

Professor Sami Masri

Computer Methods in Engineering

Course Objectives and Outcomes		How well did you learn?				
		Not at all → Very Well				
		1	2	3	4	5
Objective: Provide students with basic knowledge of computer methods used in civil engineering, and basic experimental methods as companion means of analysis applied in solving real word structural problems.		CIRCLE YOUR RATINGS ↓ BELOW ↓				
Outcome. How well did this course increase your ability to understand and/or do the following?						
1	FORTRAN; Flowcharts	1	2	3	4	5
2	Solution of nonlinear algebraic equations	1	2	3	4	5
3	Solution of sets of equations (linear and nonlinear)	1	2	3	4	5
4	Interpolation	1	2	3	4	5
5	Numerical differentiation	1	2	3	4	5
6	Numerical integration	1	2	3	4	5
7	Monte Carlo techniques	1	2	3	4	5
8	Numerical solution of ordinary differential equations	1	2	3	4	5
9	Boundary-value problems and characteristic-value problems	1	2	3	4	5
10	Curve-fitting and approximation of functions	1	2	3	4	5
11	Develop a numerical algorithm from a given set of instructions or procedures.	1	2	3	4	5
12	Create flow-charts as illustrations of the numerical algorithms.	1	2	3	4	5
13	Translate the flow-chart into an executable computer program.	1	2	3	4	5
Objective. Learn the algorithms for solving linear and nonlinear algebraic equations, numerical interpolation, differentiation and integration.						
Outcome. How well did this course increase your ability to understand and/or do the following?						
14	Create computer programs for solving linear and nonlinear algebraic equations.	1	2	3	4	5
15	Create computer programs for numerical interpolation, differentiation and integration.	1	2	3	4	5
Objective. Learn the algorithms for Monte Carlo Techniques, Curve-fitting and approximation of functions.						
Outcome. How well are you able understand and/or do the following?						
16	Create computer programs for solving the Monte Carlo techniques.	1	2	3	4	5
17	Create computer programs for Curve-fitting & approximation of functions.	1	2	3	4	5
Objective. Learn the solutions of ordinary differential equations and boundary, and characteristic value problems.						
Outcome. How well did this course increase your ability to understand and/or do the following?						
18	Create computer programs for finding the solutions of ordinary differential equations.	1	2	3	4	5
19	Create computer programs for solving boundary and characteristic-value problems.	1	2	3	4	5

Relationship of Civil Engineering Program Course Objectives to Outcomes

Objective: The Civil Engineering program is designed to teach beyond the technical content of the curriculum and prepare the students to utilize what they learn in a professional setting.

Engineering projects and research activities enlist skills and demonstrate ability to understand the subject matter and communicate in a proficient manner. This course contributes to the overall program goals in the following ways.

Outcome. How well did this course increase your ability to understand and/or do the following?

(a)	an ability to apply knowledge of mathematics, science, and engineering.	1	2	3	4	5
(c)	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	1	2	3	4	5
(e)	an ability to identify, formulate, and solve engineering problems.	1	2	3	4	5
(k)	an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	1	2	3	4	5