KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
MUADZAM SHAH

MECHANICAL ENGINEERING DEPARTMENT

# STUDENT STUDY GUIDE

## DIPLOMA IN MECHANICAL ENGINEERING (MANUFACTURING)

2022/2023 EDITION

# TABLE OF CONTENT

# PREFACE

Bismillahirrahmanirrahim
Assalamualaikum and Salam Sejahtera.

Dear Students,

Welcome to our beautiful and cosy campus of Politeknik Muadzam Shah (PMS). Our students come from all walks of life and various backgrounds. It is our commitment at PMS to help you, as an adult learner, succeed in upgrading yourself and achieve the right balance holistically.

The world faces dynamic changes in technology and business at amazing speed. To sustain our economy, the Malaysian workforce needs to continuously upgrade itself to acquire new skills and knowledge so as to stay relevant. Striking a good balance between your studies and co-curricular activities, I do believe that PMS will broaden your views about tertiary education and guide you to enhance your future career.

The rapid changes around the globe demands educational institutions to be dynamic and responsive towards the technological changes around the world. To accommodate such requirement, the courses offered by the Mechanical Engineering, Commerce, Information Technology & Communication, Design & Visual Communication as well as Tourism & Hospitality Departments. PMS are designed to produce graduates who are creative, innovative and possess towering personality.  In order for PMS to achieve its intended target, we have well-trained lecturer whom are able to assist and facilitate the students in their learning as well as their holistic education.

We are so pleased that you are here. Best wishes and welcome to PMS !

**HAJI CHE ALIAS BIN YUSOF**
**Director**
**Politeknik Muadzam Shah**

# PREFACE

Assalamualaikum and Salam Sejahtera.

Dear Students,

Welcome to the new academic year in Mechanical Department of Politeknik Muadzam Shah (PMS). I wish you a successful and enjoyable in this semester.

This handbook had been prepared for the current and prospective for mechanical department students. It outlines the knowledge, skills and outcomes of all the programmes curriculum develops for its graduates. Currently, we offer Diploma of Mechanical Engineering (Product Design)-DRP, Diploma Mechanical Engineering (Automation)-DMA, Diploma of Mechanical Engineering (Automotive Manufacturing Design)-DRA and Diploma of Mechanical Engineering (Manufacturing)-DTP. In order for the students to graduate, the four categories of courses are to be completed – compulsory, common core, discipline and elective. We also provide the necessary facilities such as Advance Manufacturing Lab, Welding Workshop, fitting and Machining workshop and others. Beside we also have support Centre and Wi-Fi connections to realize the learning potential of students.

All the lecturers look forward in seeing all you and we hope that your presence here will make Mechanical Engineering Department more interesting and lively. We believe that you are able to contribute to the better image and excellence of the department. Studying in PMS will be one of the most exciting and memorable time in your life. Good Luck!

Wassalam.

**MOHD HELMI BIN SALLEH**
**Head of Department**
**Mechanical Engineering**
**Politeknik Muadzam Shah**

POLITEKNIK MUADZAM SHAH

# BACKGROUND PMS

PMS is the 19th polytechnic established under the Malaysian Ministry of Education. Established on 1 August 2003, PMS provides Educational Services (PPP) in the fields of Information & Communication Technology, Trade, Mechanical Engineering, Design & Visual Communication and Tourism & Hospitality to SPM graduates or equivalent and Polytechnic / Community College Certificate graduates at the diploma.

The main role of PMS is to provide semi-professional workforce in the fields of Information & Communication Technology, Trade, Mechanical Engineering, Design & Visual Communication and Tourism & Hospitality offered at the diploma level to graduates of the Malaysian Certificate of Education, Malaysian Certificate of Education (Vocational), Community College , Polytechnic Certificate, Matriculation Certificate and others.

The driving force of PMS, which consists of lecturers and staff, always join hands to carry the trust to achieve the government's desire to make Malaysia Advanced in 2020. The development of the country's human capital and tertiary education that is relevant to the needs of the market is the main motto of this institution.

THANK YOU

POLITEKNIK MUADZAM SHAH

# VISION & MISSION

## VISION

To be the Leading-Edge TVET Instituition

## MISSION

- To provide wide access to quality and recognised TVET programmes
- To empower communities throught lifelong learning
- To develop holistic, entrepreneurial and balanced graduates
- To capitalise on smart partnership with stakeholders

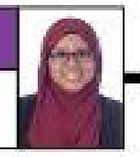
# CARTA ORGANISASI
# POLITEKNIK MUADZAM SHAH

**PENGARAH**
CHE ALIAS BIN MOHD YUSOF

**TIMBALAN PENGARAH AKADEMIK**
SHAHRUL NIZAM BIN MOHAMED

**TIMBALAN PENGARAH SOKONGAN AKADEMIK**
MUHAMMAD RAFIE BIN HAMZAH

**SETIAUSAHA PEJABAT**
KHUZAINI BINTI MOHAMAD



**KETUA JAB. PERDAGANGAN**
NORLEZA BINTI LEHAT

**KETUA JAB. TEKNOLOGI MAKLUMAT & KOMUNIKASI**
FAZILAH BINTI ISMAIL

**KETUA JAB. KEJURUTERAAN MEKANIKAL**
MOHD HELMI BIN SALLEH

**KETUA JAB. PELANCONGAN & HOSPITALITI**
HARULNIZAM BIN MOHAMAD

**KETUA JAB. REKABENTUK & KOMUNIKASI VISUAL**
ZAHANA BINTI YUSOFF

**KETUA JAB. PENGAJIAN AM**
MOHD SHAHKRI BIN JUSOH

**KETUA JAB. MATEMATIK, SAINS & KOMPUTER**
SHARIFAH NOOR ANITA BINTI SYED JAAFAR

**KETUA UNIT E-LEARNING**
MOHD FAIZAL BIN ABD RAHMAN

**KETUA UNIT KUALITI**
Dr. SITI ROHANI BINTI ISMIN

**KETUA UNIT PEPERIKSAAN**
NORSHAHIRA BINTI MOHD FAUZI

**KETUA UNIT PERHUBUNGAN & LATIHAN INDUSTRI**
MOHD SHAHFUDIN BIN MOHD HATTA

**KETUA UNIT PENYELIDIKAN & INOVASI**
DR. AZLAN BIN RAMLI

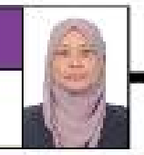
**KETUA UNIT CISEC**
HANIZAH FARHANI BINTI JAAFAR

**KETUA UNIT PEMBANGUNAN INSTRUKSIONAL & MULTIMEDIA**
IZUL AKMAL BIN AHMAD LATIPI

**KETUA UNIT KEUSAHAWANAN**
SAIFUL BAKHTIAR BIN MASDUKI

**KETUA UNIT CENTER OF TECHNOLOGY (COT)**
DR. NORHAFZAN BINTI BARIMAN

**PEGAWAI PENGANTARABANGSAAN**
NORSURIATY BINTI SOPI



**KETUA UNIT PENTADBIRAN**
NOORASLINA BINTI TUKIMIN

**KETUA UNIT PENGURUSAN ASET**
AHMAD ZAHARI BIN MISNAN

**KETUA JABATAN SUKAN, KO-KURIKULUM & KEBUDAYAAN**
BADRUL HAKIMI BIN MOHD BASTAMAM

**KETUA UNIT PEMBANGUNAN & SENGGARAAN**
ATIJAH BINTI MARSITHI

**KETUA UNIT PUSTAKAWAN**
SURIYAWANI BINTI SULAIMAN

**KETUA UNIT KEWANGAN**
NORJIHA BINTI SALLEH

**KETUA UNIT TEKNOLOGI HIJAU**
MOHD RIZAL AZIMAN BIN RIFIN

**SETIAUSAHA JK KESIHATAN & PEKERJAAN**
ZAMZURI BIN ARRIPPIN

**KETUA UNIT HAL-HAL PELAJAR (P/D)**
MOHD HAZELY BIN ABDUL RAHIM

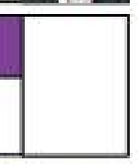
**KETUA UNIT HAL-HAL PELAJAR (K/D)**
SYAHMI BIN MOHD ZAHIR

**KETUA UNIT LATIHAN & PENDIDIKAN LANJUTAN**
AMENURUL FAIDZAN BINTI MOHD AMIN

**KETUA UNIT TEKNOLOGI MAKLUMAT & KOMUNIKASI**
FADNI BIN FORKAN

**KETUA UNIT PENGURUSAN PSIKOLOGI**
AHMAD FAKHRIZZAKI BIN RIPIN

**KETUA UNIT KOMUNIKASI KORPORAT**
MAHNUM BINTI MAHBOB



**KETUA UNIT KARISIS**
KOSONG

**KETUA FELO**
RAMLI BIN OMAR

Rujukan :
**MENJALANKAN TUGAS

TERAKHIR DIKEMASKINI : 4/1

POLITEKNIK MUADZAM SHAH
ORGANIZATION CHART

# OUTCOME BASED EDUCATION (OBE)

# OUTCOME BASED EDUCATION

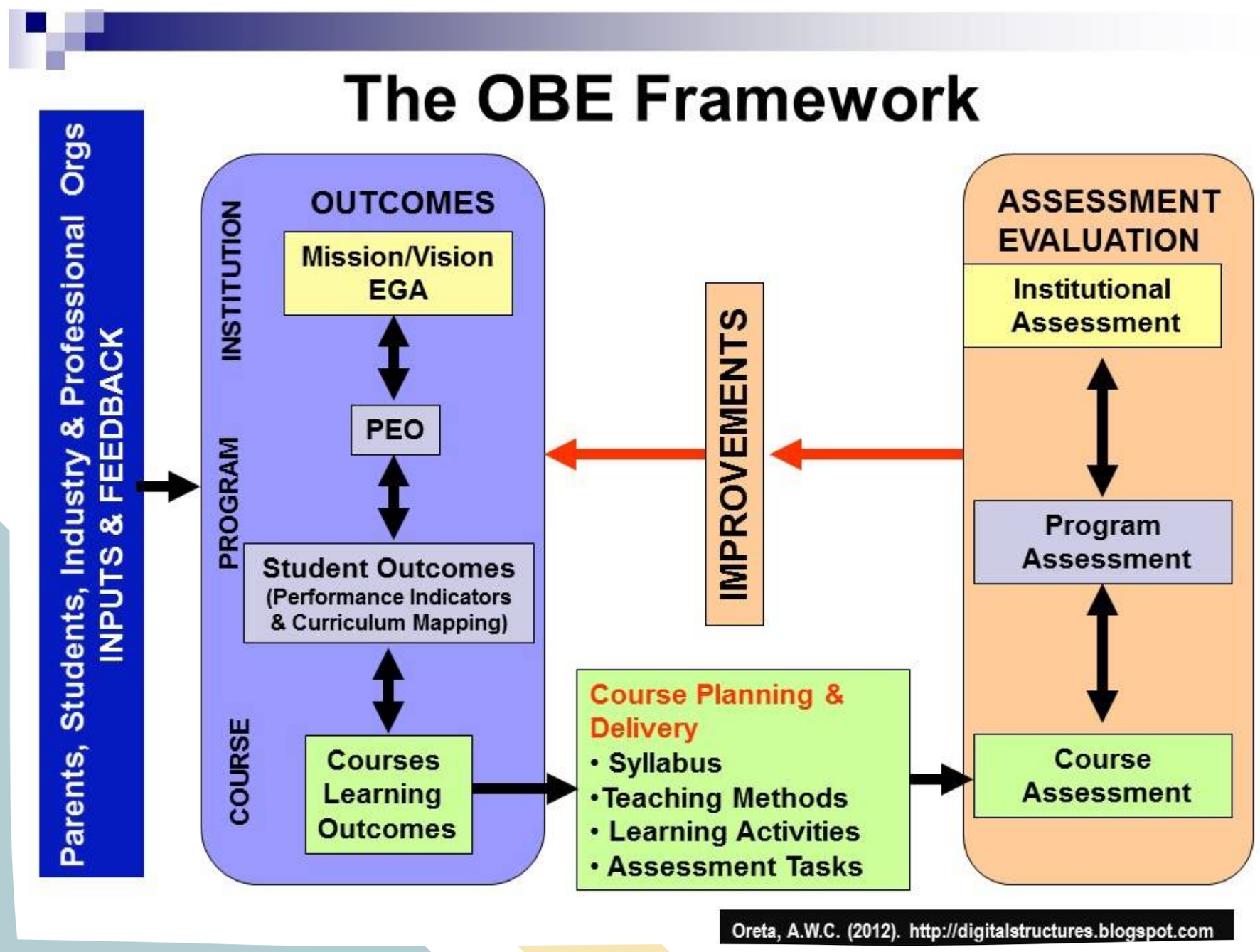
## OBE

Ministry of Education, Malaysian Qualification Agency (MQA) and related professional bodies require all programs offered by Institution of Higher Learnings to adopt the Outcome Based Education approach in their teaching and learning activities. This is in line with the paradigm shift mooted by the  Ministry of Higher Education to enhance the quality of education in Malaysia.

Outcome-based education (OBE) is an educational approach that focuses on what students are able to do upon completion of a course. All curriculum and teaching decisions are made based on how best to facilitate the desired outcome. The term outcomes in this matter would be a set of values or 'wish list' on what students should acquire upon their educational program completion. Outcome-based education is designed so that "all students are equipped with the knowledge, skills and qualities needed to be successful after they exit the educational system" (Spady, 1994, p. 9).

In brief, OBE answers the following questions:
What must the student learn?
What do the teachers or lecturers want the student to learn?
How does what student learn affect the overall educational outcome?
How do the teachers or lecturers make sure that the students learn what they are intended to learn?

Thus, OBE outlines the guidance for planning, delivering and evaluating teaching and learning activities to achieve the results expressed in terms of individual student learning outcomes as shown in below.



# OUTCOME BASED EDUCATION

## OBE

**OBE** is an internationally practised educational model that focuses on the measure-ment of student outcomes and the implementation of corrective measures to over-come deficiencies in course delivery methods / assessment / student attitude, etc.

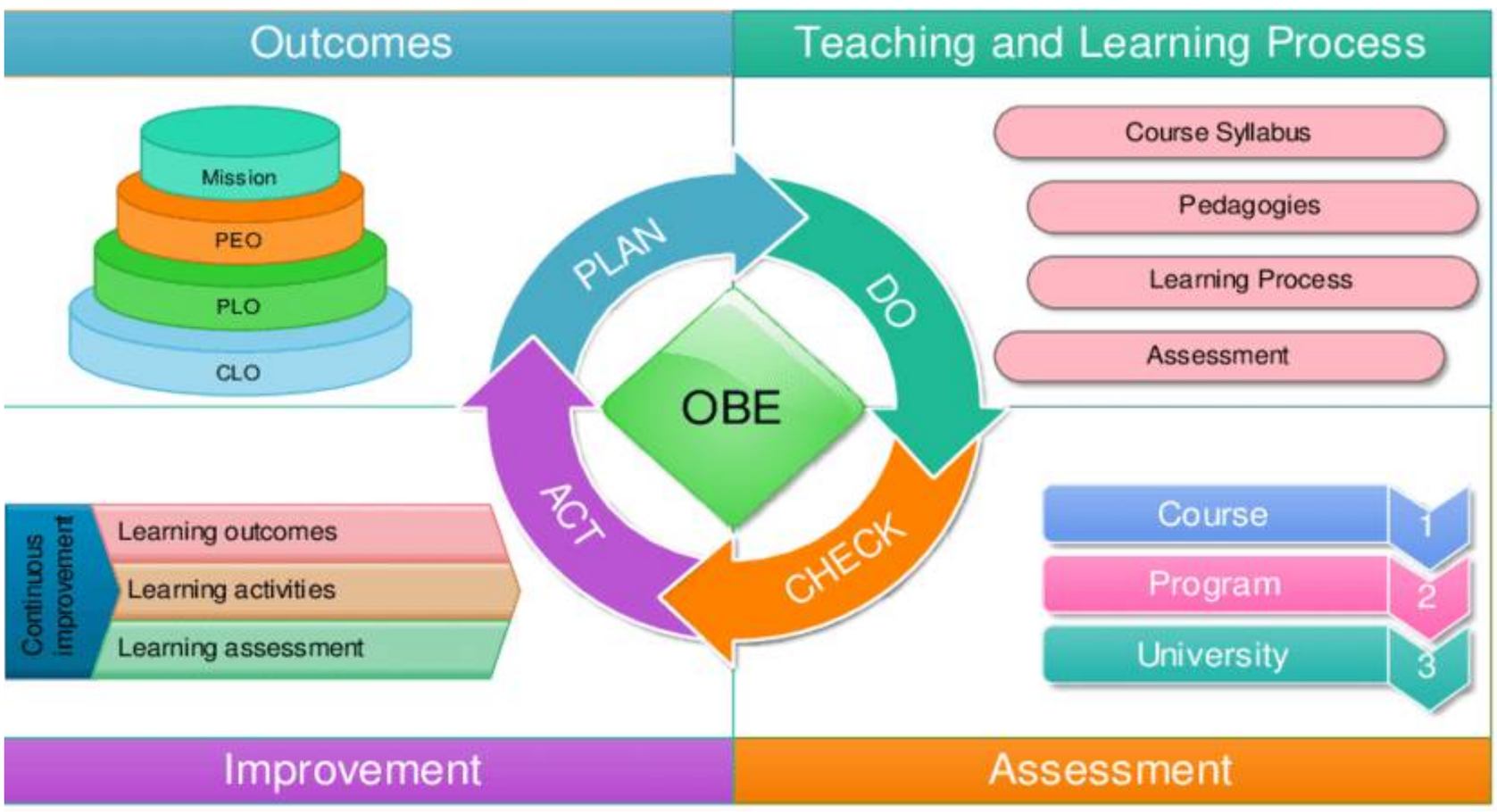
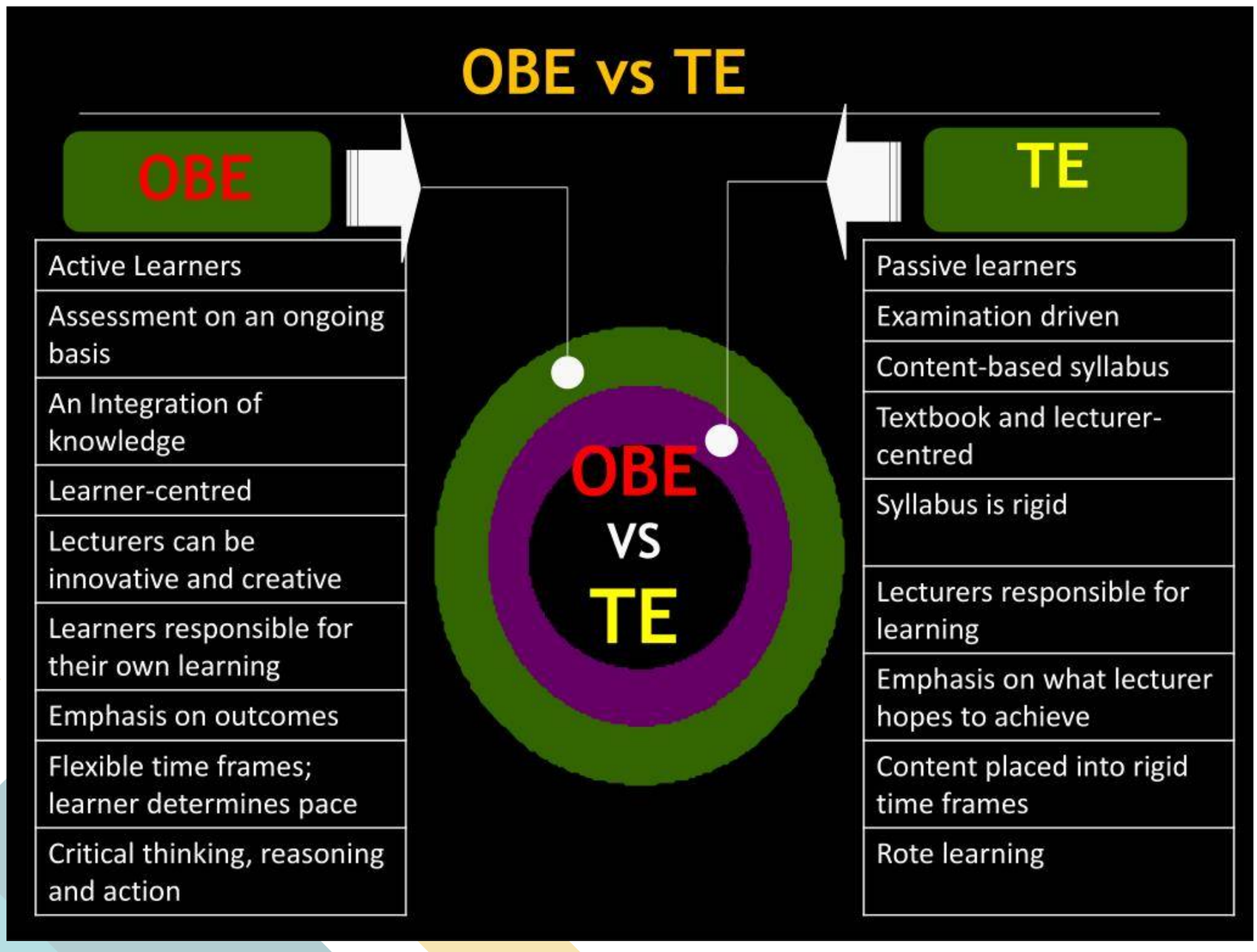



Figure below shows the comparison between **Outcome Based Education (OBE) and Traditional Education (TE)**



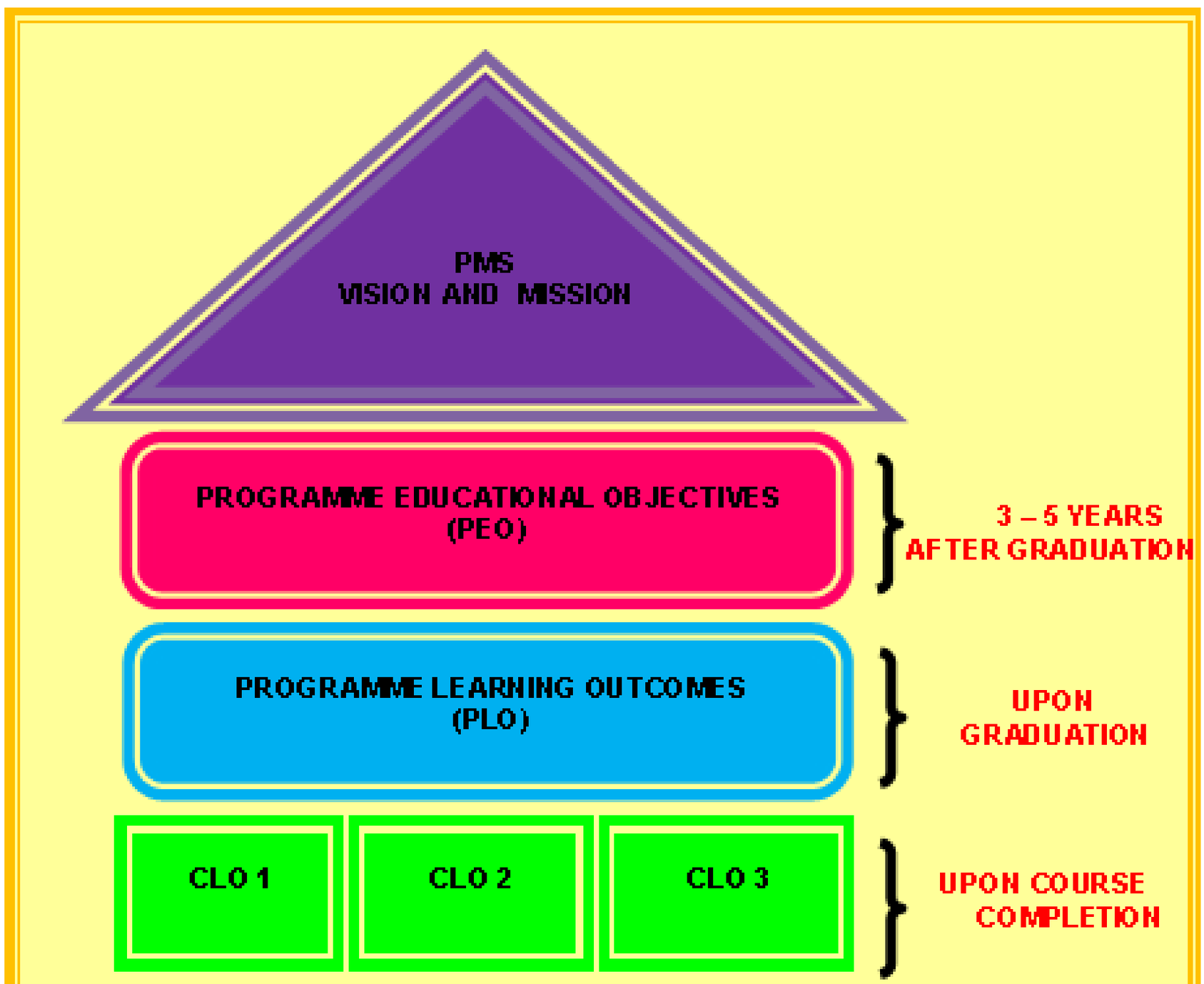
# OUTCOME BASED EDUCATION

# OBE EDUCATIONAL FRAMEWORK

Programme Educational Objectives (PEO):
The broad statements that describe the career and professional accomplishments which the program is preparing graduates to achieve.

Programme Learning Outcomes (PLO):
The statements that describe what students are expected to know and able to perform or attain in terms of skills, knowledge and behaviour or attitude by the time of graduation.

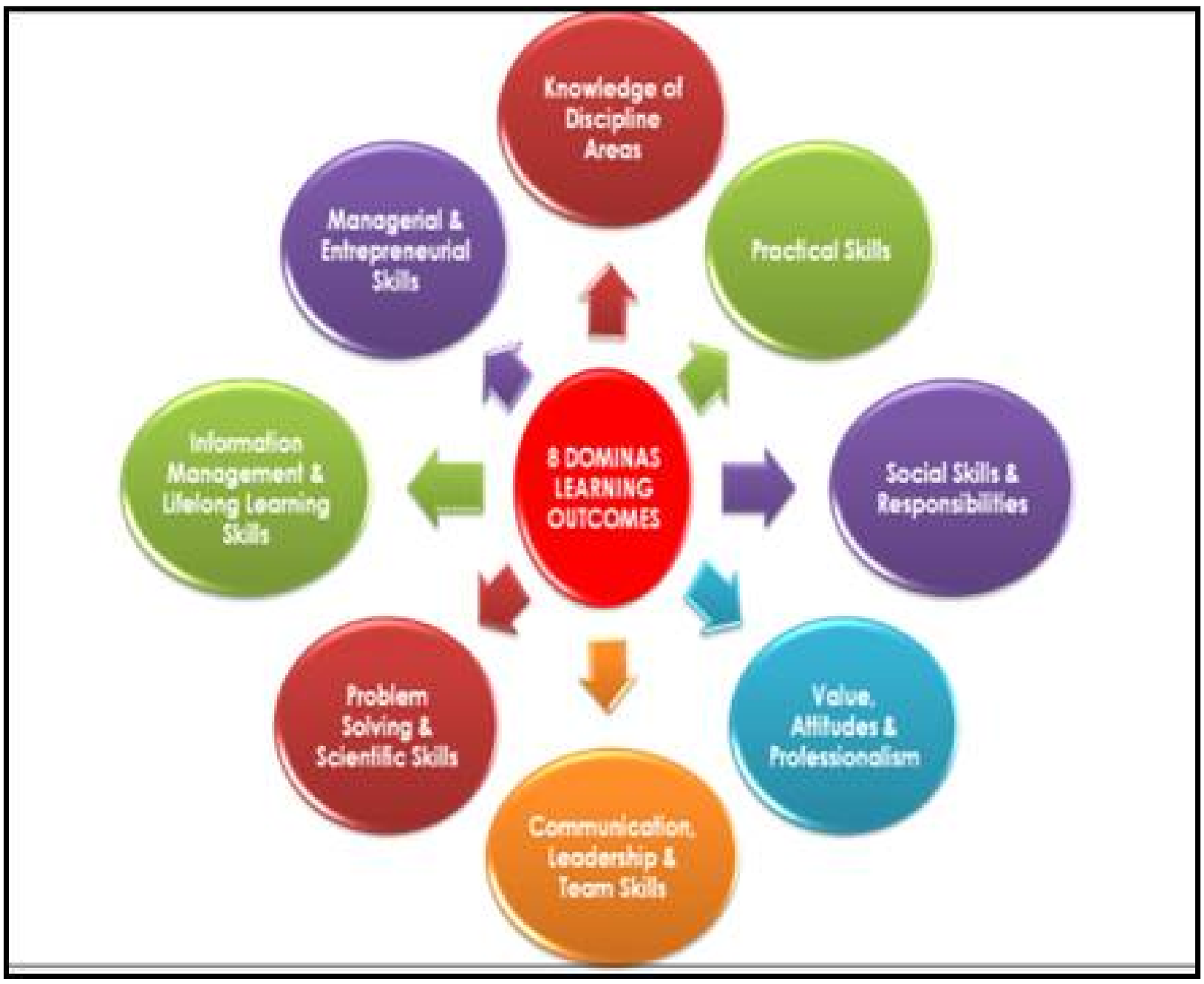
Course Learning Outcomes (CLO):
The statements that describe the specification of what a student should learn upon completing a course.



# OUTCOME BASED EDUCATION

# FORMATION OF LEARNING OUTCOMES

The achievement of our students is measured by learning outcomes. These learning outcomes should specify the competencies acquired by students upon completion of their studies. Donnelly, K (2007) mooted that outcomes cater to the understandings, dispositions and capabilities which are the personal and intellectual qualities to be possessed by each student. The outcomes are developed throughout the students' learning span. These features are contained in the 8 domains of learning outcomes:



# OUTCOME BASED EDUCATION

## THREE MAIN STAGES IN TEACHING AND LEARNING PROCESS

In general, **OBE concept** divides teaching and learning activities into three parts, namely:

i. Planning,
ii. Implementation and
iii. Assessment

At the **planning stage**, learning outcomes should be determined in advance by taking into account what students can do after attending a teaching process.

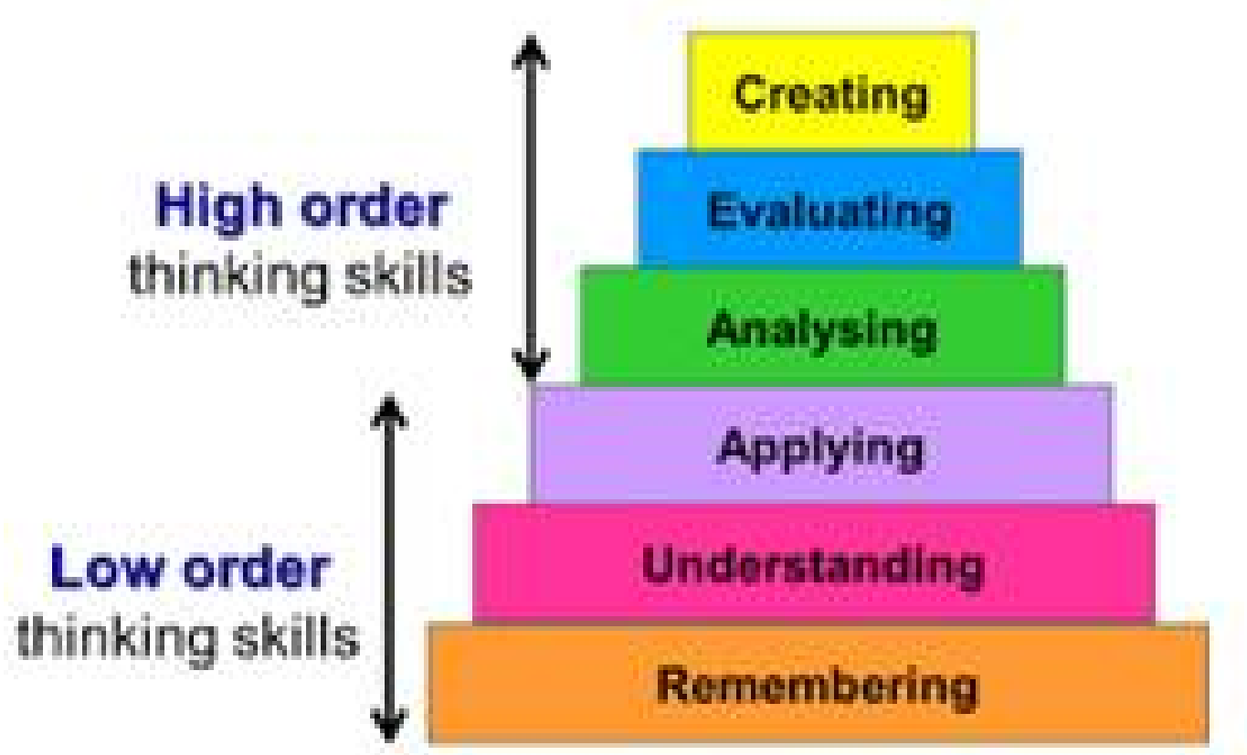
At the **implementation stage**, the teaching and learning activities should be designed to achieve the specified learning outcomes.

Finally, the **assessment** is to be determined where it measures how far students have achieved the specified learning outcomes and assessment provides input to continuously improve the teaching and learning process.

**Towards the future of OBE**:

1. Courses will help students to want, passionately, to do things, rather than just 'be able to' do things.
2. Assessment will assess whether students actually and spontaneously achieve the outcomes, rather than just 'being able to'
3. Outcomes will include values and principles and purposes as well as abilities.

In conclusion, the call for accountability is inevitably one of the reasons that lead to the introduction of OBE in Politeknik Muadzam Shah. All parties need to make necessary changes, modifications, and improvements in the light of the changes aimed. The roles of curriculum, lecturers or instructors and assessment must gear the students towards the intended outcomes.



# ENGINEERING TECHNOLOGY ACCREDITATION COUNCIL (ETAC)

ETAC
Engineering Technology Accreditation Council

# Engineering Technology Accreditation Council

## INTRODUCTION TO ETAC

**The Engineering Technology Accreditation Council (ETAC)** is a delegated body by the Board of Engineers Malaysia. ETAC started as a Protem Council in 2011 in order to provide a smooth transition in the accreditation of Engineering Technology and Engineering Technician education programmes. The Protem ETAC initially focused on the Sydney Accord based education programmes, and obtained the approval of its inaugural Engineering Technology Accreditation Manual by the BEM in 2015. With the 2015 amendment to the Registration of Engineers Act 1967, the BEM established a 21-person ETAC, comprising the seven groupings (BEM, learned bodies, industry/employer, Public Services Department (PSD), Malaysian Qualification Agency (MQA), Ministry, and public representatives) in 2015 as the only recognized accrediting body for engineering technology bachelor degree, engineering diploma and engineering technology diploma programmes offered in Malaysia.

The ETAC was instrumental in ensuring Malaysia's accredited engineering technology bachelors' degree, engineering diploma and engineering technology diploma programmes are substantially equivalent to the engineering degrees of the signatories of the Sydney Accord (SA) and Dublin Accord (DA). This will ensure that through its accreditation process, the qualities of graduates of accredited programmes meet global standards. Accredited programmes are placed in the ETAC and MQA registers. BEM-ETAC is in the process of joining the Sydney and Dublin Accords. It is hoped that by July 2017 BEM-ETAC will be accepted as a Provisional Signatory for both Accords. In becoming signatory to these Accords BEM-ETAC will be able to ensure Malaysian engineering technology and technician graduates meet an international standard. It will accord for mutual recognition of engineering technology degrees and diplomas and their graduates across the member countries. The same education standards for engineering technology and technician for all member countries is maintained through the guidelines provided by the International Engineering Alliance (IEA – www.ieagreements.org) custodian of the SA and DA. ETAC is determined to uphold the high standard of accreditation process, on behalf of BEM, to become the main catalyst for change in Malaysia and the region.

### ACCREDITATION OBJECTIVES

The objectives of ETAC are to ensure:

1. The graduates of the accredited engineering programs meet the minimum academic requirements to be registered as graduate engineer with BEM.
2. The Continual Quality Improvement (CQI) is being practiced by Institutions of Higher Learning (IHLs). Accreditation may also serves as a tool to benchmark engineering programs offered by IHLs in Malaysia.

### ADVANTAGES FOR STUDENT AND ORGANIZATION

1. Assurance that the diploma programs offered meet the high standards set by ETAC.
2. Enable students to further studies at local or overseas institutions.
3. Institution will be given opportunities to offer technology and TVET programs.
4. Graduates with diploma in engineering will be acce

# MECHANICAL ENGINEERING DEPARTMENT

# MECHANICAL ENGINEERING DEPARTMENT

## BACKGROUND

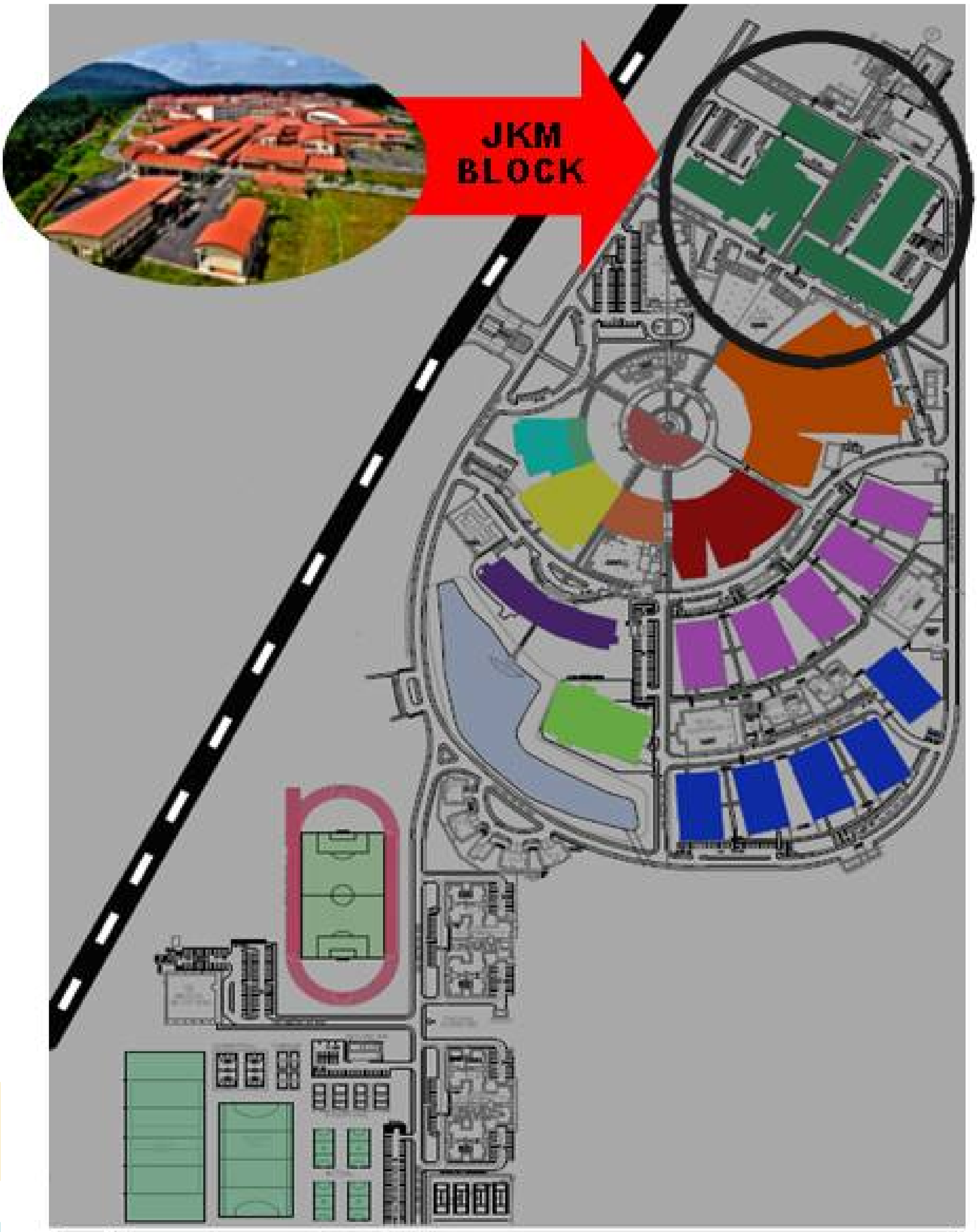
**Mechanical Engineering Department (JKM)** was established at the Polytechnic Muadzam Shah at the end of November 2010. It's establishment is in line with the movements of the Campus PMS operations while the permanent campus. There are four diploma programs offered in this polytechnic:

1. **Diploma of Mechanical Engineering (Automation)**
2. **Diploma of Mechanical Engineering (Product Design)**
3. **Diploma of Mechanical Engineering(Automotive Manufacturing Design)**
4. **Diploma of Mechanical Engineering (Manufacturing)**

The entire programs will take six semesters to complete, relatively five academic semesters at the polytechnics and one semester of industrial training at relevant industries during the final semester. The department consists a Head of Department, Heads of Program and academic lecturers. Lecturers allocated for each program based on their background, expertise and experiences.

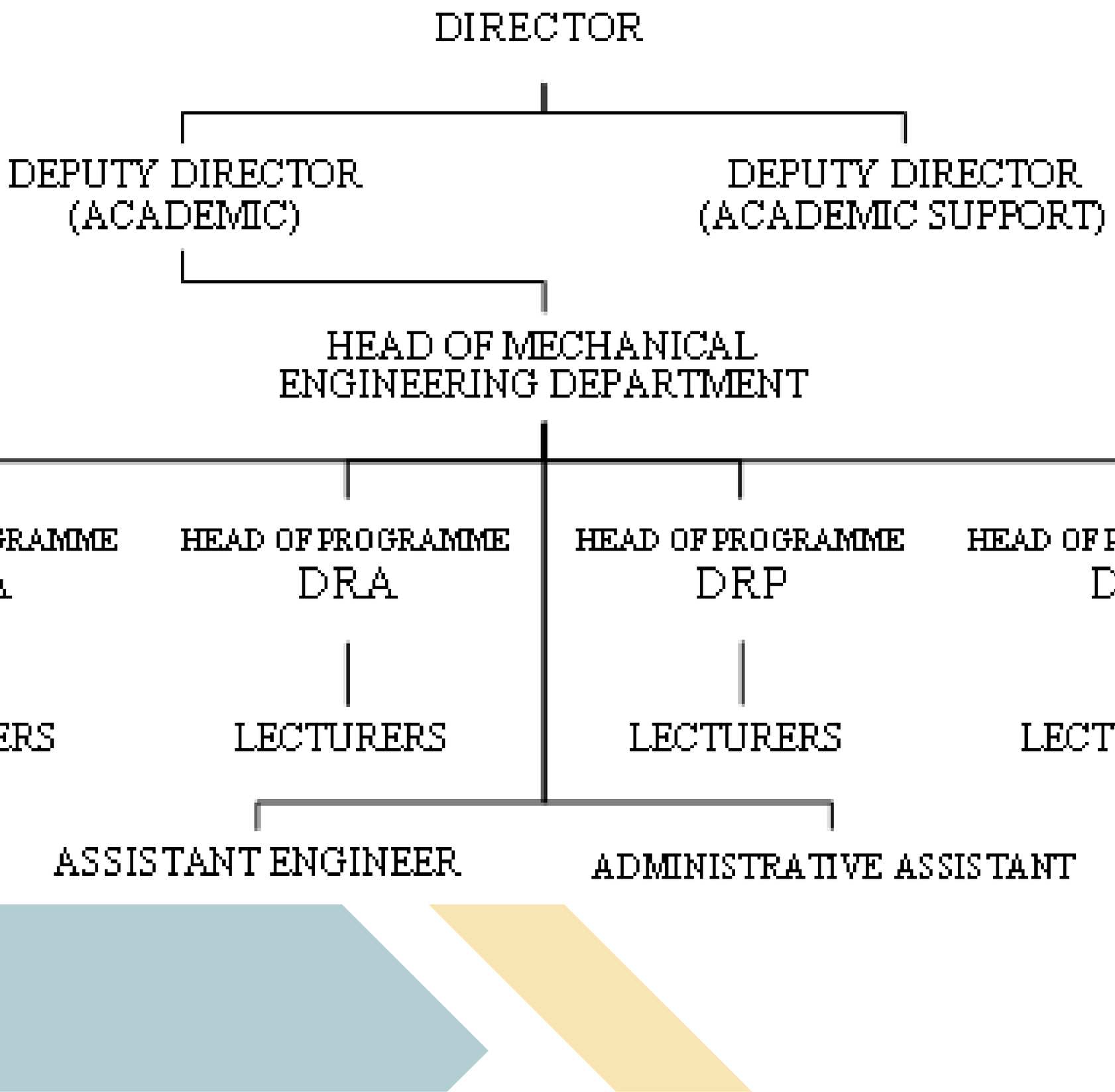
# MECHANICAL ENGINEERING DEPARTMENT

## FLOOR PLAN



# MECHANICAL ENGINEERING DEPARTMENT

# ORGANIZATIONAL CHART

# MECHANICAL ENGINEERING DEPARTMENT

## HEAD OF DEPARTMENT & SUPPORTING STAFF

**MOHD HELMI BIN SALLEH**

Position : Head of Department Mechanical Engineering
Grade : DH48
Qualification : Sarjana Pendidikan Teknik & Vokasional (UTHM), Sarjana Muda Kejuruteraan Mekanikal (KUITTHO)
Email : helmi@pms.edu.my

**EN. ZAMRI BIN SA'AT**

Position : Administrative Assistant
Grade : N19
Email : zamri@pms.edu.my

**EN. AFRIWIZAL BIN ABDUL RAHMAN**

Position : Assistant Engineer
Grade : JA29
Email : afriwizal@pms.edu.my

**EN. MD IZUDDIN BIN ISMAIL**

Position : Assistant Engineer
Grade : JA29
Email : izuddin@pms.edu.my

# MECHANICAL ENGINEERING DEPARTMENT

## LIST OF STAFF ACADEMIC STAFF (MANUFACTURING PROGRAMME) - DTP

**EN. KHAIRIL BIN CHE MAT**

Position : Head of Program (DTP)
Grade : DH44
Qualification : Ijazah Sarjana Muda Kejuruteraan Mekanikal UTHM
Email : khairil@pms.edu.my

**DR AZLAN BIN RAMLI**

Position : Lecturer
Grade : DH52
Qualification : Ijazah Sarjana Muda Kejuruteraan Pembuatan (Pengurusan) UTeM
Email : azlanramli@pms.edu.my

**NURUL IZZAH BINTI AB RAHIM**

Position : Lecturer
Grade : DH48
Qualification : Ijazah Sarjana Muda Kejuruteraan Mekanikal
Email : nurulizzah@pms.edu.my

**EN. AHMAD RAZIF BIN ABDUL HAMID**

Position : Lecturer
Grade : DH44
Qualification : Sarjana Muda Kejuruteraan Mekanikal UTHM
Email : razif@pms.edu.my

**EN. MOHD. HALIM BIN YAKOP**

Position : Lecturer
Grade : DH44
Qualification : Sarjana Kejuruteraan Pembuatan (Sistem Pembuatan) UTeM, Ijazah Sarjana Muda Kejuruteraan Pembuatan (Pengurusan) UTeM
Email : mohdhalimyakop@pms.edu.my

# MECHANICAL ENGINEERING DEPARTMENT

## LIST OF STAFF ACADEMIC STAFF (MANUFACTURING PROGRAMME) - DTP

**NORSHAHRIZAN BIN RASIP**

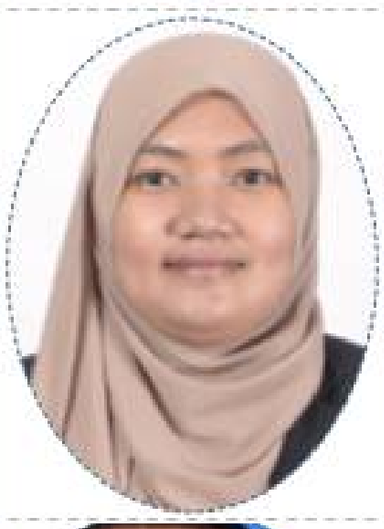
Position : Lecturer
Grade : DH44
Qualification : Sarjana Muda Kejuruteraan Mekanikal (KUITTHO)
Ijazah Sarjana Pendidikan (Teknikal) (KUITTHO)
Email : norshahrizan@pms.edu.my

**TS. MOHD ISA BIN ABDUL RAHIM**

Position : Lecturer
Grade : DH44
Qualification : Sarjana Kejuruteraan Pembuatan (Sistem Pembuatan) UTeM, Ijazah Sarjana Muda Kejuruteraan Mekanikal (UTHM).
Email : isa@pms.edu.my

**PN IZYAN DAYANA BT. JONID**

Position : Lecturer
Grade : DH44 (M)
Qualification : Sarjana Kejuruteraan Pembuatan (Sistem Pembuatan) UTeM, Bachelor Engineering Technology Electrical UNIKL, BMI
Email : izyan@pms.edu.my



**PN NORSHAHIRA BINTI FAUZI**

Position : Lecturer
Grade : DH44 (M)
Qualification : Sarjana Kejuruteraan Pembuatan (Sistem Pembuatan) UTeM,
Email : shahira@pms.edu.my

**EN.MOHD AZUAN BIN ABDULLAH**

Position : Lecturer
Grade : DH34
Qualification : Diploma Kejuruteraan Mekanikal Serta Pendidikan KUITTHO
Email : azuan@pms.edu.my

**EN. MOHD FAIZAL BIN NGAIMON**

Position : Lecturer
Grade : DH32
Qualification : Diploma Pendidikan Am dengan Kimpalan IPTKL
Email : faizaln@pms.edu.my

# MECHANICAL ENGINEERING DEPARTMENT

## LABORATORY FACILITIES

| NO | ROOM |
|---|---|
| 1 | Design Studio 1 |
| 2 | Design Studio 2 |
| 3 | Design Studio 3 |
| 4 | Design Studio 4 |
| 5 | Quality Assurance Lab |
| 6 | Automation Lab |
| 7 | CAD/CAM Lab |
| 8 | Control Engineering Lab |
| 9 | Advance Manufacturing Lab |
| 10 | Project Room and Foundry |
| 11 | Fitting & Machining Workshop |
| 12 | Automotive Workshop |
| 13 | Model Making & Welding Workshop |
| 14 | CAD/CAE Lab |

# MECHANICAL ENGINEERING DEPARTMENT

## LABORATORY FACILITIES

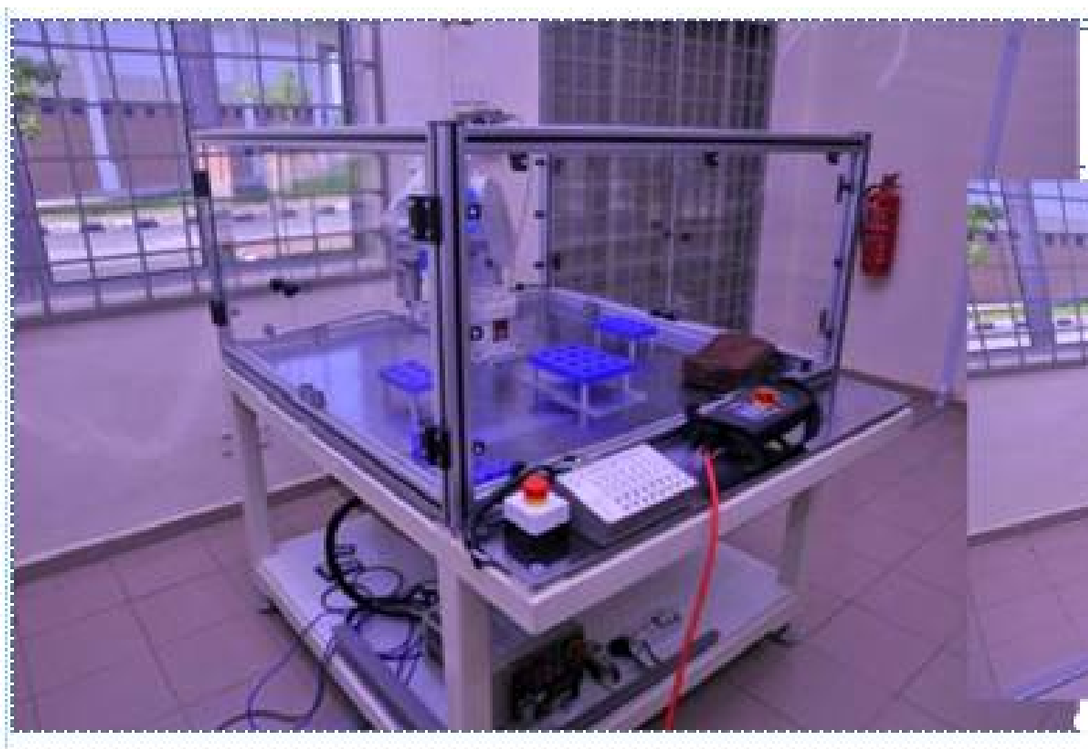




# MECHANICAL ENGINEERING DEPARTMENT

## LABORATORY FACILITIES

**Robot Facility**



**Control Lab**

# MECHANICAL ENGINEERING DEPARTMENT

## OTHER FACILITIES

Squash Court

Multipurpose Court

Swimming Pool

Futsal Court

Tennis Court

Basketball Court

# MECHANICAL ENGINEERING DEPARTMENT

## OTHER FACILITIES

Gym

Football Field

Jogging Track

Rugby Field

Volley Ball Court

# DIPLOMA IN MECHANICAL ENGINEERING

# DIPLOMA IN MECHANICAL ENGINEERING

# MANUFACTURING

## SYNOPSIS

Diploma in Mechanical Engineering (Manufacturing) Programme is designed as a part of mechanical engineering discipline focusing in manufacturing field. The core discipline courses include Engineering Drawing, Computer Aided Design, and Electrical Technology enhances the student knowledge and capabilities. In order to enrich student manufacturing knowledge, the specialized courses such as Manufacturing System, Manufacturing Workshop Practice, Computer Aided Manufacturing Design, Industrial Robotics, Manufacturing Control, Quality Control, Jigs, Fixtures & Tooling Design, Material Technology and Manufacturing Economy are introduced.

## EDUCATIONAL GOAL

To produce holistic and competent TVET graduates capable of contributing to the nation development.

## JOB PROSPECT

This programme provides the knowledge and skills in Mechanical Engineering field that can be applied to a broad range of careers in Mechanical Engineering. The knowledge and skills that the students acquire from the programme will enable them to participate in the job market as:

a. Assistant Engineer
b. Technical Assistant
C. Assistant Service Manager
d. Service Advisor
e. Supervisor
f. Technician
g. Technical Instructor or Lecturer
h. Technical Sales Executive / Engineer
i. Draughter / Designer
j. Entrepreneur

# DIPLOMA IN MECHANICAL ENGINEERING

# MANUFACTURING

## PROGRAMME AIM

The programme believes that every individual has potential and the programme aims to develop adaptable and responsible Senior Assistant Mechanical Engineers to support government's aspiration to increase workforce in engineering related field.

## PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

The **Diploma in Mechanical Engineering (Manufacturing)** programme should produce Assistant Mechanical Engineers who are:

**PEO1** : Equipped with industry-relevant knowledge and skills in Mechanical Engineering field

**PEO2**: Engaging on lifelong and continuous learning to knowledge and skills.

**PEO3** : Instilled with entrepreneurial skills and mind set in the real working environment.

**PEO4**: Established with strong linkage with society and players in the industry.



# DIPLOMA IN MECHANICAL ENGINEERING

# MANUFACTURING

## PROGRAMME LEARNING OUTCOMES (PLO)

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

**PLO1**: Apply knowledge of applied mathematics, applied science, engineering fundamentals and an engineering specialisation as specified in DK1 to DK4 respectively for practical procedures and practices

**PLO2**: Identify and analyse well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4)

**PLO3**: 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)

**PLO4**: Conduct investigations of well-defined problems; locate and search relevant codes and catalogues, conduct standard tests and measurements

**PLO5**: Apply appropriate techniques, resources, and modern engineering and IT tools to well-defined engineering problems, with an awareness of the limitations (DK6)

**PLO6**: 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)

**PLO7**: Iunderstand and evaluate the sustainability and impact of engineering technician work in the solution of well-defined engineering problems in societal and environmental contexts (DK7)

**PLO8**: Understand and commit to professional ethics and responsibilities and norms of technician practice

**PLO9**: Function effectively as an individual, and as a member in diverse technical teams

**PLO10**: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

**PLO11**: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

**PLO12**:Recognise the need for, and have the ability to engage in independent updating in the context of specialised technical knowledge

# DIPLOMA IN MECHANICAL ENGINEERING

## PROGRAMME STRUCTURE

| PROGRAMME STRUCTURE FOR DIPLOMA IN MECHANICAL ENGINEERING | | | | | | | |
|---|---|---|---|---|---|---|---|
| COMPONENTS | COURSE CODE | COURSE | CONTACT HOURS | | | | CREDIT HOURS |
| | | | L | P | T | O | |
| **SEMESTER 1** | | | | | | | |
| Compulsory | DUE10012 | Communicative English 1 | 1 | 0 | 2 | 0 | 2 |
| | MPU24XX1 | Sukan / Unit Beruniform 1 | 0 | 2 | 0 | 0 | 1 |
| Common Core | DUW10022 | Occupational, Safety and Health for Engineering | 2 | 0 | 0 | 0 | 2 |
| | DBM10013 | Engineering Mathematics 1 | 2 | 0 | 2 | 0 | 3 |
| | DBS10012 | Engineering Science | 2 | 1 | 0 | 0 | 2 |
| Discipline Core | DJJ10013 | Engineering Drawing | 1 | 3 | 0 | 0 | 3 |
| | DJJ10022 | Mechanical Workshop Practice 1 | 0 | 4 | 0 | 0 | 2 |
| | DJJ10033 | Workshop Technology | 3 | 0 | 0 | 0 | 3 |
| **TOTAL** | | | | | | | **18** |
| **SEMESTER 2** | | | | | | | |
| Compulsory | MPU23052 | Sains, Teknologi dan Kejuruteraan Islam * | 1 | 0 | 2 | 0 | 2 |
| | MPU23042 | Nilai Masayarakat Malaysia ** | | | | | |
| | MPU24XX1 | Kelab/ Persatuan / Unit Beruniform 2 | 0 | 2 | 0 | 0 | 1 |
| Common Core | DBM20023 | Engineering Mathematics 2 | 2 | 0 | 2 | 0 | 3 |
| Discipline Core | DJJ20053 | Electrical Technology | 2 | 2 | 0 | 0 | 3 |
| | DJJ20063 | Thermodynamics | 2 | 2 | 0 | 0 | 3 |
| | DJJ20073 | Fluid Mechanics | 2 | 2 | 0 | 0 | 3 |
| | DJF21012 | Manufacturing Workshop Practice 1 | 0 | 4 | 0 | 0 | 2 |
| **TOTAL** | | | | | | | **17** |
| **SEMESTER 3** | | | | | | | |
| Compulsory | DUE30022 | Communicative English 2 | 1 | 0 | 2 | 0 | 2 |
| | MPU21032 | Penghayatan Etika dan Peradaban | 1 | 0 | 2 | 0 | 2 |
| Common Core | DBM30033 | Engineering Mathematics 3 | 2 | 0 | 2 | 0 | 3 |
| Discipline Core | DJJ30113 | Material Science & Engineering | 2 | 2 | 0 | 0 | 3 |
| | DJJ30093 | Engineering Mechanics | 2 | 2 | 0 | 0 | 3 |
| | DJJ30122 | Computer Aided Design | 1 | 2 | 0 | 0 | 2 |
| Specialization | DJF31022 | Manufacturing Workshop Practice 2 | 0 | 4 | 0 | 0 | 2 |
| **TOTAL** | | | | | | | **17** |

# DIPLOMA IN MECHANICAL ENGINEERING

## PROGRAMME STRUCTURE

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SEMESTER 4** | | | | | | | |
| Common Core | DJJ40132 | Engineering Society | 2 | 0 | 0 | 0 | 2 |
| Discipline Core | DJJ40153 | Pneumatic and Hydraulics | 2 | 2 | 0 | 0 | 3 |
| | DJJ30103 | Strength of Materials | 2 | 2 | 0 | 0 | 3 |
| | DJJ40182 | Project 1 | 1 | 0 | 0 | 0 | 2 |
| Specialization | DJF41032 | Manufacturing Workshop Practice 3 | 0 | 4 | 0 | 0 | 2 |
| | DJF41042 | CAD/CAM | 0 | 4 | 0 | 0 | 2 |
| | DJF41052 | Manufacturing System | 2 | 0 | 0 | 0 | 2 |
| | | Ellective**** | | | | | |
| **TOTAL** | | | | | | | **16** |
| **SEMESTER 5** | | | | | | | |
| Compulsory | DUE50032 | Communicative English 3 | 1 | 0 | 2 | 0 | 2 |
| | MPU22012 | Entrepreneurship | 1 | 0 | 2 | 0 | 2 |
| Discipline Core | DJJ50193 | Project 2 | 0 | 4 | 0 | 0 | 3 |
| Specialization | DJF51062 | Manufacturing Control | 2 | 0 | 0 | 0 | 2 |
| | DJF51072 | Jix and Fixture Design | 1 | 2 | 0 | 0 | 2 |
| | DJF51082 | Quality Control | 2 | 0 | 0 | 0 | 2 |
| | DJF51092 | Tool Design | 1 | 2 | 0 | 0 | 2 |
| | | Ellective**** | | | | | |
| **TOTAL** | | | | | | | **15** |
| **SEMESTER 6** | | | | | | | |
| | DUT600610 | Industrial Training | 0 | 0 | 0 | 0 | 10 |
| | | | | | | | **10** |
| **TOTAL CREDIT VALUES** | | | | | | | **95** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ELECTIVE COURSE** | | | | | | | |
| 1 | DJF42012 | Advanced Manufacturing Process | 2 | 0 | 0 | 0 | 2 |
| 2 | DJF52032 | Manufacturing Economy | 2 | 0 | 0 | 0 | |
| 3 | DJJ42032 | Instrumentation and Control | 2 | 0 | 0 | 0 | |
| 4 | DJJ42022 | Industrial Management | 2 | 0 | 0 | 0 | |
| 5 | DJJ52052 | Railway Track System | 2 | 0 | 0 | 0 | |
| 6 | DJM20032 | C Programming | 1 | 2 | 0 | 0 | |
| 7 | DJM40082 | Programmable Logic Control | 1 | 2 | 0 | 0 | |
| 8 | DJM40092 | Control System | 2 | 1 | 0 | 0 | |
| **TOTAL** | | | | | | | **15** |
| | | | | | | | |
| **FREE ELECTIVE COURSE** | | | | | | | |
| 1 | DUD10012 | DESIGN THINKING | 1 | 0 | 0 | 1 | 2 |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### COMPULSORY COURSE

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DUE10012 Communicative English 1 | 2 | COMMUNICATIVE ENGLISH 1 focuses on developing students' speaking skills to enable them to communicate effectively and confidently in group discussions and in a variety of social interactions. It is designed to provide students with appropriate reading skills to comprehend a variety of texts. The students are equipped with effective presentation skills as a preparation for academic and work purposes. | CLO1 : Participate in a discussion using effective communication and social skills to reach an amicable conclusion by accommodating differing views and opinions ( A3 , CLS 3b )<br><br>CLO2 : Demonstrate awareness of values and opinions embedded in texts on current issues ( A3 , CLS 3b )<br><br>CLO3 : Present a topic of interest that carries identifiable values coherently using effective verbal and non-verbal communication skills ( A2 , CLS 4 ) |
| MPU24XX1 Sukan/Unit Beruniform 1 | 1 | UNIT BERUNIFORM 1 memfokuskan kepada penguasaan pengetahuan dan ke-mahiran khusus secara holistik bagi men-gukuhkan pembentukan kemahiran in-saniah pelajar yang positif.<br><br>SUKAN adalah aktiviti yang mengandungi latihan kemahiran berguna secara rekreasi dan peraturan-peraturan tertentu dalam mengejar kecemer-langan bagi penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan ke-mahiran insaniah pelajar yang positif | CLO1 : Mempamerkan kemahiran khusus bagi kursus berkaitan ( P2 , CLS 4 )<br><br>CLO2 : Menunjukkan kepimpinan dan ker-ja berpasukan berdasarkan penguasaan kemahiran dan amalan positif ( A3 , CLS 3d ) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### COMPULSORY COURSE

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| MPU23052 Sains, Teknologi dan Kejuruteraan Dalam Islam | 2 | SAINS, TEKNOLOGI DAN KEJURUTERAAN DALAM ISLAM memberi pengetahuan tentang konsep Islam sebagai al-Din dan seterusnya membincangkan konsep sains, teknologi dan kejuruteraan dalam Islam serta impaknya, pencapaiannya dalam tamadun Islam, prinsip serta peranan syariah dan etika Islam, peranan kaedah fiqh serta aplikasinya. | CLO1 : Melaksanakan dengan yakin amalan Islam dalam kehidupan seharian ( A2 , CLS 4 )<br><br>CLO2 : Menerangkan etika dan profesionalisme berkaitan sains teknologi dan kejuruteraan dalam Islam( A3 , CLS 5 )<br><br>CLO3 : Menghubungkait minda ingin tahu dengan prinsip syariah, etika dan kaedah fiqh dalam bidang sains, teknologi dan kejuruteraan menurut perspektif Islam( A4 , CLS 4 ) |
| MPU23042 Nilai Masyarakat Malaysia** | 2 | NILAI MASYARAKAT MALAYSIA membincangkan aspek sejarah pembentukan masyarakat, nilai-nilai agama, adat resam dan budaya masyarakat di Malaysia. Selain itu, pelajar dapat mempelajari tanggungjawab sebagai individu dan nilai perpaduan dalam kehidupan di samping cabaran-cabaran dalam membentuk masyarakat Malaysia. | CLO1 : Membincangkan sejarah dan nilai dalam pembentukan masyarakat di Malaysia( A2 , CLS 4 )<br><br>CLO2 : Menerangkan etika dan profesionalisme terhadap konsep perpaduan bagi meningkatkan semangat patriotisme masyarakat Malaysia( A3 , CLS 5 )<br><br>CLO3 : Menghubungkait minda ingin tahu dengan cabarancabaran dalam membentuk masyarakat Malaysia ( A4 , CLS 4 ) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### COMPULSORY COURSE

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DUE30022 Communicative English 2 | 2 | COMMUNICATIVE ENGLISH 2 emphasises the skills required at the workplace to describe products or services as well as processes or procedures. This course will also enable students to make and reply to enquiries and complaints. | CLO1 : Describe a product or service effectively by highlighting its features and characteristics that appeal to a specific audience( A3 , CLS 3b )<br><br>CLO2 : Describe processes, procedures and instructions clearly by highlighting information of concern ( A3 , CLS 4 )<br><br>CLO3 : Demonstrate effective communication and social skills in handling enquiries and complaints amicably and professionally ( A3 , CLS 3b ) |
| MPU21012 Pengajian Malaysia | 2 | PENGAJIAN MALAYSIA membincangkan sejarah dan politik, perlembagaan Malaysia dan sistem pemerintahan negara, kemasyarakatan dan perpaduan, pembangunan negara dan isu-isu keperihatinan negara. Kursus ini adalah bertujuan untuk melahirkan graduan yang mempunyai identiti kebangsaan dan semangat patriotisme yang unggul. | CLO1 : Menerangkan nilai sejarah bangsa dan negara di Malaysia ( A3 , CLS 5 )<br><br>CLO2 : Menghubungkait sikap dan tanggungjawab yang signifikan dengan sistem pemerintahan negara ( A4 , CLS 5 )<br><br>CLO3 : Membentuk minda ingin tahu menerusi aktiviti kemasyarakatan atau patriotisme dalam kalangan pelajar ( A3 , CLS 4 ) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### COMPULSORY COURSE

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DUE50032<br>Communicative English 3 | 2 | COMMUNICATIVE ENGLISH 3 aims to develop the necessary skills in students to analyse and interpret graphs and charts from data collected as well as to apply the job hunting mechanics effectively in their related fields. Students will learn to gather<br>data and present them through the use of graphs and charts. Students will also learn basics of job hunting mechanics which include using various job search strategies, making enquiries, and preparing relevant resumes and cover letters. The students will develop communication skills to introduce themselves, highlight their strengths and abilities, present ideas, express opinions and respond appropriately during job interviews. | CLO1 :<br>Present gathered data in graphs and charts effectively using appropriate language forms and Functions ( A2 , CLS 3b )<br><br>CLO2 :<br>Prepare a high impact resume and a cover letter, highlighting competencies and strengths that meet employer's expectations<br>( A4 , CLS 4 )<br><br>CLO3 :<br>Demonstrate effective communication and social skills in handling job interviews confidently<br>( A3 , CLS 3b ) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### COMMMON CORE

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DUW10022 Occupational, Safety and Health for Engineering | 2 | OCCUPATIONAL SAFETY AND HEALTH FOR ENGINEERING course is designed to impart understanding of the self-regulatory concepts and provisions under the Occupational Safety & Health Act (OSHA). This course presents the responsibilities of workers in implementing and complying with the safety procedures at work. Understanding of notifications of accidents, dangerous occurrence, poisoning and diseases and liability for offences will be imparted upon students. This course will also provide an understanding of the key issues in OSH management, incident prevention, Emergency Preparedness and Response (EPR), fire safety, Hazard Identification, Risk Control and Risk Assessment (HIRARC) and guide the students gradually into this multi-disciplinary science. | CLO1 :<br>Explain briefly Occupational Safety and Health (OSH) procedures, regulation and its compliance in Malaysia.<br>(C2, PLO1)<br><br>CLO2 :<br>Initiates incident hazards, risks and safe work practices in order to maintain health and safe work environment.<br>(A3, PLO8)<br><br>CLO3 :<br>Forms communication skills in a team to respond for an accident action at workplace.(A3, PLO 10) |
| DBS10012 Engineering Science | 2 | ENGINEERING SCIENCE course introduces the physical concepts required in engineering disciplines. Students will learn the knowledge of fundamental physics in order to identify and solve engineering physics problems. Students will be able to perform experiments and activities to mastery physics concepts. | CLO1 :<br>Use basic physics concept to solve engineering physics problems<br>( C3, CLS 1 )<br><br>CLO2 :<br>Apply knowledge of fundamental physics in activities to mastery physics concept( C3, CLS 1 )<br><br>CLO3 :<br>Perform appropriate activities related to physics concept( P3, CLS 3a ) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### COMMMON CORE

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DBM10013 Engineering Mathematics 1 | 3 | ENGINEERING MATHEMATICS 1 exposes students to the basic algebra including resolve partial fractions. This course also covers the concept of trigonometry and the method to solve trigonometry problems by using basic identities, compound angle and double angle formulae. Students will be introduced to the theory of complex number and concept of vector and scalar. Students will explore advanced matrices involving 3x3 matrix. | CLO1 :<br>Use mathematical statement to describe relationship between various physical phenomena.(C3, CLS1)<br><br>CLO2 :<br>Show mathematical solutions using the appropriate techniques in mathematics.<br>(C3, CLS 3c)<br><br>CLO3 :<br>Use mathematical expression in describing real engineering problems precisely, concisely and logically.<br>(A3 , CLS 3b) |
| DBM20023 Engineering Mathematics 2 | 3 | ENGINEERING MATHEMATICS 2 exposes students to the basic laws of indices and logarithms. This course introduces the basic rules of differentiation concepts to solve problems that relates maximum, minimum and calculate the rates of changes. This course discusses integration concepts in order to strengthen student's knowledge for solving area and volume bounded region problems. In addition, students will learn application of both techniques of differentiation and integration. | CLO1 :<br>Use algebra and calculus knowledge to describe relationship between various physical phenomena.(C3, CLS 1)<br><br>CLO2 :<br>Solve the mathematical problems by using appropriate and relevant fundamental calculus techniques.<br>(C3, CLS 3c)<br><br>CLO3 :<br>Use mathematical language to express mathematical ideas and arguments precisely, concisely and logically in calculus.<br>(A3, CLS 3b) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### COMMMON CORE

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DBM30033 Engineering Mathematics 3 | 3 | ENGINEERING MATHEMATICS 3 exposes students to the statistical and probability concepts and their applications in interpreting data. The course also introduces numerical methods concept to solve simultaneous equations by using Gaussian Elimination method, LU Decomposition using Doolittle and Crout methods, polynomial problems using Simple Fixed Point Iteration and Newton-Raphson methods. In order to strengthen the students in solving engineering problems, Ordinary Differential Equation (ODE) is also included. In additional, the course also discusses optimization problems by using Linear Programming. It is designed to build students' teamwork and problems solving skill. | CLO1 :<br>Demonstrate an understanding of the common body of knowledge in mathematics.(C3, CLS 1)<br><br>CLO2 :<br>Demonstrate problems solving skills in engineering problems.(C3, CLS 3c)<br><br>CLO3 :<br>Use mathematical expression in describing real engineering problems precisely, concisely and logically.<br>(A3, CLS 3b) |
| DUJ40132 Engineering Society | 2 | ENGINEERING AND SOCIETY focuses on the introduction to professional ethics, theory and philosophy of ethics, values in professional ethics, engineering bylaws and standards, issues in professional ethics and sustainability. It also relates towards IR 4.0 introduction and green engineering. | CLO 1:<br>Implement the roles of engineering profession towards the developing of society and its challenges in globalization (C3,PLO6)<br><br>CLO 2 :<br>Determine the important of work ethics, bylaws and professionalism in engineering profession.<br>(C4,PLO8)<br><br>CLO3 :<br>Determine the needs for sustainable and green engineering towards providing the solutions in engineering field. (C4,PLO7) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### DISIPLINE CORE

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DJJ10013 Engineering Drawing | 3 | ENGINEERING DRAWING course provides the students with the fundamentals oft echnical drawings and the application Computer Aided Design (CAD) software. For technical drawing, it emphasizes on the practical knowledge of drawing instruments and drawing techniques while for CAD the student will learn to navigate and use the software to create 2D drawing design in engineering. Students shall be able to demonstrate competency in using some standard available features of technical drawing and CAD application to create and manipulate objects or elements in engineering drawing. | CLO1:<br>Apply the fundamentals of technical drawing and features of CAD software in producing engineering drawing.<br>(C3, PLO1)<br><br>CLO2:<br>Construct the technical drawing and 2D CAD drawing according to the engineering drawing standards.(P3, PLO5)<br><br>CLO3:<br>Propose a project report with following engineering norms and practices in engineering drawing.(A3, PLO8) |
| DJJ10022 Mechanical Workshop Practice 1 | 2 | MECHANICAL WORKSHOP PRACTICE 1 exposes the students to welding, machining and fitting which involve the use of arc and and gas welding machine, lathe machine, drilling machine, grinding, hand tools, marking out tools, measuring and testing tools. Students are also taught to emphasize on safety procedures and cleanliness in the workshop. | CLO1 :<br>Measure finished product using appropriate measurement instruments (P3, PLO5)<br><br>CLO2 :<br>Perform fitting, welding and machining works according to Standard Operational Procedure (SOP).<br>(P4, PLO5)<br><br>CLO3 :<br>Demonstrate an understanding of professional ethics, responsibilities and norms of engineering practices according to the workshop safety regulation.(A3, PLO6) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### DISIPLINE CORE

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| Workshop Technology<br>DJJ10033 | 3 | WORKSHOP TECHNOLOGY provides exposure and knowledge in using hand tools, machine operation such as drilling, lathe, milling and computer numerical control. It also covers on gear measurement and inspection welding process in oxy acetylene, Shielded Metal Arc Welding (SMAW), Gas Tungsten Arc Welding (GTAW) and Gas Metal Arc Welding (GMAW). | CLO1 :<br>Apply the knowledge of basic mechanical components and equipment, hand tools and measuring equipment in workshop technology(C3, PLO1)<br><br>CLO2 :<br>Apply standard practice in operating mechanical tools and component(C3, PLO8)<br><br>CLO3 :<br>Demonstrate continuous learning and information management skills to complete assigned task(A3, PLO12) |
| Electrical Technology<br>DJJ20053 | 3 | ELECTRICAL TECHNOLOGY exposes students to the basic electrical circuit concepts, the application of electromagnetism in electrical machines and transformers. The course focuses on the different types of electrical circuits, the relationship between current and voltage including the resistance. It also provides the skills on the methods of constructing basic circuits and operation of electrical machines and transformers. This course also exposes the students to the demonstration of experiments in Electrical Engineering. | CLO1 :<br>Explain the principles and fundamental of electrical circuits, electromagnetism, transformers and electrical machine<br>(C2, PLO1)<br><br>CLO2 :<br>Solve the problem related to electrical circuits, electromagnetism, transformers and electrical machine<br>(C3, PLO1)<br><br>CLO3 :<br>Organize appropriately experiments in groups according to the Standard Operating Procedures. (P4, PLO5) |
| Thermodynamics<br>DJJ20063 | 3 | THERMODYNAMICS provides knowledge of theory, concept and application of principles to solve problems related to thermodynamics. It emphasizes on concept of non-flow process and flow process, properties of steam, Carnot cycle and Rankine cycle. This course also exposes the students to the demonstration of experiments in Thermodynamics by using the real equipment. | CLO1 :<br>Explain fundamentals concept and properties of pure substances in thermodynamics (C2, PLO1)<br><br>CLO2 :<br>Apply Laws of thermodynamics and it processes (C3, PLO1)<br><br>CLO3 :<br>Organize appropriately experiments according to the Standard Operating Procedures (P4, PLO5) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### DISIPLINE CORE

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DJJ20073 Fluid Mechanics | 3 | FLUID MECHANICS provides students with a strong understanding of the fundamentals of fluid mechanics principles related to the fluid properties and behavior in static and dynamic situations. This course also exposes the students to the demonstration at the real equipment of fluid mechanics. | CLO1:<br>Explain the fundamentals of fluid (C2, PLO1)<br><br>CLO2:<br>Solve problems related to fluid properties, fluid statics and fluid dynamics(C3, PLO1)<br><br>CLO3: Organize appropriate experiments in groups according to the standard operating procedures (P4, PLO5) |
| DJJ30113 Material Science and Engineering | 3 | MATERIALS SCIENCE AND ENGINEERING course introduces students a comprehensive coverage of basic fundamentals of materials science and engineering. The course focuses on material structures, properties, fabrication methods, corrosion, thermal processing and material testing mostly of metals and alloys. New fabrication method of powder metallurgy are introduces to student to cater the fabrications of devices, sensors for Industry 4.0 technology. | CLO1 :<br>Apply the fundamental of material science to identify the materials, properties, behavior, processes and treatment.(C3 ,PLO1)<br><br>CLO2 :<br>Performed appropriate material testing according to the Standard Operating Procedures.(P4 , PLO5)<br><br>CLO3 :<br>Demonstrate the ability to work individually and in groups to complete assigned tasks during the practical work session.(A3 ,PLO9) |
| DJJ30083 Engineering Mechanics | 3 | ENGINEERING MECHANICS focuses on theoretical knowledge in statics and dynamics. This course provides students with fundamental understanding of forces and equilibrium, resultants, equilibrium of a particles and structural analysis. This course also covers kinematics and kinetics of particles. This course also exposes the students to the demonstration of experiments in Engineering Mechanics. | CLO 1:solve problems related to static and dynamics based on the concepts and principle of engineering mechanics<br>( C3, PLO 1)<br><br>CLO 2:analyze engineering related problems based on fundamentals of static and dynamics(C4, PLO 2)<br><br>CLO 3:organize appropriately experiment in groups according to Standard Operation Procedures (P4, PLO 5) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### DISIPLINE CORE

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DJJ30122 Computer Aided Design | 2 | COMPUTER AIDED DESIGN exposes the students to the fundamentals and principles of 3D drawing using 3D CAD software. Students also equip with various method of creating a solid model using extrude, revolve, swept, assembly, simulation and animation. Hands-on exercises drawing of mechanical engineering will also be covered in this course. | CLO1:<br>Apply CAD commands in order to produce engineering drawing. (C3, PLO1 )<br><br>CLO2:<br>Construct 3D drawing of Mechanical Components according Drawing Standards.(P4, PLO5 )<br><br>CLO3:<br>Demonstrate a presentation with following technical standard Communication.(A3, PLO10) |
| DJJ40153 Pneumatic & Hydraulics | 3 | PNEUMATICS & HYDRAULICS provides knowledge and understanding to the importance of pneumatics and hydraulics circuits, equipment and design along with its usage in the industry. | CLO1:<br>Analyze the basic concept and function of pneumatics and hydraulics system. (C4,PLO2)<br><br>CLO2:<br>Construct pneumatic, electro-pneumatic and hydraulic circuit according to assigned tasks. (C5, PLO3 & P4, PLO4)<br><br>CLO3:<br>Demonstrate understanding of engineering norm and practices in pneumatics and hydraulics during practical work sessions. (A3, PLO8) |
| DJJ40182 Project 1 | 2 | PROJECT 1 prepares students with basic skills knowledge in preparing research proposal and a well written paperwork. This module emphasize on personal development in preparing a good presentation. | CLO1:<br>Organize research or project systematically. (C5)<br><br>CLO2:<br>Demonstrate good communication skill of oral presentation in group. (A3)<br><br>CLO3:<br>Demonstrate continuous learning and information management skill while engaging in independent acquisition of new knowledge and skill to develop a project . (A3) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### DISIPLINE CORE

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DJJ50193 Project 2 | 3 | PROJECT 2 introduces the students to the concepts of conducting a design or case study. The students select a project, list the project's needs, the processes involved, cost estimation, project schedule by applying appropriate methodology in the project planning. It also involves project implementation, project report and presentation | CLO1:<br>develop creative solution to solve the problems in the project design or case study (C5, PLO3)<br><br>CLO2:<br>organize the selected design or case study based on the project planning<br>(P5, PLO4)<br><br>CLO3:<br>demonstrate good communication skills of presentation in group (A3, PLO6)<br><br>CLO4:<br>demonstrate ability to lead a team to complete assigned project during practical work sessions<br>(A3, PLO7)<br><br>CLO5:<br>demonstrate awareness of management, business practices and entrepreneurship related to product of<br>project (A3, PLO9)<br><br>CLO6:<br>demonstrate awareness of social responsibility in practical work procedure and practices (A3, PLO10) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

## SPECIALIZATION

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DJF21012 Manufacturing Workshop Practice 1 | 2 | MANUFACTURING WORKSHOP PRACTICE 1 exposes the students to the fundamental of manufacturing processes, industrial environment, cultural issues and hands on experiences. This course enables students to apply knowledge and develop required technical skills on sand casting, conventional machining and TIG/MIG welding. The workshop practice helps the students to practice appropriate safety procedures and standard operation on completing mini project and practical task. The practical skills also cover the organizational and housekeeping activity, schedule maintenance, planning skills, supervising design, inspecting and testing welding task in order to meet the quality requirement. | CLO1 :<br>Build a project using casting, TIG and MIG welding process based on standard operational procedures and safety.<br>(P3, PLO5)<br><br>CLO2 :<br>Perform direct indexing operation using indexing head attachment in milling machine processes.(P4, PLO5)<br><br>CLO3 :<br>Demonstrate an understanding of the responsibilities, societal, health, safety, legal and cultural issues during practical work session.(A3, PLO6) |
| DJF31022 Manufacturing Workshop Practice 2 | 2 | MANUFACTURING WORKSHOP PRACTICE 2 exposes the students to the fundamental of manufacturing processes, industrial environment, cultural issues and hands-on experiences. This course enables students to apply knowledge and develop required technical skills on CNC machine, conventional machining, surface grinding machine and TIG and MIG welding. The workshop practice helps the students to practice appropriate safety procedures and standard operation on completing mini project and practical task. The practical skills also cover the organizational and housekeeping activity, schedule maintenance, planning skills, supervising design, inspecting and testing welding task in order to meet the quality requirements. | CLO1 :<br>Build a project using CNC machine, TIG and MIG welding process based on standard operational procedures and safety. (P3, PLO5)<br><br>CLO2 :<br>Perform contouring cutting operation using rotary table attachment in milling machine processes. (P4, PLO5)<br><br>CLO3 :<br>Demonstrate an understanding of the responsibilities, societal, health, safety, legal and cultural issues during practical work session.(A3, PLO6) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### SPECIALIZATION

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DJF41032 Manufacturing Workshop Practice 3 | 2 | MANUFACTURING WORKSHOP PRACTICE 3 exposes the students to develop knowledge and skills in Robot Programming and Application, Programmable Logic Control, Additive Manufacturing and Plastic Processing. Robot Application helps the students to learn about programming, hands-on training and robot application. Students will also learn about creating a simple program using PLC which is widely used in manufacturing and mechanical processes. The Additive Manufacturing will focus on designing complex design shapes which involves in modifying and completing design of a prototype. Plastic processing process helps the students to understand the basic principle of the plastic manufacturing processes. | CLO1 :<br>Manipulates robot programming and PLC programming process.(P3, PLO5)<br><br>CLO2 :<br>Perform mini project using additive manufacturing and plastic processing process.(P4, PLO5)<br><br>CLO3 :<br>Demonstrate an understanding of professional ethics, responsibilities, norms and practices during practical work session. (A3, PLO8) |
| DJF41042 CAD/CAM | 2 | CAD/CAM explains the theory and basic of coding languages, structures and the use of CAD/CAM systems for generating and verifying tool path. The students will be use CAD/CAM software to demonstrate the integration between CAD and CAM operation that includes design an object, produce a code and simulate the tool path for machining operation prior to the machining process and also generate NC part programming. Students also enables to build a project from NC part programming using CNC milling or lathe machine. | CLO1 :<br>Calibrates machining code (G and M code) from CAD/CAM software to plan and devise holes process and milling/lathe project.(P3, PLO3)<br><br>CLO2 :<br>Build a project using CNC milling or lathe machine by utilizing related CAD/CAM simulation software.<br>(P4, PLO5)<br><br>CLO3 :<br>Demonstrate continuous learning and information management skill while engaging in independent acquisition of new knowledge and skill to develop a project.(A3, PLO12) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### SPECIALIZATION

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DJF41052 Manufacturing System | 2 | MANUFACTURING SYSTEM explains the terminologies and concepts that are necessary in the learning of manufacturing system. It provides knowledge regarding fundamental of manufacturing system, industrial robotics, process layout, material handling systems and Lean system. | CLO1 :<br>Apply the basic concepts of manufacturing system, robotic in manufacturing, process analysis, process layout and material handling system.(C3, PLO2)<br><br>CLO2 :<br>Investigate problem solving in Lean system.(C4, PLO4)<br><br>CLO3 :<br>Demonstrate good communication skills in engineering society.(A3, PLO10) |
| DJF51062 Manufacturing Control | 2 | MANUFACTURING CONTROL provides knowledge about basic principles and concept on managing an organization and major levels in manufacturing planning and control system (MPC) which will help students in making forecast, production plan, control production and manage inventory. This course also gives knowledge about production scheduling. It also includes knowledge in managing MRP system (material management), production scheduling and inventory management. | CLO1 :<br>Attain the concept and application of Manufacturing Forecasting, Production Scheduling, Inventory Control, Productivity and Capacity Planning.<br>(C3, PLO2)<br><br>CLO2 :<br>Integrate Material Requirement Planning (MRP) and inventory control for manufacturing process controlling activities.(C4, PLO4)<br><br>CLO3 :<br>Adopt project management framework to develop a Material Requirement Planning (MRP) according to inventory management.(A3, PLO11) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### SPECIALIZATION

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DJF51072 Jig and Fixture Design | 2 | JIG AND FIXTURE DESIGN covers basic production needs in industry. The topics taught includes types and functions of jigs and fixtures, supporting and locating, clamping and work holding principles, design economics, designing and constructing plate jig and plate fixtures. This course also provides knowledge in management, sustainability and manufacturing systems. | CLO1 :<br>Apply the concepts and principles of jigs and fixtures in design. (C3, PLO2)<br><br>CLO2 :<br>Calibrate the 3D design by using CAD/CAM software to plan and devise mini project. (P4, PLO3)<br><br>CLO3 :<br>Demonstrate convictions towards environment and sustainability to complete assigned tasks during mini project sessions.(A3, PLO7) |
| DJF51082 Quality Control | 2 | QUALITY CONTROL provides knowledge on basic principle and concept of quality including statistical method in controlling products quality or services. This course also emphasizes on the application of Control Chart and Quality Control tools and also explains the quality improvement technique. | CLO1 :<br>Apply the relation of statistics and quality management system in understanding of quality control and their application tools.(C3, PLO1)<br><br>CLO2 :<br>Determine the related quality tools and techniques to control the quality of products or services based on case study.(C4, PLO2)<br><br>CLO3 :<br>Demonstrate ability to work in team to complete the assigned tasks.<br>(A3, PLO9) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### SPECIALIZATION

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DJF51092 Tool Design | 2 | TOOL DESIGN exposes the students to the knowledge of datum concept, geometric tolerances and fundamentals to design tool based on clamping and locating principle. The topics also covers the principle of tool applications in metal and non-metal process. All the topics discussed will enable the students to plan and identify the use of tooling. They will also be exposed to the application of tooling in related industries. | CLO1 :<br>Apply appropriately the concepts of tool design method and tooling material selection in designing tools.(C3, PLO2)<br><br>CLO2 :<br>Perform the simulation of mould, tool and die design using CAD/CAM software. (P4, PLO3)<br><br>CLO3 :<br>Demonstrate conviction towards environment and sustainability to complete assigned tasks during practical work sessions.(A3, PLO7) |

# DIPLOMA IN MECHANICAL ENGINEERING

## COURSE SYNOPSIS & COURSE LEARNING OUTCOME (CLO)

### ELECTIVES

| COURSE CODE | CREDIT HOUR | SYNOPSIS | CLO |
|---|---|---|---|
| DJF52032 Manufacturing Economy | 2 | MANUFACTURING ECONOMIC provides knowledge and understanding for students on economy aspect which includes concepts, categories, factor of supply and demand, basic element and characteristics of cost and decision involve in manufacturing process. This course also focuses on fixed cost, variable cost, direct and indirect cost, actual cost and break-even analysis which leads towards eliminating the wastage in manufacturing. | CLO1 :<br>Apply knowledge to identify and classify of fixed cost, variable cost, direct and indirect cost which contribute to total cost in production.(C3, PLO2)<br><br>CLO2 :<br>Analyze correctly the actual cost and break-even analysis for decision making process. (C4, PLO4)<br><br>CLO3 :<br>Demonstrate ability to manage project including financial aspect for the task assigned. (A3, PLO11) |

# STUDENT FACILITIES

# DIPLOMA IN MECHANICAL ENGINEERING

## ACCIDENTS

**Steps to be taken if accidents occur:**

- ✓ Students could get medical treatment from Public or Private Hospital
- ✓ Academic Advisor/Student should inform the details of the accident to the
- ✓ Student Affairs Department within 5 days from the date of occurrence.
- ✓ The Student Affairs Department will inform the insurance company within 24 hours from the date of report received.
- ✓ Insurance Claim Form will be given to the student for claim purpose.
- ✓ A completed form with supporting documents should be submitted to the Student Affairs Department for futher process by the insurer.

**The supporting documents for the claim**:

A copy of MyKad / IC
Student card
A copy of relation document ( birth certificate)
A copy of Police Report/ Factory etc.
The Doctor's / Medical Report/Post Mortem
Burial permit (applicable for death claim)
Driving license ( death causes by accident)
A copy of death certificate (applicable for death claim)
Others document ( if need)

**FINANCIAL AID**

Scholarships
Yayasan-yayasan Negeri
Jabatan Hal Ehwal Orang Asli (JHEOA)

**Loans**
Perbadanan Tabung Pendidikan Tinggi Malaysia (PTPTN)
Tabung Pinjaman Pendidikan Kementerian Pengajian Tinggi Malaysia (KPT)

**PMS provides its community with a wide range of facilities for fitness and leisure activities. The facility provides a comfortable environment for both students and staff to relax and stay fit.**

# DIPLOMA IN MECHANICAL ENGINEERING

## SPORTS & CULTURAL

List of Recreational Facilities & Other Amenities are as in table below:

| NO. | RECREATIONAL AND FACILITIES AND OTHERS AMENITIES | QUANTITY |
|---|---|---|
| 1. | Football Field | 1 |
| 2. | Rugby Field | 1 |
| 3. | Netball Court | 4 |
| 4. | Basketball Court | 2 |
| 5. | Volleyball Court | 4 |
| 6. | Tennis Court | 4 |
| 7. | Futsal Court | 2 |
| 8. | Badminton Court | 8 |
| 9. | Gymnasium | 1 |
| 10. | Archery equipment | 4 |
| 11. | Tennis Table | 5 |
| 12. | Sport Complex | 1 |
| 13. | Squash Court | 2 |
| 14. | Swimming Pool | 1 |
| 15. | Wood Ball equipment | 10 |
| 16. | Golf Equipment | 2 |
| 17. | Synthetic Track | 1 |
| 18. | Music equipment | 6 Guitar / 1 Drum set / Nasyid Instrument Set |
| 19. | Kayaking equipment | 14 |
| 20. | Hockey Field | 1 |
| 21. | Mountain Bike | 6 |
| 22. | Takraw Court | 4 |
| 23. | Petanque Court | 2 |

# DIPLOMA IN MECHANICAL ENGINEERING

# UNIT OF PSYCHOLOGY & CAREER (UPK)

**Unit of Psychology & Career Polytechnic Muadzam Shah (UPK PMS)** is the unit responsible for providing effective services to students in particular to the process of enrichment and development expand along with the students' academic development. This unit consists of a Career in Psychology Officer assisted by Guidance & Counseling Department Coordinator appointed by the respective department heads. This unit is responsible for implementing the terms of reference as follows:

1. Managing Individual Counseling Services

2. Managing Group Counseling Services

3. Managing Career Counseling Services

4. Managing Lecture

5. Managing Study Visit

6. Managing Control Workshop / Course

7. Managing Exhibition

8. Managing PRS Polytechnic Training

9. Managing the dissemination of Units of Psychology and Career

| NO | FACILITIES |
|---|---|
| 1 | Individual Counseling Room- 2 |
| 2 | Discussion / Group Counseling Room – 1 |

# DIPLOMA IN MECHANICAL ENGINEERING

# ACADEMIC ADVISOR

## ROLE OF AN ACADEMIC ADVISOR

Academic advising is an essential element of the educational process. The academic advisor is a member of the teaching staff who will be guiding students on academic matters throughout their tenure in the polytechnic.

**The role an academic advisor:**

- Assists the student in obtaining a well balanced education and in interpreting polytechnic policies and procedures. The academic advisor approves the students' academic schedules each semester
- Advise the students on the courses she/he should take during a particular semester.
- Will inform the students about the pre requisites and the minimum or maximum number of credit hours a student is eligible to take.
  Will provide the information about the students GPA, CGPA etc.

# DIPLOMA IN MECHANICAL ENGINEERING

# ASSESSMENT

## GRADING POINT SYSTEM

Under Polytechnics' assessment system, student's performance is being measured on the basis of quantitative method and being known as Grading Point System (GPS).

In the Grading Point System, there are measures to evaluate student's performance:

## GRADE POINT AVERAGE (GPA) -PNM

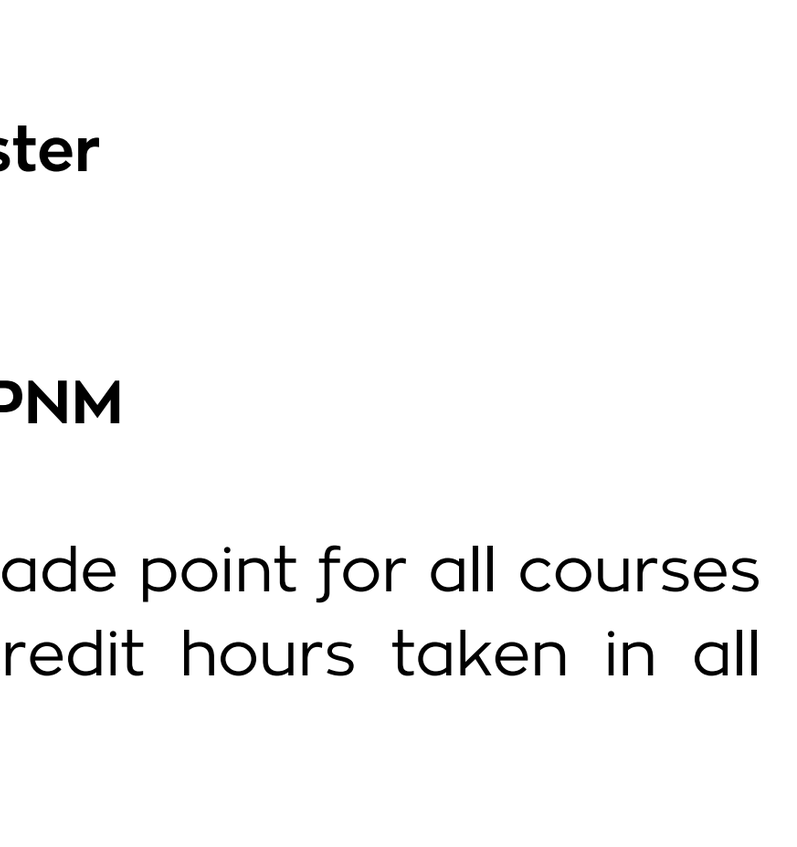
The average grade of a student for a given semester is being computed by taking the sum of the courses' credit hours and grade point divided by the total credit hours taken in that semester.

**Formula: GPA = $\frac{\text{Total credit hours x Grade point}}{\text{Total credit hours taken in that semester}}$**

## CUMULATIVE GRADE POINT AVERAGE (CGPA) -HPNM

The sum of the courses' credit hours and the grade point for all courses taken in all semesters, divided by the total credit hours taken in all semesters.

**Formula: CGPA = $\frac{\text{Total credit hours x Grade point in all semester}}{\text{Total credit hours taken in all semester}}$**



# DIPLOMA IN MECHANICAL ENGINEERING

# ASSESSMENT

## GRADING SYSTEM

A student will be evaluated based on the following mark scales, grades and grade points as being outlined in Table below:

| Mark Scale | Grade Point | Grade | Status |
|---|---|---|---|
| 90 – 100 | 4.00 | A+ | High Distinction |
| 80 - 89 | 4.00 | A | Distinction |
| 75 – 79 | 3.67 | A- | Credit |
| 70 – 74 | 3.33 | B+ | Credit |
| 65 – 69 | 3.00 | B | Credit |
| 60 – 64 | 2.67 | B- | Pass |
| 55 – 59 | 2.33 | C+ | Pass |
| 50 – 54 | 2.00 | C | Pass |
| 45 – 49 | 1.67 | C- | Pass |
| 44 – 46 | 1.33 | D+ | Pass |
| 40 – 43 | 1.00 | D | Pass |
| 30 – 39 | 0.67 | E | Fail |
| 20 – 29 | 0.33 | E- | Fail |
| 0 – 19 | 0.00 | F | Fail |

## COURSE CREDIT HOUR

Total credit hours taken by students are in between 12 to 20 credit hours every semester which have been stated in the Curriculum Document and Program Structure.

A minimum total credit hours shall be fulfilled before the students are qualified to be awarded a Diploma (including advanced diploma) which has also been stated in the curriculum document and program structure.

# DIPLOMA IN MECHANICAL ENGINEERING

# ASSESSMENT

**REGISTER COURSE**

- Students must register within fourteen days (14) of the commencement date of each semester.

- Students should get an advice from the Academic Advisor and get approval from the Head of Commerce Department before registering the courses.

- Students should register the repeated course/s in the current semester if that particular course/s being offered except, there was undue circumstances. Therefore, students must get an approval first from the Head of Commerce Department.

- If students fail to register the repeated course/s or any course/s that should be taken in the particular semester

- The student will be given Grave F with the grade point equivalent to 0.00 for that particular course; and

- The student will be assumed as has already taken the course and failed

**ADD COURSE**

·Course adding can be done on the 3rd until the 6th week of an academic session. Students should get an advice from the Academic Advisor and obtain an approval from the Head of Commerce Department.

**DROP COURSE**

·Students are allowed to drop the course with one condition that the students' credit hours are not less than 12 hours.

· Course's dropping can be done on the 3rd until the 6th week of an academic session. Students should get an advice from the Academic Advisor or the Head of Program, and obtain an approval from the Head of Commerce Department.

**REPEAT COURSE**

·Student who fails two or more courses in previous semester is required to repeat that particular course/s in any semester after getting confirmation from the Examination Board.

# DIPLOMA IN MECHANICAL ENGINEERING

# ASSESSMENT

## ASSESMENT RESULT CATEGORY

- Assessment result for each semester can be categorized into:

**Pass status**

1. Student who obtains a CGPA (Cumulative Grade Point Average) equivalent to or more than 2.00.

**Conditional pass status**

1. Student who obtains a CGPA (Cumulative Grade Point Average) equivalent to or more than 1.60 and less than 2.00.

**Fail status**

1. Student who obtains a CGPA (Cumulative Grade Point Average) less than 1.60.
2. Student who obtains a GPA (Cumulative Grade Point Average) less than 1.00 except for final semester student and part-time student.
3. Student who fails in any courses for three times including the special final examination.
4. Student who obtains conditional pass status for three times consecutively.
5. Student who fails Training Industry for two times consecutively.
6. Student who exceeds the maximum period of study.

# DIPLOMA IN MECHANICAL ENGINEERING

# GRADUATE

## CRITERIA TO GRADUATE UNDER NEW GRADING SYSTEM

A student will graduate from his/her studies for a program if he/she fulfills the criteria below:

I. Pass all courses under a program;

II. Obtain a CGPA (Cumulative Grade Point Average) equivalent to or more than 2.00;

III. Obtain sufficient total credit hours for a program;

IV. Student who obtain the minimum passing grade (C-, D+ and D) is allowed to repeat the course only once to improve their grade for the next semester including the short semester. Only the higher grade calculation will be taken into the result without adding the credit hour.

V. Fulfill all program's requirement and certified by the Lembaga Peperiksaan.

## PROGRAM DURATION

· Duration of a full-time program are as follows:

**Advanced Diploma (for Diploma graduate)**
· Minimum is four (4) semesters
· Maximum is eight (8) semesters

**Diploma**
· Minimum is five (5) semesters
· Maximum is nine (9) semesters

· Student that has been charged disciplinary action (will be suspended under Act 174) is included in the duration of study.
· The period of deferment that has been approved by the Director of Polytechnic will not be computed as part of the period of study.

# DIPLOMA IN MECHANICAL ENGINEERING

## ALUMNI

The alumni assist students preparing for their professional future through:

- Their own success stories
- Career Information
- Seminars/Talks on career

Alumni/polytechnic graduates are expected to provide their feedback through the Tracer Study which is carried out annually. 85% of polytechnic graduates take part in this Tracer Study in order to provide their feedback pertaining to the curriculum taught and their mandatory 6-month

Industrial experience. All these Input serves provide the basis for curriculum development, achievement of learning outcomes and future programs.

**·Details of Alumni of Politeknik Muadzam Shah are as follows:**

**Address : PERSATUAN ALUMNI POLITEKNIK MUADZAM SHAH**
**Politeknik Muadzam Shah**
**Lebuhraya Tun Abdul Razak**
**26700 Muadzam Shah**
**Pahang Darul Makmur**

**No Telefon : 09 – 4502005**
**No. Faks : 09 – 4502009**
**Website : https://pms.mypolycc.edu.my/**

# DIPLOMA IN MECHANICAL ENGINEERING

# INDUSTRIAL TRAINING

## INTRODUCTION TO INDUSTRIAL TRAINING

Industrial Training (LI) is part of the curriculum requirements that must be fulfilled by the students before they are awarded with Diploma from Polytechnic. Diploma students will undergo their LI in last semester.

Duration of the LI is 20 weeks where the students are spreads to selected firms and organizations all over the country. LI programme will be conducted on December and June session every year. Before the students are allowed to undergo the LI, they should pass all the course in programme structure.

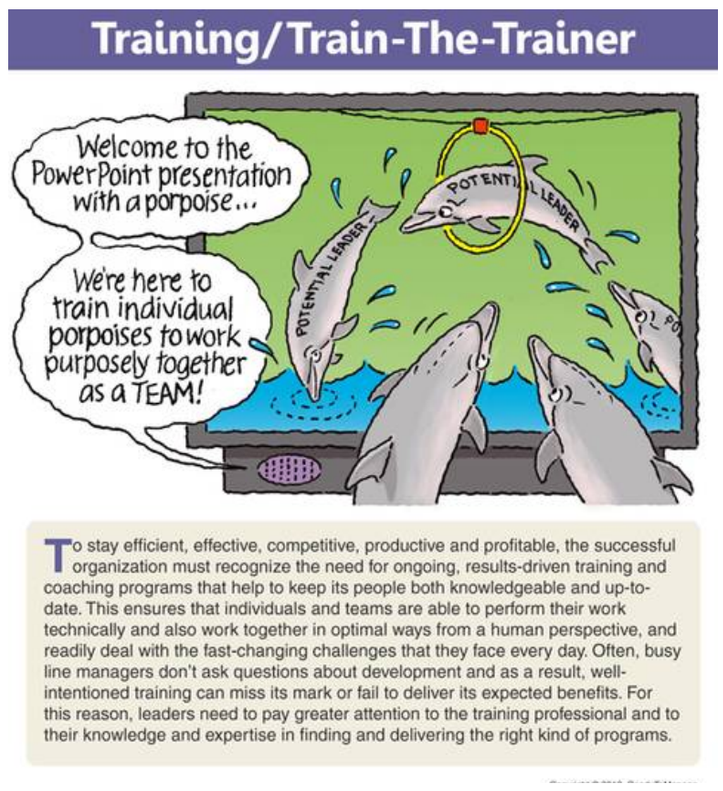
## PREPARATION FOR INDUSTRIAL TRAINING

Once eligible, the students need to follow proper procedures for the LI. Each student must attend the LI Preparation Briefing by Industrial Training Unit. The students are required to apply for LI placement from the firms or organizations that offered LI via the Industrial Training Officer of Department (PLIJ) respectively. It is advisable that the LI should be relevant to the students' academic courses of study.

The following documents will be issued by the PLIJ to be used in the application for a placement in the firms or organizations:

· Industrial Training Application Letter/Surat Memohon Tempat Latihan Industri - that has Polytechnic's letterhead

· Reply Form/Borang Jawapan - that has to be submitted to the firms/organizations



# DIPLOMA IN MECHANICAL ENGINEERING

# INDUSTRIAL TRAINING

## DURING INDUSTRIAL TRAINING

The confirmation of the LI attachment is done when the students submit the following documents for verification purpose on the registration of the LI day at each respective firms/organizations:

· Letter of Report Duty/Surat Lapor Diri - that has Polytechnic's letterhead
· Polytechnic Student's ID card/Kad Pelajar
· Reflection Journal
· Self Confirmation Card/ Kad Pengesahan Lapor Diri
· Student Information Card & Location Plan/ Kad Maklumat Pelajar & Pelan Lokasi

An academic supervisor will be assigned to each of the students. The academic supervisor (or representative) will visit the students at the firms/organizations during the LI and thus, will be evaluated:

· My Internship Reflection
· Reflection Journal
· Draft of Industrial Training report
· Student Recommendation/ suggestion about the training

## COMPLETION OF INDUSTRIAL TRAINING

After completing the six months of LI, the students are required to re-register to the Polytechnic with:

· End of Training Confirmation Letter from firms/organizations
· LI Performance Assessment by firms/organizations (Practical Task form & Reflective Journal form)
· Reflection Journal
· Final Report on Industrial Training
· Present about the training to the polytechnic evaluation panel

# DIPLOMA IN MECHANICAL ENGINEERING

## CONCLUSION

**Student study guide** book for Diploma in Mechanical Engineering (Manufacturing) contains all important information to guide student from beginning until the end of studies. It contains Course Learning Outcomes (CLO), Programme Learning Outcome (PLO), synopsis each course and complete program structure for students to plan and complete their studies successfully. Student Study Guide functionally well to be the main guidance to the students during their study period to help them to understand the structure of the programme and allow the early preparation for proper planning in their study at PMS.

# STUDENT STUDY GUIDE BOOK

# EDITORIAL TEAM

**LEAD EDITOR:**

KHAIRIL BIN CHE MAT

**EDITOR MEMBER:**

IZYAN DAYANA BINTI JONID

NURUL IZZAH BINTI ABD RAZAK

MOHD HALIM BIN YAKOP

AHMAD RAZIF BIN ABDUL HAMID

# STUDENT STUDY GUIDE BOOK

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