| Course UnitTitle | ENGINEERING HYDROLOGY |
|---|---|
| Course UnitCode | CE 374 |
| Typeof Course Unit | CE374COMPULSORY |
| Levelof Course Unit | 3 RD YEAR |
| NationalCredits | 3 |
| Number of ECTSCreditsAllocated | 5 ECTS |
| Theoretical(hour/week) | 3 |
| Practice(hour/week) | 1 |
| Laboratory (hour/week) | - |
| Yearof Study | 3 RD |
| Semester whenthecourse unit isdelivered | FALL END SPRING |
| Course Coordinator | ALĠ UNAL SORMAN (Prof.Dr.) |
| Name of Lecturer (s) | SAME |
| Name of Assistant(s) | Mustafa Alas |
| Modeof Delivery | FacetoFace; Formal Lectures Face to face (and Laboratory practice?) |
| Language of Instruction | English |
| Prerequisitesandco-requisites | None |
| RecommendedOptionalProgramme Components | |

**Objectivesof theCourse: to teach introduction hydrology concepts related to water science specifically hydrology. To describe hydrologic cycle and its elements. System approach. Determination of areal mean precipitation with different methods, evaporation and computation of streamflow.**

**Equation of infiltration with different methods and basically indices. Hydrograph components and separation techniques. Prediction of surface flow and storm analysis and their interaction**

| Learning Outcomes | |
|---|---|
| **Whenthiscourse hasbeencompletedthe studentshould be ableto** | **Assessment** |
| 1    Analyze and interpret hydrologic data to estimate design discharges.Make inference about e expected events. IDF approach for infra-structure and as well describe quantitatively the nt characteristics | 1 |
| AssessmentMethods:1. WrittenExam2.Assignment3. Project/Report 4.Presentation 5. Lab.Work | |

| Course'sContributionto Program | | |
|---|---|---|
| | | **CL** |
| 1 | Ability to relate and apply fundamental sciences to learning the essential civil engineering concepts and theories of different branches. | 5 |
| 2 | Ability to understand the derivation of these concepts and theories by relating them to the real-life engineering cases within the related civil engineering branch. | 4 |
| 3 | Ability to define clearly and analyze the engineering problems by applying the introduced civil engineering concepts and theories of the related branch. | 4 |

| 4 | Ability to use decision-making skills and perform design calculations correctly for the solution of the defined problem/project by applying the introduced theories of the related civil engineering branch. | 4 |
|---|---|---|
| 5 | Ability to understand and carry out the practical applications of learned civil engineering concepts and theories on site and/or laboratory. | 5 |
| 6 | Ability to use software packages for the analysis and/or the design of the defined civil engineering problems/projects. | 3 |
| 7 | Ability to manage time and resources effectively and efficiently while carrying out civil engineering projects. | 4 |
| 8 | Ability to participate in team-works in a harmonized manner for the solution of the targeted problem. | 4 |
| 9 | Ability to write technical reports and/or to carry out presentations on the studied engineering project using the modern techniques and facilities. | 2 |
| 10 | Ability to carry out and finalize a civil engineering study/project by showing professional ethics. | 2 |

CL:Contribution Level(1:VeryLow, 2: Low, 3:Moderate,4:High,5:VeryHigh)

**Course Contents**

| Week | Chapter | | Exams |
|---|---|---|---|
| 151. | | **Role of hydrology in general and hydrologic cycle** | |
| 152. | | **Engineering hydrology and system concept approach** | |
| 153. | | **Measurement and analysis of precipitation** | |
| 154. | | **Rational method and problems to solve and to be solved** | |
| 155. | | **Measurement of streamflow** | |
| 156. | | **Rating curve , its use and extention** | |
| 157. | | **Methods of evaporation its determination with various models** | |

| 158. | | **MT1** | Mid-term Examination |
|---|---|---|---|
| 159. | | **Basin characteristics and infiltration expression and indices** | |
| 160. | | **Hydrograph analysis components** | |

| 161. | | **Separation techniques** | |
|---|---|---|---|
| 162. | | **UH theory and MT2Simple and complex hydrograph with several applications** | |
| 163. | | **Con'd** | |
| 164. | | **Synthetic UH methods** | |
| 165. | | Final | Final Examination |

**RecommendedSources**

**Textbook: Engineering hydrology Linsley and Franzy and Engineering hydrology written by N. USUL METU, 2008**

**SupplementaryMaterial(s**): Other references

**Assessment**

| | | |
|---|---|---|
| Attendance& Assignment | 10 | |
| MidtermExam(Written) | 30 | |
| Quiz (Written) | 2x10 | |
| Final Exam(Written) | 40 | |
| | | |
| Total | 100% | |

**ECTSAllocatedBased on theStudentWorkload**

| Activities | Number | Duration (hour) | Total Workload(hour) |
|---|---|---|---|
| Course durationinclass(includingthe Exam week) | 15 | 3 | 45 |
| Tutorials | 15 | 2 | 30 |
| Assignments | 10 | 2 | 20 |
| Project/Presentation/ReportWriting | | | |
| E-learning Activities | | | |
| Quizzes | 2 | 2 | 4 |
| MidtermExamination | 2 | 2.5 | 5 |
| FinalExamination | 1 | 3 | 3 |
| Self-Study | 15 | 2 | 30 |
| TotalWorkload | | | 137 |
| TotalWorkload/30 (h) | | | 4.6 |
| ECTS Creditof the Course | | | 5 |