

**İSTANBUL ŞEHİR UNIVERSITY**

**COLLEGE OF ENGINEERING and NATURAL SCIENCES**

**2018 - 2019 / SPRING SEMESTER**

**ENGR 101 – INTRODUCTION TO PROGRAMMING**

**SYLLABUS**

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| **Course Title** | | | **Code** | **Semester** | **Hour (T+P)** | | **Credit** | | **ECTS** |
| Introduction to Programming | | | ENGR 101 | Fall | 4 (2+2) | | 3 | | 5 |
| **Prerequisites** | | | None | | | | | | |
| **Language of Instruction** | | | English | | | | | | |
| **Course Type (Required /elective)** | | | Mandatory for Engineering Majors / Elective for Others | | | | | | |
| **Instructor /e-mail** | | | Dr. H. Müjde Ayık / [mujdeayik@sehir.edu.tr](mailto:mujdeayik@sehir.edu.tr)  Office Hour: Monday 15:00 – 16:00 & 18.00-19.00- Office no: 4022 (Please drop me an email and make an appointment beforehand) | | | | | | |
| **Assistants and**  **Office Hours** | | Ahmed Groshar–[ahmedgroshar@std.sehir.edu.tr](mailto:ahmedgroshar@std.sehir.edu.tr) TBD  Taj Saleh–[tajothman@std.sehir.edu.tr](mailto:tajothman@std.sehir.edu.tr) TBD  Malek Jamal Abdulah Malkawi–[malekmalkawi@std.sehir.edu.tr](mailto:malekmalkawi@std.sehir.edu.tr) TBD  Khaled Ahmed Mostafa Mohamed Yassen–[khaledyassen@std.sehir.edu.tr](mailto:khaledyassen@std.sehir.edu.tr) TBD  Asem Okby–[asemokby@std.sehir.edu.tr](mailto:asemokby@std.sehir.edu.tr) TBD | | | | | | | |
| **Goals** | | The overarching goal in this course is to build an Engineer mindset in preparation for the upper level courses in engineering curriculum. More specifically, the course aims to teach computational problem-solving skills. In particular, understanding a problem, defining steps for a computational solution, and expressing the solution in a programming language is a major goal of this class. To this end, the course aims to enable students write small-to-medium scale computer programs that solve real life problems. | | | | | | | |
| **Learning Outcomes** | | * Learn the fundamental programming structures * Learn how to program using Python. * Develop skills for understanding and solving computational problems. * Gain basic debugging skills * Learn basics of procedural and object-oriented programming | | | | | | | |
| **Course Content** | | This course will provide a hands-on introduction to programming using Python to students with little or no prior experience in programming computers. The course will focus on planning and organizing programs, as well as the grammar of the Python programming language. Lectures will be interactive featuring in-class exercises with lots of support from the course staff. More advanced concepts in computer programming and software development will be introduced in the later stages of the course. | | | | | | | |
| **Assessment Criteria**  Your mini project grade cannot exceed 2 \* (the average of your midterm and final exams). | | **Assessment Components** | | | | **Weight** | | | |
| Midterm Exam | | | | 35% | | | |
| Mini Project 1 | | | | 10% | | | |
| Mini Project 2 | | | | 10% | | | |
| Mini Project 3 | | | | 10% | | | |
| Final Exam | | | | 35% | | | |
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| **WEEKLY TOPICS AND PREPARATIONS** | | | | | | | | | | |
| **Weeks** | **Topics** | | | | | | | **Reading** | | |
| Week 1 | Intro to the programming | | | | | | | Ch 1, 2 | | |
| Week 2 | The way of the program, Variables, expressions and statements | | | | | | | Ch 3 | | |
| Week 3 | Functions, Iterations | | | | | | | Ch 4, 5 | | |
| Week 4 | Iteration, Boolean Expressions, Logical Operators | | | | | | | Ch 5, 6 | | |
| Week 5 | Conditional Execution | | | | | | | Ch 7, 8 | | |
| Week 6 – MP1 | Fruitful functions, Recursion | | | | | | | Ch 7 ,4 | | |
| Week 7 | Strings | | | | | | | Ch 9, 10 | | |
| Week 8 – MT1 | Lists | | | | | | | Ch 11 | | |
| Week 9 | Dictionaries | | | | | | | Ch 12 | | |
| Week 10 | Tuples | | | | | | | Ch 13 | | |
| Week 11 – MP2 | Classes and objects | | | | | | | Ch 16, 17 | | |
| Week 12 | Objects, functions, and methods | | | | | | | Ch 17, 18 | | |
| Week 13 – MP3 | Class- and instance-attributes, operator overloading | | | | | | | Ch 18 | | |
| Week 14 | Inheritance, Polymorphism | | | | | | | Ch 19 | | |
| Week 15 | Final Exam | | | | | | | All of above | | |

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| **REFERENCES** | |
| **Main Textbook** | Think Python (<http://greenteapress.com/thinkpython/>).  Available at the bookstore as well. |

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| **ECTS / WORKING HOUR TABLE** | | | |
| **Activities** | **Number of Weeks** | **Duration (Hour)** | **Working Hours** |
| **Duration of the Course (Including Exams)** | 14 | 4 | 56 |
| **Extracurricular Working Hour (Preparatory Work, Review)** | 14 | 3 | 42 |
| **Assignments, Presentations, Internet Studies, etc.** | 2 | 10 | 20 |
| **Mid-term Exams** | 1 | 20 | 20 |
| **Final Exam** | 1 | 20 | 20 |
| **Working Hours in Total** | 158 | | |
| **Working Hours in Total / 30** | 5.3 | | |
| **ECTS Credit of the Course** | 5 | | |