DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Summary of Innovative teaching learning brought in by the Faculty in A.Y: 2022-23

S.No.	Faculty Name	Class-Year	Course	Topics	Methodology/AID
1	E. Jyothi	III-II	AWP	Radiation Pattern	Experimental Demonstration of Antenna Trainer
2	Dr. D. Surender	II-II	EMTL	Electromagnetic Fields	Slip Tests
3	Dr. K. Keerthi Kumar	III-II	VLSI Design	CMOS fabrication	Animation Video
4	D.Laxminarayana	IV-I	MWE	Waveguides, Microwave Tubes	Quiz
5	G S Arun Kumar	IV-II	Project	Arduino UNO	Hardware Demonstration and Performance

CO ORDINATOR **HEAD OF THE DEPARTMENT**

EXPERIMENTAL DEMONSTRATION OF ANTENNA TRAINER

Experimental demonstrations play a vital role in engineering teaching–learning processes. They bridge the gap between theory and practice and make learning more effective. Key advantages include:

1. Better Conceptual Understanding Students can see theoretical principles in action, which helps them understand complex engineering concepts more clearly.
2. Enhanced Student Engagement Live experiments capture students' attention and encourage active participation instead of passive listening.
3. Improved Retention of Knowledge Learning through observation and hands-on experience helps students remember concepts longer compared to only lectures.
4. Development of Practical SkillsStudents become familiar with instruments, tools, measurements, and experimental procedures used in real engineering applications.Encourages Analytical and Critical Thinking

SLIP TEST

Continuous Learning and Revision

Slip tests are conducted regularly (often daily or weekly), ensuring students revise lessons continuously instead of cramming before exams. This builds a habit of consistent study and reduces exam stress.

Better Understanding of Concepts

Teachers can quickly assess whether students have understood the day's lecture.Students identify their weak areas immediately and can take corrective measures.

Improved Attention and Focus

Knowing that a slip test may follow a class motivates students to pay closer attention during lectures.Encourages active listening and participation.

Boosts Exam Performance

Slip tests simulate exam conditions in small doses, helping students practice time management and accuracy.In places like Trichy, daily slip tests have been introduced to improve board exam results.

ANIMATION VIDEO

Animation video learning offers students a dynamic, visual, and interactive way to grasp concepts more effectively. It transforms abstract ideas into engaging stories, making education both enjoyable and memorable.

Simplifies Complex Concepts

Difficult topics (like science processes, math problems, or historical events) can be visualized step-by-step**.** Abstract ideas become concrete through animated diagrams and storytelling**.**

Boosts Engagement and Motivation

Animated videos are colorful, fun, and interactive, which keeps students interested.They reduce boredom compared to traditional lectures and encourage active participation.

Improves Retention and Recall

Visuals combined with audio narration help students remember lessons longer.Animation stimulates both visual and auditory memory, reinforcing learning.

QUIZ

Advantages of Quizzes for Students

Improves memory and understanding
Quizzes help students recall information, which strengthens long-term memory and understanding.

Encourages regular study habits
Knowing there may be a quiz motivates students to study consistently instead of cramming.

Builds confidence
Doing well in quizzes boosts self-confidence and reduces fear of exams.

Provides quick feedback
Students can quickly see what they know and what they need to improve.

Makes learning interesting
Quizzes can be fun and engaging, especially when done as games or competitions.

Develops thinking skills
Quizzes improve critical thinking, problem-solving, and decision-making skills.

Reduces exam stress
Regular quizzes prepare students for bigger exams and lower anxiety.

Encourages active participation
Students stay attentive and involved during lessons.

HARDWARE DEMONSTRATION AND PERFORMANCE

Hardware demonstrations play a vital role in engineering teaching–learning processes. They bridge the gap between theory and practice and make learning more effective. Key advantages include:

1. Better Conceptual Understanding Students can see theoretical principles in action, which helps them understand complex engineering concepts more clearly.
2. Enhanced Student Engagement Live experiments capture students' attention and encourage active participation instead of passive listening.
3. Improved Retention of Knowledge Learning through observation and hands-on experience helps students remember concepts longer compared to only lectures.
4. Development of Practical SkillsStudents become familiar with instruments, tools, measurements, and experimental procedures used in real engineering applications.
5. Encourages Analytical and Critical Thinking

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Summary of Innovative teaching learning brought in by the Faculty in A.Y:2021-22

S.No.	Faculty Name	Class-Year	Course	Topics	Methodology/AID
1	Dr. A. Venkata Reddy	II-II	ADC	Analog and Digital Communication	Discussion
2	E. Jyothi	II-I	DLD	Combinational circuits	Quiz
3	B. Bharghavendra	III-II	CS	Block Diagram Reduction, Bode Plots	Problem-solving and exercises
4	B. Thirupathi	III-II	DSP	DSP processors	Think pair share
5	D. Laxminarayana	II-II	ADC	Analog and DigitalModulation Schemes	Lab-based Practice

CO ORDINATOR **HEAD OF THE DEPARTMENT**

GROUP DISCUSSION

Improves Communication Skills
Group discussions help students express technical and non-technical ideas clearly, which is essential for engineers in professional environments.

Enhances Teamwork and Collaboration
Engineering projects often require teamwork. Group discussions teach students how to work effectively with diverse team members.

Develops Critical Thinking
Students learn to analyze problems, evaluate different viewpoints, and arrive at logical conclusions.

Boosts Confidence
Regular participation reduces stage fear and builds self-confidence in speaking before peers.

Encourages Knowledge Sharing
Students gain exposure to new concepts, technologies, and real-world applications through peers.

Improves Listening Skills
Effective discussions require attentive listening, helping students understand others' perspectives before responding

QUIZ

Advantages of Quizzes for Students

1. **Improves memory and understanding**
   Quizzes help students recall information, which strengthens long-term memory and understanding.
2. **Encourages regular study habits**
   Knowing there may be a quiz motivates students to study consistently instead of cramming.
3. **Builds confidence**
   Doing well in quizzes boosts self-confidence and reduces fear of exams.
4. **Provides quick feedback**
   Students can quickly see what they know and what they need to improve.
5. **Makes learning interesting**
   Quizzes can be fun and engaging, especially when done as games or competitions.
6. **Develops thinking skills**
   Quizzes improve critical thinking, problem-solving, and decision-making skills.
7. **Reduces exam stress**
   Regular quizzes prepare students for bigger exams and lower anxiety.
8. **Encourages active participation**
   Students stay attentive and involved during lessons.

PROBLEM-SOLVING AND EXERCISES

Advantages of Problem-Solving and Exercises in College Classrooms

1. Develops critical thinking skills

Students analyze situations, apply concepts, and evaluate solutions.
Benefit: Strengthens higher-order thinking needed for academics and careers.

2. Improves understanding of concepts

Solving problems helps students move from theory to application.
Benefit: Abstract ideas become clearer and more meaningful.

3. Encourages active learning

Students actively engage rather than passively listen to lectures.
Benefit: Higher attention, motivation, and participation.

4. Enhances problem-solving ability

Regular practice builds confidence in handling complex and real-world problems.

Benefit: Prepares students for exams, research, and professional challenges.

5. Promotes collaborative learning

Group exercises encourage discussion and peer learning.
Benefit: Builds teamwork and communication skills.

6. Provides immediate feedback

Instructors can quickly identify errors and guide students.
Benefit: Misconceptions are corrected early.

7. Improves retention of knowledge

Hands-on exercises help students remember information longer.
Benefit: Better long-term academic performance.

8. Builds confidence and independence

Students gain confidence by successfully solving problems on their own.

Benefit: Encourages self-directed learning.

THINK–PAIR–SHARE

Think–Pair–Share (TPS) is an active learning strategy that works especially well at the **college level**. Here are its key advantages and how they benefit college students:

1. Promotes deeper understanding

- Students first **think independently**, which encourages critical thinking.
- Pair discussions help clarify misconceptions before sharing with the class.
  Benefit: Better grasp of complex theories and concepts.

2. Increases student participation

- Students who may hesitate to speak in large lectures feel more comfortable sharing ideas with a partner first.
  Benefit: More inclusive classrooms with higher engagement.

3. Develops communication skills

- Explaining ideas to a peer strengthens academic speaking and listening skills.
  Benefit: Improves discussion, presentation, and professional communication abilities.

4. Encourages collaborative learning

- Students learn to respect diverse perspectives and build on others' ideas.
  Benefit: Prepares students for teamwork in research, workplaces, and graduate studies.

5. Improves critical thinking and problem-solving

- Comparing answers pushes students to analyze, justify, and refine their thinking.
  Benefit: Stronger reasoning skills needed for exams, research, and real-world problems.

7. Enhances retention of knowledge

- Active participation helps students remember content better than passive listening.
  Benefit: Long-term learning and improved academic performance.

8. Works well in large and small classes

- TPS is flexible and easy to implement even in large lecture halls.
  Benefit: Effective teaching without needing extra resources.


A to D
PROCESSOR
Galaxy A36 5G

LAB BASED PRACTICE

Advantages of Lab-Based Practice in College Education

1. Enhances practical skills

Students apply theoretical knowledge through hands-on experiments.
Benefit: Improves technical competence and accuracy.

2. Strengthens understanding of concepts

Lab work helps students see how theories work in real situations.
Benefit: Better clarity and deeper learning.

3. Develops problem-solving ability

Students face real experimental challenges and learn to troubleshoot.
Benefit: Builds analytical and logical thinking skills.

4. Encourages active learning

Students learn by doing rather than only listening.
Benefit: Higher engagement and motivation.

5. Improves scientific and technical thinking

Lab practice trains students in observation, measurement, and data analysis.
Benefit: Builds research and analytical skills.

6. Builds teamwork and collaboration

Many lab activities are done in groups.
Benefit: Enhances communication and cooperative skills.

7. Increases confidence and independence

Repeated practice makes students confident in using instruments and techniques.

Benefit: Promotes self-reliance in learning.

8. Prepares students for careers and research

Lab experience reflects real workplace and research environments.
Benefit: Improves employability and readiness for higher studies.

9. Encourages discipline and safety awareness

Students follow procedures and safety rules.
Benefit: Develops responsibility and professional behavior.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Summary of Innovative teaching learning brought in by the Faculty in A.Y:2020-21

S.No.	Faculty Name	Class-Year	Course	Topics	Methodology/AID
1	K. Jyothsna	II-I	STLD	Combinational circuits	Quiz
2	E. Jyothi	III-1	MPMC	Intel 8051 Micro Controller	Flipped Classroom
3	Dr. Bonala Satyam	II-I	Network Theory	Superposition Theorem, Thevenin's and Norton's Theorems, etc.,	Problem Solving and Exercises
4	B. Bharghavendra	II-II	EMTL	Electromagnetic Fields	Animation Video
5	B. Thirupathi	III-II	DSP	DSP processors	Think pair share

CO ORDINATOR **HEAD OF THE DEPARTMENT**

QUIZ

Advantages of Quizzes for Students

Improves memory and understanding
Quizzes help students recall information, which strengthens long-term memory and understanding.

Encourages regular study habits
Knowing there may be a quiz motivates students to study consistently instead of cramming.

Builds confidence
Doing well in quizzes boosts self-confidence and reduces fear of exams.

Provides quick feedback
Students can quickly see what they know and what they need to improve.

Makes learning interesting
Quizzes can be fun and engaging, especially when done as games or competitions.

Develops thinking skills
Quizzes improve critical thinking, problem-solving, and decision-making skills.

Reduces exam stress
Regular quizzes prepare students for bigger exams and lower anxiety.

Encourages active participation
Students stay attentive and involved during lessons.

FLIPPED CLASSROOM

Flipped classroom is a pedagogical approach in which traditional content delivery moves to an individual learning process, and the group activity is transformed into a dynamic, interactive learning environment where the instructor just guides the learners to apply their creative thinking to provide a fruitful solution in the course content. It provides more benefits than traditional direct content delivery. Flipped classroom is a pedagogical approach in which traditional content delivery moves to an individual learning process, and the group activity is transformed into a dynamic, interactive learning environment where the instructor just guides the learners to apply their creative thinking to provide a fruitful solution in the course content. It provides more benefits than traditional direct content delivery.

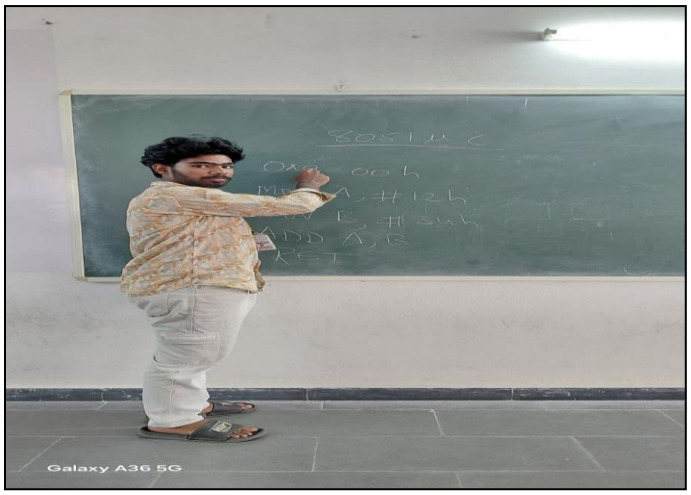
Flipped Classroom Objectives

- To enable students to learn at their own pace. [FC1]
- To give the instructor more time to teach each individually, rather than in the class[FC2]
- Teacher can re-use the content they create[FC3]
- students are able to build a deeper understanding[FC4]

Benefits

- It promotes peer interaction among students and collaboration skills
- It encourages bright student's engagement

. • It provides increased individual attention



PROBLEM-SOLVING AND EXERCISES

Advantages of Problem-Solving and Exercises in College Classrooms

Develops critical thinking skills

Students analyze situations, apply concepts, and evaluate solutions. **Benefit:** Strengthens higher-order thinking needed for academics and careers.

Improves understanding of concepts

Solving problems helps students move from theory to application. **Benefit:** Abstract ideas become clearer and more meaningful.

Encourages active learning

Students actively engage rather than passively listen to lectures. **Benefit:** Higher attention, motivation, and participation.

Enhances problem-solving ability

Regular practice builds confidence in handling complex and real-world problems. **Benefit:** Prepares students for exams, research, and professional challenges.

Promotes collaborative learning

Group exercises encourage discussion and peer learning. **Benefit:** Builds teamwork and communication skills.

Provides immediate feedback

Instructors can quickly identify errors and guide students. **Benefit:** Misconceptions are corrected early.

Improves retention of knowledge

Hands-on exercises help students remember information longer. **Benefit:** Better long-term academic performance.

Builds confidence and independence

Students gain confidence by successfully solving problems on their own.

Benefit: Encourages self-directed learning.

ANIMATION VIDEO

Animation video learning offers students a dynamic, visual, and interactive way to grasp concepts more effectively. It transforms abstract ideas into engaging stories, making education both enjoyable and memorable.

Simplifies Complex Concepts

Difficult topics (like science processes, math problems, or historical events) can be visualized step-by-step. Abstract ideas become concrete through animated diagrams and storytelling.

Boosts Engagement and Motivation

Animated videos are colourful, fun, and interactive, which keeps students interested. They reduce boredom compared to traditional lectures and encourage active participation.

Improves Retention and Recall

Visuals combined with audio narration help students remember lessons longer.Animation stimulates both visual and auditory memory, reinforcing learning.

THINK–PAIR–SHARE

Think–Pair–Share (TPS) is an active learning strategy that works especially well at the **college level**. Here are its key advantages and how they benefit college students:

Promotes deeper understanding

- Students first **think independently**, which encourages critical thinking.
- Pair discussions help clarify misconceptions before sharing with the class.
  Benefit: Better grasp of complex theories and concepts.

Increases student participation

- Students who may hesitate to speak in large lectures feel more comfortable sharing ideas with a partner first.
  Benefit: More inclusive classrooms with higher engagement.

Develops communication skills

- Explaining ideas to a peer strengthens academic speaking and listening skills.
  Benefit: Improves discussion, presentation, and professional communication abilities.

Encourages collaborative learning

- Students learn to respect diverse perspectives and build on others' ideas.
  Benefit: Prepares students for teamwork in research, workplaces, and graduate studies.

Improves critical thinking and problem-solving

- Comparing answers pushes students to analyze, justify, and refine their thinking.
  Benefit: Stronger reasoning skills needed for exams, research, and real-world problems.

Enhances retention of knowledge

- Active participation helps students remember content better than passive listening.
  Benefit: Long-term learning and improved academic performance.

Works well in large and small classes

- TPS is flexible and easy to implement even in large lecture halls.

Benefit: Effective teaching without needing extra resources.