مركز الاعتماد وضمان الجودة
ACCREDITATION & QUALITY ASSURANCE CENTER

The University of Jordan

Accreditation & Quality Assurance Center

Course Syllabus

Course Name:Calculus II

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Course Syllabus

1	**Course title**	**Calculus II**
2	**Course number**	0301102
3	**Credit hours**	3
	Contact hours (theory, practical)	3
4	**Prerequisites/corequisites**	0301101
5	**Program title**	B.Sc. Mathematics
6	**Program code**	
7	**Awarding institution**	The University of Jordan
8	**School**	Science
9	**Department**	Mathematics
10	**Course level**	Compulsory
11	**Year of study and semester (s)**	First year. First, second, or summer semester.
12	**Other department (s) involved in teaching the course**	None
13	**Main teaching language**	English
14	**Delivery method**	■Face to face learning ☐Blended ☐Fully online
15	**Online platforms(s)**	■Moodle ■Microsoft Teams ☐Skype☐Zoom ☐Others……
16	**Issuing/Revision Date**	2^{nd} Nov, 2022

17 Course Coordinator:

Name: Hasan Hdeib	**Contact hours:**
Office number:	Phone number: 00962 6 5355000 Ext. 2907 (Office),
Email: zahdeib@ju.edu.jo	

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18 Other instructors:

Name: Office number: Phone number: Email: Contact hours: Name: Office number: Phone number: Email: Contact hours:

19 Course Description:

As stated in the approved study plan. Integration by parts; trigonometric integrals; trigonometric substitutions; integration of rational functions by partial fractions; strategy of integrations; improper integrals; areas between two curves; volumes; volumes by cylindrical shells; arc length; area of surface of revolution; sequences; series; integral test; the comparison tests; alternating series; absolute convergence and the ratio and root tests; strategy for testing series; power series; representations of functions as power series; taylor and maclaurine series; polar coordinates; area in polar coordinates.

20 Course aims and outcomes:

A- Aims:

1- Engage students in sound mathematical thinking and reasoning. This should include students finding patterns, generalizing, and asking/answering relevant questions.
2- Provide a setting that prepares students to read and learn mathematics on their own.
3- Explore multiple representations of topics including graphical, symbolic, numerical, oral, and written. Encourage students to make connections among the various representations to gain a richer, more flexible understanding of each concept.
4- Analyse the structure of real-world problems and plan solution strategies. Solve the problems using appropriate tools.
5- Develop a mathematical vocabulary by expressing mathematical ideas orally and in writing.
6- Enhance and reinforce the student's understanding of concepts through the use of technology when appropriate.

B- Students Learning Outcomes (SLOs):

Upon successful completion of this course, students will be able to:

SLOs / SLOs of the course	SLO (1)	SLO (2)	SLO (3)	SLO (4)	SLO (5)	SLO (6)	SLO (7)	SLO (8)
1Evaluate the integral	●				●			●
2 Find the area and the volume	●				●			●
3 Find the arc length and surface area of revolution	●				●			●
4 Determine weather the series is convergent or divergent	●				●			●
5 Sketch the polar curves and to find the area in polar	●				●			●

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21. Topic Outline and Schedule:

Week	Lecture	Topic	Student Learning Outcome	Learning Methods (Face to Face/Blended/ Fully Online)	Platform	Synchronous/ Asynchronous Lecturing	Evaluation Methods	Resources
1	7.1	Integration by parts	1, 5, 8	Face to Face	Moodle			Text Book
	7.2	Trigonometric Integrals	1, 5, 8	Face to Face	Moodle			Text Book
2	7.3	Trigonometric Substitution	1, 5, 8	Face to Face	Moodle			Text Book
3	7.4	Integration of Rational function by partial fraction	1, 5, 8	Face to Face	Moodle			Text Book
4	7.5	Strategy of integration Exercices:3,6,10,11 ,17,19,22,29	1, 5, 8	Face to Face	Moodle			Text Book
	7.8	Improper integrals Exercices:1,6,8,13, 14,19,29	1, 5, 8	Face to Face	Moodle			Text Book
5	6.1	Area between curves	1, 5, 8	Face to Face	Moodle			Text Book
	6.2	Volumes	1, 5, 8	Face to Face	Moodle			Text Book
6	6.3	Volumes by Cylindrical shells Exercice:1,2,3,5,9,1	1, 5, 8	Face to Face	Moodle		Midterm exam	Text Book

		0,13						
7	8.1	Arc Length	1, 5, 8	Face to Face	Moodle			Text Book
	8.2	Area of surface of revolution	1, 5, 8	Face to Face	Moodle			Text Book
8	11.1	Sequences	1, 5, 8	Face to Face	Moodle			Text Book
	11.2	Series	1, 5, 8	Face to Face	Moodle			Text Book
9	11.3	Integral test	1, 5, 8	Face to Face	Moodle			Text Book
	11.4	The comparison tests	1, 5, 8	Face to Face	Moodle		Second exam	Text Book
10	11.5	Alternating Series	1, 5, 8	Face to Face	Moodle			Text Book
	11.6	Absolute Convergence and the ratio and root tests	1, 5, 8	Face to Face	Moodle			Text Book
11	11.7	Strategy for testing series	1, 5, 8	Face to Face	Moodle			Text Book
12	11.8	Power series	1, 5, 8	Face to Face	Moodle			Text Book
13	11.9	Representation of functions as power series	1, 5, 8	Face to Face	Moodle			Text Book
	11.10	Taylor and Maclaurin series	1, 5, 8	Face to Face	Moodle			Text Book
14	10.3	Polar coordinates Exercises: 1, 4,5, 6,	1, 5, 8	Face to Face	Moodle			Text Book
15	10.4	Areas in Polar Coordinates Exercises: 5-10	1, 5, 8	Face to Face	Moodle		Final exam	Text Book

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22 Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
Midterm exam	30		1, 5, 8		On Campus
Second exam	20		1, 5, 8		On Campus
Final exam	50		1, 5, 8		On Campus

23 Course Requirements

24 Course Policies:

1. Attendance is absolutely essential to succeed in this course. You are expected to attend every class; please notify your instructor if you know you are going to be absent. All exams must be taken at the scheduled time. Exceptions will be made only in extreme circumstances, by prior arrangement with the instructor.
2. If a student is absent for more than 10% of lectures without an excuse of sickness or due to other insurmountable difficulty, then he/she shall be barred from the final examination also he/she will get a failing grade in this course.
3. Medical certificates shall be given to the University Physician to be authorized by him. They should be presented to the Dean of the Faculty within two weeks of the student's ceasing to attend classes.
4. Test papers shall be returned to students after correction. His/her mark is considered final after a lapse of one week following their return.
5. Cheating is prohibited. The University of Jordan regulations on cheating will be applied to any student who cheats in exams or on home works.

25 References:

A- Required book(s), assigned reading and audio-visuals:

Calculus (Early Transcendentals), 8^{nd} edition, James Stewart, 2016.

B- Recommended books, materials, and media:

(1) Calculus, 8^{nd} edition, Howard Anton, 2005.
(2) Calculus, 11^{th} edition, G. Thomas, 2005.
(3) Calculus, 3^{rd} edition, R.Smith and R. Minton, 2007.

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26 Additional information:

Name of Course Coordinator: ----------Signature: ---------- Date: ----------
Head of Curriculum Committee/Department: Prof. Ahmad Al Zghoul-- Signature: ----------
Head of Department: -Prof. Manal Ghanem - Signature: -M. Ghanem
Head of Curriculum Committee/Faculty: ---------- Signature: ----
Dean: Mahmoud Jaghoub Signature: ----------