

**TELANGANA TRIBAL WELFARE RESIDENTIAL DEGREE  
COLLEGE FOR WOMEN, SIRCILLA  
DEPARTMENT OF MATHEMATICS  
TEACHING LEARNING PRACTICES**

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**ACADEMIC YEAR: 2022-2023**

**Student Seminar**

**On the topic Partial Derivatives**

**Date of the seminar:** 22/11/2022

**Participants:** Phy.Sci-I year students

**Seminar given by:** N.Manasa Phy.Sci-I year

**Objectives:**

- Gain deeper insights into specific topics or subjects.
- Ignite interest and passion for the subject matter.
- Develop and hone public speaking and presentation skills.
- Emphasize the importance of continuous learning and improvement.
- Learn from diverse perspectives and experiences.

**Methodology adopted:**

Learning with demonstration and examples

**Brief review about the seminar:**

This seminar began with a clear introduction to the concept of partial derivatives, distinguishing them from ordinary derivatives.

In this session she explained about definition of partial derivatives, order of the derivatives and notations for the first & second order partial derivatives with examples.

She also explained some problems regarding calculation of 1<sup>st</sup> & 2<sup>nd</sup> order partial derivatives of the given function.

**Photo Gallery:**



### Feedback of the students:

She explained the topic with clear explanation with good communication skills without stage fear- B.Thrisha Phy.Sci-I year

### Teaching using ICT tools

**Date:** 6 /12/2022

**Class:** Phy.Sci-I year

**Topic:** Radius of Curvature

#### Objectives:

- ICT helps students to develop new skills and become more creative.
- ICT stimulates the development of imagination as well as initiative.
- It is a valuable tool for producing work, both in terms of content and form.
- It improves students academic performance as their classroom experience also improves substantially.

#### Methodology adopted:

Learning with audio & visual aids.

#### Brief review about the ICT class:

In ICT class, we focused on understanding the concept of the radius of curvature and its practical applications using digital tools. This session aimed to bridge mathematical theory with real-world applications, particularly in fields such as computer graphics and design.

### Photo Gallery:



## Poster Presentation by the Student On Vedic Maths

**Date of the seminar:** 18/03/2023

**Participants:** Students of all streams

**Seminar given by:** Mamatha ,L.Latha-MPCs-III & Aruna-MPC-III

### Objectives:

- Use visuals, such as graphs, charts, and images, to enhance understanding and retention.
- Use creative and appealing design elements to attract and maintain audience interest.
- Practice conveying information clearly and precisely in both visual and verbal forms.
- Develop skills in engaging with the audience and answering questions effectively.
- Enhance academic and professional credentials by showcasing the work

### Methodology adopted:

Activity based learning

### Brief review about the programme:

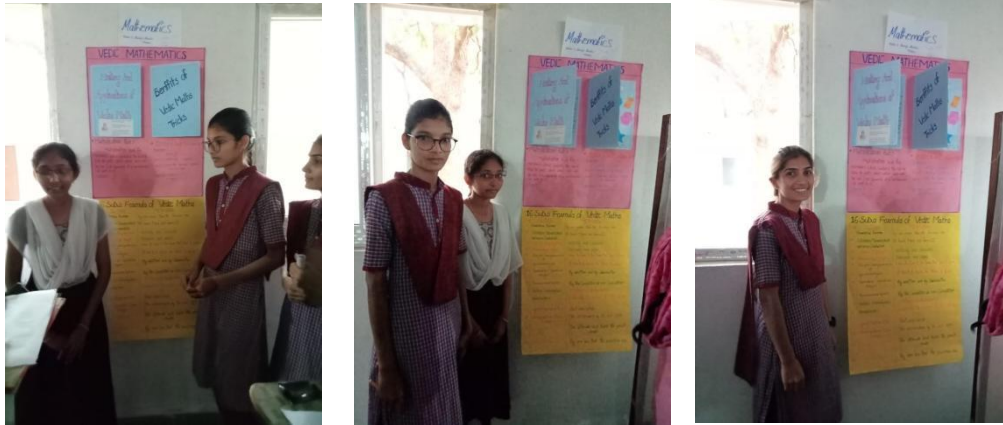
This poster presentation on Vedic Maths provided an insightful overview of ancient Indian mathematical techniques, demonstrating their relevance and applications in modern-day problem-solving. The presentation aimed to introduce the audience to the fundamentals of Vedic Maths and its efficiency in performing arithmetic operations.

The presentation began with a brief history of Vedic Maths, explaining its origins from ancient Indian scriptures known as the Vedas.

The student introduced several key sutras (formulas) of Vedic Maths, such as "Vertically and Crosswise" and "All from 9 and the Last from 10."

Examples of practical applications were presented, demonstrating how Vedic Maths can be used to quickly solve multiplication, division, and other arithmetic problems.

#### Photo Gallery:



#### Student Seminar

#### On the topic Group Theory

**Date of the seminar:** 21/03/2023

**Participants:** MPCs -2<sup>nd</sup> year students

**Seminar given by:** A.Manjula MPCs -2<sup>nd</sup> year

#### Objectives:

- **Knowledge dissemination:** Seminars provide a platform for students to share their research findings, ideas, and insights with peers and faculty members. This dissemination of knowledge promotes academic discourse and intellectual growth within the student community.
- **Skill development:** Presenting a seminar helps students develop essential skills such as public speaking, critical thinking, and effective communication. These skills are invaluable for academic and professional success.
- **Networking opportunities:** Seminars offer students the chance to interact with their peers, faculty members, and professionals in their field of study. These interactions can lead to valuable connections, mentorship opportunities, and collaborations.
- **Feedback and evaluation:** Presenting in a seminar setting allows students to receive feedback on their work from their peers and faculty members. This feedback helps students improve their research, presentation skills, and overall academic performance.

#### Methodology adopted:

Learning with demonstration and examples

**Brief review about the seminar:**

The student seminar on Group Theory, delivered by A.Manjula at TTWRDC (Women's College), Siricilla, introduced basic concepts of types of numbers, Binary operation, Algebraic Structure, Group. She used a multi-dimensional methodology to deliver the concepts, including:

**Visual Demonstrations:** She used charts, Black Board to explain the concept of group Theory.

**Examples:** She explained the concepts by taking the various examples to understand easily for the students.

**Interactive Discussions:** The seminar encouraged active participation from attendees through open discussions, Q&A sessions, and group activities. This interactive approach fostered engagement and allowed students to clarify doubts and deepen their understanding collaboratively.

**Photo Gallery:**



**Feedback of the students:**

- It was very interesting session and she explained the concepts clearly by using charts- Y.Vinika, MPCs -2<sup>nd</sup> year
- We can improve our knowledge in the subject and also communication skills by conducting seminars.- M.Divya, MPCs -2<sup>nd</sup> year.

## Student Seminar

### On the topic Order & Degree of Differential Equations

Date of the seminar: 28/03/2023

Participants: Phy.Sci -I year students

Seminar given by: N.Anjumallika Phy.Sci -I year

#### Objectives:

- Provide a clear definition and understanding of what differential equations are.
- Explain the importance and applications of differential equations in various fields such as physics, engineering, biology, and economics.
- Enhance students' ability to analyze and classify differential equations.
- Develop problem-solving skills by working through examples and exercises.
- Foster interactive discussions by engaging the audience with questions and encouraging participation
- Facilitate peer-to-peer learning by having students explain concepts to each other.

#### Methodology adopted:

Learning with demonstration with examples

#### Brief review about the seminar:

The seminar on "Order & Degree of Differential Equations" aimed to provide a comprehensive understanding of these fundamental concepts in differential equations. The presenter did a commendable job of covering the basics and delving into the complexities of the topic, making it accessible to the audience.

**Clear Definitions:** The presenter began with clear and concise definitions of differential equations, the order of a differential equation, and the degree of a differential equation. This laid a solid foundation for the rest of the seminar.

**Relevance and Examples:** The seminar included relevant examples that illustrated how to determine the order and degree of various differential equations. These examples were well-chosen and helped in solidifying the audience's understanding.

**Clarity and Articulation:** The presenter spoke clearly and at an appropriate pace, which made it easy for the audience to follow along.

**Handling Questions:** The presenter handled audience questions adeptly, providing clear and thorough answers

**Photo Gallery:**



**Feedback of the students:**

Very informative seminar and she explained clearly with good communication skills-  
B.Thrisha Phy.sci-I year.

Presenter was very knowledgeable, offered valuable information and tips-G.Avinasha Phy.sci-  
I year.

**PPT by the student**

**Date of the seminar:** 02/04/2023

**Participants:** Phy.Sci-I year students

**PPT given by:** D.Nandhini Phy.Sci-I year

**Topic:** Applications of First Order & First Degree Differential Equations

**Objectives:**

- Present information clearly and concisely, ensuring that the audience can easily understand and follow the content.
- Use visually appealing design elements, such as images, charts, and graphs, to make the presentation engaging and to illustrate key points effectively.



- Demonstrate proficiency in using PowerPoint or other presentation software, including the integration of multimedia elements like videos and animations to enhance the presentation.

#### Methodology adopted:

Learning with audio & visual aids.

#### Brief review about the Power Point Presentation :

- The presentation provided a comprehensive introduction to first-order and first-degree differential equations, highlighting their importance in various scientific and engineering applications. The content was well-organized and effectively communicated.
- The presentation began with a clear definition of differential equations and specifically focused on first-order, first-degree types.
- It explained why these equations are significant in modeling real-world phenomena, such as population growth and radioactive decay.
- Examples of real-world applications were presented, such as in physics (e.g., cooling laws) and biology (e.g., population dynamics).

#### Photo Gallery:



#### Extension Lecture on PG Orientation

**Date of the seminar:** 13/04/2023

**Participants:** Second & Final year maths stream students

**Lecture given by:** Mr.Madhu Rajesh Asst.Professor in Govt. Degree College, Agraharam

#### Objectives:

- To provide guidance and assistance for the students to achieve their career goals.



- To create awareness among students regarding available career options and help them in identifying their career objectives.

#### Methodology adopted:

Learning with online resources and interactive sessions.

#### Brief review about the Orientation Programme :

The Department of Mathematics organized a career guidance orientation programme to the second & final year Maths stream students. This session was hosted by Mr. Madhu Rajesh Asst.Professor in Govt.Degree College , Agraharam. In this session he explained about the career opportunities in Mathematics. He discussed some previous question papers regarding CUET.He also guided some useful tips to stick to the goals.

#### Photo Gallery:



#### Student Project

#### On Indian Mathematicians and their Inventions

**Participants:** 1.G.Avinasha Phy.Sci-I (H.T.No: 220771044681015)

2.N.Anjumallika Phy.Sci-I (H.T.No: 220771044681025)

3.B.Saswika Phy.Sci-I (H.T.No: 220771044681006)

#### Objectives:

- Provide a comprehensive overview of the contributions of Indian mathematicians throughout history.
- Understand the challenges and obstacles these mathematicians faced in their careers.
- Explore the key inventions, theories, and discoveries made by Indian mathematicians.
- Discuss the impact of these mathematicians' work on the development of mathematics globally.

- Highlight how their contributions are still relevant and used in contemporary mathematical research and applications.

#### Methodology adopted:

Learning by collecting the data

#### Brief review about the project:

The student project on Indian mathematicians and their inventions aimed to explore the rich contributions of Indian scholars to the field of mathematics. It covered a range of mathematicians from ancient to modern times, highlighting their key discoveries, the historical context of their work, and the lasting impact of their contributions.

**Comprehensive Coverage:** The project provided a thorough overview of several prominent Indian mathematicians, including Aryabhata, Brahmagupta, Bhaskara II, and Srinivasa Ramanujan. Each mathematician's background, major contributions, and impact were well-documented.

**Historical Context:** The project effectively placed each mathematician's work in its historical context, explaining how the social and scientific environments of their times influenced their discoveries.

**Engaging Visuals:** The use of well-designed slides, photographs, enhanced the presentation and helped illustrate key points effectively.

**Well-Organized:** The project was well-organized with a logical flow of information from historical context to individual contributions and modern applications.

**Positive Learning Environment:** The presenters created a supportive and engaging atmosphere, encouraging questions and active participation from the audience.

#### Photo Gallery:

A Project Report  
on  
"Indian Mathematicians and Inventions"  
Submitted by  
G.Avinasha (230771044681015)  
N.Anjumalika(230771044681025)  
B.Saswika(230771044681006)

Under the guidance  
OF  
N.Shalaja, M.Sc, SET, (PhD)  
HOD, Department of Mathematics



Department of Mathematics  
Telangana Tribal Welfare Residential Degree College(W), Rajanna Siricilla,  
(Affiliated to Satavahana University)  
Academic year (2022-23)

**DECLARATION**

I hereby declare that the project report titled " **Indian Mathematicians and Inventions**" have completed successfully towards the partial fulfillment for the award of the degree "BACHELOR OF SCIENCE from "TELANGANA TRIBAL WELFARE RESIDENTIAL DEGREE COLLEGE FORWOMEN, RAJANNA SIRICILLA. This is the bonafide work undertaken by me which is not submitted to any other university or institution for the award of any degree / diploma.

Date: 16-3-2023

Place: Thangallapally

G. Avinasha(230771044681015)

N.Anjumalika(230771044681025)

B.Saswika(230771044681006)

Tribal Welfare Residential Degree College for Women, Thangallapally, Rajanna  
Siricilla  
(Affiliated to Satavahana University)

**CERTIFICATE**

This is to certify that the project report title " **Indian Mathematicians and Inventions**" submitted in partial fulfillment for the award of degree of B.Sc. programme of Department of Mathematics was carried out by G.Avinasha(230771044681015),N.Anjumalika(230771044681025),B.Saswika(230771044681006). This has not been submitted to any other institute or university for the award of any degree.

Signature of the guide  
(N.Shalaja)

Signature of the student

**Project Report on Indian Mathematicians and Inventions**

**Aim:**  
To know the contributions of Indian Mathematicians

**Objective of the project:**

The objective of the project on Indian mathematicians and their inventions is to explore,document,and highlight the significant contributions of Indian mathematicians throughout history and their impact on the development of mathematical thought.

**Project Overview:**

1851-1920 (1876-1920 CE)

- India system notation
- Contributions of pi
- Trigonometry
- Zero value system
- Zero
- Fibonacci series
- Indian astronomer and mathematician
- Aryabhata is the father of Indian Mathematics



1887-1920 (1887-1920 CE)

- Single Proof subtraction
- Trigonometric proof
- Theorem on sum of two squares
- Related fractions
- He was the first to use zero as a number. He gave rules to compare with zero.



1896-1956 (1956 CE)

- Bhaskara II was an Indian mathematician and astronomer.
- He discovered some of the basic concepts of calculus, even before the European calculus and Newton.



➤ Bhaskara also established that division by zero yields infinity, and solved various quadratic, cubic, quartic and Diophantine equations.

1887-1920 (1887-1920 CE)

- Mathematical analysis
- Infinite series,
- Continued fractions,
- Number theory, and
- Game theory is recognized as one of history's greatest mathematicians.



➤ Bhaskara also established that division by zero yields infinity, and solved various quadratic, cubic, quartic and Diophantine equations.

**SRINIVASA RAMANUJAN (1887-1920)**

- Mathematical analysis
- Infinite series,
- Continued fractions,
- Number theory, and
- Game theory is recognized as one of history's greatest mathematicians.



**NARENDRA KARMARKAR (BORN 1956)**

- He invented one of the first provably polynomial time algorithms for linear programming.
- Karmarkar developed Karmarkar's algorithm. He is listed as an ISI



**Conclusion:**

The conclusion of Mathematicians of India or from outside is that the mathematicians had given a way to all of us to solve the mathematics by using their formulas,theorems,postulates and many more tricks. They had done many things for us to create our future with maths because it is a straight way,if you go long you will reach early and safely.

## ACADEMIC YEAR: 2021-2022

### E-Quiz

Date : 2/11/2021

Participants: All maths stream students of TTWRDC

#### Objectives:

During the COVID-19 pandemic, E-Quizzes (electronic quizzes) became an essential tool in education, addressing various challenges posed by the shift to online learning. Here are the key objectives of implementing E-Quizzes during this period:

- Ensure the uninterrupted assessment of students' knowledge and understanding despite the transition to remote learning.
- Keep students engaged and motivated in an online learning environment.
- Improve students' and teachers' proficiency with digital tools.

#### Methodology adopted:

Learning with online resources, Q & A

#### Brief review about the Quiz:

An E-Quiz on differential equations can be a valuable tool for assessing and reinforcing students' understanding of this important mathematical topic.

- The quiz should comprehensively cover key topics within differential equations, such as first-order and second-order differential equations, methods of solving them (e.g., separation of variables, integrating factors), and applications.
- · The quiz should align with specific learning objectives, such as understanding the order and degree of differential equations, solving linear and nonlinear equations, and applying differential equations to real-world problems.
- · A user-friendly interface that is easy to navigate ensures that students can focus on the content without being hindered by technical difficulties.

#### Photo Gallery:

CHOOSE THE CORRECT ANSWER FOR THE FOLLOWING

- 1) Integrating factor of  $y(xy^2dx + (x^2y - y^3)dy) = 0$  is [ ]  
a)  $\log x$  b)  $-\log y$  c)  $2xy$  d)  $-2xy$
- 2) Integrating factor of  $xy(1+xy)^{\frac{2}{3}} - 1$  is [ ]  
a)  $e^{xy}$  b)  $e^{-xy}$  c)  $xy^2$  d)  $e^x$
- 3) The orthogonal Trajectories of the family of parabolas is  $y^2 = 4ax$  is [ ]  
a)  $x^2 + 2y^2 = c$  b)  $2x^2 + y^2 = c$  c)  $x^2 + y^2 = c$  d)  $x^2 - y^2 = c$
- 4) The General Solution of  $(1 + 2y \cos x^2 - 2xy)dx + (\sin x^2 - y^2)dy = 0$  is [ ]  
a)  $x + y \sin x^2 - y^2 = c$  b)  $x + y \cos x^2 - y^2 = c$  c)  $x + y \sin^2 x^2 = c$  d) None
- 5) Integrating factor of  $(1 + y)dy + (1 - x)dy = 0$  is [ ]  
a)  $\frac{1}{xy}$  b)  $\frac{1}{x^2y}$  c)  $\frac{1}{2xy^2}$  d)  $\frac{1}{xy^2}$
- 6) The Orthogonal Trajectories of  $r = c \cos \theta$  is [ ]  
a)  $r = b(1 - \cos \theta)$  b)  $r = b(1 + \cos \theta)$  c)  $r = b \cos \theta$  d) None
- 7) The General Solution of  $p \sin y - qy$  is [ ]  
a)  $y = c + \sin^{-1} x$  b)  $y = c - \sin^{-1} x$  c)  $y = c + \sin^{-1} c$  d) None
- 8) The General Solution of  $\frac{dy}{dx} + \frac{y}{x} = x + 1$  is [ ]  
a)  $x + (c + x^2)e^x$  b)  $1 - (c + x^2)e^{2x}$  c)  $x + c e^{2x} + c x^2 e^{2x}$  d)  $1 + c e^{2x} + c x^2 e^{2x}$

- a)  $e^x$  b)  $e^x(x-1)$  c)  $e^x(x-1)^2$  d)  $e^x(x-1)^3$
- 20) The order and Degree of the differential equation  $\left[1 + \frac{dy}{dx}\right]^2 - 1 + x \frac{d^2y}{dx^2}$  are respectively [ ]  
a) (2,2) b) (4,6) c) (1,1) d) (3,2)
- 21)  $\frac{1}{x^2 + 2x + 1} dx =$  [ ]  
a)  $\sin x$  b)  $\cos x$  c)  $-\cos x$  d)  $\frac{\sin x}{x}$
- 22) The Differential Equation having the solution  $y = A \cos x + B \sin x$  is [ ]  
a)  $\frac{d^2y}{dx^2} - 2 \frac{dy}{dx} - 2y = 0$  b)  $\frac{d^2y}{dx^2} + 2y = 0$  c)  $\frac{d^2y}{dx^2} - 4y = 0$  d)  $\frac{d^2y}{dx^2} + 4 \frac{dy}{dx} = 0$
- 23) Integrating factor of  $\frac{dy}{dx} - \frac{y}{x} = \frac{1}{x^2}$  is [ ]  
a)  $\log x$  b)  $\frac{1}{x}$  c)  $x$  d)  $x^2$
- 24) The No. of arbitrary constants in the general solution of a fourth order differential equation is [ ]  
a) 4 b) 3 c) 2 d) 1
- 25) The Auxiliary equation of the Differential equation  $(y'' + 4y' + 2y) = x \log x$  is [ ]  
a)  $m^2 - 2m + 2 = 0$  b)  $m^2 + 2m - 2 = 0$  c)  $m^2 - 2m - 2 = 0$  d)  $m^2 + 2m + 2 = 0$
- 26) The degree of  $y \cos\left(\frac{dy}{dx}\right)$  is [ ]  
a) 0 b) 1 c) 2 d) undefined
- 27) The complete Solution of the simultaneous equation  $\frac{dy}{dx} = \frac{y}{x} = \frac{dy}{dx}$  is [ ]  
a)  $y = c_1 + y^2 c_2$  b)  $\frac{y}{x} = c_1 - \frac{c_2}{y}$  c)  $x^2 y^2 + c_1 y^2 - 2c_2 = 0$  d)  $x^2 y^2 + 2c_1 y^2 + c_2 = 0$

## Cognitive Test

**Date:** 19/12/2021

**Participants:** Three years students of all streams

**Objectives:**

- It effectively measures the candidates problem-solving and critical reasoning capabilities.
- It assess the abilities involved in thinking.

**Methodology adopted:**

Learning by doing

**Brief review about the test:**

The cognitive test administered to students focused on assessing their abilities in reasoning and arithmetic. The objective was to evaluate their logical thinking, problem-solving skills, and numerical proficiency.

The test covered a wide range of topics in both reasoning and arithmetic, providing a thorough assessment of the students' capabilities.

A mix of multiple-choice and open-ended questions helped in evaluating different aspects of cognitive skills.

**Photo Gallery:**



## Student Project

### On Applications of Differential Equations

**Participants:** 1. Y. Vinika (H.T.No:210771044681018)

2. B. Akhila (H.T.No:210771044681003)

3. B. Sandhya (H.T.No:210771044681004)

#### Objectives:

- The objectives of a project on the applications of differential equations aim to explore and demonstrate how these mathematical concepts are used to model and solve real-world problems across various fields. Here are some key objectives:
- Develop a solid understanding of the different types of differential equations, including ordinary differential equations (ODEs) and partial differential equations (PDEs), and their basic properties.
- Identify and select real-world problems or phenomena that can be modeled using differential equations. Examples may include population dynamics, chemical reactions, mechanical systems, electrical circuits, fluid dynamics, and more.
- Effectively communicate the project findings through written reports, presentations, and visualizations. Clearly articulate the problem statement, methodology, results, and conclusions to diverse audiences.

#### Methodology adopted:

Learning by collecting the data

#### Brief review about the project:

Differential equations are a fundamental part of many scientific disciplines and have a wide range of applications in student projects across various fields. Here are some common applications and project ideas:

### Population Dynamics

- **Project Idea:** Modeling the growth of a population using the logistic differential equation.
- **Description:** Students can use differential equations to simulate population changes over time, considering factors such as birth rates, death rates, and carrying capacity.

### Epidemiology

- **Project Idea:** Studying the spread of infectious diseases with the SIR model (Susceptible-Infectious-Recovered).
- **Description:** By applying differential equations, students can model the transmission dynamics of diseases, predict outbreak trends, and evaluate the impact of vaccination or quarantine measures.

### Physics and Engineering

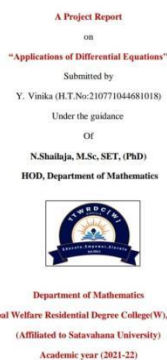
- **Project Idea:** Analyzing harmonic oscillators, such as pendulums or spring-mass systems.
- **Description:** Projects can involve solving second-order linear differential equations to understand the motion of physical systems, damping effects, and resonance phenomena.

### 5. Economics

- **Project Idea:** Examining economic growth models, such as the Solow growth model.
- **Description:** Differential equations can help students understand how variables like capital, labor, and technology affect the growth rate of an economy.



## Photo Gallery:



## Student Seminar

### On the topic Order & Degree of Differential Equations

Date of the seminar: 22/04/2022

Participants: MPCs -I year students

Seminar given by: Y.Vinika MPCs-I year

#### Objectives:

A student seminar has several key objectives, which aim to enhance the educational experience, develop essential skills, and foster a collaborative learning environment. Here are the primary objectives:

- Deepen students' knowledge and understanding of specific topics.
- Improve public speaking and presentation abilities.
- Enhance teamwork and collaborative skills.
- Facilitate knowledge sharing and peer learning.
- Improve research and information-gathering skills.
- Boost self-confidence and self-esteem.

#### Methodology adopted:

Learning with demonstration with examples

#### Brief review about the seminar:

A student seminar on the "Order and Degree of Differential Equations" can serve as an essential component of a mathematics curriculum. Here's a brief review highlighting key aspects:

Introduction to Differential Equations:

- The seminar should start with a concise introduction to differential equations, explaining their definition, types (ordinary vs. partial), and importance in various fields like physics, engineering, and economics.

Order of Differential Equations:

- Clearly defining the order of a differential equation as the highest derivative present is crucial.

Degree of Differential Equations:

- Defining the degree of a differential equation as the power of the highest derivative, provided the equation is polynomial in derivatives, is essential.

Photo Gallery:



## ACADEMIC YEAR: 2020-2021

### Teaching using ICT tools

**Date:** 05/12/2020

**Participants:** MPCs & MPC-II(3rd Sem) year students

**Topic:** Convergence & Divergence of a series

**Lecture Given by:** N.Shailaja

#### Objectives:

The objectives of an Information and Communication Technology (ICT) class during the COVID-19 pandemic are crucial in adapting to the new educational landscape and ensuring continued learning and development. Here are the key objectives:

- Maintain the continuity of education through remote learning.
- Improve students' digital literacy and proficiency with technology.
- Educate students about cyber security and safe internet practices.
- Encourage self-directed and independent learning.
- Enable effective online communication and collaboration.

#### Methodology adopted:

Learning with audio & visual aids

#### Brief review about the Lecture:

An ICT class focused on the convergence and divergence of a series in a highly effective way to teach these critical mathematical concepts using technology.

#### Introduction to Series:

- Starting with a basic introduction to sequences and series helps lay the foundation. This includes defining key terms such as sequence, series, partial sums, convergence, and divergence.

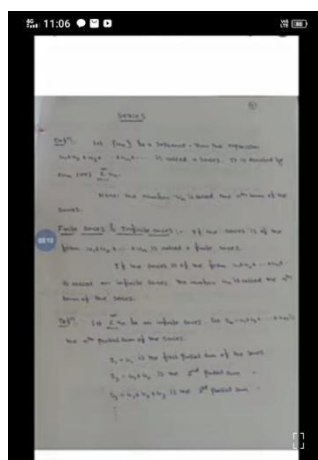
Detailed Explanations:

- Providing detailed explanations of criteria for convergence and divergence (e.g., comparison test, ratio test, root test) with step-by-step examples enhances understanding.

Class Link:

<https://youtu.be/w6CcdZbkKog?si=4Sw4h1wnfXnWwtr8>

Photo Gallery:



Real Analysis Topic:Series for MPC & MPCs-II (Sem-III) .Lecture1

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## Teaching using ICT tools

Date: 06/05/2021

Participants: MPCs & MPC-II(4th Sem) year students

Topic: Defination of Group & its properties

Lecture Given by: N.Shailaja

Objectives:

During the COVID-19 pandemic, ICT (Information and Communication Technology) classes became pivotal in adapting to new educational challenges. Here are the key objectives of an ICT class during this period:

- Maintain the continuity of teaching and learning despite physical school closures.
- Improve students' proficiency with digital tools and technology
- Enable students to communicate and collaborate effectively in a virtual environment.
- Expand students' access to global educational resources.

#### Methodology adopted:

Learning with audio & visual aids

#### Brief review about the Lecture:

The lecture on "Group & Its Properties" delivered through ICT (Information and Communication Technology) tools in effective and engaging way to teach abstract algebra concepts.

#### Introduction to Groups

The lecture consisting of a clear introduction to the concept of groups in abstract algebra, including definitions, examples, and the importance of groups in mathematics.

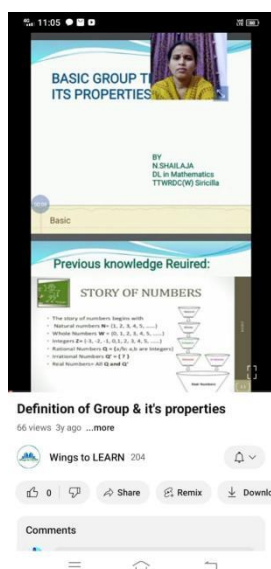
#### Group Properties

Detailed explanations of group properties (closure, associativity, identity element, and inverse element) with illustrative examples help in solidifying understanding.

#### Class Link:

<https://youtu.be/HHEsKi4uT6A?si=WlgWOAvBS04ahyDI>

## Photo Gallery:



## PPT Presentation by the Student

**Date:** 09/05/2021

**Participants:** MPCs & MPC-II(4th Sem) year students

**Topic:** Definition of Group & its properties

**Presentation Given by:** D.Gayathri(MPCs-II)

### Objectives:

During the COVID-19 pandemic, student presentations using PowerPoint (PPT) became an important part of remote learning. Here are the key objectives of such presentations:

- Improve students' verbal and written communication abilities.
- Enhance students' proficiency with digital tools and technology.
- Promote active participation and engagement in the learning process.
- Develop students' critical thinking and problem-solving skills.
- Encourage independent learning and self-motivation.
- Enhance students' ability to organize information and plan effectively.
- Assess students' understanding and ability to apply knowledge.

## Methodology adopted:

Learning with audio & visual aids

## Brief review about the Presentation:

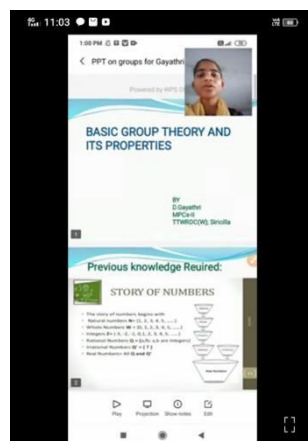
PowerPoint (PPT) presentation given by D.Gayathri on basic group theory and its properties in a powerful way to convey complex mathematical concepts.

- She has given a clear and concise introduction to the definition of a group, including basic concepts such as sets, operations, and the importance of group theory in mathematics.
- She presented detailed slides explaining the fundamental properties of groups—closure, associativity, identity element, and inverse element—with illustrative examples.
- She organized the presentation with a logical flow, starting from basic definitions to more complex properties, helps in building understanding step-by-step.

## Class Link:

<https://youtu.be/dbFv57-cQEU?si=PE-5aW9nDReJ1Ua3>

## Photo Gallery:



Lecture by D. Gayathri from Bsc MPCs 2nd year.

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Wings to LEARN 204

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## Teaching using ICT tools

**Date:** 10/05/2021

**Participants:** MPCs & MPC-II(4th Sem) year students

**Topic:** Rings & Fields

**Lecture Given by:** S.Anusha

**Objectives:**

During the COVID-19 pandemic, online classes became essential to continue education despite physical school closures. Here are the key objectives of online classes during this period:

- Maintain uninterrupted learning experiences for students despite the challenges posed by the pandemic.
- Improve students' proficiency with digital tools and technology.
- Encourage independent learning and self-motivation.
- Protect the health and safety of students and staff by reducing physical interactions.

**Methodology adopted:**

Learning with audio & visual aids

**Brief review about the Lecture:**

The COVID-19 pandemic significantly impacted education, leading to a swift transition to online learning. Teaching abstract mathematical concepts like rings and fields during this period presented unique challenges and opportunities.

**Introduction to Rings & Fields:**

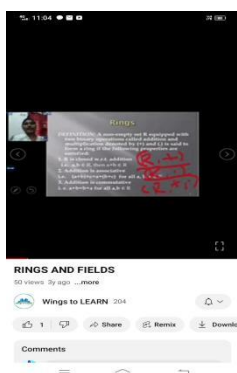
- Definition and Examples: Introduced rings with formal definitions and basic examples, such as integers, polynomials, and matrices.
- Explained about types of Rings.

- Introduced Fields with definition and basic examples such as integers, rational numbers etc.
- Explained about zero divisors & Non-zero divisors of a ring.

Class Link:

<https://youtu.be/Aqu-t8tdptA?si=jJTLhkr4yPEVXTf>

Photo Gallery:



## Teaching with ICT tools through Zoom platform

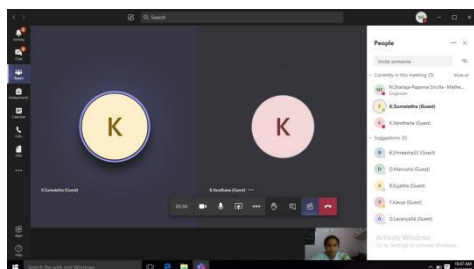
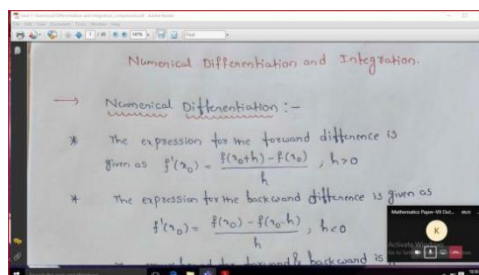
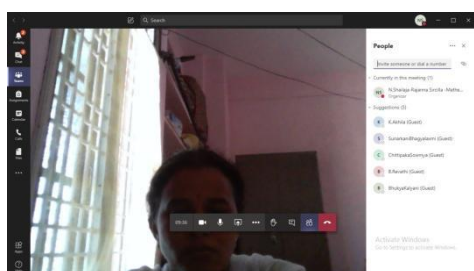
**Objectives:**

- During the COVID-19 pandemic, Zoom classes became an essential tool for continuing education while maintaining social distancing. The objectives of Zoom classes during this period can be summarized as follows:
- Provide a platform for ongoing education despite physical school closures.
- Allow students to attend classes from any location, ensuring that education is accessible regardless of geographic constraints
- Minimize the risk of virus transmission by eliminating the need for physical attendance.
- Record sessions to allow students to learn at their own pace and revisit challenging material.

**Brief review about the classes:**

In COVID-19 the Department of Mathematics conducted online classes daily to all the students through Zoom platform to overcome the difficulties in this pandemic situation. This is very useful in this time to complete the syllabus as per the university guidelines. With these sessions students benefited in their academics in the pandemic situation.

## Photo Gallery:



## ACADEMIC YEAR: 2019-2020

### Student Seminar

#### On the topic Order & Degree of Differential Equations

Date of the seminar: 10/02/2020

Participants: MPC & MPCs -I year students

Seminar given by: B.Pallavi MPCs -I year

#### Objectives:

- Seminars encourage active participation from students rather than passive listening.
- Seminars allow for in-depth exploration of topics beyond what is possible in traditional lectures.
- It promote collaboration among students as they work together to explore complex topics and solve problems.

#### Methodology adopted:

Learning with demonstration with examples

#### Brief review about the seminar:

This seminar provided an in-depth look at the concepts of order and degree in differential equations. The presentation was well-structured, informative, and demonstrated a good understanding of the top.

The seminar began with a clear definition of differential equations, setting the stage for discussing order and degree.

It highlighted the relevance of understanding order and degree in solving differential equations and their applications in various fields.

The presenter provided examples comparing the order and degree, reinforcing the differences and their significance.

### Photo Gallery:



