



**Addis Ababa University
Addis Ababa Institute of Technology
School of Mechanical & Industrial Engineering**

***Greetings from the
moving world!***



**School of Mechanical and
Industrial Engineering**

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Dean**

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Outline

Mechanical Engineering, the discipline
SMiE Programs
What to expect
Job and Career Prospects



MECHANICAL ENGINEERING

THE DISCIPLINE

- One of the **oldest and broadest areas of engineering activity**
- Most **versatile** discipline
- Mechanical engineering, is concerned with machinery, power, and manufacturing or production methods

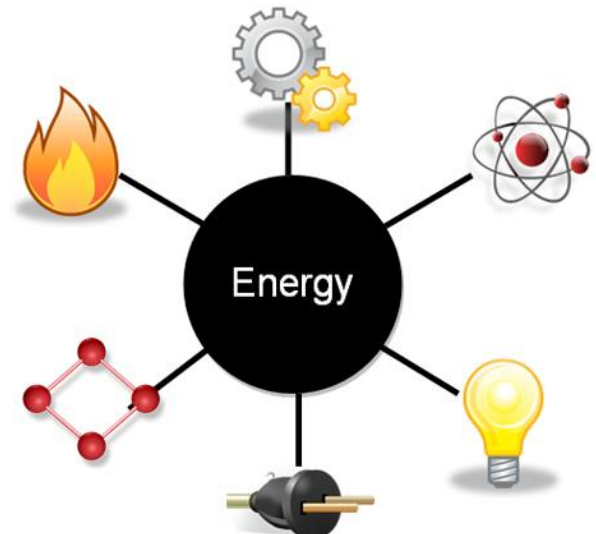
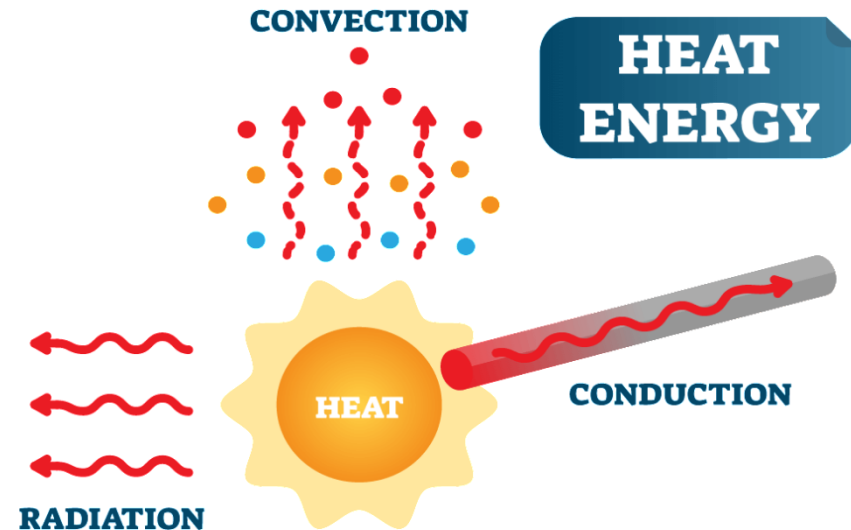


If something **moves** or **uses energy**, a mechanical engineer is involved in its design or production.

MECHANICAL ENGINEERING



MECHANICAL ENGINEERING



Energy Conversion

MECHANICAL ENGINEERING



Maintenance



Manufacturing

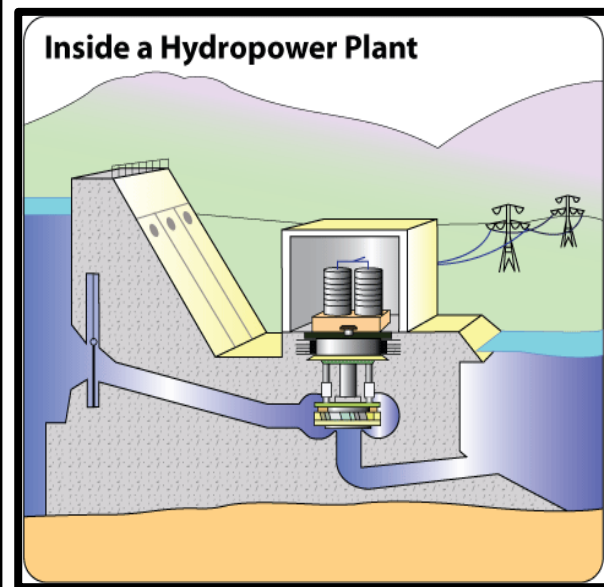
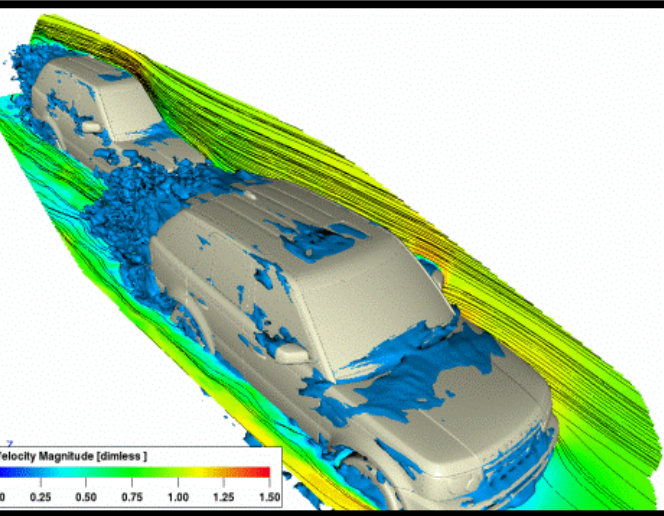
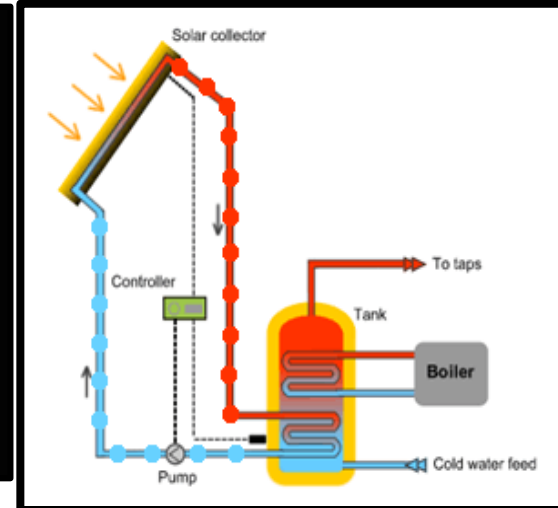
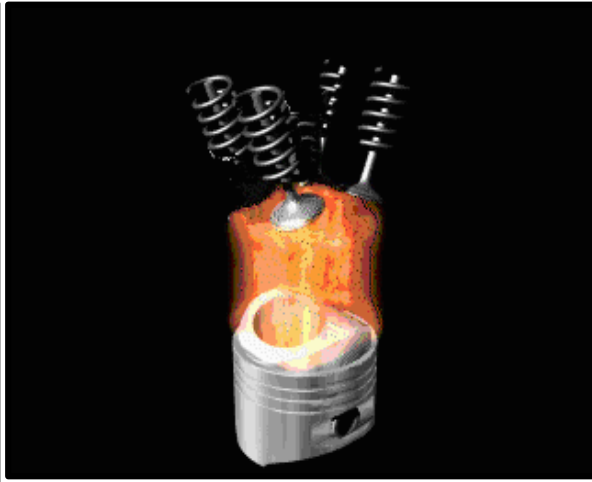
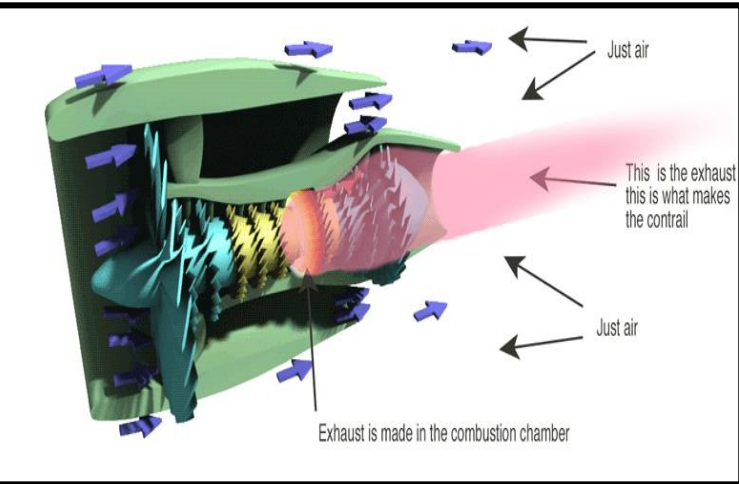


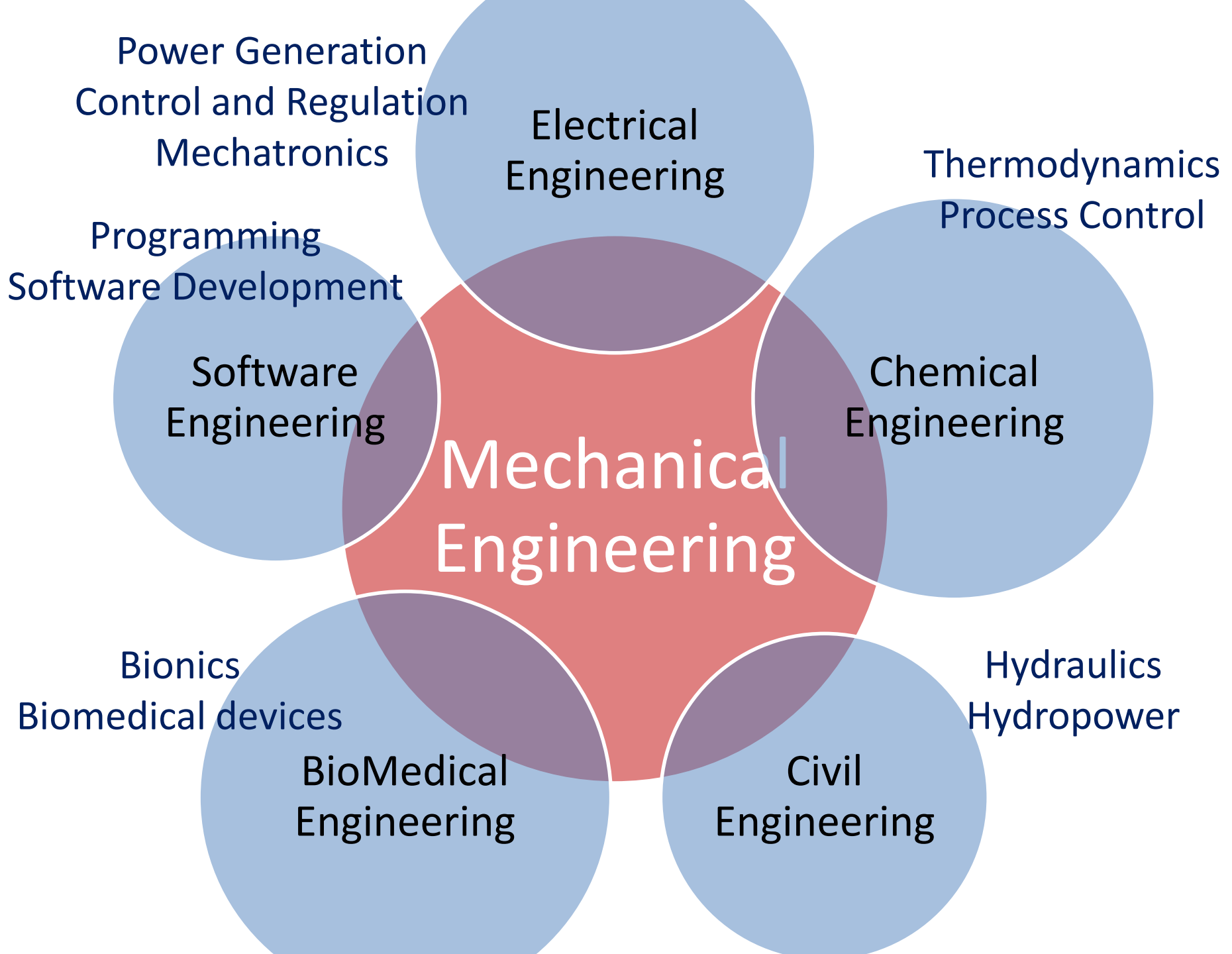
Plant Layout



Process

Mechanical Engineering





Professional Profile

PROFESSIONAL TITLES

- Design Engineer
- Manufacturing Engineer
- Materials Engineer
- Maintenance Engineer
- Installation Engineer
- Utilities Engineer
- HVAC Engineer
- Equipment Engineer

MANAGEMENT TITLES

- General Manager
- Technical Manager
- Operation Manager
- Maintenance Manager

History

School of Mechanical and Industrial Engineering

Since 1959E.C

First graduates 1963E.C

2500+ Graduates

5 MSc Programs

4 PhD Programs

About our programs

SMiE

F
O
C
U
S

A
R
E
A
S

BSc

Mechanical
Design

Thermal

Manufacturing

Industrial

Motor Vehicle

Railway

MSc

PhD

Tracks in MEng

Mechanical Design

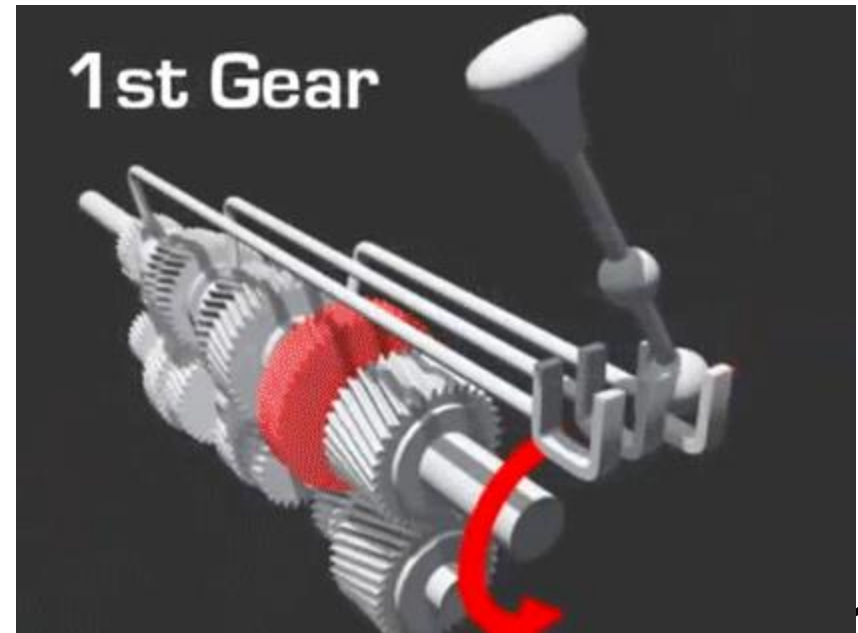
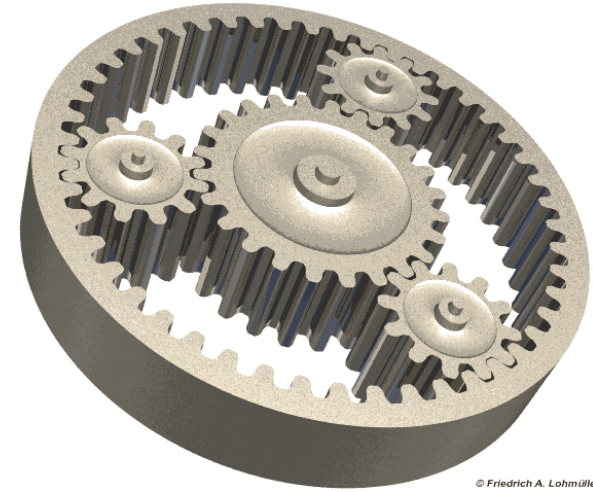
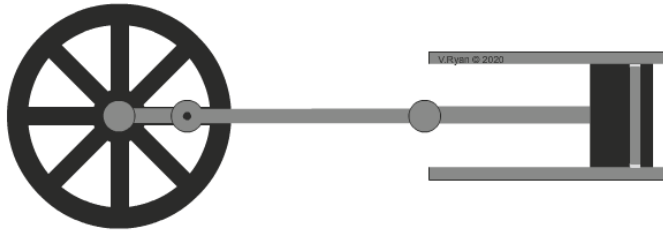
- Analysis through 2D and 3D modeling
- Strength and dynamic analysis
- Tribology
- Prototype manufacturing and testing
- Solid mechanics
- Design and maintenance of mechanical parts



Major courses:

- Mechanisms of machinery
- Machine Elements
- Mechanical Vibration
- Mechatronics
- Regulation and control
- Instrumentation and measurement
- Advanced Machine design
- Tribology
- Pneumatics and Hydraulics

Mechanical Design Cont..



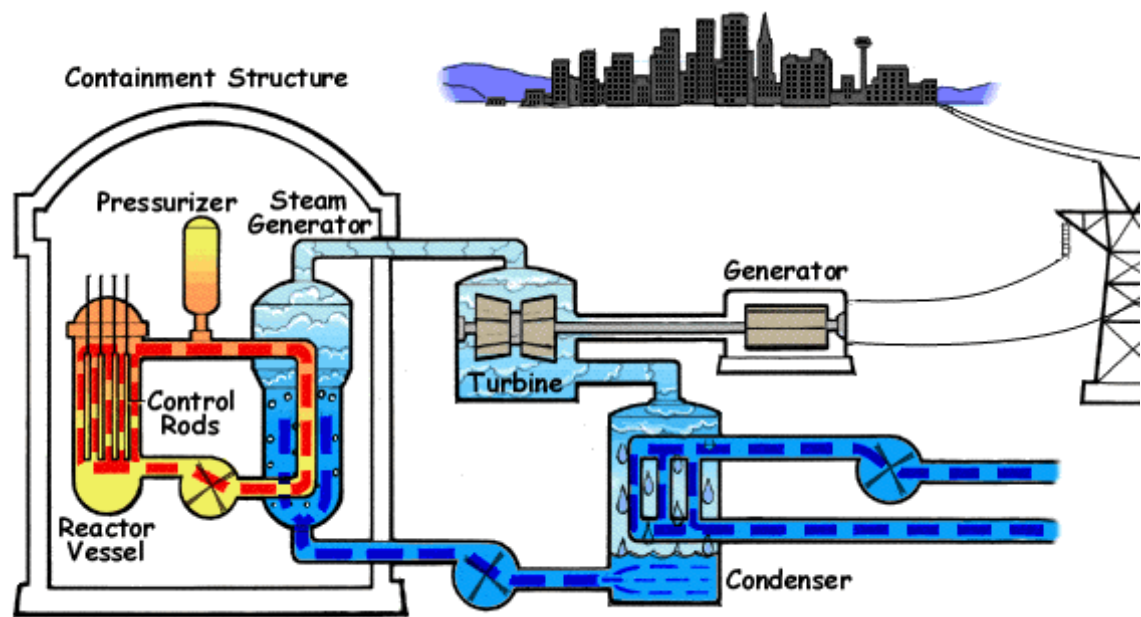
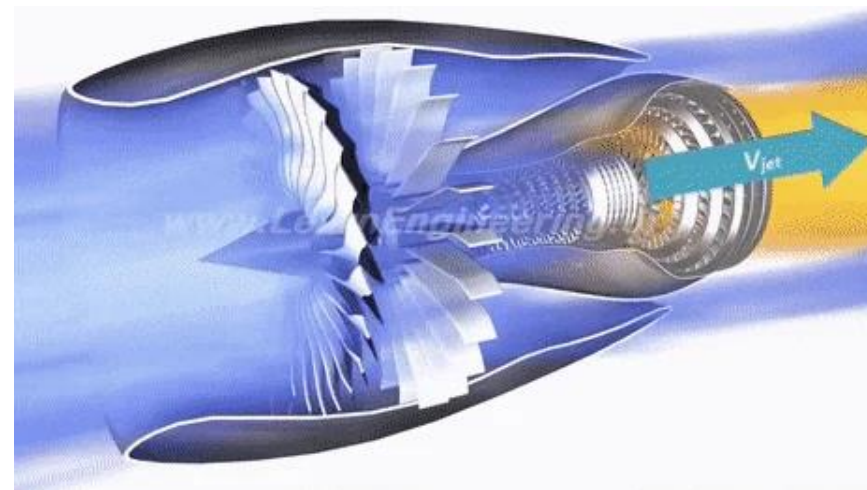
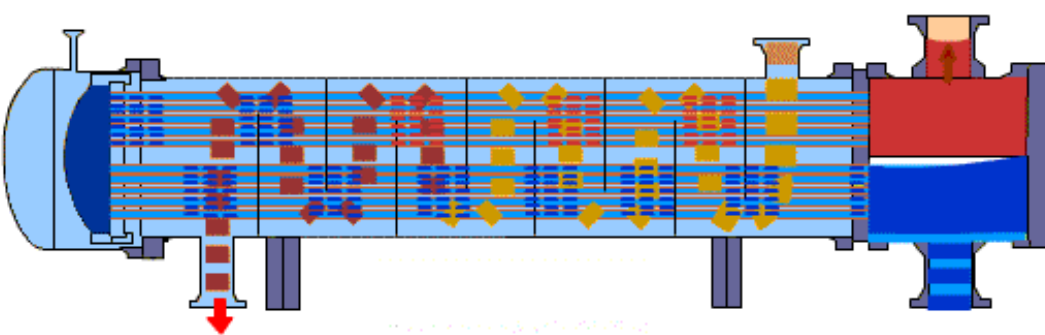
Tracks in MEng

Thermal engineering

- Design of pumps, turbines, compressors and piping and other systems
- Design of air craft engines and body
- Determine lay-out of energy conversion system and supervise installation
- Design of air conditioning, boiler and heat exchangers
- Optimize energy utilization in plants
- Design, procurement of equipment, installation, test and commissioning thermal power plants, renewable energy conversion systems and HVAC systems.

Major Courses

- | | |
|---------------------------------|------------------------------------|
| ■ Turbo machinery | ■ Gas Turbines and Jet Propulsion |
| ■ Fluid Mechanics II | ■ Power Plant Engineering |
| ■ Heat Transfer | ■ Refrigeration & Air Conditioning |
| ■ Appropriate Energy Technology | ■ Machines Lab Exercise |



Tracks in MEng

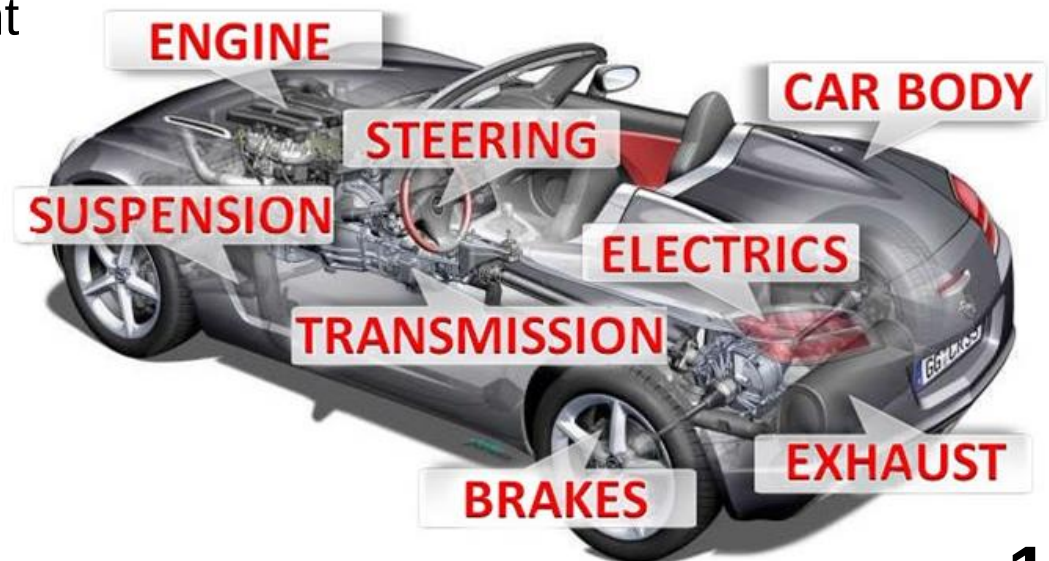
Motor Vehicle Engineering

Major courses:

- IC Engine & Reciprocating Machine
- Motor Vehicle Engineering
- Automotive Maintenance
- Construction Equipment

Job offers in Ethiopia

- *Assembly technologies*
- *Spare parts engineer*
- *Sales engineer*
- *Agent*



Motor Vehicle Engineering



Tracks in MEng

Manufacturing Eng'g

- Manufacturing engineering is focused on *developing, operating, and maintaining manufacturing systems*.
- Manufacturing engineers must advise on the *best technologies and processes to manufacture a particular product* and design the factory where it will be developed

Major Courses

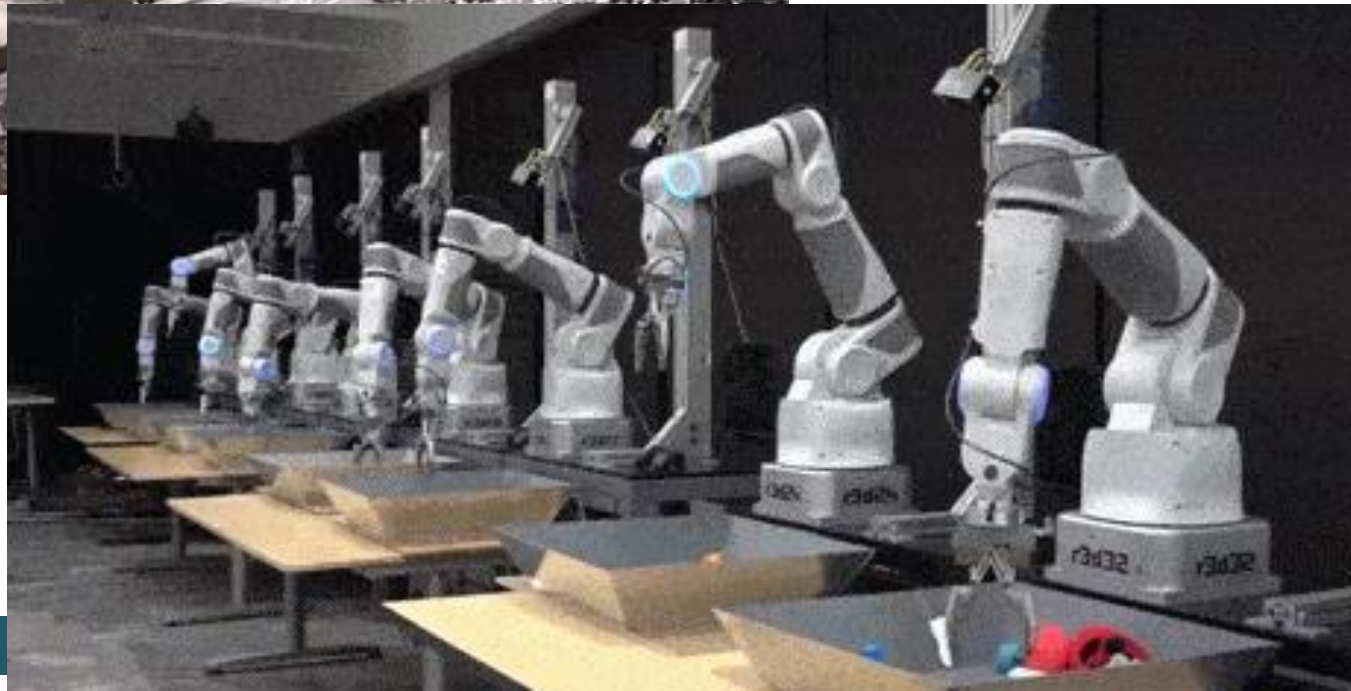
- Workshop Technology I & II
- Production Engineering I& II
- Casting Lab
- Computer Integrated Manufacturing
- Tools and Die Design
- Process Planning and Product Costing

Manufacturing Engineering



**CNC
Machine**

**Industrial
Robot Arms**



Tracks in MEng

Industrial Engineering

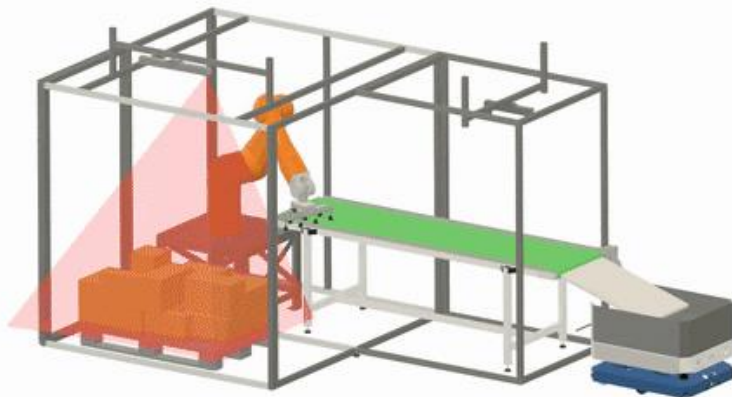
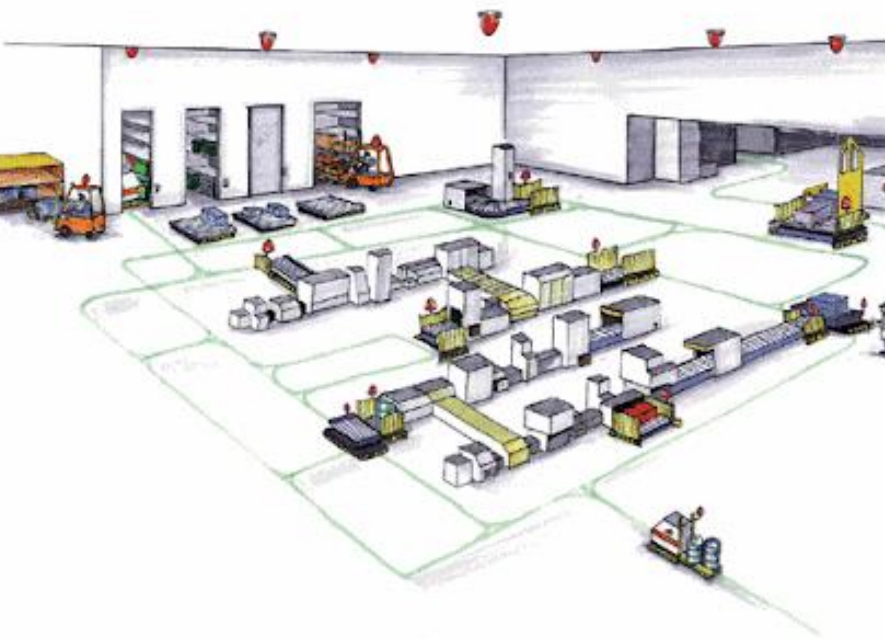
Industrial Engineering track is focused with the optimization of complex processes, systems, or organizations by developing, improving and implementing integrated systems of **people, money, knowledge, information and equipment**.

Industrial engineering is central to manufacturing operations.

Major Courses

- Material Handling Equipment
- Industrial Management & Eng'g Economics
- Quality Management
- Operation Planning & Control
- Plant Layout Design

Industrial Engineering



Railway Engineering

- It deals with design, manufacture, operation, management, control and maintenance of all forms of railway and related equipment and industrial systems.
- The profession plays a vital role in the establishment and sustainable operation of transport systems to boost the economy of the country in all aspects.
- Main courses:
 - Fundamentals of Railway systems Engineering
 - Rail Motive Power
 - Rail Vehicle Design

Railway Engineering Cont..



Lab Facilities

- Computational Labs
- Materials Lab
- Thermal and Fluid Mechanics Lab
- Materials Lab
- Mechatronics Lab
- Applied Mechanics and Control Lab
- Metrology Lab
- Motor Vehicle Lab
- Mechanical Workshop



Student Support

Workshops



Competitions

MiNT
Get Inspired. Inspire.

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Student Support

Student-centered Events/Activities



MiNT
Get Inspired. Inspire.

Collaborations **Student Support**



Student Support

Projects



Mechanical Engineering Jobs and Career Prospects

Mechatronics and Robotics

Robotics and automation in Automobile Industry



Food Processing and Packaging



Marine engineer



Aeronautical/Aerospace Engineer



- Propulsion Engineering
- Structural Aerospace engineer

- Avionics Engineering/Electronics-control Engineering

Armament Engineer



Industries where Mechanical Engineers needed

- Automotive & OEM Suppliers
- Construction
- Ship & Railroad Companies
- Airplane Manufacturing
- Power Generation, Nuclear, Alternative Fuel
- Energy, Utility Companies
- Oil and Gas Companies
- Chemical Companies
- Environmental
- Pharmaceutical & Health Care, Biomedical
- Sports Equipment Mfg.
- Computer-Aided Design
- Automation, Robotics, Electronics Industries
- Appliance Manufacturers
- HVAC & Refrigeration
- Toy, Furniture Manufacturing
- Paper Industry
- Food & Beverage Industry
- Telecommunications
- Amusement Parks
- National Labs, Research centers
- Aeronautical (NASA,...)
- Government Agencies, Academia (Teaching)
- Financial, Insurance, Consulting Companies

...Job...



Ethiopian
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A STAR ALLIANCE MEMBER



...Job...

International Industries hiring Mechanical Engineers



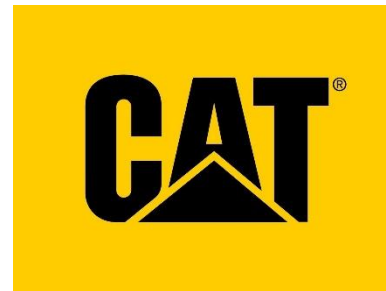
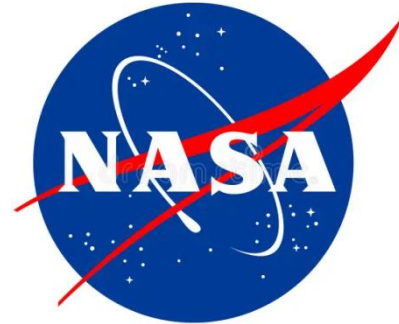
HYUNDAI



- Automotive
- Energy, Oil, Gas
- Commercial & Consumer Products
- Construction Equipment
- Aerospace & Defense
- Military



Unilever



35

...Job...

International Industries hiring Mechanical Engineers

- Business



**Rockwell
Automation**

- Automation and Robotics



- Engineering Services & Consulting

- HVAC



- Chemicals



- Environmental

EASTMAN

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Research Labs
Further Studies
Freelance/Startup

Industries
Consultancy

Thank You!



Greetings from the moving world