



Planning and Quality Assurance Affairs

Form (A)

Course Specifications

General Information	
Course name	Special Functions
Course number	MATH3317
Faculty	
Department	
Course type	Major Needs
Course level	3
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

1 - to have the knowledge of the different types of special functions and orthogonal polynomials

2 - to have the ability to make new mathematical formulas

Intended Learning Outcomes

Knowledge and Understanding	*	the general properties of Gamma and Beta functions
	*	methods of studying asymptotic behaviour of functions
	*	general properties of hypergeometric equation and its solutions
	*	classical orthogonal polynomials
Professional Skills	*	solving linear differential equations by power series
	*	solving linear differential equations by Laplace method
General Skill	*	Team work and conducting specific tasks independently

Course Contents

 Gamma function, Beta function, Gauss's hypergeometric functions, Generalized hypergeometric functions, Bessel functions, Legendre polynomials, Hermite polynomials, Laguarre polynomials, Chebyshev polynomials, Jacobi Polynomials.

Teaching and Learning Methods

1 - Lectures, Discussion, Solving problems

Students Assessment

Assessment Method	TIME	MARKS
First mid-term	Week 6	25
Second mid-term	Week 13	25
Final Exam	Week 16	50

Books and References			
Essential books	E.D. Rainveille, Special Functions, Chelsea Publ., 1960		
	Pathan and Kazim, Special Functions, Aligarh, 2000		