Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Department of Mathematics (GE for UG Students)

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM	MST	Q/A	END SEM	Q/A				
MAUGGE01	GE	**Calculus**	60	20	20	0	0	3	0	0	3

Course Objective

To introduce the students with the Fundamentals of the Calculus.

Course Outcomes

After the successful completion of this course students will be able to:

1. *solve the problems of the limit, continuity, and differentiation*
2. *apply the techniques of differentiations*
3. *analyse the nature of continuous and differentiable functions*
4. *illustrate the maxima and minima of quantities in form of differentiable functions*
5. *create the infinite series for functions.*

Course Content:

UNIT – I

Limit of a function, Algebra of limits, L- hospital rule.

UNIT – II

Continuity of a function at a point and interval and differentiability. Derivative of function, Differentiation by first principal, application of theorem involving sum, product, division. Differentiation of higher order, Differentiation of trigonometric function, exponential function, inverse function, logarithmic function, implicit function.

UNIT – III

Roll's theorem, Lagrange's Mean Value theorem.

UNIT – IV

Tangent and Normal, Maxima and minima (one variable)., Exact differentiation.

Chairperson	Chairperson	Controller of Examination	Joint Registrar
Board of Studies	Faculty of Studies	Shri Vaishnav Vidyapeeth	Shri Vaishnav Vidyapeeth
Shri Vaishnav Vidyapeeth	Shri Vaishnav Vidyapeeth	Vishwavidyalaya, Indore	Vishwavidyalaya, Indore
Vishwavidyalaya, Indore	Vishwavidyalaya, Indore		

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UNIT – V

Taylors's theorem, Maclurins Theorem.

References:

1. Differential & Integral Calculus (Vol. I & II) – Courant & John.
2. T. M. Apostol: Mathematical Analysis, Addison-Wesley Publishing Co. 1957
3. Advanced Calculus – David Widder (Prentice Hall)
4. Differential & Integral Calculus (Vol. I) – N. Piskunov (CBS Publishers & Distributors)
5. Advanced Calculus – David V. Widder (Prentice Hall)
6. Mathematical Analysis – Shanti Narayan (S. Chand & Co.).
7. Differential Calculus – Shantinarayan.

Texts:

1. Basic Real & Abstract Analysis – Randolph J. P. (Academic Press).
2. A First Course in Real Analysis – M. H. Protter & G. B. Morrey (Springer Verlag, NBHM).
3. A Course of Analysis – Phillips.
4. Problems in Mathematical Analysis – B. P. Demidovich (Mir).
5. Problems in Mathematical Analysis – Berman (Mir).

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