

Innovations in Teaching

AY 2022-23

The key role of a teacher is to teach, which can be understood as meaning to facilitate learning of some target curriculum. Teaching is therefore intimately tied to notions of learning and there is a sense that if students do not learn then whatever the teacher is doing does not deserve the label of 'teaching'. The use of innovative methods in educational institutions has the potential not only to improve education, but also to empower people, strengthen governance and galvanize the effort to achieve the human development goals for the country.

Traditional Teaching Method: In the pre-technology education context the teacher is the sender, the educational material is the information and the student is the receiver of the information. In terms of the delivery medium, the educator can deliver the message via the "chalk-and-talk" method and LCD projector transparencies. This learning perspective is a popular technique, which has been used for decades as an educational strategy in all institutions of learning. Basically teacher controls the instructional process, the content is delivered to the entire class and the teacher tends to emphasize factual knowledge.

Innovative Teaching Methods: Following innovative learning methods are initiated and implemented by the faculty for students to learn in a better manner.

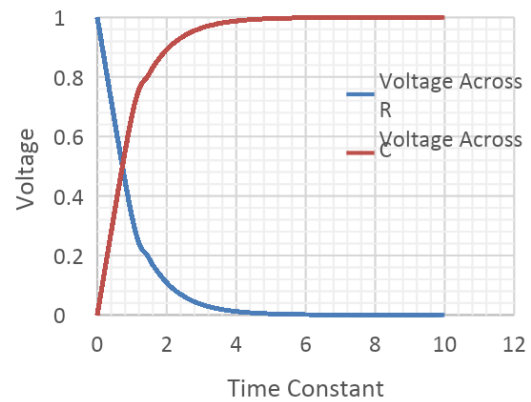
1. Collaborative Learning
2. Through Display of Working Models
3. Facilitating through Group Learning
4. Teaching through Value Added Courses
5. Providing Experiential Learning
6. Through Guest Lectures, Industrial Visits, Field trips
7. Product/ Project Based Learning
8. Through Display of Animation
9. Continuous Interaction with student

<p>Value Added Courses</p> <p>Objectives: The main objectives of the Value Added Course are:</p> <ol style="list-style-type: none"> 1. To provide students an understanding of the expectations of industry. 2. To improve employability skills of students. 3. To bridge the skill gaps and make students industry ready. 4. To provide an opportunity to students to develop interdisciplinary skills. 	<p>During the academic year 2022-23 two courses are conducted.</p> <ol style="list-style-type: none"> 1. For II B.Tech – I Sem: Advanced Data Structures 2. For II B.Tech – II Sem: Python for Data Analytics
<p>Project Based Learning</p> <p>In this type of learning, students are encouraged to carry out a project in a few courses they study. Project is designed to introduce students to engineering in a global context. Specific emphasis is on:</p> <ol style="list-style-type: none"> 1. Understanding and applying the basic design process by applying theoretical concepts to solve a real-world problem. 2. Awareness of cultural, ethical, economic and social needs 3. Critical and Creative thinking 4. Project planning execution 5. Written communication 6. Oral Presentation 	<p>During the academic year 2022-23 “PBL-EXPO” was conducted on February 16, 2023. 66 Students participated and implemented 33 projects with two members per batch.</p>
<p>Industrial Visits</p> <p>Industrial visits have their own importance in the career of a student who is pursuing a professional degree.</p> <ol style="list-style-type: none"> 1. Objectives of industrial visit are to provide students an insight regarding internal working of companies. 2. Theoretical knowledge is not enough for making a good professional career. 3. With an aim to go beyond academics, industrial visits provide students a practical perspective on the world of work. 4. It provides students with an opportunity to learn practically through interaction, working methods and employment practices. 	<p>During the academic year 2022-23 students are visited the industries.</p> <ol style="list-style-type: none"> 1. National Centre for Characterisation of Materials (NCCCM/BARC), Hyderabad 2. Sumedha IT- Hyderabad 3. MosChip Technologies Pvt.Ltd. Hyderabad 4. Veda IIT, Soctrionics and Invecas, Hyderabad 5. Datalog Controls & Solutions Pvt.Ltd, Cherlapalli 6. LEDChip Indus Pvt.Ltd, Kushaiguda 7. National Institute of Amateur Radio, Somajiguda 8. India Meteorological Department, Begumpet 9. NRSC, Jeedimetla 10. CMET, Hyderabad 11. Doordarshan, Ramanthapur.

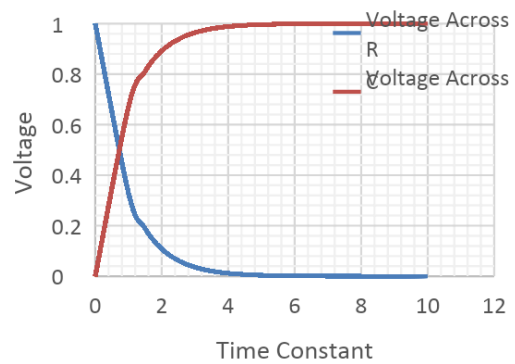
<p>Guest Lectures</p> <p>Guest lectures are an effective way for students to learn about a particular topic or subject from an expert in the field. Here are some potential benefits of guest lectures for students:</p> <ol style="list-style-type: none"> 1. Exposure to new perspectives: Guest lectures can introduce students to different viewpoints and approaches to a subject, which can broaden their understanding and critical thinking skills. 2. Opportunity to ask questions: Students may have the opportunity to ask questions and engage with the guest speaker, which can help clarify their understanding of the material and deepen their learning. 3. Networking opportunities: Guest lectures can provide students with the chance to meet and interact with professionals in their field of study, which can be valuable for building relationships and making connections that may be beneficial in the future. 4. Inspiration and motivation: Hearing from successful professionals in their field of study can be inspiring and motivating for students, helping them to see the real-world applications of their studies and envision their own potential career paths. 	<p>During the academic year 2022-23 a total of 20 Guest Lectures are conducted. Experts from various industry and academia are Enlightened the students.</p>
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<p>Simulation studies</p> <ol style="list-style-type: none"> 1. Simulation is a teaching method that tests students' knowledge and skill levels by placing them in scenarios where they must actively solve problems. The instructor defines the parameters to create a safe environment for hands-on learning experiences. 2. When participating in a scenario, students must quickly evaluate the situation, decide on the best course of action, and perform the correct procedural steps. Educators can then assess whether the students understand the material and are translating their learned knowledge into skills. 	<p>This method of teaching is used in the courses like Circuit theory, Linear Integrated Circuits, Signals and systems during the academic year 2022-23. Some of the simulations are shown below.</p>
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Response of RC Series Circuit With $R=1$ Ohms and $C=0.9F$ for a step signal of 1Volts



Response of RC Series Circuit With $R=1$ Ohms and $C=0.9F$ for a step signal of 1Volts



Workshops

A workshop is a structured and interactive session designed to create an environment for meaningful work and to guide a group through a process that will lead to great outcomes. Workshops are designed to engage students and foster their active involvement in the process

Several workshops were conducted by various professional bodies during the academic year 2022-23.

1. A Three Day Workshop on “Arduino Programming and IoT”
2. Two Week SDP on VLSI Design Flow using CADENCE TOOLS and Promotion of Innovation & Entrepreneurship in Semiconductor industry
3. Workshop on “Arduino Programming and IoT”

	<ol style="list-style-type: none">4. Workshop on "Front end and back end design of VLSI circuits using Cadence Tools"5. Workshop on "Front end and back end design of VLSI circuits using Cadence Tools" Batch 2
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