

Planning and Quality Assurance Affairs

Form (A)

Course Specifications

General Information

Course name	Mathematical Physics
Course number	PHYS4329
Faculty	
Department	
Course type	College Needs
Course level	4
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

- 1 - Study Complex Numbers and Functions.
- 2 - Study the Complex Integration
- 3 - Study Power Series, Taylor Series
- 4 - Study Laurent Series. Residue Integration

Course Contents

- 1 - Complex Numbers and Their Geometric Representation
- 2 - Polar Form of Complex Numbers. Powers and Roots
- 3 - Derivative. Analytic Function
- 4 - Cauchy–Riemann Equations. Laplace’s Equation
- 5 - Exponential Function
- 6 - Trigonometric and Hyperbolic Functions. Euler’s Formula
- 7 - Logarithm. General Power. Principal Value
- 8 - Line Integral in the Complex Plane
- 9 - Cauchy’s Integral Theorem
- 10 - Cauchy’s Integral Formula
- 11 - Derivatives of Analytic Functions
- 12 - Sequences, Series, Convergence Tests
- 13 - Power Series
- 14 - Functions Given by Power Series
- 15 - Taylor and Maclaurin Series
- 16 - Uniform Convergence. Optional
- 17 - Laurent Series
- 18 - Singularities and Zeros. Infinity
- 19 - Residue Integration Method
- 20 - Residue Integration of Real Integrals

Books and References

Essential books	ADVANCED ENGINEERING MATHEMATIC ERWIN KREYSZIGS 10TH ed
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