GOVERNMENT DEGREE COLLEGE FOR WOMEN, KARIMNAGAR

DEPARTMENT OF MATHEMATICS

Mathematics is the most beautiful and most powerful creation of human spirit.

-Stefan Banach,
Polish mathematician.
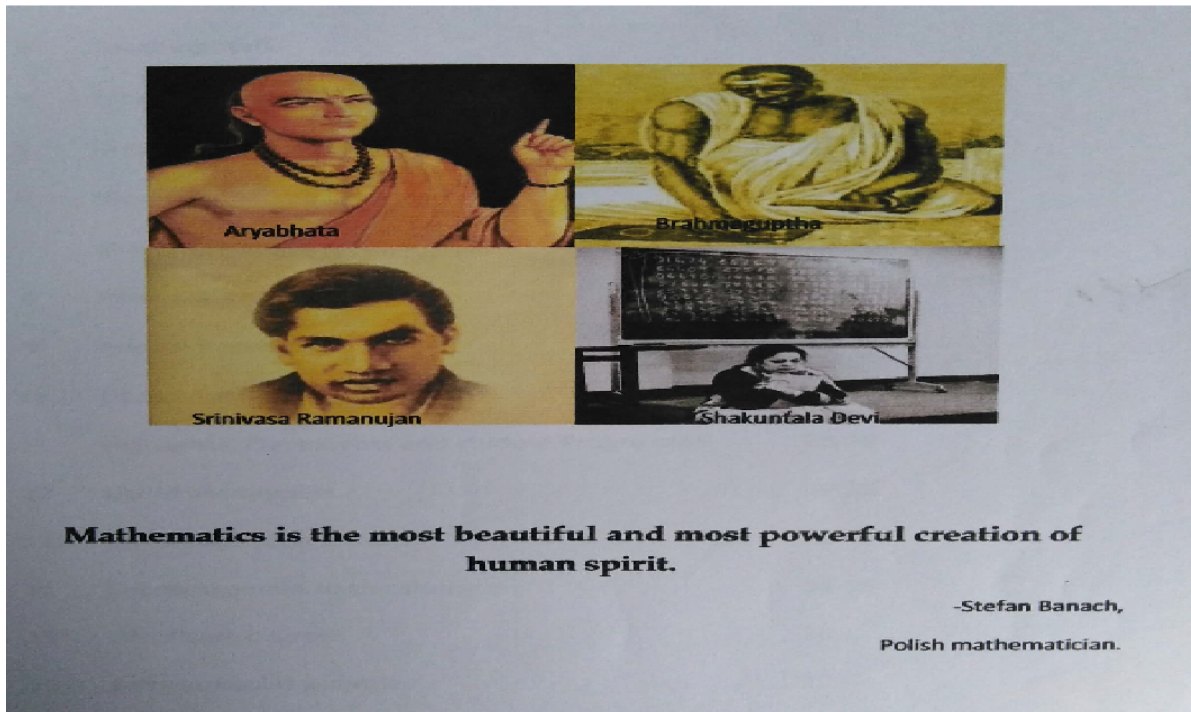
PROFILE OF THE DEPARTMENT:

The Government degree college for women was established in the year 1973. After long time Government sanctioned to start B.Sc(MPC) and B.Sc(MPCs)groups in the year 1998.Sri J.Linga Rao Lecturer in Mathematics joined in the department on 04-03-1999. He took over the charge of the department. Then the department was served by regular

faculty Sri. K. Bhoopalkarna, Sri.K.NarsingaRao, Smt.T.Swaroopa Rani and Dr. V.Srinivas .

Vision:

"Search for Mathematics within and beyond by observation and analysis to produce a better human being."

Mission:

"We the Department of Mathematics will create and facilitate an environment for the students to probe,search,learn and evolve into an effective social being"

FACULTY

S.No	Name of the Lecturer	Qualification	Designation	Profile	Employee ID
1	V.Radhakishan	M.Sc Maths	Contract lecturer		10009190
2	E. Sravanthi	M.Sc Maths	Contract lecturer		10009197
3	Syeda Saleha Tabassum	M.Sc Maths	Guest lecturer		21863

FACULTY PROFILE:

V.RADHAKISHAN

	EMPLOYEE PROFILE	
1	Name	V.Radhakishan
2	Father Name	Rajanna
3	Aadhar Number	461061460241
4.a	PAN Number	BEGPV6784M
4.b	Employee ID	10009190
4.c	Date of Birth	18/06/1980
4.d	Department	Mathematics
6	Designation	Lecturer in Mathe

7	Qualification			M.Sc (Maths)
	S.No.	**Class**	**Year of Study**	**Name of the board (or) University**
	1	SSC	1995	Board of secondary
	2	10+2	1997	Board of Intermediate
	3	Degree	2000	Kakatiya University
	4	PG	2003	Kakatiya University
	5	PHD		
	6	NET/SET		
8	Date of Joining in Government Service			
9	Date of joining As a Lecturer in Government Degree college			
10	Date of Joining in this Institute			05-
16	Mobile Number			9885988973
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E. SRAVANTHI

	EMPLOYEE PROFILE			
1	Name			E.Sravanthi
2	Father Name			Venugopal
3	Aadhar Number			563004613331
4.a	PAN Number			ABUPE2747F
4.b	Employee ID			10009197
4.c	Date of Birth			18-02-1986
4.d	Department			Mathematics
6	Designation			Lecturer In Mathe
7	Qualification			M.Sc(Maths)
	S.No.	**Class**	**Year of Study**	**Name of the board (or) University**
	1	SSC	2001	Board of Secondery Edu

		2	10+2	2003	Board of Intermediate
		3	Degree	2006	Kakatiya University
		4	PG	2008	Kakatiya University
		5	PHD		
		6	NET/SET		
8	Date of Joining in Government Service				
9	Date of joining As a Lecturer in Government Degree college				
10	Date of Joining in this Institute			18-(
16	Mobile Number			8106498986
17	Email-id			eligetisravanthimsc@g

SYEDA SALEHA TABASSUM

EMPLOYEE PROFILE			
1	Name		Syeda Saleha Tabassum
2	Father Name		Syed Afzal
3	Aadhar Number		797242389861
4.a	PAN Number		DNLPS7674P
4.b	Employee ID		21863
4.c	Date of Birth		15/4/1989
4.d	Department		Mathem
6	Designation		Lecturer in Ma
7	Qualification		M.Sc(Ma

S.No.	Class	Year of Study	Name of the board (or) U
1	SSC	2004	Board of Secondary Educ
2	10+2	2006	Board of Intermadiate
3	Degree	2009	Kakatiya University
4	PG	2011	National Institute of Tech ,Warangal
5	PHD		

		6	NET/SET		
8	Date of Joining in Government Service				
9	Date of joining As a Lecturer in Government Degree college				
10	Date of Joining in this Institute				
16	Mobile Number		9100648
17	Email-id		syedasaleha333(

Programmes and Courses Offered:

B.Sc(MPCs)E/M

B.Sc(MPC)E/M

B.Sc(MStCs)E/M

B.Sc(MPSt)E/M

B.Sc(MCCs)E/M

CURRICULUM:

SYLLABUS:
https://drive.google.com/file/d/1UHggghPxSj6QWeQqW82ETD-vnWq3cIsi/view?usp=sharing

COURSE OUTCOME:
https://drive.google.com/file/d/1VvfDt4m3TthiekhbFO5uZMqquZD0acyk/view?usp=sharing

ACTIVITIES CONDUCTED:
https://docs.google.com/document/d/1YmsPMH7fjKbd_8APewtIgbZ9ZLpyXKhj/edit?usp=sharing&ouid=112089403160877565304&rtpof=true&sd=true

FUTURE PLANS:

- The department proposes to hold seminar for U.G students to provide them opportunities to read paper based on their syllabus of mathematics.
- Introduce a greater number of certificate courses.
- To Strengthen ICT basis teaching and learning.
- To extend the co-operation with other Industry or Institution(MOU)
- To create and develop e-content of syllabus

Impact community through enhanced extension activities

SYLLABUS

Telangana State Council of Hig

Government of

Mathematics Course Structure

(B.Sc. Common Core Syllabus for All Universities in Telangana with effect from 2019-2020)

B.A./B.Sc. **Mathematics** Course Structure
TSCHE

Year	Semester	Paper	Subject	Hours/Per week		Credits	IA	EA	Total
				Theory	Tutorials*				
1	**DSC I**	I	Differential & Integral Calculus	5	1	5	20	80	100
	DSC II	II	Differential Equations	5	1	5	20	80	100
2	**DSC III**	III	Real Analysis	5	1	5	20	80	100
	DSC IV	IV	Algebra	5	1	5	20	80	100
3	**DSC V**	V	Linear Algebra	5	1	5	20	80	100
	DSE VI	VI-A	Numerical Analysis	5	1	5	20	80	100
		VI-B	Integral Transforms	5	1	5	20	80	100
		VI-C	Analytical Solid Geometry	5	1	5	20	80	100
2	**SEC-I**	III	Theory of Equations	2	-	2			40
2	**SEC-II**	III	Number Theory	2	-	2			40
2	**SEC-III**	IV	Logic & Sets	2	-	2			40
2	**SEC-IV**	IV	Vector Calculus	2	-	2			40
3	**Generic Elective**	V-A	Basic Mathematics **or** Mathematics of Finance & Insurance	4	-	4	20	80	100
		V-B	Verbal Reasoning for Aptitude Test	4	-	4	20	80	100
3	**Project/ Optional**	VI	Mathematical Modelling	4	-	4			100

*Tutorials: Problems solving session for each 20 student's one batch

Contents

1.1   Differential and Integral Calculus

DSC-1A   **BS:101**

Theory: 5 credits and Tutorials: 0 credits Theory: 5
hours /week and Tutorials: 1 hours /week

Objective: The course is aimed at exposing the students to some basic notions in differential calculus.
Outcome: By the time students complete the course they realize wide ranging applications of the subject.

Unit- I

Partial Differentiation: Introduction - Functions of two variables - Neighbourhood of a point (a, b) - Continuity of a Function of two variables, Continuity at a point - Limit of a Function of two variables - Partial Derivatives - Geometrical representation of a Function of two Variables - Homogeneous Functions.

Unit- II

Theorem on Total Differentials - Composite Functions - Differentiation of Composite Functions
- Implicit Functions - Equality of $f_{xy}(a, b)$ and $f_{yz}(a, b)$ - Taylor's theorem for a function of two Variables - Maxima and Minima of functions of two variables – Lagrange's Method of undetermined multipliers.

Unit- III

Curvature and Evolutes: Introduction - Definition of Curvature - Radius of Curvature - Length of Arc as a Function, Derivative of arc - Radius of Curvature - Cartesian Equations - Newtonian Method - Centre of Curvature - Chord of Curvature.
Evolutes: Evolutes and Involutes - Properties of the evolute.
Envelopes: One Parameter Family of Curves - Consider the family of straight lines - Definition - Determination of Envelope.

Unit- IV

Lengths of Plane Curves: Introduction - Expression for the lengths of curves $y = f(x)$ - Expressions for the length of arcs $x = f(y)$; $x = f(t)$, $y = \phi(t)$; $r = f(\theta)$

Volumes and Surfaces of Revolution: Introduction - Expression for the volume obtained by revolving about either axis - Expression for the volume obtained by revolving about any line - Area of the surface of the frustum of a cone - Expression for the surface of revolution - Pappus Theorems - Surface of revolution.

Text:

- Shanti Narayan, P.K. Mittal *Differential Calculus, S.CHAND, NEW DELHI*
- Shanti Narayan *Integral Calculus, S.CHAND, NEW DELHI*

References:

- William Anthony Granville, Percey F Smith and William Raymond Longley; *Elements of the differential and integral calculus*

- Joseph Edwards , *Differential calculus for beginners*

- Smith and Minton, *Calculus*

- Elis Pine, *How to Enjoy Calculus*

- Hari Kishan, *Differential Calculus*

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SEMESTER-II

1.2 Differential Equations

DSC-1B   **BS:201**

Theory: 5 credits and Tutorials: 0 credits Theory: 5
hours /week and Tutorials: 1 hours /week

Objective: The main aim of this course is to introduce the students to the techniques of solving differential equations and to train to apply their skills in solving some of the problems of engineering and science.

Outcome: After learning the course the students will be equipped with the various tools to solve few types differential equations that arise in several branches of science.

Unit- I

Differential Equations of first order and first degree: Introduction - Equations in which Variables are Separable - Homogeneous Differential Equations - Differential Equations Reducible to Homogeneous Form - Linear Differential Equations - Differential Equations Reducible to Linear Form - Exact differential equations - Integrating Factors - Change in variables - Total Differential Equations - Simultaneous Total Differential Equations - Equations of the form $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$.

Unit- II

Differential Equations first order but not of first degree: Equations Solvable for p - Equations Solvable for y - Equations Solvable for x - Equations that do not contain x (or y)- Equations Homogeneous in x and y - Equations of the First Degree in x and y - Clairaut's equation. **Applications of First Order Differential Equations** : Growth and Decay - Dynamics of Tumour Growth - Radioactivity and Carbon Dating - Compound Interest - Orthogonal Trajectories

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Unit- III

Higher order Linear Differential Equations: Solution of homogeneous linear differential equations with constant coefficients - Solution of non-homogeneous differential equations $P(D)y =$

$Q(x)$ with constant coefficients by means of polynomial operators when $Q(x) = be^{ax}$, $b \sin ax/b \cos ax$, bx^k, $V e^{ax}$

- Method of undetermined coefficients.

Unit- IV

Method of variation of parameters - Linear differential equations with non constant coefficients - The Cauchy - Euler Equation - Legendre's Linear Equations - Miscellaneous Differential Equations. **Partial Differential Equations**: Formation and solution- Equations easily integrable - Linear equations of first order.

Text:

- Zafar Ahsan,*Differential Equations and Their Applications*

References:

- Frank Ayres Jr, *Theory and Problems of Differential Equations.*

- Ford, L.R ; *Differential Equations.*
- Daniel Murray, *Differential Equations.*
- S. Balachandra Rao, *Differential Equations with Applications and Programs.*
- Stuart P Hastings, J Bryce McLead; *Classical Methods in Ordinary Differential Equations.*

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1.3 Real Analysis

DSC-1C   **BS:301**

Theory: 5 credits and Tutorials: 0 credits Theory: 5
hours /week and Tutorials: 1 hours /week

Objective: The course is aimed at exposing the students to the foundations of analysis which will be useful in understanding various physical phenomena.
Outcome: After the completion of the course students will be in a position to appreciate beauty and applicability of the course.

Unit- I

Sequences: Limits of Sequences- A Discussion about Proofs-Limit Theorems for Sequences- Monotone Sequences and Cauchy Sequences -Subsequences-Lim sup's and Lim inf's-Series-Alternating Series and Integral Tests .

Unit- II

Continuity: Continuous Functions -Properties of Continuous Functions -Uniform Continuity - Limits of Functions

Unit- III

Differentiation: Basic Properties of the Derivative - The Mean Value Theorem - ∗ L'Hospital Rule - Taylor's Theorem.

Unit- IV

Integration : The Riemann Integral - Properties of Riemann Integral-Fundamental Theorem of Calculus.

Text:

- Kenneth A Ross,*Elementary Analysis-The Theory of Calculus*

References:

- S.C. Malik and Savita Arora, *Mathematical Analysis, Second Edition, Wiley Eastern Limited, New Age International (P) Limited, New Delhi, 1994.*

- William F. Trench, *Introduction to Real Analysis*

- Lee Larson , *Introduction to Real Analysis I*

- Shanti Narayan and Mittal, *Mathematical Analysis*

- Brian S. Thomson, Judith B. Bruckner, Andrew M. Bruckner; *Elementary Real analysis*

- Sudhir R., Ghorpade, Balmohan V., Limaye; *A Course in Calculus and Real Analysis*

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1.4   Algebra

DSC-1D   **BS:401**

Theory: 5 credits and Tutorials: 0 credits Theory: 5
hours /week and Tutorials: 1 hours /week

Objective: The course is aimed at exposing the students to learn some basic algebraic structures like groups, rings etc.
Outcome: On successful completion of the course students will be able to recognize algebraic structures that arise in matrix algebra, linear algebra and will be able to apply the skills learnt in understanding various such subjects.

Unit- I

Groups: Definition and Examples of Groups- Elementary Properties of Groups-Finite Groups - Subgroups -Terminology and Notation -Subgroup Tests - Examples of Subgroups.
Cyclic Groups: Properties of Cyclic Groups - Classification of Subgroups Cyclic Groups.

Unit- II

Permutation Groups: Definition and Notation -Cycle Notation-Properties of Permutations -A Check Digit Scheme Based on D_5. Isomorphisms ; Motivation- Definition and Examples -Cayley's Theorem Properties of Isomorphisms -Automorphisms-Cosets and Lagrange's Theorem Properties of Cosets 138 - Lagrange's Theorem and Consequences-An Application of Cosets to Permutation Groups -The Rotation Group of a Cube and a Soccer Ball.

Unit- III

Normal Subgroups and Factor Groups: Normal Subgroups-Factor Groups -Applications of Factor Groups -Group Homomorphisms - Definition and Examples -Properties of Homomorphisms
-The First Isomorphism Theorem.
Introduction to Rings: Motivation and Definition -Examples of Rings -Properties of Rings - Subrings.

Integral Domains: Definition and Examples - Fields –Characteristics of a Ring.

Unit- IV

Ideals and Factor Rings: Ideals -Factor Rings -Prime Ideals and Maximal Ideals.

Ring Homomorphisms: Definition and Examples-Properties of Ring- Homomorphisms.

Text:

- Joseph A Gallian, *Contemporary Abstract algebra (9th edition)*

References:

- Bhattacharya, P.B Jain, S.K.; and Nagpaul, S.R, *Basic Abstract Algebra*
- Fraleigh, J.B, *A First Course in Abstract Algebra.*
- Herstein, I.N, *Topics in Algebra*

- Robert B. Ash, *Basic Abstract Algebra*
- I Martin Isaacs, *Finite Group Theory*
- Joseph J Rotman, *Advanced Modern Algebra*

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1.5   Linear Algebra

DSC-E   **BS:501**

Theory: 5 credits and Tutorials: 0 credits Theory: 5
hours /week and Tutorials: 1 hours /week

Objective: The students are exposed to various concepts like vector spaces , bases , dimension, Eigen values etc.
Outcome: After completion this course students appreciate its interdisciplinary nature.

Unit- I
Vector Spaces: Vector Spaces and Subspaces -Null Spaces, Column Spaces, and Linear Transformations -Linearly Independent Sets; Bases -Coordinate Systems -The Dimension of a Vector Space

Unit- II
Rank-Change of Basis - Eigenvalues and Eigenvectors - The Characteristic Equation

Unit- III
Diagonalization -Eigenvectors and Linear Transformations -Complex Eigenvalues - Applications to Differential Equations.

Unit- IV
Orthogonality and Least Squares : Inner Product, Length, and Orthogonality -Orthogonal Sets -Orthogonal Projections - The Gram-Schmidt Process.

Text:

- David C Lay,*Linear Algebra and its Applications* 4*e*

References:

- S Lang, *Introduction to Linear Algebra*
- Gilbert Strang , *Linear Algebra and its Applications*
- Stephen H. Friedberg, Arnold J. Insel, Lawrence E. Spence; *Linear Algebra*
- Kuldeep Singh; *Linear Algebra*
- Sheldon Axler; *Linear Algebra Done Right*

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1.6   Numerical Analysis

DSC-1F/A   **BS:601/A**

Theory: 5 credits and Tutorials: 0 credits Theory: 5
hours /week and Tutorials: 1 hours /week

Objective: Students will be made to understand some methods of numerical analysis. **Outcome:** Students realize the importance of the subject in solving some problems of algebra and calculus.

Unit- I

Errors in Numerical Calculations - **Solutions of Equations in One Variable**: The Bisection Method - The Iteration Method - The Method of False Position-Newton's Method - Muller's Method - solution of Systems of Nonlinear Equations.

Unit- II

Interpolation and Polynomial Approximation: Interpolation - Finite Differences - Differences of Polynomials - Newton's formula for Interpolation - Gauss's central differences formulae - Stirling's and Bessel's formula - Lagrange's Interpolation Polynomial - Divided Differences - Newton's General Interpolation formula - Inverse Interpolation.

Unit- III

Curve Fitting: Least Square Curve Fitting: Fitting a Straight Line-Nonlinear Curve Fitting. **Numerical Differentiation and Integration**: Numerical Differentiation - Numerical Integration: Trapezoidal Rule-Simpson's 1/3rd-Rule and Simpson's 3/8th-Rule - Boole's and Weddle's Rule - Newton's Cotes Integration Formulae.

Unit- IV

Numerical Solutions of Ordinary Differential Equations: Taylor's Series Method - Picard's Method - Euler's Methods - Runge Kutta Methods.

Text:

· Richard L. Burden and J. Douglas Faires,*Numerical Analysis* (9*e*)

• S.S.Sastry,*Introductory Methods of Numerical Analysis, PHI*

References:

• M K Jain, S R K Iyengar and R K Jain, *Numerical Methods for Scientific and Engineering computation*

• B.Bradie , *A Friendly introduction to Numerical Analysis*

1.7   Integral Transforms

DSC - VI-B   **BS:601/B**

Theory: 5 credits and Tutorials: 0 credits Theory: 5
hours /week and Tutorials: 1 hours /week

Objective: Students will be exposed to Integral Transforms. The students also learning the Applications of Laplace Transforms to Differential Equations which arises in Physics and Engineering Problems.
Outcome: Students apply their knowledge to solve some problems on special functions and Differential Equations by using the Integral Transforms.

Unit- I

Laplace Transforms-Definition-Existence theorem-Laplace transforms of derivatives and integrals – Periodic functions and some special functions.

Unit- II

Inverse Transformations - Convolution theorem - Heaviside's expansion formula.

Unit- III

Applications to ordinary differential equations - solutions of simultaneous ordinary differential equations - Applications to Partial differential equations.

Unit- IV

Fourier Transforms- Sine and cosine transforms-Inverse Fourier Transforms.

Text:

  · Vasishtha and Gupta,*Integral Transforms, Krishna Prakashan Media(P), Ltd,Meerut* (2*e*)

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1.8   Analytical Solid Geometry

DSE - 1F/C   **BS:601/C**

Theory: 5 credits and Tutorials: 0 credits Theory: 5
hours /week and Tutorials: 1 hours /week

Objective: Students learn to describe some of the surfaces by using analytical geometry.
Outcome: Students understand the beautiful interplay between algebra and geometry.

Unit- I

Sphere: Definition-The Sphere Through Four Given Points-Equations of a Circle- Intersection of a Sphere and a Line-Equation of a Tangent Plane-Angle of Intersection of Two Spheres-Radical Plane.

Unit- II

Cones and Cylinders: Definition-Condition that the General Equation of second degree Represents a Cone-Cone and a Plane through its Vertex -Intersection of a Line with a Cone.

Unit- III

The Right Circular Cone-The Cylinder- The Right Circular Cylinder.

Unit- IV

The Conicoid: The General Equation of the Second Degree-Intersection of Line with a Conicoid- Plane of contact-Enveloping Cone and Cylinder.

Text:

· Shanti Narayan and P K Mittal,*Analytical Solid Geometry* (17*e*)

References:

- Khaleel Ahmed, *Analytical Solid Geometry*
- S L Loney , *Solid Geometry*
- Smith and Minton, *Calculus*

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1.9   Theory of Equations

SEC-I

Theory: 2 credits Theory: 2 hours/week

Objective: Students learn the relation between roots and coefficients of a polynomial equation, Descartes's rule of signs in finding the number of positive and negative roots if any of a polynomial equation bsides some other concepts.

Outcome: By using the concepts learnt the students are expected to solve some of the polynomial equations.

Unit- I

Graphic representation of a polynomial-Maxima and minima values of polynomials-Theorems relating to the real roots of equations-Existence of a root in the general equation -Imaginary roots-Theorem determining the number of roots of an equation-Equal roots-Imaginary roots enter equations in

pairs-Descartes' rule of signs for positive roots- Descartes' rule of signs for negative roots.

Unit- II

Relations between the roots and coefficients-Theorem-Applications of the theorem-Depression of an equation when a relation exists between two of its roots-The cube roots of unity Symmetric functions of the roots-examples.

Text:

- W.S. Burnside and A.W. Panton,*The Theory of Equations*

References:

- C. C. Mac Duffee, *Theory of Equations*
- Hall and Knight , *Higher Algebra*

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1.10   Logic and Sets

SEC - II

Theory: 4 credits and Tutorials: 0 credits Theory: 4
hours /week and Tutorials: 1 hours /week

Objective: Students learn some concepts in set theory and logic.
Outcome: After the completion of the course students appreciate its importance in the development of computer science.

Unit- I

Basic Connectives and truth tables - Logical equivalence : Laws of Logic - Logical Implication : Rules Inference : The Use of Quantifiers - Quantifiers, Definitions, and proofs of Theorems.

Unit- II

Sets and Subsets - Set Operations and the Laws of Set Theory - Counting and Venn Diagrams - A First Word on Probability - The axioms of Probability - Conditional Probability: Independence
- Discrete Random variables .

Text:

· Ralph P Grimaldi,*Discrete and Combinatorial Mathematics* (5*e*)

References:

• P R Halmos, *Na¨ıve Set Theory*

• E Kamke , *Theory of Sets*

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1.11 Number Theory

SEC-III

Theory: 2 credits
Theory: 2 hours /week

Objective: Students will be exposed to some of the jewels like Fermat's theorem, Euler's theorem in the number theory.
Outcome: Student uses the knowledge acquired solving some divisor problems.

Unit- I

The Goldbach conjecture - Basic properties of congruences- Binary and Decimal Representation of lntegers - Number Theoretic Functions; The Sum and Number of divisors- The Mobius Inversion Formula- The Greatest integer function.

Unit- II

Euler's generalization of Fermat's Theorem: Euler's Phi function- Euler's theorem Some Properties of the Euler's Phi function.

Text:

· David M Burton,*Elementary Number Theory* (7*e*)

References:

- Thomas Koshy, *Elementary Number Theory and its Applications*
- Kenneth H Rosen, *Elementary Number Theory*

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1.12   Vector Calculus

SEC-IV

Theory: 2
credits
Theory: 2
hours
/week

Objective: Concepts like gradient, divergence, curl and their physical relevance will be taught. **Outcome:** Students realize the way vector calculus is used to addresses some of the problems of physics.

Unit- I

Line Integrals: Introductory Example - Work done against a Force-Evaluation of Line Integrals Conservative Vector Fields.
Surface Integrals: Introductory Example : Flow Through a PipeEvaluation of Surface Integrals.

Unit- II

Volume Integrals: Evaluation of Volume integrals

Gradient, Divergence and Curl: Partial differentiation and Taylor series-Partial differentiation Taylor series in more than one variable-Gradient of a scalar field-Gradients, conservative fields and potentials-Physical applications of the gradient.

Text:

- P.C. Matthews,*Vector Calculus*

References:

- G.B. Thomas and R.L. Finney, *Calculus*
- H. Anton, I. Bivens and S. Davis ; *Calculus*
- Smith and Minton, *Calculus*

COURSE OUTCOME:

B.Sc Mathematics course student will be able to understand the depth knowledge of various topics of mathematics such as Algebra, calculus, geometry and several other branches of mathematics. It helps learners in building a solid foundation for higher studies in mathematics. One also gets proficient in logical and analytical reasoning, which in turn, can be utilised in modelling and solving real life problems. The programme will also help students to enhance their employability in various public and private enterprises.

B.Sc PROGRAMME FIRST YEAR SEMESTER –I

Title of Paper	Differential & integral calculus
Course code	BS:101
Number of Credits	5
Total Hours	56

On completion of this course the students will be able to:

CO1: Explain the relationship between the derivative of a function as a function and the notation of the derivative as the slope of the tangent line to a function at a point.

CO2: To able to calculate limits in indeterminate form by a repeated use of L' Hospital rule.

CO3:To know the claim rule and use it to find derivatives of composite functions.

CO4: to find maxima and minima, critical points and inflection points of functions and to determine the concarity of curves.

CO5: To able to evaluate integrals of rational functions by partial fractions.

FIRST

YEAR

SECOND

SEMESTER-II

Title of paper	Differential Equations
Course code	BS:201
Credits	5
Total Hours	56

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On completion of this course the students will be able to:

 CO1: Distinguish between linear, nonlinear, partial and ordinary differential equations.

 CO2: Solve basic application problems described by second order linear differential equations with constant coefficient.

CO3: Find power series solutions about ordinary points and singular points.

CO4: Find the transforms of derivatives and integrals.

CO5: Solve a homogeneous linear system by the eigenvalue method.

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ECOND
YEAR
SEMES
TER-III

Title of paper	Real Analysis	
Course code	BS:301	
Credits	5	
Total Hours	56	

On completion of this course the students will be able to:

CO1: Describe the basic difference between the rational and real numbers

CO2: Give the essence of the proof bolzanoweistrass theorem the contraction theorem as well as existence of convergent subsequence using continuity.

CO3: Evaluate the limits of wide class of real sequences.

CO4: Determine whether or not real series are convergent by comparison with standard series or using the ratio test.

CO5: Understand and perform simple proofs.

B.Sc PROGRAMME SECOND YEAR SEMESTER-IV

Title of paper	Algebra	
Course code	BS:401	
Credits	5	
Total Hours	56	

On completion of this course the students will be able to:

CO1: Students will be able to determine whether a given group is Abelian by checking the properties.

CO2: Students will be able to describe all elements in a cyclic subgroup by using generators.

CO3: Students will be able to understand the homomorphism by using the relationship between groups.

B.Sc PROGRAMME III YEAR SEMESTER-V

Title of paper	Linear Algebra
Course code	BS:501
Credits	5
Total Hours	56

On completion of this course the students will be able to:

CO1: understand the combination of two important aspects of modern mathematics via Linear Algebra and Vector Calculus.

CO2: Linear Algebra emphasizes the concept of vector spaces and linear transformations which are essential in simplifying various scientific problems.

CO3: The practical applications of "Linear Algebra" are in demography, archaeology, electrical engineering, and fractal geometry and traffic analysis.

B.Sc PROGRAMME III YEAR SEMESTER –VI

Title of paper	Analytical solid Geometry
Course code	BS:601/C
Credits	5
Total Hours	56

On completion of this course the students will be able to:

CO1: understand the properties of Sphere, cones and cylinder.

CO2: Express the problems geometrically and can solve it.
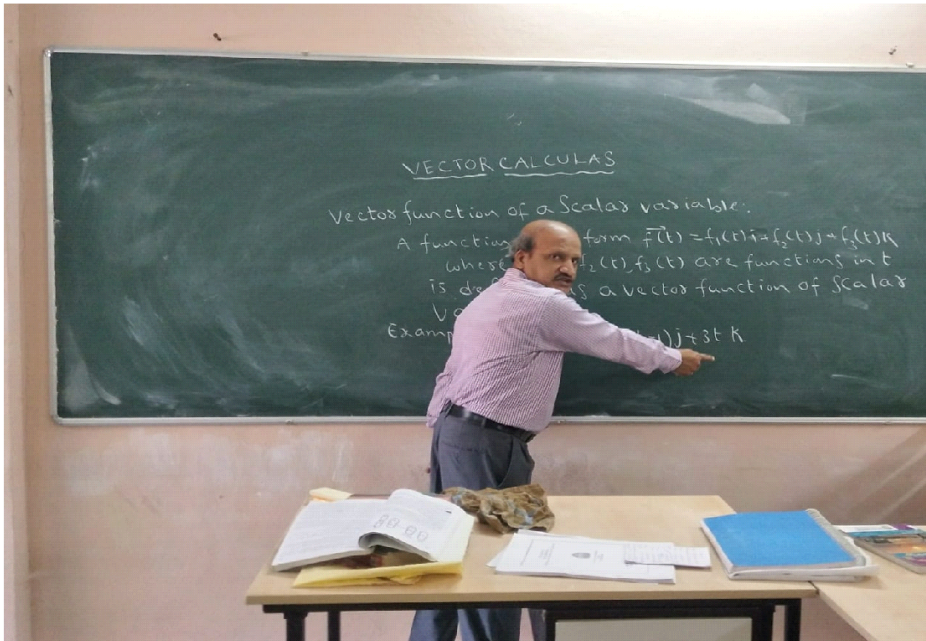
DEPARTMENTAL ACTIVITIES:
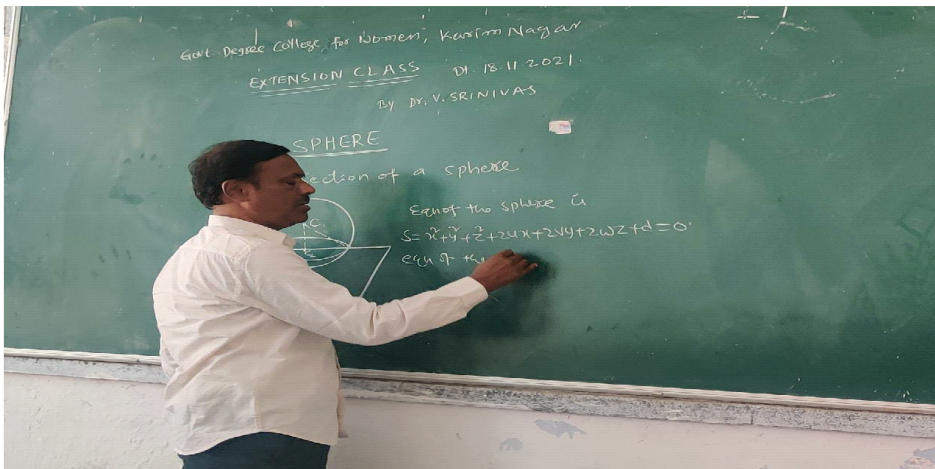
EXTENTION LECTURE

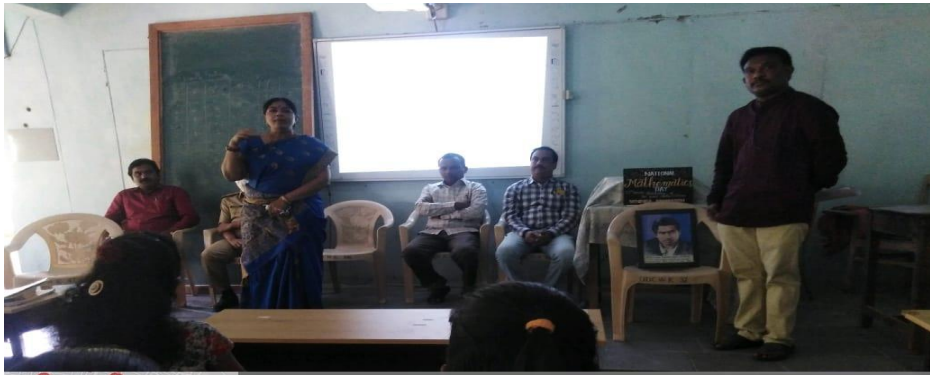## THE RIGHT CIRCULAR CYLINDER

EXTENTION LECTURE

VECTOR CALCULAS

EXTENTION LECTURE

SPHERE

QUIZ AND ELOCUTION

7-3-225, Raitu Bazar Rd, Kashmirgadda, Karimnagar, Telangana 505001, India

Karimnagar
Telangana
India
2021-12-22(Wed)   12:58(PM)

25°C
77°F

2021-12-22(Wed)   01:05(pm)
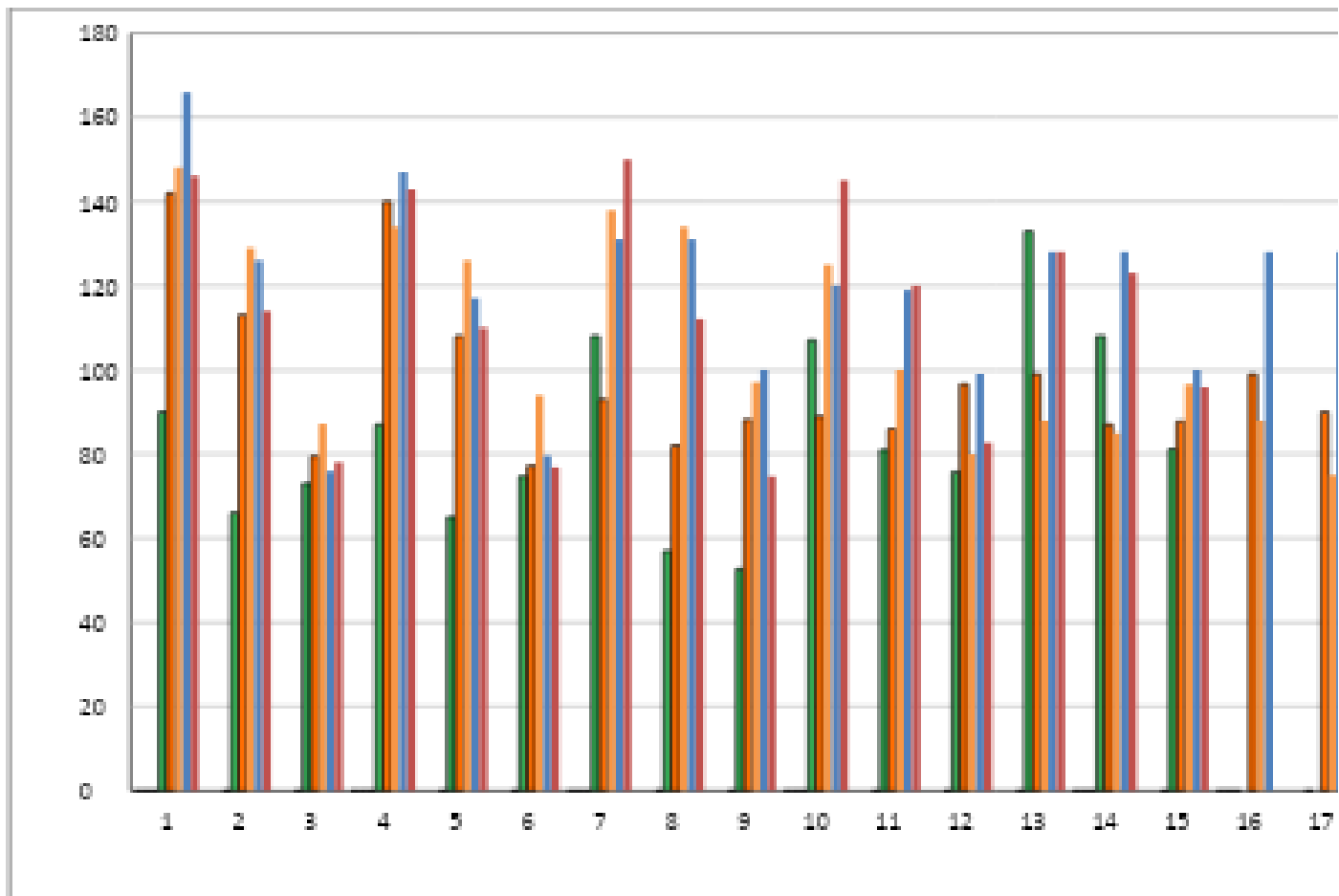
STUDENTS ACHIEVEMENTS:

Progression to Higher Education

S.no	Name of the student	Program graduated from	Name of the institution joined	Name of the program admitted to
1	B.Gouthami	GDCW,KNR	S.U Campus	M.Sc MATHS
2	U.Sandhya	GDCW,KNR	S.U Campus	M.Sc MATHS
3	E. Akhila	GDCW,KNR	Koti Women College,HYD	M.Sc MATHS
4	A. Mounika	GDCW,KNR	VIKAS Women degree college,KNR	M.Sc MATHS
5	T.Karuna	GDCW,KNR	VIKAS Women degree college,KNR	M.Sc MATHS

RESULT ANALYSIS:

GOVERNMENT DEGREE COLLEGE FOR WOMEN, KARIMNA														
RESULT ANALYSIS														
	SEM-I			SEM-II			SEM-III			SEM-IV				SEM-V	
	PAPER-I			PAPER-II			PAPER-III			PAPER-IV				PAPER-V	
YEAR/SEM	APP	PASS	%	APP	PASS	%	APP	PASS	%	APP	PASS	%	APP	PASS	%
2017-18	90	66	73	87	65	74.7	108	57	52.7	107	81	75.7	133	108	81.2
2018-19	142	113	80	140	108	77.14	93	82	88.2	89	86	96.6	99	87	87.8

2019-20	148	129	87	134	126	94.02	138	134	97.1	125	100	80	88	85	96.6
2020-21	166	126	76	147	117	79.59	131	131	100	120	119	99.2	128	128	100
2021-22	146	114	78	143	110	76.9	150	112	74.7	145	120	82.7	128	123	96