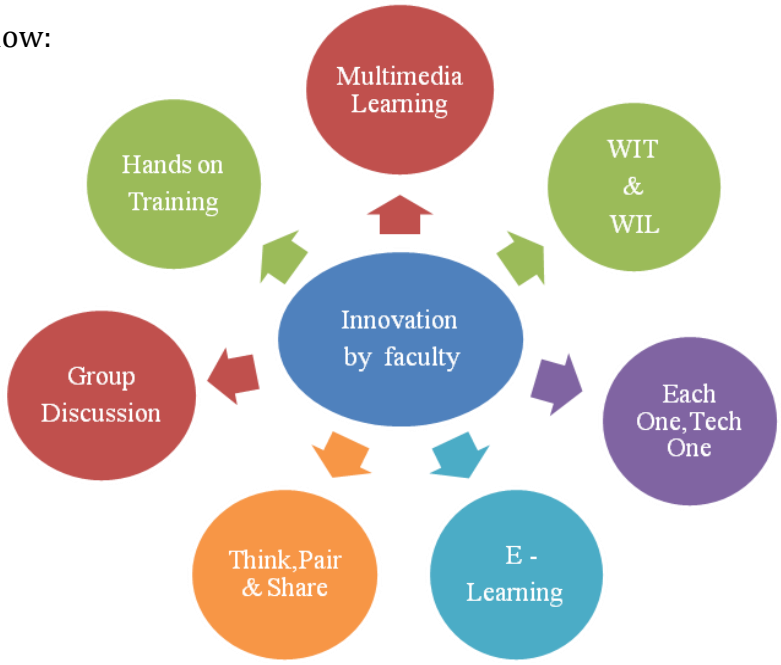
INNOVATIONS BY THE FACULTY IN TEACHING AND LEARNING

INNOVATIONS IN TEACHING:

- Innovations by the Faculty in teaching and learning shall be summarized as per the following description.
- Contributions to teaching and learning are 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.
- Any contributions to teaching and learning should satisfy the following criteria:
    1. The work must be made available on Institute website https://www.svhec.com/be-ece/
    2. The work must be available for peer review and critique
    3. The work must be reproducible and developed further by other scholars
- Innovative teaching methodologies help faculty to deliver their lectures in a faster and efficient manner thereby allowing the students to keep abreast of technological advancements.
- In addition, innovative teaching aids also impart rationale thinking and self sufficient thought process in the mindsets of students by making them more proactive.
- Few of the innovative teaching techniques adopted in the department are briefly tabulated below:



1. Multimedia Learning (ICT Class Room):

Introduction:

In this, the teacher will deliver some concepts with the aid of Software tools. These learning tools play vital role in delivering subject knowledge. This ensures effective class room delivery by our staff. The students can identify the key points of presentation easy way. Live demonstration can be an effective tool to present material in classroom and encourage student learning. Multimedia combines basic types of media into learning environment such as text, audio, video and graphics thus providing a powerful tool for teaching. This allows the students to pay more attention towards the concepts. It also helps the students to think and analyze the concepts in a better way.

Execution Plan:

- The teacher explains some topics in their regular teaching process using Software Tools Animation / Videos to simplify their presentation.

Expected Outcomes:

- Simple way of presenting subject knowledge than from the regular teaching practices.
- Student can understand the concepts in a better way.

Mr. M. Gobalakrishnan, AP/ECE, is effectively engaging students by utilizing ICT tools to demonstrate complex concepts in innovative ways

Dr. R.S. Kamalakannan, HoD/ECE, is enhancing student understanding by leveraging ICT tools to illustrate key concepts effectively.

2. WIT & WIL:

Engineering education scenario can make its impact, only when it is more relevant to the dynamics of today's world, society, industry, economy, and environment. No more is technical education a mere qualifiable fascination – the world needs to be able to quantify the application of engineering knowledge. LIET, Department of ECE has long- absorbed the philosophy of outcome-based education and thus has indigenously created a variety of internal processes and methodologies to ensure that the Institute's graduates stand exemplary of the renewed spirit of modern engineering education.

WIT & WIL, acronym for **"Why am I Teaching What I am Teaching"** from Teacher's perspective and **"Why am I Learning What I am Learning"** from student's perspective, is one such initiative that has been embedded into the Teaching-Learning process at the institute from 2020, as a part of the Education process Re-engineering. WIT & WIL has a structured framework and definitive metrics to ensure that the course outcomes are met, since learning occurs not by recording information but by interpreting it. It helps students to structure and processes knowledge and in turn make them as constructors of knowledge. WIT & WIL formats also provide ample scope for modern education technologies and active teaching methods, such as the use of audio-visual content, slideshows, case studies, and storytelling through real-world examples.

Dr. C.M. Preethi, ASP/ECE, is facilitating student learning by integrating ICT tools to present and explain complex concepts.

Ms.G.S.Nandhini / AP / ECE demonstrating the concepts to the students by Using ICT tools

A video is designed and created using ICT tools in order to present the teacher's perspective ("WIT") about scenario of the respective subject. The video is designed such that it maps every topic of the prescribed syllabus to the real world, in order to give the students a tangible experience of understanding the underlying engineering concepts to perceive for themselves ("WIL"). The mechanism of documenting WIT & WIL is also in line with the revised Bloom's Taxonomy, wherein the students are driven from Lower Order Thinking skills (LOT) to Higher Order Thinking skills (HOT) and develop an innate understanding and appreciation of the subject towards the real-world scenario.

Execution Plan:

- Every faculty has to explain the overview at the commencement of the schedule.

Expected Outcomes:

- Students can understand the objective and outcome of the subjects.

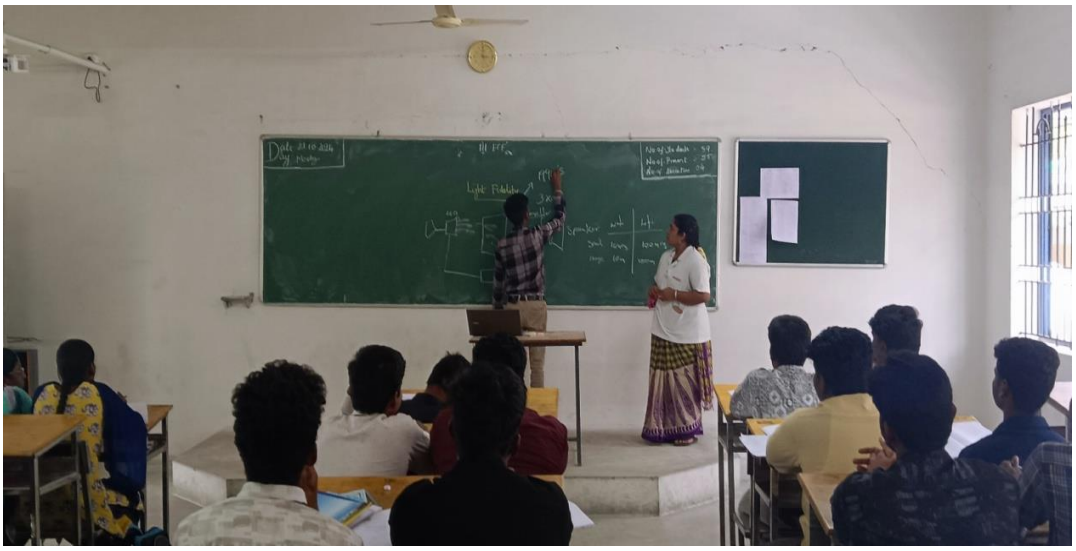
3. Each One, Teach One:

Each One, Teach One is collaboration between the staff and students the opportunity to learn and share knowledge about their community and culture .The phrase Each One, Teach One is an African proverb that originated in the United States during slavery when Africans were denied education. When someone learned how to read or write, it became their responsibility to teach someone else. The idea is to spread knowledge for the betterment of their community. This program will teach you how to give back to your community to learn and share knowledge. In this connection the ECE Department had taken an initiative the same to improve the student skill set and this methodology helps the students to improve their presentation, communication skills, knowledge levels in the concepts by self preparation and presentation. It helps the students to enrich themselves towards self learning and employability.

Execution Plan:

WHAT WILL YOU DO IN EACH ONE, TEACH ONE?

- Student has to teach a topic from the subject in the presence of the teacher.



Our student, Mr. M. Nivas from ECE, has been chosen as a developer to introduce and demonstrate Li-Fi technology to the students

Expected Outcomes:

- Improvement of self learning
- Enhance teaching strategies
- Improvement of subject knowledge
- Boost their communication

4. E-Learning:

Advanced Learners are encouraged to take up various certification courses, projects based on choice and present papers in conferences/ journals. Students and faculty members are encouraged to register for the NPTEL program/ online certification courses of their own areas of teaching and research interests, for enhancing their teaching skills, smooth conduct of the teaching process in the regular class room teaching and for understanding the potential concepts much effectively. Faculty members are also made as mentors for providing support to the students to complete the course. The students who have not registered for any courses are supported by providing the NPTEL video lectures in the central digital library and a databank of the CDs of all the NPTEL courses that are available in the department library

Execution Plan:

- The students who have enrolled for different certification courses can use the infrastructure available in the department/institution even after the college timings for completing their courses and some respective faculty members are allotted for supporting them.

Expected outcomes:

- It helps to enrich the knowledge potentials of students and enhance their employability skills.

NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

ARTHI S

for successfully completing the course

Cloud Computing

with a consolidated score of 42 %

Online Assignments	12.03/25	Proctored Exam	30/75

Total number of candidates certified in this course:23872

Jan-Apr 2024

(12 week course)

Prof. Haimanti Banerji
Coordinator, NPTEL
IIT Kharagpur

Indian Institute of Technology Kharagpur

Roll No: NPTEL24CS17S455400609 To verify the certificate No. of credits recommended: 3 or 4

This certificate is computer generated and can be verified by scanning the QR code given below.

Roll No: NPTEL22GE01S34520405

To
SAMINATHAN V
52/1, KAVIN GARDEN, MODACHUR,
GOBICHETTIPALAYAM
ERODE
TAMILNADU - 638476
PH. NO :9943027347

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:3
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

SAMINATHAN V

for successfully completing the course

NBA Accreditation and Teaching and Learning in Engineering (NATE)

with a consolidated score of **66** %

Online Assignments	20/25	Proctored Exam	46.13/75

Total number of candidates certified in this course: **967**

Prof. G. L. Sivakumar Babu
Chairman, Center for Continuing Education
IISc Bangalore

Jan-Apr 2022
(12 week course)

Prof. L. Umanand
NPTEL Coordinator
IISc Bangalore

Indian Institute of Science Bangalore

Roll No:NPTEL22GE01S34520405

To validate and check scores: https://nptel.ac.in/noc

5. Think , Pair& Share:

Programming is crucial when it comes to learning how to innovate, create very eco-friendly solutions for global problems and such. In essence, it helps in speeding up the input and output processes in a machine. Additionally, it helps you develop the ability to automate, collect, manage, analyze the data and information correctly. We make our students more comfortable to the world of coding. Students are encouraged to think, analyze the given problem and they have to develop their own logic to solve the given problem. While analyzing the solution to the given problem student must be able to correct the errors occurred during the development process.

Our ECE students have shown great enthusiasm in engaging with think, pair, and share activities focused on innovative technologies in 4G/5G.

Execution Plan:

- The students will undergo training on the above cited modules. These may be done as a part of regular class work or based on additional Schedule.

Expected outcome:

- Improving employability skills such that they can grab more opportunities.
- Students can do projects

6.Group discussion:

A group discussion is a form of communication where a group of people come together to discuss a specific topic or issue. It can be used in various settings like academic discussions, workplace meetings, or casual conversations. The goal of a group discussion is to share ideas, exchange knowledge, and come to a consensus or understanding of the topic at hand. Encourage students in the group to speak up, share their ideas, and contribute to the discussion. Everyone's input matters. A good facilitator or leader can guide the conversation, ensuring everyone gets a chance to speak and that the discussion stays on track

Our students explore the impact of social media in a dynamic group setting.

Execution Plan:

- Set a clear goal for the discussion. This could be brainstorming ideas, analyzing a problem, or coming up with a solution to a particular engineering issue.

Expected outcome:

- Students should have a deeper and more comprehensive understanding of the topic discussed.
- By actively engaging in the discussion, students develop their verbal communication, articulation, and presentation abilities. They learn how to express their ideas concisely and persuasively.

7. Hands on Training:

Basic agriculture involves the practice of cultivating soil, growing crops, and raising animals for food, fiber, medicinal plants, and other products used to sustain and enhance human life. Information Technology (IT) plays a crucial role in modernizing agriculture, enhancing efficiency, and ensuring sustainable farming practices. The integration of IT in agriculture is referred to as **Agricultural Information Technology**. Agricultural Information Technology refers to the application of technology, data management, and digital tools in farming practices to improve crop yield, reduce costs, and enhance sustainability. The use of IT in agriculture helps farmers make informed decisions, optimize resources, and streamline operations, ultimately leading to better productivity and environmental sustainability. Precision agriculture uses technology to monitor and manage field variability in crops, ensuring the optimal use of resources like water, fertilizers, and pesticides.

- **Technologies Involved**:

GPS (Global Positioning System): Helps in mapping and monitoring crop fields for precise application of fertilizers, water, and pesticides.

Drones: Used for aerial surveys of crops to identify pest infestations, nutrient deficiencies, and overall crop health.

Sensors: Embedded in the soil and crops, these sensors measure moisture, temperature, and other factors, allowing farmers to adjust inputs accordingly.

Data Analytics: Provides insights into soil conditions, weather patterns, and crop growth to optimize yield and minimize wastage.

Ms. Revathi G, AP/ECE, is demonstrating agricultural concepts to students by utilizing ICT tools for a more interactive learning experience.

Execution Plan:

- Establish clear objectives and expected outcomes for the training program. The purpose could be to teach students essential agricultural skills, introduce them to modern farming technologies, or help them understand sustainable practices

Expected outcome:

- Students will learn hands-on skills such as soil testing, irrigation setup, and crop management.
- Students will develop critical thinking and problem-solving skills through real-world farming scenarios.
- Students will understand sustainable practices in agriculture, such as water conservation, organic farming, and crop rotation