Computer Engineering Concepts and Algorithms

Course Code:

CSE 101

Course Period:

Autumn

Course Type:

Core

Credits:

4

Theoric:

3

Practice:

0

Laboratory Hour:

2

ECTS:

8

Course Language:

English

Course Objectives:

The aim of this course is to introduce computer science and engineering concepts, and algorithms and programming.

Course Content:

Department and faculty orientation, evolution of computers, software and hardware concepts, data storage and representation, operating systems, computer networks. Introduction to algorithm representation using flowcharts and pseudocodes, Python

programming, control structures, functions, recursion.

Course Methodology:

1: Lecture, 2: Question-Answer, 3: Lab, 4: Case-study

Course Evaluation Methods:

A: Testing, B: Experiment, C: Homework, D: Project

Course Learning Outcomes	Program Learning Outcomes	Teaching Methods	Assessment Methods
1) Introductory knowledge in computer engineering concepts.	1,8	1,3	A, C
2) Ability to design algorithms to solve problems.	1,6	1,2,3	A, B, C
3) Introductory knowledge about computer ethics, environmental and health issues	9,11	1,3	A, C

COURSE CONTENT

Week	Topics	Study Materials
1	Introduction, History of Computers, Computer Ethics	Lecture Notes
2	Hardware: CPU, data storage, I/O units	Lecture Notes
3	Numbering Systems, Binary Arithmetic, Logic Gates	Lecture Notes
4	Data Communication and Networking	Lecture Notes
5	Operating Systems and Application Software	Lecture Notes
6	Languages, Algorithms, Pseudocodes, and Flowcharts	Lecture Notes
7	Algorithm Design: Conditionals, Loops	Lecture Notes
8	Algorithm Design: Subroutines	Lecture Notes
9	Algorithm Design: Recursion	Lecture Notes
10	Introduction to Programming	Lecture Notes
11	Introduction to Programming	Lecture Notes
12	Introduction to Programming	Lecture Notes

13	Introduction to Programming	Lecture Notes
14	Introduction to Programming	Lecture Notes

RECOMMENDED SOURCES

Textbook	J. G. Brookshear, **Computer Science An Overview**, 10th Ed., Addison Wesley (Recommended)
Additional Resources	Lecture Notes: coadsys.yeditepe.edu.tr/ Lab material: coadsys.yeditepe.edu.tr/

MATERIAL SHARING

Documents	cse.yeditepe.edu.tr/coadsys
Assignments	cse.yeditepe.edu.tr/coadsys
Exams	cse.yeditepe.edu.tr/coadsys

ASSESSMENT

IN-TERM STUDIES	**NUMBER**	**PERCENTAGE**
Mid-terms	2	58
Assignment	10	14
Lab Work	10	28
Total		**100**
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		30
CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE		70
Total		**100**

COURSE'S CONTRIBUTION TO PROGRAM

		Contribution				
No	Program Learning Outcome	1	2	3	4	5
	Adequate knowledge in mathematics, science and					

1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied information in these areas to model and solve engineering problems.		x
2	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.		
3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.		
4	Ability to devise, select, and use modern techniques and tools needed for engineering practice; ability to employ information technologies effectively.		
5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating engineering problems.		
6	Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually.		x
7	Ability to communicate effectively both orally and in writing; knowledge of a minimum of one foreign language.		
8	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.		x
9	Awareness of professional and ethical responsibility.		x
10	Information about business life practices such as project management, risk management, and change management; awareness of entrepreneurship, innovation, and sustainable development.		
11	Knowledge about contemporary issues and the global and societal effects of engineering practices on health, environment, and safety; awareness of the legal consequences of engineering solutions.		x

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION

Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration (Excluding the exam weeks: 12x Total course hours)	12	5	60
Hours for off-the-classroom study (Pre-study, practice)	14	4	56

Midterm examination	2	2	4
Homework	10	8	80
Final examination	1	3	3
Total Work Load			203
Total Work Load / 25 (h)			8.12
ECTS Credit of the Course			8