Lesson Plan 2022-23

Name : PARVESH RANGA

Subject : Mathematics

Lesson Plan : September 2022 – December 2022

Date	B.A./B.Sc. 1st Sem (Algebra)	B.A./B.Sc. 1st Sem (Solid Geometry)	B.A./B.Sc. 3rd Sem (Partial Diff. equation)	B.A./B.Sc. 3rd Sem (Statics)
01.09.22	Symmetric matrices :Examples & Theorems	General equation of second degree.	Partial differential equations: Formation, order and degree	
02.09.22	Symmetric matrices :Examples & Theorems	General equation of second degree.	Partial differential equations: Formation, order and degree	
03.09.22	Symmetric matrices :Examples & Theorems	General equation of second degree.	Partial differential equations: Formation, order and degree	
04.09.22	**SUNDAY**			
05.09.22	Skew symmetric matrices :Examples & Theorems	General equation of second degree.	Linear Partial differential equations of the first order	Virtual work
06.09.22	Hermitian matrices :Examples & Theorems	General equation of second degree.	Linear Partial differential equations of the first order	Virtual work
07.09.22	Skew Hermitian matrices :Examples & Theorems	General equation of second degree.	Linear Partial differential equations of the first order	Virtual work
08.09.22	Problems & Exercise	Tracing of conics.	Linear Partial differential equations of the first order	
09.09.22	Problems & Exercise	Tracing of conics.	Linear Partial differential equations of the first order	
10.09.22	Problems & Exercise	Tracing of conics.	Linear Partial differential equations of the first order	
11.09.22	**SUNDAY**			
12.09.22	Elementary Operations on matrices.	Tracing of conics.	Non-Linear Partial differential equations of the first order	Virtual Work

13.09.22	Rank of a matrices.	Tracing of conics.	Non-Linear Partial differential equations of the first order	Virtual work
14.09.22	Inverse of a matrix.	Tracing of conics.	Non-Linear Partial differential equations of the first order	Virtual work
15.09.22	Linear dependence and independence of rows and columns of matrices.	Tracing of conics.	Non-Linear Partial differential equations of the first order	
16.09.22	Problems & Exercise	Tracing of conics.	Non-Linear Partial differential equations of the first order	
17.09.22	Problems & Exercise	Tracing of conics.	Non-Linear Partial differential equations of the first order	
18.09.22	**SUNDAY**			
19.09.22	Row rank and column rank of a matrix.	Tangent at any point to the conic	Complete solution, singular solution, General solution	Forces in three dimensions
20.09.22	Problems & Exercise	Tangent at any point to the conic	Complete solution, singular solution, General solution	Forces in three dimensions
21.09.22			Complete solution, singular solution, General solution	Forces in three dimensions
22.09.22	Eigenvalues, eigenvectors and the characteristic equation of a matrix.	Tangent at any point to the conic	Complete solution, singular solution, General solution	
23.09.22	**HOLIDAY**			
24.09.22	Minimal polynomial of a matrix.	chord of contact	Solution of Lagrange's linear equations	
25.09.22	**SUNDAY**			
26.09.22	**HOLIDAY**			
27.09.22	Cayley Hamilton theorem and its use in finding the inverse of a matrix.	pole of line to the conic	Charpit's general method of solution	Forces in three dimensions
28.09.22	Problems & Exercise	director circle of conic	Compatible systems of first order equations	Forces in three dimensions

29.09.22	Theorems on Eigenvalues, eigenvectors	director circle of conic	Jacobi's method	
30.09.22	Theorems on Eigenvalues, eigenvectors	System of conics	Linear partial differential equations of second and higher orders	
01.10.22	Theorems on Eigenvalues, eigenvectors & **One Assignment**	System of conics	Linear partial differential equations of second and higher orders	
02.10.22	**SUNDAY**			
03.10.22	Applications of matrices to a system of linear (homogeneous) equations.	Confocal conics.	Linear and Non-linear homogenous and non-homogenous equations with constant co-efficients	Poinsots central axis
04.10.22	Applications of matrices to a system of linear (homogeneous) equations.	Polar equation of a conic,	Linear and Non-linear homogenous and non-homogenous equations with constant co-efficients	Poinsots central axis
05.10.22	**HOLIDAY**			
06.10.22	Applications of matrices to a system of linear (homogeneous) equations.	tangent and normal to the conic.	Partial differential eqution with variable co-efficients reducible to equations with constant coefficients	
07.10.22	Problems & Exercise	Sphere: Plane section of a sphere.	Partial differential eqution with variable co-efficients reducible to equations with constant coefficients	
08.10.22	Problems & Exercise	Sphere: Plane section of a sphere.	Partial differential eqution with variable co-efficients reducible to equations with constant coefficients	
09.10.22	**SUNDAY**			
10.10.22	Applications of matrices to a system of linear (non-homogeneous) equations.	Sphere through a given circle.	their complementary functions and particular Integrals	Poinsots central axis
11.10.22	Applications of matrices to a system of linear (non-homogeneous) equations.	Sphere through a given circle.	their complementary functions and particular Integrals	Poinsots central axis
12.10.22	Applications of matrices to a system of linear (non-	Intersection of two spheres	Equations reducible to linear equations with	Poinsots central axis

	homogeneous) equations.		constant co-efficients	
13.10.22	Problems & Exercise	Intersection of two spheres	Equations reducible to linear equations with constant co-efficients	
14.10.22	Problems & Exercise	Intersection of two spheres	Equations reducible to linear equations with constant co-efficients	
15.10.22	Problems & Exercise	Intersection of two spheres	Problems & Exercise	
16.10.22	**SUNDAY**			
17.10.22	Theorems on consistency of a system of linear equations.	Co-axal system of spheres	Classification of linear partial differential equations of second order	Wrenches
18.10.22	Theorems on consistency of a system of linear equations.	Co-axal system of spheres	Classification of linear partial differential equations of second order	Wrenches
19.10.22	Problems & Exercise	Cones	Classification of linear partial differential equations of second order	Wrenches
20.10.22	Unitary and Orthogonal Matrices	Cones	Hyperbolic, parabolic and elliptic types	
21.10.22	Unitary and Orthogonal Matrices	Cones	Hyperbolic, parabolic and elliptic types	
22.10.22 - 26.10.22	**DIWALI VACATIONS**			
27.10.22	Unitary and Orthogonal Matrices : Problems & Exercise	Cones	Hyperbolic, parabolic and elliptic types	
28.10.22	Bilinear and Quadratic forms **and one class Test.**	Right circular cone	Hyperbolic, parabolic and elliptic types	
29.10.22	Bilinear and Quadratic forms: Problems & Exercise	Right circular cone	Reduction of second order linear partial differential equations to Canonical (Normal) forms and their solutions	
30.10.22				
31.10.22	Relations between the roots and coefficients of general polynomial equation	Right circular cone	Reduction of second order linear partial differential equations to Canonical	Wrenches

	in one variable.		(Normal) forms and their solutions	
01.11.22	HOLIDAY			
02.11.22	Relations between the roots and coefficients of general polynomial equation in one variable: Theorems	Right circular cone	Reduction of second order linear partial differential equations to Canonical (Normal) forms and their solutions	Wrenches
03.11.22	Relations between the roots and coefficients of general polynomial equation in one variable: Theorems	enveloping cone and reciprocal cone	Solution of linear hyperbolic equations	
04.11.22	Problems & Exercise	enveloping cone and reciprocal cone	Solution of linear hyperbolic equations	
05.11.22	Problems & Exercise	Cylinder: Right circular cylinder and enveloping cylinder	Solution of linear hyperbolic equations	
06.11.22	SUNDAY			
07.11.22	Solutions of polynomial equations having conditions on roots.	Cylinder: Right circular cylinder and enveloping cylinder	Monge's method for partial differential equations of second order	Null lines and planes
08.11.22	HOLIDAY			
09.11.22	Solutions of polynomial equations having conditions on roots.	Cylinder: Right circular cylinder and enveloping cylinder	Monge's method for partial differential equations of second order	Null lines and planes
10.11.22	Problems & Exercise	Problems & Exercise	Monge's method for partial differential equations of second order	
11.11.22	Problems & Exercise	Problems & Exercise	Monge's method for partial differential equations of second order	
12.11.22	Problems & Exercise	Central Conicoids: Equation of tangent plane	Monge's method for partial differential equations of second order	
13.11.22	SUNDAY			

14.11.22	Problems & Exercise	Central Conicoids: Equation of tangent plane	Cauchy's problem for second order partial differential equations	Null lines and planes
15.11.22	Problems & Exercise	Central Conicoids: Equation of tangent plane	Cauchy's problem for second order partial differential equations	Null lines and planes
16.11.22	Common roots and multiple roots.	Director sphere	Cauchy's problem for second order partial differential equations	Null lines and planes
17.11.22	Problems & Exercise	Director sphere	Characteristic equations and characteristic curves of second order partial differential equation	
18.11.22	Problems & Exercise	Normal to the conicoids	Characteristic equations and characteristic curves of second order partial differential equation	
19.11.22	Transformation of equations .	Normal to the conicoids	Characteristic equations and characteristic curves of second order partial differential equation	
20.11.22	**SUNDAY**			
21.11.22	Problems & Exercise	Polar plane of a point	Method of separation of variables	Stable and Unstable equilibrium
22.11.22	Problems & Exercise	Polar plane of a point	Method of separation of variables	Stable and Unstable equilibrium
23.11.22	Problems & Exercise	Polar plane of a point	Method of separation of variables	Stable and Unstable equilibrium
24.11.22	Problems & Exercise	Enveloping cone of a coincoid	Solution of Laplace's equation	
25.11.22	Problems & Exercise	Enveloping cone of a coincoid	Solution of Laplace's equation	
26.11.22	Problems & Exercise	Enveloping cylinder of a coincoid **and Class Test**	Solution of Laplace's equation	
27.11.22	**SUNDAY**			
28.11.22	Problems & Exercise	Enveloping cylinder of a coincoid	Wave equation (one and two dimensions)	Stable and Unstable equilibrium
29.11.22	Problems & Exercise	Enveloping cylinder of a coincoid	Wave equation (one and two dimensions)	Stable and Unstable equilibrium

30.11.22	Nature of the roots of an equation Descarte's rule of signs.	Enveloping cylinder of a coincoid	Wave equation (one and two dimensions)	Stable and Unstable equilibrium
01.12.22	Problems & Exercise	Paraboloids: Circular section	Wave equation (one and two dimensions)	
02.12.22	Problems & Exercise	Paraboloids: Circular section	Wave equation (one and two dimensions)	
03.12.22	Problems & Exercise	Paraboloids: Circular section	Diffusion (Heat) equation (one and two dimension) in Cartesian Coordinate system	
04.12.22	**SUNDAY**			
05.12.22	Problems & Exercise	Plane sections of conicoids	Diffusion (Heat) equation (one and two dimension) in Cartesian Coordinate system	Stable and Unstable equilibrium
06.12.22	Problems & Exercise	Plane sections of conicoids	Diffusion (Heat) equation (one and two dimension) in Cartesian Coordinate system	Stable and Unstable equilibrium
07.12.22	Problems & Exercise	Plane sections of conicoids	Diffusion (Heat) equation (one and two dimension) in Cartesian Coordinate system	Stable and Unstable equilibrium
08.12.22	Problems & Exercise	Generating lines	Diffusion (Heat) equation (one and two dimension) in Cartesian Coordinate system	
09.12.22	Problems & Exercise.	Generating lines	Diffusion (Heat) equation (one and two dimension) in Cartesian Coordinate system	
10.12.22	Solutions of cubic equations (Cardon's method).	Generating lines	Diffusion (Heat) equation (one and two dimension) in Cartesian Coordinate system	
11.12.22	**SUNDAY**			
12.12.22	Problems & Exercise	Generating lines	Problems & Exercise	Stable and Unstable equilibrium

13.12.22	Problems & Exercise	Generating lines	Problems & Exercise	Stable and Unstable equilibrium
14.12.22	Problems & Exercise	Generating lines	Problems & Exercise	Stable and Unstable equilibrium
15.12.22	Problems & Exercise	Confocal conicoid	Problems & Exercise	
16.12.22	Problems & Exercise	Confocal conicoid	Problems & Exercise	
17.12.22	Problems & Exercise	Confocal conicoid	Problems & Exercise	
18.12.22	**SUNDAY**			
19.12.22	Problems & Exercise	Confocal conicoid	Problems & Exercise	Stable and Unstable equilibrium
20.12.22	Problems & Exercise	Confocal conicoid	Problems & Exercise	Stable and Unstable equilibrium
21.12.22	Problems & Exercise	Confocal conicoid **and one Assignment.**	Problems & Exercise	Stable and Unstable equilibrium
22.12.22	Biquadratic equations and their solutions.	Reduction of second degree equations	Problems & Exercise	
23.12.22	Problems & Exercise	Reduction of second degree equations	Problems & Exercise	
24.12.22	Problems & Exercise	Reduction of second degree equations	Problems & Exercise	

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