

Hydropower has always played a cardinal role in sufficing rural and urban populace with elementary lighting facilities and basic energy requirements for household as well as in meeting energy demand at national level. The development and growth of hydropower in Nepal has been significantly rising in recent days due to the increasing demand of electricity and establishment of newer power plants to meet the same. In addition to the larger national projects, many small scale and rural community based hydels are emerged as a boom in terms of rural electrification. The Bachelor degree program in Mechanical Engineering (Hydropower) encompasses all the basics of hydropower, the engineering behind different components, installation, maintenance and policies. The course covers fundamentals of hydropower generation, different hydromechanical components and ancillaries of a hydropower plant, the design aspects of such mechanical equipment and hydro turbines. The course is complemented by the lab works and field visits.

Why Hydropower

- To gain a deeper understanding about working of hydropower plants, its different components
- Learn the design strategy of hydro mechanical components and turbines
- Installation, maintenance, testing and related research

Features of the Course

- Working of hydropower plants, micro hydro plants
- Design and application of different hydro turbines
- Energy policies, components design
- Labwork assisted lectures
- Guest lectures from experts

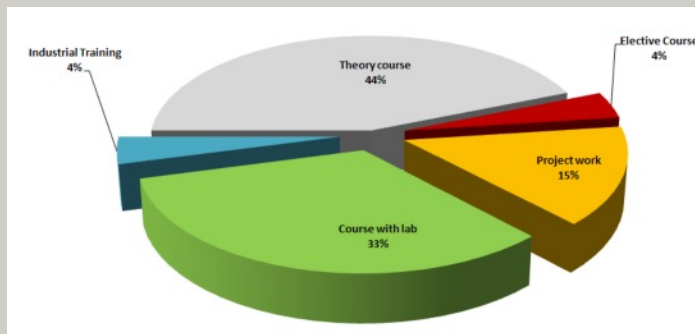
Scope and Future Prospects

- Hydropower plants, powerhouse
- Manufacturing industries
- Research laboratories
- Higher studies in design and analysis
- Consultants to companies and clients

Ever since its establishment in 1994 as one of the oldest engineering programs in University, the Department has evolved and transformed itself in many ways to keep up with the global trends and academic challenges. Having completed more than 2 decades, the popularity of the department has also increased exponentially which is underscored by the increasing number of applications for the program during each academic year.

During the past 2 decades, the Department has updated itself with the international courses, strengthened with physical infrastructures, channelized its academic program more into applied and research based modules from the conventional methodology. The department's paradigm shifting move can be marked by the quality and practicability of the courses, establishment of different laboratories and research activities that are carried out with acute interest and motivation, number of qualified and experienced faculty members and student-focused management.

Degree Level	Bachelor in Mechanical Engineering
Program Duration	4 Academic Years (Regular)
Credits	147 Credit Hours
Location	School of Engineering, KU Central Campus, Dhulikhel



From the academic year 2015, the Department channelizes its offered courses into 4 major subdivisions- Automobile, Design & Manufacturing, Energy Technology and Hydropower based upon the available resources and faculty strength. This will also increase the number of intake from 60 to 120, with the vision of producing calibre graduate with specialization knowledge.

This step is going to substantiate degree of the prospective students who will be graduating as a Mechanical Engineer with skill and proficiency in one of the 4 core areas. The subdivision is designed to provide students with field specific knowledge along with common courses, however this will not occlude the students from pursuing any field of mechanical engineering in future.

Department of Mechanical Engineering



Dhulikhel, Kavre, Nepal



PROGRAM INFORMATION

for
Bachelor of Engineering in Mechanical Engineering

B.E. in Mechanical Engineering
with subdivisions

Automobile
Design & Manufacturing
Energy Technology
Hydropower

DEPARTMENT OF MECHANICAL ENGINEERING

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Automobile in Mechanical Engineering is synonymous with creativity and innovation to adopt modern automobile technology. With the skill ranging from mechanical design, electronic systems, manufacturing techniques and management, Automobile engineering is increasing globally in its outlook and multidisciplinary operation to learn about transport efficiency, sustainability issues and vehicle systems diagnosis. Automobile will play role in solving the energy crisis through the creation of hybrid vehicles and other related technology on a global level. Automobile looks at ways to enable vehicle to vehicle and vehicle to infrastructure communication to increase safety and security in new forms of transport.

Why Automobile

- For Designing, Developing, Repairing, Testing, Manufacturing and Servicing to improve existing components of automobile.
- To focused on the application of principles to develop economical and sustainable automotive designs
- Communicate on a global level to solve automobile engineering problems

Features of the Course

- Resolve engineering problems and find appropriate solutions by applying mechanical, thermodynamic, pneumatic, hydraulic and electrical principles.
- Design new products and improve existing one
- Research and Development of Hybrid Technology
- Planning and designing new production process

Scope and Future Prospects

- Pursue higher course and thereby get induced in R & D
- Medium to large scale entrepreneurship with plenty of new feature
- Taking responsibility for individual projects, managing associated budgets, production schedules and resources
- Supervising quality control with safety and security of new form of transport



Imagination is a one of the integral parts of human mind. But with only imagination, one cannot explain or convince the world. One has to create physical blueprints of the imagination. This is where Design & Manufacturing enters. This subdivision of Mechanical Engineering is the road map to translate one's imagination to reality. Design is the building block of all engineering sub components. Every subject has its own type of design but the basics for all are same. This sub-component of Mechanical Engineering aims in educating students with a holistic approach of design and its manufacturing. Some of the fields that this sub-component deals with are Machine Element Design, Industrial Automation, Robotics, CAD/CAM, Ergonomics, etc.

Why Design & Manufacturing

- It is the building block of all engineering sub components
- To develop skills of Machine element design & Manufacturing
- To acquire latest technology on Computed Aided Design & Manufacturing
- It deals with Industrial automation through Robotics

Features of the Course

- Hands on skill development on Machine Element Design
- Knowledge of Manufacturing processes & production planning

Scope and Future Prospects

- National & International Design & Modelling Industries
- Manufacturing, Automation Industry
- Research Laboratories
- Process Industry, Manufacturing & Design Companies
- Self Employment and Individual consultants
- Opportunities for higher studies



The sub division of Energy Technology from Mechanical Engineering is designed to pay its part in the urgent need to change our thinking, application and energy usage pattern in regard to transforming the unsustainable exploitation of non-renewable energy resources and converting them into energy units and services. The cluster aims to re-direct our thinking and passion towards a more sustainable and holistic energy generation society, through tapping into the plentiful available alternative energy resources and transforming them through different energy technologies and applications into user friendly energy units, for mankind's holistic development and benefit. It sees mankind as part of the whole ecosystem and as the jewel of creation, with the responsibility that comes along with: How we manage the available resources in such a way that we can give a responsible account for it. The cluster aims to equip professional people with some basic knowledge of most popular energy resources, renewable energy technologies and systems, their basic technological principles, their economics and their impact on the environment and how they can be integrated into the our today's and future world energy demands and systems.

Why Energy Technology

- To understand the national and global energy production and consumption scenario.
- To understand the basic behind conversion of energy resources to useful energy.
- To study and design different global renewable energy conversion and local indigenous renewable technologies.

Features of the Course

- Design of solar home system, thermal systems, rural electrification from energy technologies.
- Study of Wind generators/turbines, biomass, etc.
- Energy management, conservation and environment impacts of energy usage.

Scope and Future Prospects

- Government office (Nepal Electricity Authority,; Ministry of Energy), Energy plants, and Thermal plants.
- Research laboratories, NGOs and INGOs, and Academic institutions