Innovations by the Faculty in Teaching and Learning

Innovations by the faculty in teaching and learning shall be summarized as per the following description.

- Teaching and learning activities that contribute to the improvement of student learning. These activities may include innovations not limited to use of ICT, instruction delivery, instructional methods, assessment, evaluation and inclusive class rooms that lead to effective, efficient and engaging instruction.

Faculty is motivated to adopt innovative processes in Teaching and Learning process. These Innovative teaching approaches which are a combination of the traditional lecture method along with other methods helps the young minds to increase their learning capacity.

INNOVATIVE METHODS APPLYING IN THE DEPARTMNET.

1. Computer-assisted learning through ICT

2. NPTEL and Coursera Videos

3. Conduct of Training programs to students LIKE in Open Source Computing Technology, MATLAB, Lab view, PCB Design, VHDL to acquire hands on experience in various applications.

4. Group Learning

5. Innovations in Evaluation

Teaching – Learning Process

S.No	Method	Activity Types	Description	Purpose
1	**Activity Based Teaching**	**Think Pair Share**	Think-pair-share(TPS) is a collaborative learning strategy where students work together to solve a problem and they answer a question about an assigned reading. This strategy requires students to: 1) think individually about a topic or answer to a question; 2) Pair with other students	By this activity Student gets involved into active Learning and many different ideas will be shared

			3) share ideas with classmates. Discussing with a partner maximizes participation, focuses attention and engages students in active participation & Learning	
		In class Teams	In class Team-building activities are great tools for helping students learn to work together, listen carefully, communicate clearly, and think creatively. They also give the students a chance to get to know each other, build trust as a community and, best of all, have some fun Learning actively which can develop their individual as well as team skills.	By this activity they can improve their working skills, managing as a team
		Collaborative Learning	Collaborative learning is an educational approach to teaching and learning that involves groups of students working together to solve a problem, complete a task, or create a product. Learning flourishes in a social environment where conversation between learners takes place.	By this activity they can learn to exchange their work in real time applications
		Flipped Class Room	It introduces the concept of Constructive Learning where student's comprehension is augmented by active creation	By this activity the information transmission can be done out of

			of teaching materials. It highlights the potential of the Flip-Flop instructional methodology that involves students in creating quizzes synchronized with video recordings of lectures. The premise is that as students create questions, correct and incorrect answers, hints and hint links that lead to relevant resources, they get in depth understanding of the content presented in the video. Peer evaluation is also an integral part of the methodology. The collected data can be used for grading and as a resource pool for future quizzes.	class with the help of Teaching Materials and visual-aids and Assimilation can be done in Classroom which can help student understand concepts clearly
		Group Writing Assignments	It would be truly surprising to find an author whose writing, even if it was completed independently, had not been influenced at some point by discussions with friends or colleagues. The range of possible collaboration varies from a group of co-authors who go through each portion of the writing process together, writing as a group with one voice, to a group with a primary author who does the majority of the work and then	By this activity Students will be exposed to possible ideas and can be able to put them on papers

			receives comments or edits from the co-authors	
	Videos	**NPTEL**	The main objective of the National Programme on Technology Enhanced Learning (NPTEL) is to enhance the quality of engineering and science education in the country by developing contents for undergraduate and postgraduate curriculum using video and web based courses. These courses cover the syllabi prescribed by universities and approved by AICTE NPTEL Local Chapter Our college is having NPTEL Local Chapter: NPTEL Local Chapter It is a partnership between the college and NPTEL. Requirements are a letter from the head of the institution and contact details of a Coordinator from the institute. http://nptel.ac.in/LocalChapter	
		Animated Videos	It gives clear picture about which students are learning. This will have animations through which students easily understand the concepts and operations of different systems	

	Presentations	**Seminars**	Seminars are a vital part of academic courses that gives an opportunity to develop essential skills and understanding of the subject.	
	Project based learning	**Projects**	Project based learning structures in curriculum tends to encourage students around discrete projects with presentation that includes multi-step problem solving, research, logical deduction, and iterative learning and also encourage teamwork.	
	Add-On-Skills	**Hands on training**	Add on Skills Training is the session where students are trained on centre of excellences in different areas such as Modeling, Analysis and Simulation on their area of interest by utilizing the college facilities (after college hours 4pm to 6pm)	

Activities in the A. Y 2020-21

List of faculty members conducted Activity Based teaching for students

S.No	Name of the Faculty	Year/Sem	Course	Activity	Topic	No. of Students Participated
1	Mrs. J. Aparna Priya	II - I	ADC	Think Pair Share	BJT Amplifiers	59

2	Mrs. B. Hemalatha /Mrs. G. Ashwini	II - I	EMI	Group Writing Assignments	Bridges	61
3	Mrs. G.M.Anitha Priyadarshini /Mr.A.Madhusudan	II - I	SS	Think Pair Share	FT and Sampling	57
4	Mrs. J. Sudha Rani	II - I	PTSP	Flipped Class Room	Random Variables	55
5	Dr. Ashish Singh	II - II	ACA	PBL – Problem Based Learning	BJT & FET	59
6	Dr.M Kiran Kumar	II - II	EMTL	Flipped Class Room	Transmission Lines	56
7	Dr. Indrakanti Raghu	II - II	STLD	PBL – Problem Based Learning	FlipFlops	60
8	Mr. K Haripal Reddy	II - II	AC & DC	Flipped Class Room	Noise	62
9	Mr.M.Shiva Kumar	III - I	MPMC	Think Pair Share	Interfacing Devices DMA	60
10	Mrs.M.Vijaya Lakshmi / Mr.Shaik Nayab Rasool	III - I	PDC	Think Pair Share	Time Base Generators	55
11	Mr.L.Praveen Kumar	III - I	DSP	PBL – Problem Based Learning	IIR Filters	60
12	Dr.M.Santhosh	III - I	ICA	Think Pair Share	Timer 555	59

13	Mr.M.Murali Krishna	III - I	CN	Group Writing Assignments	Routing Protocols	47
14	Mr.N.Sharath Babu	III - II	CS	In class Teams	Root-Locus Technics	49
15	Dr.P.Ramakrishna / Mrs.Amrita Sajja	III - II	VLSID	Project Based Learning	SRAM Design	55
16	Mrs. B. Pavitra	III - II	ES	Case Study Based Learning	Design of general purpose Embedded Systems	58
17	Mrs.Naga Swetha R	III - II	RTOS	Collaborative Learning	RTOS Design	48

Activity Details

Activity : Think pair Share

Topic : Microprocessors & Microcontrollers

Introduction:

Collaborative learning is an instructional method in which student's team together on an assignment. In this method, students can produce the individual parts of a larger assignment individually and then "assemble" the final work together, as a team. Whether for a semester-long project with several outcomes or a single question during class, collaborative learning can vary greatly in scope and objectives. Cooperative learning, sometimes confused with collaborative learning, describes a method where students work together in small groups on a structured activity. Students are individually accountable for their work but also for the work of the group as a whole, and both products are assessed.

ACTIVE LEARNING

Name of the Faculty : M Shiva Kumar	**Designation:** Assistant Professor	**Subject:** Microprocessors & Microcontrollers
Year/ Semester: III/I	**Section:** C	**Topic:** Interfacing of Microprocessor
Name of the activity: Think Pair Share	**Date:** 09-02-2021	**No. of students attended**: 32

Objective of the activity:

- To identify various parts of the microprocessors and its functions.
- To understand how interfacing will work .
- To make students understand complex concepts.
- To develop oral communication skills, Fosters and develops interpersonal relationships.

Execution Plan:

- Given higher-level questions about the topic to the students
- Allotted some time for thinking the answer for questions
- Now formed teams with team size 3 or 4
- Allotted some time to share the ideas themselves
- They shared their ideas to whole class

- Finally 85% of the groups have completed the task successfully

Expected Outcomes:

The students can be able to

- Understand other interfacing Devices which are used to work along with microprocessor
- Analyze the different types of maintenance checks and troubleshooting
- Develops higher level thinking skills
- Builds self-esteem in students

Enclosures: Video/Photos while conducting the activity

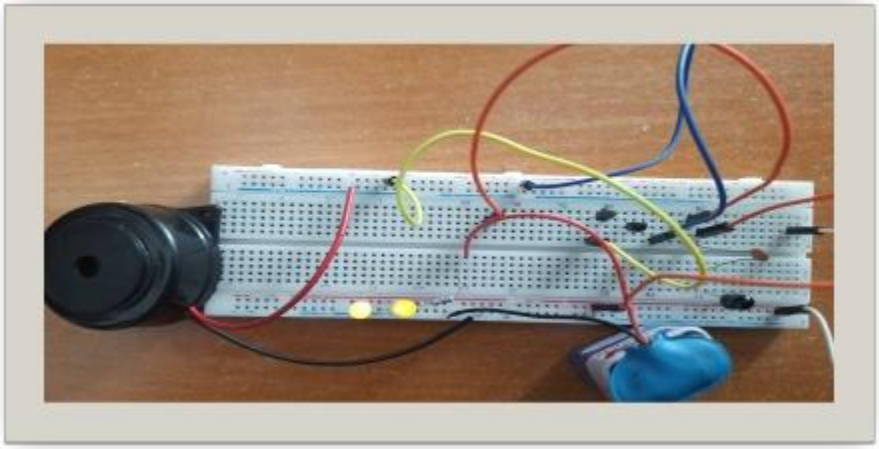
- Attached activity photos
- Student Document proof

TLP Activity Sheet:

- **Activity :** Project Based Learning
- **Course Name:** Electronic Circuit Analysis
- **Instructor:** Dr. M. Santhosh
- **Target Audience:** II ECE A & D
- **Description of Activity:**
  - Students are asked to take different circuits(topics) from ECA subjects and show the results using Discrete components.
- **Assessment mechanism/ Significance of the method:**
  Assessment is done based on the presentation of Students and the results they have shown.

Batch: 1

Project Name: FIRE SAFETY SYSTEM

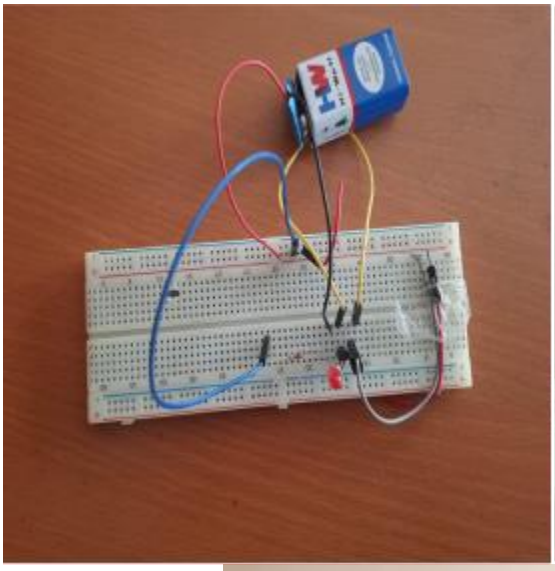


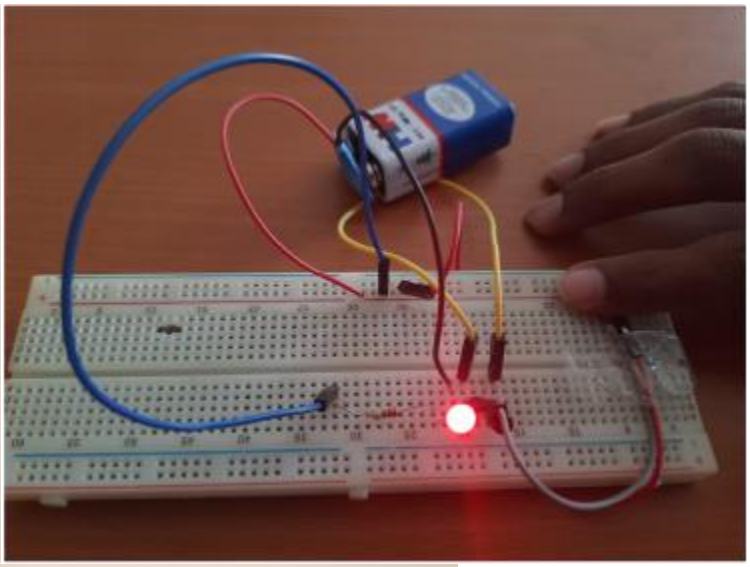
Team:

- CH.SAIRAM -20EG104110
- B.VENUGOPAL -20EG104106
- B.SAI CHARAN -20EG104104
- G.SHIVA RAM -20EG104160
- A.SATHWIK -20EG104101
- CH.PRRANAV -20EG104121
- B.ABHISHEK -20EG104108

Batch-2

Title : TOUCH SENSOR USING DARLINGTON PAIR





Team :

- 20EG104115- KUMARI AAKANKSHA
- 20EG104107- HIRANMAI DHARURIE
- 20EG104116- SIMHAGIRI
- 20EG104117- E. MADHUKAR REDDY
- 20EG104145- P. GEETHIKA
- 20EG104153- SIRI CHANDANA

Batch -3

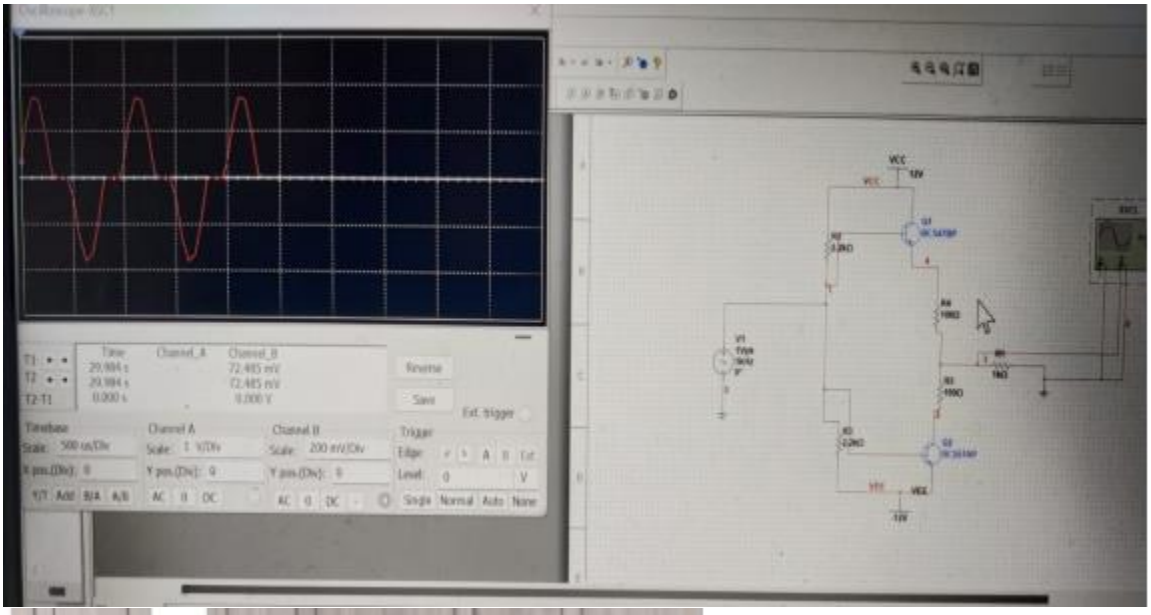
Title: AM TRANSMITTED

Team:

- 20EG104105 - Samuel anurag dasari
- 20EG104111 - Vishal
- 20EG104133 - Abhilash kumar
- 20EG104135 - Vamshi ganesh
- 20EG104158 - Venkat narsimha rao
- 20EG104114 - K jayavardhan
- 20EG104146 - Varshith ganta

Batch -4

Title: COMPLEMENTARY SYMMETRY CLASS B POWER AMPLIFIER



Team:

- 20EG104103-Pragna sri
- 20EG104109-Shresta
- 20EG104131- Chandana
- 20EG104142- Akhila
- 20EG104144- Shireesha
- 20EG104148- Divya

Batch -5

Title: AUDIO AMPLIFIER USING 555 TIMER

Team:

- Varalakshmi 20eg104118
- Saichandana 20eg104120
- Maheshwarreddy -21eg504101
- Dhanush -21eg504102
- Ganeshyadav -21eg504103
- Nivas -21eg504106
- Sharanya -21eg504107
- Tabasum 21eg504108

Batch -6

Title: AUDIO AMPLIFIER USING CE AMPLIFIER

Team:

- K. Arun Kumar - 20EG104432
- Ch. Rakesh - 20EG104458
- Y. Shiva Kumar - 20EG104452
- MD. Irshad - 20EG104447
- J. Naveen - 20EG104421

PBL on Metal Detector

Workshops: Design Thinking

The department of Electronics and communications Engineering (ECE) conducted a workshop on Design Thinking (DT) for ECE Students.

The total number of students participated are 50 and are made into 10 batches with each batch of 5 members.

The workshop started with the introduction to DT and then asking students to develop solutions to the given problem using different stages of DT. The theme taken for the workshop is “Smart affordable water bottle” and “smart broom stick”.

The material provided for the workshop includes the following (for each batch):

1. Drinking water cups
2. Drinking straws
3. Tape
4. Glue stick
5. Rubber band
6. Balloons
7. Ice cream sticks
8. Scissors
9. Stapler
10. News papers

Smart Water Bottle