Jordan University of Science and Technology

Faculty of Engineering

Electrical Engineering Department

EE701 Applied Mathematics For Engineers - JNQF Level: 9

Second Semester 2023-2024

Course Catalog
3 Credit Hours. Ordinary differential equations. Laplace transformation. Fourier analysis. Partial differential equations. Complex numbers, variables, and functions. Complex integrals. Complex series. Laurent series and Residue theory. Conformal mapping.
Teaching Method: On Campus

Text Book	
Title	Advanced Engineering Mathematics
Author(s)	James Cochran
Edition	2nd Edition
Short Name	[1]
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
[2]	Mathematical Methods for Engineers	R. Livesley	1st Edition	
[3]	Foundation of Mathematics for Engineers	J. Berry	1st Edition	
[4]	Special Functions of Mathematics for Engineers	L. Andrews	1st Edition	
[5]	Mathematical Methods for Scientists and Engineers: Linear and Nonlinear Systems	P. Kahn	1st Edition	
[6]	Advanced Engineering Mathematics	Erwin Kreyszig	10th Edition	

[7]	Applied Analysis	Allan Krall	1st Edition	
[8]	Special Functions	Z X Wang, D R Guo, Zhi Xu Wang	1st Edition	
[9]	Linear and Nonlinear Differential Equations	I. D. Huntley and R. M. Johnson	1st Edition	

Instructor	
Name	**Prof. Mohammed Al Salameh**
Office Location	E2L3
Office Hours	Sun : 08:30 - 09:00 Mon : 10:00 - 12:30 Wed : 10:00 - 12:00 Thu : 10:30 - 11:30
Email	salameh@just.edu.jo

Class Schedule & Room
Section 2: Lecture Time: Thu : 11:30 - 14:30 Room: LAB

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Introduction	
Weeks 2, 3	Ordinary differential equations	
Weeks 4, 5, 6	Laplace transform	
Weeks 7, 8, 9	Fourier series and integral	
Weeks 10, 11, 12	Partial differential equations	
Weeks 13, 14, 15, 16	Complex variables, series, and integrals	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
The student will be able to solve ordinary differential equations with constant coefficients along with applying the initial and boundary conditions. [1SO1] [1L9S1]	12%	1st Exam, Final Exam
The student will be able to solve partial differential equations using the method of separation of variables, ensuring that the solutions satisfy the initial and boundary conditions. [1SO1] [1L9S1]	13%	1st Exam, Final Exam
The student will be able to construct the Fourier series for any function by performing the required integrals. [1SO1] [1L9S1]	12%	2nd Exam, Final Exam

The student will be able to construct the Laplace transform for any function by performing the required integrals. [1SO1] [1L9S1]	13%	2nd Exam, Final Exam
The student will be able to solve functions and equations that involve complex variables [1SO1] [1L9S1]	12%	Final Exam
The student will be able to solve integrals that involve complex variables by the residue theorem [1SO1] [1L9S1]	13%	Final Exam
The student will be able to apply conformal mapping from the complex z-plane to the complex w-plane according to defined transformations [1SO1] [1L9S1]	12%	Final Exam
The student will be able to evaluate the coefficients of the complex series representing a complex function [1SO1] [1L9S1]	13%	Final Exam

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
100						

Relationship to NQF Outcomes (Out of 100%)
L9S1
100

Evaluation	
Assessment Tool	**Weight**
1st Exam	25%
2nd Exam	25%
Final Exam	50%

Policy	
Attendance	Attendance will be considered in each lecture

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