

# MECHANICAL ENGINEERING DEPARTMENT

## DIPLOMA IN MECHATRONIC ENGINEERING

DEM

### PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

The Diploma in Mechatronic Engineering programme should produce balanced and competent technical workers who are:

1

Equipped with industry-relevant knowledge and skills in mechatronic engineering field.

3

Instilled with entrepreneurial skills and mind set in the real working environment.

2

Engaging on lifelong and continuous learning to enhance knowledge and skills.

4

Established strong linkage with society and players in the industry.

### PROGRAMME LEARNING OUTCOMES (PLO)

Upon completion of the programme, students should be able to:

1

Knowledge: Apply knowledge of applied mathematics, applied science, engineering fundamentals and an engineering specialisation as specified in DK1 to DK4 respectively to wide practical procedures and practices.

7

Environment and sustainability: understand and evaluate the sustainability and impact of engineering technician work in the solution of well-defined engineering problems in societal and environmental contexts (DK7).

2

Problem Analysis: Identify and analyse well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4).

8

Ethics: understand and commit to professional ethics and responsibilities and norms of technician practice.

3

Design / development of solution: design solutions for well-defined technical problems and assist with the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations (DK5).

9

Individual and team work: function effectively as an individual, and as a member in diverse technical teams.

4

Investigation: conduct investigations of well-defined problems; locate and search relevant codes and catalogues, conduct standard tests and measurements.

10

Communication: communicate effectively on well-defined engineering activities with the engineering community and with society at large, by being able to comprehend the work of others, document their own work, and give and receive clear instructions.

5

Modern tool usage: apply appropriate techniques, resources, and modern engineering and IT tools to well-defined engineering problems, with an awareness of the limitations (DK6).

11

Project management and finance: demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member or leader in a technical team and to manage projects in multidisciplinary environments.

6

The engineer and society: demonstrate knowledge of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technician practice and solutions to well-defined engineering problems (DK7).

12

Lifelong learning: recognise the need for, and have the ability to engage in independent updating in the context of specialised technical knowledge.

#### Notes:

DK 1: A descriptive, formula-based understanding of the natural sciences applicable in a sub-discipline

DK 2: Procedural mathematics, numerical analysis, statistics applicable in a sub-discipline

DK 3: A coherent procedural formulation of engineering fundamentals required in an accepted sub-discipline

DK 4: Engineering specialist knowledge that provides the body of knowledge for an accepted sub-discipline

DK 5: Knowledge that supports engineering design based on the techniques and procedures of a practice area

DK 6: Codified practical engineering knowledge in recognised practice area

DK 7: Knowledge of issues and approaches in engineering technician practice: ethics, financial, cultural, environmental and sustainability impacts