

College of Engineering

Civil Engineering Department

Semester: Fall / 2020

About The Course

Course Title: Engineering Mathematics Class: 3

Course No: 901301

Credit Hours: 3 Lecture Room: ---

Obligatory/ Optional: Obligatory

Text Book:

• CALCULUS, Stephen Davis, Irl C. Bivens, Howard Anton. 10th Edition, 2012.

• Engineering Mechanics Statics (13th Edition), R.C. Hibbeler, 2013.

The Instructor

Name: Salam Ajlouny

Title: Tutor
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Course Description

Introduction to fundamental basics of engineering mathematics, understanding functions and drawing curves, learning limits and continuity m Solving problems of Differentiability and related rates, integrals and extreme values, and studying first and second moment area and center of gravity.

Course Objectives

- 1. To introduce fundamental basics of engineering mathematics
- 2. Make sure that students can understand and be able to deal with functions and draw graphs
- 3. Revise most types of functions and study continuity
- 4. Solving problems of Differentiability and related rates
- **5.** Knowing how to find the center of gravity and calculate first moment area

Learning Outcome

- 1. Use statistical concepts and applications in traffic Engineering
- 2. Identify traffic stream characteristics
- 3. Understand elements of highway safety and approaches to accident Studies.
- 4. Design a pre-timed signalized intersection, and determine the signal splits.
- 5. Identify level of services for arterials
- 6. Understand Warrants and ability to use them to evaluate Intersections
- 7. Making students aware of how language works to convey meaning as its basic function

Course Outline and Time schedule

Week	Course Outline			
1st week	Review of Cartesian coordinates			
2 nd week	Functions domain and range			
3 rd week	Limits and continuity			
4 th week	Derivation and its Applications			
5 th week	First Exam			
6 th week	Related rates			
7 th week	Integrations and its Applications			
8 th week	Second Exam			
9th week	Cartesian vector formulas for solving statics problems			
11 th week	Centroid and center of gravity			
12 th week	Parallel Axis Theorem for Moment of Inertia			
15 th week	Final exam			

Presentation methods and techniques

Methods of teaching varied according to the type of text, student and situation. The following techniques are usually used:

- 1- Lecturing with active participations.
- 2- Problem solving.
- 3- Cooperative learning.
- 4- Discussion.
- 5- Learning by activities.
- 6- Connecting students with different sources of information

Assessment Strategy and its tools

The assigned syllabus is assessed and evaluated Through: feedback and the skills that are acquired by the students

The tools:

- 1- Diagnostic tests to identify the students level and areas of weakness
- 2- Formal (stage) evaluation
 - a) Class Participation
 - b) Ist Exam
 - c) 2nd Exam
 - d) Activity file

Tool & Evaluation

Tests are permanent tools & assessment, in addition to the activity file which contains curricular and the co-cussiculor activities, research, report papers and the active participation of the student in the lecture.

The following table clarifies the organization of the assessment schedule:

Test	Date	Grade
1 st Exam	According to the department schedule	20%
2 nd Exam	According to the department schedule	20%
Activities &	Students should be notified about	20%
Participation	their marks	
Final Exam	According to the department schedule	40%

Activities and Instructional Assignment

- 1- Practical assignments to achieve the syllabus objectives.
- 2- Weekly Pop quiz and Homeworks

Regulations to maintain the Teaching-Learning Process in the Lecture:

- 1- Regular attendance.
- 2- Respect of commencement and ending of the lecture time.
- 3- Positive relationship between student and teacher.
- 4- Commitment to present assignments on time.
- 5- High commitment during the lecture to avoid any kind of disturbance and distortion.
- 6- High sense of trust and sincerity when referring to any piece of information and to mention the source.
- 7- The student who absents himself should submit an accepted excuse.
- 8- University relevant regulations should be applied in case the student's behavior is not accepted.
- 9- Allowed Absence percentages is (15%).

Internet websites

- https://arslanhelpyoucom.files.wordpress.com/2016/05/calculus-earlytranscendentals-10th-ed-howard-anton-iril-bivens-stephen-davisebook.pdf
- 2. http://civilittee-hu.com/uploads/1/Static/book14th.pdf

References:

- 1. CALCULUS, Stephen Davis, Irl C. Bivens, Howard Anton. 10th Edition, 2012.
- 2. Engineering Mechanics Statics (13th Edition), R.C. Hibbeler, 2013.

Syllabus Classification

Objectives	Learning outcomes	Assessment tools
1-	Students are able to identify engineering problems	Assignments, projects, and exams
2-	Students are able to design a component to meet certain constraints	Assignments, projects, and exams
3-	Students are able to use modern engineering tools for engineering practice	Assignments, projects, and exams
4-	Students are able to recognize the impact of engineering solutions in an mathemarical context	Assignments, projects, and exams
5-	Students are able to formulate a collective solution to a Problem	Assignments, projects, and exams