

Lesson Plan for Course: B.Sc. (G) Class-1st Year Code: MTMG Paper-I Marks: 100

- Course Name: Classical Algebra, Geometry of Two Dimensions, Vector Algebra, Differential Calculus, Integral Calculus, Ordinary Differential Equations
- Course coordinator: Biswajit Sarkar
- Course Outcomes:
 - CO-1. Capable to find out n^{th} roots of unity.
 - CO-2. Able to apply De Moivre's theorem, Descarte's rule of signs, Rolle's Theorem.
 - CO-3. To solve cubic equation by applying Cardan's method.
 - CO-4. To compute elementary operations on matrices.
 - CO-5. To verify Consistency and find solution of a system of linear equations.
 - CO-6. Capable to reduce general equation of second degree into canonical forms.
 - CO-7. To solve the problems related to pair of straight lines.
 - CO-8. To solve the problems related to tangent and normal and chord.
 - CO-9. Learn Scalar and Vector products of two and three vectors and application to problems of Geometry and Mechanics.
 - CO-10. Learn some basic properties of real number.
 - CO-11. To calculate derivative and its geometrical and physical interpretation.
 - CO-12. Apply Leibnitz's theorem to Successive derivative, Euler's Theorem on homogeneous function, chain Rule.
 - CO-13. To find Tangents, Normals, Pedal equation, Pedal of a curve, and Curvature of plane curves.
 - CO-14. To calculate some special kinds of integrals.
 - CO-15. Able to solve ODE, Euler's and Bernoulli's equations.

Course planner

Month	Course Topic	Teacher	No. of Classes	Remarks*
July	Differential Calculus	PD	04	Theoretical-10 Tutorial-00
	Analytical Geometry Of Two Dimensions	SM	03	
	Classical Algebra	BS	03	
August	Differential Calculus	PD	08	Theoretical-24 Tutorial-00
	Analytical Geometry Of Two Dimensions	SM	09	
	Classical Algebra	BS	07	
Sept	Differential Calculus	PD	08	Theoretical-20 Tutorial-02
	Analytical Geometry Of Two Dimensions	SM	05	
	Classical Algebra	BS	07	
Oct	Differential Calculus	PD	02	Theoretical-06 Tutorial-02
	Analytical Geometry Of Two Dimensions	SM	03	
	Classical Algebra	BS	03	
Nov	Integral Calculus	PD	07	Theoretical-21 Tutorial-00
	Analytical Geometry Of Two Dimensions	SM	07	
	Classical Algebra	BS	07	
Dec	Integral Calculus	PD	04	Theoretical-13 Tutorial-00
	Vector Algebra	SM	05	
	Ordinary Differential Equations	BS	04	
Jan	Integral Calculus	PD	02	Theoretical-11 Tutorial-00
	Vector Algebra	SM	06	
	Ordinary Differential Equations	BS	03	
Feb	Integral Calculus	PD	08	Theoretical-23 Tutorial-00
	Vector Algebra	SM	07	
	Ordinary Differential Equations	BS	08	
Mar	Miscellaneous	PD	03	Theoretical-14 Tutorial-00
	Miscellaneous	SM	06	
	Miscellaneous	BS	05	

Final Examination				
Apr				
May				
Jun				
	Assessment: Test Examination		Total: 144	Theoretical-142 Tutorial-02

Books:

- D. Chatterjee & B. K. Pal, Comprehensive Degree Mathematics (Part-1), U. N, Dhur & Sons Pvt. Ltd.
- J. G. Chakravorty And P. R. Ghosh, Differential Equations , U. N. Dhur & Sons Pvt. Ltd.
- Ghosh & Maity, An Introduction to Integral Calculus, New Central Book Agency.

Lesson Plan for Course: B.Sc. (G) Class-2nd Year Code: MTMG Paper-II Marks: 100

- Course Name: Modern Algebra, Geometry of Three Dimensions, Differential Calculus, Integral Calculus, Ordinary Differential Equations.
- Course coordinator: Sudip Mondal
- Course Outcomes:
 - CO-1. Learn some basic properties of Set, Groups and Subgroups.
 - CO-2. To solve problems on formation of basis of a vector space.
 - CO-3. To find Characteristic equation of square matrix and apply Cayley-Hamilton Theorem for inverse
 - CO-4. To solve the problems related to straight lines in three dimensions.
 - CO-5. Learn about Cauchy's general principle of convergence and its applications.
 - CO-6. Learn convergency test, Leibnitz test to Alternating series.
 - CO-7. Understand Rolle's Theorem and its geometrical interpretation.
 - CO-8. Find out Taylor's and Maclaurin's Infinite series of some functions.
 - CO-9. Capable to apply L'Hospital's Rule to find limit.
 - CO-10. To solve the problems related to Maxima and Minima for a function with Lagrange's method.
 - CO-11. Find out Envelope of family of straight lines and of curves and singular points.
 - CO-12. Know properties of Beta and Gamma Function.
 - CO-13. Get Knowledge on Double integral.
 - CO-14. Calculate volume and surface areas of solids formed by revolution of plane curve.
 - CO-15. Solve Second order linear ODE with constant co-efficient and Euler's Homogeneous equations.
 - CO-16. Find out Orthogonal Trajectories.

Course planner

Month	Course Topic	Teacher	No. of Classes	Remarks*
July	Differential Calculus-II	PD	11	Theoretical-18 Tutorial-05
	Analytical Geometry Of Three Dimensions	SM	04	
	Modern Algebra	BS	08	
August	Differential Calculus-II	PD	21	Theoretical-44 Tutorial-05
	Analytical Geometry Of Three Dimensions	SM	10	
	Modern Algebra	BS	18	
Sept	Differential Calculus-II	PD	20	Theoretical-30 Tutorial-05
	Modern Algebra	BS	15	
Oct	Integral Calculus-II	PD	04	Theoretical-08 Tutorial-04
	Modern Algebra	BS	08	
Nov	Integral Calculus-II	PD	17	Theoretical-29 Tutorial-04
	Ordinary Differential Equations	BS	16	
Dec	Integral Calculus-II	PD	11	Theoretical-17 Tutorial-05
	Ordinary Differential Equations	BS	11	
Jan				Theoretical-00 Tutorial-00
Feb				Theoretical-00 Tutorial-00
Mar				Theoretical-00 Tutorial-00
Apr	Final Examination			
May				
Jun				
	Assessment: Test Examination		Total: 174	Theoretical-146 Tutorial-28

Books:

- D. Chatterjee & B. K. Pal, Comprehensive Degree Mathematics (Part-2), U. N, Dhur & Sons Pvt. Ltd.
- Cohn, Basic Algebra, Springer

Lesson Plan for Course: B.Sc. (G) Class-2nd Year Code: MTMG Paper-III Marks: 100

- Course Name: Numerical Methods, Linear Programming, Probability & Statistics.
- Course coordinator: Pintu Debnath
- Course Outcomes:
 - CO-1. Learn Newton's Forward Interpolation and Lagrange's Interpolation Formula.
 - CO-2. Calculate numerical Integration by Trapezoidal and Simpson's 1/3rd rule.
 - CO-3. To find a real root of an equation by Bisection and Newton-Raphson methods.
 - CO-4. Learn about LPP and its solution processes.
 - CO-5. Find optimal solution of transportation problem and assignment problem.
 - CO-6. Express velocity and acceleration of Cartesian and polar co-ordinate.
 - CO-7. Learn about Principles of conservation of energy and momentum, motion under impulsive forces, Equation of Energy Conservative forces and Kepler's laws.
 - CO-8. Understand the basic concepts of classical probability, probability distribution and density function, central limit theorem.
 - CO-9. Learn about algebra of difference operator, calculus of variation.
 - CO-10. Solve Brachistochrone, Geodesics and Isoerimetric problems.

Course planner

Month	Course Topic	Teacher	No. of Classes	Remarks*
July				Theoretical-00 Tutorial-00
August				Theoretical-00 Tutorial-00
Sept	Numerical Methods	SM	09	Theoretical-09 Tutorial-00
Oct	Numerical Methods	SM	04	Theoretical-04 Tutorial-00
Nov	Numerical Methods	SM	09	Theoretical-09 Tutorial-00
Dec	Probability	SM	07	Theoretical-07 Tutorial-00
Jan	Statistics	PD	09	Theoretical-22 Tutorial-05
	Probability	SM	07	
	Linear Programming	BS	11	
Feb	Statistics	PD	18	Theoretical-42 Tutorial-05
	Probability	SM	12	
	Linear Programming	BS	17	
Mar	Statistics	PD	10	Theoretical-26 Tutorial-04
	Miscellaneous	SM	07	
	Linear Programming	BS	13	
Apr	Final Examination			
May				
Jun				
	Assessment: Test Examination		Total: 133	Theoretical-119 Tutorial-14

Books:

- D. Chatterjee & B. K. Pal, Comprehensive Degree Mathematics (Part-2), U. N, Dhur & Sons Pvt. Ltd.
- S. K. De, S. Sen and Banerjee, Mathematical Probability (U. N. Dhur & Sons Pvt. Ltd.)
- S. K. De and S. Sen, Mathematical Statistics (U. N. Dhur & Sons Pvt. Ltd.)
- P. M. Karak, Linear Programming (New Central Book Agency)

Lesson Plan for Course: B.Sc. (G) Class-3rd Year Code: MTMG Paper-IV Marks: 100

- Course Name: Elements of Computer Science and Programming, Discrete Mathematics
- Course coordinator: Pintu Debnath
- Course Outcomes:

CO-1. To learn Two-element Boolean algebra, Boolean function and their applications.

CO-2. Learn about Logical Gates.

CO-3. Concept on historical development, operating system, hardware and software.

CO-4. Able to transfer numbers from a system to another.

CO-5. To get some basic knowledge Programming (BASIC, FORTRAN, C, C++,).

CO-6. Learn utilities and important features of Algorithms and Flow Charts;

CO-7. To know some Programme execution control (logical if, if-then, Arrays, etc.)

CO-8. Apply Weierstrass M-Tests for uniform convergence of sequence of functions.

CO-9. To find Radius of convergence of power series and use of Abel's Theorems.

CO-10. To know elementary properties of Laplace Transform and its inverse in ODE.

CO-11. Solve PDE using Lagrange's method.

CO-12. Learn mathematical Induction and apply in different problem.

CO-13. To use Chinese remainder theorem to solve system of linear congruence.

CO-14. To understand Fermat's little theorem, Euler's theorem and Wilson's theorem.

Course planner

Month	Course Topic	Teacher	No. of Classes	Remarks*
July	Discrete Mathematics (Unit 1-4)	PD	02	Theoretical-07 Tutorial-00
	Elements of Computer Science and Programming (Unit-B)	SM	02	
	Elements of Computer Science and Programming (Unit-A)	BS	03	
August	Discrete Mathematics (Unit 1-4)	PD	05	Theoretical-20 Tutorial-00
	Elements of Computer Science and Programming (Unit-B)	SM	06	
	Elements of Computer Science and Programming (Unit-A)	BS	09	
Sept	Discrete Mathematics (Unit 1-4)	PD	05	Theoretical-16 Tutorial-00
	Elements of Computer Science and Programming (Unit-B)	SM	06	
	Elements of Computer Science and Programming (Unit-A)	BS	05	
Oct	Discrete Mathematics (Unit 1-4)	PD	01	Theoretical-08 Tutorial-00
	Elements of Computer Science and Programming (Unit-B)	SM	04	
	Elements of Computer Science and Programming (Unit-A)	BS	03	
Nov	Discrete Mathematics (Unit 1-4)	PD	04	Theoretical-17 Tutorial-00
	Discrete Mathematics (Unit 5-6)	SM	06	
	Elements of Computer Science and Programming (Unit-A)	BS	07	
Dec	Discrete Mathematics (Unit 1-4)	PD	02	Theoretical-12 Tutorial-00
	Discrete Mathematics (Unit 5-6)	SM	05	
	Elements of Computer Science and Programming (Unit-A)	BS	05	
Jan	Discrete Mathematics (Unit 1-4)	PD	01	Theoretical-12 Tutorial-00
	Discrete Mathematics (Unit 5-6)	SM	05	
	Elements of Computer Science and Programming (Unit-A)	BS	06	

Feb	Miscellaneous	PD	04	Theoretical-19 Tutorial-00
	Discrete Mathematics (Unit 5-6)	SM	08	
	Miscellaneous	BS	07	
Mar	Final Examination			
Apr				
May				
Jun				
	Assessment: Test Examination		Total: 111	Theoretical-111 Tutorial-00

Books:

- D. Chatterjee & B. K. Pal, Comprehensive Degree Mathematics (Part-3), U. N, Dhur & Sons Pvt. Ltd.
- C. Xavier, FORTRAN 77 and numerical methods (Wiley Eastern limited).
- Yashvant Kanetkar, Let us C (BPB Publications).