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| dau_logo_BW | **EASTERN MEDITERRANEAN UNIVERSITY**  **SCHOOL OF COMPUTING AND TECHNOLOGY**  **DEPARTMENT OF INFORMATION TECHNOLOGY**  **COURSE POLICY SHEET** |  |

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| **Course Title** | Algorithms and Programming Techniques |
| **Course Code** | ITEC113 |
| **Type** | Full Time |
| **Semester** | Fall/Spring |
| **Category** | AC (Area Core) |
| **Workload** | 240 Hours |
| **EMU Credit** | (3,2,0) 4 |
| **Prerequisite** | - |
| **Language** | English |
| **Level** | First Year |
| **Teaching Format** | 3 Hours Lecture, 2 Hours Laboratory Peer week |
| **ECTS Credit** | 8 |
| **Course Web Site** | http://courses.sct.emu.edu.tr/it/itec113 |

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| **Instructor(s)** | Yeşim Kapsıl Çırak | **Office Tel** | +90 392 6302310 |
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| **Course Description** |
| This course is the first ring of the chain of Algorithms and Programming courses aiming to introduce students to the manner of thought in programming. The course aims to give an introduction to problem solving techniques and programming using structured programming approach. The applications will be performed using C language. The course will provide the students with the programming and analytical foundations that will be used in all consecutive IT related courses. One of the main objectives is to endow the student with critical thinking skills in programming. In the first part of the course, students earn the required skills about the thought of programming using flowcharts and pseudo-code. In the second part, a general purposed programming language, C, is being taught to the students in order to fortify their programming skills. |

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| **General Learning Outcomes** |
| On successful completion of this course students should be able to:   * Develop knowledge and understanding of problem analysis and solution design * Develop algorithms using flowcharts * Develop algorithms using pseudo code * Use input/output operations in C * Use selection statements * Make use of loops for iterative operations * Define and use 1 D Arrays Develop knowledge and understanding of problem analysis and solution design * Define and use Functions * Be able to write complete C programming language |

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| **Teaching Methodology / Classroom Procedures** |
| The students are expected to be active learners in this course. The teaching methodology of this course is based on a lecture based discussion of concepts followed by supervised as well as unsupervised applications of these concepts in Lab. At the end of every major topic discussion, the students will have to work on corresponding Lab assignments where they have to apply the knowledge and skills they learned in class.  The student will be provided at the beginning of each lab session the corresponding Lab Assignments in printed form at the start of each Lab Session  Every week the student has to follow the following :   * Two hours of Lectures to learn the basic skills and theoretical information needed. * Two hours of supervised Lab applications to apply the information/knowledge given during the lectures * One hour of tutorial session * Students are required to attend all classes and all Lab sessions. * Students are expected to carry out the assigned readings, attend quizzes and submit assignment on time.   Students are responsible to know and use all the course material placed on the web (http://sctweb.emu.edu.tr/itec113) and track the designated dates for timely submission of the assignment and for timely attendance to all quizzes.  There are lab assignments as follows:   * A lab assignment given from related topic every week.   There are two written quiz as follows:   * Quiz1-Algorithms and Basic C structures(before midterm week) * Quiz2-C structures, Functions and 1D Arrays(before final week)   There is written midterm exams which covers Algorithms, introduction to C programming subjects and C control structures.  There is a written final exam which covers all topics. |

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| **Course Materials / Main References** |
| ***Text Book:***  “C How to Program”, by DEITEL & DEITEL, 978-0132990448, 2017,7th edition  ***Resource Books:***   * “C for Business Programming”, by John C. Molluzo * “Problem Solving using C: Structured programming techniques” by Yuksel Uckan   ***Lecture Notes:***   * Lecture , Lab and tutorial notes on web link : http://courses.sct.emu.edu.tr/it/itec113 |

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| **Weekly Schedule / Summary of Topics** | |
| **Week 1** | **Introduction to Computer Programming Concepts :** - To understand Computers, Types Programming languages - To define properties of well designed programs |
| **Week 2-3** | **Principles of Algorithms:** -To understand Algorithms -To learn tools of Algorithms( Pseudocodes, Flowcharts) -To learn and apply structures with algorithms |
| **Week 4-5** | **Introduction to C Programming and Structured Development in C:** -To be able to write simple program in C -To be able to use simle input/output statments -To become familiar with fundamental data types -To understand computer memory concept -To be able to use arithmetic operators -To be able to write simple decision |
| **Week 6** | **C Formated Input/Output** -To be able to use all print formatting capabilities -To be able to use all input formatting capabilities  -To be to print with field widths and precisions |
| **Week 7** | **Structured Development in C** -To understand basic problem-solving techniques -To be able to use selections statements -To be able to use while loop( counter control/sentinel control) To be able to use operators |
| **Week 8-9** | **Midterm Exams** |
| **Week 10** | **C program Control** -To be able to use for and do-while repetition statments -To understand multiple selection using switch selection statement -To be able to use break and continue control statements -To be able to use logical operators |
| **Week 11-12** | **C Functions  -**To understand how to construct programs modularly from small pieces called functions. -To introduce the common functions available in the C standart library -To be able to create new functions -To understand the mechanisms used to pass information between functions.  -To understand how to write and use functions |
| **Week 13-14** | **C Arrays -**To introducethe array data structure -To understand use of arrays  -To understand how to define an array, initialize an array. -To be able to write C programs with array. |
| **Week 15-16** | **Revision** C Arrays / Functions revisions |
| **Week 17-18** | **Final Exams** |

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| **Requirements** |
| * Each student can have only one make-up exam. One who misses an exam should provide a medical report within 3 days after the missed exam. The make-up exam will be organized at the end of the term after the finals and will cover all the topics. No make-up exam will be given for the quizzes. * Students who do not pass the course and fail to attend the lectures regularly may be given NG grade. * The student will be provided at the beginning of each lab session the corresponding Lab Assignments in printed form at the start of each Lab Session |

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| **Method of Assessment** | | | | | |
| Evaluation and Grading | **Labs** | **Quizzes** | **Midterm Exam1** | **Final Exam** |
| Percentage | 15 % | 15 % | 30 % | 40 % |

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| **Grading Criteria \*** | | | | | | | | | | | |
| **A** | **A-** | **B+** | **B** | **B-** | **C+** | **C** | **C-** | **D+** | **D** | **D-** | **F** |
| 90 -100 | 85 - 89 | 80 - 84 | 75 - 79 | 70 - 74 | 65 - 69 | 60 - 64 | 56 - 59 | 53 - 55 | 50 - 52 | 40 - 49 | 0 – 39 |

\* Letter grades will be decided upon after calculating the averages at the end of the semester and distribution of the averages will play a significant role in the evaluation of the letter grades.