SEMESTER – I			
Core II	**Calculus**		
Code :18UMAC12	**Hrs / Week: 5**	**Hrs / Semester: 75**	**Credits: 4**

Vision:

We will have high expectations of ourselves and of our students, be willing to take risks and to be challenged, work collaboratively and be patient in the learning process of calculus.

Mission:

To prepare the students for success in Calculus while helping them to develop an appreciation and proficiency with mathematical thinking which can be applied to real life situations.

Course Outcome :

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	state the concept of curvature of a plane curve.	5	Re
CO-2	calculate the curvature of various curves in plane and space	5 , 9	Ev
CO-3	apply the fundamental concepts of Calculus to variety of real world problems.	4	Ap
CO-4	find surface area using a double integral.	3 ,8	Un
CO-5	evaluate triple integrals and use them to find volumes in rectangular, cylindrical and spherical coordinates.	4 ,10	Ev
CO-6	compute definite and indefinite integrals of algebraic and trigonometric functions using formulae and substitution	10	Cr
CO-7	know the relationship between the Gamma and Beta functions	6 , 7	An
CO-8	use Beta and Gamma function to solve different type of integrals and to understand Gamma function as a generalization of factorial function.	7	Un, Ev

SEMESTER– I			
Part III Core II	**Calculus**		
Code :18UMAC12	**Hrs/week :5**	**Hrs/Semester :75**	**Credits :4**

Unit I

Curvature and radius of curvature – Cartesian form-Centre of curvature

(Vol I,Chapter X, Sec 2.1 - 2.4, Pages : 291-309)

Unit II

Evolute and Involute-Pedal Equation -Asymptotes

(Vol I Chapter X, Sec 2.5 - 2.8, Pages : 309-317,Exercises 45: 1-11, Chapter XI, Pages 324-341)

Unit III

Singular Points(Node,cusp,conjugate points)and Tracing of curves (Cartesian only)

(Vol I, Chapter XII, Chapter XIII, Pages : 342-372)

Unit IV

Double and Triple Integrals - Changing the order of integration.Jacobians and Change of variables

(Vol II , Chapter V, Pages : 203-213,219-223,Chapter VI, Pages : 251-269)

Unit V

Beta and Gamma functions – Application of Beta and Gamma Functions in evaluation of Double and Triple Integrals, Improper Integrals.

(Vol II,Chapter VII, Pages : 278-300)

Text Book

1. S.NarayananandT.K.ManicavachagomPillay, Calculus Vol I and Vol II,S.Viswanathan (Printers & Publishers) PVT. LTD. (Edition-2015)

Books for Reference

1. Kandasamy P and K. Thilagavathi, Mathematics for B.Sc., Volume II – 2004, S. Chand & Co., New Delhi.
2. Apostaol T.M., Calculus, Vol. I (4th edition) John Wiley and Sons, Inc., Newyork 1991.
3. Apostaol T.M., Calculus, Vol. II (2nd edition) John Wiley and Sons, Inc., New York 1969)
4. Stewart.J, Single Variable Calculus (4th edition) Brooks / Cole, Cengage Learning 2010.