

S R R & C V R GOVT DEGREE COLLEGE
Vijayawada - 520004, Krishna
District

Minutes of the meeting Board Of Studies

Department of Mathematics

Dated : 18/04/2017

SRR & CVR GOVERNMENT DEGREE COLLEGE (AUTONOMOUS)
Vijayawada-520004

Minutes of the meeting of the Board of Studies in the subject of _____

The meeting of the Board of Studies in the subject of _____
was held on 18 April 2017 in Room No. _____, SRR & CVR Govt. Degree College,
(Autonomous), Vijayawada 520004.

The following members attended the meeting:

- | | |
|----------------------------|---|
| 1. V.V.V. DAPESWARAN | (In-charge of the Department & Chairman, BoS) |
| 2. Prof. Bh. Satyanarayana | (University Nominee) |
| 3. Dr. S. Eswararaj Selty | (Subject Expert) |
| 4. S.V. Blaska | (Subject Expert) |
| 5. K.V. Naga Laxshmi | (Faculty Member) |
| 6. K.V. Rama Rao | (Faculty Member) |
| 7. CH JAGADISH | (Faculty Member) |
| 8. D. SWARNA KUMARI | (Alumni) |

(The number of faculty members varies depending on the department)

Agenda:

- Item 1: Approval of syllabus for Semester I and II for the academic year 2017-18
- Item 2: Approval of Question paper blue print and model paper
- Item 3: Approval of list of paper setters and examiners
- Item 4: Any other item with the approval of the chair.

The Chairperson, Board of Studies welcomed the members and initiated discussion on the syllabus for I and II year semesters. He apprised the members of the guidelines of the UGC and the CCE regarding the framing of syllabus, and the recommended evaluation ratio for internal and external examinations. The members discussed in detail the various aspects presented before them and unanimously resolved the following:

S R R & C V R GOVT DEGREE COLLEGE
(AUTONOMOUS) NAAC B+
Department of Mathematics
B.Sc. FIRST YEAR MATHEMATICS SYLLABUS
SEMESTER -I, PAPER - 1
DIFFERENTIAL EQUATIONS

60 Hrs

UNIT – I (12 Hours), Differential Equations of first order and first degree :

Linear Differential Equations; Differential Equations Reducible to Linear Form; Exact Differential Equations; Integrating Factors; Change of Variables.

UNIT – II (12 Hours), 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 ; Equations that do not contain x (or y); Equations of the first degree in x and y – Clairaut's Equation.

UNIT – III (12 Hours), 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 (12 Hours), 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 $Q = xV$

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

UNIT – V (12 Hours), Higher order linear differential equations-III :

Method of variation of parameters; Linear differential Equations with non-constant coefficients; The Cauchy-Euler Equation.

Reference Books :

1. Differential Equations and Their Applications by Zafar Ahsan, published by Prentice-Hall of India Learning Pvt. Ltd. New Delhi-Second edition.
2. A text book of mathematics for BA/BSc Vol 1 by N. Krishna Murthy & others, published by S. Chand & Company, New Delhi.
3. Ordinary and Partial Differential Equations Raisinghania, published by S. Chand & Company, New Delhi.
4. Differential Equations with applications and programs – S. Balachandra Rao & HR Anuradha universities press.

Suggested Activities:

Seminar/ Quiz/ Assignments/ Project on Application of Differential Equations in Real life

S.R.R & C.V.R GOVT DEGREE COLLEGE
(AUTONOMOUS) NAAC B+
Department of Mathematics
SEMESTER -I, PAPER - 1
DIFFERENTIAL EQUATIONS
BLUE PRINT

DURATION: 3HRS

Total Marks: 60

SECTION – A

Answer any Five questions. Each question carries 4 MARKS.

5x4=20M

Question	Topics	Nature	Weightage
1	UNIT – I	Problem	4
2	UNIT - I	Problem	4
3	UNIT – II	Problem	4
4	UNIT – II	Problem	4
5	UNIT – III	Problem	4
6	UNIT – III	Problem	4
7	UNIT – IV	Problem	4
8	UNIT – IV	Problem	4
9	UNIT – V	Problem	4
10	UNIT – V	Problem	4

SECTION – B

Answer ALL Questions. Each question carries 8 MARKS.

5x8=40M

Question	Topic	Nature	Marks
11. (a) or 11.(b)	UNIT- I	Problem	8
12. (a) or 12. (b)	UNIT – II	Problem	8
13. (a) or 13. (b)	UNIT – III	Problem	8
14. (a) or 14. (b)	UNIT – IV	Problem	8
15. (a) or 15. (b)	UNIT – V	Problem	8

S.R.R & C.V.R GOVT DEGREE COLLEGE
(AUTONOMOUS) NAAC B+
Department of Mathematics
SEMESTER -I, PAPER - 1
DIFFERENTIAL EQUATIONS
MODEL QUESTION PAPER

Time : 3 hours

Max. Marks: 60

Section - A

Answer any FIVE questions

(5 x 4 = 20 marks)

1. Solve $2xy \, dy - (x^2 + y^2 + 1) \, dx = 0$
2. Solve $(1 + y^2)dx = (\tan^{-1}y - x)dy$
3. Solve $x = y + p^2$
4. Solve $4y^2p^2 + 2xy(3x+1)p + 3x^3 = 0$.
5. Solve $(D^2 - 3D + 2)y = \text{Cos } h \, x$.
6. Solve $(D^3 + 4D)y = \text{Sin } 2x$
7. Solve $(D^2 - 4D + 4)y = x^3$
8. Solve $\frac{d^2y}{dx^2} - 6\frac{dy}{dx} + 13y = 8e^{3x} \sin 2x$
9. Solve $[(1+x)^2D^2 + (1+x)D + 1]y = 4 \cos \log(1+x)$.
10. Solve $\frac{d^2y}{dx^2} + y = \text{cosec } x$ by the method of variation of parameters

Section - B

Answer ALL questions

(5 x 8 = 40 marks)

11 (a). Solve $x(1 + xy) \, dy + y(1 - xy) \, dx = 0$

(OR)

(b). Solve $x\frac{dy}{dx} + y = y^2 \log x$

12 (a). Solve $(py+x)(px-y) = 2p$

(OR)

(b). Find the orthogonal trajectories of family of curves $r = a(1 - \cos \theta)$ whose 'a' is a parameter

13. (a). Solve $(D^2 - 2D + 4)y = 8(x^2 + e^{2x} + \sin 2x)$

(OR)

(b). Solve $(D^2 - 3D + 2)y = 2x^2$

14. (a). Solve $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = xe^x \sin x$

(OR)

(b). Solve $(D^2 + 4)y = x \sin x$

15. (a). Solve $(x^2D^2 - xD + 2)y = x \log x$

(OR)

(b). Solve $\frac{d^2y}{dx^2} + 4y = 4 \tan 2x$ by the method of variation of parameters

S.R.R & C.V.R GOVT DEGREE COLLEGE
(AUTONOMOUS) NAAC B+
Department of Mathematics
B.Sc. FIRST YEAR MATHEMATICS SYLLABUS
SEMESTER -II, 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; Number of arbitrary constants in the equations of straight line; Sets of conditions which determine a line; 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 (12 hrs) : 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; Power of a point; Tangent plane; Plane of contact; Polar plane; Pole of a Plane; Conjugate points; Conjugate planes;

UNIT – IV (12 hrs) : Sphere & Cones :

Angle of intersection of two spheres; Conditions for two spheres to be orthogonal; Radical plane; Coaxial system of spheres; Simplified form of the equation of two spheres. Definitions of a cone; vertex; guiding curve; generators; Equation of the cone with a given vertex and guiding curve; Enveloping cone of a sphere; Equations of cones with vertex at origin are homogenous; Condition that the general equation of the second degree should represent a cone; Condition that a cone may have three mutually perpendicular generators;

UNIT – V (12 hrs) Cones & Cylinders :

Intersection of a line and a quadric cone; Tangent lines and tangent plane at a point; Condition that a plane may touch a cone; Reciprocal cones; Intersection of two cones with a common vertex; Right circular cone; Equation of the right circular cone with a given vertex; axis and semi-vertical angle. 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; The right circular cylinder; Equation of the right circular cylinder with a given axis and radius.

Reference Books :

1. Analytical Solid Geometry by Shanti Narayan and P.K. Mittal, Published by S. Chand & Company Ltd. 7th Edition.
2. A text book of Mathematics for BA/B.Sc Vol 1, by V Krishna Murthy & Others, Published by S. Chand & Company, New Delhi.
3. A text Book of Analytical Geometry of Three Dimensions, by P.K. Jain and Khaleel Ahmed, Published by Wiley Eastern Ltd., 1999.
4. Co-ordinate Geometry of two and three dimensions by P. Balasubrahmanyam, K.Y. Subrahmanyam, G.R. Venkataraman published by Tata-MC Gran-Hill Publishers Company Ltd.,

Suggested Activities:

Seminar/ Quiz/ Assignments/ Project on Application of Solid Geometry in Engineering

S.R.R & C.V.R GOVT DEGREE COLLEGE
(AUTONOMOUS) NAAC B+
Department of Mathematics
SEMESTER -II, PAPER - 2
SOLID GEOMETRY
BLUE PRINT

DURATION: 3HRS

Total Marks: 60

SECTION – A

Answer any Five questions. Each question carries 4 MARKS.

5x4=20M

Question	Topics	Nature	Weightage
1	UNIT – I	Problem	4
2	UNIT - I	Problem	4
3	UNIT – II	Problem	4
4	UNIT – II	Problem	4
5	UNIT – III	Problem	4
6	UNIT – III	Problem	4
7	UNIT – IV	Problem	4
8	UNIT – IV	Problem	4
9	UNIT – V	Problem	4
10	UNIT – V	Problem	4

SECTION – B

Answer ALL Questions. Each question carries 8 MARKS.

5x8=40M

Question	Topic	Nature	Marks
11. (a) or 11.(b)	UNIT-I	Problem	8
12. (a) or 12. (b)	UNIT – II	Problem	8
13. (a) or 13. (b)	UNIT – III	Problem	8
14. (a) or 14. (b)	UNIT – IV	Problem	8
15. (a) or 15. (b)	UNIT – V	Problem	8

S.R.R & C.V.R GOVT DEGREE COLLEGE
(AUTONOMOUS) NAAC B+
Department of Mathematics
Model Question Paper
Paper – II Semester – II
(Solid Geometry)

(From the Batch admitted in 2017-18)

Time : 3 Hrs.

Max. Marks : 60

SECTION – A

Answer any Five questions. Each question carries 04 Marks. $5 \times 4M = 20$ Marks

1. Find the equation of the plane through $(4,4,0)$ and perpendicular to the Planes $x+2y+2z=5$, and $3x+3y+2z-8=0$.
2. A variable plane is at a constant distance $3p$ from the origin and meets the coordinate axes in A, B, C . Show that the locus of the centroid of the triangle ABC is $x^2+y^2+z^2=p^2$
3. Find the foot of the perpendicular from $(2,-2,3)$ to the plane $2x-y-2z-9=0$.
4. Find the image of the point $(1,3,4)$ in the plane $2x-y+z+3=0$.
5. Find the equation of spheres passing through the circle $x^2+y^2+z^2=4$, $z=0$ and is intersected by the plane $x+2y+2z=0$ in a circle of radius 3.
6. Find the pole of the plane $x-y+5z-3=0$ w.r.t the sphere $x^2+y^2+z^2=9$.
7. Find the vertex of the cone $2x^2+2y^2+7z^2-10yz-10zx+2x+2y+26z-17=0$.
8. Find the Enveloping cone of sphere $x^2 + y^2 + z^2 + 2x - 2y = 2$ with its vertex $(1,1,1)$
9. Find the equation the cylinder whose generators are parallel to the line whose direction ratios are $(1,2,3)$ which passes through the curve $x^2+y^2=16$, $z=0$.
10. Find the equation of the right circular cylinder of radius 2 whose axis passes through the point $(1,2,3)$ and has direction ratios $(2,-3,6)$

SECTION - B

Answer all questions. Each question carries 08 Marks. 5 x 8M = 40 Marks

- 11 (a). Find the equation to the plane through the intersection of the planes $x+2y+3z+4=0$, $4x+3y+3z+1=0$ and perpendicular to the plane $x+y+z+9=0$.

OR

- (b) Find the bisecting plane of the acute angle between the planes $3x-2y+6z+2=0$, $2x-y+2z+2=0$.

- 12 (a) Prove that the lines $x+2y+3z-4=0=2x+3y+4z-5$, $2x-3y+3z-5=0=3x-2y+4z-6$ are coplanar & also find their point of intersection and the plane containing lines.

OR

- (b) Find the S.D between the lines $\frac{x-3}{3} = \frac{y-8}{-1} = \frac{z-3}{1}$, $\frac{x+3}{-3} = \frac{y+7}{2} = \frac{z-6}{4}$ and also find the equation of S.D between the lines.

13. (a) A plane passes through a fixed point (a,b,c) and cuts the axis in A, B,C show that the locus of centre of the sphere OABC is $\frac{a}{x} + \frac{b}{y} + \frac{c}{z} = 2$.

OR

- (b) Show that two circles $x^2 + y^2 + z^2 - y + 2z = 0$, $x - y + z - 2 = 0$ and $x^2 + y^2 + z^2 + x - 3y + z - 5 = 0$, $2x - y + 4z - 1 = 0$ lies on the same sphere and find its equation.

- 14 (a) Find the limiting points of coaxial system of spheres $x^2 + y^2 + z^2 + 4x - 2y + 2z + 6 = 0$ and $x^2 + y^2 + z^2 + 2x - 4y - 2z + 6 = 0$

OR

- (b) If $\frac{x}{1} = \frac{y}{2} = \frac{z}{1}$ represents one of a set of three mutually perpendicular generators of the cone $11yz + 6zx - 14xy = 0$ find the equation of the other two.

- 15 (a) Find the equation of the tangent plane at the point $(-3, 0, -1)$ of the cone $4x^2 - y^2 + 2z^2 + 2xy - 3yz + 12x - 11y + 6z + 4 = 0$.

OR

- (b) Find the equation of the enveloping cylinder of the sphere $x^2 + y^2 + z^2 - 2x + 4y = 1$, whose generators are parallel to the lines $x = y = z$.

List of Paper Setters and Examiners

1. Dr. A. Anantha Lakshmi, H.O.D., P.R. Govt. College, Kakinada.
2. Dr. P. Subhashini, Lecturer, P.R. Govt. College, Kakinada.
3. Padmaja, Lecturer, G.D.C., Pitapuram.
4. M. Lakshmana Das, Lecturer, G.D.C., Kakinada.
5. Dr. D. Chitti Babu, Reader, G.D.C., Pentpadu, J.P. Gudem, W.G. Dt.
6. Dr. Ch. Srinivasa Rao, Lecturer, G.D.C., Mandapeta.
7. Ch. S. Haranadh, Lecturer, G.D.C., Aakiveedu, West Godavari.
8. P. Hari Krishna, Lecturer, G.D.C., Eluru.
9. G.V. Bhaskar, H.O.D., Govt. College for Women (A), Guntur.
10. M. Mahalakshmi Naidu, Lecturer, G.D.C.(A), Tuni.
11. A. Surya Narayana, H.O.D., G.D.C. (A), Rajahmundry.
12. B.V.N. Sri Rama Murthy, Lecturer, G.D.C.(A), Rajahmundry.
13. I. Lakshmi Gayathri, Lecturer, G.D.C.(A), Rajahmundry.
14. S. JaganMohan Rao, Lecturer, G.D.C., Jaggampeta, E.G. Dt.
15. V. Chittibabu, Lecturer, G.D.C., Ramachandrarao peta,

Resolutions:

1. Resolved to adopt the present University CBCS syllabus for semester I and II with the suggested modifications.
2. Resolved to approve the division of marks for internal and external examination along with the suggested blue print and model paper in the ratio 40:60
 - a) 40 Marks caters to internal assessment such as Assignment, Viva / Assessment, Seminars, Project work and best of the two in mid exams.
 - b) 60 marks caters to External evaluation as in blue print.
3. Resolved to approve the list of paper setters and examiners submitted by the department.

Syllabus for CBCS Semester I

(Give the syllabus)

Question Paper Blue Print

(Give the blue print)

Model Question Paper

(Give the paper if it is ready, otherwise, you can say in the resolutions that so and so faculty member was entrusted the duty of preparing the model paper based on the blue print, and delete this item here.)

Syllabus for CBCS Semester II

(Give the syllabus)

Question Paper Blue Print

(Give the blue print)

Model Question Paper

(See above)

List of paper setters and examiners

(Give the list)

Signature of the members of the BoS:

Name	Position	Signature
1 V.V.V. BAPESWARAN	Chairperson	V.V.V. Bapeswarana
2 prof. Bh. satyanarayana	University Nominee	Bh. satyanarayana
3 Dr. S. Eswarasairam Selty	External Expert	S. Eswarasairam Selty 18/4/17
4 S.V. B. ASHOK	External Expert	S.V. B. Ashok
5 K.V. Nagalakshmi	Faculty Member	K.V. Nagalakshmi
6 K.V. Rama Rao	Faculty Member	K.V. Rama Rao 18/4/17
7 CH. SAADULI	Faculty Member	CH. SAADULI
8 D. SWARNA KUMARI	Alumni	D. SWARNA KUMARI