

ÇANKAYA UNIVERSITY

Department of Industrial Engineering

Spring, 2017

IE 218 - Computer Applications in Industrial Engineering

(2 2 3 credits – 6 ECTS)

Course Description:

This course is designed to provide a background necessary to develop different computer based applications required in IE activities. The topics covered in the course are basics of programming in C and VBA, Introduction of basic data structures, library functions, programming basics, Introduction to algorithmic thinking, Flowcharting basics, debugging and tracing, Review of conditionals and loop structures, Advanced loop structures, Arrays and their application and developing basic algorithms, Basic file operations, I/O using files, Introduction to functions, subroutines and recursion, User interface design, Search and sort algorithms, Computations on matrix operations and matrix inversion, Use of Pointers, List processing: Ordered vs Linked lists, Discrete event single server deterministic queue simulation.

	Instructor	Assistant
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Weekly Course Schedule:

Week	Topic(s)
1	Flowcharting basics, debugging and tracing.
2	Basic concepts of programming. Variable declarations and data types.
3	Review of if clause
4	Basic loop structure.
5	Advanced loop structure.
6	One-dimensional arrays.
7	Multi dimensional arrays, their applications and developing basic algorithms.
8	Introduction to functions, subroutines and recursion.
9	Search and sort algorithms.
10	Basic file operations. I/O using files.
11	User interface design at VBA.
12	User interface design at VBA.
13	Use of pointers.
14	List processing: Ordered vs linked list.

Grading: Failed students, who have not attended any of the exams, will get “NA” letter grade.

Homework:	5%
Quiz:	15% (4 quizzes)
Project:	15%
Midterm 1:	20%
Midterm 2:	20%
Final:	25%
Total:	100%

Textbooks

Author(s)	Title	Publisher	Publication Year	ISBN
S. C. Chapra	Introduction to VBA for Excel	Pearson Higher Education	2009	978-0132396677
J. R. Hanly and E. B. Koffman	Problem Solving and Program Design in C (Seventh Edition)	Addison Wesley	2012	9780273774198

Reference Books:

Author(s)	Title	Publisher	Publication Year	ISBN
Deitel and Deitel	C How to Program (Fifth Edition)	Prentice-Hall, Inc.	2007	0-13-1240416-8
M. M. H. Şeref, R. K. Ahuja and W. L. Winston	Developing Spreadsheet-Based Decision Support Systems: Using Excel and VBA for Excel	Dynamic Ideas	2007	978-0975914656

Policy on Homework and Exams:

Cheating in homework and exams has serious consequences. Therefore, all work submitted should reflect your honest effort

All the announcements, including the examination dates will be posted on webonline.cankaya.edu.tr

Instructor has the right of updating syllabus.

Term project:

There will be a term project covering the fundamental issues of programming. In this project, the students are expected to prepare a program individually