

# Faculty Research Publication

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## The Flipped Classroom: An Innovative Pedagogical Approach for 21st Century Learning

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**Abstract:** The flipped classroom model has emerged as one of the most transformative instructional strategies of the 21st century, redefining the traditional teacher-centered paradigm. By inverting the sequence of teaching and learning—where students first explore new concepts outside the classroom and then apply them actively in class—the flipped classroom promotes engagement, critical thinking, and learner autonomy. This article explores the theoretical foundations, implementation practices, advantages, challenges, and outcomes associated with the flipped classroom. Additionally, it includes reflective insights from a teacher's perspective, supported by research evidence and practical recommendations for educators seeking to adopt this approach. The analysis concludes that when properly planned and supported, the flipped classroom not only enhances academic performance but also nurtures lifelong learning skills and digital literacy.

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### I. INTRODUCTION

The landscape of education has evolved dramatically in recent decades, driven by advances in technology, changing student needs, and a growing emphasis on active learning. The flipped classroom—rooted in constructivist and blended learning principles—has gained prominence as an effective means of increasing student engagement and deepening understanding.

Traditionally, classrooms have followed a direct-instruction model: teachers lecture during class, and students complete practice or homework independently. In contrast, the flipped classroom reverses this process. Students are introduced to new material through videos, readings, or online resources before class, and classroom time is devoted to active learning such as discussions, problem-solving, and collaborative projects. This model aligns with Bloom's revised taxonomy, shifting lower-order cognitive tasks outside class, while higher-order thinking skills are emphasized in class.

The purpose of this article is to examine the flipped classroom as both an academic concept and a practical teaching strategy, integrating theory, reflection, and empirical evidence.

### II. REVIEW OF LITERATURE

The flipped classroom draws heavily on constructivist and social learning theories, emphasizing that learners

construct knowledge through active participation and interaction. Vygotsky's Zone of Proximal Development highlights the importance of guided learning—precisely what the flipped model facilitates through in-class collaboration and teacher support.

The term "flipped classroom" gained attention in the late 2000s, popularized by Jonathan Bergmann and Aaron Sams, high school chemistry teachers who recorded lectures for absent students. Their model quickly evolved into a global movement promoting personalized, student-centered learning.

Research by Bishop and Verleger (2013), Herreid and Schiller (2013), and O'Flaherty and Phillips (2015) demonstrates that flipping increases engagement, motivation, and performance. However, effectiveness depends on design quality, infrastructure, and student preparedness.

### III. METHODOLOGY

This article adopts a qualitative reflective research approach, integrating academic review with teacher experiences. Data and reflections are derived from teaching sessions conducted using a flipped model, including instructional videos, group discussions, and case-based learning. Feedback was collected through observation and student reflection forms.

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### IV. IMPLEMENTATION OF THE FLIPPED CLASSROOM

Successful implementation begins with thoughtful curriculum planning. Teachers must identify learning outcomes, select digital materials, and prepare in-class activities that encourage critical thinking.

Pre-class learning occurs asynchronously using platforms like Google Classroom or Moodle. In-class sessions then transform into interactive environments emphasizing discussion, peer collaboration, and problem-solving. Finally, post-class reflection through quizzes or portfolios helps consolidate learning.

#### ➤ Advantages:

The flipped classroom enhances active learning, personalized pacing, teacher-student interaction, motivation, and the development of 21<sup>st</sup> century skills such as digital literacy and collaboration.

#### ➤ Challenges:

Challenges include limited technology access, student resistance, increased teacher workload, and the need for new assessment methods. The quality of digital materials also significantly affects success.

#### ➤ Reflective Insights:

Implementing the flipped classroom was challenging initially, as students resisted the shift in responsibility. However, over time they became more engaged and vocal. Preparing video lessons required effort, but classroom discussions became richer. One example was a science experiment where students pre-watched videos, then designed their own variations—demonstrating inquiry and creativity.

### V. DISCUSSION

The flipped classroom challenges traditional roles and aligns with 21<sup>st</sup> century frameworks emphasizing creativity and collaboration. Sustainability requires systemic support—teacher training, infrastructure, and assessment reform. Universal Design for Learning (UDL) principles can make flipped models inclusive.

### VI. RECOMMENDATIONS

- Conduct teacher training in digital content creation.
- Provide institutional and technical support.
- Orient students to self-regulated learning.
- Use blended evaluation methods.
- Encourage collaborative resource sharing.
- Involve parents and administrators for support.

### VII. CONCLUSION

The flipped classroom represents a major shift toward learner-centered education. Despite challenges, it promotes active learning, curiosity, and lifelong skills. When

implemented thoughtfully, it becomes a transformative pedagogical model that empowers both teachers and learners.

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The **Department of Humanities and Sciences** is pleased to announce a notable research achievement by its faculty members **Dr. A. Pavani** and **Mr. K. Naresh**, Department of English, who have published a research paper entitled "**The Flipped Classroom: An Innovative Pedagogical Approach for 21st Century Learning.**" The paper was published in the reputed journal **International Journal of Innovative Science and Research Technology** during the month of **November 2025**.



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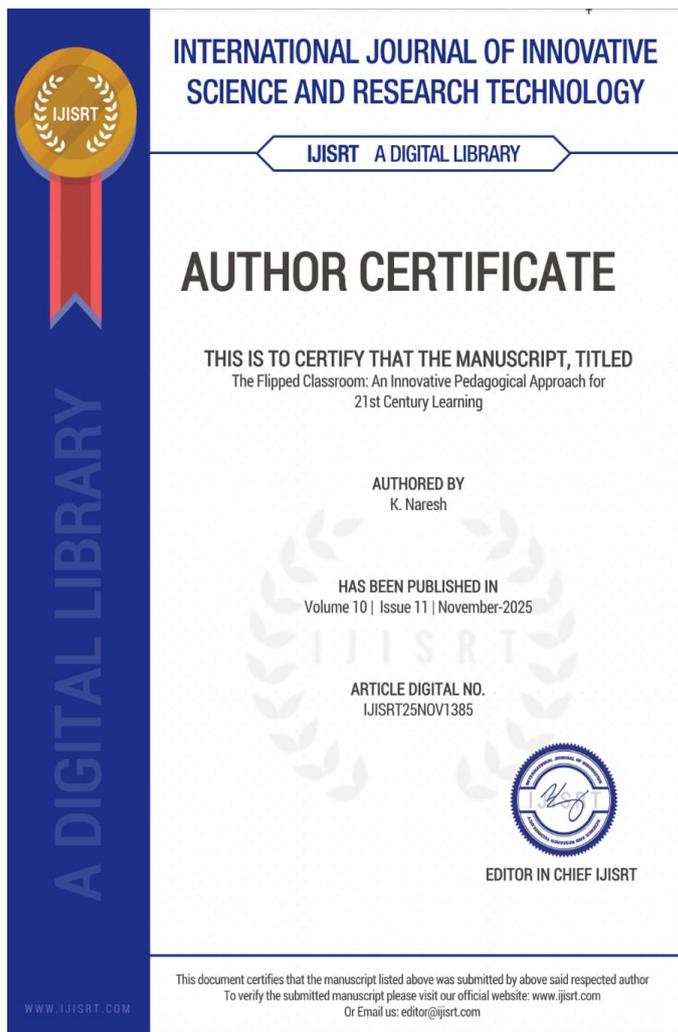
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The research highlights modern teaching methodologies and emphasizes the effectiveness of the flipped classroom model in enhancing student engagement, critical thinking, and active learning. As a recognition of their scholarly contribution, the authors were awarded **Author Certificates** by the journal. This achievement reflects their commitment to academic innovation and research excellence. The Department of Humanities and Sciences congratulates **Dr. A. Pavani and Mr. K. Naresh** on this commendable accomplishment and appreciates their valuable contribution to strengthening the institution’s research culture and teaching practices.

# Awareness Programme on *NCC* for First-Year Students

An awareness programme on the **National Cadet Corps (NCC)** was conducted for the first-year students on **10th December 2025** with the objective of introducing them to the values, opportunities, and benefits of NCC. The programme was organized by the senior NCC cadets along with the NCC faculty members, who took the initiative to guide and motivate the new students. The session aimed to create awareness about the role of NCC in shaping disciplined, responsible, and confident individuals.



During the programme, the senior students and NCC faculty members elaborated on the **structure, objectives, and activities of NCC**, highlighting how participation helps in developing leadership qualities, teamwork, discipline, and a sense of national service. They also explained the various **benefits of joining NCC**, including physical fitness, character building, opportunities for camps and certificates, and advantages in higher education and career prospects. The session effectively motivated the first-year students, encouraging many of them to show interest in enrolling in NCC and becoming part of this prestigious organization.

# Parent-Teacher Meeting for First-Year Students

The **Parent-Teacher Meeting (PTM)** for **first-year students** was successfully conducted on **11th December 2025** at PVKKIT with the objective of strengthening communication between parents, faculty, and the institution. In preparation for the meeting, all mentors proactively contacted parents well in advance. **Two weeks prior to the PTM**, mentors personally called each parent and also sent **individual WhatsApp messages** as reminders, ensuring maximum participation and awareness about the meeting.



The meeting was graced by the esteemed presence of **Dr. Palle Venkata Krishna Kishore, Chairman, Mr. Sreekanth Reddy, Management Representative, Dr. B. Ramesh Babu, Principal, Dr. P. Deepthi Jordhana, Vice Principal, and Dr. T. Lakshmi Narassappa, Head of the Department of Humanities and Sciences.** The dignitaries interacted with parents and emphasized the institution's commitment to academic excellence, discipline, and holistic student development. Their interaction provided clarity on institutional policies and reinforced the importance of parental involvement in students' academic progress.

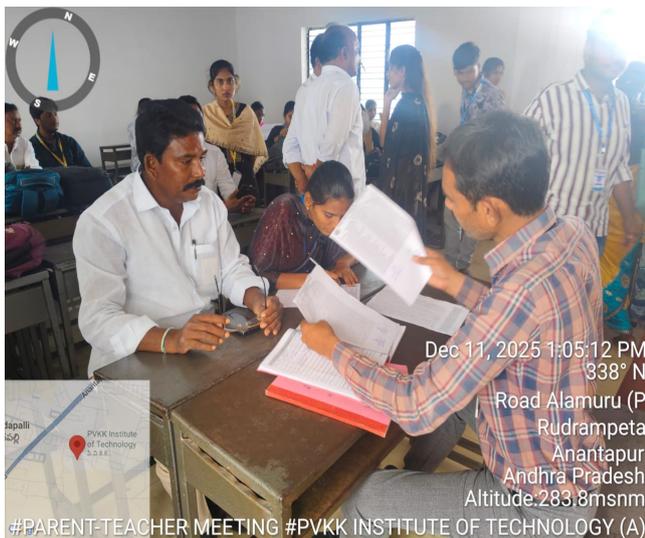
DECEMBER 2025



The PTM witnessed an **overwhelming response**, with **more than 255 parents** attending the meeting. To ensure comfort and hospitality, **refreshments including tea and snacks** were arranged for all parents. The organized arrangements and warm reception contributed to a positive and engaging atmosphere throughout the session.



After the general interaction, parents were guided to their respective children’s classrooms, where they met the **class mentors individually**. During these interactions, mentors explained the **students’ attendance percentage from September to November**, clarified academic performance, and addressed parental concerns. Parents were clearly informed about the **attendance rules of PVKKIT**, emphasizing that students with **less than 80% attendance would not be permitted to write the semester examinations** and would **not be eligible for promotion to the second year**, as per institutional regulations. Mentors also displayed the **MID-I examination marks**, enabling parents to gain a clear understanding of their children’s academic standing.



The meeting concluded on a cordial and satisfactory note, with parents appreciating the transparency and guidance provided by the institution. As a gesture of hospitality, lunch was arranged for all parents after the completion of the meeting. The Parent-Teacher Meeting proved to be highly effective in fostering collaboration between parents and faculty, reinforcing discipline, and supporting students’ academic success.

DECEMBER 2025

# Successful Completion of NCC Mixed Battalion Enrollment

The institution is pleased to announce the successful completion of the enrollment process for the new NCC Mixed Battalion batch. Following a systematic selection process, 22 Senior Division (SD) cadets and 11 Senior Wing (SW) cadets have been officially selected, reflecting strong interest and active participation from students across the campus.



In addition to the selected cadets, **11 students have been placed on the reserve list** to accommodate any future vacancies. The completion of this enrollment marks an important step in strengthening NCC activities within the institution. The college congratulates all the selected cadets and encourages them to uphold the core values of **discipline, leadership, unity, and national service** as they begin their journey with the NCC.



# Faculty Participation in FDP on Application of AI to Power Systems

The Department of Humanities and Sciences is pleased to highlight the participation of its faculty members in a six-day Faculty Development Programme (FDP) titled "Application of Artificial Intelligence to Power Systems," organized by Avanthi Institute of Engineering and Technology from 1st December to 6th December 2025. The programme aimed to enhance interdisciplinary knowledge by integrating artificial intelligence techniques with modern power system applications



The FDP offered valuable insights into emerging AI-driven technologies, smart grids, and predictive analysis in power systems. The participating faculty members—**Dr. T. Lakshmi Narasappa, Dr. A. Pavani, Dr. K. Gayathri Devi, Mr. K. Naresh, and Ms. G. Lakshmi Bhavani**—actively engaged in the sessions, reflecting their commitment to continuous professional development and innovative academic practices. The Department appreciates their initiative in strengthening teaching quality and research awareness through such advanced learning opportunities.

DECEMBER 2025

# Appointment of Head and Deputy Heads – Department of Humanities and Sciences

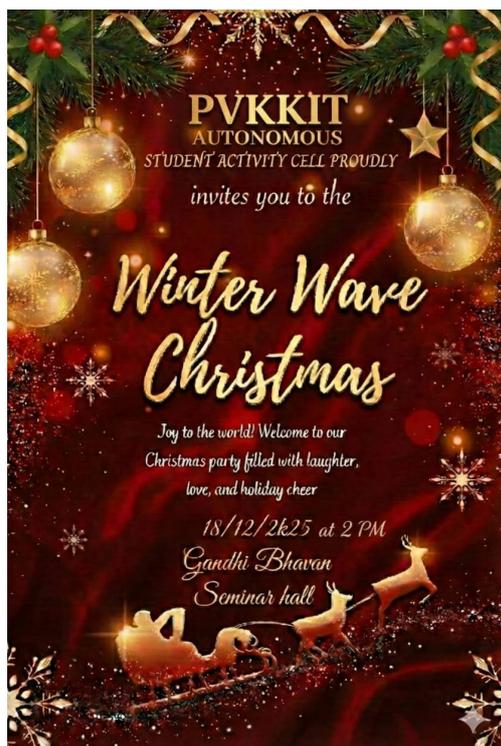
The **Management of PVKKIT** is pleased to announce the appointment of **Dr. T. Lakshmi Narasappa** as the **Head of the Department (HOD), Humanities and Sciences**, with effect from **16th December 2025**. In addition, **Dr. M. Vasudeva Reddy** and **Dr. A. Pavani** have been appointed as the **Deputy Heads of the Department of Humanities and Sciences**.



These appointments reflect the Management's confidence in their academic leadership, experience, and commitment to institutional growth. The college community extends its congratulations to **Dr. T. Lakshmi Narasappa, Dr. M. Vasudeva Reddy, and Dr. A. Pavani**, and wishes them continued success in their new roles as they lead the department toward excellence in teaching, research, and academic administration.

# Winter Wave Christmas Celebration – A Pre-Christmas Festive Gathering

PVKKIT joyfully celebrated “**Winter Wave Christmas,**” a **Pre-Christmas celebration,** on **Thursday, 18th December 2025,** from **2:00 PM onwards** at the **Gandhi Bhavan Seminar Hall.** The event brought together students, faculty members, and staff, creating an atmosphere filled with warmth, joy, and festive cheer. The celebration reflected the true spirit of Christmas, promoting unity, love, and togetherness within the campus community.



The program featured a variety of engaging performances, including a meaningful **Nativity Skit**, melodious **Christmas carols**, soul-stirring **special songs**, and enchanting **live keyboard music** that set the festive mood. A special appearance by **Santa Claus** added excitement and delight, spreading happiness among the audience. The celebration concluded with a joyful **cake-cutting ceremony**, leaving everyone with cherished memories and a renewed sense of holiday spirit.

# Celebration of National Mathematics Day

The **Department of Humanities and Sciences** celebrated **National Mathematics Day** on **22nd December 2025** with great enthusiasm and academic spirit. The programme was organized by the Mathematics faculty with the guidance and support of **Dr. T. Lakshmi Narassappa, Head of the Department, H&S**, aiming to highlight the importance of mathematics and to honor the legacy of the legendary mathematician **Srinivasa Ramanujan**. The event was graced by the esteemed presence of the **Chairman, Dr. B. Ramesh Babu, Principal, Dr. P. Deepthi Jordhana, Vice Principal**, and **Dr. K. Manohar Reddy, Administrative Officer**, whose participation added dignity to the celebration.

**AUTONOMOUS**

S B E S  
P V K K  
I T  
H & S

PVKK  
INSTITUTE OF TECHNOLOGY

You are cordially invited to  
**NATIONAL MATHEMATICS DAY**  
22-12-2025

Events: Venue: Seminar Hall, Gandhi Bhavan @ 10:30 AM

Chief Guest  
Prof. K. Jayalakshmi  
Professor of Mathematics  
JNTUA, Anantapur

Quiz  
+ Quiz team limits 3-Members  
+ Painting / Drawing on Charts, it limits 2-Members  
+ Short Films duration: 5-6 mts  
Reel duration: 1-2 mts

Painting / Drawing

Short Film / Reel  
Attractive Prizes are awaited

Department of Humanities & Sciences

As part of the event, **three competitive activities—Drawing Competition, Quiz Competition, and Reels/Short Film Competition**—were conducted in advance to encourage student participation and creativity. Students from various branches participated enthusiastically, demonstrating their analytical skills and innovative thinking. The competitions created an engaging academic environment and promoted interest in mathematics beyond the classroom.

The **Quiz Competition** received an overwhelming response from students. Several teams participated in the preliminary rounds, and based on their performance, the **top four teams** were shortlisted for the **final buzzer round**. More than **three rounds** were conducted, testing students' knowledge and logical thinking. The winners were declared based on the **total marks obtained**, making the competition fair and exciting.



Dec 20, 2025 2:47:36 PM  
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Anantapur  
Andhra Pradesh  
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Speed:0.0km/h



Dec 20, 2025 2:44:51 PM  
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Anantapur  
Andhra Pradesh  
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Dec 20, 2025 2:12:53 PM  
126° SE  
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Anantapur  
Andhra Pradesh  
Altitude:281.2msnm  
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Rudrampeta  
Anantapur  
Andhra Pradesh  
Altitude:277.6msnm  
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On the day of the celebration, **Dr. K. Jayalakshmi, Professor of Mathematics, JNTUA**, graced the programme as the **Chief Guest**. She delivered an insightful address highlighting the **importance of mathematics in academics, research, and everyday life**, motivating students to appreciate the subject and its applications. Her interaction with the students was both informative and inspiring.



Dec 22, 2025 11:36:27 AM  
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Dec 22, 2025 11:42:31 AM  
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Anantapur  
Andhra Pradesh  
Altitude:277.0msnm  
Speed:0.0km/h



The programme also featured a special talk by **Dr. D. Venkata Ramana**, a Mathematics faculty member, who delivered a clear and engaging speech on the **life and contributions of Srinivasa Ramanujan**. The **winners of all competitions** were awarded **shields by the Chief Guest**. The event concluded with a **felicitation ceremony**, during which the **Principal, Vice Principal, Administrative Officer, and Head of the Department of Humanities and Sciences** felicitated the Chief Guest, marking the celebration as a grand success.



# Potluck Celebration in the Department of Humanities and Sciences

The **Department of Humanities and Sciences** joyfully celebrated a **Potluck gathering** on **23rd December 2025**, fostering a spirit of unity and togetherness among faculty members. As planned in advance, all H&S faculty contributed a variety of dishes, making the event colorful and enjoyable. The potluck featured a rich spread of both **vegetarian and non-vegetarian items**, reflecting diversity and shared enthusiasm.



The celebration was further enriched by the gracious presence of the **Principal, Administrative Officer, and Management Representative**, who joined the H&S faculty in the gathering. Their participation added warmth to the occasion, creating an informal and friendly environment. Faculty members interacted freely, shared conversations, and enjoyed the delicious food together.





After serving the dishes, all faculty members sat together and enjoyed the meal, spreading joy and happiness throughout the department. The potluck celebration strengthened bonds, promoted harmony, and provided a refreshing break from routine academic activities. The event concluded on a cheerful note, leaving everyone with pleasant memories and a sense of togetherness.

