

S. V. K. P. & Dr. K. S. RAJU ARTS & SCIENCE COLLEGE (A)
Penugonda-534320, W. G. Dt., A.P.

I Semester – MATHEMATICS(19MAT1) SYLLABUS
(W.e.f. 2019-20 admitted batch)

PAPER I: DIFFERENTIAL EQUATIONS (19MAT1)

UNIT – I

Differential Equations of first order and first degree:

Linear Differential Equations; Differential Equations Reducible to Linear Form; Exact Differential Equations; Integrating Factors.

UNIT – II

Orthogonal Trajectories.

Differential Equations of first order but not of the first degree:

Equations solvable for p ; Equations solvable for y ; Equations solvable for x ; Clairaut's Equation, Equations reducible to Clairaut's Equation.

UNIT – III

Higher order linear differential equations-I:

Solution of homogeneous linear differential equations of order n with constant coefficients; Solution of the non-homogeneous linear differential equations with constant coefficients by means of polynomial operators.

General Solution of $f(D)y=0$

General Solution of $f(D)y=Q$ when Q is a function of x .

P.I. of $f(D)y = Q$ when $Q = be^{ax}$

P.I. of $f(D)y = Q$ when Q is $b \sin ax$ or $b \cos ax$.

UNIT – IV

Higher order linear differential equations-II:

Solution of the non-homogeneous linear differential equations with constant coefficients.

P.I. of $f(D)y = Q$ when $Q = bx^k$, P.I. of $f(D)y = Q$ when $Q = e^{ax}V$, P.I. of $f(D)y = Q$ when $Q = x^mV$

P.I. of $f(D)y = Q$ when $Q = x^mV$

UNIT – V

Linear differential equations with non-constant coefficients:

Method of variation of parameters; The Cauchy-Euler Equation, Legendre's Equations.



S.V.K.P. & Dr. K.S. RAJU ARTS & SCIENCE COLLEGE

(Autonomous)

Recognized by UGC as "College with Potential for Excellence"

Accredited by NAAC with "A" Grade

(Affiliated to ADIKAVI NANNAYA UNIVERSITY - Recognised by Govt. of Andhra Pradesh)

PENUGONDA-534 320, West Godavari District., (A.P.)

Semester	Paper Code	No. of hours per week		Credits	
		Theory	Practical/ Problem Solving	Theory	Practical/ Problem Solving
II	19MAT2	4	2	5	--

SEMESTER – II (w.e.f. 2019-20 Admitted Batch)

B.Sc. FIRST YEAR *syllabus*MATHEMATICS *Model Paper*

PAPER – 2 : SOLID GEOMETRY

60 Hrs

UNIT – I (12 hrs) : The Plane :

Equation of plane in terms of its intercepts on the axis, Equations of the plane through the given points, Length of the perpendicular from a given point to a given plane, Bisectors of angles between two planes, Combined equation of two planes, ~~Orthogonal projection on a plane.~~

UNIT – II (12 hrs) : The Line :

Equation of a line; Angle between a line and a plane; The condition that a given line may lie in a given plane; The condition that two given lines are coplanar; The shortest distance between two lines; The length and equations of the line of shortest distance between two straight lines; Length of the perpendicular from a given point to a given line

UNIT-III: The Sphere

Definition and equation of the sphere; Equation of the sphere through four given points; plane sections of a sphere; intersection of two spheres; equation of a circle; sphere through a given circle; intersection of a sphere and a line; tangent plane; plane of contact; polar plane; pole of a plane; conjugate points; conjugate planes. Angle of intersection of two spheres; conditions for two spheres to be orthogonal; Power of a point; radical plane; coaxial system of spheres; limiting points.

UNIT-IV: The Cone

Definitions of a cone; vertex; guiding curve; generators; equation of the cone with a given vertex and guiding curve; equations of cones with vertex at origin are homogeneous; condition that the general equation of the second degree should represent a cone; Enveloping cone of a sphere; right circular cone; condition that a cone may have three mutually perpendicular generators; intersection and tangent plane at a point; condition that a plane may touch the cone; reciprocal cones.

UNIT V:- The Cylinder

Definition of a cylinder; Equation to the cylinder whose generators intersect a given conic and are parallel to a given line; Enveloping cylinder of a sphere; right circular cylinder; Equation of the right circular cylinder with a given axis and radius.