مركز الاعتماد وضمان الجودة
ACCREDITATION & QUALITY ASSURANCE CENTER

The University of Jordan

Accreditation & Quality Assurance Center

Course Syllabus

Course Name

0301702 Applied Mathematics-2

1	Course title	Applied Mathematics-2
2	Course number	0301702
3	Credit hours (theory, practical)	3
	Contact hours (theory, practical)	3
4	Prerequisites/requisites	--
5	Program title	MSc. In Mathematics
6	Program code	
7	Awarding institution	The University of Jordan
8	Faculty	Science
9	Department	Mathematics
10	Level of course	Elective specialization requirement
11	Year of study and semester (s)	1st year, 2nd semester
12	Final Qualification	MSc. In Mathematics
13	Other department (s) involved in teaching the course	--
14	Language of Instruction	English
15	Date of production/revision	28/10/2020

16. Course Coordinator:

Dr. Feras Yousef
Associate Professor
Department of Mathematics
The University of Jordan
Office: 300 Mathematics Building
Phone: (06) 535-5000 | Extension: 22084
Email: fyousef@ju.edu.jo

17. Other instructors:

18. Course Description:

As stated in the approved study plan.

PDEs of Mathematical Physics, Separation of Variables, Transform Methods, Eigen Function Expansions, Green's Function, Approximation Methods, Integral Equations.

19. Course aims and outcomes:

A- **Aims:**

1. To solve IVPs and BVPs of PDEs using several techniques.
2. To solve Integral Equations using several techniques.
3. To study the basic concepts of Calculus of Variations.

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to …

B1. To solve IVPs and BVPs of PDEs using Separation of Variables and Characteristic Lines.
B2. To solve IVPs and BVPs BVPs of PDEs using Laplace and Fourier transforms.
B3. To solve integral equations such as Fredholm and Volterra integral equations.
B4. To solve DEs using a perturbation method.
B5. To find the extremals and Euler equations of functionals.

20. Topic Outline and Schedule:

Topic	Week	Achieved ILOs	Evaluation Methods	Reference
1. IVPs & BVPs for PDEs	1-4			
2. Integral Transforms	5-7			
3. Integral Equations	8-10			
4. Asymptotic Methods	11-12			
5. Variational Methods	13-15			

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:
In order to succeed in this course, each student needs to be an active participant in learning – both in class and out of class.

- Class time will be spent on lecture as well as discussion of homework problems and some group work.
- To actively participate in class, you need to prepare by reading the textbook and doing all assigned homework before class (homework will be assigned each class period, to be discussed the following period).
- You should be prepared to discuss your homework (including presenting your solutions to the class) at each class meeting, your class participation grade will be determined by your participation in this.
- You are encouraged to work together with other students and to ask questions and seek help from the professor, both in and out of class.

22. Evaluation Methods and Course Requirements:

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

Evaluation Activity	Mark	Topic(s)	Period (Week)
Home Works	20		
First Exam	20		5
Second Exam	20		12
Final Exam	40		

23. Course Policies:

1. The student is not allowed to take the course and its pre-requisite in the same time.
2. 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.
3. 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.
4. 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.
5. Test papers shall be returned to students after correction. His/her mark is considered final after a lapse of one week following their return.
6. Solutions for the exams questions and marks will be announced at e-learning platform
7. Cheating is prohibited. The University of Jordan regulations on cheating will be applied to any student who cheats in exams or on home works.

24. Required equipment:

25. References:

0. Tyn Myint-U, Partial Differential Equations for Scientists and Engineers, Science Publishing Co. Inc., New York (1987).
1. Lawrence C. Evans, Partial Differential Equations, American Mathematical Society (2010).
2. J. Ray Hanna, John H. Rowland, Fourier Series, Transforms, and Boundary Value Problems: Second Edition, Dover Publications, Inc., New York (2008).
3. Ram P. Kanwal , Linear Integral Equations: Theory and Technique, Academic Press, New York (1971).
4. A. H. Nayfeh, Perturbations Methods, New york (1973).

26. Additional information:

Name of Course Coordinator: Dr. Feras Yousef Signature: ---------- Date: 28/10/2020

Head of curriculum committee/Department: ---------- Signature: ----------

Head of Department: ---------- Signature: ----------

Head of curriculum committee/Faculty: ---------- Signature: ----------

Dean: ---------- -Signature: ----------

Copy to:
Head of Department
Assistant Dean for Quality Assurance
Course File