SYLLABI OF COMPULSORY FOUNDATION COURSES

B.E. COMPUTER ENGINEERING - SEMESTER I												
Course Code	Type	Subject	L	T	P	Credits	Evaluation Scheme (Percentage weights)					Pre-requisites
							Theory			Practical		
							CA	MS	ES	CA	ES	
FC001	FC	Mathematics-I	3	1	0	4	25	25	50	-	-	None

COURSE OUTCOMES

1. By the end of this course, the student will be able to :
2. Analyze and test infinite series for its convergence.
3. Find Taylor's series expansion, maxima & minima of functions of one and more variables.
4. Calculate length, area, radius of curvature, surface of revolution and volume of revolution.
5. Calculate area of a given region and volume enclosed by a surface.

COURSE CONTENT

Infinite Series: Tests for convergence of series (Comparison, Integral, Ratio's, Raabe's, Logarithmic and nth root,), Alternating series, Absolute convergence, Conditional convergence.

Function of Single Variable: Hyperbolic functions,Taylor's and Maclaurin's theorems with remainder terms, Polar Curves, Angle between tangent and radius vector, Curvature and Radius of Curvature, Asymptotes, Curve tracing, Applications of definite integral to area, arc length, surface area and volume of revolution (in Cartesian, parametric and polar co-ordinates).

Function of Several Variables: Partial Derivatives, Differentiability, Total differential, Euler's theorem, Jacobian, Taylor's theorem, Maxima and Minima for functions of two

or more variables, Extreme values, Lagrange's method of undetermined multipliers, Differentiation under the integral sign.

Multiple Integrals: Evaluation of double integral (in Cartesian and polar co-ordinates) change of order of integration, integration by change of variables and its applications in area, mass, and volume. Triple integral (in Cartesian, cylindrical and spherical co-ordinates) and its application in volume.

SUGGESTED READINGS

1. G. B. Thomas and R. L. Finney,"Calculus and Analytic Geometry," Pearson Education.
2 R. K. Jain and S. R. K. Iyenger, "Advanced Engineering Mathematics," Narosa.
3 Erwin Kreyszig, "Advanced Engineering Mathematics", Wiley.
4 Michael Greenberg, "Advanced Engineering Mathematics", Pearson Education.

Course Code	Type	Subject	L	T	P	Credits	CA	MS	ES	CA	ES	Pre-Requisites
FC002	FC	Computer Programming	3	0	2	4	15	15	40	15	15	None

COURSE OUTCOMES

1. To understand the basic terminology and program structures used in computer programming to solve real world problems.
2. To learn the process of representing problems and writing, compiling and debugging programs.
3. To develop programming skills in using different types of data, decision structures, loops functions, pointers, data files and dynamic memory allocation/de-allocation.
4. To understand the need for continuing to learn new languages to solve complex problems in different domains.