



MUTAH UNIVERSITY
College of Science
Department of Mathematics

Course Syllabus

Course Code	Course Name	Credits	Contact Hours
0301102	Calculus (2)	3	3T

INSTRUCTOR/COORDINATOR

Name	Prof. Ali Taani
Email/Office	Alitaani@mutah.edu.jo
Office Hours	11:00-12:30 Mon, Wed
Classroom/Time	8:00-9:30 Mon, Wed

TEXTBOOK

Title	Calculus Late Transcendentals
Author/Year/Edition	Howard Anton , Irl C. Bivens , Stephen Davis , 2012, 10 th edition
Other Supplemental Materials	
Title	Calculus, One and several variables
Author/Year/Edition	Salas, Hille & Etgen, 2008, 10 th edition

SPECIFIC COURSE INFORMATION

A. Brief Description of the Content of the Course (Catalog Description)

Techniques of integration: by parts, trigonometric integrals, trigonometric substitutions. Integrating Rational Functions; Partial Fractions. Special substitutions, the improper integrals. Applications of the definite integral; Volume by Cross section method; Disks and Washers methods, volumes by the cylindrical shell Method. Length of plan curve. Area of surface of Revolution. Curves defined parametrically and its length. Volumes and surface area of a solid generated by curves defined parametrically.

Infinite sequences and infinite Series; Sequences, Monotone Sequences, Infinite Series Convergence Tests; The Comparison, Ratio, and Root Tests, Alternating Series; Absolute and, Conditional Convergence, Maclaurin and Taylor Polynomials, Maclaurin and Taylor Series; Power Series, Convergence of Taylor Series, Differentiating and Integrating Power, Series; Modeling with Taylor Series.

B. Pre-requisites (P) or Co-requisites (C)

Calculus (1) (0301101) (P)

C. Course Type (Required or Elective)

Required						
SPECIFIC GOALS						
A. Course Learning Objectives (CLOs)						
CLO1: To apply integration to find the volumes of some solids [1].						
CLO2: To know the concepts Infinite sequences and series and several tests of convergence [1].						
CLO3: To make use of the knowledge of mathematical techniques of integration and adapt known Solutions to various situations of integration [1].						
CLO4: To apply integration to find the volumes, surface area of solids obtained when revolving a curve of a function [1].						
CLO5: To know the concepts Infinite sequences and series and several tests of convergence [1].						
CLO6: To know the polar coordinates and how to draw in polar [1].						
B. Student Learning Outcomes (SOs) Addressed by the Course						
1	2	3	4	5	6	7
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BRIEF LIST OF TOPICS TO BE COVERED		
List of Topics	No. of Weeks	Contact Hours
An Overview of Integration Methods, Integration by Parts, Integration Trigonometric Functions, Trigonometric Substitution, Integrating Rational Functions; Partial Fractions, Special substitutions, Improper Integrals.	4	12
Volume by Cross Sections; Disks and Washers, by the Cylindrical Shell Method, Length of plan curve, Area of surface of Revolution, Curves defined parametrically and its length, volumes and surface area of a solid generated by these curves.	3	9
Sequences, Monotone Sequences, Infinite Series, Convergence Tests, Comparison, Ratio, and Root Tests, Alternating Series; Absolute and Conditional Convergence, Maclaurin and Taylor Polynomials, Maclaurin and Taylor Series; Power Series, Convergence of Taylor Series, Differentiating and Integrating Power Series; Modeling with Taylor Series	5	15
Parametric Equations; Tangent Lines and Arc Length for Parametric Curves, Polar Coordinates, Tangent Lines, Arc Length, and Area for Polar Curves.	2	6
<i>Total</i>	<i>14</i>	<i>42</i>

EVALUATION		
Assessment Tool	Due Date	Weight (%)
Mid Exam	According to the university calendar	30
Course Work (Homework's, Quizzes, Projects, ...etc.)	One week after being assigned	20

Final Exam	According to the university calendar	50
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BET's Students Learning Outcomes (Criterion # 3)

		Relationship to program outcomes
ABET 1-7		Electrical Engineering Student Outcomes
1.	√	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2.		an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic
3.		ability to communicate effectively with a range of audiences
4.		an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5.		an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6.		an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7.		an ability to acquire and apply new knowledge as needed, using appropriate learning strategies