**Form No:ÜY-FR-0317**

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|  | **ECTS Course Description Form** |
| **PART I ( Senate Approval)** |
| **Offering School**  | **Engineering** |
| **Offering Department** | **Civil Engineering** |
| **Program(s) Offered to** | **Civil Engineering** | Elective |
|  |  |
|  |  |
| **Course Code**  | CE 423 |
| **Course Name** | Water Resources Engineering |
| **Language of Instruction** | English |
| **Type of Course** | Lecture |
| **Level of Course** | **Undergraduate** |
| **Hours per Week** | **Lecture: 2** | **Laboratory:** | **Recitation:**  | **Practical:1**  | **Studio:** | **Other:** |
| **ECTS Credit** | **5** |
| **Grading Mode** | **Letter Grade** |
| **Pre-requisites** | - |
| **Co-requisites** | **-** |
| **Registration Restriction** | *-* |
| **Educational Objective** | 1. To give general knowledge on water resources development and to inform about the required methodologies.
2. To gain skills for applying mathematics, science and engineering knowledge on the solution of water resources problems.
3. Enabling the application on water resources subject employing mathematics, physics, and statistics sciences.
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| **Course Description** | Development of water resources, river morphology, sediment transportation in rivers, river restoration, flood control structures, river navigation, water resources planning, diversion weirs, dams, spillways, energy dissipaters, water intake structures, irrigation and drainage, hydroelectric energy, economic analysis. |
| **Learning Outcomes**  | **LO1** | 1. Gain necessary knowledge on water resources projects.
2. Diagnose and solve the problems on water resources.
3. Learn data collection methods and analyzing methods.
4. Design water structures.
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| **LO2** |
| **LO3** |
| **LO4** |
| **LO5** |
| **LO6** |
| **n..** |
| **PART II ( Faculty Board Approval)** |
| **Basic Outcomes (University-wide)** | **No.** | **Program Outcomes** | **LO1** | **LO2** | **LO3** | **LO4** | **LO5** | **LO6** |
| **PO1** | **Ability** to communicate effectively and write and present a report in Turkish and English.  | 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 🗸 |
| **PO2** | **Ability** to work individually, and in intra-disciplinary and multi-disciplinary teams. |
| **PO3** | **Recognition** of the need for life-long learning and **ability** to access information , follow developments in science and technology, and continually reinvent oneself. |
| **PO4** | **Knowledge** of project management, risk management, innovation and change management, entrepreneurship, and sustainable development. |
| **PO5** | **Awareness** of sectors and **ability** to prepare a business plan. |
| **PO6** | **Understanding** of professional and ethical responsibility and **demonstrating** ethical behavior. |
| **Faculty Specific Outcomes** | **PO7** |  |
| **PO8** |  |
| **PO9** |  |
| **PO10** |  |
| **PO11** |  |
| **PO12** |  |
| **Discipline Specific Outcomes (program)** | **PO13** |  |
| **PO14** |  |
| **PO15** |  |
| **PO16** |  |
| **PO17** |  |
| **PO18** |  |
| **Specialization Specific Outcomes** | **PO N….** |  |
| **PART III ( Department Board Approval)** |
| **Course Subjects, Contribution of Course Subjects to Learning Outcomes, and Methods for Assessing Learning of Course Subjects** | **Subjects** | **Week** |  | **LO1** | **LO2** | **LO3** | **LO4** | **LO5** | **LO6** |
| **S1** | 1 | Improvement of water resources; fluvial morphology | A1 |  |  |  |  | A1 |
| **S2** | 2 | River morphology | A1 |  |  |  |  | A1 |
| **S3** | 3 | Sediment transport |  | A1 | A1 |  |  |  |
| **S4** | 4 | River restoration | A1 | A1 |  |  |  | A1 |
| **S5** | 5 | Flood control, planning and design |  | A1 | A1 – A3 | A1 |  |  |
| **S6** | 6 | River navigation | A1 |  |  | A1 |  | A1 |
| **S7** | 7 | Diversion weirs and spillways |  | A1 |  | A1 |  |  |
| **S8** | 8 | Diversion weirs and spillways |  | A1 |  | A1 |  |  |
| **S9** | 9 | Dams |  | A1 |  | A1 |  |  |
| **S10** | 10 | Energy dissipation structures |  | A1 |  | A1 |  |  |
| **S11** | 11 | Water intakes | A1 | A1 |  | A1 |  | A1 |
| **S12** | 12 | Hydroelectric power plants | A1 | A1 |  | A1 |  | A1 |
| **S13** | 13 | Irrigation - Drainage | A1 | A1 |  | A1 |  | A1 |
| **S14** | 14 | Economical analysis in water resources engineering |  |  | A1 – A3 | A1 – A3 |  |  |
| **Assessment Methods, Weight in Course Grade, Implementation and Make-Up Rules**  | **No.** | **Type** | **Weight** | **Implementation Rule** | **Make-Up Rule** |
| **A1** | **Exam** | *85%* | *No electronic devices are allowed in the examinations except for calculators.* | If the reason for not taking the exam is justified by the school, the student is informed about the time of the make-up exam. |
| **A2** | **Quiz** | *-* |  |  |
| **A3** | **Homework** | *15%* | *Homeworks are given by announcing deadline. Homeworks that are submitted after the deadline are not accepted.* | There is no compensation for the Homeworks. |
| **A4** | **Project** |  |  |  |
| **A5** | **Report** |  | - | - |
| **A6** | **Presentation** |  | - | - |
| **A7** | **Attendance/ Interaction** |  | - | - |
| **A8** | **Class/Lab./****Field Work** |  | - | - |
| **A9** | **Other** |  |  |  |
| **TOTAL** | **100%** |
| **Evidence of Achievement of Learning Outcomes** | Letter grades determined by weighting on the specified percentages on the grades that are taken from exams, quizzes and homeworks by the students. The teaching staff can make changes in the student's grades. |
| **Method for Determining Letter Grade** |

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| --- | --- | --- | --- |
| **Activities** | **Midterm Exams**  | **Homeworks** | **Final Exam** |
| **Quantity** | 2 | 2 | 1 |
| **Effects on Grading, %)** | 35 | 15 | 50 |

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| **Teaching Methods, Student Work Load** | **No** | **Method** | **Explanation** | **Hours** |
| ***Time applied by instructor*** |
| **1** | **Lecture** |  | 3x14 |
| **2** | **Interactive Lecture** |  | - |
| **3** | **Recitation** |  | - |
| **4** | **Laboratory** |  | - |
| **5** | **Practical** |  | - |
| **6** | **Field Work** |  | - |
| ***Time expected to be allocated by student*** |
| **7** | **Project** |  | *-* |
| **8** | **Homework** |  | 18 |
| **9** | **Pre-class Learning of Course Material**  |  | 36 |
| **10** | **Review of Course Material** |  | 60 |
| **11** | **Studio** |  | - |
| **12** | **Office Hour** |  | - |
| **TOTAL** |  *156* |
| **IV. PART** |
| **Instructor** | **Name** | Necati Ağıralioğlu |
| **E-mail** | necati.agiralioglu@antalya.edu.tr |
| **Phone Number** | 0542 253 81 56 |
| **Office Number** | A1-31 |
| **Office Hours** | It will be determined during the semester. |
| **Course Materials** | **Mandatory** |  |
| **Recommended** | -Erkek, C., Ağıralioğlu, N., 7. Edition, Su Kaynakları, Beta Press, 2016-Yanmaz, A. M., 1997, Applied Water Resources Engineering, METU Press.-Mays, Larry W,2010, Water Resources Engineering, John Wiley & Sons.-Tchobanoglous G,. Freyberg D. L,. Franzini J. B and K. Linsley R., 1991,Water Resources Engineering by*-*Hydraulic Structures, Fourth Edition Yazar: P. Novak,A.I.B. Moffat,C. Nalluri,R. Narayanan-Water Resources Engineering: Handbook of Essential Methods and Design By Anand Prakash, ASCE PressISBN (print): 978-0-7844-0674-8ISBN (PDF): 978-0-7844-7101-2 |
| **Other** | **Scholastic Honesty** | Violations of scholastic honesty include, but are not limited to cheating, plagiarizing, fabricating information or citations, facilitating acts of dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Any for of scholastic dishonesty is a serious academic violation and will result in a disciplinary action. |
| **Students with Disabilities** | Reasonable accommodations will be made for students with verifiable disabilities. |
| **Safety Issues**  | The course does not require any special safety precautions. |
| **Flexibility** | Circumstances may arise during the course that prevents the instructor from fulfilling each and every component of this syllabus; therefore, the syllabus is subject to change.  Students will be notified prior to any changes.  |