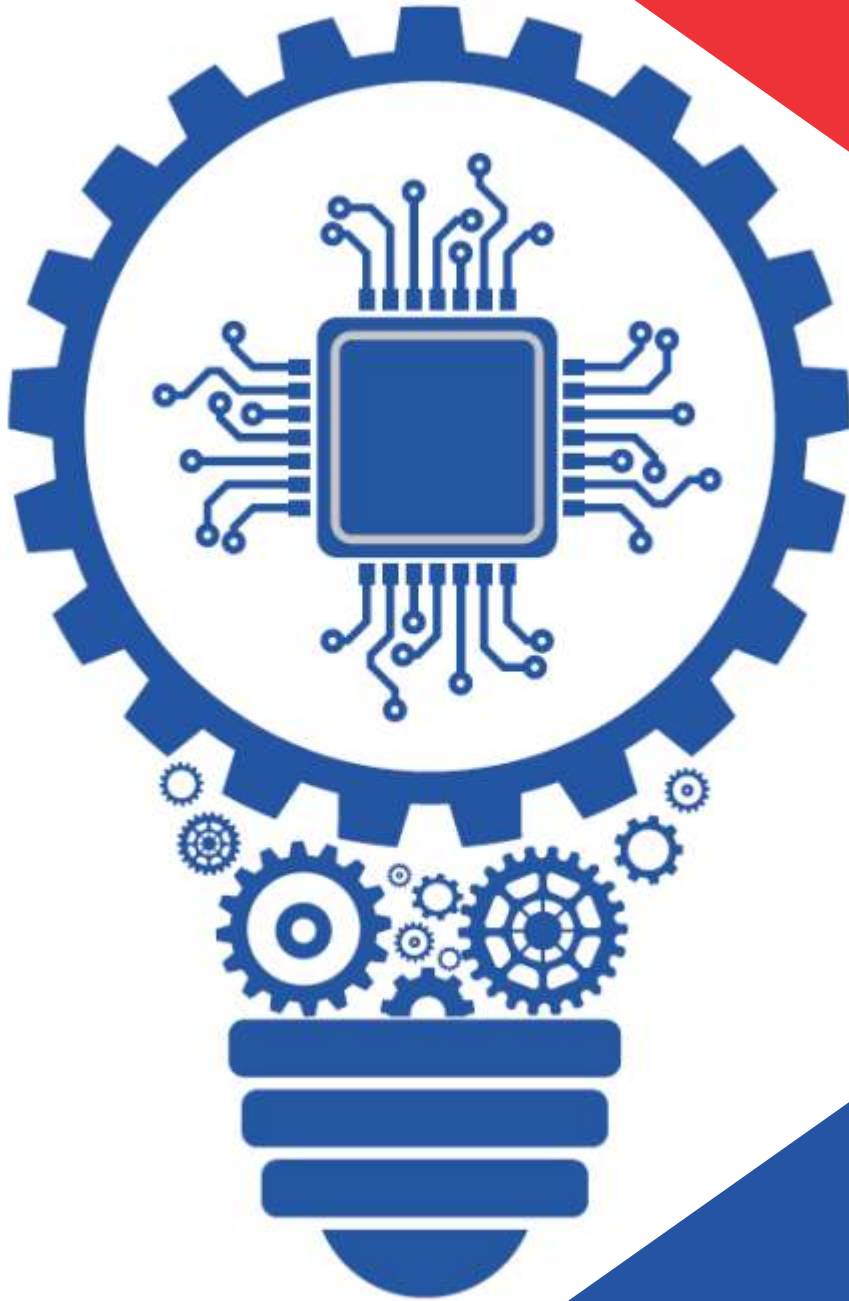


MECHATRONICS PROGRAMME



BROCHURE



INSTITUTE *for* INDUSTRIAL TECHNOLOGY





ABOUT IIT

A Project of African Development Foundation (ADF)

Technical Vocational Education and Training (TVET) Institution

Transforming Lives...

- Conducive learning environment
- Over 19 years of quality service delivery
- Well equipped labs, workshops, and e-learning centre
- International standards, local relevance
- Combination of In-School and In-Company training
- Tutorial/counselling system
- Sporting facilities
- 70% practical content
- Quality technical education with strong emphasis on work ethics and values



6 months

Target Participants
Practicing Technicians and Engineers,
Graduates of tertiary institutions.

- Work Values
- Engineering Drawing / Blueprint Reading
- Computer Aided Drafting
- Pumps and Compressors
- Mechanical Measurement and Fitting
- Mechanical Drives Maintenance
- Fundamentals of Electrics
- Power Electronics
- Industrial Motor Controls & Maintenance
- Variable Speed Drives
- Sensor Technology
- Fundamentals of Pneumatics Automation Systems
- Electropneumatic Controls
- Fundamentals of Industrial Hydraulics
- Fundamentals of Programmable Logic Controls (PLC)
- Advanced Programmable Logic Controls
- Fundamentals of Process Control & Instrumentation
- Industrial Communication (Field Bus) Systems
- Process Visualization and Control

MECHATRONICS

The Mechatronics program in IIT is aimed at equipping participants with essential knowledge and hands-on, up-to-date engineering skills required by employers in the Breweries, Food and Beverages, Petrochemicals, Oil and Gas, Engineering services and Manufacturing sectors.

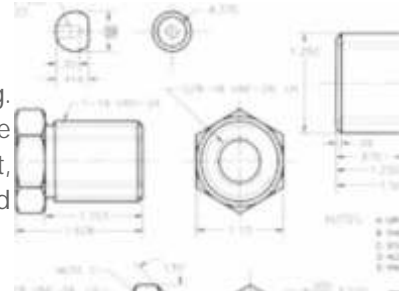
Mechatronics combines technologies like Mechanics, Electrics/Electronics and Information Technology; it especially covers the inter-phases between separate technologies and their collaboration in integrated and networked production systems. It attempts to help graduates of tertiary institutions and/or workers from industry back-up their theoretical knowledge with the relevant skills.

The course modules cover analyses, Commissioning and Programming of networked factory and process automation systems. The participants will use modern state-of-the-art learning equipment at the Institute. At the end of the course, each successful student will be awarded IIT's certificate of completion in Mechatronics. IIT is widely recognized for providing well trained workers for industry. A strong emphasis will be placed on work ethics throughout the course.

Admission is open for this programme throughout the year

ENGINEERING DRAWING/BLEUPRINT READING

This course covers the basics of engineering drawing and blueprint reading. Course is designed for trainees with little or no drafting background. Course content includes careers in drafting/engineering, use of drafting equipment, drafting techniques, lettering, geometric construction, multi-view and isometric drawings, sectional and auxiliary views, and basic dimensioning...



MECHANICAL MEASUREMENTS & FITTINGS

This course deals with the selection, proper use, and maintenance of mechanical measuring instruments. Care in the handling of the instruments is emphasized. The use of measuring templates is also emphasized. Also, it provides trainees with the basic skills on bench work. Strict compliance to correct work procedures and techniques as well as safety practice is given strong emphasis...



FUNDAMENTALS OF ELECTRICS

The course is designed to provide knowledge of the fundamental principles, concept and terminology of electrical technology. It provides the background for understanding and application of concepts in electrical trade including electrical installations, measuring instruments, signal processing, power transfer and energy conversion process..



ELECTROPNEUMATIC CONTROLS

This course deals with the control of pneumatics actuators using pneumatics and electrical sensing and switching devices. Electrical principles are covered at a basic level, but some previous knowledge of pneumatic equipment is required. Both functions and operation of switches, relays, and solenoid operated valves and proximity sensors are included and trainees put theory into practice through practical hands-on exercises...



PUMPS AND COMPRESSORS

This subject deals with the study of the principles, operation and maintenance of pumps and compressors. Basic fluid principles of hydraulic, centrifugal pumps, rotary pumps, reciprocating and special service pumps as well as their parts and auxiliary devices. It also deals with the study of compressed air fundamentals, compressor accessories, principles of dismantling and assembling of machines mentioned above...



POWER ELECTRONICS

This course is designed to teach trainees about electric power control, regulation and conversion (ac to dc, dc to ac, and dc to dc) by the use of semiconductor devices and electronic circuits. It also deals with the use of electronic techniques for control of electric motor operational characteristics (speed, torque, etc.)...



ELECTRICAL MOTOR OPERATION AND MAINTENANCE

This course deals with the principles of operation, construction, circuit connection, and characteristics of AC motor controllers. Starting with fundamentals, it proceeds step by step, through all the basic kinds of starters the participant-trainee will encounter in the industry. It explains what kinds of controls are available, how they operate, where they are used and why they are designed to operate as they do...



VARIABLE SPEED DRIVES

This course also provides trainees with fundamental working principles of variable speed drives. Using practical hands-on exercises on VSD, the trainees learn how to select, install, program, maintain, or troubleshoot variable speed drives. Trainees will also become familiar with the drive's Human Machine Interface (HMI), which allows programmers, maintainers, and trouble-shooters access information stored within the drive...



WORK VALUES - PRINCIPLES OF EFFECTIVENESS

Personal effectiveness has long been recognized as the foundation for interpersonal and organizational effectiveness. In this module, the trainees will be exposed to the 7 Habits of highly effective people and 5S methodology. They will be encouraged to incorporate the 7 Habits and 5S methodology into their personal, family, social and professional life...



COMPUTER AIDED DRAFTING

This course is designed to prepare to student who possess manual electrical/mechanical drafting skills with entry level skills in computer assisted drafting. Upon successful completion of this course the student will have a working knowledge of how to properly use a CAD system and how it applies to the industry. Practical aspects include all drawing and editing features of the AutoCAD computer graphics software...



FUNDAMENTALS OF INDUSTRIAL HYDRAULICS

This course deals with the fundamental concepts related to the control of hydraulics equipment. It covers the knowledge of the physical laws and relevant standards and units, the technical terms and their definitions, as well as the design and principles of operation of the different basic hydraulics control elements. Laboratory practice includes simulations of hydraulics control circuits...



ADVANCED PROGRAMMABLE LOGIC CONTROL (ADVANCED PLC)

Designed to further develop trainees' programming skills, the course aims to improve their ability to convert control tasks to fully operational systems. The course continues on from the 'Basics to PLCs' course, with the development of more complex control problems. Additional functions such as timers and counters are used with sequential controls, and conditional programs plus manual, auto and reset control functions. A strong emphasis is placed on safety and appropriate work practices throughout the course, especially during the practical sessions...





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