B.Tech, Mechanical Engineering

'programme overview'

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Outline

- Motivation
- Offshoot areas
- Courses
- Laboratories
- Opportunities

Motivation

Mechanical Engineering

- Dictionary Def. "*The branch of engineering dealing with the design, construction, and use of machines*".
- Wikipedia: "*Discipline that applies the principles of engineering, physics, and materials science for the design, analysis, manufacturing, and maintenance of mechanical systems*".
- Mechanical Engineering - major role - structuring the real world, the systems we use, the means by which we commute and the energy that powers these, to deliver the basic necessities of life.
- One of the oldest and broadest branch of engineering.

Mechanical Engineer

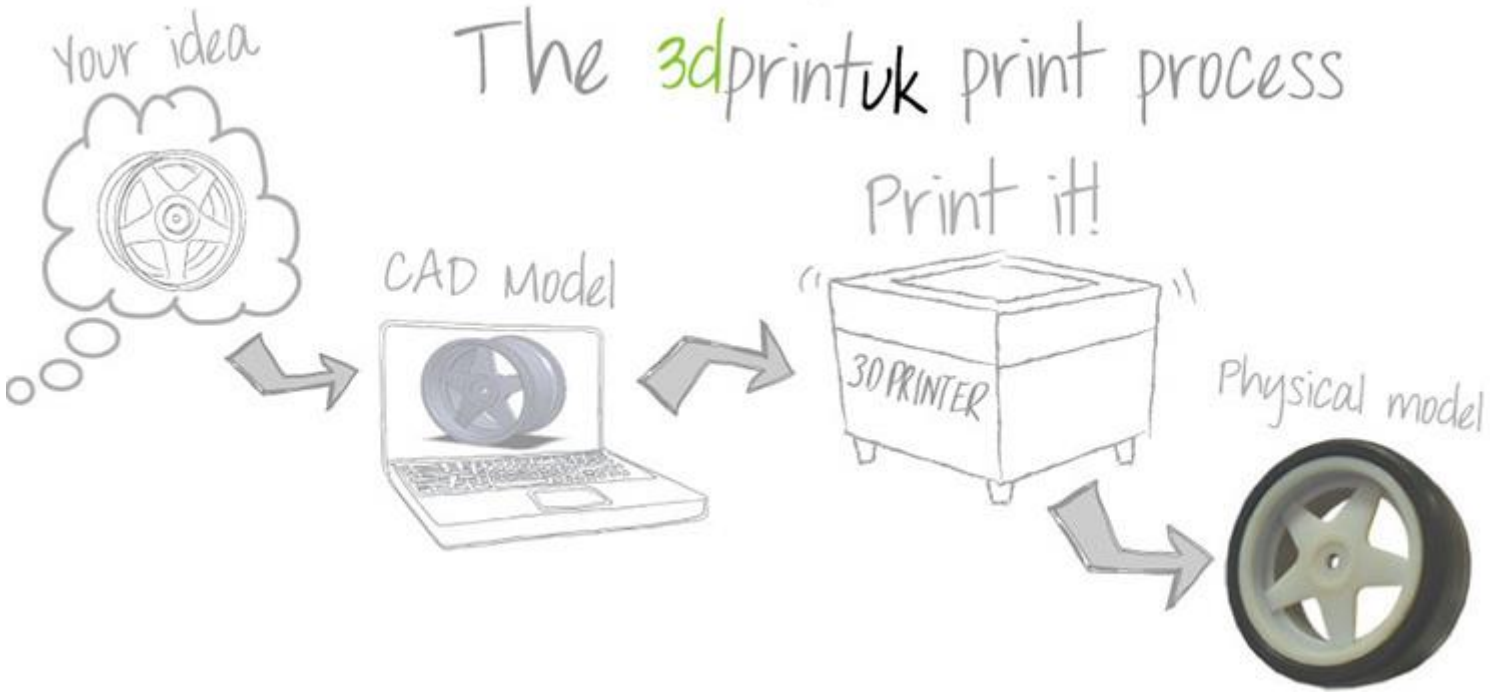
- A Mechanical Engineer is one, who analyses, synthesises, designs and maintains various mechanical systems
- **Mechanical systems** range from Power Generation Units, Motion Generation Units (Robots), Automobiles, Aircrafts, Watercrafts, Production and Manufacturing Units, Heating and Cooling Systems, etc.
- Contemporary and disruptive technologies – CAD/CAM, Robotics, MEMS, Digital Manufacturing, etc.
- **Bachelors degree in Mechanical Engineering** trains a student with the skills and knowledge required to become a professional Mechanical Engineer.

Manufacturing

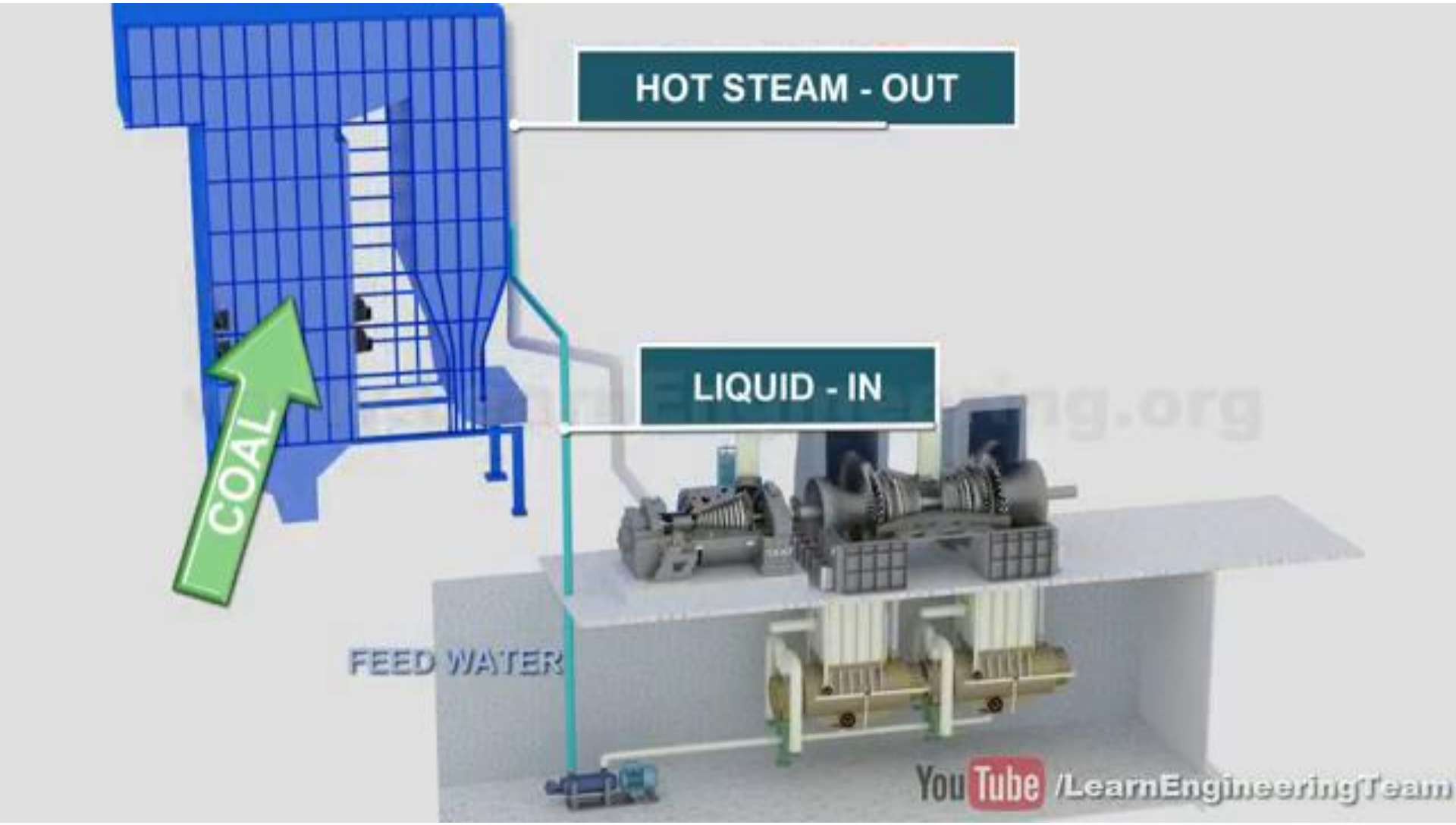
Robotics

3D Printing

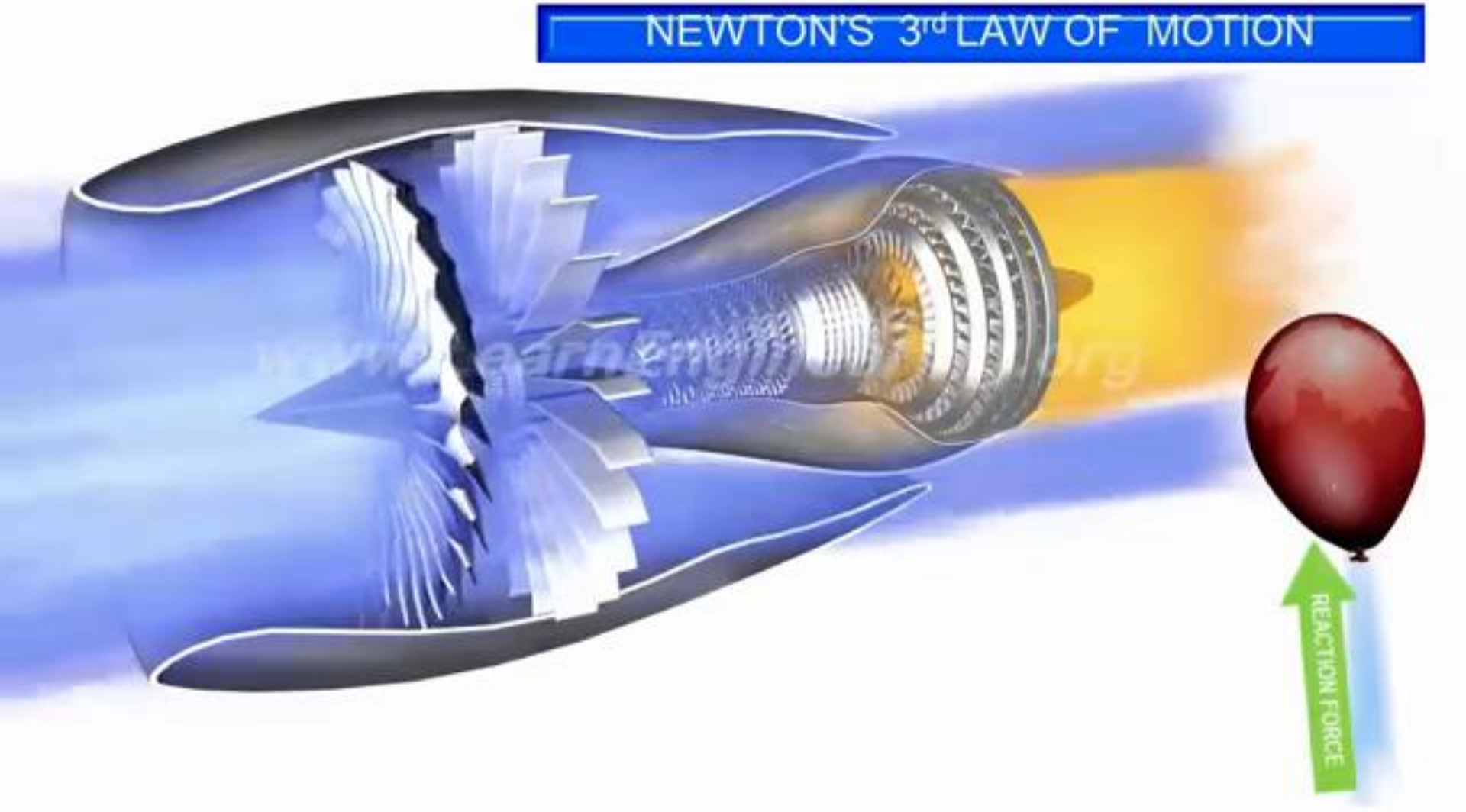

Ultimaker 2


Your idea
The 3dprintuk print process
CAD Model
Print it!
3D PRINTER
Physical model

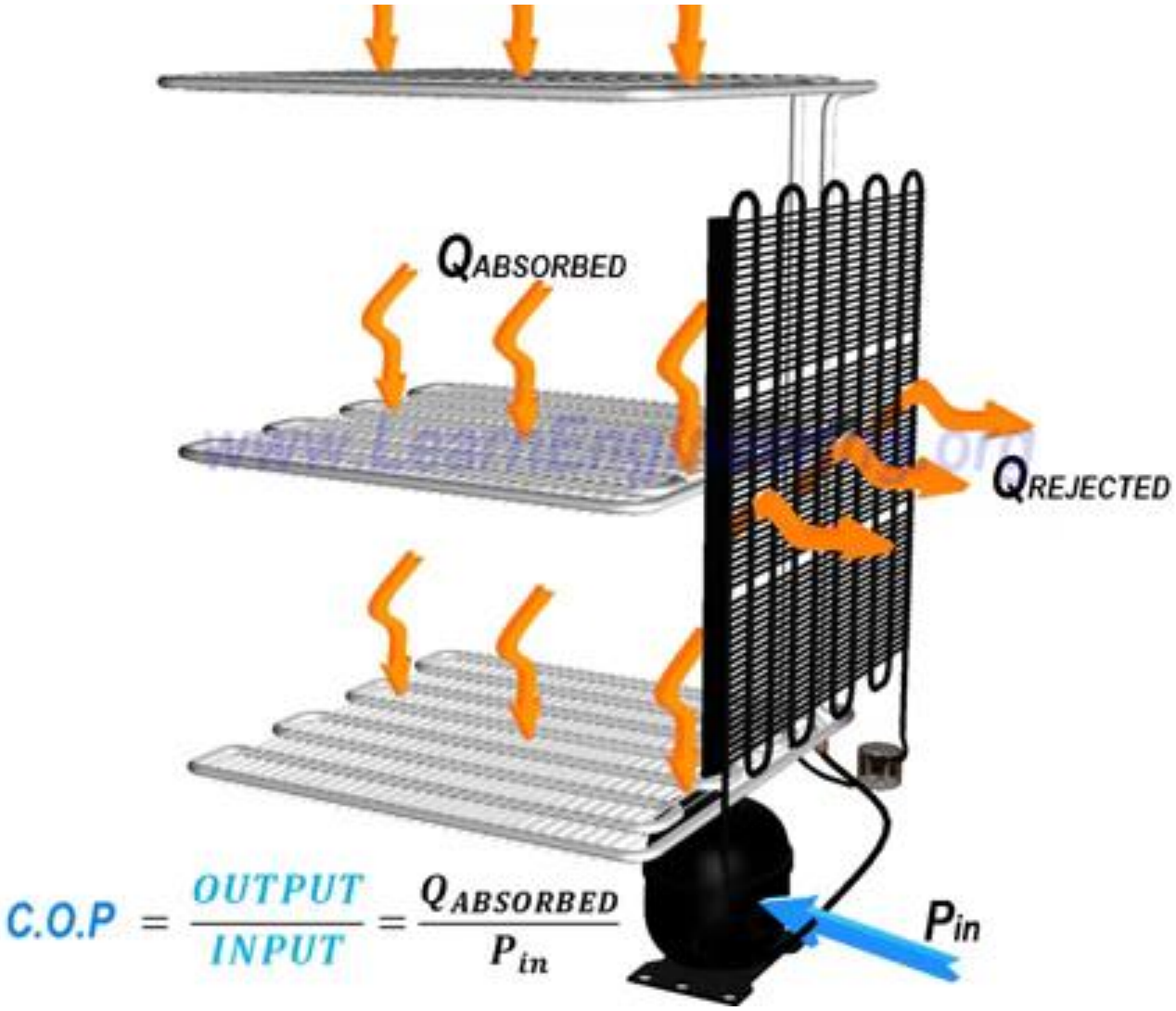
Power Plants



Aerospace



Heating and Cooling



Major offshoot areas

- Mechanical Design
- Thermal Engineering
- Production/Manufacturing Engineering
- Industrial Engineering
- Aerospace Engineering
- Marine Engineering

Courses

- Focus on thermodynamics, heat transfer, dynamics and controls, material science, solid and fluid mechanics, hydraulics, production and manufacturing, industrial management.

  - Departmental Core Courses
  - Departmental Elective Courses
  - Open Electives

Laboratories

1. **Theory of Machines Lab**
2. Thermal Engineering Lab
3. Strength of Materials Lab
4. Heat and Mass Transfer Lab
5. Fluid Mechanics Lab
6. **Production Engineering Lab**
7. Mechanical Vibrations Lab
8. **Refrigeration and Air Conditioning Lab**
9. Computer Aided Design Lab
10. **Internal Combustion Engine Lab**
11. **Mechatronics and Robotics Lab**
12. **Automobile Engineering Lab**
13. Computer Integrated Manufacturing Systems Lab

Opportunities

- The versatility, wide-ranging scope and universal relevance of **mechanical engineering** opens up career avenues in all possible branches of the engineering profession.

- Students *trained through Mechanical Engineering programme have opportunity for* technical positions in various corporate and industrial houses, within and outside the country.

Opportunities Contd. …

- Entrepreneur (A Start-up Unit)
- State Govt. Jobs (J.E., A.E.)
- Management/Corporate Jobs – MBA
- Qualify GATE
  - Central Govt. Jobs (PSU's)
  - Research Labs (CSIR, DRDO, IGCAR, CMERI, BARC, etc.)
- Research Industries – GE, John Deer, etc. (M.Tech)
- Teaching – Further Studies (PhD, and Post Doctorate)
- Civil Services – IES, IAS, KAS
- Consultants in Middle East (Gulf)

Conduct

- What is expected from you
  - Sincerity
  - Dedication
  - Punctuality

Best of Luck

Thank you

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