The objective of Innovative teaching:

1) To make the students industry ready
2) Involving the students actively in educational work
3) To nurture the creativity in students through motivating towards self-learning.
4) To improve the soft skills of students
5) Experimenting new methods and strategies by which we can ensure improvement of student engagement, motivation and attainment of course outcomes.

Innovative Teaching and Learning

Sl.No.	Innovative Practice	Description
1	Moodle/Google Classroom VR Siddhartha Learning Management System Google Classroom	Moodle is a open source learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalised learning environments. Our college customised the Moodle to meet the requirements of our teaching learning processes. During the pandemic faculty members delivered the online lectures using Google Classroom. VR Siddhartha Learning Management System 1. Using our LMS platform faculty members provide quality study materials to enrich students. 2. The course files are distributed among the students by the subject teacher well in advance of the commencement of the class using Moodle/ Google Classroom. 3. Faculty members will organise quizzes to test the understanding levels of core concepts. 4. Students are able to submit the assignments through LMS and are graded by the faculty.
2	Self-Learning: MOOCs NPTEL Coursera	1. Massive Open Online Courses (MOOCs) are free online courses available for anyone to enrol. MOOCs provide an affordable and flexible way to learn new skills and advance career. 2. Students are encouraged to register for NPTEL courses to acquire relevant knowledge, which is beyond the syllabus. 3. Our college has MoU with Coursera through L4G Technologies, Hyderabad. During the pandemic time they offered the Coursera courses at free of cost.

3	Model based Assignment	1. Through Project-based learning (PBL) students are encouraged to develop models for deeper learning. 2. This method blends classroom teaching, technology use, and problem solving through projects and real-world challenges.
4	ICT tools	1. Mode of teaching in our department is not only limited to the traditional Chalk & Talk methods, But also an amalgamation of the modern technology (e.g., power point presentation, audio-visual teaching etc.) 2. Use of modern teaching aids like LCD / LED projectors, Interactive boards, Digital pad, Internet enabled computer systems are usually employed in classrooms and other student learning environments.
5	Flipped Class Room	1. Flipped classroom is an instructional strategy and a type of blended learning adopted to reverse the traditional learning environment by delivering instructional content, often online, outside of the classroom. 2. Faculty will share the course material of a topic such as videos, simulations, programs, PPT, handouts in advance through the LMS or Google Classroom. Students will go through the material and come to the class with preparation. The faculty will initiate the quiz, discussion, assignment on the topic.
6	Tutorials/ Quality Circles	1. Quality Circles creates a student-centric environment where students are involved and encouraged to participate enthusiastically in their learning environments. 2. Quality circles have been very effective tools in bridging three important parameters: "Quality improvement, student engagement, and the student learning experience." 3. In our department quality circles are implemented to make the slow learners active in learning core concepts and make them involved in problem solving.
7	Simulation Tools	1. Simulation tools can transform abstract concepts into interactive visual content, making it easier for students to understand the performance and relationship between different system parts. 2. Students are able to reinforce theoretical knowledge with hands-on-training through simulation tools, giving a better understanding of the material.

		3. Simulation tools also allow students to train and experiment in a safe and controlled environment, avoiding the possibility of damage to themselves and expensive equipment. 4. In our department we have procured licenses for MATLAB, LabVIEW and Keil software's to train the students in design and use of simulations to learn the concepts effectively.

8	Group Assignment (Think, Pair, Share)	1. Group work gives students the opportunity to engage in evaluating and solving problems, as well as management skills through the use of roles within groups. 2. Faculty will divide the students into groups and provide the assignment to each group. After the completion of assignment students will present their solutions in the class.

9	Project based Learning	1. Project Based Learning in our department is a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge. 2. Students work on a project over an extended period of time from sixth semester up to eighth semester that engages them in solving a real-world problem. 3. Students demonstrate their knowledge and skills by developing a prototype or simulation. 4. Students develop deep content knowledge as well as critical thinking, creativity, and communication skills in the context of doing an authentic, meaningful project.

10	Skill Oriented Training through industry collaborative labs NI Academy Automation Lab Process Instrumentation Lab	1. Certification courses are conducted by department to give key knowledge to students in a specific field. 2. It improves the employability skills and promote professional and life-oriented skills of the students. 3. NI Certified LabVIEW Associate Developer certification is offered to the students at free of cost to train the students in LabVIEW programming and NI Data acquisition hardware. 4. Training on PLC, SCADA and Process Instrumentation is offered to the students through Siemens Centre of Excellence. 5. The certification courses helped the students in getting the paid internships and jobs in core industries.

11	Courses delivered by Industry experts Industry 4.0	1. Expert Talks are a valuable source of imparting practical knowledge to the budding engineers, making them feel and experience ground realities of the Corporate World. 2. In our department we designed and offered a course "Industry 4.0" to teach the advancements in industrial automation. The course is delivered by our adjunct faculty who is working in Siemens.

12	Soft-Skills Training Sample photograph of training	1. The Department of Industry relations and Placements regularly organizes Soft Skill classes for our department, based on requirement, to enhance the students' communication skills, analytical skills and body language to equip them for the professional world. 2. Our department students are trained on python programming through Ebox platform. 3. Our department students are trained on communication skills and aptitude by CCC.

13	Industrial Internships	1. Industry based internships enriches learning by connecting theory and practice. It helps understanding of analytical concepts. 2. Students learn to identify, define and solve problems. 3. Immersion in real-world projects helps students learn how to work in a team, develop interpersonal skills, engage and motivate each other to complete a task, and resolve conflicts all essentials of leadership skills. 4. In our department all the students are motivated to undergo Industrial internships in their summer holidays. Department will help the students in finding the internship in the industry. The CLAD certified students are getting paid internships in the industry.

14	Participation in National and International Technical Events/ Conferences	1. Over the past years, the faculties have been participating/presenting papers in national/international conferences and publish their articles in national/international journals to enrich their knowledge. 2. Our faculty are motivating the students to present their project work outcomes in International Conferences and Journals to impart the article and report writing skills. 3. The students are also motivated to participate and exhibit the models developed by them in the National and International Technical Events organised by premiere institutes IIT's, NIT's, IIIT's 4. Many of our students are publishing their work in international conferences and journals and also presented the models in National and International Technical events.

15	Webinars/Workshops/ Guest Lectures Sample Workshop Images	Arranging Workshops, seminars, Guest lectures and live Webinars by eminent Professors and industry experts in our department is helping the students in learning the advanced concepts in thrust areas like process control, embedded systems, industrial automation, biomedical instrumentation etc.

16	Industrial Tours	1. Industrial visits and trainings are organized for students to bridge the gap between theoretical learning and practical training in a real-life environment. 2. Students understand the industrial practices and organizational hierarchy during industrial visits. 3. Students learn about the current trends in the market, the future scenario of the industry and the new technologies that are being applied in the industry. 4. Industrial visits provide Opportunity to interact with Industry Experts and also, the faculty members get to know about the industry's latest trends. 5. Provide an opportunity for students to see and experience real workstations, plants, machines, systems, assembly lines, and interact with highly trained and experienced personnel. 6. Industrial trips help students to enhance their interpersonal, communication skills, and teamwork abilities. 7. Our department will organise the industrial visits frequently to all the students every semester to gain the above skills.

17	Developing prototypes	The skill of prototyping involves many sub-skills depending on the type of product or system that is created (physical product, computer code, etc.). Prototyping is important because it… 1. Requires students to use logical thinking skills as they create a design plan for their prototype 2. Provides opportunities for students to gain experience with the proper use of tools, development boards, equipment, sensors and materials. 3. Provides opportunities for students to learn to be flexible (e.g., what do to when things do not work as planned) The department established Innovation and Incubation centre to provide the students necessary embedded hardware, sensors, facility for PCB making, soldering stations, Test & Measurement

		hardware and software packages. Our students are using the facility to develop the prototypes and presenting them in national and international technical model exhibitions.

18	Professional Society Activities	1. Co-curricular and extracurricular activities are conducted every semester to motivate the students and to improve problem solving capabilities, leadership abilities in multidisciplinary teams, cooperation in team work, consciousness in professional ethics and administering critical situations. 2. These activities include Webinar, Aptitude Training, Social Welfare Camp, Problem solving, Entrepreneurship Development Programs, Critical Thinking, Group Discussion, etc. 3. The department has Instrument society of India (ISOI) student chapter and all the students are members in the society. Faculty coordinator with the help of student volunteers organises the above said programs periodically. 4. The department students are also the members of IEEE student chapter of our college and are benefited by the IEEE student member benefits.

19	Digital Library	1. The college library not only possesses plenty of books to meet the students' syllabus-oriented needs, but it also houses numerous books by eminent national and international authors on a variety of topics which students may regularly access to sharpen and broaden their knowledge. 2. There is a digital library facility in the campus and the students are encouraged to refer to journals and conference proceedings for their project works and seminars in the latest topics. 3. The library also possesses a number of magazines and periodicals also related to different branches of science and technology, which the students may readily access. 4. The library also includes a computer room with Internet access, which is often used by students to access various forms of e-materials for their self-development. 5. we are providing Centralized network storage and access from anywhere in the campus with computers. In this server we are providing ebooks, eJournals, Old Question Paper, Video Lessons and News Paper Clippings.

		6. Library has Online Public Access Catalogue (OPAC). Using this server, students know the status of the Central Library Books available.

20	Smart Classroom	1. Smart Classroom facilities are provided to students for the better understanding of concepts. 2. The institution class rooms are equipped with interactive smart boards. 3. Our Smart classroom make learning more dynamic since it facilitates different form of presenting information. 4. In Smart classes all interactive modules like videos and presentations are used. 5. This visually attractive method of teaching becomes appealing to students. Smart classes help students to easily relate the concepts with the animated visuals.