



Jordan University of Science and Technology
Faculty of Science & Arts
Physics Department

PHY701 Mathematical Physics - JNQF Level: 9

First Semester 2024-2025

Course Catalog

3 Credit Hours. Complex analysis, Residue theorem, Fourier transformation, Laplace transformation, Green's functions, Integral equations.

Teaching Method: On Campus

Text Book

Title	MATHEMATICAL METHODS FOR PHYSICISTS
Author(s)	George B. Arfken, Hans J. Weber and Frank E. Harris
Edition	7th Edition
Short Name	1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
2	Special functions for scientists and engineers, 3rd Edition. Nabil L. Laham & Asad K. Abdallah	Nabil L. Laham & Asad K. Abdallah	3rd Edition	
3	A course of modern analysis.	E. T. Whittaken & G. N. Watson.	1st Edition	

Instructor

Name	Prof. Abdalla Obeidat
Office Location	PH3 L1
Office Hours	Sun : 11:00 - 12:30 Tue : 11:00 - 12:30 Wed : 11:00 - 14:00 Thu : 11:00 - 12:30

Email	aobeidat@just.edu.jo
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Class Schedule & Room

Section 1:
 Lecture Time: Sun, Tue, Thu : 14:30 - 15:30
 Room: M3306

Tentative List of Topics Covered

Weeks	Topic	References
Weeks 1, 2	Functions of a complex variable I	
Weeks 3, 4	Functions of a complex variable II	
Weeks 5, 6	Integral transforms	
Weeks 7, 8	Sturm-Liouville Problem	
Weeks 9, 10, 11	Green's Functions	
Weeks 12, 13, 14	Green's Functions	
Weeks 15, 16	Integral equations	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Being familiar with differentiation, integration, and expanding functions of complex variables. Evaluating variety of integrals using the theory of complex analysis. [3SLO1(K1S1)] [1L9K1, 1L9C2, 1L9C4]	25%	
Finding the Fourier and Laplace transforms of different functions. Solving differential equations using Laplace's equations. [3SLO1(K1S1)] [1L9K2, 1L9S2]	25%	
Identifying the Sturm-Liouville problem and properties of their solutions. [3SLO1(K1S1)] [1L9K1, 1L9C2]	25%	
Employing Integral Equations and Green Functions Technique in solving nonhomogenous partial differential equations. [3SLO1(K1S1)] [1L9K1, 1L9C1, 1L9C6]	25%	

Relationship to Program Student Outcomes (Out of 100%)

SLO1(K1S1)	SLO2(S23C1)	SLO3(C24)	SLO4(C3)	SLO5(C4)	SLO6(S2C3)
100					

Relationship to NQF Outcomes (Out of 100%)						
L9K1	L9K2	L9S2	L9C1	L9C2	L9C4	L9C6
29.17	12.5	12.5	8.33	20.83	8.33	8.33

Evaluation	
Assessment Tool	Weight
First Exam	25%
Second Exam	25%
Final Exam	50%

Date Printed: 2024-10-27