTIVE ( √ ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( x ) | | | | | | x |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (Application) | | | |  | | |  |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | This course intends the history of photography, the use of digital machines from analog machines, photograph techniques, the right use of the light and area depth and to learn the arrangement the photos in computer | | | | | | | |
| **COURSE OBJECTIVES** | | | | | To learn photography techniques giving all the information about photo to students, vaccinate personal producing and share sense, help to using their skills to the professional area | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | This course will help to students the right use the photo with a scientific approach . | | | | | | | |
| **COURSE OUTCOMES** | | | | | 1.To support to scientific investigation.  2.To comprehend the photo knowledge  3.To learn the method about photography  4.To follow current information about photography | | | | | | | |
| **TEXTBOOK** | | | | | Fotoğrafçılık Ders Notları, Ünal Özelmas, 2012 | | | | | | | |
| **OTHER REFERENCES** | | | | | 1. Modern Fotoğraf Sanatı, Ümit İmer, 1977 2. Amatör Fotoğrafçılık, Hasan Deniz, 1991 3. Fotoğraf Sanatı, Edouard Boubat, 1992 4. Her Yönüyle Fotoğrafçılık Tekniği, Erhan Ergün, 1993 5. Dijital Fotoğraf Rehberi, Özer Kanburoğlu, 2010 6. Dijital Fotoğrafçının El Kitabı (3. Cilt), Scott Kelby, 2010 | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Laptop computer, Photography machine, Data-Show equipment | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | The history of photo - Introducing the analog photography machine |
| 2 | Introducing the digital photography machine |
| 3 | Photo terms - Hints about photo |
| 4 | Elements satisfying clear in photo |
| 5 | Homework |
| 6 | Bases of the photo - Diaphragm and snapshot in the photo |
| 7 | Diaphragm and shutter in photo |
| 8 | Outside photo practice |
| 9 | Contact lens and their types - Filter and assist materials |
| 10 | Digital photography guide - Menu arrangement in digital machines |
| 11 | Light in photo and composition |
| 12 | Photo arrangement in computer |
| 13 | Photo Simulator |
| 14 | Outside photo practice |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  | **X** |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  |  | **X** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **X** |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **X** |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  | **X** |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **X** |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **X** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  | **X** |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  |  | **X** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | **X** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  | **X** |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151511202 | **COURSE NAME** | Entrance to Geological Engineering |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 1 | 2 | | 0 |  | | | 2 | 3 | | COMPULSORY (X)  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | | X | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 40 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Introducing Geological Engineering to students. | | | | | | |
| **COURSE OBJECTIVES** | | | | | To inform students about history, study issues and areas, difficulties etc. on Geological Engineering. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To introduce students Geological Engineering. | | | | | | |
| **COURSE OUTCOMES** | | | | | The student will gain the knowledge about Geological Engineering Department. The student will learn study areas after undergraduate. The student will decide if they continue to education in the Department. | | | | | | |
| **TEXTBOOK** | | | | | - | | | | | | |
| **OTHER REFERENCES** | | | | | Web pages of Geological Engineering Departments and the other Geology Companies etc. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Data-show | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduce |
| 2 | The Earth |
| 3 | Research interest of Geology |
| 4 | Sub-programs of Geology |
| 5 | Sub-programs of Geology |
| 6 | Study areas of Geological Engineers |
| 7 | History of Geology |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Conditions of working life in Geology |
| 11 | Organization of Geological studies |
| 12 | Organization of Geological studies |
| 13 | Different Geological issues |
| 14 | General evaluations |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  |  | **X** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  |  | **X** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  |  | **X** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  | **X** |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  | **X** |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  |  | **X** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **X** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  | **X** |  |
| 9 | Understanding of professional and ethical issues and taking responsibility | **X** |  |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  | **X** |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **X** |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Assoc. Prof. Özgür KARAOĞLU | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | SPRING |

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| **COURSE CODE** | 151512183 | **COURSE NAME** | Physics II |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 2 | 3 | | 0 | 0 | | | 3 | 3 | | COMPULSORY (X)  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
| X | |  | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 40 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Electric Charges; Coulomb’s Law; The Electric Field; Electric Potential; Capacitance and Dielectrics; Current and Resistance; Magnetic Fields; Sources of the Magnetic Field; Faraday’s Law | | | | | | |
| **COURSE OBJECTIVES** | | | | | To teach the basic concepts and laws of physics and practices of daily life. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | In practice, varieties of physical systems to recognize and solve problems and at the same time improve their ability to practice in daily life. Using them, students will realize the role of physics in applied sciences such as health sciences and engineering. | | | | | | |
| **COURSE OUTCOMES** | | | | | Students realize of the variety problems of physical systems and solve these problems.  Understands the importance of measurement and the units.  Physical systems apply in their personal daily life.  Recognizes the role of physics in engineering and health sciences.  The basic laws of physics and concepts. | | | | | | |
| **TEXTBOOK** | | | | | Sears and Zemansky’s UNIVERSITY PHYSICS WITH MODERN PHYSICS 12TH Edition, PEARSON Addison Wesley (2008). | | | | | | |
| **OTHER REFERENCES** | | | | | **Halliday, D. , Resnick, R., & Walker, J. (2006) 6th ed.** Fundamentals of Physics. New York: John Wiley & Sons, Inc. Serway, R.A. (1990). Physics for Scientists and Engineers. Philadelphia: Saunders College Publishing. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Electric Charges; Coulomb’s Law |
| 2 | The Electric Field |
| 3 | Electric Potential |
| 4 | Capacitance and Dielectrics |
| 5 | Capacitance and Dielectrics |
| 6 | Current |
| 7 | Electrical work and power |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Kirchhoffís Rules |
| 11 | Kirchhoffís Rules |
| 12 | Magnetic fields |
| 13 | Sources of the Magnetic Field |
| 14 | Faraday’s Law |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **x** |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  | **X** |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | **X** |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  | **X** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  | **X** |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **X** |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **X** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **X** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  |  | **X** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | **X** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  | **X** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | SPRING |

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| **COURSE CODE** | 151512184 | **COURSE NAME** | Physics Lab 2 |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 2 | 0 | | 0 | 2 | | | 1 | 2 | | COMPULSORY (X)  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
| X | |  | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | |  | |  |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | | 5 | | 50 |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | General instructions; Electrolysis; Magnetic Force; Ohm’s Law; Resonance tube and stable waves; transformers | | | | | | |
| **COURSE OBJECTIVES** | | | | | learning the basic principles and concepts of physics | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To use existing technology and to produce new technologies. | | | | | | |
| **COURSE OUTCOMES** | | | | | To explain natural phenomena and analysis learn the science of physics, Understanding of scientific method and research skills. | | | | | | |
| **TEXTBOOK** | | | | | M.C.Baykul, E.Alğın, S.Eroğlu, C.Aşıcı, Physics I-II Lab Manuel foe scientist and engineers, Eskisehir Osmangazi University | | | | | | |
| **OTHER REFERENCES** | | | | | Ekem, N. Ve Şenyel, M., **Fizik I-II Deneyleri** | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | General instructions |
| 2 | Electrolysis |
| 3 | Electrolysis |
| 4 | Magnetic force |
| 5 | Magnetic force |
| 6 | Ohm’s law |
| 7 | Ohm’s law |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Transformers |
| 11 | Transformers |
| 12 | Resonance tube and stable waves |
| 13 | Resonance tube and stable waves |
| 14 | Compensated experiments |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **x** |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  | **X** |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | **X** |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  | **X** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **X** |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **X** |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **X** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **X** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  |  | **X** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | **X** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  | **x** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151512193 | **COURSE NAME** | Calculus 2 |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 2 | 4 | | 0 |  | | | 4 | 5 | | COMPULSORY (X)  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | | X | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 40 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Sequences and series, vector functions, functions of several variables, multiple integrals and its applications | | | | | | |
| **COURSE OBJECTIVES** | | | | | The main of the course is to introduce the concepts and techniques involved in the basic topics listed in this lecture and to develop skills in applying those concepts and techniques to the solution of problems | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To apply theoretical and practical knowledge on solving and modeling of engineering problems by using sufficient knowledge of engineering subjects related with mathematics | | | | | | |
| **COURSE OUTCOMES** | | | | | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | | | | | | |
| **TEXTBOOK** | | | | | Balcı, M.,2010, Genel Matematik 2, Balcı Yayınları,Ankara | | | | | | |
| **OTHER REFERENCES** | | | | | Balcı, M.,2009, Genel Matematik Problemleri 1, Balcı Yayınları, Ankara | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Sequences and series |
| 2 | Vector functions |
| 3 | Functions of several variables, limits and continuities of them |
| 4 | Partial derivatives and chain rules |
| 5 | Derivative of implicit functions, the gradient and directional derivatives |
| 6 | Evaluating double integrals and double integral over nonrectangular regions |
| 7 | Finding volumes and areas by double integration |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Finding mass and center of gravity by double integration |
| 11 | Moments and moments of inertia of plane regions |
| 12 | Triple integrals |
| 13 | Triple integrals in cylindrical and spherical coordinates |
| 14 | Applications of triple integrals (evaluating volume, mass and moments of inertia) |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  |  | **X** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  |  | **X** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | **X** |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  | **X** |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  |  | **X** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  |  | **X** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **X** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **X** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility | **X** |  |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  | **X** |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **X** |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

 **T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151512110 | **COURSE NAME** | General Geology II |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 2 | 2 | | 0 | 0 | | | 2 | 3 | | CORE (√) ELECTIVE ( ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (Application) | | | |  | | |  |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | External processes (weathering, mass movements, surface and underground water transport etc.) on the earth’s surface and their dynamics; overall morphology of the earth’s surface and its reasons; causes and modes of earth’s crust deformation. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | Understanding the dynamics of earth surface processes and their interrelations. Learning also the causes and results of deformation of the crust. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To form a basis for future specialized core courses of the department, and to learn basic concepts of each geological sub-disipline. | | | | | | | |
| **COURSE OUTCOMES** | | | | | Learning the dynamics of every day surface events and especially their cumulartive results with time. Particularly learning the dynamic nature of the earth’s crust and surface. | | | | | | | |
| **TEXTBOOK** | | | | | Fiziksel Jeoloji, 2005, James Monroe and Reed Wicander. JMO Çeviri Serisi No: 1 ; Earth, Tarbuck &Lutgens (1999) 6. Baskı, 637 s. | | | | | | | |
| **OTHER REFERENCES** | | | | | Genel Jeoloji, Ketin (1986) | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Datashow, rock samples. | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Internal and external structure of the earth: an introduction |
| 2 | Weathering: mechanic and chemical types |
| 3 | Soil formation: types and distribution of certain soils |
| 4 | Mass movement: causes and types |
| 5 | Mass movement: dynamics |
| 6 | Surface waters: Hydrologic cycle and basic concepts |
| 7 | Surface waters: dynamics and the materials transported |
| 8 | MID-TERM EXAM |
| 9 | MID-TERM EXAM |
| 10 | Underground water: Basic concepts, contamination, uses |
| 11 | Seas and oceans: chemistry, current pattern, waves |
| 12 | Seas and oceans: bathymetry and the reasons |
| 13 | Crust deformation: basic concepts |
| 14 | Crust deformation: basic concepts |
| 15,16 | FINAL EXAM |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ x ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ x ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ x ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ x ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ x ]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ x ]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ x ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Faruk Ocakoğlu | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKIŞEHIR OSMANGAZI UNIVERSITY**

**FACULTY OF ENGINEERING AND ARCITECT**

**JEOLOGY ENGINEERING DEPARTMENT**

**COURSE INFORMATION FORM**

|  |  |
| --- | --- |
| **SEMESTER** | SPRING |

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| **COURSE CODE** | 151512194 | **COURSE NAME** | ANALYTICAL CHEMISTRY |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Labratory** | | | **Credit** | **ECTS** | **TYPE** | | **LANGUAGE** |
| 2 | 2 | | 2 | - | | | 3 | **4** | COMPULSORY (**X**) ELECTIVE () | |  |
| **COURSE CATEGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Mechanical Engineering Profession**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
| **X** | |  | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | | **Quantity** | **%** |
| 1st Mid-Term | | | | | 1 | 40 |
| 2nd Mid-Term | | | | |  |  |
| Quiz | | | | |  |  |
| Homework | | | | |  |  |
| Project | | | | |  |  |
| Report | | | | |  |  |
| Others (Lab.) | | | | | 1 | 20 |
| **FINAL EXAM** | | | | |  | | | | | 1 | 40 |
| **PREREQUIEITE(S)** | | | | | NO | | | | | | |
| **COURSE DESCRIPTION** | | | | | Description of analytical chemistry, classification of chemical analysis methods, aqueous solution chemistry, solutions and concentration units, ionic equilibrium, application of equilibrium calculations to complex equilibriums, solubility calculations, separations with precipitation, acids-bases, tampon solutions. Quantitative analysis and its importance, statistical evaluation of analytical data, gravimetric analysis and applications, titrimetric analysis and applications. | | | | | | |
| **COURSE OBJECTIVES** | | | | | The aim of this course is to teach to students of basic terms about analytical chemistry, theoretical and practical information and calculations about chemical analysis. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUCATION** | | | | | This course will be gained ability to make basic calculations in chemistry area, theoretical and practical applications of analysis methods commercially used in industry and research. | | | | | | |
| **COURSE OUTCOMES** | | | | | 1. To understand the main terms about analytical chemistry. 2. To gain ability analytical thinking and to solve problem to students. | | | | | | |
| **TEXTBOOK** | | | | | D.A. Skoog, D.M. West, F.J. Holler, (1996) Analitik Kimya Temelleri, (Çev.Edit. E Kılıç, F. Köseoğlu) Bilim Yayıncılık, 7. Baskı. | | | | | | |
| **OTHER REFERENCES** | | | | | 1. Harris, D.C. (1994) Analitik Kimya, Çev.Editörü:Güler Somer,Gazi Büro Kitapevi 2. Gündüz T. (1999) Kalitatif Analiz Ders Kitabı, Gazi Kitabevi, 6. Baskı | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduce: description of analytical chemistry. Solutions and concentration. |
| 2 | Aqueous solution chemistry: particle properties, forces between ions. Chemical equilibrium. |
| 3 | Effects of electrolytes on ionic equilibriums (activity). |
| 4 | Solubility of lower soluble salts, factors affected to solubility. |
| 5 | Separations with precipitation. |
| 6 | Acid-base solutions, strong acids and bases, pH calculation. |
| 7 | Mid-Term exam |
| 8 | Mid-Term exam |
| 9 | Weak acids and bases, pH calculation. |
| 10 | Hydrolyze and salts. Tampon solutions. |
| 11 | Gravimetric analysis. |
| 12 | Applications of gravimetric analysis methods. |
| 13 | Titrimetric analysis, titration curves. |
| 14 | Theory and application of neutralization titrations. |
| 15,16 | Final exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  | **X** |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  | **X** |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  |  | **X** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  | **X** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **X** |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **X** |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  | **X** |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  | **X** |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  | **X** |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | **X** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  | **X** |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Instructor(s):**

**Signature**:  **Date:**

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**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | SPRING |
| **COURSE CODE** | 151012209 | **COURSE NAME** | ENGLISH II | | | |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 2 | 3 | | 0 | 0 | | | 0 | 3 | | COMPULSORY (X)  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | | X | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 15 |
| Quiz | | | | 1 | | 15 |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 70 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Fundamental concepts and knowledge | | | | | | |
| **COURSE OBJECTIVES** | | | | | This lesson is programmed to give the basic vocabulary and grammar and make the students hear, understand, speak and write in English at elementary level. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | This course is aimed at :  Using the basic grammar rules  The ability to use the target language in an English setting  Understanding and making dialogues  The ability to understand what’s read  The ability to communicate with English-speaking people  The ability to write in the target language | | | | | | |
| **COURSE OUTCOMES** | | | | | At the end of the course studends are able to :  Use the basic grammar rules  Understand and make dialogues  Read and apprehend reading materials  Communicate through writing and speaking | | | | | | |
| **TEXTBOOK** | | | | | 1. Essential English, Beginner Student’s Book, Richmond Publishing 2. Essential English, Workbook, Richmond Publishing | | | | | | |
| **OTHER REFERENCES** | | | | | 1. Murphy, R., 2004, **English Grammar in Use**, Cambridge University Press, 2. **Dictionary of Contemprary English**, Longman.  Start Up Comprehensive English Practice, 2007, Nüans Publishing | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Course book, workbook, CD player, loudspeakers, dictionary | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Subject Pronouns, indefinite article, a/an, *To be*, NICE TO MEET YOU |
| 2 | Verb be ( am, is, are ) I’M FINE THANKS |
| 3 | Plurals, Wh questions, this, that, these, those WHAT IS THIS IN ENGLISH ? |
| 4 | Verb be, Wh questions, Nationalities WHERE ARE YOU FROM |
| 5 | Modals: can, can’t I’M A JOURNALIST |
| 6 | Prepositions of time and place. On, in, at ALL ABOUT YOU |
| 7 | Simple present tense. Who IN PARIS ON THURSDAY |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Possessive pronouns, Possessive ‘s HOW OLD IS HE ? |
| 11 | Present Simple tense, questions, short answers HIS MUSIC, HER SHOW, THEIR CHARITIES |
| 12 | Present simple, DO YOU HAVE A BIG FAMILY ? |
| 13 | Present Simple, Wh questions MEET YOUR PERFEC PARTNER |
| 14 | Present Simple, Revision WHAT DO YOU DO AT THE WEEKEND |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  |  |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **x** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  |  |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | SPRING |

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| **COURSE CODE** | 151512182 | **COURSE NAME** | TURKISH LANGUAGE II |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 2 | 2 | | 0 | 0 | | | 0 | 2 | | COMPULSORY (X)  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 35 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | | 1 | | 30 |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 35 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Structural Words: Word group, name, adjective, pronoun, adverb, preposition, conjunction, interjection verb, sentence, types of Written Composition, Types of Oral Composition, Speech Application, Prepared Speech Application, Text Analysis Studies. | | | | | | |
| **COURSE OBJECTIVES** | | | | | Informing students about the current state of development and the richness of Turkish language, bring awareness of a national language, literally to know about the subtleties about Turkish and be able to use them in their daily lives to ensure. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Provides to students speak and write Turkish correctly write in their daily lives, gain the ability to express themselves in the best way to themselves and their works in their jobs. | | | | | | |
| **COURSE OUTCOMES** | | | | | Define the rules of Turkish.  Define and classify the phrase in terms from structure Analyze the structure of the sentence  Create written and oral composition  Use the language correctly | | | | | | |
| **TEXTBOOK** | | | | | 1. Kültür, M. E., 1997, **Üniversiteler İçin Türk Dili**, Bayrak Yayınları, İstanbul. 2. Yavuz, K., Yetiş, K., Birinci, N., 1999, **Üniversite Türk Dili ve Kompozisyon Dersleri**, Bayrak Yayınları, İstanbul. | | | | | | |
| **OTHER REFERENCES** | | | | | 1. Kaplan, M., “Kültür ve Dil”, 8. baskı, ,Dergah Yayınları, İstanbul, 1993. 2. Fuat, M., “Dil Üstüne”, Adam Yayınları, İstanbul, 2001. 3. Aksan, D., “Türkçe’nin Gücü”, Bilgi Yayınevi, 4. baskı, Ankara, 1997. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | DVD, VCD, projector, computer | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Structural Words: Word group |
| 2 | Name |
| 3 | Adjective |
| 4 | Pronoun |
| 5 | Adverb |
| 6 | Preposition, Conjunction, Interjection |
| 7 | Verb |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Sentence, the sentence Components |
| 11 | Types of Written Composition |
| 12 | Types of Oral Composition |
| 13 | Prepared Speech Application, extempore Speech Application   |  |  | | --- | --- | |  |  | |
| 14 | Text Analysis Studies |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  |  |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **X** |  |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  | **X** |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  |  |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151512195 | **COURSE NAME** | Professional Drawing |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 2 | 2 | | 0 | - | | | 2 | 3 | | COMPULSORY (X)  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | | X | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 40 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | General definitions in technical drawing; standard text and lines; geometrical drawings, scales and projections, geological maps, direction and slope, topographical crossing, block and panes diagrams | | | | | | |
| **COURSE OBJECTIVES** | | | | | To teach students the importance of Technical Drawing in engineering. To develop students skill of technical drawing and reading. To convey mining engineering profession’s picture to students along Technical Drawing. To inform students about both Technical Drawing standards and Non-Technical Drawing standards. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Students taking the course can both draw Technical Drawing and read. | | | | | | |
| **COURSE OUTCOMES** | | | | | Ability to understand the importance of technical drawing in engineering.  Ability to draw technical drawing.  Ability to read technical drawing.  Ability to think three dimension spaces.  Ability to draw sectional view from any drawing.  Ability to understand importance of standards. | | | | | | |
| **TEXTBOOK** | | | | |  | | | | | | |
| **OTHER REFERENCES** | | | | | Various applications | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | General descriptions |
| 2 | Technical drawing tools and equipment |
| 3 | Geometric drawing and applications |
| 4 | Geometric drawing and applications |
| 5 | Scales and projections |
| 6 | Scales and projections |
| 7 | General information of geological maps |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Direction and slop and applications |
| 11 | Topographical crossing |
| 12 | Topographical crossing |
| 13 | Block diagrams |
| 14 | Panel diagrams |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **X** |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  | **X** |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **X** |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **X** |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  |  | **X** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  |  | **X** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **X** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  | **X** |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  |  | **X** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | **X** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  | **X** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| --- | --- |
| **Prepared by**: Asst. Prof. Y. Hakan Gürsoy | **Date:** |
| **Signature(s)**:  https://ogu.edu.tr/files/duyuru/9ff77656-8e6a-4c44-98b9-5f236a699de2/ESOG%C3%9C_yeni%20logo.jpg**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**  **ARCHITECTURE AND ENGINEERING FACULTY**  **GEOLOGICAL ENGINEERING DEPARTMENT** COURSE INFORMATION FORM    |  |  | | --- | --- | | ***SEMESTER*** | *SPRING* |  |  |  |  |  | | --- | --- | --- | --- | | **COURSE CODE** | 151512187 | **COURSE NAME** | Basic Computer Sciences |      |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | | | **LANGUAGE** | | | 2 | 2 | | 0 | 2 | | | 3 | 4 | | COMPULSORY (x)  ELECTIVE ( ) | | | Turkish | | | **COURSE CATAGORY** | | | | | | | | | | | | | | | | **Basic Science** | | **Basic Engineering** | | | | **Industrial Engineering**  **[if it contains considerable design, mark with (√)]** | | | | | | | | **Social Science** | | 50 | | 25 | | | | ( ) | | | | | | | | 25 | | **ASSESSMENT CRITERIA** | | | | | | | | | | | | | | | | **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** | | | | 1st Mid-Term | | | | 1 | | | 15 | | | | 2nd Mid-Term | | | | 1 | | | 25 | | | | Quiz | | | |  | | |  | | | | Homework | | | |  | | |  | | | | Project | | | |  | | |  | | | | Report | | | |  | | |  | | | | Others (Worksheets) | | | | 10 | | | 20 | | | | **FINAL EXAM** | | | | |  | | | | 1 | | | 40 | | | | **PREREQUISITE(S)** | | | | |  | | | | | | | | | | | **COURSE DESCRIPTION** | | | | | Computers, Operating Systems and Programming Languages. Concepts of structured and modular programming. Modern software development and visual programming. Concept of Object-Oriented Programming (OOP). Visual programming packs. Visual Basic (VB), visual programming environment. VB quick parts. Data types, constants and variables. Type casting functions. Conditional expressions. Loop functions and differences between them. Procedures, functions and differences between them. Common VB built in functions. Popular sorting algorithms and quick-sort algorithm. Files and filing functions. | | | | | | | | | | | **COURSE OBJECTIVES** | | | | | Introducing to computers, operating systems and programming languages. Making students understand what object-oriented programming is and working with objects. Introducing visual programming packs and Visual Basic (VB) visual programming environment. Making students coding in VB with the logic of Object-Oriented Programming. Pave students’ way to solve job related problems via programming skills. | | | | | | | | | | | **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Providing basic computer and programming skills to solve different complex problems occurs in students’ future career and create important information systems like decision support systems, expert systems and executive support systems. | | | | | | | | | | | **COURSE OUTCOMES** | | | | | Students will be able to:   1. Evaluate limitations of the intended system or problem, 2. Assess required computer skills for a problem, 3. Design algorithms and programs to solve the problem. 4. Acquire basic programming skills which are useful for Industrial Engineering Applications. | | | | | | | | | | | **TEXTBOOK** | | | | | Karagülle, İ. ve Pala, Z., 2002.Visul Basic 6.0 Pro, 2. Edition, Türkmen Kitabevi, İstanbul. | | | | | | | | | | | **OTHER REFERENCES** | | | | | 1. Yanık, M., 2004, **Visual Basic ile Programlama**, Cilt I, Seçkin Yayınları 2. Yanık, M., 2005, **Visual Basic ile Programlama**, Cilt II, Seçkin Yayınları 3. Balena, F., 1999, **Programming Microsoft Visual Basic 6.0**, Microsoft Press | | | | | | | | | | | **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Lecturing and practicing at computer laboratory, sample exercises about the topics and let students to complete topic related exercises on computers. | | | | | | | | | |  |  |  | | --- | --- | | **COURSE SYLLABUS** | | | **WEEK** | **TOPICS** | | 1 | Computers, Operating Systems, Programming Languages and Object-Oriented Programming | | 2 | Visual programming, Visual programming packs, Visual Basic (VB) Programming Environment | | 3 | Visual Basic – Quick parts, key features, methods and events | | 4 | Standard data types, user defined data types, constants, variables and type casting | | 5 | Operators, Input box and Message box | | 6 | Mid-Term Examination 1 | | 7 | Conditional expressions, If-Then-Else, Select-Case | | 8 | Sample Exercises | | 9 | Looping Expressions, For-Next, Do-Loop, While-Wend | | 10 | Sample Exercises | | 11 | Mid-Term Examination 2 | | 12 | Procedures and functions (differences, strong and weak aspects) | | 13 | Sample Exercises | | 14 | Popular sorting algorithms and Quick Sort | | 15,16 | Final Exam |  |  |  |  |  |  | | --- | --- | --- | --- | --- | | **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** | | 1 | Sufficient knowledge of engineering subjects related with mathematics, science and Industrial Engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Industrial Engineering problems. | [ ] | [x] | [ ] | | 2 | Ability to determine, define, formulate and solve complex Industrial Engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | [ ] | [x] | [ ] | | 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | [ ] | [x] | [ ] | | 4 | Ability to develop, select and use modern methods and tools required for Industrial Engineering applications; ability to effective use of information technologies. | [ ] | [ ] | [x] | | 5 | In order to investigate Industrial Engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | [ ] | [x] | [ ] | | 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | [x] | [ ] | [ ] | | 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | [x] | [ ] | [ ] | | 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | [x] | [ ] | [ ] | | 9 | Understanding of professional and ethical issues and taking responsibility | [x] | [ ] | [ ] | | 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | [x] | [ ] | [ ] | | 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | [x] | [ ] | [ ] | | **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |  |  |  | | --- | --- | | **Prepared by:** Prof. Dr. Mustafa Onder | **Date:** | | **Signature(s)**: |  | |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151512196 | **COURSE NAME** | MATLAB |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 2 | 2 | | 2 | 0 | | | 3 | 4 | | COMPULSORY ()  ELECTIVE (x ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 50 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | |  | | |  |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 50 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Introduction to Matlab, loops, arrays, algorithmic structures, the concept of function 2D and 3D graphics and symbolic computations. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The information obtained in the course of basic engineering and geology engineering vocational courses to be acquired by Matlab in the light of the process of getting through algorithmic approach appeared to have infrastructure | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Students analyze and solve geological problems in a more effective and less time with Matlab. | | | | | | | |
| **COURSE OUTCOMES** | | | | | Providing a solution-oriented approach to the problems that may arise in the fields of engineering infrastructure to be gained by algorithmic approach. Some risks may occur in the output process engineering to minimize through Matlab . | | | | | | | |
| **TEXTBOOK** | | | | | MATLAB for Engineers, Holly Moore, Salt Lake Community College  Salt Lake City, Utah | | | | | | | |
| **OTHER REFERENCES** | | | | | Introductıon To Matlab For Engıneerıng Students, David Houcque  Northwestern University | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Lecturing and applications, Computer Lab | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction to Matlab |
| 2 | Matlab expressions and variables |
| 3 | Introduction to Matlab operators and the granting of the necessary functions . |
| 4 | Matlab arrays and logical operators |
| 5 | Kontrol deyimleri |
| 6 | Cycles |
| 7 | The concept of function and applications. |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Two-dimensional graphics |
| 11 | Three -dimensional graphics |
| 12 | Symbolic Computation with Matlab |
| 13 | Dif. Equiations Solving with Matlab. |
| 14 | Limits, Differentiation, Integration with Matlab |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[ x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ x]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ ]** | **[ x]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[x ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ x]** | **[ ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ x ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ x]** | **[ ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151513552 | **COURSE NAME** | Engineering Mechanics |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 3 | 3 | | 0 | 0 | | | 3 | 5 | | COMPULSORY (x)  ELECTIVE ( ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Fundamentals of Mechanics, Equilibrium of a particle, Force system resultants, Equilibrium of a rigid body, Friction, Centre of gravity and centroid, Moments of inertia, Internal forces, Structural analysis, Kinematics and Kinetics of a particle, Work and Energy, Impulse and Momentum. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The main purpose of the course is to introduce basic principles of Mechanics. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Who will take the course should gain identify, formulate, and solve engineering mechanics problems. | | | | | | | |
| **COURSE OUTCOMES** | | | | | By the end of the course students will be able to:  1. Understand the importance of mechanics in engineering applications.  2. Explain the general principles and fundamental concepts of mechanics.  3. Find support reactions using the static equilibrium conditions.  4. Plot shear-force and bending-moment diagrams.  5. Calculate the center of gravity and moment of inertia of the composite bodies.  6. Solve the problems of equilibrium of bodies in motion. | | | | | | | |
| **TEXTBOOK** | | | | | Mühendislik Mekaniği – Statik, R.C. Hibbeler ve S.C. Fan, (Çev.: A. Soyuçok ve Ö. Soyuçok), 2005, Literatür Yayınevi. | | | | | | | |
| **OTHER REFERENCES** | | | | | 1.Engineering Mechanics: Statics & Dynamics, A. Pytel and J. Kiusalaas, 1996, HarperCollins College Publishers.  2.Statik ve Mukavemet, M. H. Omurtag, 2007, Nobel Yayınevi. | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | | |

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| COURSE SYLLABUS | |
| WEEK | TOPICS |
| 1 | Mechanic: General principles, fundamental concepts, units, vectors, and the resultant force |
| 2 | Equilibrium of a particle |
| 3 | Force system resultants |
| 4 | Equilibrium of a rigid body |
| 5 | Friction |
| 6 | Centre of gravity and centroid |
| 7 | Moments of inertia |
| 8 | Mid-term Exam |
| 9 | Mid-term Exam |
| 10 | Internal forces |
| 11 | Structural analysis |
| 12 | Kinematics and kinetics of a particle |
| 13 | Kinetics of a particle |
| 14 | Work-Energy and Impulse-Momentum. |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  | **x** |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  |  | **x** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | **x** |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  | **x** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  |  | **x** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  |  | **x** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **x** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  | **x** |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  | **x** |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | **x** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  | **x** |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Mizan Doğan | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151513556 | **COURSE NAME** | General Mineralogy |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 3 | 2 | | 2 | 0 | | | 3 | 5 | | CORE (√) ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | |  | | 40 |
| Quiz | | | |  | |  |
| Homework | | | |  | | 10 |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (Application) | | | |  | |  |
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| **FINAL EXAM** | | | | |  | | | |  | | 50 |
| **PREREQUIEITE(S)** | | | | | **-** | | | | | | |
| **COURSE DESCRIPTION** | | | | | Definition of mineral and crystal, crystal stuctures of the minerals, standard angles of the crystals, symetry and crystallography, the thirty-two crystal clsses, stereographic projection. In addition to X-ray diffraction method and its application in mineraloyg. Description and Determination of the minerals based on their crystallographic and physical properties. | | | | | | |
| **COURSE OBJECTIVES** | | | | | The aim of the course to give information about; Description and Determination of the natual minerals based on their crystallographic and physical properties. Also, describing the formation mechanism of them. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Description and Determination of the natual minerals based on their crystallographic and physical properties. | | | | | | |
| **COURSE OUTCOMES** | | | | | Description and Determination of the natual minerals based on their crystallographic and physical properties. | | | | | | |
| **TEXTBOOK** | | | | | Aslaner, M. (1995) Mineraloji I (Kristallografi), KTÜ Müh. Fak. Yayın No: 181.  Kumbasar, I. ve Akyol, A. (1993) Mineraloji , İstanbul Teknik Üniversitesi Kütüphanesi, Sayı; 1519, İTÜ Matbaası, Gümüşsuyu.  Sağırolu, G. (1984) Kristallografi, İstanbul Teknik Üniversitesi Matbaası, Gümüşsuyu. | | | | | | |
| **OTHER REFERENCES** | | | | | Hurbut, C. S. (1959) Dana’s Manual of Mineralogy, John Wiley & Sons, Inc., London.  Zoltai,T. and Stout, J. H. (1984) Mineralogy Concepts and Principles, Burgess Publishing Company, Minneopolis, Minnesota.  Uz, B. (2000) Mineraller, Kristallografi-Mineraloji, 3. Baskı, BirsenYayınevi, İstanbul. Data-Show of mineral groups collected from various refferences. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Theory: Definition and aim of mineralogy and crystallography.  Laboratory: Crystal structure, and crystallization |
| 2 | Theory: Law of standard angle, simple and rational numeric laws, Weiss and Miller indices  Laboratory: Cubic, Hexagonal and Trigonal Systems |
| 3 | Theory: Law of zones, symmetry of the crystals, 32 symmetry classes.  Laboratory: Tetragonal, Ortorombik, Monoclinic and Triclinic Systems |
| 4 | Theory: Applying of stereographic projection on crystal systems  Laboratory: Practic on law of zones |
| 5 | Theory: X-ray diffraction (XRD) techniques, mineralogical analyses and determinations.  Laboratory: Silicate |
| 6 | Theory: Chemical properties of minerals  Laboratory: Carbonate group |
| 7 | Theory: Chemical properties of minerals  Laboratory: Carbonate group |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Theory: Silicate and Feldspar Groups  Laboratory: Sulphur group |
| 11 | Theory: Mica and Groups  Laboratory: Oxide group Carbonate, Nitrates, |
| 12 | Theory: Properties of Mineral Chemistry  Laboratory: Sulphate, Borates |
| 13 | Theory: Amphibole Group  Laboratory: Natural Element group |
| 14 | Theory: Amphibole Group  Laboratory: Natural Element group |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[x]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[x]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[x ]** | **[ ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ ]** | **[x]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[x]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[x]** | **[ ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[x]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[x]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[x]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[x]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Selahattin KADİR  **Signature(s)**: | **Date:** |
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**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
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| **SEMESTER** | Fall |

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| --- | --- | --- | --- |
| **COURSE CODE** | 151513557 | **COURSE NAME** | Principles of Stratigraphy |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 3 | 3 | | 0 | 0 | | | 3 | 4 | | CORE (√) ELECTIVE ( ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( x ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (Application) | | | |  | | |  |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Aim and scope of Stratigraphy, Principles of Stratigraphy, understanding vastness of geological time, Geological Time Table and its formation, event stratigraphy, Absolute and relative geological time, radiometric dating, litostratigraphy, biostratigraphy, essentials of sequence stratigraphy, evolution of sedimentary basins. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | Understanding basic principles (superposition, cross-cutting, event stratigraphy etc.) of geology for enlightening of past geological events; learning essentials of different stratigraphy types and their functions. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To build a conciousness of geological time including many related or unrelated events which could be understood by means of certain key issues (stratigraphic principles). Learning that in this way one can enlighten the geological past and make a robust basement on which geological investigations can raise. | | | | | | | |
| **COURSE OUTCOMES** | | | | | By means of this course, student can interpret a geological record; learn the detailed keys (diachronism, event beds, lateral facies passages etc.) for a good interpretation; learn the principles of stratigraphic naming and biostratigraphy. Learn also the impact og changing sea level on sediment deposition. | | | | | | | |
| **TEXTBOOK** | | | | | Selective translation of certain chapter of “An Introduction to Stratigraphy” (Doyle et al., 1994) by myself. | | | | | | | |
| **OTHER REFERENCES** | | | | | Uygulamalı Stratigrafi (Kaya, 2003). | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Datashow | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Aim and scope of Stratigraphy, its relation to other disiplines |
| 2 | Basic laws of Stratigraphy: superposition, cross-cutting, Walter law |
| 3 | Explaining geological time |
| 4 | Formation of Geological Time Scale |
| 5 | Events in geological record and event stratigraphy |
| 6 | Chronostratigraphic scale |
| 7 | Absolute dating and radiometric methods |
| 8 | Midterm Exam |
| 9 | Midterm Exam |
| 10 | Litostratigraphy |
| 11 | Litostratigraphy |
| 12 | Biyostratigraphy |
| 13 | Sequence stratigraphy |
| 14 | Evolution of sedimentary basins |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ x ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ x ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ x ]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ x ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ x ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Faruk Ocakoğlu | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** |  |

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| **COURSE CODE** | 151513558 | **COURSE NAME** | Structural Geology and Tectonic |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 3 | 2 | | 2 | 0 | | | 3 | 5 | | COMPULSORY (X)  ELECTIVE () | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | | 1 | | | 10 |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | |  | | |  |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Teaching of geological structures on Earth Crust due to tectonic deformations | | | | | | | |
| **COURSE OBJECTIVES** | | | | | Teaching all kinds of geological structures related with tectonic movements (faults, joints, folds, etc.); how it was formed, general characteristics, their relation with each other. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | It will contribute to students on recognizing the geological structures, understanding the evolution of the crust and thinking 3D. | | | | | | | |
| **COURSE OUTCOMES** | | | | | There is event-effect relationship on Earth Crust. The student will gain the ability to comment on affecting crust by analyzing structures | | | | | | | |
| **TEXTBOOK** | | | | | İhsan Ketin, Structural Geology (in Turkish) | | | | | | | |
| **OTHER REFERENCES** | | | | | All kinds of books and articles related to Structural Geology | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Computer, Data Show | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction, Plate tectonics and its results |
| 2 | Structural Geology and its relationship with other science. Presentation of topographic maps and cross sections. |
| 3 | Rocks behaviour, V-rule and examples |
| 4 | Strata and bedding, obtaining strike-dipping by using 3-point-rule. |
| 5 | Faults and their field features, geological cross sections. |
| 6 | Normal Fault and geological cross sections. |
| 7 | Reverse Fault and geological cross sections |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Strike-slip Faults, stereographic projection. |
| 11 | Joints and rose-diagram. |
| 12 | Folds and geological cross sections. |
| 13 | Plutons, and internal structures of plutonic rocks |
| 14 |  |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **x** |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **x** |  |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **x** |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  | **x** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  |  | **x** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  |  | **x** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **x** |  |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **x** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility | **x** |  |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **x** |  |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **x** |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Erhan Altunel | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151513559 | **COURSE NAME** | Special Applications on Computer |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 3 | 1 | | 2 | 0 | | | 2 | 2 | | CORE (√) ELECTIVE ( ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( x ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (Application) | | | |  | | |  |
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| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Preparation of a geological report on a computer by using MS Word; Preparation of geo-referenced maps of different types and their interpretation. Re-draw in appropriate artistic level of field handdrawings in Corel Draw. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | Effective evaluation and presentation of geological data by using Word, Surfer ve Corel Draw softwares. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Effective use of Surfer software in solution of geological problems. Digital attractive and easy draw of various geological data (maps, sections, field hand-drawings etc.) by Corel Draw software. Preparation of a voluminous text with tables and figures with appropriate presentations standarts. | | | | | | | |
| **COURSE OUTCOMES** | | | | | Bringing the geological data to the computer environment, and interpreting and presenting it more effectively in this way. | | | | | | | |
| **TEXTBOOK** | | | | | A guideline of each software prepared by the responsible of the course and a research asistant. Manuals belonging to 3 softwares (MS Word, Surfer ve Corel Draw) to be learnt. | | | | | | | |
| **OTHER REFERENCES** | | | | |  | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Personal computers installed with the related softwares and a datashow. | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Where and why do we need computers and softwares in Geology? |
| 2 | MSWord: Clues for good document preparation |
| 3 | How to place figures and tables? How to do appropriate page numbering? Etc. |
| 4 | Logic and functions of Surfer 8 |
| 5 | Data input in Surfer 8; Gridding |
| 6 | Drawing contour map, preparing 3-D views |
| 7 | Exporting raw data on map: posting |
| 8 | Midterm Exam |
| 9 | Midterm Exam |
| 10 | Digitisation a map in Surfer 8. |
| 11 | Digitisation a map in Surfer 8. |
| 12 | Objects in Corel Draw. |
| 13 | Object drawing in Corel Draw. |
| 14 | Layers in Corel Draw. |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ x ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ x ]** | **[ ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ x ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ x ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ x ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ ]** | **[ x ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Faruk Ocakoğlu | **Date:** |
| **Signature(s)**: |  |



**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151513560 | **COURSE NAME** | GENERAL GEOPHYSICS |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 3 | 2 | | 0 |  | | | 2 | 3 | | COMPULSORY (X)  ELECTIVE () | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | |  | | |  |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Geophysical definition of science, history and development, and goals of geophysical applications. The main methods and devices used in geophysics. The importance of geophysical earth sciences. Geophysics position in domestic and abroad. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The aim of this course is to give basic information about the geophysical engineering, the profession is to introduce the science of geophysical method to teach the purpose and application areas. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Engineering students who are training in the science of geophysics to determine its relations with other sciences, geophysical engineering discipline problems, especially in the face of geological engineering, geophysical engineering, concrete solutions to the modern techniques and methods of showing the show. | | | | | | | |
| **COURSE OUTCOMES** | | | | | 1.Basic defines the concepts of Geophysics.  2.Jeofiziğin understand its place in the earth sciences.  The development of 3.Tarihsel moments.  4. Concrete solutions to the problems of geological geophysical understand the importance of seeing the multidisciplinary study.  5. Geomagnetism and paleomagnetism distinguish between the concepts.  Geophysics 6.Mühendislik concrete solutions to problems, and learn to see. | | | | | | | |
| **TEXTBOOK** | | | | | Applied Geophysics.ERGİN K.1973 | | | | | | | |
| **OTHER REFERENCES** | | | | |  | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | What is Geophysics? Role in Geophysics Earth Sciences, Historical Development |
| 2 | Geomagnetism |
| 3 | basic definitions and concepts of the Earth's magnetic field. |
| 4 | Seismic methods and historical development |
| 5 | Geophysical Engineering occupational areas and interesting subjects. |
| 6 | Magnetic measurements and rock magnetism paleomamyetizma |
| 7 | VLF-EM, methods and applications of Ground Penetrating Radar, Newton's Laws, gravity and Gravimetric Prospecting areas |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Borehole geophysical logs and usage , Seismic methods, seismic methods, especially with applications of engineering geophysics, soil problems, the use of seismic methods |
| 11 | Electrical methods and applications |
| 12 | Geophysical methods used in hydrogeological investigations and mining problems |
| 13 | Well logs Application |
| 14 | Electrical methods and application of seismic methods |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **X** |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  | **X** |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | **X** |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  | **X** |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  | **X** |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **X** |  |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  | **X** |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  | **X** |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  | **X** |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **X** |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Engineer Serkan Azdiken | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151011208 | **COURSE NAME** | History of Turkish Revolution and Principles of Kemal Atatürk: I |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 3 | 2 | | 0 | 0 | | | 2 | 2 | | COMPULSORY (x)  ELECTIVE ( ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | The Description of the term “revolution”; major historical events in the Ottoman Empire to the end of World War I; a general overview of Mustafa Kemal’s life; certain associations and their activities; arrival of Mustafa Kemal to Samsun; the congresses, gathering of the last Ottoman Assembly and the proclamation of the “national oath”; opening of the Turkish Grand National Assembly; War of independence to the Victory of Sakarya; Victory of Sakarya; financial sources of the war of independence; grand counter-attack; Armistice of Mudanya; abolution of the Sultanate; Peace Conference of Lausanne. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | To help the students to appreciate the hard conditions under which the war of independence, under the leadership of Mustafa Kemal, was fought and how an independent Turkish state was created. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To underline the idea that the national unity based on the principle “peace in the country peace in the world” can only be achieved through political, economic and military progress. | | | | | | | |
| **COURSE OUTCOMES** | | | | | 1.Explains Principles of Atatürk and main concepts related to Revolution history.  1.1.Explians the concepts of Reform/Revolution.  1.2.Describes the concept of National Forces.  1.3.Explains the concepts of Republic/Democracy.  1.4.Recognizes the concept of Ideology.  2.Explains the main points of the period related to Turkish War of Independence and foundation of the Turkish State.  2.1.Explains the developments at Ottoman Empire before Turkish Revolution.  2.2.Describes the World War I and its results.  2.3.Explains Turkish War of Independence.  2.4.Recognizes Turkish Revolution.  2.5.Remembers the mian principles of Turkish foreign politics.  2.6.Explains Principles of Atatürk and their importance.  3.Explains the effects of the developments at Europe and World on Turkish Republic.  3.1.Explains the effects of European and World politics on Turkey and the results of them.  3.2.Describes the effects of Capitalism/Emperialism on Turkey.  3.3.Explains the relations / problems between Turkey and its neighbours.  3.4.Explains the importance of Turkey at Europe and World. | | | | | | | |
| **TEXTBOOK** | | | | | Gazi Mustafa Kemal Atatürk, Nutuk (Söylev), C. I-II, TTK., Ank., 1986. İmparatorluktan Ulus Devlete Türk İnkılâp Tarihi, Cemil Öztürk (ed.), Ank., 2011. | | | | | | | |
| **OTHER REFERENCES** | | | | | \* Ateş,Toktamış.(2001)Türk Devrim Tarihi.İstanbul:Der Yayınları. \* Aybars,Ergün.(200)Türkiye Cumhuriyeti Tarihi.İzmir:Ercan Kitabevi. \* Eroğlu,Hamza.(1990)Türk İnkılasp Tarihi.Ankara:Savaş Yayınları. \* Kongar,Emre.(1999)Devrim Tarihi ve Toplumbilim Açısından Atatürk.İstanbul.Remzi Kitabevi. \* Selek,sebahattin.(1987)Anadolu İhtilali.İstanbul:Kastaç A.Ş.Yayınları. \* Şamsutdinov,A.M.(1999)Mondros'tan Lozan'aTürkiye Ulusal Kurtuluş Savaşı Tarihi (1918-1923)Çeviren:Ataol Behramoğlu.İstanbul:Doğan Kitapçılık. \* Timur,Taner.(1997)Türk Devrimi ve Sonrası.Ankara:İmge Kitabevi. | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | | |

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| COURSE SYLLABUS | |
| WEEK | TOPICS |
| 1 | The Balkan Wars. First World War and input to war Ottoman Empire. The fronts that Ottoman Empire fighted and the results of the war. |
| 2 | Revolution, evolution, rebellion, coup and reform. The characteristics of the Turkish Revolution. the reasons of collapse of the Ottoman Empire. |
| 3 | Mondros Armistice Agreeement and occupations on the Ottoman Empire. |
| 4 | National Independence War. The occupation of Izmir and effects of this occupation. |
| 5 | The preparation period of National Independence War |
| 6 | The movement of Mustafa Kemal to Samsun and to be started the organization of Anadolu Revolution. Amasya Circular, Erzurum and Sivas Congresses, to be founded of the Deputation. |
| 7 | Opening of the TBMM. |
| 8 | Mid-term Exam |
| 9 | Mid-term Exam |
| 10 | Rebellions against the TBMM. |
| 11 | Sevr Treaty. |
| 12 | To be founded "Kuva-yı Milliye" and national army. |
| 13 | Mudanya Armistice Agreement. Abolution of sultanate. |
| 14 | Lausanne Treaty. |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  |  | X |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  |  | X |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  |  | X |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  | X |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  |  | X |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  | X |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  | X |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | X |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  | X |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | X |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  | X |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| --- | --- |
| **SEMESTER** | Fall |

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| **COURSE CODE** | 151513561 | **COURSE NAME** | ENGINEERING MATHEMATICS |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 3 | 3 | | 0 |  | | | 3 | 4 | | COMPULSORY (x)  ELECTIVE ( ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | The expression of numeric analysis,limite, derivative, integral, differential equations and solution applications | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The mathematical background give for engineering and geological engineering courses differential equations, basic concepts and basic knowledge of solution methods and their applications in engineering | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Students will be able to solve problems of geological engineering and analyze mathematical methods | | | | | | | |
| **COURSE OUTCOMES** | | | | | Calculates the partial derivatives, to calculate the integral over a planar region,,  Using the first and second level technical solutions to find the age of a fossil with radiocarbon, solve some engineering problems. | | | | | | | |
| **TEXTBOOK** | | | | | Calculus ve Analitik Geometrik II, Sherman K, Strein, Anthony McGraw- Hill İnc.., 1992 | | | | | | | |
| **OTHER REFERENCES** | | | | | Balcı, M.,2007, Genel Matematik Problemleri 1, Balcı Yayınları,Ankara | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Lecturing and practice | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Definition and properties of function |
| 2 | Limits and Continuity |
| 3 | Partial derivatives and applications |
| 4 | Methods of integration, definite integral |
| 5 | Integral applications |
| 6 | Improper integrals, polar coordinates |
| 7 | Exact differential equations and solutions |
| 8 | Mid-term Exam |
| 9 | Mid-term Exam |
| 10 | Engineering applications of differential equations |
| 11 | Engineering applications of differential equations |
| 12 | Engineering applications of differential equations |
| 13 | The method of undetermined coefficients |
| 14 | Application examples |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ x]** | **[]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ x]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ x]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ ]** | **[ x]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ x]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151514561 | **COURSE NAME** | Geostatistics |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 4 | 2 | | 0 | 0 | | | 2 | 3 | | COMPULSORY (**√** )  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | | x | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 40 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
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| **FINAL EXAM** | | | | |  | | | | 1 | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | The basic principles of statistics. Probability, binomial distribution, correlation coefficient, variance, covariance, testing of normal distributions, analysis of data series. | | | | | | |
| **COURSE OBJECTIVES** | | | | | The ability to statistically interpret the engineering data | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Interpretation of statistical data with various analyses and test techniques and their use to enlighten geologic processes | | | | | | |
| **COURSE OUTCOMES** | | | | | Produce scientific data referring to relation between science and statistical methods, describe basic concepts of the science of statistics and reveal the interrelations between the distributions | | | | | | |
| **TEXTBOOK** | | | | | **Davis, J. C. (1973).** Statistics and Data Analyses in Geology, John Wiley and Sons, Inc, USA, 550 s. | | | | | | |
| **OTHER REFERENCES** | | | | | **Seymour, L. (1979).** (Tercümesi H. Kutluk). Teori ve Problemlerle Olasılık, Güven Kitapevi Yayınları, 151 s. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction to statistics |
| 2 | Counting methods: factorial, permutation |
| 3 | Repeated permutations, binomial coefficient and proposition |
| 4 | Probability: Conditional probability and finite probabilistic process |
| 5 | Random variables: variance, covariance and standard deviation |
| 6 | Distributions: Binomial and normal distributions |
| 7 | Testing of normal distributions: z and t tests |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Testing of normal distributions: F test, variance analysis, x2 test |
| 11 | Analysis of data series: Geological measurements in series, smoothing |
| 12 | Analysis of data series: Regular interval analysis and run tests |
| 13 | Analysis of data series: Auto-correlation, cross-correlation |
| 14 | Map analysis: Distribution of points and contouring |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[x ]** | **[ ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[x ]** | **[ ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[x ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ x ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ x ]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[x ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Assoc. Prof. Ali KAYABAŞI |  |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151514556 | **COURSE NAME** | Optical Mineralogy |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 4 | 2 | | 0 | 2 | | | 3 | 5 | | CORE (**√** ) ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | |  | | 20 + 20 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (Application) | | | |  | | 15+15 |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | |  | | 30 |
| **PREREQUIEITE(S)** | | | | | **-** | | | | | | |
| **COURSE DESCRIPTION** | | | | | The content of this course is optical features for defination of rock forming minerals and amorphous materials based on their optical properties. | | | | | | |
| **COURSE OBJECTIVES** | | | | | The aim of this course is to use the optical features for defination of rock forming minerals and amorphous materials based on their optical properties. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Optical features for defination of rock forming minerals and amorphous materials based on their optical properties. | | | | | | |
| **COURSE OUTCOMES** | | | | | Optical features for defination of rock forming minerals and amorphous materials based on their optical properties. | | | | | | |
| **TEXTBOOK** | | | | | Aslaner, M. (1976) Optik Mineraloji, Karadeniz Teknik Üniversitesi Yayın No 77, 292 s. | | | | | | |
| **OTHER REFERENCES** | | | | | Erkan, Y. (1978) Kayaç Oluşturan Önemli Minerallerin Mikroskopta İncelnemesi, Hacettepe Üniversitesi Yayınları, 497 s.  Keer, P.F. (1959) Optical Mineralogy, McGraw-Hill, Inc., 492 s. Sağıroğlu, G.L. ve Çoğulu, H.E. (1972) Polarizan Mikroskopta Minerallerin Tayini, İstanbul Teknik Üniversitesi, 448 s. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Theory: Introduction (Definitions of optical mineralogy, properties of light)  Laboratory: defination of microscopes |
| 2 | Teorik: Polarized light, optical indicatrix  Laboratory: Determination of optical properties under polarised microscrpy |
| 3 | Theory: Adjustment of polarized (petrography) microscopy  Laboratory: Isotropic minerals, Opaque minerals and determination of anisotropic minerals under polarised light |
| 4 | Theory: Uniaxial and biaxial isotropic optical axis, istoropic and anisotropic crystals  Laboratory: Determination of plane polarized light in minerals, |
| 5 | Theory: Biaxial interference figure under Polarizan convergent polarized light microscopy  Laboratory: Determination of opaque and isotropic minerals |
| 6 | **I. MID TERM EXAM** |
| 7 | Theory: Determination of uniaxial minerals  Laboratory: Determination of Anisotropic minerals |
| 8 | Theory: Uniaxial Crystals in Convergent Polarized Light  Laboratory: Determination of Anisotropic minerals |
| 9 | Theory: Uniaxial Crystals in Convergent Polarized Light  Laboratory: Determination of Anisotropic minerals |
| 10 | Theory: Biaxial Crystals in Convergent Polarized Light  Laboratory: Determination of Anisotropic minerals |
| 11 | Theory: Biaxial Crystals in Convergent Polarized Light  Laboratory: Determination of of feldspar group minerals |
| 12 | Theory: Biaxial Crystals in Convergent Polarized Light  Laboratory: Determination of of feldspar group minerals |
| 13 | Theory: Uniaxial and Biaxial Crystals in Convergent Polarized Light  Laboratory: Uniaxial and Biaxial Crystals in Convergent Polarized Light |
| 14 | Theory: Repeat of the previous subjects  Laboratory: Practical definition of minerals |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ x ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[ x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ x ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ ]** | **[ x ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ x ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ x ]** | **[ ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Selahattin KADİR | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151514557 | **COURSE NAME** | SURVEYING |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 4 | 2 | | 2 |  | | | 3 | 5 | | COMPULSORY (**√** )  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | | x | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 20 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | | 1 | | 40 |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 40 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Fundamentals of plan surveying. Units of measurement. Basic plane trigonometry, scale concept. Measurements made with simple measuring instruments. Distance Measurement. A simple measure of the methods of measuring the land. Simple measurements of the drawing work. Error theory. Area calculations. Theodolite and angle measurement. Coordinate systems and map projections. Essential coordinates computations. Traverse surveys. Geometric and trigonometric leveling. Tacheometry. | | | | | | |
| **COURSE OBJECTIVES** | | | | | Learning of basic field - map measures and coordinate systems. Calculating and drawing from the obtained measurements. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Solving of the measurement problems during the field applications. Understanding of Mapping and coordinate systems . | | | | | | |
| **COURSE OUTCOMES** | | | | | Understanding of basic horizontal and vertical field measurement Performing of three dimensional calculation and drawing applications. | | | | | | |
| **TEXTBOOK** | | | | | DİKER S., Ölçme Bilgisi Ders Notları | | | | | | |
| **OTHER REFERENCES** | | | | | ŞERBETCİ M., SONGU C., GÜLAL E., Ölçme Bilgisi 1-2, Birsen Yay. İst.KOÇ İ., Ölçme Bilgisi 1, YTÜ Yayınları, İst. 1998KOÇ İ., Ölçme Bilgisi 2, YTÜ Yayınları, İst. 2003ÖZBENLİ E., TÜDEŞ T., Ölçme Bilgisi, KTÜ, Trabzon, 1995 | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Fundamentals of plan surveying. Units of measurement. |
| 2 | Basic plane trigonometry, scale concept, the scale and types of calculations.Fonetik olarak okuyun    **Sözlük** |
| 3 | Measurements made with simple measuring instruments. |
| 4 | Measure of length, a simple length measures, electronic length measurement, measurement of lengths Disabled |
| 5 | Meters with the application of a right angle. A simple measure of the methods of measuring the land. |
| 6 | Simple measurements of the drawing work |
| 7 | Error theory and investigate the types of errors. Length measure errors |
| 8 | Area calculations |
| 9 | Theodolite and angle measurement, sources of error and correcting theodolites |
| 10 | Coordinate systems and map projections |
| 11 | essential coordinates computations. Traverse surveys. |
| 12 | Geometric and trigonometric leveling, Instruments and errors. |
| 13 | Tacheometry and its instruments |
| 14 | Creation of cross-sections. |
| 15,16 | Field application of the course |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **x** |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  | **x** |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | **x** |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  | **x** |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  | **x** |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  | **x** |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **x** |  |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  |  | **x** |
| 9 | Understanding of professional and ethical issues and taking responsibility |  |  | **x** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  | **x** |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **x** |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Lecturer Selami Diker | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151514558 | **COURSE NAME** | Paleontology |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 4 | 2 | |  | 2 | | | 3 | 5 | | COMPULSORY (**√** )  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | (**√** ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 30 |
| Quiz | | | |  | |  |
| Homework | | | | 4 | | 30 |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 40 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Geological Time; Fossils and fossilization; Dating and correlation concept in Geology; detailed morphology of Invertebrate groups; short knowledge on Vertebrates; and examples from plant fossils; the great extinctions; a summary of Precambrian and Phanerozoic life. | | | | | | |
| **COURSE OBJECTIVES** | | | | | To introduce theoretical and practical techniques used in Paleontology. Lab work includes examination of fossils in hand specimens. A technical report writing is necessary in each lab. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To provide dating, correlation and constructing ancient environments based on fossils in Geology. | | | | | | |
| **COURSE OUTCOMES** | | | | | Recognition of fossils and their applications in Geology; enhance knowledge of life history since its origin until the present and understand the processes controlling organic evolution; and by practical work to develop technical report writing | | | | | | |
| **TEXTBOOK** | | | | | Paleontoloji (Fosil Bilimi), N.İnan, 2010, Seçkin Yayınevi, 210 s. | | | | | | |
| **OTHER REFERENCES** | | | | | Understanding Fossils. P.Doyle, John Wiley & Sons, 409 s. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Fossil and recent hand speciemens | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction to Paleontology; Definitions and history |
| 2 | Geological time |
| 3 | Fossils and fossilization |
| 4 | Dating and correlation concepts in Geology |
| 5 | Marine, continental and transitional environments |
| 6 | Systematics and Taxonomy |
| 7 | Introduction to Invertebrates; Cyanobacteria |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Porifera, Cnidaria, Bryozoa |
| 11 | Brachiopoda; Mollusca: Pelecypoda (Bivalvia, Lamellibranchiata) |
| 12 | Mollusca: Gastropoda; Cephalapoda (Nautiloidea, Ammonidea, Belemnoidea) |
| 13 | Echinodermata: Echinodea, Crinoidea, Trilobitler |
| 14 | Hemichordata (Graptolitler); Vertebrata: Pisces, Amphibia, Reptilia, Aves, Mammalia; Life in Precambrian and Phanerozoic |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ x ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ x ]** | **[ ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ x ]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ x ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Asst.Prof. Hatice Kutluk | **Date:** |
| **Signature(s)**: |  |

 **T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151514210 | **COURSE NAME** | Mechanics of Materials |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 4 | 3 | | 0 | 0 | | | 3 | 4 | | COMPULSORY (**√** )  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | | x | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 40 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
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| **FINAL EXAM** | | | | |  | | | | 1 | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Fundamental concepts of mechanics of materials, concept of stress, axial loading; normal, shearing, and bearing stresses, stress and strain-axial loading, transformations of stress and strain, torsion, pure bending, deflection of beams. | | | | | | |
| **COURSE OBJECTIVES** | | | | | The main purpose of the course is to introduce basic principles of Mechanics of Materials. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Who will take the course should gain identify, formulate, and solve mechanics of materials problems. | | | | | | |
| **COURSE OUTCOMES** | | | | | By the end of the course students will be able to:  1. Understand the importance of mechanics of materials in engineering applications.  2. Explain the general principles and fundamental concepts of mechanics of materials.  3. Analyze of plane stress and strain.  4. Plot axial force-shear and bending moment diagrams.  5. Investigate members subjected to torque.  6. Solve the problem of pure bending of beams and deflection of beams. | | | | | | |
| **TEXTBOOK** | | | | | Statik ve Mukavemet, M. H. Omurtag, 2007, Nobel Yayınevi. | | | | | | |
| **OTHER REFERENCES** | | | | | 1.Mechanics of Materials, R. C. Hibbeler, 2008, Prentice Hall Int.  2.Mukavemet, T. Özbek, 1987, Birsen Yayınevi | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction to mechanics of materials. General principles and the concept of stress. |
| 2 | Axial loading; Normal stress |
| 3 | Shearing stress |
| 4 | Bearing stress |
| 5 | Stress and strain – axial loading |
| 6 | Stress and strain – axial loading |
| 7 | Transformations of stress and strain |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Torsion |
| 11 | Pure bending of beams |
| 12 | Pure bending of beams |
| 13 | Deflection of beams |
| 14 | Deflection of beams |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  | **x** |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  |  | **x** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | **x** |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  | **x** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  |  | **x** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  |  | **x** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **x** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  | **x** |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  | **x** |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | **x** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  | **x** |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Asst. Prof. H. Selim Şengel | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | SPRING |

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| **COURSE CODE** | 151514562 | **COURSE NAME** | Field Geology |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 4 | 1 | | 4 | 0 | | | 3 | 6 | | COMPULSORY (X)  ELECTIVE () | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 20 |
| Quiz | | | |  | | |  |
| Homework | | | | 1 | | | 30 |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | |  | | |  |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Give some information to the students related to every kind of study which has to do on the field site | | | | | | | |
| **COURSE OBJECTIVES** | | | | | Give chance to student in order to gain some experiences in the field such as observe and understand general properties of rocks, compass using, teach which kind of measurement that they have to do and make some observations by taking notes on the field | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To get students an habit making observations, measurements, taking notes and drawing some cross-sections on their own. | | | | | | | |
| **COURSE OUTCOMES** | | | | | To gain a skill of interpretation on their own by using the result of their observations and measurements | | | | | | | |
| **TEXTBOOK** | | | | | There is no only a single/ basic course book. | | | | | | | |
| **OTHER REFERENCES** | | | | | Mehmet Önalan, 2000 Sahada Yerbilimi Çalışmaları (in Turkish) | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Compass | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction and give some information related to field conditions |
| 2 | Give some information related to topographic maps and discuss the relationship between this course and other professional courses taken in the past |
| 3 | Location finding at the field site |
| 4 | Compass using |
| 5 | Analysis of sedimentary clastic rocks |
| 6 | Analysis of limestones |
| 7 | Analysis of metamorphic rocks |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Analysis of surface volcanic rocks |
| 11 | Analysis of volcano sedimentary rocks |
| 12 | Analysis of plutonic rocks |
| 13 | Analysis of internal and external geological process effects on an antique city |
| 14 |  |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **x** |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **x** |  |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | **x** |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **x** |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  | **x** |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  | **x** |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **x** |  |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **x** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  | **x** |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **x** |  |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **x** |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Erhan Altunel | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151012209 | **COURSE NAME** | History of Turkish Revolution and Principles of Kemal Atatürk: II |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 4 | 2 | | 0 | 0 | | | 2 | 2 | | COMPULSORY (**√** )  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | |  | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 40 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | The Description of the term “revolution”; major historical events in the Ottoman Empire to the end of World War I; a general overview of Mustafa Kemal’s life; certain associations and their activities; arrival of Mustafa Kemal to Samsun; the congresses, gathering of the last Ottoman Assembly and the proclamation of the “national oath”; opening of the Turkish Grand National Assembly; War of independence to the Victory of Sakarya; Victory of Sakarya; financial sources of the war of independence; grand counter-attack; Armistice of Mudanya; abolution of the Sultanate; Peace Conference of Lausanne. | | | | | | |
| **COURSE OBJECTIVES** | | | | | To help the students to appreciate the hard conditions under which the war of independence, under the leadership of Mustafa Kemal, was fought and how an independent Turkish state was created. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To underline the idea that the national unity based on the principle “peace in the country peace in the world” can only be achieved through political, economic and military progress. | | | | | | |
| **COURSE OUTCOMES** | | | | | At the end of this course; Students  1.Explains Principles of Atatürk and main concepts related to Revolution history.  1.1.Explians the concepts of Reform/Revolution.  1.2.Describes the concept of National Forces.  1.3.Explains the concepts of Republic/Democracy.  1.4.Recognizes the concept of Ideology.  2.Explains the main points of the period related to Turkish War of Independence and foundation of the Turkish State.  2.1.Explains the developments at Ottoman Empire before Turkish Revolution.  2.2.Describes the World War I and its results.  2.3.Explains Turkish War of Independence.  2.4.Recognizes Turkish Revolution.  2.5.Remembers the mian principles of Turkish foreign politics.  2.6.Explains Principles of Atatürk and their importance.  3.Explains the effects of the developments at Europe and World on Turkish Republic.  3.1.Explains the effects of European and World politics on Turkey and the results of them.  3.2.Describes the effects of Capitalism/Emperialism on Turkey.  3.3.Explains the relations / problems between Turkey and its neighbours.  3.4.Explains the importance of Turkey at Europe and World. | | | | | | |
| **TEXTBOOK** | | | | | Gazi Mustafa Kemal Atatürk, Nutuk (Söylev), C. I-II, TTK., Ank., 1986. İmparatorluktan Ulus Devlete Türk İnkılâp Tarihi, Cemil Öztürk (ed.), Ank., 2011. | | | | | | |
| **OTHER REFERENCES** | | | | | Niyazi Berkes, Türkiye’de Çağdaşlaşma, İstanbul, 1978.  Enver Ziya Karal, Atatürk ve Devrim (Konferanslar ve Makaleler), TTK., Ank., 1980.  Enver Ziya Karal, Atatürk’ten Düşünceler, MEB. Yay., Ankara, 1981.  Bernard Lewis, Modern Türkiye’nin Doğuşu, Çev.M.Kıratlı, TTK., Ank., 1970. Ahmet Mumcu, Tarih Açısından Türk Devriminin Temelleri ve Gelişimi, Ank., 1976. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Mudanya Armistice Agreement. |
| 2 | Abolution of sultanate. Lausanne Treaty. |
| 3 | Declaration of Republic |
| 4 | Abolution of caliphate and lodges |
| 5 | Constitutional developments in Turkey. Internal and external political developments in the period of Atatürk's and Inönü's. |
| 6 | The political currents that effected Turkish revolution. Democratic law state. |
| 7 | The political currents that effected Turkish revolution. Democratic law state |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Establishment of the Turkish law and educational system |
| 11 | Revolution movements in education, culture and health, |
| 12 | Nationalism, Etatism and Populism. |
| 13 | Securalism, Revoluationism |
| 14 | General ecalutation. |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  |  | X |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  |  | X |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  |  | X |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  | X |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  |  | X |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  | X |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  | X |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | X |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  | X |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | X |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  | X |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151515328 | **COURSE NAME** | Petrography of Igneous Rocks |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 5 | 2 | |  | 2 | | | 3 | 5 | | CORE (√) ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | |  | | 40 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (Application) | | | |  | | 15 |
|  | | | |  | |  |
| **FINAL EXAM** | | | | | Exam | | | |  | | 30 |
| Others | | | |  | | 15 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | The content of the course is as follows: Earth, Minerals and Rocks, Mode of Formation of Igneous Rocks in the Nature, Structure and Texture of Igneous Rocks, Classification of Igneous Rocks, | | | | | | |
| **COURSE OBJECTIVES** | | | | | The course aims, to give information about formation of igneous rocks and to determine them with their mineralogical compositions and textural properties. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Formation of igneous rocks and to determine them with their mineralogical compositions and textural properties. | | | | | | |
| **COURSE OUTCOMES** | | | | | Formation of igneous rocks and to determine them with their mineralogical compositions and textural properties. | | | | | | |
| **TEXTBOOK** | | | | | Erkan, Y., 2001, Magmatik Petrografi.Hacettepe Üni., Mühendislik Fakültesi Yayın No: 40, ISBN - 975-491-082-0, 217 s. | | | | | | |
| **OTHER REFERENCES** | | | | | Karakaş, Z., 2008, Petrografi ders notu, Ankara Üniversitesi, 65s.  Shelley D., 1993, Igneous and metamorphic rocks underthe microscope, Chapman and Hall, 445p.  Petrography and Petrology, I.T.U. Gumussuyu, 1976 Prof. Dr. Ersen COGULU | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Microscope | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Theory: Introduction (Determination; general classification of rocks, Mineral formed rocks, methods of petrographical determination)  Laboratory: Using microscrope and determining rock formed minerals |
| 2 | Theory: Occurrence type of igneous and volcanic rocks  Laboratory: Determination of micro and macro texture of hand sample of igneous rocks |
| 3 | Theory: Structural and textural properties of igneous rocks  Laboratory: Determination of micro and macro texture of hand sample of igneous rocks |
| 4 | Theory: Classification of igneous rocks based on mineralogical and chemical compositions  Laboratory: granite, granodiorite, siyenite, monsonite |
| 5 | Theory: Determination of plutonic rocks  Laboratory: diorite, gabro, ultramafic rocks rocks |
| 6 | Theory: Determination of dyke type rocks  Laboratory: Granite porfir, Granodiorite porfir, Diorite porfir, Diabase. |
| 7 | Theory: Determination of dyke type rocks  Laboratory: Granite porfir, Granodiorite porfir, Diorite porfir, Diabase |
| 8 | Mid-term exam |
| 9 | Mid-term exam |
| 10 | Theory: Determination of volcanic rocks  Laboratory: Rhyolite, latite, trachyte, , |
| 11 | Theory: Determination of volcanic rocks  Laboratory: andesite, basalt, fonolite |
| 12 | Theory: Determination of volcanic rocks  Laboratory: Tefrite, Bazanite |
| 13 | Theory: Determination of volcanic rocks  Laboratory: Tuff, ignimbrite |
| 14 | Theory: An overview of rocks  Laboratory: An overview of rocks |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ x ]** | **[ ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ x ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ x ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ x ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ x ]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ x ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Prepared by: Date:**

**Signature(s):**

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**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGY ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |
| **COURSE CODE** | 151515329 | **COURSE NAME** | ROCK MECHANIC | | | |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 5 | 2 | | 2 |  | | | 3 | 5 | | COMPULSORY (X )  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 45 |
| Quiz | | | |  | |  |
| Homework | | | | 5 | | 5 |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Definitions and terms in rock mechanics; intact rock properties; engineering properties of rock mass discontinuities; determination methods of discontinuity properties at surface and by core drilling; geomechanical classification of rocks; field stresses; distribution of stresses and deformations around underground openings; rock yielding criteria; numerical modeling analysis and subsidence of ground. | | | | | | |
| **COURSE OBJECTIVES** | | | | | The main aim of the course is to explain the determination methods of geo-mechanical rock properties and to give capability of describing rock behavior before, during and after technical interference under different natural conditions. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Learning the beheaviour of rock and getting information about engineering applications on rock foundation | | | | | | |
| **COURSE OUTCOMES** | | | | | Basic education and ability are given for developing project over rock litologies and predicting rock beheaviour before construction. | | | | | | |
| **TEXTBOOK** | | | | | Hoek, E. (2000). Practical Rock Engineering. Web sitesi. ROCSCIENCE. | | | | | | |
| **OTHER REFERENCES** | | | | | **I.S.R.M. (1978).** Suggested Methods for the Quantitative Description of Discontinuties in Rock Masses.  **Ulusay, R. & Sönmez, H. (2002).** Kaya Kütlelerinin Mühendislik Özellikleri. Ankara: TMMOB.  **Bieniawski, Z. T. (1984).** Rock Mechanics Design in Mining and Tunneling. Netherlands: A.A. Balkema Press. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Learn intact rock and rock mass terms. |
| 2 | Understand the laboratory test methods. |
| 3 | Learn the laboratory test equipments. |
| 4 | Learn the stress-deformation relationship. |
| 5 | Learn the determining methods of discontinuity properties. |
| 6 | Learn the geomechanical classification of rocks. |
| 7 | Learn the geomechanical classification of rocks. |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Learn the measurement methods of field stresses. |
| 11 | Determine in situ stress components. |
| 12 | Learn the stress redistribution around the underground mining openings. |
| 13 | Learn the rock yielding criterions. |
| 14 | Learn the laboratory equipments |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ x ]** | **[ ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[x ]** | **[ ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ x ]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[x ]** | **[ ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[x ]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ x]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ x]** | **[ ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Prepared by:** Associate Professor Ali KAYABAŞI

**Date:**

**Signature(s)**

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**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |
| **COURSE CODE** | 151515330 | **COURSE NAME** | Drilling Technics | | | |

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| **SEMESTER** | **NUMBER OF COURSE HOURS PER WEEK** | | | | | | **COURSE** | | | | |
| **Theory** | | **Tutorial** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | **LANGUAGE** |
| 5 | 1 | | 2 | 0 | | | 2 | 3 | COMPULSORY (X ) ELECTIVE ( ) | | Türkçe |
| **COURSE CATOGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basin Engineering** | | | | **Geology Engineering**  **[Please depict (√) if the course include design significantly]** | | | | | **Sociel Science** |
|  | | X | | | | X | | | | |  |
| **MEASURING AND EVALUATION ACTIVITIES** | | | | | | | | | | | |
| **MIDTERM** | | | | | **Activity type** | | | | | **Number** | **%** |
| Midterm Exam | | | | | 1 | 50 |
| Quiz | | | | |  |  |
| Homework | | | | |  |  |
| Project | | | | |  |  |
| Report | | | | |  |  |
| Other (………) | | | | |  |  |
| **FINAL EXAM** | | | | |  | | | | | 1 | 50 |
| **PREREQUISIT(S) IF ANY** | | | | |  | | | | | | |
| **SHORT COURSE CONTENT** | | | | | Development of drilling and drilling types. Introduction of machinery and equipments of Diamond Drilling and Rotary Drilling. Use of DCDMA and CMS drilling standards. Types, techniques, injection mixture ratios, injection additives, injection pressures, application and preparation of mixtures, ground improvement techniques of Mining Drilling, Ground (Foundation) Drilling, Injection Drilling. Cold Water Drilling and well construction processes. Drilling, screening, getting log, isolation, equipping, washing and gravelling, pump experiences on drilling of water wells... Geothermal Drillings, well deviations, rescue operations. Applications techniques of oil and natural gas drillings. Choosing of relevant drilling machineries and equipments. Area experiments on drilling wells, calculation of these experiment’s data and evaluation of results. Preparation of relevant Drilling-Injection well log, section and reports. | | | | | | |
| **OBJECTIVES OF THE COURSE** | | | | | Choosing and using relevant machineries and equipments at Diamond Drilling and Rotary Drilling techniques. Explaining how to make borehole drilling, screening, piping, concreting, equipping and rescuing operations. Executing relevant borehole area experiments, preparing forms and graphics and interpreting them. Preparing projects for drilling wells and execute them. Preparing all relevant Drilling-Injection log sections and reports. | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | Learn how to think macro and micro scale at geoscience works. Preparing project for relevant drilling well, preparing log, section, report and presenting. Planning of drilling construction site and managing. | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | Using of DCDMA. CMS. API standards.  Preparing project for relevant drilling well and open that drilling well.  To make boring, piping, isolation, concreting, equipping, gravelling, pumping experiences at wells. | | | | | | |
| **MAIN TEXTBOOK** | | | | | Drilling Knowledge and Drilling Techniques Lecture Notes | | | | | | |
| **SUPPORTING REFERENCES** | | | | | Özbayoğlu, Y., (1983). “Elmaslı Sondaj Tekniği El Kitabı”, Ankara.Yalçın, A., Yalçın, B. “Sondaj Yöntemleri ve Uygulamaları”, TMMOB Maden Müh. Odası yanını.Özkan, H., (2006). “Enjeksiyon Yöntemleri ve Uygulamaları”, Ankara.Ruma, M. M. “Su Sondajı El Kitabı”, Sondajcılar Dünyası Yayınları DSİ yayın ve raporları. | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | | Computer, Data Show | | | | | | |

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| **COURSE SCHEDULE** | |
| **WEEK** | **SUBJECTS** |
| 1 | Introduction to drilling (Definition, aim, importance, place in our country and around the world) |
| 2 | Diamond Drilling Machines and equipments |
| 3 | Diamond Drilling Standards (DCDMA and CMS), number of elements of an array and choosing criterias, muds and chemicals used in diamond drilling technique |
| 4 | Selection of the drill for appropriate formation and well experiments |
| 5 | Interpretation of well experiments and calculation of Lugeon values |
| 6 | Evaluation of drilling core and sediment samples and laboratory work |
| 7 | Preparation of injection log-section and reports |
| 8 | Mid term Exam |
| 9 | Mid term Exam |
| 10 | Preparation and interpretation of ground and mining drilling logs, |
| 11 | Calculation and application of mixture and density of injection, |
| 12 | Rotary drilling technique, introduction of machineries and equipments of rotary dirlling, selection of drill for appropriate machinery, equipment and formation. Importance of water in our country and around the world. |
| 13 | Water drilling construction processes, tool formation calculations, isolation, equipping, gravelling, pump experience, muds and chemicals used on rotary drilling, preparation of water drilling reports |
| 14 | Types of energies, geothermal energy, geothermal drilling, bursts of wells. Well control, well isolation and concreting processes and drilling liquids. Well completion tests. Importance, formation and searching of oil and natural gas in our country and around the world (general information) |
| 15,16 | Final Exam |

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| **RELATION BETWEEN THE COURSE LESSON OUTCOMES AND THE PROGRAM OUTCOMES**  ( 3: **High**,2: Moderate, 1: Low) | | | | |
| **NO** | **PROGRAM OUTCOME** | **3** | **2** | **1** |
| 1 | Ability to use basic and engineering knowledge. |  | **X** |  |
| 2 | The solution of geological problems by designing and applying scientific equipment owned and analyze and interpret the results. | **X** |  |  |
| 3 | Multi-disciplinary team work ability and to bring the solution to a variety of approaches to problems. |  | **X** |  |
| 4 | To provide effective communication. |  |  | **X** |
| 5 | Updating information up to date information to follow developments and to use effectively. |  | **X** |  |
| 6 | Geological studies by following the technological developments necessary to use techniques and tools up to date. |  | **X** |  |
| 7 | The three-dimensional thinking, analysis and synthesis by establishing event-effect relationship. | **X** |  |  |
| 8 | The ability to research in to natural resources and natural phenomena, the data obtained in writing and / or orally to offer. | **X** |  |  |
| 9 | To understand the universal and social effects of geological studies. | **X** |  |  |
| 10 | Geological information and data made ​​available to bring the other engineering fields. | **X** |  |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **X** |  |  |

**Faculty Member of Course:** Lecturer Kemal Öztürk

**Signature**:  **Date:**

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**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **CODE** | 151515331 | **NAME** | Professional English I |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 5 | 2 | 0 | |  | | 2 | | 3 | CORE (x ) ELECTIVE ( ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
|  | | |  | | | | **√** | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 40 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 60 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | General geology, mineralogy, petrography texts related to the topics | | | | | | | |
| **AIMS OF THE COURSE** | | | | | Students gain knowledge of reading ability and reading comprehension | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | Watch broadcasts on Geology, comprehension and evaluation skills to win. In addition to the geological terms, pronunciation, and meaning of the course is to teach the objectives. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | Students will gain knowledge about the geological terms | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Notes distributed to the students will be monitored. | | | | | | | |
| **OTHER REFERENCES** | | | | | Glossory of Geology | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | |  | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Structure of the Earth |
| 2 | Structure of the Earth |
| 3 | Plate boundaries |
| 4 | The Earth’s Components |
| 5 | The Rock Cycle |
| 6 | Characteristics of Igneous Rocks |
| 7 | Characteristics of Igneous Rocks |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Characteristics of Metamorphic Rocks |
| 11 | Characteristics of Metamorphic Rocks |
| 12 | Characteristics of Sedimentary Rocks |
| 13 | Characteristics of Sedimentary Rocks |
| 14,15 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ ]** | **[x ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[x ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[x ]** | **[ ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:** Assoc. Prof. Ozgür Karaoğlu

**Signature**:  **Date:**

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**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151515317 | **COURSE NAME** | Remote Sensing |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 5 | 2 | | 0 |  | | | 2 | 3 | | COMPULSORY  ELECTIVE (x ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | (**√** ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 30 |
| Quiz | | | |  | |  |
| Homework | | | | 1 | | 20 |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Introducing remote sensing devices, software and methods in Geology. | | | | | | |
| **COURSE OBJECTIVES** | | | | | Training of students about remote sensing methods (e.g. photographiometric and geodesic) | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To introduce remote sensing and photographiometric devices, software and methods which are used on geological studies. | | | | | | |
| **COURSE OUTCOMES** | | | | | The student will gain the ability to analyze photographiometric and remote sensing data. | | | | | | |
| **TEXTBOOK** | | | | | Course Textbook, Volkan Karabacak, ESOGU | | | | | | |
| **OTHER REFERENCES** | | | | | Course Textbook for Photogeology, Kadir Dirik, Hacettepe U.  Course Textbook for Photogeology and Remote Sensing, Orhan Tatar, Cumhuriyet U. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Data-show, Stereoscope | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduce |
| 2 | Introduce to remote sensing: History, meaning and fundamentals. |
| 3 | Importance of remote sensing in Geology and application areas. |
| 4 | Importance of photogeology and interpretation. |
| 5 | Air photo studies |
| 6 | Satellite images and digital elevations models |
| 7 | ENVI Software |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | GOOGLEARTH Software |
| 11 | LIDAR technology |
| 12 | Analyze of LIDAR data: POLYWORKS Software |
| 13 | General evaluations |
| 14 |  |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  | **x** |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  | **x** |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  |  | **x** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **x** |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  | **x** |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  | **x** |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **x** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **x** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  |  | **x** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | **x** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  | **x** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Volkan KARABACAK | **Date:** |
| **Signature(s)**: |  |

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**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151515320 | **COURSE NAME** | Micropaleontology |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 5 | 2 | | 0 | 0 | | | 2 | 3 | | COMPULSORY ( )  ELECTIVE (x ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( **√**) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 30 |
| Quiz | | | |  | |  |
| Homework | | | | 3 | | 20 |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | | Paleontology 151514558  and Historical Geology 151518422 | | | | | | |
| **COURSE DESCRIPTION** | | | | | Important microfossil groups: Foraminifera, Ostrocoda, Spores, Pollen, Dinoflagellates, Acritarchs, Conodonts, Scolecodonts, Nannoplankton, Radiolaria and Diatomes. Sampling and preparation techniques will also be involved in the course. Laboratory will cover examination of microfossils under microscope. A report writing in each lab is a must. | | | | | | |
| **COURSE OBJECTIVES** | | | | | The course will provide students with a solid understanding and use of microfossils in the geological context; enable students to understand the dating concept and paleoenvironmental analyses by use of microfossils and hence reconstruct the Earth history. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Dating, correlation and paleoenvironmental reconstruction in Geology by means of microfossils. | | | | | | |
| **COURSE OUTCOMES** | | | | | The course will provide understanding of microfossils and the areas of their application; will provide understanding history of the Earth by dating, correlation and paleoenvironmental reconstruction; and acquaint students with the techniques of practical work and writing technical papers. | | | | | | |
| **TEXTBOOK** | | | | | -Introduction to Marine Micropaleontoloji, Haq,B.U and Boersma,A., 2009, 367 p., Elsevier-New York | | | | | | |
| **OTHER REFERENCES** | | | | | -Mikropaleontoloji, Lecture notes, 95 p. (Compiled) (Turkish), H.Kutluk  -Plankton Stratigraphy, Ed.by: H.M.Bolli, J.B.,Saunders ve K.Perch-Nielson, 1989. Cambridge Earth Science Series, 1032 s.  -Paleopalynology, A.Traverse, 2007. (2.Baskı) Springer, 813 s. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Microscope and microfossil collection. | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction to Microplaeontology; Definitions and History; Fossils and fossilization; Marine, continental and transitional environments |
| 2 | Sampling and preparation techniques of microfossils |
| 3 | Foraminifera |
| 4 | Ostrocoda |
| 5 | Spores |
| 6 | Pollen |
| 7 | Dinoflagellates |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Acritarchs |
| 11 | Chitonozoa |
| 12 | Conodonta and Scolecodonts |
| 13 | Nannoplankton |
| 14 | Radiolaria and Diatoms |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ x ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ x ]** | **[ ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ x ]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ x ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Asst.Prof. Hatice Kutluk | **Date:** |
| **Signature(s)**: |  |

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**ARCHITECTURE AND ENGINEERING FACULTY**

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#### COURSE INFORMATION FORM

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| SEMESTER | 5 |
| **COURSE CODE** | 151515313 | **COURSE NAME** | Underground Surveying | | |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | **TYPE** | | **LANGUAGE** |
| 5 | 2 | | 0 | 0 | | | 2 | 3 | COMPULSORY ()  ELECTIVE ( X ) | | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Geological Engineering**  **[if it contains considerable design, mark with (√)]** | | | | | **Social Science** |
|  | | X | | | | ( ) | | | | | (X) |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | | **Quantity** | **%** |
| 1st Mid-Term | | | | | 1 | 40 |
| Quiz | | | | | --- | --- |
| Homework | | | | | --- | --- |
| Project | | | | | --- | --- |
| Report | | | | | --- | --- |
| Others (CivilCivilCivil) | | | | | --- | --- |
|  | | | | | 1 | 60 |
| **FINAL EXAM** | | | | | PREREQUISITE COURSE TO BE TAKEN SURVEYING | | | | |  |  |
| **PREREQUIEITE(S)** | | | | | Measure and map to gallery, tunnels, underground bunker and warehouses, underground production and plantss | | | | | | |
| **COURSE DESCRIPTION** | | | | | Provide of this study and application, improving of underground measure by apparatus, method and measured technique | | | | | | |
| **COURSE OBJECTIVES** | | | | | Course give information that will be important help to engineer while education, production palnning and implements of undergraund surveying | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Using of angle measuring instruments  Using of suspended compass and suspented circle  Making polygon account  Making measure and account geometric and trigonometric leveling of underground, Measurinf of well depth  Provide get down of strike that founding in the surface to underground | | | | | | |
| **COURSE OUTCOMES** | | | | | lecture notes. | | | | | | |
| **TEXTBOOK** | | | | | Mining surveying by M. Gündoğdu ÖZGENUnderground surveying Hüseyin KulaksızMining surveying by Ömer Aydan | | | | | | |
| **OTHER REFERENCES** | | | | | Suspented compass, suspented circle, nivo, thedolite | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Sunject of underground surveying, stable points and facility in the underground |
| 2 | Lighting of points that located in underground, angle measuring tools |
| 3 | Measuring of underground length by compass, suspented compass, suspented circle |
| 4 | Compass ranges and measure |
| 5 | Leveling in underground |
| 6 | Crossection of underground |
| 7 | Taking detailed and measuring og angel by help of binoculars, Measuring depth in the well- oblique well and non deep vertical well |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Measuring Amount of elongation of ribbon and wire, Measurinfgof dept with Special well ribbon |
| 11 | Rotation in the underground: in horizantel gallery and obliqe galery |
| 12 | Determination of recession situation in vertical well |
| 13 | Rotation of another well |
| 14 | Special questions |
| 15,16 | Final exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | use fundamental and engineering knowledge. |  | **X** |  |
| 2 | to design solutions with scientific background knowledge, apply them to geological problems, analyze and evaluate the results. |  |  | **X** |
| 3 | work in multidisciplinary groups, find solutions to problems with different approaches. | **X** |  |  |
| 4 | have successful communications with others |  | **X** |  |
| 5 | track new developments, improve his/her knowledge and use this knowledge in efficient ways. |  | **X** |  |
| 6 | follow technological improvements and use up-to-date techniques and tools in geological researches. |  | **X** |  |
| 7 | think in 3D, analyze and synthesize with establishing cause-effect relations | **X** |  |  |
| 8 | do research on natural events and sources, present findings both verbally and/or orally. |  | **X** |  |
| 9 | comprehend universal and communal effects of geological studies. |  | **X** |  |
| 10 | assure geological knowledge and data available to other engineering branches. |  | **X** |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **x** |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Lecturer Idris UZUN | **Date:** |
| **Signature(s)**: |  |

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#### COURSE INFORMATION FORM

|  |  |
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| **SEMESTER** | Fall |

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| --- | --- | --- | --- |
| **CODE** | 151515310 | **NAME** | Volcanology |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 5 | 2 | 0 | | 0 | | 2 | | 3 | CORE () ELECTIVE (✓ ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
| X | | |  | | | |  | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 40 | |
| Quiz | | | | |  |  | |
| Homework | | | | | 1 | 15 | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 45 | |
| Oral exam | | | | |  |  | |
| Presentation | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………..) | | | | |  |  | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | The main aim of the course is to present basic information on the relation between volcanism and tectonism, classification of volcanoes and volcanic products, volcanic eruption types and lava flow characteristics and a field trip to the Afyon volcanic region. | | | | | | | |
| **AIMS OF THE COURSE** | | | | | Presentation of volcano formation mechanisms and volcanic products | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | Interpretation of volcanic activities in conjunction with other geologic processes | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | The relation between volcanic activities and tectonism, their contribution to formation of mineral deposits and environmental effects of active volcanism | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Cas, R.A.F. and Wright, J.V. (1987). Volcanic Successions Modern and Ancient, Allen & Unwin; London, UK; 528 p.  Cruikshank D. P. (1986). Mauna Kea: A Guide to the Upper Slopes and Observatories, The University of Hawaii, Institute for Astronomy; 60 pages. | | | | | | | |
| **OTHER REFERENCES** | | | | | Mutlu, H. (2000). Volcanology lecture notes | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | |  | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | What is volcanology? |
| 2 | Relation between volcanic activity and tectonism |
| 3 | Magma formation and magma types |
| 4 | Classification of volcanoes |
| 5 | Classification of eruption types |
| 6 | Types of lava flows |
| 7 | Explosive eruptions |
| 8 | **Mid-Term Examination** |
| 9 | **Mid-Term Examination** |
| 10 | Volcanic islands and island arcs |
| 11 | Basalt floods and ignimbrites |
| 12 | Field trip |
| 13 | Student presentations |
| 14 | Student presentations |
| 15,16 | Final Exam |

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| **RELATION BETWEEN LEARNING OUTCOMES (LO) OF THE COURSE AND PROGRAMME OUTCOMES (PO)**  (3: High, 2: Moderate, 1: Low) | | | | |
| **NO** | ***At the end of the course, students will be able to,*** | **3** | **2** | **1** |
| 1 | use fundamental and engineering knowledge. |  | **X** |  |
| 2 | to design solutions with scientific background knowledge, apply them to geological problems, analyze and evaluate the results. |  | **X** |  |
| 3 | work in multidisciplinary groups, find solutions to problems with different approaches. |  |  | **X** |
| 4 | have successful communications with others | **X** |  |  |
| 5 | track new developments, improve his/her knowledge and use this knowledge in efficient ways. |  | **X** |  |
| 6 | follow technological improvements and use up-to-date techniques and tools in geological researches. |  | **X** |  |
| 7 | think in 3D, analyze and synthesize with establishing cause-effect relations. |  | **X** |  |
| 8 | do research on natural events and sources, present findings both verbally and/or orally. |  | **X** |  |
| 9 | comprehend universal and communal effects of geological studies. | **X** |  |  |
| 10 | assure geological knowledge and data available to other engineering branches. |  | **X** |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  | **X** |  |

**Lecturer of the Course:** Assoc. Prof. Özgür Karaoğlu

**Signature**:  **Date:**

 **T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
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| **SEMESTER** | Fall |

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| --- | --- | --- | --- |
| **CODE** | 151515332 | **NAME** | Scientific Presentation Techniques |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 5 | 2 | 0 | | - | | 2 | | 3 | CORE (x ) ELECTIVE ( ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
|  | | |  | | | | √ | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 30 | |
| Quiz | | | | |  |  | |
| Homework | | | | | 1 | 30 | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 40 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | The content and the form in geological reports, the presentation of content information (front part, main part, back part). | | | | | | | |
| **AIMS OF THE COURSE** | | | | | To teach after geological study to writing report and to presentation project in the study area. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | To make project to students after lessons for to improve writing reports of geological study. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | 1. He/she knows of report’s main parts. 2. He/she use writing technics after geological study. | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | The Matters of Report Technics in the General Geology Working (Field Geology II) (3rd edition) 1997.Assoc. Prof. Dr. Tahir EMRE, Dokuz Eylül Un. Dep. Of Geo. Eng. İzmir. | | | | | | | |
| **OTHER REFERENCES** | | | | | MTA magazines, Geological Engineering magazines, etc. | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | |  | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | The content and the form of geological reports (text area, page numbers, title, etc). |
| 2 | The presentation content knowledge in the reports |
| 3 | Main part of the report |
| 4 | Previous works, aim and methods, study area |
| 5 | Stratigraphy (Definition, lithology, contacts, stratigraphical relationship, age and paleogeography) |
| 6 | Stratigrahy examples |
| 7 | Structural Geology, Geomorphology |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Structural Geology, Geomorphology examples |
| 11 | Apply and economic geology |
| 12 | Results and susggestions |
| 13 | Addentum part (Appendices) |
| 14 | Principals in writing references. |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ ]** | **[x ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[ x ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[x ]** | **[ ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:**

**Signature**:  **Date:**

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 **T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| --- | --- |
| **SEMESTER** | Fall |
| **COURSE CODE** | 151515333 | **COURSE NAME** | Hydrogeology | | | |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 5 | 2 | | 2 |  | | | 3 | 5 | | COMPULSORY (x )  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 35 |
| Quiz | | | |  | |  |
| Homework | | | | 1 | | 15 |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | The meaning and importance of hydrogeology, hydrologic cycle, vertical distribution of groundwater in soil, movement of groundwater, physical properties of aquifer and basic flow equations, aquifer types, groundwater level changes, artificial recharge, well hydraulics, saline water intrusion into aquifers, utilization of groundwater, quality of groundwater | | | | | | |
| **COURSE OBJECTIVES** | | | | | The main aim of this course is to make familiar with hydrogeologic problems, and same case studies.The second objective of this course is to give hydrogeology concept, to teach the research techniques for exploration, exploitation and management of groundwater resources | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To make familiar with hydrogeologic problems, and same case studies | | | | | | |
| **COURSE OUTCOMES** | | | | | using fundamental and engineering knowledge, to design solutions with scientific background knowledge, apply them to geological problems, analyze and evaluate the results, tracking new developments, improving his/her knowledge and using this knowledge in efficient ways, thinking in 3D, analyzing and synthesizing with establishing cause-effect relations, doing research on natural events and sources. | | | | | | |
| **TEXTBOOK** | | | | | - K. Erguvanlı ve E. Yüzer, Yeraltısuları Jeolojisi (Hidrojeoloji),İTÜ Maden Fak., İstanbul, 1973. - R.A.Freeze and J. A. Cherry, (Çeviren Kamil Kayabalı), Yeraltı suyu, Gazi Kıtapevi, Ankara, 2003 ( 2, 6 ve 8. Bölüm) | | | | | | |
| **OTHER REFERENCES** | | | | | R.A.Freeze and J. A. Cherry, Groundwater, Prentice –Hall, Englewood Cliffs, N.J.,1979., A. Şahinci, Karst, İzmir, 1991, DSİ, Su Sondajı Eğitim Programı-I, Ankara, 1991, H. Ü. Müh. Fak., Laboratory Manual For Hydrogeology, Second Ed.,Ankara, 1992. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Projector , laptop, overhead projector, internet | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction, occurrence and source of groundwater, hydrologic cycle, vertical distribution of groundwater |
| 2 | Physical properties of aquifer body and basic flow ….. |
| 3 | Determination of hydraulic parameters of aquifer |
| 4 | Aquifer types |
| 5 | Alluvium aquifers and aquifers composed of fractured rocks |
| 6 | Karst hydrogeology |
| 7 | Groundwater level changes and reasons |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Well hydraulics (steady state conditions) |
| 11 | Well hydraulics (unsteady state conditions) |
| 12 | Saline water intrusion into aquifers |
| 13 | Groundwater research techniques |
| 14 | Utilization of groundwater |
| 15,16 | Final Exam |

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| --- | --- | --- | --- | --- |
| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ x ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ x ]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ x ]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ x ]** | **[ ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Asist.Prof. Didem Yasin | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151515334 | **COURSE NAME** | STEM (Science, Technology, Engineering, and Mathematics) Education: Nature of Inquiry and Design |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 5 | 2 | | 0 | 0 | | | 2 | 3 | | CORE () ELECTIVE ( √ ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | |  | | | | | | **√** |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | |  | | |  |
| Quiz | | | |  | | |  |
| Homework | | | | 1 | | | 20 |
| Project | | | | 2 | | | 60 |
| Report | | | |  | | |  |
| Others (Weekly Reflections) | | | | 14 | | | 20 |
| **FINAL EXAM** | | | | |  | | | |  | | |  |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | In this course, students from the faculty of engineering and architecture enhances their understanding of STEM Education and the nature of each STEM discipline, as well as their ability to use engineering design process in STEM based learning environments. While they acquired knowledge and experience about the use of current cognitive learning theories and pedagogical approaches in STEM context, students design STEM focused learning modules as the final project in this course. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | Being knowledgeable about the implications of STEM in different contexts  Following national and global research and projects related to STEM Education  Being knowledgeable about current learning theories and pedagogical approaches  Applying their knowledge about their field and the course content in designing STEM focused learning modules | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | This course helps students apply their interdisciplinary knowledge and skills through current learning theories and pedagogical approaches in engineering education | | | | | | | |
| **COURSE OUTCOMES** | | | | | Understanding the nature of STEM disciplines  Following national and global trends in STEM education  Applying cognitive learning theories and pedagogical approaches in STEM focused learning environments  Designing and implementing engineering design integrated interdisciplinary learning processes | | | | | | | |
| **TEXTBOOK** | | | | |  | | | | | | | |
| **OTHER REFERENCES** | | | | |  | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Laptop computers, basic construction materials, stationery equipment | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | What is Science? Nature of Science  What is Mathematics? Nature of Mathematics  What is Engineering? Nature of Engineering  What is Technology? Nature of Technology |
| 2 | Putting altogether. STEM  Theoretical and Conceptual Framework  Global STEM Reform |
| 3 | Learning Theories and Applications I |
| 4 | Learning Theories and Applications II |
| 5 | Scientific Practices  Inquiry based Learning |
| 6 | Mathematical Practices  Modelling |
| 7 | Engineering Practices  Engineering Design Process |
| 8 | Learning Technologies  Multimedia Design |
| 9 | Interdisciplinary approaches in STEM  STEM Learning Processes- Elements and Characteristics |
| 10 | STEM Learning Module Outlines (Project) |
| 11 | Modelling STEM Activities (Nature Inspired Design) |
| 12 | Modelling STEM Activities (Socioscientific Issues) |
| 13 | STEM Learning Modules Microteaching and Feedbacks |
| 14 | STEM Learning Modules Microteaching and Feedbacks |
| 15,16 | STEM Learning Modules (Final Project) |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[X ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ X]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[X]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[X]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[X]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[X]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[X]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[X]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[X]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[X]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[X]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:**

**Signature**:  **Date:**



**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

**COURSE INFORMATION FORM**

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| --- | --- |
| **SEMESTER** | Fall |

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| **COURSE CODE** | 151515335 | **COURSE NAME** | Effective Communication in Engineering |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | **Credit** | **ECTS** | **TYPE** | **LANGUAGE** | |
| 5 | 2 | | 0 | - | | 2 | 3 | CORE () ELECTIVE  ( √ ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | |  | | | | | ( x ) |

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| ASSESSMENT CRITERIA | | | |
| MID-TERM | Evaluation Type | Quantity | % |
| Mid-Term | 1 | 40 |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Report |  |  |
| FINAL EXAM | Written exam | 1 | 60 |
| PREREQUIEITE(S) |  | | |
| COURSE DESCRIPTION | Definition of interpersonal communication, communication model, communication components and characteristics, effective listening and feedback, obstacles in interpersonal communications (source, channel, receiver, etc.), factors facilitating communication, the role of emotions in communication and using emotions in communication, conflict in communication and conflict prevention, important issues about communication in engineering workplace, communication applications. | | |
| COURSE OBJECTIVES | The purpose of this course is that make students comprehend interpersonal communication, recognize communication skills, realize the importance of effective listening and feedback, comprehend the role of facilitator and preventer factor in communication, realize the role of emotions in communication, comprehend conflict in communication and conflict resolution ways, and used to communicate effectively both social and work life. | | |
| ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION | This course allowing students to gain skills to communicate, Effectively in their professions and careers will help to use effective communication skills. | | |
| COURSE OUTCOMES | To know the definition of interpersonal communication, To comprehend communication elements and properties,To acquire the effective listening skills,To recognize preventer factors in interpersonal communication  To recognize facilitator factors in communication, To know the role of emotions in communication and use, To be aware of the engineering work environment communication skills, To use effective communication skills | | |
| TEXTBOOK | Kaya, A. (2011). Kişilerarası etkili iletişim. Ankara: Pegem Akademi Yayıncılık.  Demiray, U. (2011). Etkili iletişim. Ankara: Pegem Akademi Yayıncılık. | | |
| OTHER REFERENCES | Ergin, A. ve Birol, C. (2000). Eğitimde İletişim. Ankara: Anı Yayıncılık.  Dökmen, Ü. (1995). Sanatta ve Günlük Yaşamda İletişim Çatışmaları ve Empati. İstanbul: Sistem Yayıncılık. | | |
| TOOLS AND EQUIPMENTS REQUIRED |  | | |

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| --- | --- |
| WEEK | TOPICS |
| 1 | Definition of Communication and Basic Components |
| 2 | Communication Models |
| 3 | Effective Communication |
| 4 | Effective Communication Barriers and Facilitating Factors Effective Communication |
| 5 | Speaking and Listening |
| 6 | Types of Communication |
| 7-8 |  |
| 9 | Dimensions of Effective Communication in Work Environments |
| 10 | Dimensions of Effective Communication in Work Environments |
| 11 | Organizational Communication in Institutions |
| 12 | Conflicts Interpersonal Communication |
| 13 | Problem Solving Methods in Interpersonal Communication |
| 14 | Cognitive, Affective and Behavioral Processes in Effective Communication |
| 15-16 |  |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[X ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ X]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[X]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[X]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[X]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[X]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[X]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[X]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[X]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[X]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[X]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| --- | --- | --- | --- |
| **COURSE CODE** | 151515336 | **COURSE NAME** | Application of Social Maintance |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | **Credit** | **ECTS** | **TYPE** | **LANGUAGE** | |
| 5 | 2 | | 0 | - | | 2 | 3 | CORE () ELECTIVE ( √ ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | **Engineering Subjects**  **[if it contains considerable design, mark with]** | | | | | **Social Science (√)** |

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| --- | --- | --- | --- |
| **ASSESSMENT CRITERIA** | | | |
| **MID-TERM** | **Evaluation Type** | **Quantity** | **%** |
| Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project | 1 | 40 |
| Report |  |  |
| Others (………) |  |  |
| **FINAL EXAM** | Project | 1 | 60 |
| **PREREQUIEITE(S)** |  | | |
| COURSE DESCRIPTION | Preparation of project proposal, to take part in a variety of scientific activities, projects execution. | | |
| COURSE OBJECTIVES | Engineer candidates develop and practice skills of projects as having the benefit of society to grow up | | |
| ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION | This course will help the prospective engineers to produce scientific approach by demonstrating the benefit of society projects. | | |
| COURSE OUTCOMES | 1) Comprehend important of application of social maintance and recognize problems in the community.  2) To be aware of problems in the community  3) To produce a project towards problems in the community  4) Develop desire for joining community services voluntarily.  5) Understand the requirements of the knowledge and skills for  Application of Social Maintance | | |
| TEXTBOOK | Coşkun, H. 2009; Topluma Hizmet Uygulamaları, Anı Yayıncılık, Ankara | | |
| OTHER REFERENCES | Harris, J. (1999). Proje Yönetimi. (Çev.) M. Zaman. İstanbul: Hayat Yayınları | | |
| **TOOLS AND EQUIPMENTS REQUIRED** |  | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | What is Project? Bascis Concepts of Project |
| 2 | How to prepare a project proposal ? |
| 3 | Preparing project |
| 4 | Preliminary preparing project |
| 5 | Preliminary preparing project |
| 6 | Application |
| 7-8 | MID-TERM EXAM |
| 9 | Application |
| 10 | Application |
| 11 | Application |
| 12 | Preparing conclusion report |
| 13 | Preparing conclusion report |
| 14 | Exhibit |
| 15-16 | FINAL EXAM |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ x ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ x ]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ x ]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ x ]** | **[ ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:** Asst. Prof. Didem Yasin

**Signature**:  **Date:**

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGY ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151516301 | **COURSE NAME** | SOIL MECHANIC |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 6 | 3 | | 0 | 0 | | | 3 | 4 | | COMPULSORY (X )  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 45 |
| Quiz | | | |  | |  |
| Homework | | | | 5 | | 5 |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
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| **FINAL EXAM** | | | | |  | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | introduction; fundamental physical properties; soil classifications; seepage; permeability; water flow in soil; compaction; shear strength of soil; distribution of stresses in a soil; slope stability; bearing capacity of soils; lateral earth pressures; consolidation. | | | | | | |
| **COURSE OBJECTIVES** | | | | | The main aim of the course is to teach the fundamental principles of soil mechanics and its importance in engineering application.. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To learn geological and geotechnical properties of soils. | | | | | | |
| **COURSE OUTCOMES** | | | | | Basic education and ability are given for developing project over soils and predicting soil beheaviour. | | | | | | |
| **TEXTBOOK** | | | | | **Craig, R. F. (1987).** Soil Mechanics, 4th Edition, Von Nostrand Reinhold, UK. | | | | | | |
| **OTHER REFERENCES** | | | | | **Uzuner, B. A. (2005).** Çözümlü Örneklerle Temel Zemin Mekaniği, Derya Kitabevi, Trabzon.  **Holtz, R. D. & Kovacs, W. D. (1981).** Geoteknik Mühendisliğine Giriş, Çeviren: Kamil Kayabalı, Gazi Kiyabevi, Ankara.  **Yıldırım, S. (2004).** Zemin İncelemesi ve Tasarımı, Birsen Yayınevi, İstanbul. Ulusay, R. (1989). Uygulamalı Jeoteknik Bilgiler, TMMOB, Jeoloji | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Soil and rocks. |
| 2 | Physical characteristics of soils. |
| 3 | Classifications of soil. |
| 4 | Flow of water in soils: permeability and seepage. |
| 5 | Soil compaction. |
| 6 | Shear strength of soil. |
| 7 | Stress distribution in soil. |
| 8 | Mid-Term Exam |
| 9 | Mid-Term Exam |
| 10 | Bearing capacity. |
| 11 | Slope stability on soils |
| 12 | Consolidation and settlement of soils |
| 13 | Consolidation and settlement of soils |
| 14 | Foundation investigations |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **X** |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **X** |  |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **X** |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **X** |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **X** |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **X** |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **X** |  |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **X** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility | **X** |  |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **X** |  |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **X** |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Associate Prof. Ali KAYABAŞI | **Date:** |
| **Signature(s)**: |  |

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**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **CODE** | 151516311 | **NAME** | Sedimentology |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 6 | 3 | 0 | | 0 | | 3 | | 4 | CORE (x) ELECTIVE ( ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
|  | | |  | | | |  | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 40 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 60 | |
| Oral exam | | | | |  |  | |
| Presentation | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………..) | | | | |  |  | |
| **PREREQUISITE(S) (If any)** | | | | | To be registered and continous in Stratigraphy course | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | Historical development in Sedimentology, its roots, its methods; types of sedimentary rocks, their classification; Processes forming sedimentary rocks and their global distribution; basic sedimentary environments and their products. | | | | | | | |
| **AIMS OF THE COURSE** | | | | | Teaching students about sedimentary processes and the facies they produce; equip them with knowledge that help them to deduce and interpret the sedimentary process by investigating geological record. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | To provide students the necessary knowledge of interpreting the events in geological past that help them in investigation of energy resources and ore deposits in sedimentary rocks. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | Equip the student with the origin, historical development and its relation with other geological diciplines of Sedimentology; learning about the basic sedimentary processes and the features of sediments where they form. | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Translation of certain chapters of “Principles of Sedimentology and Stratigraphy” (Boggs, JR, 1995)  Kırıntılı Kayaçlar Sedimantolojisi (Derman, 2004) adlı basılmamış ders notları. | | | | | | | |
| **OTHER REFERENCES** | | | | | Sedimentary Environments and Facies (Reading, 1979)  Sedimentologié (Chamley, 1987). | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | | Datashow | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Science of Sedimentology: Origin and area of interests |
| 2 | Science of Sedimentology: Methods and relations to other geological disiplines |
| 3 | Weathering processes and products |
| 4 | Transportation of weathering products |
| 5 | Transportation of weathering products |
| 6 | Classification of sedimentary structures |
| 7 | Midterm Exam |
| 8 | Midterm Exam |
| 9 | Origin of sedimentary structures |
| 10 | Classification of Sedimentary Environments |
| 11 | Continental Environments |
| 12 | Shorelines Environments |
| 13 | Shelve Environments |
| 14 | Oceanic Environments |
| 15,16 | Final Exam |

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| **RELATION BETWEEN LEARNING OUTCOMES (LO) OF THE COURSE AND PROGRAMME OUTCOMES (PO)**  (3: High, 2: Moderate, 1: Low) | | | | |
| **NO** | ***At the end of the course, students will be able to,*** | **3** | **2** | **1** |
| 1 | use fundamental and engineering knowledge. |  | **X** |  |
| 2 | to design solutions with scientific background knowledge, apply them to geological problems, analyze and evaluate the results. |  | **X** |  |
| 3 | work in multidisciplinary groups, find solutions to problems with different approaches. |  | **X** |  |
| 4 | have successful communications with others. |  |  | **X** |
| 5 | track new developments, improve his/her knowledge and use this knowledge in efficient ways. |  |  | **X** |
| 6 | follow technological improvements and use up-to-date techniques and tools in geological researches. |  |  | **X** |
| 7 | think in 3D, analyze and synthesize with establishing cause-effect relations. | **X** |  |  |
| 8 | do research on natural events and sources, present findings both verbally and/or orally. | **X** |  |  |
| 9 | comprehend universal and communal effects of geological studies. | **X** |  |  |
| 10 | assure geological knowledge and data available to other engineering branches. |  | **X** |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **X** |  |  |

**Lecturer of the Course:** Prof. Dr. Faruk Ocakoğlu

**Signature**:  **Date:**

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**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **CODE** | 151516329 | **NAME** | Geochemistry |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 6 | 3 | 0 | | 0 | | 3 | | 5 | CORE (✓ ) ELECTIVE ( ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
| X | | |  | | | |  | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 40 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 60 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | Concept, description and history of geochemistry, earth structure and composition, factors affecting the element behavior, geochemical environments and geochemical mobility, phase diagrams, isotopes and their uses, geochemistry of granitoids and volcanic rocks, geochemistry of mafic and ultramafic rocks | | | | | | | |
| **AIMS OF THE COURSE** | | | | | Teaching the effectiveness of geochemical processes on the formation of Earth. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | Explaining how geochemical processes operate in the frame of principles and rules of other fundamental sciences | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | Effective use of geochemical knowledge in mineral and hot water exploration works and environmental health studies | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Akçay, M. 2002, Jeokimya: Temek kavramlar ve uygulamaya aktarımları, Karadeniz Teknik Üniv. Müh. Mim Fakültesi Yayınları No. 60, 506 s.  N. Çağatay, ve A. Erler (Editörler), 1993, *Jeokimya: Temel Kavramlar ve İlkeler,* Jeoloji Mühendisleri Odası Yay. No. 32. | | | | | | | |
| **OTHER REFERENCES** | | | | | Krauskopf, K. B., 1982, Introduction to Geochemistry, McGraw Hill, Singapur, 617 s.  Faure, G., 1998, Principles and Applications of Geochemistry, Prentice Hall, New Jersey, 600 s. | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | |  | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Concept, description and history of Geochemistry |
| 2 | Earth structure and composition |
| 3 | Earth structure and composition |
| 4 | Factors affecting the element behavior |
| 5 | Factors affecting the element behavior |
| 6 | Geochemical environments and geochemical mobility |
| 7 | Geochemical environments and geochemical mobility |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Phase diagrams |
| 11 | Phase diagrams |
| 12 | Isotopes and their uses |
| 13 | Geochemistry of granitoids and volcanic rocks |
| 14 | Geochemistry of mafic and ultramafic rocks |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[x ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[ x ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ x ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:** Assoc. Prof. Özgür Karaoğlu

**Signature**:  **Date:**

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**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **CODE** | 151516330 | **DERSİN ADI** | Geological Mapping |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | | **COURSE DETAILS** | | | | |
| **Theoretical** | | **Practical** | **Laboratory** | | | **Credits** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 6 | 2 | | 4 |  | | | 4 | 6 | | CORE (x) ELECTIVE ( ) | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | |
| **Fundamental Sciences** | | **Fundamental Sciences** | | | | **Fundamental Sciences** | | | | | **Fundamental Sciences** |
| X | |  | | | |  | | | | |  |
| **EVOLUATION CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | **Sayı** | | **%** |
| Written exam | | | | 1 | | 20 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | | 1 | | 30 |
| Other (presentation) | | | | 1 | | 20 |
| **FINAL EXAM** | | | | | Written exam | | | | 1 | | 30 |
| **PREREQUISITE(S) (If any)** | | | | | To be registered and be continous in the Stratigraphy, Stuctural Geology and Field Geology courses. | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | Fundemental geological mapping knowledge and interpretation of geological evolution. Recognising and grouping rock units in the field, and drawing their boundaries on the map. Drawing structural elements on the map and to prepare reports including all field findings. | | | | | | |
| **AIMS OF THE COURSE** | | | | | To provide ability of doing geological observations alone and to note them systematically on the field notebook. To prepate a geological map alone and use it for a specific geological problem. | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | To practice the previous theoretical or lab courses (such as stratigraphy, sedimentology, structural geology etc.) and to formulate geological problems for their solution, and prepare geological reports. | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | To gain attitude of finely localisation himself in the field and on topographic map; lithologic description, recognition of bedding and measuring its position; recognision of faults and fissures, and their measurements; grouping the lithologies and mapping them; to put forward interpretation of a mapped field in terms of geological evolution and preparing geological reports including all types of field data. | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Jeolojik Harita Alımına Giriş (Seyitoğlu, 2013) | | | | | | |
| **OTHER REFERENCES** | | | | | Jeolojik Harita Bilgisi (Tatar, 1995)  Geological maps: an introduction (Maltman, 1998),  Temel Jeolojik Harita Bilgisi ve Uygulamaları (Karaman, 1987) | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | | compass, magnifier, hammer, measure, GPS instrument | | | | | | |

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| **WEEKLY PLANING** | | |
| **WEEK** | **TOPICS** | |
| 1 | Map concept, map types |
| 2 | Geological maps, coverage, aims and history |
| 3 | Topographic base maps: projection systems, grid system |
| 4 | Direction, dip, thickness and depth in geological maps |
| 5 | Measurements in 3 dimentions: Strike, dip, thickness, depth. |
| 6 | Producing structure contours and their interpretation |
| 7 | Unconformities in geological maps: conceptual frame and examples |
| 8 | Midterm Exam |
| 9 | Midterm Exam |
| 10 | Faults in geological maps: conceptual frame and examples |
| 11 | Folds in geological maps: conceptual frame and examples |
| 12 | Field practises with the partial guidance of research asistants. |
| 13 | Field practises with the partial guidance of research asistants. |
| 14 | Prepare a report by using field data. |
| 15,16 | Fınal Exam |

|  |  |  |  |  |
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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  | **X** |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **X** |  |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | **X** |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  | **X** |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **X** |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **X** |  |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **X** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. |  |  | **X** |
| 9 | Understanding of professional and ethical issues and taking responsibility |  | **X** |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  | **X** |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  | **X** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Lecturer of the Course:** Prof. Dr. Volkan KARABACAK | **Date:** |
| **Signature**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
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| **SEMESTER** | Fall |

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| **CODE** | 151516331 | **NAME** | Professional English II |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 6 | 2 | 0 | |  | | 2 | | 3 | CORE (x ) ELECTIVE ( ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
|  | | |  | | | | **√** | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 40 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 60 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | General geology, mineralogy, petrography texts related to the topics | | | | | | | |
| **AIMS OF THE COURSE** | | | | | Students gain knowledge of reading ability and reading comprehension | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | Watch broadcasts on Geology, comprehension and evaluation skills to win. In addition to the geological terms, pronunciation, and meaning of the course is to teach the objectives. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | Students will gain knowledge about the geological terms | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Notes distributed to the students will be monitored. | | | | | | | |
| **OTHER REFERENCES** | | | | | Glossory of Geology | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | |  | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Structure of the Earth |
| 2 | Structure of the Earth |
| 3 | Plate boundaries |
| 4 | The Earth’s Components |
| 5 | The Rock Cycle |
| 6 | Characteristics of Igneous Rocks |
| 7 | Characteristics of Igneous Rocks |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Characteristics of Metamorphic Rocks |
| 11 | Characteristics of Metamorphic Rocks |
| 12 | Characteristics of Sedimentary Rocks |
| 13 | Characteristics of Sedimentary Rocks |
| 14,15 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ ]** | **[x ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[x ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[x ]** | **[ ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:** Assoc. Prof. Özgür Karaoğlu

**Signature**:  **Date:**

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| --- | --- |
| **SEMESTER** | Spring |

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| **COURSE CODE** | 151516323 | **COURSE NAME** | New Technologies on Field Studies |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 6 | 2 | | 0 |  | | | 2 | 3 | | COMPULSORY  ELECTIVE (x ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | (**√** ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 30 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (presentation) | | | | 1 | | 20 |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Introducing new technological devices, software and methods in Geology. | | | | | | |
| **COURSE OBJECTIVES** | | | | | Training of students about new technological devices, software and methods (e.g. Geographic Position System, Topographic Measurements, Shallow Geophysical Methods) which are used on geological field studies. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To introduce new technological devices, software and methods which are used on geological field studies and available in the Department . | | | | | | |
| **COURSE OUTCOMES** | | | | | The student will gain the ability to instrumental analyze on geological purposes. | | | | | | |
| **TEXTBOOK** | | | | | - | | | | | | |
| **OTHER REFERENCES** | | | | | 1. Optech Ilris 3D Terresterial Lidar manuel 2. Ramac GPR device manuel 3. Syscal Pro Electrical Resistivity manuel 4. Topcon Total Station manuel | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Data-show | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduce |
| 2 | Devices used on geological field studies. |
| 3 | Global Positioning System and general properties |
| 4 | Topographic measurement devices |
| 5 | “Teodolit (Total-Station)” system, general properties and applications |
| 6 | “Lidar” system, general properties and applications |
| 7 | Physiographic analyze methods, softwares and applications |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Shallow geophysics devices |
| 11 | “GPR” system, general properties and applications |
| 12 | “Elektrik rezistivite” system, general properties and applications |
| 13 | Geophysical analyze methods, softwares and applications |
| 14 | General evaluations |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **x** |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  | **x** |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **x** |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **x** |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **x** |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  | **x** |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **x** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **x** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  | **x** |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **x** |  |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  | **x** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Volkan KARABACAK | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151516332 | **COURSE NAME** | HYDROCHEMISTRY AND WATER QUALITY |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 6 | 2 | | 0 |  | | | 2 | 3 | | COMPULSORY ( )  ELECTIVE ( x ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 30 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | | 1 | | | 20 |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 50 |
| **PREREQUIEITE(S)** | | | | | Hydrogeology course must be taken or must be on the same semester | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Properties and structure of water analyses, results units, criteria for drinking and potable water and irrigation water, relationship of water quality to lithology, significance of properties and constituents reported in water analyses, evaluation of water composition, organization and study of water-analysis data | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The main aim of this course is to give the detailed knowledge on hydrochemistry in order to obtain skillfull to do solve some problem in field. The second objective of this course is to give surface water- groundwater interaction and its results for contamination, water quality changed by natural and man-made effects, pollution mechanism in groundwater. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To give the detailed knowledge on hydrochemistry in order to obtain skillfull to do solve some problem in field. | | | | | | | |
| **COURSE OUTCOMES** | | | | | using fundamental and engineering knowledge, designing solutions with scientific background knowledge, applying them to geological problems, analyzing and evaluating the results, working in multidisciplinary groups, finding solutions to problems with different approaches, having successful communications with others, thinking in 3D, analyzing and synthesizing with establishing cause-effect relations. | | | | | | | |
| **TEXTBOOK** | | | | | L. Doğan, Hidrojeolojide Su Kimyası, DSİ Yayını, Yayın No: 906,  Ankara,1981. | | | | | | | |
| **OTHER REFERENCES** | | | | | A. Şahinci, Doğal Suların Jeokimyası, İzmir, 1991.  M. Türkman, Su Kimyası Çalışmaları Rehberi, Ankara, 1972 .  J. D. Hem, Study and Interpretation of the Chemical Characteristics of  Natural Water, Second ed., United States Government Printing Office,  Washington, 1971.  G. Yüce, Yeratısuyu Kimyası Doktora Seminer Notları, Ç.Ü., 1994, Adana. | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Projector , laptop, overhead projector, internet | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Structure of water and properties of water |
| 2 | Chemical, bacteriologicand radioaktivite properties of water |
| 3 | Criteria of drinking and potable water |
| 4 | Evaluation of project results |
| 5 | Criteria of irrigation water |
| 6 | Criteria of industrial water |
| 7 | Water-rock interaction |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Influences on chemical structure of water |
| 11 | Thermal and mineral waters |
| 12 | Groundwater pollution |
| 13 | Water analyses results |
| 14 | Evaluation of water analyses results |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ x ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ x ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ x ]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Asist. Prof. Didem Yasin | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** |  |

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| **COURSE CODE** | 151516308 | **COURSE NAME** | Archaeogeology |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 6 | 2 | | 0 | 0 | | | 3 |  | | COMPULSORY ()  ELECTIVE (X ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | (**√** ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 20 |
| Quiz | | | |  | |  |
| Homework | | | | 1 | | 30 |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Teaching of geological structures on Earth Crust due to tectonic deformations | | | | | | |
| **COURSE OBJECTIVES** | | | | | Teaching all kinds of geological structures related with tectonic movements (faults, joints, folds, etc.); how it was formed, general characteristics, their relation with each other. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | It will contribute to students on recognizing the geological structures, understanding the evolution of the crust and thinking 3D. | | | | | | |
| **COURSE OUTCOMES** | | | | | There is event-effect relationship on Earth Crust. The student will gain the ability to comment on affecting crust by analyzing structures | | | | | | |
| **TEXTBOOK** | | | | | İhsan Ketin, Structural Geology | | | | | | |
| **OTHER REFERENCES** | | | | | All kinds of books and articles related to Structural Geology | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Computer, Data Show | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | General introduction and to be acquainted with each other |
| 2 | To be discuss the existence the relationship between Archaeology and Geology |
| 3 | To be discuss the our countries archaeogeolocical potential |
| 4 | To explain by exampling the archaeology can obtain which kind of data at a geological study |
| 5 | To explain by exampling how archaeological sites required to invest for a geological study. |
| 6 | A presentation of student |
| 7 | A presentation of student |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | A presentation of student |
| 11 | A presentation of student |
| 12 | A presentation of student |
| 13 | General evaluation |
| 14 |  |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  |  | **x** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **x** |  |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **x** |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **x** |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **x** |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  | **x** |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **x** |  |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **x** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility | **x** |  |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | **x** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  | **x** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Erhan Altunel | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** |  |

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| **CODE** | 151516310 | **NAME** | Geographic Information Systems |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 6 | 2 | 0 | |  | | 2 | | 3 | CORE ( ) ELECTIVE (x ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
|  | | | x | | | |  | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 40 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 60 | |
| Oral exam | | | | |  |  | |
| Presentation | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………..) | | | | |  |  | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | Content, significance and application fields of Geographic Information Systems. Processing geological data by means of ArcGIS software. | | | | | | | |
| **AIMS OF THE COURSE** | | | | | Acquiring the content, significance and application areas of Geographic Information Systems. Learning how geological data can be included and processed by ArcGIS software. Having some geological practices with real geological data. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | Effective evaluation of geological data by using ArcGIS software. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | Learning objective, content and functions of Geographic Information Systems. Learning ArcGIS software, and making some practical geological works on it. | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Tutorial of the software. | | | | | | | |
| **OTHER REFERENCES** | | | | |  | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | | Desktop computer, ArcGIS software, datashow. | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Content, history and geological applications of Geographic Information Systems |
| 2 | Outlines of ArcGIS as a Geographic Information Systems software. |
| 3 | shape file in ArcGIS; types, way of creation. |
| 4 | georeferencing a map in ArcGIS. |
| 5 | Digitising a topographic map in ArcGIS. |
| 6 | Digitising a topographic map in ArcGIS. |
| 7 | Digitising a geological map in ArcGIS. |
| 8 | Mid exam |
| 9 | Mid exam |
| 10 | Digitising a geological map in ArcGIS. |
| 11 | Creation of log data of any types; table building in ArcGIS. |
| 12 | Processing table data, inquiring, and page seeing in ArcGIS. |
| 13 | A geological practice in ArcGIS. |
| 14 | A geological practice in ArcGIS. |
| 15,16 | Final exam |

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| **RELATION BETWEEN LEARNING OUTCOMES (LO) OF THE COURSE AND PROGRAMME OUTCOMES (PO)**  (3: High, 2: Moderate, 1: Low) | | | | |
| **NO** | ***At the end of the course, students will be able to,*** | **3** | **2** | **1** |
| 1 | use fundamental and engineering knowledge. | **X** |  |  |
| 2 | to design solutions with scientific background knowledge, apply them to geological problems, analyze and evaluate the results. | **X** |  |  |
| 3 | work in multidisciplinary groups, find solutions to problems with different approaches. |  | **X** |  |
| 4 | have successful communications with others. |  | **X** |  |
| 5 | track new developments, improve his/her knowledge and use this knowledge in efficient ways. |  | **X** |  |
| 6 | follow technological improvements and use up-to-date techniques and tools in geological researches. |  | **X** |  |
| 7 | think in 3D, analyze and synthesize with establishing cause-effect relations. | **X** |  |  |
| 8 | do research on natural events and sources, present findings both verbally and/or orally. | **X** |  |  |
| 9 | comprehend universal and communal effects of geological studies. |  |  | **X** |
| 10 | assure geological knowledge and data available to other engineering branches. | **X** |  |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  | **x** |  |

**Lecturer of the Course:** Prof. Dr. Faruk Ocakoğlu

**Signature**:  **Date:**

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**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
| --- | --- |
| **SEMESTER** |  |
| **CODE** | **151516322** | **NAME** | **Medical Geology** | | |

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| **SEMESTER** | | | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 6 | | | 2 | 0 | |  | | 2 | | 3 | CORE ( ) ELECTIVE (**√** ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | | | |
| **Fundamental Sciences** | | | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
|  | | | | |  | | | |  | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | | | |
| **MID-TERM** | | | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | |  | 40 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (Practical exam) | | | | |  | 20 | |
| **FINAL EXAM** | | | | | | | Written exam | | | | |  | 40 | |
| Oral exam | | | | |  |  | |
| Presentation | | | | |  |  | |
| Other (Practical exam) | | | | |  |  | |
| **PREREQUISITE(S) (If any)** | | | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | | | Elements, minerals and geochemical characteristics of rocks and soil, mining management and environmental factors such as air pollution and radiation effect on human health and the health problems they cause. | | | | | | | |
| **AIMS OF THE COURSE** | | | | | | | Aim of the course to give information about environmental geology, petrology, mineralogy, micromorphology, depending on the geographical distribution of elements and organic components of plants on human and animal health and the effects of good or bad, especially analyzed in terms of the formation of different types of cancer and other diseases. Also discussion on the subject supporting cases to inform the international scientific works. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | | |  | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | | |  | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | | | Atabey, E. (2005) Tıbbi Jeoloji. TMMO Jeoloji Mühendisleri Odası Yayınları, Ankara, 194 s. | | | | | | | |
| **OTHER REFERENCES** | | | | | | | Jr. Guthrie, G.D. & Mossman, VB.T. (editors) (1993) Health Effects of Mineral Dusts. Mineralogical Society of America, 28, 1-5, 583p.  Hillerdal, G. (2003) Health problems related to environmental fibreous minerals. Pp. 113-118 in *Geology and Health* (H.C.W. Skinner & A.R. Berger, editors). Oxford, Oxford University Press.  Kadir, S., Önen-Hall, A.P., Aydın, S. N., Yakicier, C., Akarsu, N. & Tuncer, M. (2008) Environmental effect and genetic influence: A regional cancer predisposition survey in the Zonguldak region of Northwest Turkey.Environmental Geology, 54, 391-409.  Komatina, M.M. (2004) Medical Geology: Effects of Geological Environments on Human Health. Serbian Geological Society, Belgrad, Paris, Oxford, 488s.  Ross, M., Nolan, R.P., Langer, A.M. & Cooper, W.C. (1993) Health effects of mineral dusts other than asbestos. Pp. 361-401 in *Heath Effects of Mineral Dusts* (G.D. Guthrie, Jr. & B.T. Mossman, editors). Washington: Reviews in Mineralogy, 28, Mineralogical Society of America.  Selinus, O., Alloway, B., Centeno, J.A., Finkelman, R.B., Fuge, R., Lindh, U. & Smedley, P. (editors) (2005) Essentials of Medical Geology: Impacts of the Natural Environment on Public Health. Elsevier, London, Paris, 812p.  Skinner, H.C.W., Ross, M. & Frondel, C. (1988) Asbestos and other  fibreous materials: mineralogy, crystal chemistry and health effects. New York: Oxford University Press. | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | | | |  | | | | | | | |
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| **WEEKLY PLANING** | | | | | | | | | | | | | | |
| **WEEK** | **TOPICS** | | | | | | | | | | | | | |
| 1 | Minerals and their effect on human health, | | | | | | | | | | | | | |
| 2 | The relations between the geochemistry of surrounding rocks and human health , | | | | | | | | | | | | | |
| 3 | Physico-chemical characterization of soil and effect on human health, | | | | | | | | | | | | | |
| 4 | Elements and their effect on human health, | | | | | | | | | | | | | |
| 5 | Importance of mapping of mineralogical and geochemical distribution, cancer and other diseases, | | | | | | | | | | | | | |
| 6 | Mining management and effects on human health, | | | | | | | | | | | | | |
| 7 | Air pollution (mineral dust, amorphous and organic materials, gases, etc.)., And effects on human health. | | | | | | | | | | | | | |
| 8 | SEMINAR | | | | | | | | | | | | | |
| 9 | SEMINAR | | | | | | | | | | | | | |
| 10 | Radiation and radioactive pollution, | | | | | | | | | | | | | |
| 11 | Genetic and environmental medicine | | | | | | | | | | | | | |
| 12 | **MID TERM EXAM** | | | | | | | | | | | | | |
| 13 | Investigation of asbestos deposits and occurrences in the region, | | | | | | | | | | | | | |
| 14 | Repetition of the issues, the environment, the relationship between genes and evaluation of health | | | | | | | | | | | | | |
| 15,16 |  | | | | | | | | | | | | | |

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| **RELATION BETWEEN LEARNING OUTCOMES (LO) OF THE COURSE AND PROGRAMME OUTCOMES (PO)**  (3: High, 2: Moderate, 1: Low) | | | | |
| **NO** | ***At the end of the course, students will be able to,*** | **3** | **2** | **1** |
| 1 | use fundamental and engineering knowledge. |  |  | **√** |
| 2 | to design solutions with scientific background knowledge, apply them to geological problems, analyze and evaluate the results. |  | **√** |  |
| 3 | work in multidisciplinary groups, find solutions to problems with different approaches. |  | **√** |  |
| 4 | have successful communications with others |  |  | **√** |
| 5 | track new developments, improve his/her knowledge and use this knowledge in efficient ways. |  | **√** |  |
| 6 | follow technological improvements and use up-to-date techniques and tools in geological researches. | **√** |  |  |
| 7 | think in 3D, analyze and synthesize with establishing cause-effect relations. |  | **√** |  |
| 8 | do research on natural events and sources, present findings both verbally and/or orally. | **√** |  |  |
| 9 | comprehend universal and communal effects of geological studies. |  |  | **√** |
| 10 | assure geological knowledge and data available to other engineering branches. |  | **√** |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  |  |

**Lecturer of the Course:** Prof. Dr. Selahattin Kadir

**Signature**:  **Date:**

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**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151516333 | **COURSE NAME** | Environmental Geology |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 6 | 2 | | 0 |  | | | 2 | 3 | | COMPULSORY ( )  ELECTIVE (x ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | To give examples about protection from natural disasters such as earthquake, flood, landslide and volcanic eruption, environmental impacts of mining activities and waste disposal areas, | | | | | | | |
| **COURSE OBJECTIVES** | | | | | To reveal what kind of relationship with the environment and that geological functions. To teach to mimize harms of natural disasters. To explain the environmental impact of mining and industrial wastes | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To give information about how to arrange CED reports. | | | | | | | |
| **COURSE OUTCOMES** | | | | | using fundamental and engineering knowledge, working in multidisciplinary groups, finding solutions to problems with different approaches, having successful communications with others, tracking new developments, improving his/her knowledge and using this knowledge in efficient ways, following technological improvements and using up-to-date techniques and tools in geological researches, thinking in 3D, analyzing and synthesizing with establishing cause-effect relations, comprehending universal and communal effects of geological studies, assuring geological knowledge and data available to other engineering branches. | | | | | | | |
| **TEXTBOOK** | | | | | P. Rahn, *Engineering Geology:* *An Environmental Approach*, Printice Hall, New York, 1996. | | | | | | | |
| **OTHER REFERENCES** | | | | | Environmental Geology Course Notes (Dr. İrfan Yolcubal) | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Projector , laptop, overhead projector, internet | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Relationship between geology and environment |
| 2 | Air pollution- asid rain |
| 3 | Atmosphere- climate- |
| 4 | Emission control, source of atmospheric pollution, Natural disaster, land subsidence |
| 5 | Relationship between geology and environment |
| 6 | Air pollution- asid rain |
| 7 | Atmosphere- climate |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Floods,shore erosion, tsunamies |
| 11 | Earthquakes |
| 12 | Volcanic eruptions |
| 13 | Characteristics of water contamination- surfacewater contamination |
| 14 | Mine waste, industrial waste, CED report |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ x ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ x ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ x ]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ x ]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ x ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Asist. Prof. Didem Yasin | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151516334 | **COURSE NAME** | Metamorphic Petrography |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 6 | 2 | | 2 |  | | | 3 | 5 | | **CORE (√ ) ELECTIVE ()** | **Turkish** |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | |  | | 30 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (Application) | | | |  | | 20 |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | |  | | 30 |
| **PREREQUIEITE(S)** | | | | | Practise 20 | | | | | | |
| **COURSE DESCRIPTION** | | | | | The course contain factors that have an impact on the metamorphic events. The mineralogical composition and their textural feature will be determined under microscope. will be determined. Based on this metamorphic zone and facies and types of metamorphism will be determined. | | | | | | |
| **COURSE OBJECTIVES** | | | | | The aim of the course is to understanding the event of metamorphism, recognition of metamorphic rocks and formation conditions interpreting gains. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | This course, metamorphic rock types of macro and micro scale necessary to recognize the geological map of drawings, makes the solution of geological problems. | | | | | | |
| **COURSE OUTCOMES** | | | | | Concepts related to metamorphism  Definition of macroscopic and microscobic , structural and textural of metamorphic rocks  Types of metamorphism and processes  Seperation of metamorphic facies  Relationship between plate tectonics and metamorphism | | | | | | |
| **TEXTBOOK** | | | | | Erkan,Y.,2006, Metamorfi,kr Petrografi . Hacettepe Üniversitesi Mühendislik Fakültesi, 160s. | | | | | | |
| **OTHER REFERENCES** | | | | | Uz, B., 1999, Petrografi prensipleri.  Çoğulu, E., 1979, Metamorfik kayaç petrografisi ders notları. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Microscope | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Theory: Definition of metamorphism and Types of metamorphism  Laboratory: Determination of metamorphic rocks as macroscobic |
| 2 | Theory: Factors that have an impact on the metamorphic events  Laboratory: Low degree metamorphic rocks as weak foliation: **Phyllite** |
| 3 | Theory: Processes of metamorphism  Laboratory: Low degree metamorphic rocks as no foliation:Meta sandstone |
| 4 | Theory: Metamorphic zone and facies  Laboratory: : Low degree metamorphic rocks as no foliation: Hornfels |
| 5 | Theory: Classification of metamorphic rocks  Laboratory: Low degree metamorphic rocks as no foliation:Spotted slate |
| 6 | Theory: The textural properties of metamorphic rocks  Laboratory: Low degree metamorphic rocks as no foliation: Quartzite and marble |
| 7 | Theory: The rocks are formed by contact metamorphism  Laboratory:Mica schist |
| 8 | Mid term Exam |
| 9 | Mid term Exam |
| 10 | Theory: The rocks are formed by contact metamorphism  Laboratory: Amphibole schist |
| 11 | Theory: The rocks are formed by dynamic metamorphism  Laboratory: Biotite-quartz schist |
| 12 | Theory: The rocks are formed by dynamic metamorphism  Laboratory: Calcschist |
| 13 | Theory: The rocks are formed by regional metamorphism  Laboratory: Muscovite and mica gneiss |
| 14 | Theory: Plate tectonics and metamorphism  Laboratory: Metamorphic rocks as evident foliation: Calcsilicatic gneiss |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[x]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[x]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[x]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ x ]** | **[ ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ ]** | **[x]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ x ]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[x]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ x ]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ x ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Prepared by:** Asist. Prof. Hülya Erkoyun

**Signature**: **Date:**



**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGY ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |
| **COURSE CODE** | 151517400 | **COURSE NAME** | ENGINEERING GEOLOGY | | | |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 7 | 3 | | 0 | 0 | | | 3 | 5 | | COMPULSORY (X )  ELECTIVE ( ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( x ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | |  | | |  |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | | Engineering mechanic,Strength and Drilling lectures must be progressed | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Engineering geology and engineering properties of soils and rocks; discontinuities and its importance in engineering application; engineering classification of soils and rocks; engineering geology maps; slope stability; dam, tunnel and foundation geology; excavations; influence of groundwater in engineering works; city planning and engineering geology. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The main aim of the course is to teach the fundamental principles of engineering geology and its importance in engineering application. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To understand aplication of geology in engineering Project(dam, tunnel, higway, excavation, foundations) | | | | | | | |
| **COURSE OUTCOMES** | | | | | To learn engineering geology principles and to learn projecting of engineering structures. | | | | | | | |
| **TEXTBOOK** | | | | | **Erguvanlı, K. (1994).** Mühendislik Jeolojisi, Seç Dağıtım, İstanbul. | | | | | | | |
| **OTHER REFERENCES** | | | | | **Goodman, R.E. (1993).** Engineering Geology, John Wiley & Sons Inc., Canada.  **Johnson, R.B. & Graff, J.V.D. (1988).** Principles of Engineering Geology, John Wiley & Sons Inc., Canada.  **Legget, R.F. & Hatheway, A.W. (1988).** Geology and Engineering, 3rd Edition, Mc Graw-Hill..  **Rahn, P. H. (1996).** Mühendislik Jeolojisi, Çevresel bir Yaklaşım, Çevirenler: Erdal Akyol, Kamil Kayabalı, 2006, Gazi Kitabevi, Ankara | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Engineering geology is­|-an overview. |
| 2 | Engineering properties of rocks. |
| 3 | Discontinuities and its importance in engineering. |
| 4 | Engineering classification of rocks. |
| 5 | Engineering geology maps and their usage. |
| 6 | Mass movements and landslides. |
| 7 | Excavations and their improvements. |
| 8 | Mid term Exam |
| 9 | Mid term Exam |
| 10 | Stability of rock slopes. |
| 11 | Dam geology. |
| 12 | Influence of groundwater in engineering works. |
| 13 | Tunnel geology |
| 14 | Foundation investigations |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ x ]** | **[ ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[x ]** | **[ ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ x ]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[x ]** | **[ ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[x ]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ x]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ x]** | **[ ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Associate Prof. Ali KAYABAŞI | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
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| **SEMESTER** | Fall |

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| **CODE** | 151517615 | **NAME** | Seminar |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 7 | 0 | 2 | | - | | 1 | | 2 | CORE (x ) ELECTIVE ( ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
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| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | |  |  | |
| Quiz | | | | |  |  | |
| Homework | | | | | 1 | 50 | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Presentation | | | | | 1 | 50 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | How is present scientific presentation (costume, appearance, motion of bodies, use of visual means). To sell to students interested in seminar matters, to be prepared and to control for seminar to students. To make seminar of students in front of teachers and other students. | | | | | | | |
| **AIMS OF THE COURSE** | | | | | To improve make seminar at the congress, cymposium and briefing. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | To improve for presentation and to check excitement for good presentation interested in scientific and project matters at the office, between of society or national and international cymposium. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | 1. To make a detailed research and review, 2. Effectively making presentations and Reporting | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Various documents related to the research and presentation techniques | | | | | | | |
| **OTHER REFERENCES** | | | | | National and international magazines and newsletters. | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | | Computer and data show | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | How is present scientific presentation? |
| 2 | How is present scientific presentation? |
| 3 | To share of seminar topics. |
| 4 | Presentation of seminar by students. |
| 5 | Presentation of seminar by students. |
| 6 | Presentation of seminar by students. |
| 7 | Presentation of seminar by students. |
| 8 | Homework |
| 9 | Presentation of seminar by students. |
| 10 | Presentation of seminar by students. |
| 11 | Presentation of seminar by students. |
| 12 | Presentation of seminar by students. |
| 13 | Presentation of seminar by students. |
| 14 | Presentation of seminar by students. |
| 15,16 | Presentation |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ ]** | **[x ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[x ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[x ]** | **[ ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:**

**Signature**:  **Date:**

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**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMEN**

#### COURSE INFORMATION FORM

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| **SEMESTER** |  |

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| **COURSE CODE** | 151517402 | **COURSE NAME** | Earthquake Geology |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 7 | 2 | | 0 | 0 | | | 2 | 3 | | COMPULSORY (x )  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 20 |
| Quiz | | | | 3-4 | | 30 |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Issues what addressing in the context of this courses are; how earthquakes occur in the earth crust, how a geological survey has to do in order to expose the seismicity | | | | | | |
| **COURSE OBJECTIVES** | | | | | The aim of this courses is, explain geologically what has to do in order to minimize the devastation of an earthquake in our country where there are several active fault | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Contribute to taking required consciousness precautions by understanding the event of an earthquake which cause loss of life and property | | | | | | |
| **COURSE OUTCOMES** | | | | | To have sufficient implement in order to say something while constructing any engineering structure such as a settlement, road, bridge, dam, pipe line and factory… | | | | | | |
| **TEXTBOOK** | | | | | There is no only a single/ basic course book. | | | | | | |
| **OTHER REFERENCES** | | | | | Structural Geology and Neotectonic books, every kind of article related to active tectonic | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Computer- Data Show | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | General introduction |
| 2 | Fault, active fault and their characteristic features at the field site |
| 3 | Segmentation and the importance of segmentation on the fault zone |
| 4 | The concept of magnitude-amplitude and the factors which affect them |
| 5 | Required studies in order to exhibit the seismicity |
| 6 | Required studies in order to exhibit the seismicity |
| 7 | The meaning of micro seismic activity and fault plane analysis |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | To discuss the huge earthquakes (which can cause surface fracture) occurred in our country |
| 11 | The relationship between geological conditions and devastation |
| 12 | The relationship between geological conditions and devastation |
| 13 | Tsunami |
| 14 | Significant earthquake sources in our country |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **x** |  |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **x** |  |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **x** |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  | **x** |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **x** |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  | **x** |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **x** |  |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **x** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility | **x** |  |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **x** |  |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **x** |  |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Erhan Altunel | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151517405 | **COURSE NAME** | Fuel Geology |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 7 | 3 | | 0 | 0 | | | 3 | 4 | | CORE (√) ELECTIVE ( ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( x ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (Application) | | | |  | | |  |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | World and domestic statistics of energy resources, significance of fossil fuels for Turkey, physical and chemical properties of coal and petroleum, paleo-environmental context of their formation, and principal stages in fuel exploration. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | To learn the level of significance of the fossil fuels for our country and various properties of coal and petroleum, and to equip the student with the information which is obligatory in their exploration. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Fossil fuels are indispensable for energy consumption in World and in Turkey. Many of our graduates are of potential to work in the investigation of coal and Petroleum in public and private sector. | | | | | | | |
| **COURSE OUTCOMES** | | | | | To understand the shares of various fuels in World and Turkey, and their variation and causes through time. Characterization and classification of fossil fuels, to understand the principles of coal and petroleum exploration | | | | | | | |
| **TEXTBOOK** | | | | | Köksoy (1985), Yakıtlar Jeolojisi  Ward (1984), Coal Geology and Technology Stach et al (1982), Coal Geology | | | | | | | |
| **OTHER REFERENCES** | | | | | Kural (1991), Kömür | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Datashow, coal and raw petroleum samples. | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | World and Turkey’s energy statistics and drivers |
| 2 | Physical properties, deposition and coalification of floral organic matter |
| 3 | Chemical properties of coal and its classification |
| 4 | Coal forming environments and stages of coal exploration |
| 5 | Turkish coal provenances |
| 6 | Physical and chemical properties of petroleum |
| 7 | Formation of petroleum: types of organic matters and their transformation to petroleum |
| 8 | Midterm Exam |
| 9 | Midterm Exam |
| 10 | Host rock, and primary and secondary migration of petroleum |
| 11 | Reservoir rocks and their properties |
| 12 | Petroleum traps |
| 13 | Stages of petroleum exploration |
| 14 | Overview of Turkish petroleum provenances |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ x ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ x ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ x ]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ ]** | **[ x ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ x ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ x ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Faruk Ocakoğlu | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **CODE** | 151517617 | **NAME** | Ore Deposits |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 7 | 3 | 0 | | - | | 3 | | 4 | CORE (x ) ELECTIVE ( ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
|  | | |  | | | | **√** | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 40 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 60 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | Classification of ore deposits, morphologies of ore bodies and relations with their wall rocks, structures and textures of ores, endogenic deposits, exogenic deposits | | | | | | | |
| **AIMS OF THE COURSE** | | | | | To teach to students the formation of ore deposits and formation environments, the relations of ore-wall rocks, the structures and textures of ores. To enroll students with projects on ore deposits. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | To enhance students’ knowledge of handling and participating ore-deposit projects in the institutions or companies they will be working for. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | 1. Comprehension processes of ore formation, 2. Understanding of all aspects of the interaction of wall rock mineralization, 3. To use theoretical knowledge in the field | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Endogenic Ore Deposits, Prof. Dr. Altan GÜMÜŞ  Bilim Ofset, 1998, Bornova- İzmir (In Turkish)  Exogenic Ore Deposits, Prof. Dr. Altan GÜMÜŞ D.E.Ü. Press unit, 1999, Bornova- İzmir (In Turkish) | | | | | | | |
| **OTHER REFERENCES** | | | | | Ore Deposits, Prof. Dr. Ahmet GÖKÇE  Cumhuriyet Un. Publ. No: 85, 2000, Sivas (In Turkish)  Ore Deposits, Formation and Evaluations,  Prof. Dr. Önder ÖZTUNALI, Latin Press, 1973, İstanbul (In Turkish)  Ore Deposits and Plate Tectonic, Prof. Dr. F.J. Sawkins,  Ankara Un. Publ., 1999, Ankara (In Turkish) | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | |  | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | History of minning, terms of ore mineralization, classification of ore deposits |
| 2 | Morphologies of ore bodies, relations with their wall rocks, endogenic deposits |
| 3 | Orthomagmatic deposits |
| 4 | Porphyric deposits |
| 5 | Pegmatitic and pneumatolytic deposits |
| 6 | Pyrometasomatic deposits, hydrothermal deposits |
| 7 | Volcanic and subvolcanic deposits |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Metamorphic deposits |
| 11 | Exogenic deposits and residual deposits |
| 12 | Oxidation and cementation deposits |
| 13 | Placer deposits and stratiform deposits |
| 14 | Chemical and biochemical sedimentary Fe-Mn deposits, Pb-Zn cover deposits |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ x ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[x ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[x ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[ x ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:** Asst. Prof. Hüseyin SENDİR

**Signature**:  **Date:**

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**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** |  |

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| **COURSE CODE** | 151517618 | **COURSE NAME** | Global Tectonic |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 7 | 3 | | 0 |  | | | 3 | 4 | | COMPULSORY ()  ELECTIVE (X) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 20 |
| Quiz | | | |  | |  |
| Homework | | | | 1 | | 30 |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | To discuss the movement of earth crust and general characteristics of huge structures which occurred as a result of this movement | | | | | | |
| **COURSE OBJECTIVES** | | | | | Imparting different knowledge to the student such as dynamism of the earth crust, earth crust differentiations in time and general characteristics of huge tectonic structures | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Contribute to understand huge events and their results which occurred on earth crust | | | | | | |
| **COURSE OUTCOMES** | | | | | To have knowledge of crust deformations which are shaping the earth crust and main structures which are composing as a consequences of this deformations | | | | | | |
| **TEXTBOOK** | | | | |  | | | | | | |
| **OTHER REFERENCES** | | | | |  | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Computer-Data Show | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction |
| 2 | Main structure which are composing earth crust and their properties |
| 3 | Divergent plate boundaries |
| 4 | Convergent plate boundaries |
| 5 | Transform fault boundries |
| 6 | A presentation of student |
| 7 | A presentation of student |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | A presentation of student |
| 11 | A presentation of student |
| 12 | A presentation of student |
| 13 | General evaluation |
| 14 |  |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  | **x** |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **x** |  |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | **x** |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  |  | **x** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  | **x** |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  | **x** |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **x** |  |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **x** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  | **x** |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  |  | **x** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  | **x** |  |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Erhan Altunel | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **CODE** | 151517619 | **NAME** | Industrial Raw Materials |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 7 | 3 | 0 | | - | | 3 | | 4 | CORE ( ) ELECTIVE (x) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
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| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 30 | |
| Seminar | | | | | 1 | 20 | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 50 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | Classification of the industrial raw materials in nature. Also, chemical and physical properties and formations of the raw materials will also be discussed. All industrial raw materials groups will be studied individually. | | | | | | | |
| **AIMS OF THE COURSE** | | | | | Importance and uses of the industrial raw materials in nature. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | The student can understand the importance of the industrial raw materials and where it can ve used. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | He/she has knowledge of non metallic deposits. | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Sarıiz, K. Ve Nuhoğlu, İ., 1992, Endüstriyel Hammadde Yatakları ve Madenciliği, Anadolu Üniversitesi, Mühendislik-Mimarlık Fakültesi Yayınları No: 62, Eskişehir | | | | | | | |
| **OTHER REFERENCES** | | | | | Temur, S. 1994, Endüstriyel hammaddeler, Selçuk Üniversitesi Mühendislik-Mimarlık Fakültesi, Konya, 245 s.  Kırıkoğlu, M.S., 1990, Endüstriyel hammaddeler, İstanbul Üniversitesi Matbaası Gümüşsuyu, İstanbul, 272 s. Türkiye Endüstriyel Mineralleri Envanteri, 1999, İstanbul Maden İhracatçıları Birliği, İstanbul. | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | | Reports, international and national publications. | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Description and classification of industrial raw materials |
| 2 | Magmatic rocks |
| 3 | Magmatic rocks |
| 4 | Metamorphic rocks |
| 5 | Sedimentary rocks |
| 6 | Sedimentary rocks |
| 7 | Magmatic minerals |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Magmatic minerals |
| 11 | Metamorphic minerals |
| 12 | Metamorphic minerals |
| 13 | Sedimentary minerals |
| 14 | Other industrial raw materials |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[ x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[ x ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[x ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:** Asst. Prof. Hüseyin SENDİR

**Signature**:  **Date:**

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**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151517620 | **COURSE NAME** | Morphotectonic |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 7 | 3 | | 0 | 0 | | | 3 | 4 | | CORE () ELECTIVE (√) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( x ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | |  | | |  |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (Application) | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Presentation of the precesses responsible from the small and large-scale landscape, differenciating methodologies of palaeosiesmology and morphotectonics; list and origin of planar and linear markers that help to reveal displacement on active faults; background of dating techniques suitable for fault researches; quantitative description of active fault-related landscapes and its advantages. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | Presenting the morphotectonics as a tool to research active faulting; understanding the origin of planar nad linear geomorphic markers; limitations and applicability of dating techniques in morphotectonics. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To form a conciousness of “active fault” in student; teach the methodologies applicable in morphotectonics and their limitations. | | | | | | | |
| **COURSE OUTCOMES** | | | | | Differenciating morphotectonics from other neigboring disiplines (arkeogeology, palaeosiesmology etc.) in active tectonic studies; planar markers as tools of morphotectonics; dating techniques applicable in morphotectonics, particularly their limitations and problems; quantification of landscape and its relation to active faulting. | | | | | | | |
| **TEXTBOOK** | | | | | Tectonic Geomorphology (Burbank ve Anderson, 2001) | | | | | | | |
| **OTHER REFERENCES** | | | | | Jeomorfoloji (Dirik, 2005) | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Datashow | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Disiplines in relation to active fault studies, and the scope of morphotectonics |
| 2 | Large scale landscape of the World, and the processes responsible from this |
| 3 | Large scale landscape of the World, and the processes responsible from this |
| 4 | Morphotectonic models from past to present |
| 5 | Planar geomorphic markers: description, origin and usability |
| 6 | Planar geomorphic markers: description, origin and usability |
| 7 | Relative and Absolute dating techniques in morphotectonics |
| 8 | Midterm Exam |
| 9 | Midterm Exam |
| 10 | Relative and Absolute dating techniques in morphotectonics |
| 11 | Quantification of fault-related landscape: morphotectonic indexes |
| 12 | Quantification of fault-related landscape: morphotectonic indexes |
| 13 | Quantification of fault-related landscape: morphotectonic indexes |
| 14 | A look at Turkish morphotectonic studies: inspection of national and international symposium of year |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[x ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ x ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ x ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ x ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[x ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[x ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ x ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ x ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Faruk Ocakoğlu | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall |

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| **COURSE CODE** | 151517621 | **COURSE NAME** | SOIL INVESTIGATIONS |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 7 | 3 | | 0 | 0 | | | 3 | 4 | | COMPULSORY ( )  ELECTIVE (X ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 20 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (Presentation) | | | | 1 | | 20 |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 60 |
| **PREREQUIEITE(S)** | | | | | Engineering Geology lecture is the prerequisite. | | | | | | |
| **COURSE DESCRIPTION** | | | | | City planning, building code, the types of zoning plan, the role of engineering geologist in city planning, preparing geologic and geotechnical reports for zoning plan and geotechnical parcel reports, getting information for calculation of bearing capacity and settlement of rock and soils. | | | | | | |
| **COURSE OBJECTIVES** | | | | | learning engineering geology report types about city planning and getting information about these reports. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | developing the ability of preparing engineering geology reports | | | | | | |
| **COURSE OUTCOMES** | | | | | learning the duties of engineering geologist in city planning. | | | | | | |
| **TEXTBOOK** | | | | | Karakuş, K., (2009) Kent Planlanması ve Jeoloi. TMMOB, Jeoloji Mühendisleri Odası Yayını. | | | | | | |
| **OTHER REFERENCES** | | | | | -Ulusay, R. (1989). Uygulamalı Jeoteknik Bilgiler, TMMOB, Jeoloji Mühendisleri Odası Yayını.-Afet Bölgelerinde Yapılacak Yapılar Hakkında Yönetmelik, Bayındırlık Ve İskan Bakanlığı-Deprem Bölgelerinde Yapılacak Yapılar Hakkında Yönetmelik, Bayındırlık Ve İskan Bakanlığı. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Natural disaster definition, and natural disaster types |
| 2 | The realationship city zoning plan and urbanization |
| 3 | Physical factors effecting city planning |
| 4 | The relationship between city planning and geology-geotechnic |
| 5 | Presentation 1(Discussion a geotechnical parcel report) |
| 6 | Presentation 2(Discussion a geotechnical parcel report) |
| 7 | Presentation 3(Discussion a geotechnical parcel report) |
| 8 | Presentation 4(Discussion a geologic-geotechnical zoning plan report) |
| 9 | Presentation 5(Discussion a geologic-geotechnical zoning plan report) |
| 10 | Presentation 6(Discussion a geologic-geotechnical zoning plan report) |
| 11 | Mid-Term Examination 2 |
| 12 | Evaluation of bearing capacity and settlement equations |
| 13 | Evaluation of bearing capacity and settlement equations |
| 14 | Evaluation of bearing capacity and settlement equations |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ x ]** | **[ ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[x ]** | **[ ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ x ]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[x ]** | **[ ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[x ]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ x]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ x]** | **[ ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Assosciate Prof. Ali KAYABAŞI | **Date:** | **Prepared by:** | **Date:** |
| **Signature(s)**: |  | **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ENGINEERING AND ARCHITECTURE FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
| --- | --- |
| **SEMESTER** | Fall |

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| **COURSE CODE** | 151517xxx | **COURSE NAME** | Modeling of Mineral Deposits and Related Alterations |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 7 | 2 | | 2 |  | | | 3 | 5 | | COMPULSORY (x )  ELECTIVE ( ) |  |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | (**√** ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | |  | |  |
| Quiz | | | |  | |  |
| Homework | | | | 1 | | 50 |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | | Presentation | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Modeling of alterations related to all kinds of mineral deposits based on previous field and laboratory datas, and their lateral and vertical distribution; evaluation of the collected data. | | | | | | |
| **COURSE OBJECTIVES** | | | | | Working on different types of mineral deposits by application; acquisition of research and problem solving ability in an original subject; plotting the acquired information on a model and reporting it. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Development and design the application; teaching the ability of working on original research; presentation of the acquired knowledge and experiences in the form of reports and presentations | | | | | | |
| **COURSE OUTCOMES** | | | | | 1. Ability to analyze and evaluate datas,  2. The ability to do team work,  3. Ability to design and apply the solution of scientific hardware and geological problems and to analyze and interpret the results,  4. To be able to think in three dimensions, make analysis and synthesis by establishing event-result relation,  5. The ability to use computer programs,  6. To be able to research natural resources and phenomena and submit it as oral/written. | | | | | | |
| **TEXTBOOK** | | | | | Current articles, MTA reports | | | | | | |
| **OTHER REFERENCES** | | | | |  | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Computer programs | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Literature research |
| 2 | Literature research |
| 3 | Input of mineralogical and geochemical datas from previous studies to computer programs |
| 4 | Input of mineralogical and geochemical datas from previous studies to computer programs |
| 5 | Examination of drilling data related to the subject |
| 6 | Evaluation of results based on software programs |
| 7 | Evaluation of results based on software programs |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | 3D modeling by drawing maps and sections using Corel Draw and Surfer computer programs |
| 11 | 3D modeling by drawing maps and sections using Corel Draw and Surfer computer programs |
| 12 | Office work and writing report |
| 13 | Office work and writing report |
| 14 | Project presentation |
| 15,16 | Final Exam |

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| --- | --- | --- | --- | --- |
| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[x]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[x]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[x]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[x]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[x]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[x]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[x]** | **[ ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[x]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[x]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[x]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[x]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| --- | --- |
| **Prepared by:** Asst. Prof. Dr. Hülya ERKOYUN | **Date:18.05.2018** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall/Spring |

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| **COURSE CODE** | 151517622 | **COURSE NAME** | Occupational Health and Safety I |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
|  | 2 | | 0 | 0 | | | 2 | 3 | | COMPULSORY (x )  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | | 20 | | | | 30 | | | | | 50 |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | |  | |  |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | |  | |  |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Definition of occupational safety , occupational accidents, occupational diseases, occupational safety in workplaces, Risk assessment, Guards, Fire, the relevant legislation | | | | | | |
| **COURSE OBJECTIVES** | | | | | Teach the methods of prevention of occupational accidents and diseases in the workplace. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Knowing the possible precautions against accidents and occupational diseases in the workplace to protect human health and improve the efficiency of labor | | | | | | |
| **COURSE OUTCOMES** | | | | | To improve the physical conditions of the workplace, develop alternative solutions and solving.  Design of the Workplace conditions (noise, heat, dust, etc.), taking measurements, analyzing the results and interpretation.  Potential risks in the workplace, assessment and development of solutions to protect human health | | | | | | |
| **TEXTBOOK** | | | | | Kahya, E., 2014, İş Güvenliği, ESOGÜ Yayın No :246, Eskişehir. | | | | | | |
| **OTHER REFERENCES** | | | | | Yiğit, A., İş Güvenliği, 2013, Dora basım-Yayın Dağıtım Ltd. Şti, Bursa. Bayır, M. ve Ergül, M., 2006, İş Güvenliği ve Risk Değerlendirme Uygulamaları, Bursa.  Dizdar, E.N., 2008, İş Güvenliği, 4.Baskı, Murathan Yayınevi, Trabzon.  Esin, A., 2006, Yeni Mevzuatın Işığında İş Sağlığı ve Güvenliği*,*  TMMO MMO Yayın No:MMO/363/2, Ankara. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Course scope, execution, evaluation  Occupational Safety (defines, importance, etc.) |
| 2 | Occupational Safety Culture |
| 3 | Work Accidents |
| 4 | Work Accidents |
| 5 | Occupational diseases |
| 6 | Factors Affecting Business Environment |
| 7 | Basic security rules in workplaces. |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Basic security rules in workplaces. |
| 11 | Risk Assessment |
| 12 | Protectors |
| 13 | Fire |
| 14 | Occupational Safety Law |
| 15,16 | Final Exam |

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| --- | --- | --- | --- | --- |
| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[ x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ ]** | **[ x ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[ x ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ x ]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ x ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151518529 | **COURSE NAME** | Occupation Law |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 8 | 3 | | 0 |  | | | 3 | 4 | | COMPULSORY(x)  ELECTIVE ( ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with** | | | | | | **Social Science** |
|  | |  | | | |  | | | | | | **(√)** |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 40 |
| Quiz | | | |  | | |  |
| Homework | | | | 1 | | | 10 |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | |  | | |  |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | General description of law, general description of labor law, mining license rights, mining license activities, according to the mining law foreclosures, pledge, mortgage, worker health and safety measures, service contract rules, rights in the determination of wages the organization of working time, worker's health and work safety, audit and inspection of career, regulations on geothermal resources and mineral waters, zoning law, EIA regulations and application areas | | | | | | | |
| **COURSE OBJECTIVES** | | | | | To teach the rules of Geology, Mining and Business Law. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | Students will be able to find their own solutions to the legal problems they will encounter in business. | | | | | | | |
| **COURSE OUTCOMES** | | | | | Learning the mining license rights,  Technical supervisor duties, powers and responsibilities to grasp  Lien , pledge , learn injunctive and mortgage conditions  Learning the rules of contractual services in the Labour Code ,  Occupational health and safety rules to learn .  Learning to prepare the EIA report  To learn the concepts of zoning law | | | | | | | |
| **TEXTBOOK** | | | | | Mining Law No. 3213 ,  Labor Law No. 4857,  Open pit Occupational Health and Safety Regulation,  Geothermal Law, Natural Mineral Waters Law | | | | | | | |
| **OTHER REFERENCES** | | | | |  | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction to Mining Law |
| 2 | Mining license rights |
| 3 | Mining license activities |
| 4 | Zoning Law |
| 5 | EIA Regulations |
| 6 | Service contract in Labour Law rules |
| 7 | Commercial operation of the regulation period |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Worker's health and work safety |
| 11 | Geothermal resources and natural mineral water law |
| 12 | Rights in the determination of wages |
| 13 | worker health and safety measures in mining enterprises |
| 14 | worker health and safety measures in mining enterprises |
| 15,16 | Final Exam |

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| --- | --- | --- | --- | --- |
| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[ x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ x ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ x ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ x ]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[x ]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[x ]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[x]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Lecturer Derya OZKAR | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151518422 | **COURSE NAME** | Historical Geology |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 8 | 2 | | 0 | 0 | | | 2 | 3 | | COMPULSORY (**√**)  ELECTIVE ( ) | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 40 |
| Quiz | | | |  | |  |
| Homework | | | | 4 | | 20 |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 40 |
| **PREREQUIEITE(S)** | | | | | Paleontology 151514558 | | | | | | |
| **COURSE DESCRIPTION** | | | | | Formation of the Earth in the Solar system; Geological Time; Geography, climate, life and orogenesis during Precambrian and Phanerozoic; Great extinctions and their causes | | | | | | |
| **COURSE OBJECTIVES** | | | | | The objective of the course is to understand the methods in learning the Earth’s history. Understand the principals in elucidating the geological history of a region by home and class works on various biostratigraphic units, dating and geological time. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | The course will provide to understanding ancient environments and hence the Earth’s history, and will develope their skills in practical work and writing reports. | | | | | | |
| **COURSE OUTCOMES** | | | | | To provide understanding of the processes which have been controlling the development and changes since the origin of the Earth until the Present. | | | | | | |
| **TEXTBOOK** | | | | | Historical Geology Lecture Notes (Compiled) (in Turkish). H.Kutluk | | | | | | |
| **OTHER REFERENCES** | | | | | Historical Geology, Dr.Hovanitz’s Web page, 2006. SCC  Öngen,İ.Ö., 2009. Tarihsel Jeoloji, 52 s.  Alkaya,F., 2009. Tarihsel Jeoloji, Selçuk Üniv. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Paleogeographical maps and fossil collections. | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | The Earth in Solar System |
| 2 | Geological time table |
| 3 | Geography, climate, life and orogenesis during Precambrian |
| 4 | Archean and Proterozoic |
| 5 | Geography, climate, life and orogenesis during Phanerozoic |
| 6 | Paleozoic: Cambrian, Ordovician, Silurian |
| 7 | Paleozoic: Devonian, Carboniferous, Permian |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Mesozoic: Triassic, Jurassic, Cretaceous |
| 11 | Cenozoic: Paleogene (Paleocene, Eocene, Oligocene) |
| 12 | Cenozoic: Negene (Miocene, Pliocene) |
| 13 | Cenozoic: Quaternary (Pleistocene) |
| 14 | Cenozoic: Quaternary (Holocene) |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ x ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ x ]** | **[ ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ x ]** | **[ ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ x ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Asst. Prof. Hatice Kutluk | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
| --- | --- |
| **SEMESTER** | SPRING |

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| --- | --- | --- | --- |
| **COURSE CODE** | 151518530 | **COURSE NAME** | Entrepreneurship |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 8 | 2 | | 0 |  | | | 2 | 3 | | COMPULSORY(x)  ELECTIVE ( ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 30 |
| Quiz | | | |  | | |  |
| Homework | | | | 1 | | | 10 |
| Project | | | | 1 | | | 20 |
| Report | | | |  | | |  |
| Others (………) | | | |  | | |  |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 40 |
| **PREREQUIEITE(S)** | | | | | - | | | | | | | |
| **COURSE DESCRIPTION** | | | | | Entrepreneurship is an indispensable part of our national culture as an important advantage. Therefore; although Turkey is ahead of many of her counterparts, such factors as having no systematic structure, lacking  theoretical knowledge, high percentage of intellectual and financial prodigality due to trial-and-error approaches, the educational systems need to offer courses to educate young people to contribute to this system. This course will provide the opportunity for this purpose. Discussion of the process of new jop proposals, creative thinking and decision making and case studies are performed as well as introducing the theoratical framework. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | To have basic knowledge about entrepreneurship and creativity, new job proposals and opportunities | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To give the ability to work with different disciplines and team works, create new ideas and analyze their feasibility, to have a vision for global problems and to contribute their solution process | | | | | | | |
| **COURSE OUTCOMES** | | | | | As well as gaining individual performances, being able to work as a team member in groups and to understand the whole systems by analyzing them from a different perspective in their professional life. | | | | | | | |
| **TEXTBOOK** | | | | | Thomas L. Saaty, Creative Thinking, RWS Publications, USA. | | | | | | | |
| **OTHER REFERENCES** | | | | | İnovasyon (Şirin Elçi, 2006, Türkiye Bilişim Derneği), Yaratıcı Düşünce Egzersizleri (John O’Keeffe), 2003, Arıtan Yayınevi | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | In class activities, project presentations | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Basic concepts, Entrepreneurship ecosystem and creativity |
| 2 | Job plans, new ideas and the skills to improve them |
| 3 | Project proposals and opprtunities and funds to apply |
| 4 | Creative thinking and egzersizes |
| 5 | Creative thinking and egzersizes (Cont’d) |
| 6 | Basic characteristics of new job proposals (office, home offices, advertisement policies etc.) |
| 7 | Hardware of creative thinking |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Sotfware of creative thinking |
| 11 | Case studies |
| 12 | Case studies (in class egzersizes) |
| 13 | Case studies (in class egzersizes) |
| 14 | Financial analysis, Plan developments |
| 15,16 | Final exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ x]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[ x]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** |  |

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| **COURSE CODE** | 151518514 | **COURSE NAME** | Geology of Turkey |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 8 | 3 | | 0 | 0 | | | 3 | 4 | | COMPULSORY (X)  ELECTIVE () | Turkish |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 40 |
| Quiz | | | |  | |  |
| Homework | | | |  | |  |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
|  | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 60 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | Within this course; geological evolution of our country, important geologic formations and structures are explaining | | | | | | |
| **COURSE OBJECTIVES** | | | | | To give some information related to our country's geological evolution in time and general property of important geologic formations | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To contribute in order to understand which type of consequences caused huge geologic events and geological past of our country | | | | | | |
| **COURSE OUTCOMES** | | | | | To have a knowledge of geological properties of our country (rock unions, important tectonic events and their results etc.) | | | | | | |
| **TEXTBOOK** | | | | | İhsan Ketin, 1983. A general outlook to geology of Turkey (in Turkish) | | | | | | |
| **OTHER REFERENCES** | | | | | Emin İlhan, 1976, Geology of Turkey (in Turkish), every kind of article related to geology of Turkey. | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Computer-Data Show | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction |
| 2 | Orogenic Movements |
| 3 | Metamorphic Massifs |
| 4 | Paleozoic formations |
| 5 | Mesozoic formations |
| 6 | Ophiolitic rocks |
| 7 | Cenozoic formations |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Cenozoic formations |
| 11 | Magmatic activities and rocks (Plutonic rocks) |
| 12 | Magmatic activities and rocks (Surface rocks) |
| 13 | Tectonic unions |
| 14 |  |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  |  | **x** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **x** |  |  |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **x** |  |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. |  | **x** |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **x** |  |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  |  | **x** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **x** |  |  |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **x** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility |  | **x** |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  | **x** |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  |  | **x** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Prof. Dr. Erhan Altunel | **Date:** |
| **Signature(s)**: |  |

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**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **CODE** | 151518531 | **NAME** | Ore Microscopy |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 8 | 3 | 0 | | - | | 3 | | 4 | CORE ( ) ELECTIVE (x ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
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| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 40 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 60 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | General descrition of the ore microscope, the optical properties of ore minerals, textures of ore minerals. | | | | | | | |
| **AIMS OF THE COURSE** | | | | | Identify the characteristics of ore minerals under the microscope, examination of paragenesis and succession issues | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | Identification of ore minerals, Making environmental review | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | 1. Identification of ore minerals in microscop. 2. Know paragenesis and succession | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Ore Microscopy Cameron E.N. John Willey &Sons | | | | | | | |
| **OTHER REFERENCES** | | | | | 1 The ore minerals and their intergrowts Ramdohr, P, 1969  2. Maden mikroskopisi Dr. Namık Çağatay JMO Yayınları  3. Cevher mikroskobisi Yurdal Genç, 1998 4. Cevher mikroskobisi ve petrografisi Prof. Dr. Özkan Pişkin DEÜ Yayınları, 2002 | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | |  | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | General information with lesson |
| 2 | Presentation ore microscop and use it |
| 3 | Preparation of polish sections |
| 4 | Physical properties of research minerals |
| 5 | Optical properties of ore minerals; color, anisotropy |
| 6 | Optical properties of ore minerals; reflectivity, internal reflection, ganges |
| 7 | Microstructure properties of ore minerals |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Fabric properties of ore minerals |
| 11 | Fabric properties of ore minerals |
| 12 | Research of paragenesis and succession |
| 13 | Research of paragenesis and succession |
| 14 | Research of paragenesis and succession |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[ x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ x ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[ x ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:** Asst. Prof. Hüseyin SENDİR

**Signature**:  **Date:**

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**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **CODE** | 151518532 | **NAME** | Sedimentary Petrography |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 8 | 3 | 0 | | - | | 3 | | 4 | CORE ( ) ELECTIVE (x ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
|  | | |  | | | | **√** | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 30 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | | 1 | 20 | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 50 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | The course contain classification of detrital, volcaniclastic, carbonate and evaporate group sedimentary units. The mineralogical composition and their textural feature will be determined under microscope. Also, micritic, microsparitic, and sparitic cements and other sesquioxide and heavy minerals will be determined. Based on these petrographical results, sedimentation environment, source rocks, and paleoclimate climate and diagenesis will be determined. | | | | | | | |
| **AIMS OF THE COURSE** | | | | | The aim of the course is to determine and classification of detrital, volcaniclastic, carbonate and evaporate group sedimentary units. The mineralogical composition and their textural feature will be determined under microscope. Also, micritic, microsparitic, and sparitic cements and other sesquioxide and heavy minerals will be determined. Based on these petrographical results, sedimentation environment, source rocks, and paleoclimate climate and diagenesis will be determined. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | |  | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | |  | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Varol, B., Sedimanter Kayaçlar Petrografisi Ders Notları . Fakülte Kampüsü Fotokopi Merkezi. Erkan,Y.,1998, Sedimanter Petrografi . Hacettepe Üniversitesi Mühendislik Fakültesi. | | | | | | | |
| **OTHER REFERENCES** | | | | | Blatt, H., 1992, Sedimantary Petrology . W.H. Freeman and Company , New York, 564  Pettijohn, F.J., 1975, Sedimentary Rocks . Harper & Row, Publishers, New York, Evanston, San Francisco,and London. 628s.  Tucker, M.E.,1986, Sedimentary Petrology An Introduction. Blackwell Scientific Yayın No.44, 135s. | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | |  | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Theory: Determination of sedimentary rocks  Laboratory: Definition of Sedimentary rocks hand samples |
| 2 | Theory: Formation mechanism and classification of Sedimentary rocks  Laboratory: Microscpic determination of quartz, feldspar, rock fragment |
| 3 | Theory: Formation and classification of detrital rocks (conglomerate, breccia, sandstone)  Laboratory: Determination of heavy minerals under microscop |
| 4 | Theory: Formation and classification of detrital rocks (conglomerate, breccia, sandstone)  Laboratory: Determination of heavy minerals under microscop |
| 5 | Theory: Formation and classification of mudstone (sheyl, claystone, marl) and diagenesis  Laboratory: Determination of sandstone, breccia and conglomerate macroscopically and under microscope |
| 6 | Theory: Carbonate rocks (limestone and dolomite): classification of grain and groundmass, diagenesis and formation environment  Laboratory: Determination of sandstone, breccia and conglomerate macroscopically and under microscope |
| 7 | Theory: Carbonate rocks (limestone and dolomite): classification of grain and groundmass, diagenesis and formation environment |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Theory: Volcaniclastic rocks (tuff, volcanic breccia and agglomerate)  Laboratory: Macroscopic and microscopic determination of limestone  Laboratory: Macroscopic and under microscopic determination of limestone |
| 11 | Theory: Volkaniclastic (tuff, lapilli, volkanic breccia; agglomerate)  Laboratory: Macroscopic and microscopic determination of limestone |
| 12 | Theory: Evaporite: Determination, environment, diagenesis  Laboratory: Classification and determination of sedimentary rocks via hand sample and under microscope |
| 13 | Theory: Diğer Sedimanter kayaçlar (fosfatlı, demirli, silisli kayalar): Genel tanım, türleri ve oluşumları  Laboratory: Classification and determination of sedimentary rocks using projecter |
| 14 | Theory: Diğer sedimanter kayaçlar (fosfatlı, demirli, silisli, karbonlu kayalar): Genel tanım, türleri ve oluşumları  Laboratory: Classification and determination of sedimentary rocks using projecter |
| 15,16 | Final Exam |

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| --- | --- | --- | --- | --- |
| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[ x ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[ x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ x ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[ x ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:** Prof. Dr. Selahattin Kadir

**Signature**: **Date**

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**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **CODE** | 151518533 | **NAME** | Ore Geology |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 8 | 3 | 0 | | - | | 3 | | 4 | CORE ( ) ELECTIVE (x ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
|  | | |  | | | | **√** | | | |  | |
| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 40 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 60 | |
| Oral exam | | | | |  |  | |
| Presentation | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………..) | | | | |  |  | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | Definitions and the concept of prospecting, ore deposits related to structural geology, ore deposits related to fracture zones, phisyographic indicators, paleogeographic indicators, stratigraphic and lithologic indicators and controls, alluvium prospection, evaluation, variability, selection of samples, limiting of ore deposits and domain , nets of prospection and searching systems, classification of reserve and calculation, ore deposits. | | | | | | | |
| **AIMS OF THE COURSE** | | | | | Criterion of research minning, to teach methodology in research minning such as reserve, tenor. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | To make calculations of reserve and grade at any mine site, to teach mineral exploration research. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | 1. Mining search using the appropriate methods, 2. Search methods to apply, 3. Modeling to make, 4. Calculate the reserve. | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Maden Jeolojisi, Prof. Dr. Altan GÜMÜŞ Madenlerin Değerlendirilmesi, Prof. Dr. Kadir SARIİZ | | | | | | | |
| **OTHER REFERENCES** | | | | | Maden Jeolojisi ve Arama Yöntemleri Prof. Dr. Ömer AKINCI SDÜ MMF Yay. No: 33 IspartaMaden Arama ve Değerlendirme Yöntemleri Prof. Dr. Ahmet GÖKÇE CÜ MF Yay. No: 114 | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | |  | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Definitions and the concept of prospecting |
| 2 | Ore deposits related to faulting and fracture zones |
| 3 | Guidelines and controls used in the search for mineral deposits |
| 4 | Guidelines and controls used in the search for mineral deposits |
| 5 | Guidelines and controls used in the search for mineral deposits |
| 6 | Guidelines and controls used in the search for mineral deposits |
| 7 | Oxidation products and mineral use in searching |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Hydrothermal products and mineral use in searching |
| 11 | Geochemical prospecting methods |
| 12 | Limiting of ore deposits and domain |
| 13 | Nets of prospection and searching systems |
| 14 | Reserve calculation methods and applications |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[x ]** | **[ ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[x ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[ x ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:** Asst. Prof. Hüseyin SENDİR

**Signature**:  **Date:**

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**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | /Spring |

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| **COURSE CODE** | 151518534 | **COURSE NAME** | Tracer techniques in hydrogeology and Environmental isotopes |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 8 | 2 | | 0 |  | | | 2 | 3 | | COMPULSORY ( )  ELECTIVE ( X ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | | 1 | | | 30 |
| Quiz | | | |  | | |  |
| Homework | | | | 1 | | | 20 |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 50 |
| **PREREQUIEITE(S)** | | | | | Hydrogeology course must be taken or must be on the same semester. | | | | | | | |
| **COURSE DESCRIPTION** | | | | | General information about tracers, tracers types and tracer techniques, general information about environmental isotopes. | | | | | | | |
| **COURSE OBJECTIVES** | | | | | To give information about tracers and environmental isotopes, to present preliminary information on how to research river-lake-groundwater interactions using isotope techniques. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To give the detailed knowledge on hydrochemistry in order to obtain skillfull to do solve some problem in field. | | | | | | | |
| **COURSE OUTCOMES** | | | | | Using fundamental and engineering knowledge, working in multidisciplinary groups, finding solutions to problems with different approaches, having successful communications with others, thinking in 3D, analyzing and synthesizing with establishing cause-effect relations, comprehending universal and communal effects of geological studies, assuring geological knowledge and data available to other engineering branches. | | | | | | | |
| **TEXTBOOK** | | | | | Uluslararası Atom Enerji Ajansı Yayınları Yayın No: STI/PUB/875, ISBN92-0-000192-0, Su kaynaklarının geliştirilmesinde izotop tek, 1991 | | | | | | | |
| **OTHER REFERENCES** | | | | | -Guidebook on Nuclear Techniques in Hydrology, International Atomic  Energy Agency, Vıenna, 1983  - Hidrolojide İzotoplar ve Nükleer Teknikler, Ankara, DSİ, 1987.  -Use of the artificial tracer in hydrology, IAEA, 1991  -Isotope Tracers in Catchment Hydrology (1998), C. Kendall and J.J.  McDonnell (Eds.) Elsevier Science B.V., Amsterdam. 839 p.  - Environmental Isotopes in Hydrogeology, Ian D. Clark, Peter Fritz, 1997  -Advances in isotope hydrology and its role in sustainable water  reseorcesManagement (IHS-2007), Proceedings of a Symp.Vienna , | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | | Projector , laptop, overhead projector, internet | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | General information about tracers, tracer types, tracer techniques. |
| 2 | General information about environmental isotopes |
| 3 | Environmental isotopes in precipitation |
| 4 | Environmental isotopes in surface water |
| 5 | Environmental isotopes in ground water |
| 6 | Using environmental isotopes in fossil water |
| 7 | using environmental isotopes in investigation of surface water-groundwater interaction |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | using environmental isotopes in investigation of surface water-groundwater interaction |
| 11 | using environmental isotopes in investigation of geothermal systems. |
| 12 | water sampling methods for the analysing of environmental isotope |
| 13 | Interpretation of analysing results |
| 14 | Analysis of case studies and applications |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[x]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x ]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ ]** | **[ x]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ x ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[ x]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ x]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ x]** | **[ ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ x]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Asist. Prof. Didem Yasin | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

**Course Information Form**

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| **SEMESTER** | Spring |

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| **CODE** | 151518535 | **NAME** | Gemology |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 8 | 2 | 0 | |  | | 2 | | 3 | **CORE ( ) ELECTIVE (√ )** | | | **Turkish** |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
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| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 25 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (Seminar) | | | | | 1 | 25 | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 50 | |
| Oral exam | | | | |  |  | |
| Presentation | | | | |  |  | |
| Report | | | | |  |  | |
| Other (Practical exam) | | | | |  |  | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | Gemology (gem: precious stone) definition and determining the physico-chemical properties of special mineral, rock and organic material. Also, the properties of synthetic and / or a branch of science that distinguishes imitation method will be used. | | | | | | | |
| **AIMS OF THE COURSE** | | | | | The aim of the course is to present scientific discipline and mineralogic, chemical, physical and optical properties of gemstones. For this purpose, the practical recognition of gem minerals, and arid as the methods applied will be examined and discussed. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | This course will support the continues of the gemstone industry using adaquate the knowledge and equipment. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | The concepts of the course is crystal and minerals, precious and semi-precious minerals crystallographic properties, crystal chemistry, physical properties and genesis of gemstone. | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Hatipoğlu, M., Süstaşı Mineralojisi ders notları, 86 s.Hatipoğlu, M., Süstaşı tanımlaması | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | | Projector classes are needed. | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction of gemology. Gemstone classification (natural, artificial and imitation), origins and formation of gemstones |
| 2 | Gemstone inspection characteristics, methods of detection and discrimination |
| 3 | General physical characteristics of gemstones |
| 4 | Optical physical properties of the gemstones |
| 5 | Mechanisms of natural and artificial coloring of gemstones |
| 6 | Seminar presentations |
| 7 | Seminar presentations |
| 8 | **MID TERM EXAM** |
| 9 |
| 10 | Distinctive features of natural-synthetic-imitation gemstones (optical physical properties, inclusions, etc.), methods (spectroscopy, microscopy, electron microscopy, etc |
| 11 | Distinctive features of natural-synthetic-imitation gemstones (optical physical properties, inclusions, etc.), methods (spectroscopy, microscopy, electron microscopy, etc.) |
| 12 | Mineralogical, geochemical characteristics of precious gemstones and forms of natural occurrence |
| 13 | Mineralogical, geochemical characteristics of semi-precious gemstones and forms of natural occurrence |
| 14 | Gemstones that origin of natural organic material structural and the formation of gemological properties |
| 15,16 | **FİNAL EXAM** |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. |  | **[x]** |  |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. |  |  | **[x]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. |  | **[x]** |  |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[x]** |  |  |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. |  | **[x]** |  |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. |  | **[x]** |  |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. |  |  | **[x]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[x]** |  |  |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[x]** |  |  |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. |  | **[x]** |  |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. |  | **[x]** |  |
|  | **1**:None. **2**:Partially contribution. **3**: Completely contribution. |  |  |  |

**Lecturer of the Course:** Asist.Prof. Hülya Erkoyun

**Signature**:  **Date:**

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**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Spring |

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| **CODE** | 151518536 | **NAME** | Mineral Deposits of Turkey |

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| **SEMESTER** | **WEEKLY LECTURE HOURS** | | | | | **COURSE DETAILS** | | | | | | |
| **Theoretical** | **Practical** | | **Laboratory** | | **Credits** | | **ECTS** | **TYPE** | | | **LANGUAGE** |
| 8 | 2 | 0 | | - | | 2 | | 3 | CORE ( ) ELECTIVE ( x ) | | | Turkish |
| **CATEGORY OF THE COURSE** | | | | | | | | | | | | |
| **Fundamental Sciences** | | | **Fundamental Engineering** | | | | **Geological Engineering** | | | | **Social Science** | |
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| **EVOLUATION CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Activity** | | | | | **Number** | **Percentage (%)** | |
| Written exam | | | | | 1 | 40 | |
| Quiz | | | | |  |  | |
| Homework | | | | |  |  | |
| Project | | | | |  |  | |
| Report | | | | |  |  | |
| Other (………) | | | | |  |  | |
| **FINAL EXAM** | | | | | Written exam | | | | | 1 | 60 | |
| **PREREQUISITE(S) (If any)** | | | | |  | | | | | | | |
| **BRIEF CONTENT OF THE COURSE** | | | | | Metallic mines and formation environments and application will be examined in detail at the scale of Turkey. | | | | | | | |
| **AIMS OF THE COURSE** | | | | | Mineral deposits of Turkey to examine the classification of the origin, to have information ore deposition, formation, origin, grade and reserve and to know the economic situation. | | | | | | | |
| **CONTRIBUTION OF THE COURSE TO THE PROFESSIONAL TRAINING** | | | | | Using knowledge of basic infrastructure necessary to grasp in our country, where the mineral deposits formed. | | | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | | | 1. To learn the basic knowledge of mineral deposits, 2. This information can be searched with a grasp of the location and presence in our country. | | | | | | | |
| **MAIN TEXTBOOK(S)** | | | | | Maden Yatakları Prof. Dr. Ahmet GÖKÇE  Cumhuriyet Ün. Yay. No: 111 2009, Sivas | | | | | | | |
| **OTHER REFERENCES** | | | | | İç Olaylara Bağlı Maden Yatakları Prof. Dr. Altan GÜMÜŞ  Bilim Ofset, 1998, Bornova- İzmir  Dış Olaylara Bağlı Maden Yatakları Prof. Dr. Altan GÜMÜŞ D.E.Ü. Basım ünitesi, 1999, Bornova- İzmir Maden Yatakları ve Levha Tektoniği Prof. Dr. F.J. Sawkins, A.Ü. yay., 1999 Ankara | | | | | | | |
| **NECESSARY COURSE MATERIALS** | | | | |  | | | | | | | |

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| **WEEKLY PLANING** | |
| **WEEK** | **TOPICS** |
| 1 | Gold and silver deposits in Turkey |
| 2 | Aluminium deposits in Turkey |
| 3 | Antimony and mercury deposits in Turkey |
| 4 | Copper, lead, zinc deposits in Turkey |
| 5 | Copper, lead, zinc deposits in Turkey |
| 6 | Iron deposits in Turkey |
| 7 | Tin and Tungsten deposits in Turkey |
| 8 | Mid Term Exam |
| 9 | Mid Term Exam |
| 10 | Chrome deposits in Turkey |
| 11 | Manganese and molybdenum deposits in Turkey |
| 12 | Nickel and Cobalt deposits in Turkey |
| 13 | Titanium, vanadium and uranium deposits in Turkey |
| 14 | Some Rare Elements Mineral Deposits |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[x ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[x ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[x ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[ ]** | **[x ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ ]** | **[x ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ ]** | **[x ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[ ]** | **[ ]** | **[ x ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ ]** | **[ x ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ ]** | **[ ]** | **[ x ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

**Lecturer of the Course:** Asst. Prof. Hüseyin SENDİR

**Signature**:  **Date:**

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**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ARCHITECTURE AND ENGINEERING FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

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| **SEMESTER** | Fall/Spring |

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| **COURSE CODE** |  | **COURSE NAME** | Case Studies |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** | |
| 8 | 1 | | 4 |  | | | 3 | 6 | | COMPULSORY (X )  ELECTIVE ( ) | Turkish | |
| **COURSE CATAGORY** | | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | | **%** |
| Mid-Term | | | |  | | |  |
| Quiz | | | |  | | |  |
| Homework | | | | 1 | | | 20 |
| Project | | | |  | | |  |
| Report | | | |  | | |  |
| Others (………) | | | | 1 | | | 30 |
|  | | | |  | | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | | |
| **COURSE DESCRIPTION** | | | | | To give the ability of students to implementation hydrogeological projects and to improve better understanding of hydrogeology in application | | | | | | | |
| **COURSE OBJECTIVES** | | | | | The purpose of this course is to help students to integrate theoretical knowledge in the field of hydrogeology. | | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | To give the exercises concerning water quality, water contamination, and groundwater mining issues. | | | | | | | |
| **COURSE OUTCOMES** | | | | | using fundamental and engineering knowledge, working in multidisciplinary groups, find solutions to problems with different approaches, having successful communications with others, tracking new developments, improving his/her knowledge and use this knowledge in efficient ways, following technological improvements and using up-to-date techniques and tools in geological researches, comprehending universal and communal effects of geological studies, assuring geological knowledge and data available to other engineering branches. | | | | | | | |
| **TEXTBOOK** | | | | |  | | | | | | | |
| **OTHER REFERENCES** | | | | |  | | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Introduction of case studies in geology |
| 2 | Choosing of the project |
| 3 | Methodology of data collection with respect to given project |
| 4 | Data collection |
| 5 | Data collection |
| 6 | Data collection |
| 7 | Evaluation of data |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Evaluation of data |
| 11 | Evaluation of data |
| 12 | Continuation on Evaluation of data |
| 13 | Continuation on Evaluation of data |
| 14 | Final report |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ x ]** | **[ ]** | **[ ]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ x]** | **[ ]** | **[ ]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[ x ]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[ x ]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ x ]** | **[ ]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[ x ]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[ x ]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[ ]** | **[ x ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[x ]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[ ]** | **[ x ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[ x ]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** | **Date:** |
| **Signature(s)**: |  |

**T.C. ESKİŞEHİR Osmangazİ UNIVERSITY**

**ENGINEERING AND ARCHITECTURE FACULTY**

**GEOLOGICAL ENGINEERING DEPARTMENT**

#### COURSE INFORMATION FORM

|  |  |
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| **SEMESTER** | Spring |

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| **COURSE CODE** | 151518537 | **COURSE NAME** | Occupational Health and Safety II |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | | | | | | **COURSE OF** | | | | |
| **Theory** | | **Practice** | **Laboratory** | | | **Credit** | **ECTS** | | **TYPE** | **LANGUAGE** |
| 8 | 2 | | 0 | 0 | | | 2 | 3 | | COMPULSORY (X)  ELECTIVE ( ) |  |
| **COURSE CATAGORY** | | | | | | | | | | | |
| **Basic Science** | | **Basic Engineering** | | | | **Engineering Subjects**  **[if it contains considerable design, mark with (√) ]** | | | | | **Social Science** |
|  | |  | | | | ( ) | | | | |  |
| **ASSESSMENT CRITERIA** | | | | | | | | | | | |
| **MID-TERM** | | | | | **Evaluation Type** | | | | **Quantity** | | **%** |
| Mid-Term | | | | 1 | | 40 |
| Quiz | | | |  | |  |
| Homework | | | | 1 | | 10 |
| Project | | | |  | |  |
| Report | | | |  | |  |
| Others (………) | | | |  | |  |
| **FINAL EXAM** | | | | |  | | | | 1 | | 50 |
| **PREREQUIEITE(S)** | | | | |  | | | | | | |
| **COURSE DESCRIPTION** | | | | | The technical term for the sector,  OHS regulations in the mining workplaces,  Dust problems and fighting methods,  Occupational diseases; definition, classification, statistical information, causes, treatment and prevention,  Actions to be taken before and after emergency situations  Risk assessment regulation,  Risk assessment in the sector,  Accidents and proposed solutions in the workplace | | | | | | |
| **COURSE OBJECTIVES** | | | | | The main objective of the course is to teach measures to be taken against work accidents and the general and special rules related to occupational health and safety that could be encountered in the mining. | | | | | | |
| **ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION** | | | | | 1. The skills to learn the technical term in the sector  2. Ability to take precautions and prediction of work accidents in mining workplaces  3. Learning the effect on human health of the hazards within the working environment  4. Ability to make risk assessment  5. Ability to interpretation the accidents statistics  6. Ability to make the emergency plan  7. Ability to take legal precautions in terms of occupational security  8. Ability to make analysis and interpretation of the accidents that occurred in Turkish mining sector. | | | | | | |
| **COURSE OUTCOMES** | | | | |  | | | | | | |
| **TEXTBOOK** | | | | | 1. Regulation on Occupational Health and Safety in Mining workplaces  2. Regulation on Fighting Against Dust  3. Social Security Institution ([www.sgk.gov.tr](http://www.sgk.gov.tr)), Risk Assessment Regulation  5. Regulation on Emergency Situations in Workplaces | | | | | | |
| **OTHER REFERENCES** | | | | |  | | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | | | |  | | | | | | |

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| **COURSE SYLLABUS** | |
| **WEEK** | **TOPICS** |
| 1 | Tanışma ve konuya genel bakış |
| 2 | The technical term for the sector, |
| 3 | OHS regulations in the mining workplaces |
| 4 | OHS regulations in the mining workplaces |
| 5 | OHS regulations in the mining workplaces |
| 6 | Dust problems and fighting methods |
| 7 | Occupational diseases |
| 8 | Mid-Term Examination |
| 9 | Mid-Term Examination |
| 10 | Actions to be taken before and after emergency situations |
| 11 | Risk assessment regulation |
| 12 | Risk assessment regulation |
| 13 | Risk assessment in the sector |
| 14 | Accidents and proposed solutions in the workplace |
| 15,16 | Final Exam |

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| **NO** | **PROGRAM OUTCOMES** | **3** | **2** | **1** |
| 1 | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | **[ ]** | **[ ]** | **[X]** |
| 2 | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | **[ ]** | **[ ]** | **[X]** |
| 3 | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | **[ ]** | **[ ]** | **[X]** |
| 4 | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | **[ ]** | **[X]** | **[ ]** |
| 5 | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | **[ ]** | **[X]** | **[ ]** |
| 6 | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | **[ ]** | **[X]** | **[ ]** |
| 7 | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | **[ ]** | **[X]** | **[ ]** |
| 8 | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | **[X]** | **[ ]** | **[ ]** |
| 9 | Understanding of professional and ethical issues and taking responsibility | **[X]** | **[ ]** | **[ ]** |
| 10 | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | **[X]** | **[ ]** | **[ ]** |
| 11 | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | **[X]** | **[ ]** | **[ ]** |
| **1**:None. **2**:Partially contribution. **3**: Completely contribution. | | | | |

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| **Prepared by:** Assoc.Prof. Seyhan ÖNDER | **Date:** |
| **Signature(s)**: |  |