هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

Course Title:	**Calculus**
Course Code:	**293 Math**
Program:	**EPET, MMET, CHET**
Department:	**Basic Sciences and Supporting Studies**
College:	**College of Applied Industrial Technology-Baish**
Institution:	**Jazan University**
Version:	**T-104 2022**
Last Revision Date:	**3 March 2024**

Table of Contents:

A. General information about the course:

Course Identification					
1. Credit hours:	3 hours				
2. Course type					
a.	University ☐	College ☒	Department☐	Track☐	Others☐
b.	Required ☒	Elective☐			
3. Level/year at which this course is offered: Third level/ Second year					
4. Course general Description This is a theoretical course designed to provide knowledge and educational experience to students in order to solve mathematical problems involved in technical specialty courses. The topics may include: limits and continuity, differentiation, applications of differentiation, indeterminate form, L' Hopital rule, indefinite and definite integrals with their applications. The course should enable the students to acquire sufficient understanding in ordinary differential equations of first order. The course is introduced through three classes weekly. There are 2 classes (1 hour each) for theoretical part and 2 hours class for tutorial for which students discuss and solve the problems of the lectures.					
5. Pre-requirements for this course (if any): 092 MATH					
6. Co- requirements for this course (if any): None					
7. Course Main Objective(s) Calculus is an important course in mathematics, because it is the basis in studying other courses. In this course, the student is expected to be familiar with: a. The importance of differentiation and integration in branches of science and engineering technology as well as recognizing the relationship between them. b. Understand the basic rules of differentiation, integration and their applications. c. Develop the student's logical thinking and providing them with the skills necessary to solve technical problems.					

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	48	100
2.	E-learning	--	--
3.	Hybrid • Traditional classroom • E-learning	--	--
4.	Distance learning	--	--

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	24
2.	Laboratory/Studio	--
3.	Field	--
4.	Tutorial	24
5.	Others (specify)	--
	Total	48

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Demonstrate knowledge of limits, differentiation, and integration.	K1	Lecture, tutorial, active learning	Quiz, exams
1.2	Compute the different types of limits.	K1	Lecture, tutorial, active learning	Quiz, exams
2.0	Skills			
2.1	Recognize the concepts of the derivative in algebraic functions.	S1	Lecture, tutorial, active learning	Quiz, exams
2.2	Discuss the derivative of trigonometric functions and examine the L'Hopital rule.	S1	Lecture, tutorial, active learning	Quiz, exams
2.3	Explain the basic rules of integration and develop the concept of Laplace Transform.	S2	Lecture, tutorial, active learning	Quiz, exams
3.0	Values, autonomy, and responsibility			
3.1	Observe the ability to work independently and meet deadlines.	V1	Active learning	Class activity

C. Course Content

No	List of Topics	Contact Hours
1.	Limits a. Limit by definition, theorems b. Computing limits c. Limits at infinity; End behavior of a function d. Continuity	8
2.	The Derivative a. Derivative of functions b. The product and quotient rules	10
3	Topics in Differentiation a. Derivatives of trigonometric functions b. Derivatives of logarithmic and exponential functions c. L'Hopital's rule; indeterminate form	10
4	Integrations a. Indefinite integrals b. Definite integrals c. Laplace transform	16
5	Revision of theoretical concepts	4
Total		48

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	All weeks	20%
2.	Assignments & Class activity	All weeks	15%
3.	Midterm Exam	Week 6	15%
4	Final Term Exam	As scheduled	50%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	• Lecture Notes • Calculus: Howard Anton, IrlBivens and Stephen Davis, 10th Editions, John Wiley and Sons.
Supportive References	

	• Calculus: J. Stewart, 5th Edition, Brooks/Cle Publishing Company. • Calculus: R.E. Larson, R.P. Hostetler and B.H. Edwards, 7th Edition, Houghton Mifflin Company • Calculus: G. B. Thomas, Early Transcendentals, 11thEdition, Addition-Wesley, New York. • Calculus: E. Swokowski, M. Olinic, and D. Pence, 6thEdition, PWS Publishing Company
Electronic Materials	Not utilized
Other Learning Materials	Not utilized

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms should be furnished for 25 students with • White board or smart board • Appropriate Chairs
Technology equipment (projector, smart board, software)	• Computer with data show • Calculator
Other equipment (depending on the nature of the specialty)	Not utilized

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Institution	Direct
Effectiveness of students assessment	Institution	Direct
Quality of learning resources	Institution	Direct
The extent to which CLOs have been achieved	Course Coordinator	Direct
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	