NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

Pampady ,Thiruvilwamala ,Thrissur (Dist) - 680 588

Accredited by NAAC

Approved by AICTE & Affiliated to APJ Abdul Kalam Technological University,
An ISO 9001-2015 Certified Institution

DEPARTMENT OF

MECHATRONICS

INFORMATION BROCHURE

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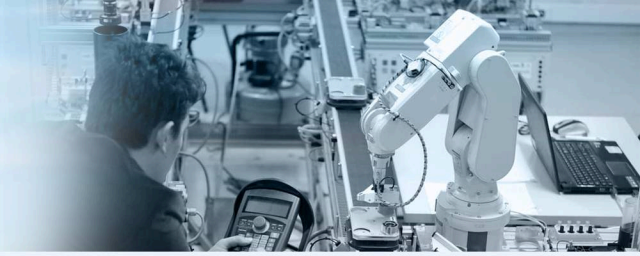
ABOUT INSTITUTION: Nehru College of Engineering and Research Centre(NCERC), situated on the Bank of the river Nila, is a premier Engineering college that has pioneered engineering education, research and training in the private sector. Established in 2002 by the founder chairman Shri P.K. Das, NCERC is committed to impart world class quality education in engineering and research. Dedicated to the service in the realm of technical education in Kerala, it is an ISO 9001:2015 certified institution, approved by All India Council for Technical Education (AICTE), affiliated to A P J Abdul Kalam Technological University(KTU) and is accredited by National Assessment and Accreditation Council (NAAC). Over these years NCERC has grown to be one of the Best Self Financing College in Thrissur, Kerala.

DEPARTMENT OF MECHATRONICS



ABOUT DEPARTMENT

NCERC is the first institution offered the Mechatronics Engineering since 2013 (Approved by AICTE New Delhi and Accredited by NAAC and Affiliated to the University of Dr. A P J Abdul Kalam Technological University)provides a platform to create and apply knowledge by thinking and doing in this rapidly changing world. We aim to provide our students with a perfect blend of intellectual and practical experiences that helps them to be a King of industrial automation.

This program developed in direct response to industrial demand for engineers with multidisciplinary skills is a combination of Mechanical, Electronics, Computer, Telecommunications, Systems design engineering streams. Here we allow our students to design, construct and run automated processes, where they use their skills in computers, micro-controllers, programmable logic controllers, programming, industrial sensors, hydraulic, pneumatic and electronic drives, the design of mechanical structures and mechanisms and knowledge of manufacturing processes.

HOD'S MESSAGE

Dr. Bobby N D
Professor &
Head Mechatronics

" Education is the most powerful weapon which you can use to change the world "
Dr APJ Abdul Kalam

Welcome to the department of Mechatronics Engineering, Nehru College of Engineering and Research Centre, the esteemed Institution, Pampady, Kerala.
The department of Mechatronics was started in the year 2013, with annual intake of 60 students.

The department boasts of well qualified faculty who are all dedicated to teaching and research, making a difference in students' lives and transforming them as good Engineers . The department is committed to impart quality education through regular class room teaching and guest lecture, nurturing the innovative ideas of our students. The department encourages our students to participate in extracurricular and co-curricular activities.
our department has excellent infrastructure and lab facilities, strives towards excellence in the field of ROS applications. We have Mechatronics association, which constantly encourage and motivate students and faculty to conduct and participate seminars, conferences, workshop, go for internship, and to participate themselves in industry interactions. The department encourages both staff and students for research and development activities, to participate in sports and cultural activities, also providing value added courses towards excellence in this field. The students of Mechatronics have been recruited by renowned companies control, robotics, intelligence and automation industries.

In a nutshell, the department is working in the direction of shaping up the students to make them global competitive technocrats and good Samaritans of our country.

VISION

To develop professionally ethical and socially responsible Mechatronics engineers to serve the humanity through quality professional education.

MISSION

MD 1: The department is committed to impart the right blend of knowledge and quality education to create professionally ethical and socially responsible graduates.

MD 2: The department is committed to impart the awareness to meet the current challenges in technology.

MD 3: Establish state-of-the-art laboratories to promote practical knowledge of mechatronics to meet the needs of the society.

NEHRU GROUP

Moulding True Citizens

OUR HIGHLIGHTS

1. Fully Equipped Laboratories.
2. Very good infrastructure with smart class rooms.
3. Highly qualified teaching and non teaching faculties.
4. Ten entrepreneurs in last three years.
5. More than 15 university rank holders in last 4 years.
6. First engineering college with mechatronics engineering branch, since 2013 in Kerala.
7. Our mechatronics program has NAAC accreditation, ISO 9001-2015 certified and the only college have NBA SAR submitted for the program in Kerala

CERTIFIED ADD ON COURSE OFFERED

- ROBOTIC OPERATING SYSTEM
- ROBOTIC PROCESS AUTOMATION
- CAD/CAM
- SCADA & INDUSTRIAL AUTOMATION
- VLSI DESIGN
- PYTHON PROGRAMMING
- PRO-e
- FAB LAB & 3D PRINTING TECHNOLOGY

DEPARTMENT OF MECHATRONICS

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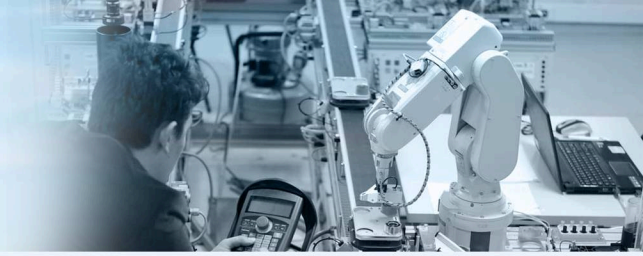
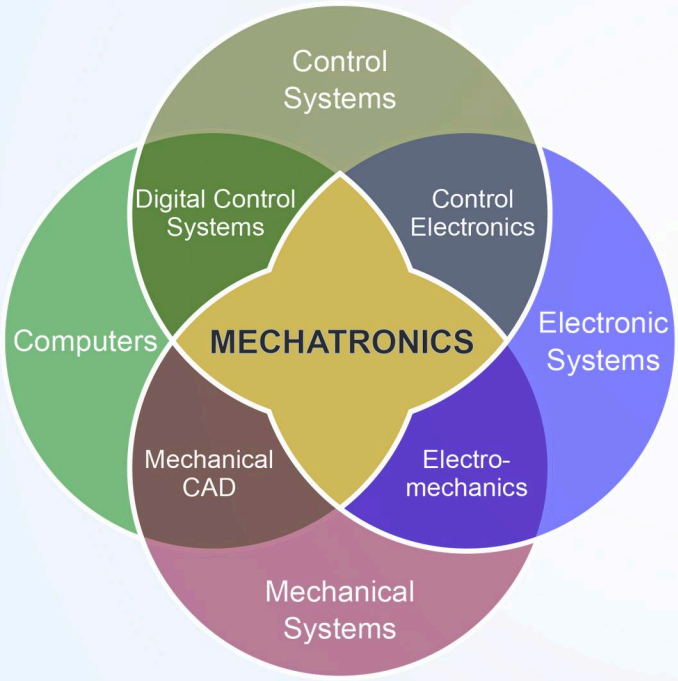


CAREER SCOPE

Who is a Mechatronics Engineer?

Mechatronics is a multidisciplinary field of engineering. It combines both electrical and mechanical systems, and also includes a combination of fields like robotics, electronics, telecommunications, systems, control, and product engineering. Individuals who opt for a career as mechatronics engineers design, develop, maintain as well as manage the high-technology based engineering systems for the automation of several industrial tasks. Mechatronics engineers apply mechatronic or automated solutions to the transfer of material, components or finished goods. Not only that, they also apply advanced electronic control systems, which are usually computer-driven.

The career of a mechatronics engineer gives the chance to construct new products. Different kinds of job opportunities are available in the entertainment as well as the manufacturing industry. Most manufacturing companies have an entire team of several mechatronics engineers who are responsible for handling operations of different manufacturing units. The field of mechatronics engineering includes several disciplines therefore, the job opportunities are immense especially in a developing country like India.



What is the role of Mechatronics Engineer?

We've noticed how machines have replaced human labor in a lot of industries not just in our personal lives. This reduces cost as well as increases efficiency and precision in work. But, who makes these automated machines for these industries? The answer is a mechatronics engineer is responsible for this job. Individuals who opt for a career as a mechatronics engineer are assigned with tasks that involve production as well as the generation of several automated activities. It is their job to take care of any glitches and carry out the production efficiently. Individuals who opt for a career as mechatronics engineers also does cost analysis of the machinery in order to enhance them further and upgrade their systems.

Developing solutions

Individuals who opt for a career as a mechatronics engineer need to develop solutions for industrial problems using mechanical and electronic processes and computer technology. Mechatronics engineers need to be innovative as well as cost-effective in developing solutions to industrial problems. Mechatronics engineers aim should be to give solutions to a problem that can improve efficiency in the production and manufacturing process thereby, saving money and contributing to a larger profit share for the company.

Integrating technology

Mechatronics engineering, as the word suggests is a multidisciplinary field of engineering. Individuals who opt for a career a as mechatronics engineer design and builds completely new products by integrating various technologies like mechanical, electrical, robotics, mechatronics examples include, including developing robotic vehicles for underwater exploration. They combine the use of different engineering fields in order to give better output in terms of automated machinery.

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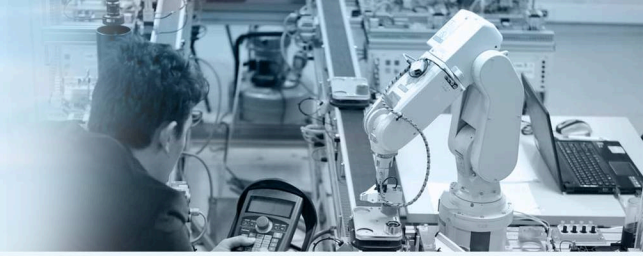


Testing

Any company cannot afford to stop the manufacturing of their products. Therefore, mechatronics engineers take care of all the machinery that is used as the part of production. Individuals who opt for a career as a mechatronics engineer not only builds the machinery but also conducts several tests in order to ensure smooth factory production lines. Mechatronics engineers also try to introduce automation to improve the existing processes.

Optimizing

Several new technologies have evolved over time and mechatronics engineering has played a major role in not just bringing up new industry solutions but also by improving the existing technologies. Individuals who opt for a career as a mechatronics engineer aim at maintaining and improving the previous industrial and manufacturing processes and designs, few mechatronics examples are, robotic lawn mowers and robot floor cleaners. These are forms of improving the existing technologies in the field of mechatronics engineering

Application of technology

Individuals who opt for a career as a mechatronics engineer apply advanced control systems, which are usually computer-driven. They apply electronic and mechanical processes and use computers to complete tasks where the use of human labour may be dangerous for example, underwater exploration, mining or forestry.

Budgeting

Individuals who opt for a career as a mechatronics engineer need to study the feasibility, cost implications and performance benefits of new mechatronic equipment. They carry out modeling, simulation and analysis of complex mechanical, electronic or other engineering systems using computers. This all is important because mechatronics engineers try to build machinery which is cost-efficient.

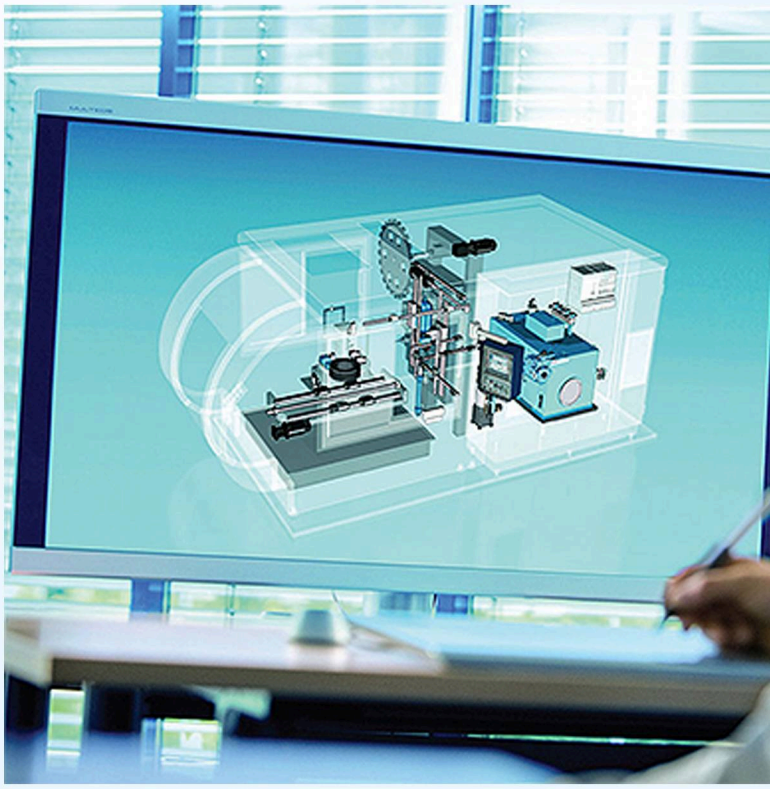
Types of a Mechatronics Engineer

Automation Engineer: An automation engineer is responsible for designing, programming, simulating and testing automated machinery and processes in order to complete exact tasks. Automation engineers are typically employed in industries such as car manufacturing or food processing plants, where robots or machines are used to perform specific functions. These types of mechatronics engineers make sure that the production process is taking place seamlessly.

Robotics Engineer: A robotics engineer creates applications or autonomous machines for various kinds of industries such as mining, manufacturing, automotive, services and more. Robotics mechatronics is a discipline of engineering which revolves around building machines and equipment that are capable of carrying out human actions.

Instrumentation engineer: Instrumentation engineers are responsible for carrying out several responsibilities like planning, installing, monitoring and maintaining the control systems as well as the machinery within the manufacturing environments of a company or an organization. Instrumentation engineers typically work with control processes that use sensors to provide feedback about the machinery being used. These types of mechatronics engineers play a major role in the seamless operation of manufacturing units of different companies.

Troubleshooting Engineer: The job of a troubleshooting engineer is to research and identify the solutions to different software and hardware issues. The troubleshooting engineer diagnoses and troubleshoots several technical issues, including account setup, network configuration and other issues that arise. These types of mechatronics engineers aim at asking customers targeted questions to quickly



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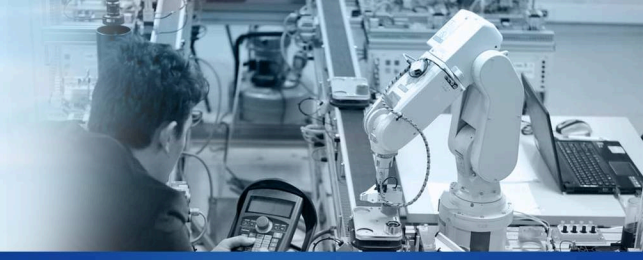

UNIVERSITY RANK HOLDERS 2016-20 BATCH

DEPARTMENT TOPPERS 20-21

UNIVERSITY RANK HOLDERS 2015-19 BATCH

UNIVERSITY RANK HOLDERS 2014-18 BATCH

UNIVERSITY RANK HOLDERS 2013-17 BATCH

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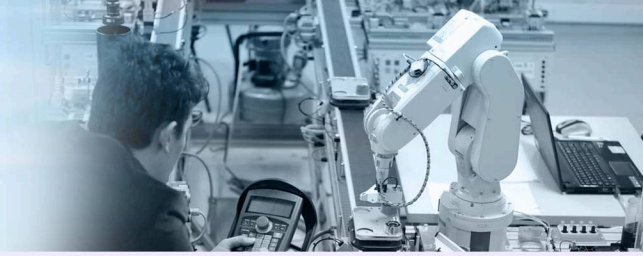

DEPARTMENT ENTREPRENEURS

1. ORBCRUX LLP

Midhun Headly

Sharooque Shahjahan

Our students Sharooque Shahjahan and Midhub Headly Lawrance has received an amount of 2.5 Lakhs from NEWGEN IEDC to develop their product of "SOWAFIS-Soap Water Filtration system" under their own start up company "ORBCRUX" which is incubated to NGI TBI.

2. FURITECH INNOVATIONS

Anas Mohammed Ali

Mohammed Asarudeen

Mridul Mohandas

Rahul K R

Our students Anas Mohammed Ali and Mohammed Asarudeen has developed " Automated and Portable Vertical Solar Tracker-APVSS" under their own start up company "FURIRECH INNOVATIONS " which is incubated to NGI TBI.

3. LEWENHOLK TECHNOLOGIES

Suryakanth Shenoyi

Our student Suryakanth Shenoyi has developed " Advanced PCB developing technology without fetching" under their own start up company "LEWNHOLK TECHNOLOGIES " which is incubated to NGI TBI.

NATIONAL LEVEL ACHIEVEMENTS

Mohammed Favas M (2nd Year) won Gold Medal in National South West kick boxing championship 2020 held at Maharashtra

ALUMNI TALK

Mr. Ribin Mathew pass out student of department of mechatronics had presented a webinar on Advance trends in Robotics

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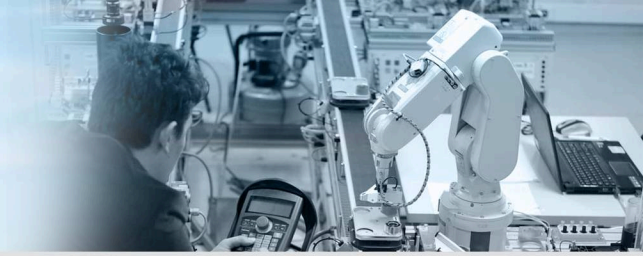

LABORATORY FACILITIES

ELECTRONIC DEVICES AND CIRCUITS LAB

The Electronic Circuits Lab is a series of breadboard stations where students build various electronic circuits to study the theory behind the fundamental building blocks of electronic systems, such as resistors, capacitors, inductors, etc. The basic objective is to give hands-on experience in the design and implementation of analog and mixed-signal circuits.

FLUID MECHANICS AND MACHINERY LAB

The main objectives of this lab is to demonstrate the applications of theories of basic fluid mechanics and hydraulic machines and to provide a more intuitive and physical understanding of the theory

LINEAR INTEGRATED CIRCUIT AND DIGITAL ELECTRONICS LAB

In this laboratory, students deal with digital circuits. A digital circuit is a circuit where the signal must be one of two discrete levels. Each level is interpreted as one of two different states (for example, on/off, 0/1, true/false). Digital circuits use transistors to create logic gates in order to perform Boolean logic. This logic is the foundation of digital electronics and computer processing. Digital circuits are less susceptible to noise or degradation in quality than analog circuits. It is also easier to perform error detection and correction with digital signals

MICRO PROCESSORS AND MICRO CONTROLLERS LAB

Microprocessor & Micro controller lab helps the students enhance their knowledge about various processors such as 8085, 8086, microcontrollers and also the interfacing of these processors with other equipment's. Students will get practical tips for building circuits and programming the microcontroller in the C programming language. The features and facilities available in this lab will help the students do their projects and enhance their knowledge about the latest trends and technologies

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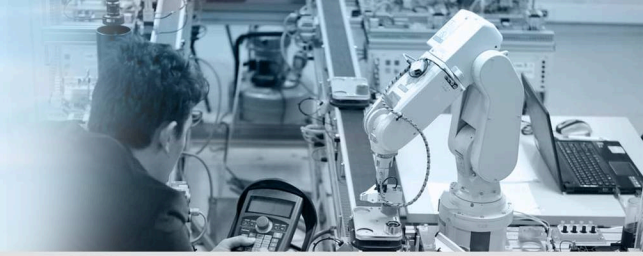
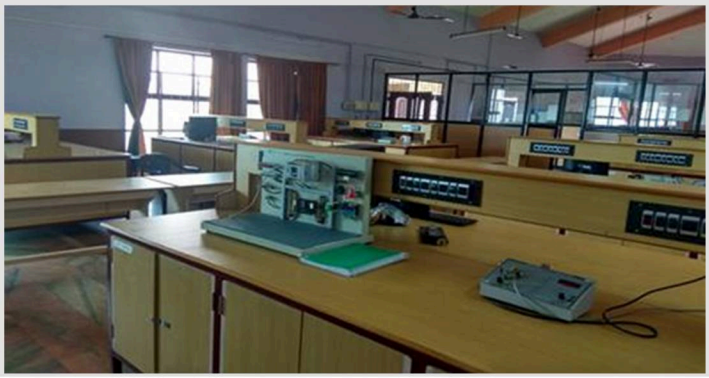


LABORATORY FACILITIES

MEASUREMENTS AND PLC LAB

The sole purpose of this lab is to provide hands on experience to students on measuring instruments and PLC. After the successive completion of this lab, students get an overall idea about the wiring, programming and testing of industrial grade PLC. Along with this, practical sessions in the various measuring devices like LVDT, RTD, LDR, load cell and AD590 gives an edge to their successful industrial career.



ADVANCED INSTRUMENTATION LAB

To make students familiar with the technique of measuring product parameters like pressure, temperature, vibration, rotational speed, torque and force, along with various techniques in metrology. After the success completion of this lab, students understand the practical concepts of the various measuring terminologies.

MECHATRONICS LAB

To provide hands on experience on the working of hydraulic and pneumatic controls, speed control and PLC controllers and also helps the students to impart knowledge on programming of robots

ELECTRICAL TECHNOLOGY LAB

This is the main lab where experiments like load test on various machines, speed control tests, open circuit tests, short circuit tests, etc. are carried out and also wide variety of practical experiments are performed here with combination of different rotating machines. The laboratory is also used for research activities in machines and to carry out project works on energy conversion.

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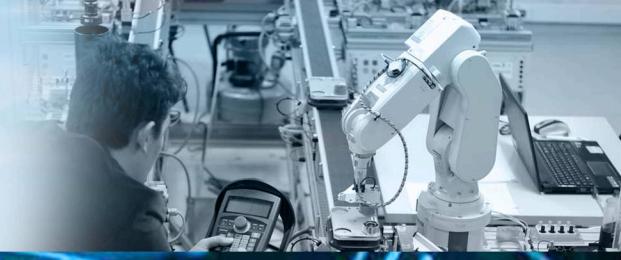
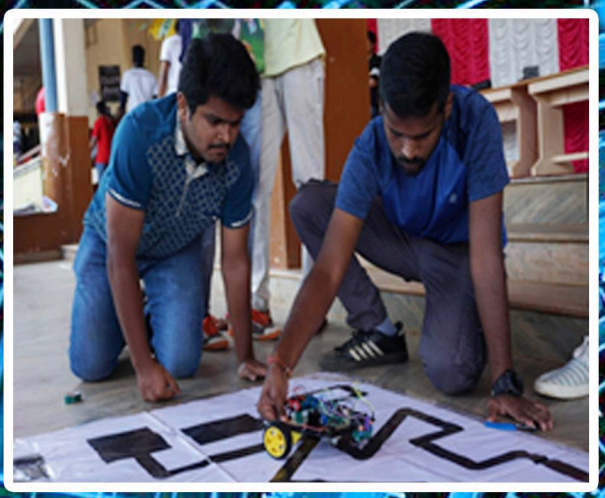


GLIMPSES OF N-SITE



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& Explore the future

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