



Course Specifications

Course Title:	Calculus
Course Code:	IMTH 0210
Program:	Industrial chemistry
Department:	Chemistry
College:	College of Science Al Zulfi
Institution:	Majmaah University

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3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and understanding	
K1	Demonstrate understanding of basic of Calculus	K1
K.2	Demonstrate understanding of basic of linear algebra	K2
2	Skills:	
S.2	Develop creative solutions to current issues and problems	S2
2.4	Demonstrate the ability to use modern technology and statistical applications.	S4
3	Values:	
V.2	Demonstrate the ability of working independently and with groups.	V2

C. Course Content

No	List of Topics	Contact Hours
1	Variables, Functions, Limits Continuity Derivatives Integrals	15
2	Matrices and vectors Basis Vectors Matrix Vector Multiplication Matrix Multiplication Determinants Special Types of Matrices Square Matrix Identity Matrix Inverse Matrix Diagonal Matrix Triangular Matrix Sparse Matrix Systems of Equations and Inverse Matrices	15
Total		30

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding		
1.1	Demonstrate understanding of basic of Calculus	Lectures	<ul style="list-style-type: none"> • Quiz • Homework • Mid-term and final exam
1.2	Demonstrate understanding of basic of linear algebra		
2.0	Skills:		
2.2	Develop creative solutions to current issues and problems	Lectures	<ul style="list-style-type: none"> • Quiz • Homework • Mid-term and final exam
2.4	Demonstrate the ability to use modern technology and statistical applications		
3.0	Values:		
3.2	Demonstrate the ability of working independently and with groups	Encourage students to create a presentation as a group assignment	<ul style="list-style-type: none"> • assessment of group • presentations • Direct observation

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Homework and quiz	Every week	20 %
2	Midterm	6th	20 %
3	E-exam	9th	10%
4	Group discussion and activities	Every week	10%
5	Final Exam	12th	40 %

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:
4 hours each week for student consultation and academic advice

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	
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Essential References Materials	Calculus. Stewart. International ed.) (Brooks/Cole). 2020 Linear Algebra and its Applications. Lay. Addison Wesley Longman. 2020
Electronic Materials	
Other Learning Materials	Bb, power point

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Class rooms are available with smart boards and internet
Technology Resources (AV, data show, Smart Board, software, etc.)	Computers and internet are available for online study and video tutorials.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Strategies for Obtaining Student Feedback on Effectiveness of Teaching	students	questionnaire
-Student evaluation about the course electronically organized by the University	students	Electronic questionnaire
Student satisfaction about the examination	students	questionnaire
Evaluation of internal revision	Staff members	Internal revision reports

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Chemistry department council
Reference No.	Council number 6
Date	09/03/1444H