MEP Intended Learning Outcomes (ILO's)

المخرجات التعليمية المستهدفة لشهادة البكالوريوس

a- Knowledge and Understanding:

On successful completion of the mechanical power engineering programmes graduates should be able to demonstrate knowledge and understanding of:

a1) Essential facts, fundamentals, concepts, principles & theories relevant to Mech. Power Engineering;
a2) Constraints that mech. power and energy engineers have to judge to reach at an optimum solution.
a3) Concepts and theories of basic sciences, mathematics and technologies relevant to Mech. Power.
a4) Business and management principles, techniques and practices appropriate to mechanical power and energy engineering applications.
a5) The professional and ethical responsibilities of mechanical power and energy engineers.
a6) The impact of mechanical power and energy engineering solutions in a global and societal context.
a7) Mechanical power and energy engineering contemporary issues.
a8) Relevant mathematical and numerical methods and the principles of engineering and mechanical engineering sciences as applied to mechanical power and energy engineering systems.
a9) Basic theories and principles of some other engineering and mechanical engineering disciplines providing support to mechanical power and energy disciplines.
a10) Basics and role of information and communication technology (ICT) in providing support for mechanical power and energy engineers.
a11) Engineering design principles & techniques and their applications to mech. power and energy eng.
a12) Characteristics and properties of materials relevant to mechanical engineering applications.
a13) Methodologies of solving engineering problems, data collection and interpretation.
a14) Quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues.
a15) Topics related to technical language, report writing and humanitarian interests and moral issues.
a16) Fundamentals of fluid power automatic control systems (e.g., Hydraulics and Pneumatics) and other conventional, programmable logic controllers (PLCs) and DCS.

b- Intellectual Skills

On successful completion of this programme student should be able to:

b1) Solve engineering problems and design mechanical power and energy systems, components and elements in a creative and innovative attitude.
b2) Apply appropriate tools from mathematics, science, technology, and the know-how gained from the professional experience to analyze mechanical engineering design problems to meet certain needs.
b3) Solve mech. engineering problems, often on basis of limited and possibly contradictory information.
b4) Analyze and interpret data, and design experiments to obtain new data.
b5) Evaluate mechanical power and energy engineering designs, processes and performances and propose improvements.
b6) Maintain a sound theoretical approach in dealing with new and advancing technology.

b7) Assess risks, and consider appropriate steps to manage them.
b8) Use principles of engineering sciences in developing solutions to practical mech. engg. problems.
b9) Create new engg. components & processes through synthesis of ideas from a range of sources.
b10) Analyze the results of numerical models and acknowledge their limitations.
b11) Select appropriate mathematical & computer-based methods for modeling and analyzing problems.
b12) Select appropriate solutions for engineering problems based on analytical thinking.
b13) Think in a creative and innovative way in problem solving and design.
b14) Combine, exchange, and assess different ideas, views, and knowledge from a range of sources.
b15) Assess and evaluate characteristics and performance of components, systems and processes.
b16) Investigate the failure of components, systems, and processes.
b17) Select and appraise the appropriate ICT tools to a variety of mech. power engg. problems.
b18) Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
b19) Incorporate economic, societal, environmental dimensions and risk management in design.
b20) Create systematic and methodic approaches when dealing with new and advancing technology.

c- Professional and Practical Skills:

On successful completion of the programmes, students should be able to:

c1) Use a wide range of analytical & technical tools, techniques & equipment including pertinent software.
c2) Use basic workshop equipment safely and appropriately.
c3) Analyze experimental results and determine their accuracy and validity.
c4) Prepare engineering drawings, computer graphics and specialized technical reports. Refer to scientific literature effectively.
c5) Use computational tools and packages and write computer programs pertaining to mechanical power and energy engineering.
c6) Apply numerical modeling methods and/or appropriate computational techniques to Mechanical Power Engineering problems.
c7) Use appropriate computer software and laboratory equipment.
c8) Search for information.
c9) Demonstrate basic organizational and project management skills.
c10) Carryout specialized engineering design.
c11) Work in mechanical power and energy operations, maintenance and overhaul.
c12) Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve engineering problems.
c13) Professionally merge the engineering knowledge, understanding and feedback to improve design, products and/or services.
c14) Create and/or redesign a process, component or system, and carry out specialized engg. Designs.
c15) Practice the neatness and aesthetics in design and approach.
c16) Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment to design experiments, collect, analyze and interpret results.
c17) Apply safe systems at work and observe the appropriate steps to manage risks.
c18) Apply quality assurance procedures and follow codes and standards.
C19) Exchange knowledge and skills with engineering community and industry.
c20) Prepare and present informative and narrative technical reports.

d- General and Transferable Skills:

On successful completion of the programmes, students should be able to:

d1) Collaborate effectively within multidisciplinary team.
d2) Work in stressful environment and within constraints.
d3) Communicate effectively.
d4) Demonstrate efficient IT capabilities.
d5) Lead and motivate individuals.
d6) Effectively manage tasks and resources.
d7) Search for information and adopt life-long self learning.
d8) Acquire entrepreneurial skills.
d9) Refer to relevant literature.