ENGINEERING MATHEMATICS-I
B.Tech. First Year ,I-Semester

Common to all branches

Credits	Periods			Exam Hrs.	Sessional Marks	Exam Marks	Total Marks
	Theory	Tutorial	Lab				
3	3	1	-	3	40	60	100

PURPOSE	
To impart analytical ability in solving mathematical problems as applied to the respective branches of Engineering	
INSTRUCTIONAL OBJECTIVES	
1	To equip themselves familiar with the functions of several variables.
2	To have thorough knowledge in Fourier series
3	To expose to the concept of three dimensional analytical geometry
4	To have knowledge in multiple calculus
5	To familiarize with special functions

UNIT –I : Partial Differentiation : **(12 Periods)**
Function of two or more variables – Partial Derivatives – which variable is to be treated as constant – Homogeneous functions – Euler's theorem – Total Derivative - Change of Variables . Jacobians – Taylor's theorem for functions of two variables – Maxima and Minima functions of two variables.

UNIT-II : Fourier series: **(12 Periods)**
Introduction – Euler's formula – conditions for a Fourier expansion – Functions having points of Discontinuity – Change of interval – Even and Odd functions – Half range series-Parseval's formula.

UNIT III : Three Dimensional Analytical Geometry: Equation of a sphere – Plane section of a sphere – Tangent Plane - Equation of a cone – Right circular cone – Equation of a cylinder – Right circular cylinder. **(12 Periods)**

UNIT-IV: Multiple Integrals: Double integrals – Change of order of integration – Double integral in polar co-ordinates – Area enclosed by plane curves – Triple Integrals. Volume of Solids- Change of Variables-Area of curved surfaces, Calculation of mass. **(14 Periods)**

UNIT – V : **Beta & Gamma functions :** Beta function – Gamma function relation between Beta and Gamma functions –results and problems, error function. **(10 Periods)**

Text BookPrescribed :

1. Dr. B.S. Grewal, Higher Engineering Mathematics,43rd edition, Khanna Publishers, New Dehli.

Reference books :

1. N.P. Bali, Dr . Ashok Saxena,Dr.N.Ch.S. Narayana, A Text book on Engineering Mathematics Laxmi pub.(p)Ltd. New Dehli.
2. H.K.Dass, Advanced Engineering Mathematics,S.chand and company ltd.
3. Dr.M.K. Venkataraman, Higher Engineering Mathematics National Pub.Co.Madras.
4. Erwin kreyszig. Advanced Engineering Mathematics,John Wiley and sons ,Newyork.