

Lesson Plan for Course: B.Sc (Sem-I) (DSC) Code: MTMGCOR01T Credit: 6

- Course Name: Differential Calculus
- Course coordinator: Pintu Debnath
- Course Outcomes:
 - CO-1. Learn ϵ and δ definition of limit and continuity of a real-valued function.
 - CO-2. Apply Leibnitz's theorem to derive successive differentiation.
 - CO-3. Concept of Euler's theorem and its application on homogeneous function.
 - CO-4. Able to find out tangents, normals, curvature, asymptotes, singular points of any curves.
 - CO-5. To understand Rolle's theorem and several mean value theorems and their applications including the problems related to maxima minima and indeterminate form.

Course planner

Month	Course Topic	Teacher	Class-hour	Remarks*
Jul	Tangents and normals, Curvature.	BS	09	Theoretical – 08 Tutorial - 01
	Limit and Continuity (ϵ and δ definition),	SM	06	Theoretical – 05 Tutorial - 01
Aug	Asymptotes, Singular points, Tracing of curves. Parametric representation of curves and tracing of parametric curves.	BS	13	Theoretical – 11 Tutorial - 02
	Types of discontinuities, Differentiability of functions.	SM	09	Theoretical – 07 Tutorial - 02
1st Internal Assessment				
Sep	<ul style="list-style-type: none"> • Polar coordinates and tracing of curves in polar coordinates. • Rolle's theorem. 	BS	08 03	Theoretical – 09 Tutorial - 02
	Successive differentiation, Leibnitz's theorem.	SM	06	Theoretical – 05 Tutorial - 01
Oct	Mean Value theorems, Taylor's theorem with Lagrange's and Cauchy's forms of remainder, Taylor's series, Maclaurin's series of $\sin x$, $\cos x$, e^x , $\log(l+x)$, $(l+x)^n$.	BS	19	Theoretical – 16 Tutorial - 03
	Partial differentiation.	SM	09	Theoretical – 08 Tutorial - 01
2nd Internal Assessment				
Nov	Maxima and Minima, Indeterminate forms.	BS	04	Theoretical – 03 Tutorial - 01
	Euler's theorem on homogeneous functions.	SM	04	Theoretical – 03 Tutorial - 01
Dec	End Semester Examination			
	Assessment: Internal Assessment & Assignment		Total: 90 Hrs	Theoretical – 75 Tutorial - 15

Books:

- B. Pal, S. Raychowdhury, S. Jana, Differential Equation, Semester-III, Santra Publication Pvt. Ltd., Kolkata-700073.
- S. K. Mapa, Introduction to Real Analysis, Sarat Book Distributor, India, 2019.

Lesson Plan for Course: B.Sc(Sem-I) (GE) Code: MTMHGEC01T Credit: 6

- Course Name: Differential Calculus
- Course coordinator: Dr. Pintu Debnath
- Course Outcomes:
 - CO-1. Learn ε and δ definition of limit and continuity of a real-valued function.
 - CO-2. Apply Leibnitz's theorem to derive successive differentiation.
 - CO-3. Concept of Euler's theorem and its application on homogeneous function.
 - CO-4. Able to find out tangents, normals, curvature, asymptotes, singular points of any curves.
 - CO-5. To understand Rolle's theorem and several mean value theorems and their applications including the problems related to maxima minima and indeterminate form.

Course planner

Month	Course Topic	Teacher	Class-hour	Remarks*
Jul	Tangents and normals, Curvature.	BS	09	Theoretical – 08 Tutorial - 01
	Limit and Continuity (ε and δ definition),	SM	06	Theoretical – 05 Tutorial - 01
Aug	Asymptotes, Singular points, Tracing of curves. Parametric representation of curves and tracing of parametric curves.	BS	13	Theoretical – 11 Tutorial - 02
	Types of discontinuities, Differentiability of functions.	SM	09	Theoretical – 07 Tutorial - 02
1st Internal Assessment				
Sep	<ul style="list-style-type: none"> • Polar coordinates and tracing of curves in polar coordinates. • Rolle's theorem. 	BS	08	Theoretical – 09 Tutorial - 02
	Successive differentiation, Leibnitz's theorem.	SM	06	Theoretical – 05 Tutorial - 01
Oct	Mean Value theorems, Taylor's theorem with Lagrange's and Cauchy's forms of remainder, Taylor's series, Maclaurin's series of $\sin x$, $\cos x$, e^x , $\log(l+x)$, $(l+x)^n$.	BS	19	Theoretical – 16 Tutorial - 03
	Partial differentiation.	SM	09	Theoretical – 08 Tutorial - 01
2nd Internal Assessment				
Nov	Maxima and Minima, Indeterminate forms.	BS	04	Theoretical – 03 Tutorial - 01
	Euler's theorem on homogeneous functions.	SM	04	Theoretical – 03 Tutorial - 01
Dec	End Semester Examination			
	Assessment: Internal Assessment & Assignment		Total: 90 Hrs	Theoretical – 75 Tutorial - 15

Books:

- B. Pal, S. Raychowdhury, S. Jana, Differential Equation, Semester-III, Santra Publication Pvt. Ltd., Kolkata-700073.
- S. K. Mapa, Introduction to Real Analysis, Sarat Book Distributor, India. 2019.