KEMENTERIAN PENDIDIKAN MALAYSIA

POLITEKNIK MALAYSIA
SEBERANG PERAI

# OUTCOME BASED EDUCATION(OBE) GUIDEBOOK

## SEBERANG PERAI POLYTECHNIC
## PENANG

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# PREFACE

OBE is compulsory to be implemented in all higher education institution in Malaysia. Different from traditional teacher-centered approach, OBE is an educational method that focuses on what students can actually do after they are taught. This guidebook is a vital reference for staff Seberang Perai Polytechnic in implementing Outcome Based Education (OBE) in their teaching and learning task. The guidebook outlined the process of Outcome Based Education which include curriculum, teaching and learning, assessment and Continuous Quality Improvement (CQI).

# FROM THE DIRECTOR

السلام عليكم ورحمة الله وبركاته

Assalamualaikum warahmatullahi wabarakatuh

Alhamdulillah and gratitude to the Almighty for His permission.

Outcome-based Education is an educational approach used by Malaysian Polytechnic System. It is an approach that consist of four areas including Curriculum Design, Teaching and Learning, Assessment and Evaluation, and CQI. These four OBE areas are the joint responsibility of JPPKK and the institution to be implemented.

OBE should be understood and implemented by lecturers, students as well as all staff at PSP. Despite of that, I would like to congratulate The Outcome Based Education (OBE) Unit of Politeknik Seberang Perai (PSP) who has successfully published the PSP OBE Guidebook that can be used as a reference to all staff involved with the OBE system at all levels.

The publication of this guidebook reflects our seriousness in ensuring the OBE System be always on the right track in line with the requirements of programme accreditation from professional bodies in Malaysia.

I hope that this guidebook will be the main manual and reference to ensure the comprehension of OBE being understood and practiced by all staffs. The implementation of OBE system is essential, in order to ensure all programs offered at PSP meet the accreditation standards, at par with others TVET providers and meet the needs of our stakeholders.

Lastly, I hope that this guidebook will benefit institution and improve the quality of the OBE System in PSP. Thank you to PSP OBE Unit team for the publication of this manual and may PSP success in providing the best education to our students or stakeholders.

Thank you

**MEJAR (K) Ts. HAJI MOHD FISAL BIN HAROON**
Director

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# LIST OF GLOSSARIES

| | |
|---|---|
| **Assessment** | A learning process that encompasses describe, collect, record, score and interpret information about students' learning for a particular purpose. |
| **Blended Learning** | Refers to a mixing of different kinds of learning environments. The terms "blended," "hybrid," and "mixed-mode" are used interchangeably in current research literature. |
| **Board of Engineers Malaysia (BEM)** | A statutory body registers graduates and professional engineers under the Registration of Engineers Act 1967 (Revised 2002). |
| **Continuous Quality Improvement (CQI)** | A process to improve any particular tasks. |
| **Course File** | A lecturer teaching-learning portfolio. |
| **Course Learning Outcomes (CLOs)** | Course specifications to be acquired by students. |
| **Course Syllabus** | A comprehensive description of a curriculum offered by the respective programme of study. |
| **Engineering Technology Accreditation Council (ETAC)** | A professional body delegated by BEM for accreditation of engineering diplomas. |
| **Programme Educational Objectives (PEOs)** | Describe the career and professional developments of graduates, which are to be assessed in a minimum of five years. |
| **Programme Learning Outcomes (PLOs)** | Explain the knowledge, skills, and values that the students are expected to attain upon graduation |
| **Rubric** | A scoring tool that explicitly represents the performance expectations for an assignment or piece of work. |
| **Student Learning Time (SLT)** | Self- learning which include learning from self-learning modules and any additional non face-to-face hours self-learning and preparation for lecture/lab/tutorial and test and assessment. |

Source: Outcome Based Education (OBE) Implementation Handbook(2011)

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# 1. PSP'S VISION AND MISSION


## VISION

To Become an Excellent TVET Institution

## MISSION

1. Developing well-balanced, entrepreneurial, and holistic graduates;
2. Providing a wide access to quality and recognized TVET programmes;
3. Making full use of smart sharing with stakeholders;
4. Strengthening community through research, innovation, and lifelong learning.

# 2. INTRODUCTION OF OBE

**What is OBE?**

Outcome-based Education is defined as;

"An educational process which is based on trying to achieve certain specified outcomes in terms of individual student learning. Thus, having decided what are the key things students should understand and be able to do or the qualities they should develop, both structures and curricula are designed to achieve those capabilities or qualities. Educational structures and curriculum are regarded as means not ends. If they do not do the job they are rethought (Willis and Kissane, 1995).

It is also described as; "an approach to planning, delivering and evaluating instructions that requires administrators, educators and students to focus their efforts on what results of education are desired" (Spady, 1994) and, "An educational process that involves the restructuring of curriculum, assessment and reporting practices in education to reflect the achievement of high order learning and mastery rather than the accumulation of course credits" (Tucker, 2004).

The primary aims of OBE is to facilitate desired changes, within the learners, by increasing knowledge, developing skills and positively influencing attitudes, values and judgement.

OBE emphasizes on setting clear objectives for observation, measurable outcomes through which student performance can be measured. OBE is a method of curriculum design and teaching that focuses on what students can actually do after they are taught.

OBE addresses the key questions as:

- What do you want the students to learn? **-Vision, Mission, PEOs, PLOs**
- Why do you want them to learn it? - **Course structure, Syllabus**
- How can you best help students to learn it? - **Learning Activities**
- How will you know what they have learnt? - **Assessment**

The main activities of OBE are divided into four activities as below:

- Curriculum Design
- Teaching and Learning Process
- Assessment and Evaluation
- Continuous Quality Improvement

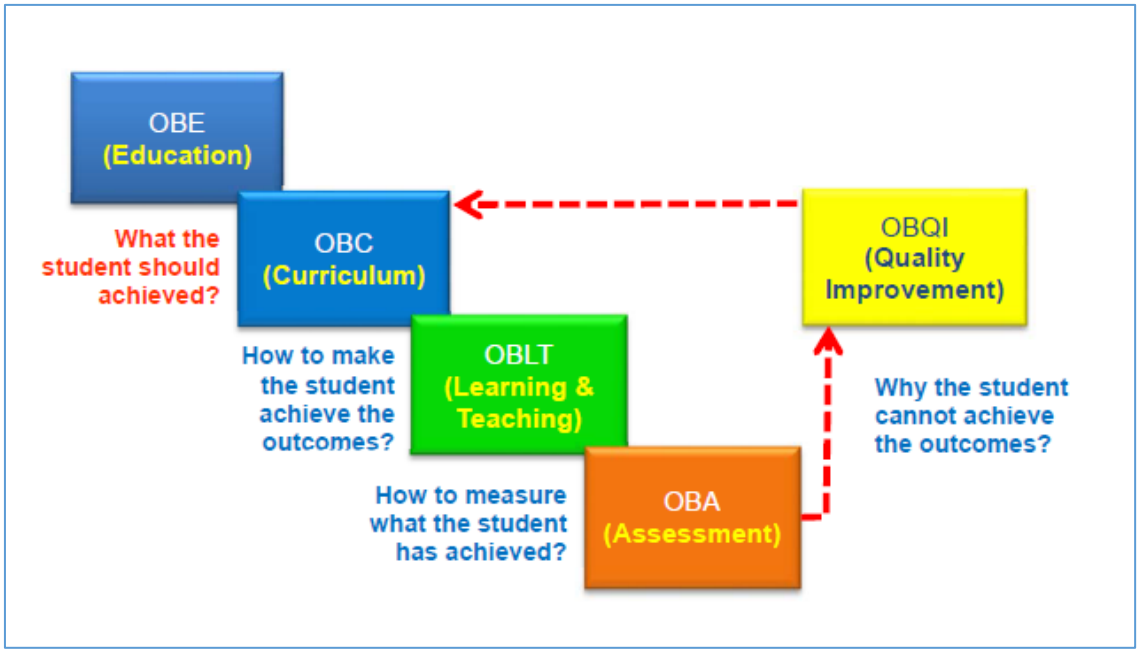



Figure 2.1 OBE flows and description. *Source: (OBE Implementation Guidebook 2018)*

**Why Outcome-Based Education (OBE)?**

OBE is able to measure 'what the students are capable of doing' and goes beyond 'structured tasks'. OBE demands that students demonstrate his/her skills through more challenging tasks like writing project proposals and completing the projects, analyzing case studies and giving case presentations and others. Such exercises require students to practice and demonstrate their ability to think, question, research, make decisions and give presentations.

OBE involves students in a complete course of learning, developing their skills in designing to completing a whole process (Spady, 1994a, 1995). OBE also identifies higher levels of thinking (e.g. creativity, ability to analyze and synthesize information, ability to plan and organize tasks). Such skills are emphasized especially when students are assigned to organize and work in teams to propose solutions to problems and market their solutions.

**The Principles of Outcome-Based Education (OBE)**

There are four principles that guide the transformational OBE approach. These principles are taken together to strengthen the conditions for both learner and lecturer success. These principles clearly delineates that the articulation of desired end point is essential for successful outcomes. Each of these principles are explored and applied to practice as shown in Table 2.1 below:

Table 2.1

Outcome Based Principles: Explanation and Application (Spady, 1994; Killen 2000)

| OBE Principles | Explanations | Application to practice |
|---|---|---|
| **Clarity of focus** | Focus on what want learners be able to do successfully | • Help learners to develop competencies<br>• Enable to predetermine significant outcomes<br>• Clarify short and long term learning intentions |
| **Design down** | Begin curriculum design with a clear definition of the significant learning that learners are to achieve by the of their formal education | • Develop systematic education curricula<br>• Trace back desired end results<br>• Link planning, teaching and assessment decision to significant learner outcomes |
| **High expectations** | Establish high, challenging performance standards | • Engage deeply with learning issues<br>• Push beyond where normally have gone |
| **Expanded opportunities** | Do not learn same thing in same way in same time | • Provide multiple learning opportunities matching learner's needs with teaching techniques. |

The implications of these four principles are to determine whether the learning performance is sufficient, the assessments must be summative (continuous monitoring with feedback), performance based (authentic in the real life environment) and criterion referenced (assessment criteria).

**Constructive Alignment**

OBE is about constructive alignment which means that learning objective, curriculum, teaching and learning activities are all directed towards the intended outcomes of the courses.

Constructive alignment consists of two aspects. First, the constructive aspect recognizes that knowledge is constructed by activities of learners (Biggs, 2014) rather being transferable from teacher to student. Meaning that learning is not transmitted from teacher to learner, but it is something that learners have to create for themselves. Learning takes place through the active behaviour of the students (Tyler, 1949).

Second, the alignment aspect refers to what the teacher does, which is to set up a learning environment that supports the learning activities appropriate to achieving the desired learning outcomes. For example, the component in the teaching system, for example teaching methods used and assessment tasks that are aligned with the learning activities assumed in the intended outcomes.

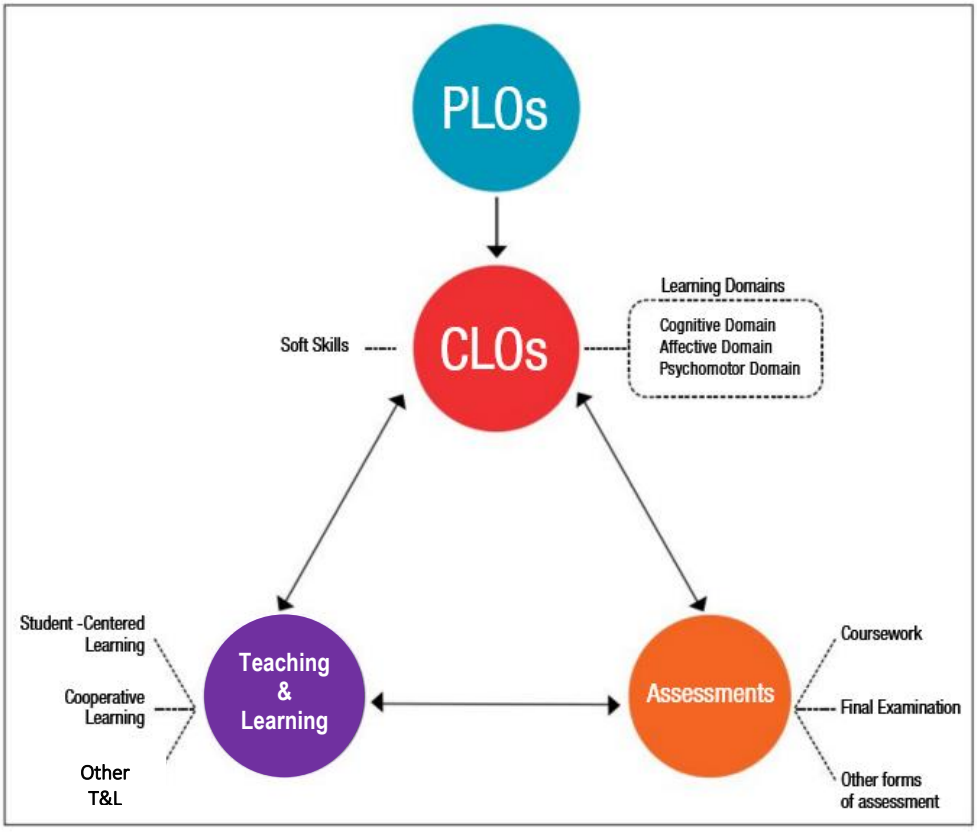



Figure 2.2 Constructive alignment (adapted from Biggs, 2003)

**Outcome-Based Learning Approach Vs. The Content-Based Learning Approach**

Outcome- based education is a paradigm shift in the higher education that is the students are focused and outcome oriented. There are few differences between outcome-based education and content (traditional)-based approaches as discussed in Table 2.2 below:

Table 2.2

Content (traditional/ transactional) Based Learning VS Outcomes (transformational) Based Learning (Spady, 1994)

| Content Based Learning | Outcomes Based Learning |
|---|---|
| Passive students | Active learners |
| Assessment process (exam & grade driven) | Continuous assessment |
| Rote learning | Critical thinking, reasoning, reflection and action |
| Content based/ broken into subject | Integration knowledge, learning relevant/ connected real life situations |
| Textbook/ worksheet focused and teacher centered | Learner centered and educator, facilitator use group and teamwork |
| See syllabus as rigid and non-negotiable | Learning programs as guide that allow educators to be innovative and creative in designing activities |
| Teachers responsible for learning and motivated by personality of teacher | Learners take responsibility for their learning, learners motivated by constant feedback and affirmation of worth |
| Emphasis what teacher hopes to achieve | Emphasis outcomes (what learner becomes and understands) |
| Content placed in rigid time frames | Flexible time frames (learners work at own pace) |
| Stay in single learning institution until complete | Learners can gather credits different institutions until achieve qualification |
| Previous knowledge and experience in learning field ignored (each time attends whole course) | Recognition of prior learning : after pre assessment, learners credited outcomes demonstrated or transfer credits elsewhere |

**OBE in Engineering Course/ Programme**

Diploma Engineering programme in Malaysia are accredited by The Engineering Technology Accreditation Council *(*ETAC*)* which is a division under the Board of Engineers Malaysia (BEM). The BEM is a full-member of the Dublin Accord since 2009; which is an international agreement among bodies responsible for accrediting engineering degree programs. It recognizes the substantial equivalency of programs accredited by those bodies and recommends that graduates of programmes accredited by any of the signatory bodies be recognized by the other bodies as having met the academic requirements for entry to the practice of engineering.

In addition to the ETAC requirement, all engineering diploma curriculum also need to comply with the requirement of:

- Malaysian Qualifications Framework of Malaysian Qualifications Agency (MQA)
- Sector of Higher Education, Ministry of Education Malaysia

Accreditation is an important element in an engineering programme as it:

i. Assures that a programme has met quality standard set by the profession.

ii. Signifies that the graduate has adequate preparation for entry into the engineering profession to employers, graduate schools, and licensure, certification, and registration boards. Many of these groups require graduation from an accredited program as a minimum qualification.

**Outcome-Based Education (OBE) And MQA**

OBE is implemented to ensure that our academic programs, delivery system, assessment methods and our graduates are of high quality. The paradigm shift to OBE is driven by the Quality Assurance Department at the Ministry of Higher Education, Malaysia currently known as Malaysia Quality Agency (MQA).

The OBE approach has many advantages:

i) Continuous monitoring of the qualities of the graduates produced, either during the course of the programme, after completing the programme and a few years after graduation.
ii) Continual Quality Improvement (CQI) with input and feedback from various constituencies or external stakeholders.
iii) Students who are well informed and trained of the skills required out of them.
iv) Encourage more systematic, innovative and flexible teaching approach or learning experiences.

v) Encourage more exposure to professional practice through Industrial Training, site visits, industry-linked projects or assignments, industry mentors, student dialogue with industry professionals or visiting industry speakers.

vi) Higher assurance of the delivery of the outcome capabilities in every graduate.

# 3. OBE CURRICULUM

**Learning domain**

Taxonomy (classification) of Learning / learning domain (LD) is used as a guide for writing learning outcomes (LO) that is divided into several levels.

There are numerous LDs that have been used and the LD developed by Benjamin Bloom (1956) is widely used in education.

*Cognitive Domain:*

The cognitive domain reflects the intellectual level of the learning outcome, that is, it describes what the students can do with what they have learned.

*Psychomotor Domain:*

The psychomotor domain includes physical movement, coordination, and use of the motor-skill areas. The development of these skills requires practice. The psychomotor domain is measured in terms of precision, speed, distance, procedures, or techniques in execution.

*Affection Domain*:

The affection domain addresses interests, attitudes, opinions, values, appreciation, affection, and other emotional feelings. This domain also includes the manner in which the students deal with things emotionally, such as feelings, values, enthusiasm, motivations, attitudes and appreciation.

These outcomes should be cleared defined and be achieved, and effort must be made to indicate the priority of each of the outcomes.

**Cognitive Domain (thinking & knowledge)**

Involves knowledge and development of intellectual

| | | Definition | Sample verbs |
|---|---|---|---|
| Lower Order | Knowledge | Remembers previously learned material | Define, identify, label, list, name, recall, state |
| | Comprehension | Grasps the meaning of material; (lowest level of understanding) | Describe, discuss, explain, locate, paraphrase, give example, translate |
| Higher Order | Application | Uses learning in new and concrete situations (higher level of understanding) | Apply, carry out, demonstrate, illustrate, prepare, solve, use |
| | Analysis | Understand both the content and structure of material | Analyze, categories, compare, contrast, differentiate, discriminate, outline |
| | Synthesis | Formulate new structure from existing knowledge and skills | Combine, construct, design, develop, generate, plan, propose |
| | Evaluation | Judges the value of material for a given purpose | Assess, conclude, evaluate, interpret, justify, select, support |

**Psychomotor Domain (doing & skills)**

Includes physical movement, coordination, used of motor skill areas.

| | | Definition | Sample verbs |
|---|---|---|---|
| Lower Order | Perception | Sense cues that guide motor activity | Detect, hear, listen, observe, perceive, recognize, see, sense, smell, taste, view, watch |
| | Set | Mentally, emotionally and physically ready to act | Achieve a posture, assume a body substance, establish a body position, place hand and arms, position the body, sit, stand, station |
| Higher Order | Guided Response | Imitates and practices skills, often in discrete stops | Copy, duplicate, imitate, manipulate with guidance, operate under supervision, practice, repeat, try |
| | Mechanism | Performs acts with increasing efficiency, confidence and proficiency | Complete with confidence, conduct, demonstrate, execute, improve efficiency, increase speed, make pace, produce, show dexterity |
| | Complete Overt Response | Perform automatically | Act habitually, advance with assurance, control, direct, excel, guide, maintain efficiency, manage, master, organize, perfect, perform automatically, proceed |
| | Adaption | Adapts skill sets to meet problem situation | Adapts, reorganizes, alters, revises, changes |
| | Organization | Creates new patterns for specific situations | Designs, originates, combines, composes, constructs |

**Affection domain (feeling & attitudes)**

Act upon, advocate, defend, exemplify, influence, maintain, serve, support.

| | | Definition | Sample verbs |
|---|---|---|---|
| Lower Order | Receiving | Selectively attend to stimuli | Accept, acknowledge, be aware, listen, notice, pay attention, tolerate |
| | Responding | Response to stimuli | Agree to, answer freely, assist, care for, communicate, comply, conform, consent, contribute, cooperate, follow, obey, participate willingly, read voluntarily, respond, visit, volunteer |
| Higher Order | Valuing | Attach value or worth to something | Adopt, assume responsibility, behave according to, choose, commit, desire, exhibit loyalty, express, initiate, prefer, seek, show concern, show continual desire to, use resources to |
| | Organization | Conceptualizes the value and resolves conflict between it and other values | Adapt, adjust, arrange, balance, classify, conceptualize, formulate, group, organize, rank |
| | Internalizing | Integrate the value into a value system that control behavior | Act upon, advocate, defend, exemplify, influence, maintain, serve, support |

**MQF Learning Domain**

MQF-Malaysian Qualifications Framework (Malaysian Qualifications Framework) Instruments develop and classify qualifications based on international practices.

**These are the MQF learning domains:**

i. Knowledge
ii. Practical skills
iii. Social skills and responsibilities
iv. Values, attitudes and professionalism
v. Communication, leadership and team skills
vi. Problem solving and scientific skills
vii. Information management and lifelong learning skill
viii. Managerial and entrepreneurial skills

**MOHE learning domains**

Formerly known as Generic Student attribute

**Learning Domain :**

LD 1 : Knowledge
LD 2: Practical Skills
LD 3: Communication Skills
LD 4: Critical Thinking and Problem Solving Skills
LD 5: Social Skills and Responsibilities
LD 6: Continuous Learning and Information Management Skills
LD 7: Management and Entrepreneurial Management Skills
LD 8: Professionalism, Ethics and Moral
LD 9: Leadership and Teamwork Skills

**Ministry Of Education (formerly known as Ministry Of Higher Education (MOHE))*

**Learning Outcomes**

Learning Outcome (LO) is the focus of OBE in learning.

LOs are specific statements about the knowledge, skills and abilities that each student will have.

LO can be demonstrated by students when the learning session ends or a series of learning sessions is terminated.

- LO for courses known as CLO - Course Learning Outcomes
- LO programme known as PLO - Programme Learning Outcomes
- PEO - Programme Educational Objectives

To write a Learning Outcome statement, it needs to follow the learning domain

The alignment of PEO, PLO and CLO is shown in Figure 3.1.

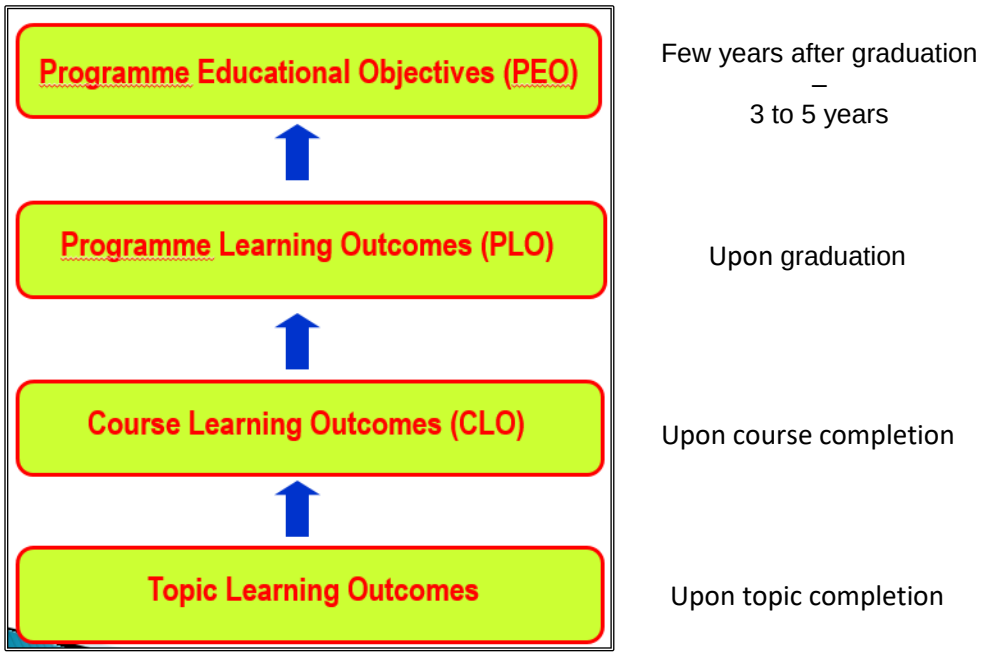



Figure 3.1 Alignment of PEO, PLO and CLO

**Understanding Programme Educational Objectives (PEOs)**

Programme Educational Objectives (PEOs) are statements which describe accomplishments that students are expected to attain within three (3) to five (5) years after graduation (MQA, 2008):

The followings are criteria of PEOs:

Consistent with the JPPKK Vision and Mission:


Figure 3.2 JPPKK Vision and Mission

- Involve various stakeholders, such as alumni, academic staff and from the industry.
- Reflects the intended achievements of polytechnic graduates.
- Link to CLOs, PLOs and curriculum design
- The achievements of PEOs is measured by Key Performance Indicators (KPIs) set by the respective programme owner. The evaluation must be conducted three (3) to five (5) years after students have graduated.

**Understanding Programme Learning Outcomes (PLOs)**

PLOs are statements that describe the skills, knowledge and behaviours that student acquire through the programme (MQA, 2008). Learning outcomes is a statement on what students should know, understand and can do upon of the period of study (MQA, 2009)

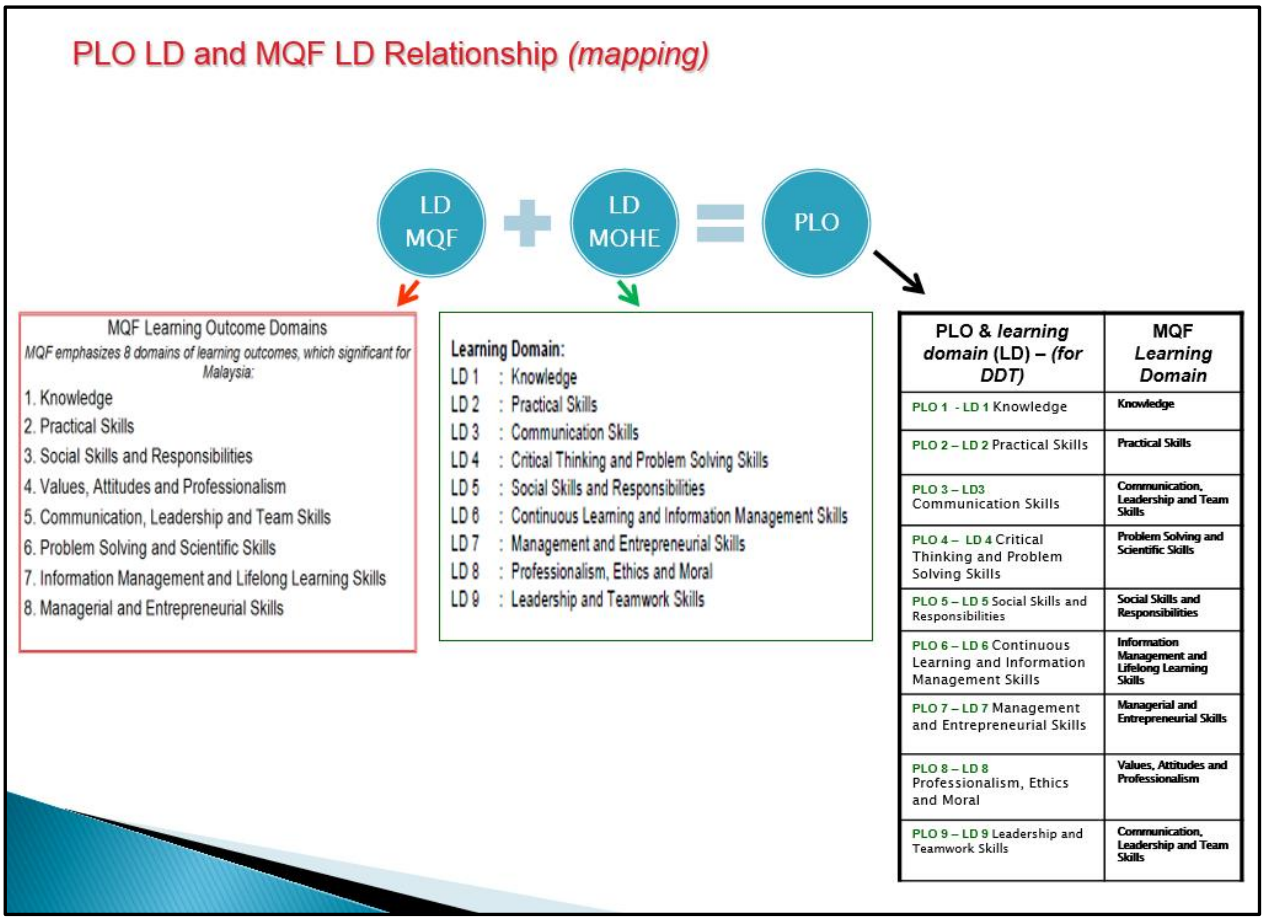



Figure 3.3 MQF Learning Domain and MOHE Learning Domain Mapping

**Relationship Between MOHE Learning Domain, MQF Learning Domain And Programme Learning Outcomes (Mapping)**

PLOs is a sum of MQF Learning Domain and MOHE Learning Domain as below:

**MQF LD + MOHE LD = PLOs**

Table 2.3

MOHE Learning Domain, MQF Learning Domain And Programme Learning Outcomes Mapping

| MQF LEARNING DOMAIN | MOHE LEARNING DOMAIN | PROGRAMME LEARNING OUTCOMES |
|---|---|---|
| Knowledge | LD1 - Knowledge | PLO1 - apply technical knowledge to well defined electrical and electronic engineering problems and social science/humanities knowledge to the character development of an individual. |
| Knowledge | LD1 - Knowledge | PLO3 - analyze and investigate well- defined electrical and electronic engineering problems |
| Knowledge | LD1 - Knowledge | PLO4 - design well defined engineering solutions for electrical and electronic engineering systems. |
| Practical Skills | LD2 - Practical Skills | PLO5 - demonstrate practical skill in utilizing modern electrical and electronic engineering tools and design packages. |
| Communication Skills, Leadership and Team Skills | LD3 - Communication Skills | PLO6 - communicate effectively with the engineering community and the society at large |
| Problem solving and Scientific Skills | LD4 - Critical Thinking and Problem Solving Skills | PLO2 - solve well-defined electrical and electronic engineering related problems systematically by applying critical thinking skill and using appropriate tools and techniques |
| Social Skills and Responsibilities | LD5 - Social Skills and Responsibilities | PLO7 - demonstrate awareness and consideration for social, health, safety, legal and cultural issues and the consequent responsibilities, taking into account the need for sustainable development |
| Information Management and Lifelong Learning skills | LD6 -Continuous Learning and Information Management Skills | PLO8 - engage in independent acquisition of new knowledge and skill, and recognize the need for professional development and information management |
| Managerial and Entrepreneurial Skills | LD7 - Management and Entrepreneurial Skills | PLO9 - demonstrate an awareness for entrepreneurship |
| Values, attitude and Professionalism | LD8 - Professionalism, Ethics and Moral | PLO10 - demonstrate understanding of professional ethics, responsibilities and norms of electrical and electronic engineering practices |
| Communication Skills, Leadership and Team Skills | LD9 - Leadership and Teamwork Skills | PLO11 - function individually or in teams, effectively, with the capability to be a leader |

**Course Learning Outcome (CLOs)**

Course learning outcomes describe what the students are able to perform as a result of their learning experiences within a course. These are determined by the course lecturer, or by a team of lecturers who teach the same course.

CLOs relate to the overall outcomes of the programme. They must cover three taxonomies of learning domain as described in Figure 3.4.

| | | |
|---|---|---|
| Cognitive domain |  | The knowledge and the development of intellectual skills. |
| Psychomotor domain |  | Physical movement, coordination and use of the motor skill areas |
| Affective domain |  | The manner in which we deal with tasks emotionally, such as feelings, values and attitudes. |

Figure 3.4 : Three taxonomies of learning domain

Each CLO and PLO should be analysed and referred to the matrix such as listed below:

i) Matrix of CLO vs PLO
ii) Matrix of courses vs PLO
iii) Matrix of PLO vs PEO

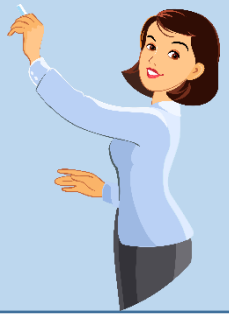
# 4. OBE TEACHING AND LEARNING

**What is Students-Centred Learning?**

Students-Centered Learning (SCL) is a part of teaching and learning activities which will foster students' engagement in the learning process rather than students listening to the lectures passively. It is termed as a mean for the implementation of Outcome-based Education.

SCL is an instructional approach in which students influence the content, activities, materials, and pace of learning. This learning model places the student in the center of the learning process. The lecturers/instructors provide students with the opportunities to learn independently and from one another. Besides that, the lecturers/instructors also coach the students in the skills they need to do so effectively (Collins & O'Brien, 2003). Whilst this means that the student is the focal point of the process, the role of the teacher remains paramount, particularly when one considers that students are not all the same.

Harden and Crosby (2000) describe student–centered learning as focusing on the students' learning and 'what students do to achieve this, rather than what the teacher does'. This definition emphasizes the concept of the student 'doing'.



According to Brandes and Ginnis (1986) in their book, 'A Guide to Student–Centered Learning', they present the main principles of student–centered learning as:

- The learner has full responsibility for her/his learning
- Involvement and participation are necessary for learning
- The relationship between learners is more equal, promoting growth, development
- The teacher becomes a facilitator and resource person
- The learner experiences confluence in his education (affective and cognitive domains flow together)
- The learner sees himself differently as a result of the learning experience.

**Why Students-Centred Learning?**

The implementation of SCL can lead to the increment of the motivation to learn, greater retention of knowledge, deeper understanding, and more positive attitudes towards the subject being taught. SCL is based on the philosophy that the student is at the heart of the learning process.

The SCL approach includes such techniques as substituting active learning experiences for lectures, assigning open-ended problems and problems requiring critical or creative thinking that cannot be solved by following text examples, involving students in simulations and role plays, and using self-paced and cooperative learning.

SCL approach therefore changes the role of the teacher, from being entrusted with the 'transmission of knowledge to supporting and guiding self-regulated student learning' (Van Eekelen, Boshuizen, & Vermunt, 2005). SCL, if properly implemented, triggers student's interest in the teaching and learning activities, and leads to a long lasting and in-depth understanding of the study materials.

Therefore, students' engagement in the learning process will also increase. Teaching is no longer seen as a 'way of process' from teacher to student. Real education was supposed to happen through discussions, projects and challenging critical minds.

The benefits of students-centred learning are;

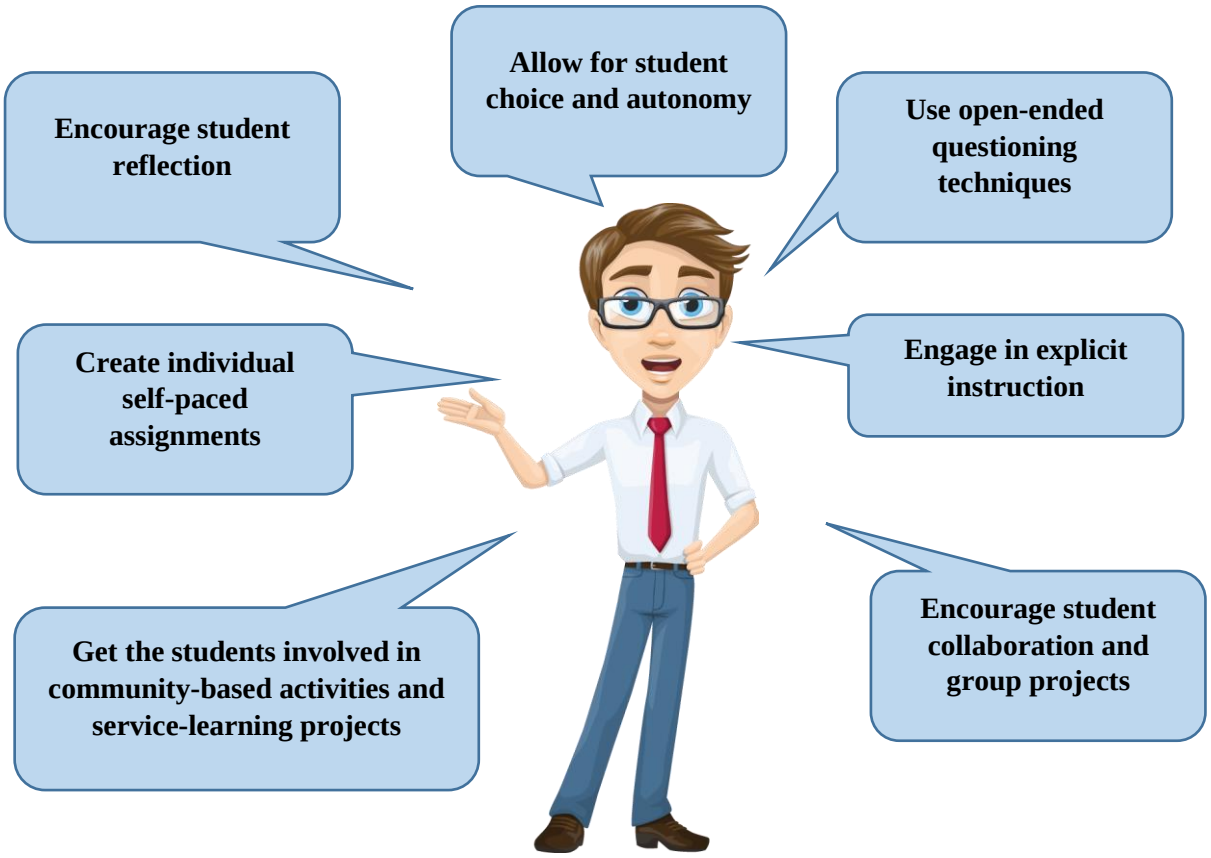
- Provides substance and arrange teaching activities in line with the learners
- Provides training in thinking process, management, and how to face and respond in various situations
- Enables learners to think critically
- Both learners and teachers may learn together, and long term retention of knowledge
- Increases student engagement with the content

**Important of Lecturer/Instructor in the Application of SCL**

The lecturer/instructor creates an environment that:

- Fosters students learning
- Accommodates various teaching and learning methods
- Fosters students to accept responsibility for learning
- Aligns learning outcomes/objectives, teaching & learning approaches and assessments consistently
- Applies multiple teaching techniques appropriate for student learning goals
- Creates activities in which students interact with the material, the teacher and each other
- Inspires and encourages student ownership of learning

**How to Incorporate Student-Centred Techniques into Classroom?**



There are many ways to incorporate student-centred techniques into classroom resources and lessons:

i. **Allow for student choice and autonomy.** This might mean providing project, classroom and homework assignment options, as well as allowing students to design their own seating arrangements. Providing more types of question types in assessments also gives students the chance to make their own choices. Finally, encourage teachers to give the students a few minutes of downtime to use as they'd like (within reason of course).

ii. **Use open-ended questioning techniques.** This practice encourages critical and creative thinking and enhances problem-solving skills. Open-ended questioning encourages clear communication and provides students with reassurance that their thoughts and ideas matter.

iii. **Engage in explicit instruction.** Explicit instruction moves away from the skill and drill attitude of teaching. It is a much more direct and engaging method of instruction that pulls the students right into the heart of the lesson. Students are active participants in what is going on, rather than bystanders and onlookers.

iv. **Encourage student collaboration and group projects.** When students work with each other they are learning a great deal more than just the lesson content. They are gaining an appreciation for the diversity that exists in our schools and communities. They are also learning to have respect for what may sometimes be very differing points of view. And finally, they are able to bounce their ideas back and forth with each other, creating a much greater opportunity to grow these ideas into something great.

v. **Encourage student reflection.** Student reflection allows students to slow things down a bit and take a step back to analyse things. It also allows time for their brains to process what they have been learning. Reflection creates space and time for individual and group growth.

vi. **Create individual self-paced assignments.** All students don't work at the same speed and assignments should reflect this. Allowing students to move through material at a rate that best fits their learning styles and needs makes it more likely that they will gain deeper understanding of the subject matter.

vii. **Get the students involved in community-based activities and service-learning projects.** This helps students to see their important role in the larger world. They are given the chance to learn how valuable and fulfilling it can be to give back to others. Learning becomes more organic and less rigid. Students have the opportunity to see first-hand that learning opportunities surround us everywhere where we go.

**What is CIDOS?**

An open source Learning Management System (LMS), which is named as Curriculum Information Document Online System (CIDOS) is being used in polytechnic. CIDOS is a web-based solution to control effectively the teaching and learning materials, curriculum document inventory and knowledge sharing. By using CIDOS, lecturers can create chat, forum, upload the teaching materials and can also monitor the progress of students (Siti Nurul Mahfuzah Mohamad, Sazilah Salam, & Norasiken Bakar, 2014).

The Curriculum Information Document Online System (CIDOS) is a fully automated document management platform that manages the uploading, updating and sharing of digital information or digital content through a single integrated component. CIDOS provides a medium for interaction between users including staff of the Division of Curriculum Development, Polytechnic lecturers and students. Moreover, it also provides an interface for the storage, evaluation, authorisation and sharing of digital content and information. CIDOS is an electronic document management system, which enables users to access information stored in the database. Lecturers and students comprise the end users. (Norhafizah Ismail, Wan Zah Wan Ali2 and etl, 2014).

**What is Blended Learning?**

Blended learning is a concept that embraces the benefits of traditional teaching in the classroom and ICT supported learning. It includes online and offline learning. The ultimate aim of blended learning is to provide realistic and practical opportunities for students to make learning as independent, useful, sustainable and expansive as possible (Buzzetto-More and SweatGuy, 2006). Blended learning utilises the best online tools to support a teacher-led classroom and learners are also encouraged to explore and follow their own paths with computer based modules. Blended learning includes constructive learning, collaborative learning; and computer assisted learning (CAI) (Lalima & Dangwal, 2017). Besides, according to Greer, Rowland and Smith (2014), blended learning is a traditional face-to-face class where students complete their tasks online and another part is face-to-face with teacher or their classmates.

**Why Blended Learning?**

Students gain the knowledge from computer assisted learning (CAI) and online learning without reducing the social interaction of traditional teaching. As part of learning through ICT, online or offline mode, lecturers and students will have more time in the classroom for creative and cooperative teaching and learning. Besides, students become more tech-savvy and it enhances their digital fluency. Last but not least, students become more professional as they have developed qualities like discipline, self-motivation and self-responsibility (Lalima & Dangwal, 2017).

# 5. OBE ASSESSMENT

Assessment is the process of identifying, gathering and interpreting information about a learner's achievement, as measured against nationally agreed outcomes for a particular phase of learning. It is not a one-time event, rather, it is an ongoing and continuous effort to improve the quality of instruction, student learning and overall effectiveness of a department or unit.

**SPMP setting for OBE assessment**

PSP is currently using the Sistem Pengurusan Maklumat Politeknik (SPMP) system to record and analyze student assessments as follows:

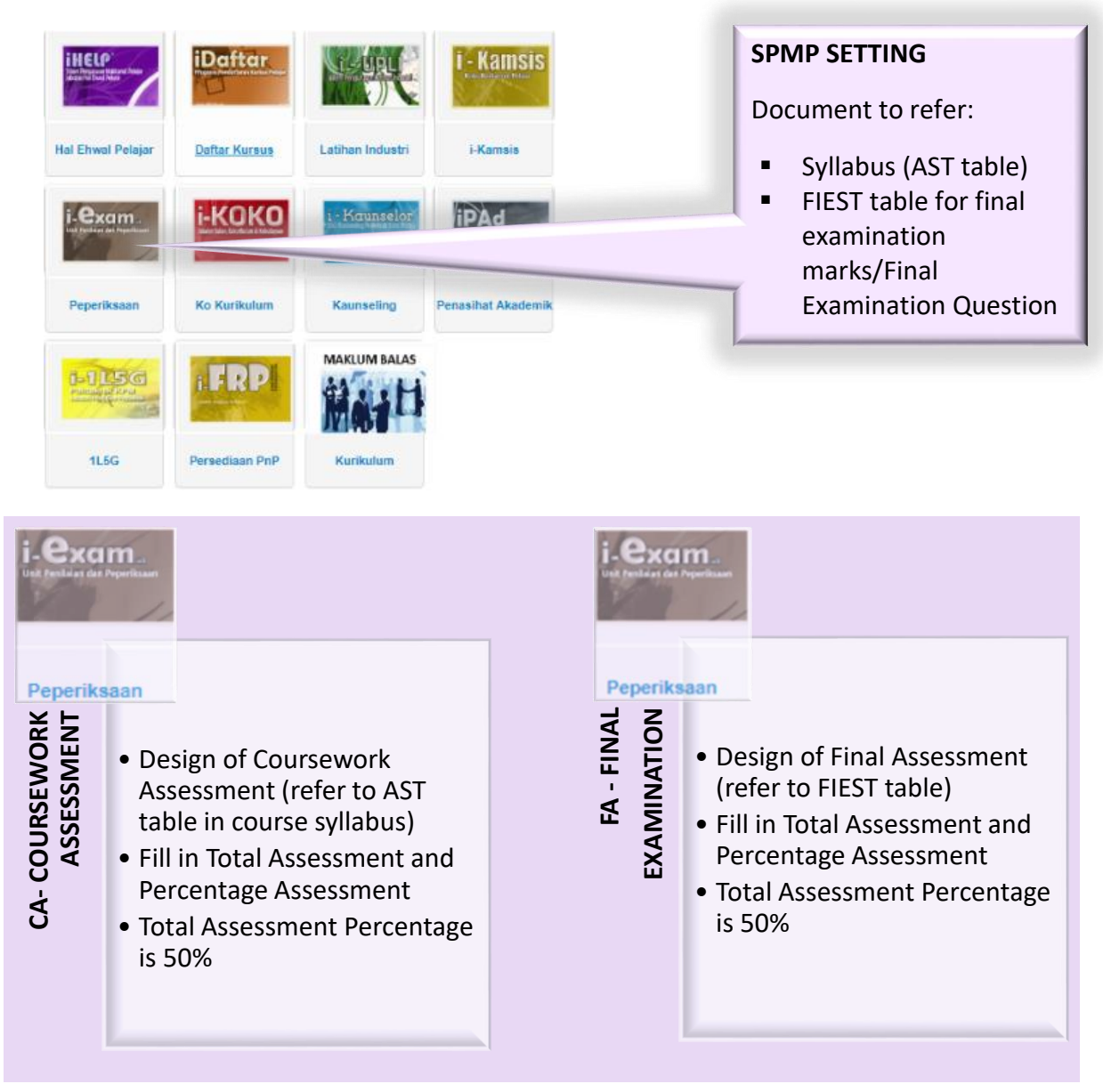



Figure 5.1 SPMP system

# CA- Coursework Assessment In Spmp Setting

All the assessment methods listed in AST Table must be set in into SPMP system as follows:

## Assessment Specification Table (AST)

| COURSE LEARNING OUTCOMES (CLO) | TOPICS | | | | | | ASSESSMENT METHODS FOR COURSEWORK | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | Test | Quiz | Problem Scenario | Mini Project | Presentation |
| | | | | | | | *(1) 15% | *(2)10% | *(1) 5% | *(1) 20% | *(1) |
| 1. describe briefly the scope, the importance and the development of physical distribution in logistics and supply chain area. (C1,PLO1) | ● | | | | | | | √ | | | |
| 2. explain clearly the components and the channels of distribution management in logistics and supply chain activities (C2,PLO1) | | ● | | | | | √ | | | | |
| | | | | ● | | | | √ | | | |
| 3. apply accordingly the distribution operations planning and execution in logistics and supply chain management (C3,PLO1) | | | | ● | | | | | | √ | √** |
| 4. explain about the international distribution management based on the current logistics environment effectively. ( A3,PLO9) | | | | | | ● | | | √ | | |

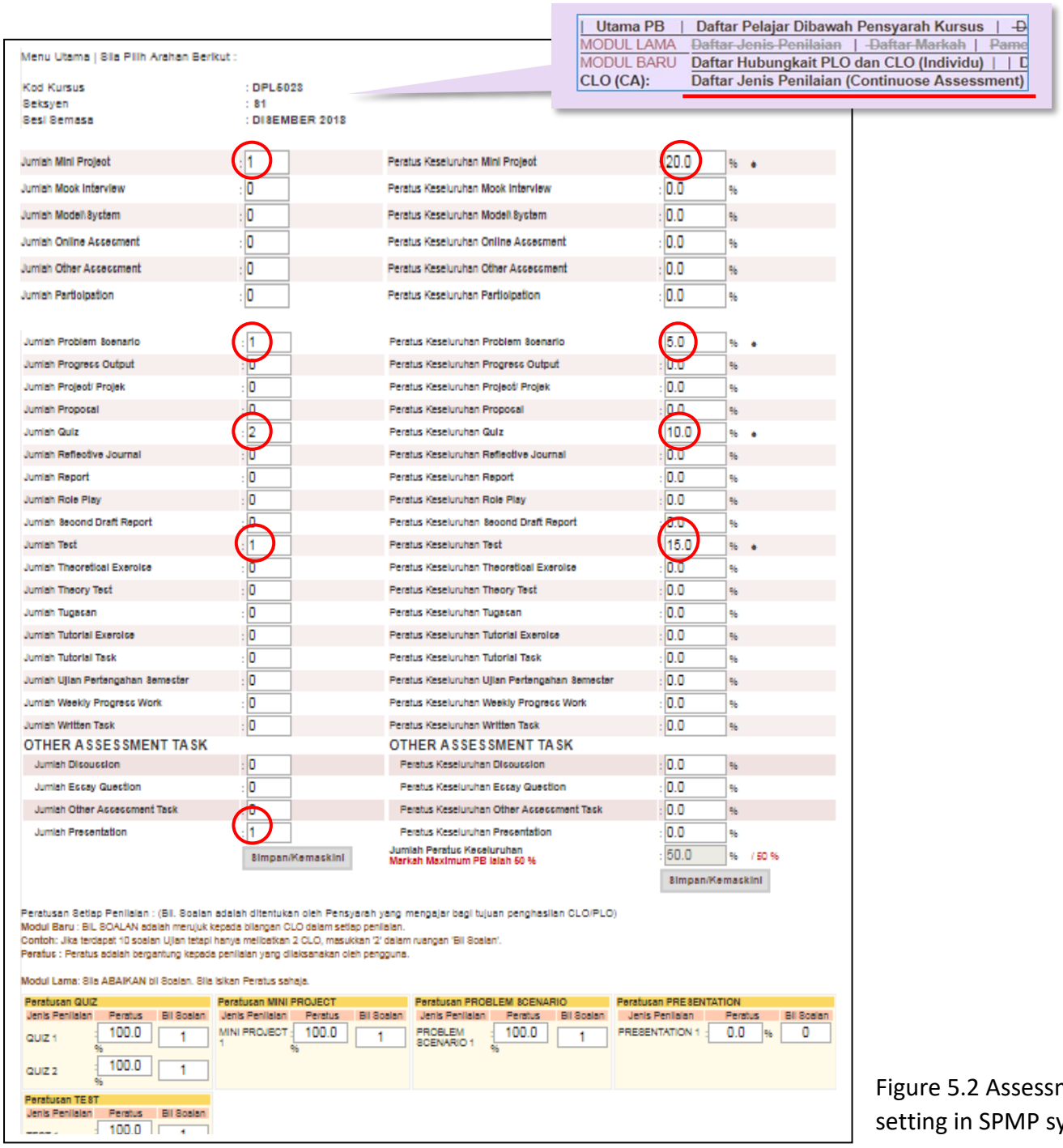
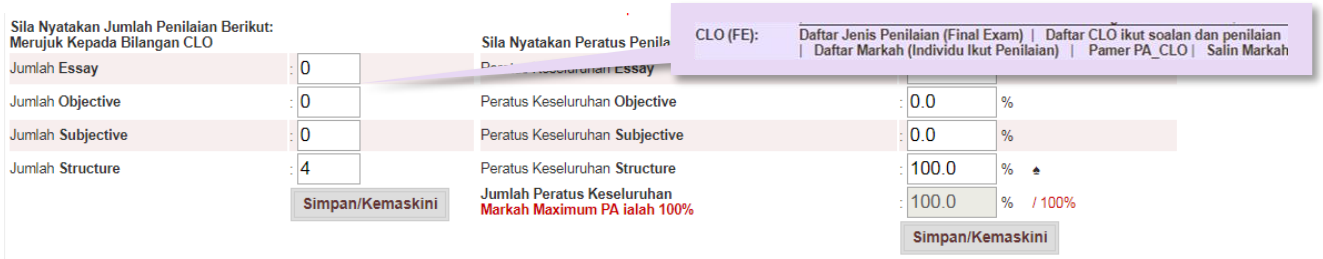



Figure 5.2 Assessment setting in SPMP system

# FA - Final Examination In SPMP Setting



Sila Nyatakan Jumlah Penilaian Berikut:
Merujuk Kepada Bilangan CLO

| | | | |
|---|---|---|---|
| Jumlah **Essay** | 0 | Sila Nyatakan Peratus Penila... | |
| Jumlah **Objective** | 0 | Peratus Keseluruhan **Objective** | 0.0 % |
| Jumlah **Subjective** | 0 | Peratus Keseluruhan **Subjective** | 0.0 % |
| Jumlah **Structure** | 4 | Peratus Keseluruhan **Structure** | 100.0 % |
| Simpan/Kemaskini | | **Jumlah Peratus Keseluruhan** **Markah Maximum PA ialah 100%** | 100.0 % / 100% |
| | | Simpan/Kemaskini | |

CLO (FE): Daftar Jenis Penilaian (Final Exam) | Daftar CLO ikut soalan dan penilaian | Daftar Markah (Individu Ikut Penilaian) | Pamer PA_CLO | Salin Markah

Peratusan Setiap Penilaian : (Bil. Soalan adalah ditentukan oleh Pensyarah yang mengajar bagi tujuan penghasilan CLO/PLO)
**Modul Baru** : BIL SOALAN adalah merujuk kepada bilangan CLO dalam setiap penilaian.
**Contoh:** Jika terdapat 40 soalan Objektif tetapi hanya melibatkan 2 CLO, masukkan '2' dalam ruangan 'Bil Soalan'.
**Peratus :** Peratus adalah bergantung kepada penilaian yang dilaksanakan oleh pengguna.

**Modul Lama**: Sila **ABAIKAN** bil Soalan. Sila isikan Peratus sahaja.

All types of questions that listed in Final Examnination Item Spesification Table (FEIST) Table must be key in into SPMP system as follows:

**Peratusan STRUCTURE**

| Jenis Penilaian | Peratus | Bil Soalan |
|---|---|---|
| STRUCTURE 1 | 25.0 % | 2 |
| STRUCTURE 2 | 25.0 % | 2 |
| STRUCTURE 3 | 25.0 % | 1 |
| STRUCTURE 4 | 25.0 % | 1 |

| | |
|---|---|
| **NAMA PROGRAM** | DIPLOMA PENGURUSAN LOGISTIK DAN RANGKAIAN BEKALAN |
| **NAMA KETUA PROGRAM** | YASINAH BT ABDUL RAHMAN |
| **SESI BERKUATKUASA** | SESI JUN 2018 |
| **KOD/NAMA KURSUS** | DPL5023 DISTRIBUTION MANAGEMENT |

| *COURSE* | TOPIK / *RTA* | | | | | | NO | DOMAIN TAKSONOMI | | | | | | | | | | | | JUMLAH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *LEARNING* | T1 | T2 | T3 | T4 | T5 | T6 | . | C1 | | C2 | | C3 | | C4 | | C5 | | C6 | | |
| *OUTCOME* | 8 | 12 | 12 | 12 | 12 | 12 | SO | NO. ITEM | MARKAH | NO. ITEM | MARKAH | NO. ITEM | MARKAH | NO. ITEM | MARKAH | NO. ITEM | MARKAH | NO. ITEM | MARKAH | MARKAH |
| *CLO 1* | √ | √ | | | | | Q1 | a | 10 | | | | | | | | | | | 25 |
| | √ | √ | | | | | | b | 10 | | | | | | | | | | | |
| *CLO2* | | √ | √ | | | | | | | c | 5 | | | | | | | | | 25 |
| | | √ | √ | | | | Q2 | | | a | 5 | | | | | | | | | |
| | | √ | √ | | | | | | | b | 10 | | | | | | | | | |
| | | √ | √ | | | | | | | c | 10 | | | | | | | | | |
| *CLO3* | | √ | √ | √ | √ | √ | Q3 | | | | | a | 10 | | | | | | | 25 |
| | | √ | √ | √ | √ | √ | | | | | | b | 15 | | | | | | | |
| | | √ | √ | √ | √ | √ | Q4 | | | | | a | 10 | | | | | | | 25 |
| | | √ | √ | √ | √ | √ | | | | | | b | 15 | | | | | | | |
| *CLO4* | | | | | | | | | | | | | | | | | | | | |
| JUMLAH MARKAH | | | | | | | | | 20 | | 30 | | 50 | | 0 | | 0 | | 0 | 100 |
| TABURAN DOMAIN KOGNITIF | | | | | | | | | 20% | | 30% | | 50% | | 0% | | 0% | | 0% | 100% |

**QUESTION 1**
***SOALAN 1***

CLO1 C1 (a) There have been several distinct stages in the development of distribution and logistics from 1950 until now.
*Terdapat beberapa peringkat yang berbeza dalam pembangunan pengedaran dan logistik dari tahun 1950 hingga sekarang.*

i. Describe the development of distribution management since it started until 1960.
Huraikan perkembangan pengurusan pengedaran sejak ia bermula sehingga tahun 1960.

[5 marks]
[*5 markah*]

ii. Define the concept of Supply Chain Management when it was introduced in the 1990s.
*Berikan definisi konsep Pengurusan Rangkaian Bekalan sejak ia diperkenalkan pada tahun 1990-an.*

[5 marks]
[*5 markah*]

3

CLO1 C1 (b) Identify **FIVE (5)** importance of transportation in logistics and distribution activity.
*Kenalpasti **LIMA (5)** kepentingan pengangkutan dalam aktiviti logistik dan pengedaran.*

[10 marks]
[*10 markah*]

CLO2 C2 (c) List **FIVE (5)** major components of distribution and logistics.
*Senaraikan **LIMA (5)** komponen utama pengedaran dan logistik.*

[5 marks]
[*5 markah*]

Design of Final Examination Item should be designed according to FIEST and aligned with AST table in the Syllabus

Figure 5.3 Shows types of questions in FEIST and how to set it in SPMP system

# 6. OBE CONTINUOUS QUALITY IMPROVEMENT (CQI)

Continuous Quality Improvement (CQI) is essential, in improving the quality of the programme. This process would help identifying problem and solution to any weakness as well as further improve the quality of the programme. Figure 6.1 show the loops CQI for each stage of OBE CQI level.

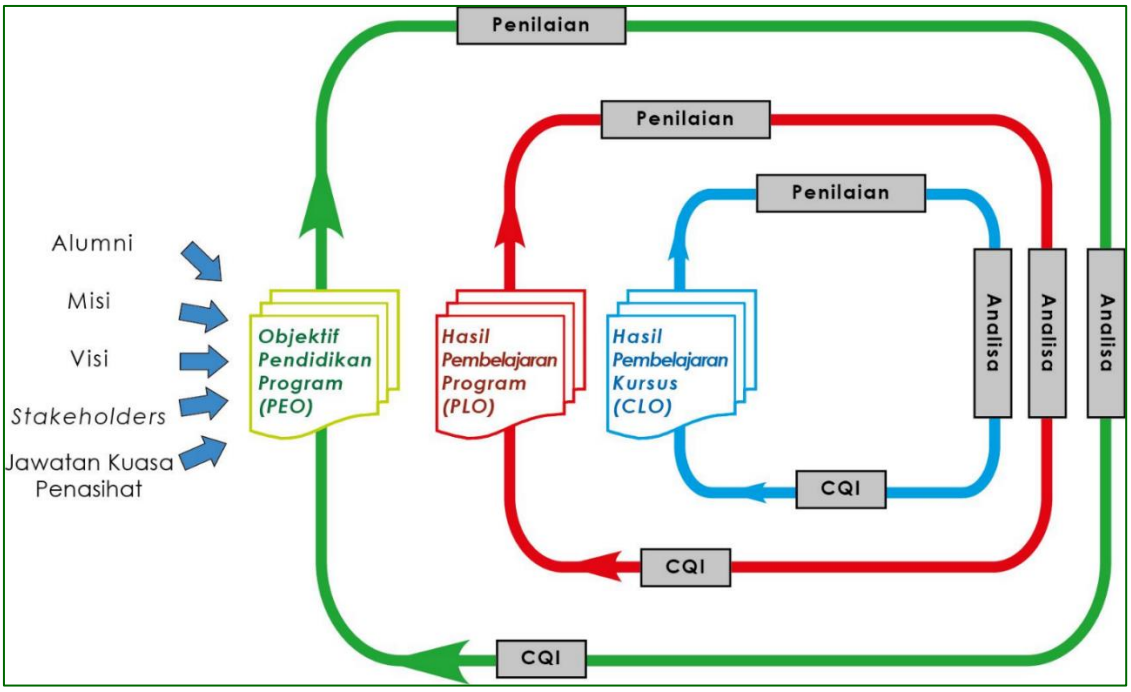



Figure 6.1 Continuous Quality Improvement

**Evaluation of PEO, PLO and CLO**

PEOs are declarations representing the objectives of the programme and are measured 3 to 5 years after graduation. Surveys are normally conducted to gain data on the attainment of the alumni. The result of the survey is used to analyze the success of the programme and actions that need to be taken to further improve the programme. The attainment of PEOs very much depend on the graduates. Graduates should, by the time of graduation, have minimum achievement of the PLOs stated.

While PLOs are assessed at the end of their study, the attainment of PLO is directly measured at the end of each semester before cumulative average of the attainment is obtained. This continual assessment strategy allows the department to identify weaknesses and prepare a continual quality improvement strategy. The CQI process can be done at curriculum level (review) or at course level. At course level, attainment of the CLO is measured directly via various tools. The

responsibility of the lecturer is to identify weaknesses in the planning, delivery and assessment processes.

**CQI For CLO and PLO**

The CLOs attainment is collected from the 'Sistem Pengurusan Maklumat Politeknik' SPMP. The respective lecturer can sort out analysis for determining the attainment of related CLO. The analysis results will then determine the appropriate actions for CQI.

For the PLOs attainment, since each course has its CLO mapped to a PLO that has been set for each academic programme, the data obtained from SPMP will be used as an input to measure the achievement of PLOs. The analysis results will then determine the appropriate actions for CQI.

**SPMP Setting**

A screenshot of the 'Daftar PLO dan CLO' in SPMP is shown in Figure 6.1. The heads of Programme are responsible to register all PLOs and CLOs. The mapping CLO vs PLO, PLO vs GSA and PLO vs LD should be done by heads of programme as shown in Figure 6.2.

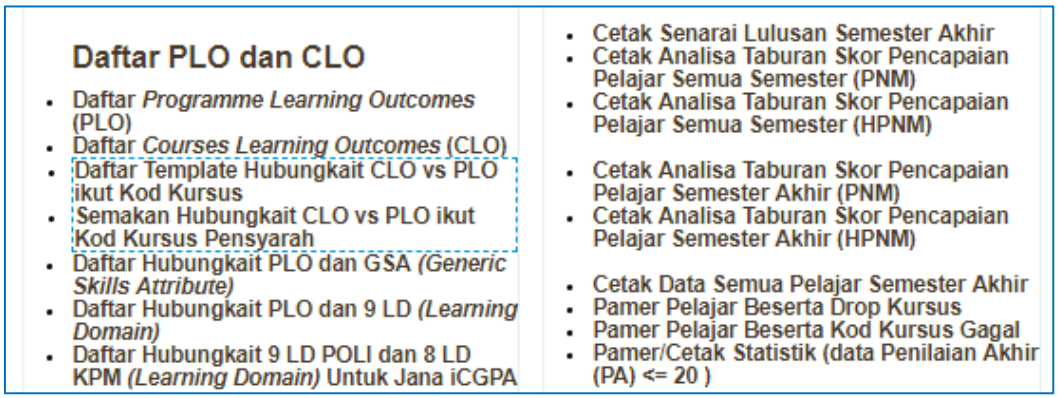



Figure 6.2 Screenshot 'Daftar PLO dan CLO'

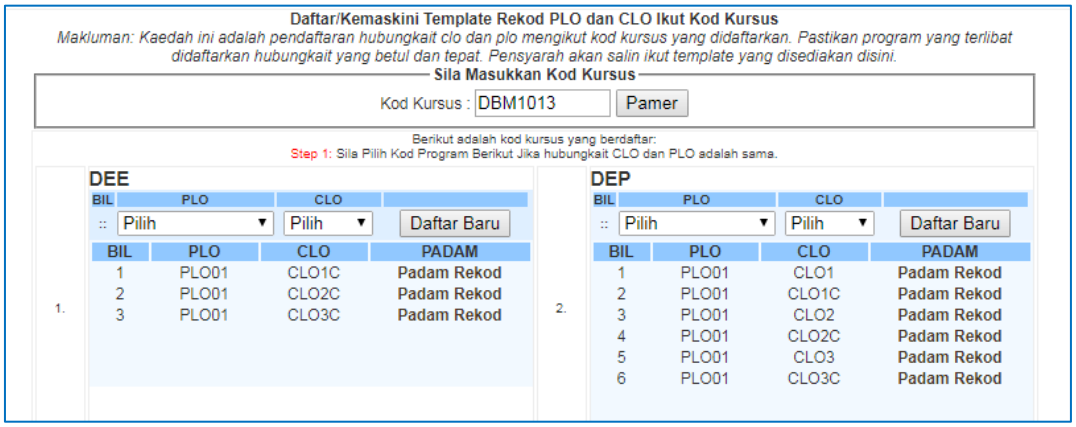



Figure 6.3 Screenshot of the mapping CLO vs PLO

The respective lecturer is responsible to map assessments vs CLOs as shown in Figure 6.3. The mapping process also requires in Final Examination Question as shown in Figure 6.4.

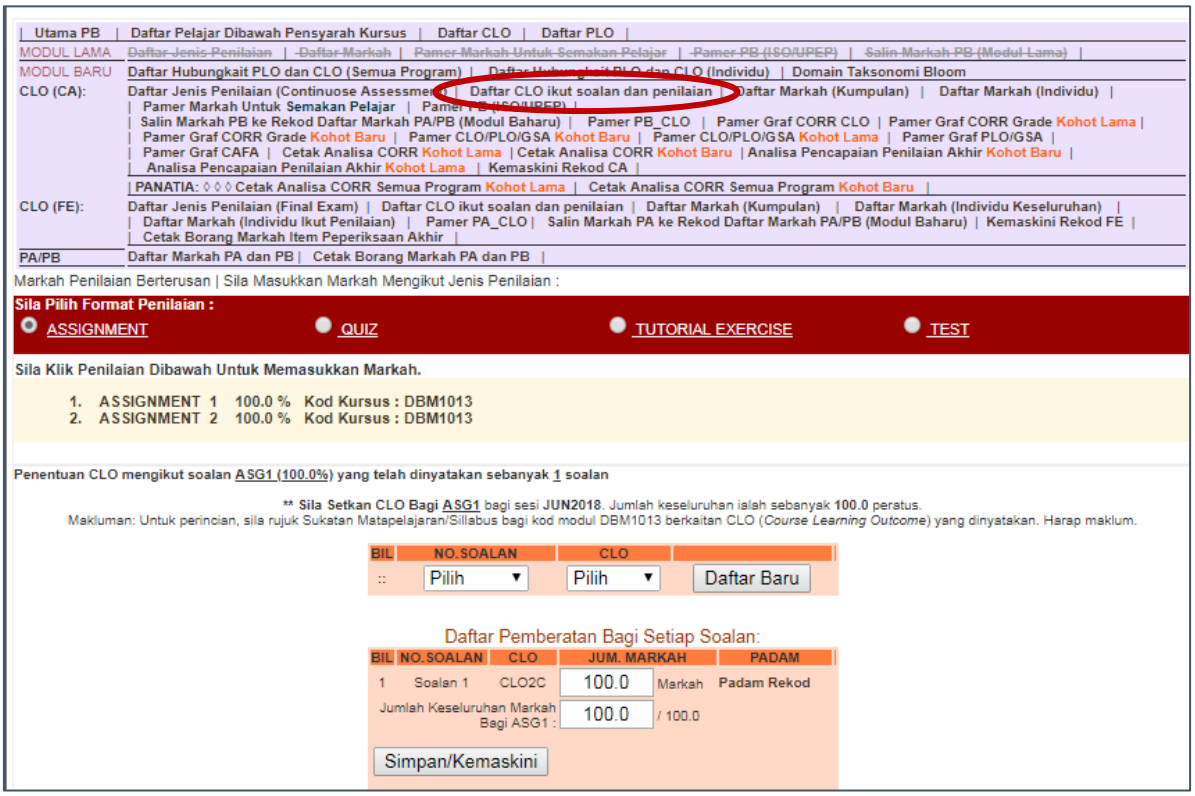



Figure 6.4 Screenshot of the mapping assessments vs CLOs

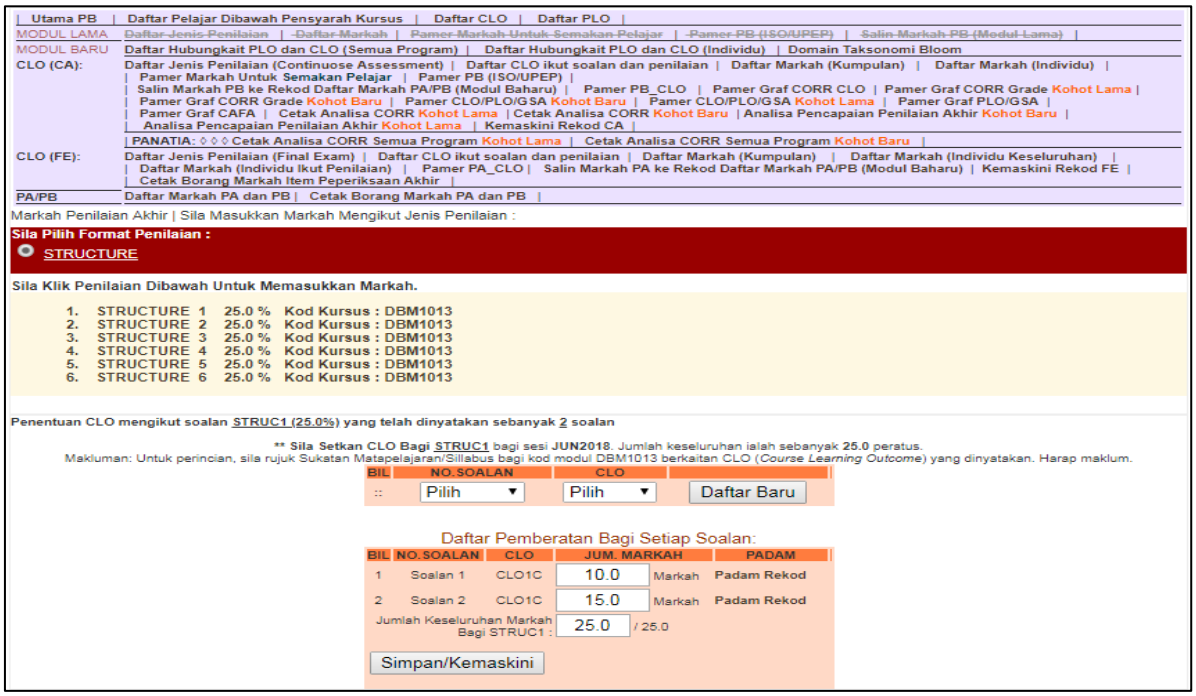



Figure 6.5 Screenshot of the mapping Final Exam Question vs CLOs

The respective lecturer can print out the analysis of Course Outcome Review Report (CORR) from SPMP as shown in Figure 6.5. An example of CORR report as shown in Figure 6.6. From the analysis, the attainment of CLO1C is 48% which is not achieving the target which is 50%. The respective lecturer should suggest CQI to be implemented for the next session.

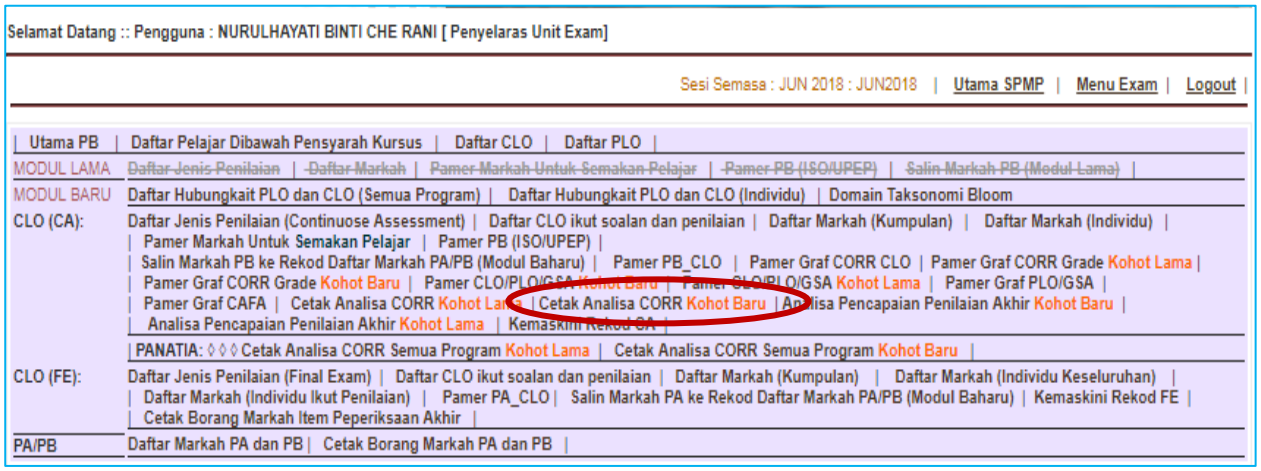
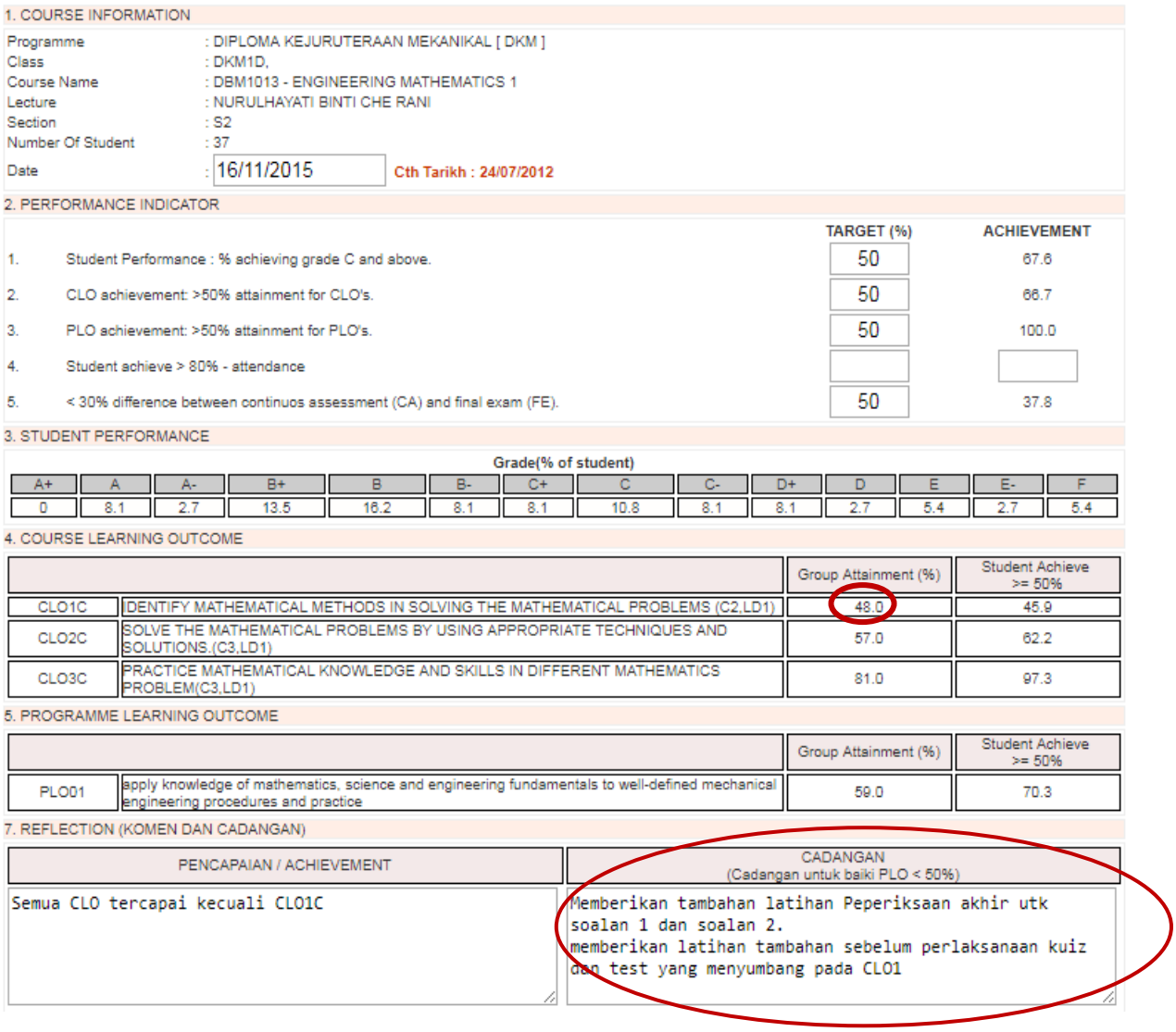



Figure 6.6 Screenshot of printing CORR



1. COURSE INFORMATION

| | |
|---|---|
| Programme | : DIPLOMA KEJURUTERAAN MEKANIKAL [ DKM ] |
| Class | : DKM1D, |
| Course Name | : DBM1013 - ENGINEERING MATHEMATICS 1 |
| Lecture | : NURULHAYATI BINTI CHE RANI |
| Section | : S2 |
| Number Of Student | : 37 |
| Date | : 16/11/2015 Cth Tarikh : 24/07/2012 |

2. PERFORMANCE INDICATOR

| | | TARGET (%) | ACHIEVEMENT |
|---|---|---|---|
| 1. | Student Performance : % achieving grade C and above. | 50 | 67.6 |
| 2. | CLO achievement: >50% attainment for CLO's. | 50 | 66.7 |
| 3. | PLO achievement: >50% attainment for PLO's. | 50 | 100.0 |
| 4. | Student achieve > 80% - attendance | | |
| 5. | < 30% difference between continuos assessment (CA) and final exam (FE). | 50 | 37.8 |

3. STUDENT PERFORMANCE

Grade(% of student)

| A+ | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | E | E- | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 8.1 | 2.7 | 13.5 | 16.2 | 8.1 | 8.1 | 10.8 | 8.1 | 8.1 | 2.7 | 5.4 | 2.7 | 5.4 |

4. COURSE LEARNING OUTCOME

| | | Group Attainment (%) | Student Achieve >= 50% |
|---|---|---|---|
| CLO1C | IDENTIFY MATHEMATICAL METHODS IN SOLVING THE MATHEMATICAL PROBLEMS (C2,LD1) | 48.0 | 45.9 |
| CLO2C | SOLVE THE MATHEMATICAL PROBLEMS BY USING APPROPRIATE TECHNIQUES AND SOLUTIONS.(C3,LD1) | 57.0 | 62.2 |
| CLO3C | PRACTICE MATHEMATICAL KNOWLEDGE AND SKILLS IN DIFFERENT MATHEMATICS PROBLEM(C3,LD1) | 81.0 | 97.3 |

5. PROGRAMME LEARNING OUTCOME

| | | Group Attainment (%) | Student Achieve >= 50% |
|---|---|---|---|
| PLO01 | apply knowledge of mathematics, science and engineering fundamentals to well-defined mechanical engineering procedures and practice | 59.0 | 70.3 |

7. REFLECTION (KOMEN DAN CADANGAN)

| PENCAPAIAN / ACHIEVEMENT | CADANGAN (Cadangan untuk baiki PLO < 50%) |
|---|---|
| Semua CLO tercapai kecuali CLO1C | Memberikan tambahan latihan Peperiksaan akhir utk soalan 1 dan soalan 2.<br>memberikan latihan tambahan sebelum perlaksanaan kuiz dan test yang menyumbang pada CLO1 |

Figure 6.7 CORR Report generated from SPMP

In Figure 6.6 shows that course lecturer have to propose the CQI in CORR Report generated from SPMP. This CQI must be discussed first with the course coordinator before they can proposing it.

**COURSE REVIEW REPORT ATTAINMENT SUMMARY**

**COHORT : JUN 2014** **PROGRAMME CODE: DMT**

**PROGRAMME: DIPLOMA IN MECHANICAL ENGINEERING TEXTILE SESSION: DIS 2016 (SEMESTER 6)**

| | | COURSE LEARNING OUTCOME | | | | | CADANGAN PENAMBAHBAIKAN BAGI CLO <50% |
|---|---|---|---|---|---|---|---|
| | | CLO 1 | CLO 2 | CLO 3 | CLO 4 | CLO 5 | |
| SEM 1-JUN 201 | **COMPULSARY COURSE** | | | | | | |
| DUB1012 | Pengajian Malaysia | 50.00 | 60.00 | 67.00 | xx | xx | |
| DUE1012 | Communicative English 1 | 68.00 | 77.00 | 62.50 | 73.5 | xx | |
| DRB1XX1 | Asas Unit Beruniform | 80.00 | 75.00 | xx | xx | xx | |
| | **COMMON CORE** | | | | | | |
| DUW1012 | Occupational, Safety and Health | 75.00 | 80.00 | 80.00 | 89 | xx | |
| DBM1013 | Engineering Mathematics 1 | 59.00 | 66.00 | 85.50 | xx | xx | |
| DBS1012 | Engineering Science | 65.50 | 85.50 | 52.50 | xx | xx | |
| | **DISCIPLINE CORE** | | | | | | |
| DJJ1012 | Engineering Drawing | 70.00 | 72.50 | 50.00 | xx | xx | |
| DJJ1032 | Mechanical Workshop Practice | 72.50 | 72.50 | 72.50 | xx | xx | |
| DJJ1043 | Workshop Technology | 58.00 | 45.00 | xx | xx | xx | Latih tubi berkenaan topik yang berkaitan perlu diberikan agar pelajar dapat membezakan bahagian - bahgian yang terdapat dalam topik yang dipelajari. |
| SEM 2-DIS 201 | **COMPULSARY COURSE** | | | | | | |
| DUA2012 | Sains, Teknologi dan Kejuruteraan Dalam Islam * | 68.00 | 53.00 | 66.00 | xx | xx | |
| DUB2012 | Nilai Masyarakat Malaysia ** | xx | xx | xx | xx | xx | |
| DRS2XX1 | Sukan | xx | xx | xx | xx | xx | |
| DRB2XX1 | Unit Beruniform 1 | 86.00 | 77.00 | xx | xx | xx | |
| | **COMMON CORE** | | | | | | |
| DBM2013 | Engineering Mathematics 2 | 40.00 | 42.00 | 77.00 | xx | xx | Konsep pengiraan dalam kamiran dan pembezaan perlu diberikan dengan lebih jelas kepada pelajar, agar lebih mudah dikuasai. |

Figure 6.8 Example of CORR Report for the specific cohort from semester 1 to semester 6 generated from SPMP system

In Figure 6.7 and Figure 6.8 shows the example of CORR Report for the specific cohort from semester 1 to semester 6 generated from SPMP system.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SEM 3-JUN 201 | COMPULSART COURSE | | | | | | | | | | | |
| DUE3012 | Communicative English 2 | 79.00 | | | | | 74 | | | | | |
| DRK3XX2 | Kelab/Persatuan | | | | | | | | | | | |
| DRB3XX2 | Unit Beruniform 2 | | 76.00 | | 77 | | | | | | | |
| | COMMON CORE | | | | | | | | | | | |
| DBM3013 | Engineering Mathematics 3 | 59.00 | | | | | | | | | | |
| | DISCIPLINE CORE | | | | | | | | | | | |
| DJJ3053 | Engineering Mechanics | | 53.00 | | 73 | | | 88 | | | | |
| | SPECIALIZATION | | | | | | | | | | | |
| DJX3033 | Yarn Technology | 53.00 | | 82.00 | | | | | | | | |
| DJX3043 | Fabric Technology 1 | 39.00 | 71.00 | | | | 74 | | | | | |
| DJX3052 | Textile Workshop Practice 1 | | | | 76 | | | | 74 | | | 74 |
| | GROUP ATTAINMENT (%) | 57.50 | 66.67 | 82.00 | 75.33 | 0.00 | 74.00 | 88.00 | 74.00 | 0.00 | 0.00 | 74.00 |
| SEM 4-JUN 201 | COMPULSART COURSE | | | | | | | | | | | |
| DUE5012 | Communicative English 3 | 72.00 | | | | | 70 | | | | | |
| | COMMON CORE | | | | | | | | | | | |
| DJJ3103 | Strength of Material | | 54.00 | | 80 | | | 87 | | | | |
| | SPECIALIZATION | | | | | | | | | | | |
| DJJ5141 | Project 1 | | | 78.00 | | | 76.00 | | | | | 78.00 |
| DJX 5042 | Fabric Technology 2 | 56.00 | 38.00 | | | | | 80.00 | | | | |
| DJX5063 | Dyeing & Finishing | 56.00 | | 90.00 | | 77.00 | | | | | | |
| DJX5073 | Textile Testing | 36.00 | | | 72.00 | | | | | | | |
| | ELECTIVE | | | | | | | | | | | |
| DJJ5062 | Computer Aided Design 2 | 60.00 | 62.00 | | | | 79 | | | | | |
| | GROUP ATTAINMENT (%) | 93.33 | 77.00 | 84.00 | 76.00 | 77.00 | 112.50 | 83.50 | 0.00 | 0.00 | 0.00 | 78.00 |
| SEM 5-DIS 201 | DISCIPLINE CORE | | | | | | | | | | | |
| DUA6022 | Komunikasi dan Penyiaran Islar | 71.00 | | | 75 | | | | | | | 68 |
| | COMMON CORE | | | | | | | | | | | |
| DPB2012 | Entrepreneurship | 78.00 | 69.00 | 68.00 | | | | | | | | |
| | DISCIPLINE CORE | | | | | | | | | | | |
| DJJ3123 | Material Science | 51.00 | | | 92 | | | 100 | | | | |
| | SPECIALIZATION | | | | | | | | | | | |
| DJX6052 | Textile Workshop Practice 2 | 75.00 | | | 74 | | | | | | 81 | |
| DJJ6142 | Project 2 | | | 77.00 | 75.00 | | 83 | 81 | | 83 | | |
| | ELECTIVE | | | | | | | | | | | |
| DJJ5123 | Pneumatic & Hydraulics | 57.00 | 80.00 | | 80 | | | | 89 | | | |
| | GROUP ATTAINMENT (%) | 83.00 | 74.50 | 72.50 | 79.20 | 0.00 | 83.00 | 90.50 | 89.00 | 83.00 | 81.00 | 68.00 |
| SEM 6-DIS 201 | COMPULSART COURSE | | | | | | | | | | | |
| DUT40110 | Industrial Training | | 79.00 | 83.00 | | | | | 84.00 | 86.00 | | |
| | GROUP ATTAINMENT (%) | 0.00 | 79.00 | 83.00 | 0.00 | 0.00 | 0.00 | 0.00 | 84.00 | 86.00 | 0.00 | 0.00 |

Figure 6.9 Example of CORR Report for the specific cohort from semester 1 to semester 6 generated from SPMP system (cont.)

PROGRAMME LEARNING OUTCOME ATTAINMENT SUMMARY

COHORT : JUN 2014 PROGRAMME CODE: DMT

PROGRAMME: DIPLOMA IN MECHANICAL ENGINEERING TEXTILI SESSION: DIS 2016 (SEMESTER 6)

| | | PROGRAMME LEARNING OUTCOME | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PLO 1 | PLO 2 | PLO 3 | PLO 4 | PLO 5 | PLO 6 | PLO 7 | PLO 8 | PLO 9 | PLO 10 | PLO 11 |
| | | KNOWLEDGE - APPLICATION | KNOWLEDGE- ANALYSIS | CRITICAL THINKING & PROBLEM SOLVING SKILLS | PRACTICAL SKILL | SOCIAL SKILLS AND RESPONSIBILITIES | COMMUNICATION SKILL | LEADERSHIP & TEAMWORK SKILLS | PROFESSIONALISM, ETHICS &MORAL | MANAGEMENT AND ENTREPRENEURIAL SKILLS | SOCIAL SKILLS & RESPONSIBILITY | CONTINUOUS LEARNING AND INFORMATION MANAGEMENT SKILLS |
| NO | COURSE | LD1 | LD2 | LD3 | LD4 | LD5 | LD6 | LD7 | LD8 | LD9 | LD10 | LD11 |
| SEM 1-JUN 201 | COMPULSARY COURSE | | | | | | | | | | | |
| DUB1012 | Pengajian Malaysia | 69.00 | | | | | | | | | | 70.00 |
| DUE1012 | Communicative English 1 | 77.00 | | 72.00 | | | 70.00 | | | | | |
| DRB1XX1 | Asas Unit Beruniform | | 80.00 | | 75.00 | | | | | | | |
| | COMMON CORE | | | | | | | | | | | |
| DUW1012 | Occupational, Safety and Health | 75.00 | 80.00 | | 80.00 | | | | 89.00 | | | |
| DBM1013 | Engineering Mathematics 1 | 69.00 | | | | | | | | | | |
| DBS1012 | Engineering Science | 61.00 | | | | 87.00 | | | | | | |
| | DISCIPLINE CORE | | | | | | | | | | | |
| DJJ1012 | Engineering Drawing | 70.00 | | | 72.50 | | | | 50.00 | | | |
| DJJ1032 | Mechanical Workshop Practice | | | | 67.00 | 67.00 | | | 67.00 | | | |
| | GROUP ATTAINMENT (%) | 84.20 | 80.00 | 72.00 | 73.63 | 77.00 | 70.00 | 0.00 | 103.00 | 0.00 | 0.00 | 35.00 |

Figure 6.10 Example of Programme Learning Outcome Report (PLORR) for the specific cohort generated from SPMP

In Figure 6.9 and Figure 6.10 shows the example of Programme Learning Outcome Report (PLORR) for the specific cohort generated from SPMP.

| SEM 2-DIS 201 | COMPULSART COURSE | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DUA2012 | Sains, Teknologi dan Kejuruteraan Dalam Islam * | 64.00 | | | | | | | 68 | | | |
| DUB2012 | Nilai Masyarakat Malaysia ** | | | | | | | | | | | |
| DRS2XX1 | Sukan | | | | | | | | | | | |
| DRB2XX1 | Unit Beruniform 1 | | 86.00 | | 77 | | | | | | | |
| | COMMON CORE | | | | | | | | | | | |
| DBM2013 | Engineering Mathematics 2 | 52.00 | | | | | | | | | | |
| | DISCIPLINE CORE | | | | | | | | | | | |
| DJJ2022 | Electrical Technology | | 56.00 | | 83 | | | | | | | |
| DJJ2062 | Computer Aided Design 1 | 52.00 | | | 72 | | | | | | | |
| DJJ2073 | Thermodynamics | 40.00 | | | 75 | | | 76 | | | | |
| DJJ2093 | Fluid Mechanics | | 50.00 | | 76 | | | 79 | | | | |
| | SPECIALIZATION | | | | | | | | | | | |
| DJX2022 | Fibre Technology | 54.00 | | 89.00 | | | | | | | | |
| | GROUP ATTAINMENT (%) | 52.40 | 96.00 | 89.00 | 76.60 | 0.00 | 0.00 | 77.50 | 68.00 | 0.00 | 0.00 | 0.00 |
| SEM 3-JUN 201 | COMPULSART COURSE | | | | | | | | | | | |
| DUE3012 | Communicative English 2 | 79.00 | | | | | 74 | | | | | |
| DRK3XX2 | Kelab/Persatuan | | | | | | | | | | | |
| DRB3XX2 | Unit Beruniform 2 | | 76.00 | | 77 | | | | | | | |
| | COMMON CORE | | | | | | | | | | | |
| DBM3013 | Engineering Mathematics 3 | 59.00 | | | | | | | | | | |
| | DISCIPLINE CORE | | | | | | | | | | | |
| DJJ3053 | Engineering Mechanics | | 53.00 | | 73 | | | 88 | | | | |
| | SPECIALIZATION | | | | | | | | | | | |
| DJX3033 | Yarn Technology | 53.00 | | 82.00 | | | | | | | | |
| DJX3043 | Fabric Technology 1 | 39.00 | 71.00 | | | | 74 | | | | | |
| DJX3052 | Textile Workshop Practice 1 | | | | 76 | | | | 74 | | | 74 |
| | GROUP ATTAINMENT (%) | 57.50 | 66.67 | 82.00 | 75.33 | 0.00 | 74.00 | 88.00 | 74.00 | 0.00 | 0.00 | 74.00 |

Figure 6.11 Example of Programme Learning Outcome Report (PLORR) for the specific cohort generated from SPMP (cont.)

**PROGRAMME LEARNING OUTCOME REVIEW REPORT (PLORR)**

**1- COURSE INFORMATION**

PROGRAMME: DMT
SESSION : DEC 2016
COHORT : JUNE 2014

| **2 - PERFORMANCE INDICATOR** | TARGET (%) |
|---|---|
| a) PLO Achievement: >50% attainment for PLO's | 100 |

| **3 - PROGRAMME LEARNING OUTCOME** | | Group Attainment (%) |
|---|---|---|
| PLO01 | Apply knowledge of mathematics, science, engineering fundamentals and social science to well-defined mechanical engineering procedures and practices with specialisation in | 59 |
| PLO02 | Analyse well-defined mechanical engineering specializing in textile problems with respect to operation and maintenance, including troubleshooting. | 59 |
| PLO03 | Conduct investigations and assist in the design of solutions for mechanical specializing in textile engineering systems. | 81 |
| PLO04 | Apply appropriate techniques, resources, and engineering tools to well-defined mechanical specializing in textile engineering activities, with an awareness of the limitations. | 77 |
| PLO05 | Demonstrate an awareness and consideration for societal, health, safety, legal and cultural issues and their consequent responsibilities. | 80 |
| PLO06 | Communicate effectively with the engineering community and society at large. | 79 |
| PLO07 | Function effectively as an individual and as a member in diverse technical teams. | 86 |
| PLO08 | Demonstrate an understanding of professional ethics, responsibilities and norms of engineering practices. | 71 |
| PLO09 | Demonstrate an awareness of management and entrepreneurship. | 83 |
| PLO10 | Demonstrate an understanding of the impact of engineering practices, taking into account the needs for sustainable development. | 81 |
| PLO11 | Recognise the needs for professional development and to engage in independent and lifelong learning. | 75 |

Figure 6.12 Example of Programme Learning Outcomes Report (PLORR) form

In Figure 6.12 and Figure 6.13 shows the example of Programme Learning Outcomes Report (PLORR) form for the specific cohort generated from SPMP. This report will be presented at 'Mesyurarat Pengurusan Akademik' by the end of the final semester of the cohort by the head of programme.

**FLECTION (KOMEN DAN CADANGAN)**

| PENCAPAIAN | CADANGAN<br>( cadangan untuk baiki PLO yang lemah) |
|---|---|
| Secara keseluruhan kesemua PLO menunjukkan peratus pencapaian melebihi 50%. Julat pencapaian adalah di antara 59% hingga 86%<br>PLO1 dan PLO 2 menunjukkan % terendah iaitu **59%** | Cadangan penambahbaikan bagi PLO01 dan PLO02<br>Pelajar seharusnya didedahakn dengan lebih terperinci berkenaan proses – proses utama yang merupakan prinsip terpenting tekstil. Pengukuhan dari segi bahan pengajaran dan kaedah pengajaran perlu diterapkan dalam kursus – kursus seperti :<br>a) Menggalakkan pelajar mengaplikasikan apa yang telah mereka belajar di dalam kelas semasa projek semester akhir.<br>b) Menggalakkan perbincangan secara berkumpulan di antara pensyarah dan pelajar, sama ada di dalam atau di luar kelas yang mampu menggalakkan penjanaan idea oleh para pelajar<br>c) Mengadakan lawatan industri/ akademik bagi memdedahkan pelajar kepada budaya kerja/ organisasi yang sebenar. |

**5- PREPARED BY (DISEDIAKAN OLEH)**

| | Nama | t.t | Date |
|---|---|---|---|
| KETUA PROGRAM | NORSA`AIDAH BINTI SA`AID | ..... | 26 MEI 2017 |
| KETUA JABATAN | MUHAMMAD NASIR BIN MARZUKI | ..... | 26 MEI 2017 |

Figure 6.13 Example of Programme Learning Outcomes Report (PLORR) form (cont.)

# 7. WHAT SHOULD I DO?

The workflow for each lecturer that has to go through every semester is devided into three (3) phases. They are before, during and end of semester. The workflow is shown in Figure 7.1

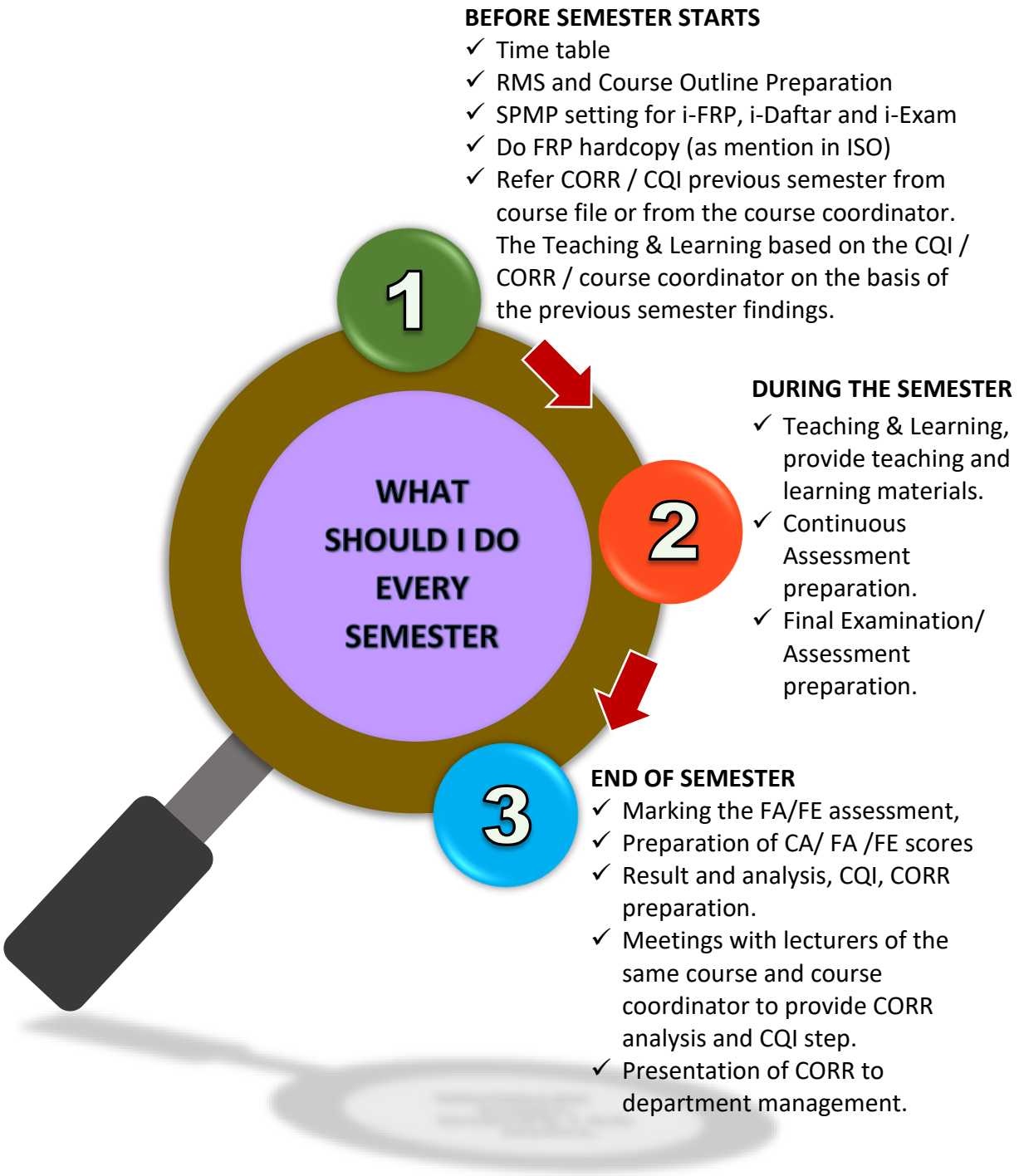



Figure 7.1 Workflow for the whole through semester

The procedure and tools used in helping lecturer to develop a constructive teaching plan is shown in Figure 7.2


Figure 7.2 Procedure and tools used to develop a constructive teaching plan

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# APPENDIX A: **PROGRAMME EDUCATIONAL OBJECTIVES (PEO)**

**ELECTRICAL ENGINEERING DEPARTMENT**

1. ***Diploma in Electrical and Electronic Engineering***
2. ***Diploma in Electronic Engineering (Computer)***
3. ***Diploma in Electronic Engineering (Communication)***

*The engineering programme should produce balanced TVET graduates who are:*

1. *Practicing technician in electrical engineering related field*
2. *Contributing to society with professional ethic and responsibilities*
3. *Engaging in enterprising activities that apply engineering knowledge and technical skills.*
4. *Engaging in activities to enhance knowledge for successful career advancement*

**INFORMATION AND COMMUNICATION TECHNOLOGY DEPARTMENT**

### *1. Diploma in Information Technology (Digital Technology)*

1. *Possess relevant knowledge, skills and aptitude to meet job specifications, organisational and system needs;*
2. *Can utilise current computing tools and techniques by applying knowledge and interpreting information to solve problems, can execute and be responsible for routine tasks;*
3. *Have effective communication skills to convey information, problems and solutions;*
4. *Have teamwork and interpersonal skills, entrepreneurial awareness and are aware of their social and ethical responsibilities; and*
5. *Possess skills for lifelong learning and career development.*

### *PEO 2019 - Diploma in Information Technology (Digital Technology)*

*The Diploma In Information Technology (Digital Technology) programme shall produce semi-professionals ICT practitioners who are capable to*:

1. *Apply basic knowledge, understanding and operational principles of Information and Communication Technology (ICT) in assisting to provide solution in adapting to new technological advancement*
2. *Apply a specific level of practical skills, essential tools, methods and procedures to perform required routine or non-routine tasks*
3. *Alternately adopt the roles of a leader and a team member, and communicate effectively in assisting and providing solution for Information and Communication Technology (ICT)*
4. *Use variety of digital applications to seek, process and interpret routine and complex data*
5. *Enterprisingly acquire new knowledge and skills for career advancement and assist to manage resources and information ethically*

## MECHANICAL ENGINEERING DEPARTMENT

### *1. Diploma in Mechanical Engineering (Plant)*

1. *Competent in knowledge and skills in the field of mechanical and plant engineering according to industry requirements.*
2. *Effctive in communication and contribute effectively as a team member with the capability of being a leader.*
3. *Ethically and socially responsible towards developing the community and the nation*
4. *Able to demonstrate entrepreneurship skills and recognize the need of lifelong learning for a successful career advancement and able to adapt themselves with new technological challenges in mechanical and plant fields*

### *2. Diploma in Mechanical Engineering (Manufacturing)*

1. *Competent in knowledge and skills in the field of mechanical and manufacturing engineering according to industry requirements.*
2. *Effective in communication and contribute effectively as a team member with the capability of being a leader.*
3. *Ethically and socially responsible towards developing the country and the community.*
4. *Able to demonstrate entrepreneurship skills and recognize the need of lifelong learning for a successful career advancement and able to adapt themselves with new technological challenges in mechanical and manufacturing fields.*

### *3. Diploma in Mechanical Engineering*

1. *Competent in knowledge and skills in the field of mechanical engineering according to industry requirements.*
2. *Effective in communication and contribute effectively as a team member with the capability of being a leader.*
3. *Ethically and socially responsible towards developing the community and the nation.*
4. *Able to demonstrate entrepreneurship skills and recognize the need of lifelong learning for a successful career advancement and able to adapt themselves with new technological challenges in mechanical fields*

### *4. Diploma in Mechanical Engineering (Textile)*

1. *Competent in knowledge and skills in the field of mechanical and textile engineering according to industry requirements.*
2. *Effective in communication and contribute effectively as a team member with the capability of being a leader.*
3. *Ethically and socially responsible towards developing the community and the nation.*
4. *Able to demonstrate entrepreneurship skills and recognize the need of lifelong learning for a successful career advancement and able to adapt themselves with new technological challenges in mechanical and textile fields.*

***PEO 2019***

1. ***Diploma in Mechanical Engineering (Plant)***
2. ***Diploma in Mechanical Engineering (Manufacturing)***
3. ***Diploma in Mechanical Engineering***
4. ***Diploma in Mechanical Engineering (Textile)***

1. *Equipped with industry-relevant knowledge and skills in mechanical engineering field*
2. *Engaging on lifelong and continuous learning to enhance knowledge and skills*
3. *Instilled with entrepreneurial skills and mind set in the real working environment*
4. *Established strong linkage with society and players in the industry*

## COMMERCE DEPARTMENT

### *1. Diploma in Accountancy*

1. *Knowledgeable and technically competent in accounting discipline in-line with the industry requirement.*
2. *Effective in communication and demonstrate good leadership quality in an organization.*
3. *Capable to solve problems in business situations innovatively, creatively and ethically through sustainable approach.*
4. *Able to demonstrate entrepreneurship skills and recognize the needs of life-long learning for successful career advancement.*

### *PEO 2019 - Diploma in Accountancy*

1. *Knowledgeable and technically competent in accounting discipline in line with the industry requirement*
2. *Able to integrate values, attitudes, professionalism and social skills in engaging with society and stakeholders*
3. *Adopt the roles of a leader and a team member, and communicate effectively to provide data driven solutions for accounting problems*
4. *Proactively acquire new knowledge and skills for career advancement and innovatively manage resources and information*

### 2. Diploma in Islamic Banking and Finance

1. *Knowledgeable and technically competent in Islamic banking and finance discipline and able to adapt themselves with new technological advancement and challenges in Islamic banking and finance fields.*

2. *Effective in communication and able to prepares them with social skills, leadership qualities and willing to be responsible towards developing country and community.*

3. *Capable to solve Islamic banking and finance problems innovatively, creatively and ethically to secure organizations against internal and external security threats.*

4. *Able to demonstrate entrepreneurship skills and recognize the need of lifelong learning for successful career advancement.*

### PEO 2019 - Diploma in Islamic Banking and Finance

1. *Apply knowledge, understanding and professional skills in facing challenges and providing resourceful solution for banking and finance issues.*

2. *Agile in execution, able to interact and communicate effectively in Islamic banking and finance operations.*

3. *Able to manipulate digital applications and data as well agile in executing the roles of a leader in managing issues at work.*

4. *Proactively acquire new knowledge and skills for career advancement and comply with organizational professional ethics in Islamic banking and finance practices and social environment.*

### 3. Diploma in Logistics and Supply Chain Management

1. *Knowledgeable, technically competent and be able to adapt in Logistics and Supply Chain Management discipline with new technological advancement and challenges.*
2. *Communicative in social skills, leadership qualities and willing to be responsible towards developing community and country.*
3. *Capable to solve logistic security problems innovatively, creatively and ethically to secure organizations against internal and external security threats.*
4. *Able to demonstrate entrepreneurship skills and recognize the need of lifelong learning for successful career advancement.*

### PEO 2019 - Diploma in Logistics and Supply Chain Management

1. *Logistics & Supply Chain practitioners who apply knowledge, understanding and managerial skills in providing a solution in dynamic industries globally.*
2. *Logistics & Supply Chain practitioners who agile and innovative in execution and able to manipulate digital applications and data to perform business tasks.*
3. *Logistics & Supply Chain practitioners who are a confident communicator with persuasive communications and nimble in executing the roles of a leader in providing a high quality of services to the business operations.*
4. *Logistics & Supply Chain practitioners who proactively acquire new knowledge and skills for career advancement and resilient with a positive attitude to take exciting challenges in a fast-changing global environment.*

### 4. Diploma in Business Studies

1. *Knowledgeable and technically competent in business discipline in-line with the industry requirement.*
2. *Effective in communicating socially, responsible and demonstrate good leadership quality in an organization.*
3. *Capable to solve problems in business situations innovatively, creatively and ethically through sustainable approach.*
4. *Able to demonstrate entrepreneurship skills*
5. *Able to recognize the importance of life-long learning for successful career advancement.*

### PEO 2019 - Diploma in Business Studies

1. *Business practitioners who apply knowledge, understanding and managerial skills in providing solutions for business issues and challenges.*
2. *Business practitioners who are agile in the execution of and able to manipulate digital applications and data to perform business tasks.*
3. *Business practitioners who communicate effectively in executing the roles of a leader as to provide high quality of services to the business operations.*
4. *Business practitioners who proactively acquire new knowledge and skills for career advancement and comply with organisational and professional ethics in work and social environment.*

# APPENDIX B: **PROGRAMME LEARNING OUTCOMES (PLO)**

**ELECTRICAL ENGINEERING DEPARTMENT**

1. ***Diploma in Electrical and Electronic Engineering***
2. ***Diploma in Electronics Engineering (Computer)***
3. ***Diploma in Electronics Engineering (Communication)***

1. *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.*

2. *Identify and analyse well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (dk1 to dk4).*

3. *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).*

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

5. *Apply appropriate techniques, resources, and modern engineering and it tools to well-defined engineering problems, with an awareness of the limitations (dk6).*

6. *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).*

7. *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).*

8. *Understand and commit to professional ethics and responsibilities and norms of technician practice.*

9. *Function effectively as an individual, and as a member in diverse technical teams*

10. *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.*

11. *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.*

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

## INFORMATION AND COMMUNICATION TECHNOLOGY DEPARTMENT

### *1. Diploma in Information Technology (Digital Technology)*

1. *Apply the foundation of computing, mathematics and soft skills to be competent and possess strong understanding in related Information Technology (IT) fields;*
2. *Practice technical skills by applying appropriate methodologies, models and techniques in IT fields;*
3. *Communicate effectively with IT Professionals, other professionals and community;*
4. *Demonstrate strong analytical and critical thinking skills to troubleshoot and solve problems within realistic constraints by applying knowledge, principles and skills in IT;*
5. *Demonstrate an awareness of and consideration for society, health, safety, legal and cultural issues and their consequent responsibilities;*
6. *Acquire `life-long learning and professional development to enrich knowledge and competencies;*
7. *Inculcate entrepreneurial skills in the related discipline that contributes towards national growth and be competitive in IT industries;*
8. *Adhere to professional codes of ethics and enhance humanistic values to adapt to the real challenges in working environment; and*
9. *Demonstrate effective leadership and teamwork skills.*

### *PLO 2019 -Diploma in Information Technology (Digital Technology)*

1. *Practice Information and Communication Technology (ICT) skill in performing diagnostic and documenting processes in ICT related fields*
2. *Analyse issues and provide solutions in Information and Communication Technology (ICT) by implementing appropriate scientific approaches and reasoning*
3. *Display Information and Communication Technology (ICT) skill in performing diagnostic and documenting processes in ICT related fields*
4. *Demonstrate effective communication both orally and in writing to others including peers, experts and non-experts*
5. *Demonstrate social skills and responsibilities by taking alternate role as a leader or member of a diverse team*
6. *Demonstrate ability to use Information and Communication Technology (ICT) in quantitative skills to support work and studies*
7. *Demonstrate entrepreneurial and good managerial skills in working environment*
8. *Demonstrate positive values, ethics and accountability in engaging with society*

**MECHANICAL ENGINEERING DEPARTMENT**

***1. Diploma in Mechanical Engineering (Plant)***

1. *Apply knowledge of mathematics, science, engineering fundamentals and social science to well-defined mechanical engineering procedures and practices with specialisation in plant.*
2. *Analyse well-defined mechanical engineering specializing in plant problems with respect to operation and maintenance, including troubleshooting.*
3. *Conduct investigations and assist in the design of solutions for mechanical specializing in plant engineering systems.*
4. *Apply appropriate techniques, resources, and engineering tools to well-defined mechanical specializing in plant engineering activities, with an awareness of the limitations.*
5. *Demonstrate an awareness and consideration for societal, health, safety, legal and cultural issues and their consequent responsibilities.*
6. *Communicate effectively with the engineering community and society at large.*
7. *Function effectively as an individual and as a member in diverse technical teams.*
8. *Demonstrate an understanding of professional ethics, responsibilities and norms of engineering practices.*
9. *Demonstrate an awareness of management and entrepreneurship.*
10. *Demonstrate an understanding of the impact of engineering practices, taking into account the needs for sustainable development.*
11. *Recognise the needs for professional development and to engage in independent and lifelong learning.*

**2. *Diploma in Mechanical Engineering (Manufacturing)***

1. *Apply knowledge of mathematics, science, engineering fundamentals and social science to well-defined mechanical engineering procedures and practices with specialisation in manufacturing.*
2. *Analyse well-defined mechanical engineering specializing in manufacturing problems with respect to operation and maintenance including troubleshooting.*
3. *Conduct investigations and assist in the design of solutions for mechanical specializing in manufacturing engineering systems.*
4. *Apply appropriate techniques, resources, and engineering tools to well-defined mechanical specializing in manufacturing engineering activities, with an awareness of the limitations.*
5. *Demonstrate an awareness and consideration for societal, health, safety, legal and cultural issues and their consequent responsibilities.*
6. *Communicate effectively with the engineering community and society at large.*
7. *Function effectively as an individual and as a member in diverse technical teams.*
8. *Demonstrate an understanding of professional ethics, responsibilities and norms of engineering practices.*
9. *Demonstrate an awareness of management and entrepreneurship.*
10. *Demonstrate an understanding of the impact of engineering practices, taking into account the needs for sustainable development.*
11. *Recognise the needs for professional development and to engage in independent and lifelong learning.*

### *3. Diploma in Mechanical Engineering*

1. *Apply knowledge of mathematics, science, engineering fundamentals and social sciences to well-defined mechanical engineering procedures and practices.*
2. *Analyse well-defined mechanical engineering problems with respect to operation and maintenance, including troubleshooting*
3. *Conduct investigations and assist in the design of solutions for mechanical engineering systems*
4. *Apply appropriate techniques, resources, and engineering tools to well-defined mechanical engineering activities, with an awareness of the limitations*
5. *Demonstrate an awareness and consideration for societal, health, safety, legal and cultural issues and their consequent responsibilities*
6. *Communicate effectively with the engineering community and society at large.*
7. *Function effectively as an individual and as a member in diverse technical teams*
8. *Demonstrate an understanding of professional ethics, responsibilities and norms of engineering practices*
9. *Demonstrate an awareness of management, business practices and entrepreneurship*
10. *Demonstrate an understanding of the impact of engineering practices, taking into account the needs for sustainable development*
11. *Recognise the needs for professional development and to engage in independent and lifelong learning*

### *4. Diploma in Mechanical Engineering (Textile)*

1. *Apply knowledge of mathematics, science, engineering fundamentals and social science to well-defined mechanical engineering procedures and practices with specialisation in textile.*
2. *Analyse well-defined mechanical engineering specializing in textile problems with respect to operation and maintenance, including troubleshooting.*
3. *Conduct investigations and assist in the design of solutions for mechanical specializing in textile engineering systems.*
4. *Apply appropriate techniques, resources, and engineering tools to well-defined mechanical specializing in textile engineering activities, with an awareness of the limitations.*
5. *Demonstrate an awareness and consideration for societal, health, safety, legal and cultural issues and their consequent responsibilities.*
6. *Communicate effectively with the engineering community and society at large.*
7. *Function effectively as an individual and as a member in diverse technical teams.*
8. *Demonstrate an understanding of professional ethics, responsibilities and norms of engineering practices.*
9. *Demonstrate an awareness of management and entrepreneurship.*
10. *Demonstrate an understanding of the impact of engineering practices, taking into account the needs for sustainable development.*
11. *Recognise the needs for professional development and to engage in independent and lifelong learning.*

***PLO 2019***

***1.Diploma in Mechanical Engineering (Plant)***

***2.Diploma in Mechanical Engineering (Manufacturing)***

***3.Diploma in Mechanical Engineering***

***4.Diploma in Mechanical Engineering (Textile)***

1. *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.*
2. *Identify and analyse well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4).*
3. *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).*
4. *Conduct investigations of well-defined problems; locate and search relevant codes and catalogues, conduct standard tests and measurements.*
5. *Apply appropriate techniques, resources, and modern engineering and IT tools to well-defined engineering problems, with an awareness of the limitations (DK6).*
6. *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).*
7. *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).*
8. *Understand and commit to professional ethics and responsibilities and norms of technician practice.*
9. *Function effectively as an individual, and as a member in diverse technical teams.*
10. *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.*
11. *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.*
12. *Recognise the need for, and have the ability to engage in independent updating in the context of specialised technical knowledge.*

## COMMERCE DEPARTMENT

### *1. Diploma in Accountancy*

1. *Explain the role of accounting in an organization and related field in every industry worldwide*
2. *Prepare full set of accounts for sole proprietorships, partnership and companies; costing and management accounting information; and assist in preparation of tax returns, audit process and finance functions.*
3. *Communicate effectively both in written and spoken form with colleague, other professionals and community.*
4. *Identify financial and non-financial information in assisting decision making process.*
5. *Develop an effective social responsibility and humanistic values to meet the common goals.*
6. *Apply information technology for recording accounting information; and engage in life-long learning.*
7. *Apply managerial and entrepreneurial skills.*
8. *Apply values, ethics, morality and professionalism in their work.*
9. *Demonstrate effective leadership and teamwork responsibility.*

***PLO 2019***
***Diploma in Accountancy***

1. *Discuss knowledge of accounting and related field in an organization*
2. *Apply financial and non-financial information in decision making process*
3. *Prepare financial statements and internal reports that comply with approved standards and provide tax, audit and other accounting related services*
4. *Demonstrate effective communication to relevant stakeholders in all aspects of decision making*
5. *Apply various types of digital application ethically and propose data driven solutions*
6. *Develop leadership to manage diverse team in order to be effective members in organisation*
7. *Demonstrate a commitment to continue in professional development and possess entrepreneurial skills*
8. *Demonstrate positive values, ethics and accountability with professional scepticism in engaging with society and stakeholders*

***2. Diploma in Islamic Banking and Finance***

1. *Apply fundamental principles of Islamic banking and finance, and soft skills in Islamic banking and finance and other related areas to be outstanding and successful in the future.*
2. *Use skills to meet the industrial requirements and adapt to the challenges in the industrial world*
3. *Communicate effectively with Islamic banking and finance professionals, other professionals and community.*
4. *Use appropriate tools and techniques to recommend effective solutions in encountering threats and risks of an organization's information.*
5. *Develop an effective and excellent teamwork to meet the common goals.*
6. *Engage in life-long learning and professional development to enrich knowledge and competencies.*
7. *Inculcate entrepreneurial skills in the related discipline that contributes towards national growth and be competitive in Islamic banking and finance industries.*
8. *Adhere to professional codes of ethics and enhance humanistic values to adapt to the real challenges in working environment.*
9. *Demonstrate effective leadership responsibility.*

***PLO 2019***
***Diploma in Islamic Banking and Finance***

1. *Apply principles of Islamic banking, financial service and compliance in accordance with emerging changes and challenges in Islamic banking and finance field*
2. *Analyze issues and solutions in Islamic banking and finance by employing appropriate and relevant approaches*
3. *Display Islamic banking and financial technical skills in Islamic banking and finance operations*
4. *Demonstrate effective interactive communication in executing Islamic banking and finance operations*
5. *Use digital applications and interpret data in Islamic banking and finance operation*
6. *Demonstrate role as a leader in a team.*
7. *Participate in acquiring new knowledge and entrepreneurship relating activities.*
8. *Demonstrate positive values and accountability in Islamic banking and finance practices.*

***3. Diploma in Logistics and Supply Chain Management***

1. *Apply fundamental principles of logistics and supply chain management and other related areas.*
2. *Use technical skills to arrange the appropriate document related to logistics.*
3. *Communicate effectively with logistic players, other professional and community.*
4. *Use appropriate tools and techniques to recommend effective solutions in encountering threats and risks of logistic and supply chain organizations.*
5. *Develop an effective social responsibility and humanistic values to meet the common goals.*
6. *Engage in life-long learning and professional development to enrich knowledge and competencies.*
7. *Inculcate entrepreneurial skills in the related discipline that contributes towards national growth and be competitive in logistic industries.*
8. *Adhere to professional codes of ethics to adapt in the real challenges in working environment.*
9. *Demonstrate effective leadership and teamwork responsibility.*

***PLO 2019***

***Diploma in Logistics and Supply Chain Management***

1. *Apply principles of logistics and supply chain and other related areas in managing business operations.*
2. *Utilize concept of logistics and supply chain in solving industrial operation.*
3. *Perform technical skills in managing logistics and supply chain activities.*
4. *Demonstrate effective communication and interpersonal skills in a team.*
5. *Use digital application and interpret data in managing business operations.*
6. *Demonstrate social skills and responsibilities by taking alternate role as a leader or member of a diverse team*
7. *Demonstrate personal and entrepreneurial skills in managing business operating activities.*
8. *Integrates professionalism, positive attitudes and values in engaging with society and stakeholders.*

***4. Diploma in Business Studies***

1. *Apply fundamental principles of business and soft skills in related business and other related fields to be outstanding and successful in the future;*
2. *Use effectively management tools and interpersonal skills in business and working environment;*
3. *Communicate effectively with colleague and society as a whole;*
4. *Use effectively and efficiently the necessary techniques, skills, and its tools in business practices and assist in solving business problems;*
5. *Develop an effective social responsibility and humanistic values to meet the common goals;*
6. *Engage in life-long learning to enrich knowledge and competencies;*
7. *Inculcate entrepreneurial skills in the related discipline that contribute towards national growth and to be competitive in the business environment;*
8. *Adhere to professional codes of ethics to adapt the real challenges in working environment;*
9. *Demonstrate effective leadership and teamwork responsibility.*

***PLO 2019***

***Diploma in Business Studies***

1. *Apply principles of business and other related areas in managing business operations*
2. *Analyse issues and solutions in conducting business operations*
3. *Demonstrate business technical skills in business activities*
4. *Demonstrate effective communication and interpersonal skills in a team*
5. *Use digital application and interpret data in managing business operations*
6. *Demonstrate social skills and responsibilities by taking alternate roles as a leader or member of a diverse team*
7. *Demonstrate personal and entrepreneurial skills in managing business operating activities*
8. *Integrate professionalism, positive attitudes and values in engaging with society and stakeholders*

# APPENDIX C: MATRIX OF PROGRAMME EDUCATIONAL OBJECTIVES (PEO) VS PROGRAMME LEARNING OUTCOME (PLO)

**ELECTRICAL ENGINEERING DEPARTMENT**

1. ***Diploma in Electrical and Electronics Engineering***
2. ***Diploma in Electronics Engineering (Computer)***
3. ***Diploma in Electronics Engineering (Communication)***

## MATRIX OF PROGRAMME LEARNING OUTCOME (PLO) VS PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

| PROGRAM LEARNING OUTCOME (PLO) | | PROGRAMME EDUCATIONAL OBJECTIVE (PEO) | | | |
|---|---|---|---|---|---|
| | | PEO1 | PEO2 | PEO3 | PEO4 |
| PLO1 | 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; | / | | | |
| 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 | 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); | | / | | |
| 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; | | | | / |

## INFORMATION AND COMMUNICATION TECHNOLOGY DEPARTMENT

### *1. Diploma in Information Technology (Digital Technology)*

Programme Educational Objectives (PEO):

The Diploma in Digital Technology programme shall produce semi-professionals who are:

| Programme Educational Objectives (PEO) | PLO 1 | PLO 2 | PLO 3 | PLO 4 | PLO 5 | PLO 6 | PLO 7 | PLO 8 | PLO 9 |
|---|---|---|---|---|---|---|---|---|---|
| | LD1 | LD2 | LD3 | LD4 | LD5 | LD6 | LD7 | LD8 | LD9 |
| 1. possess relevant knowledge, skills and aptitude to meet job specifications, organisational and system needs; | √ | √ | | | | | | | |
| 2. can utilise current computing tools and techniques by applying knowledge and interpreting information to solve problems, can execute and be responsible for routine tasks; | | √ | | √ | | | | | |
| 3. have effective communication skills to convey information, problems and solutions; | | | √ | | | | | | |
| 4. have teamwork and interpersonal skills, entrepreneurial awareness and are aware of their social and ethical responsibilities; and | | | | | √ | | | √ | √ |
| 5. possess skills for life-long learning and career development. | | | | | | √ | √ | | |

**Learning Domain:**
LD 1 : Knowledge
LD 2 : Practical Skills
LD 3 : Communication Skills
LD 4 : Critical Thinking and Problem Solving Skills
LD 5 : Social Skills and Responsibilities
LD 6 : Continuous Learning and Information Management Skills
LD 7 : Management and Entrepreneurial Skills
LD 8 : Professionalism, Ethics and Moral
LD 9 : Leadership and Teamwork Skills

**PLO VS PEO (2019)**

***Diploma in Information Technology (Digital Technology)***

## MATRIX OF PROGRAMME LEARNING OUTCOME (PLO) VS PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

| PROGRAMME LEARNING OUTCOME (PLO) | | PROGRAMME EDUCATIONAL OBJECTIVE (PEO) | | | | |
|---|---|---|---|---|---|---|
| | | PEO1 | PEO2 | PEO3 | PEO4 | PEO5 |
| PLO1 | Practice Information and Communication Technology (ICT) skill in performing diagnostic and documenting processes in ICT related fields. | / | | | | |
| PLO2 | Analyse issues and provide solutions in Information and Communication Technology (ICT) by implementing appropriate scientific approaches and reasoning. | / | | | | |
| PLO3 | Display Information and Communication Technology (ICT) skill in performing diagnostic and documenting processes in ICT related fields | | / | | | |
| PLO4 | Demonstrate effective communication both orally and in writing to others including peers, experts and non-experts | | | / | | |
| PLO5 | Demonstrate social skills and responsibilities by taking alternate role as a leader or member of a diverse team | | | / | | |
| PLO6 | Demonstrate ability to use Information and Communication Technology (ICT) in quantitative skills to support work and studies | | | | / | |
| PLO7 | Demonstrate entrepreneurial and good managerial skills in working environment | | | | | / |
| PLO8 | Demonstrate positive values, ethics and accountability in engaging with society | | | | | / |

## MECHANICAL ENGINEERING DEPARTMENT

### 1. Diploma in Mechanical Engineering (Plant)

***Programme Educational Objectives (PEO) :***
*The **Diploma in Mechanical Engineering (Plant)** programme shall produce semi professionals who are:*

| PEO | | PLO1 | PLO2 | PLO3 | PLO4 | PLO5 | PLO6 | PLO7 | PLO8 | PLO9 | PLO10 | PLO11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LD 1 | LD1 | LD4 | LD2 | LD5 | LD3 | LD9 | LD8 | LD7 | LD5 | LD6 |
| 1 | *competent in knowledge and skills in the field of mechanical and plant engineering according to industry requirements* | √ | √ | √ | √ | | | | | | | |
| 2 | *effective in communication and contribute effectively as a team member with the capability of being a leader.* | | | | | | √ | √ | | | | |
| 3 | *ethically and socially responsible towards developing the country and the community.* | | | | | √ | | | √ | | √ | |
| 4 | *able to demonstrate entreprenuership skills and recognize the need of lifelong learning for a successful career advancement and able to adapt themselves with new technological challenges in mechanical and plant fields.* | | | | | | | | | √ | | √ |

***Learning Domain***
*LD1 Knowledge*
*LD2 Practical Skills*
*LD3 Communication Skills*
*LD4 Critical Thinking and Problem Solving Skills*
*LD5 Social Skills and Responsibilities*
*LD6 Continuous Learning and Information Management Skills*
*LD7 Management and Entreprenuership skills*
*LD8 Professionalism, Ethics and Moral*
*LD9 Leadership and Teamwork Skills*

### 2. Diploma in Mechanical Engineering (Manufacturing)

***Programme Educational Objectives (PEO) :***
*The **Diploma in Mechanical Engineering (Manufacturing)** programme shall produce semi professionals who are:*

| PEO | | PLO1 | PLO2 | PLO3 | PLO4 | PLO5 | PLO6 | PLO7 | PLO8 | PLO9 | PLO10 | PLO11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LD 1 | LD1 | LD4 | LD2 | LD5 | LD3 | LD9 | LD8 | LD7 | LD5 | LD6 |
| 1 | *competent in knowledge and skills in the field of mechanical and manufacturing engineering according to industry requirements.* | √ | √ | √ | √ | | | | | | | |
| 2 | *effective in communication and contribute effectively as a team member with the capability of being a leader.* | | | | | | √ | √ | | | | |
| 3 | *ethically and socially responsible towards developing the country and the community.* | | | | | √ | | | √ | | √ | |
| 4 | *able to demonstrate entreprenuership skills and recognize the need of lifelong learning for a successful career advancement and able to adapt themselves with new technological challenges in mechanical fields.* | | | | | | | | | √ | | √ |

***Learning Domain***
*LD1 Knowledge*
*LD2 Practical Skills*
*LD3 Communication Skills*
*LD4 Critical Thinking and Problem Solving Skills*
*LD5 Social Skills and Responsibilities*
*LD6 Continuous Learning and Information Management Skills*
*LD7 Management and Entreprenuership skills*
*LD8 Professionalism, Ethics and Moral*
*LD9 Leadership and Teamwork Skills*

## 3. Diploma in Mechanical Engineering

***Programme Educational Objectives (PEO):***
*The **Diploma in Mechanical Engineering** programme shall produce semi-professionals who are:*

| | PEO | PLO1 | PLO2 | PLO3 | PLO4 | PLO5 | PLO6 | PLO7 | PLO8 | PLO9 | PLO10 | PLO11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LD 1 | LD1 | LD4 | LD2 | LD5 | LD3 | LD9 | LD8 | LD7 | LD5 | LD6 |
| 1 | *competent in knowledge and skills in the field of mechanical engineering according to industry requirements.* | √ | √ | √ | √ | | | | | | | |
| 2 | *effective in communication and contribute effectively as a team member with the capability of being a leader.* | | | | | | √ | √ | | | | |
| 3 | *ethically and socially responsible towards developing the country and the community.* | | | | | √ | | | √ | | √ | |
| 4 | *able to demonstrate entrepreneurship skills and recognize the need of lifelong learning for a successful career advancement and able to adapt themselves with new technological challenges in mechanical fields.* | | | | | | | | | √ | | √ |

***Learning Domain***
*LD1 Knowledge*
*LD2 Practical Skills*
*LD3 Communication Skills*
*LD4 Critical Thinking and Problem-Solving Skills*
*LD5 Social Skills and Responsibilities*
*LD6 Continuous Learning and Information Management Skills*
*LD7 Management and Entrepreneurship skills*
*LD8 Professionalism, Ethics and Moral*
*LD9 Leadership and Teamwork Skills*

## 4. Diploma in Mechanical Engineering (Textile)

***Programme Educational Objectives (PEO) :***
*The **Diploma in Mechanical Engineering (Textile)** programme shall produce semi professionals who are:*

| | PEO | PLO1 | PLO2 | PLO3 | PLO4 | PLO5 | PLO6 | PLO7 | PLO8 | PLO9 | PLO10 | PLO11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LD 1 | LD1 | LD4 | LD2 | LD5 | LD3 | LD9 | LD8 | LD7 | LD5 | LD6 |
| 1 | *competent in knowledge and skills in the field of mechanical engineering according to industry requirements.* | √ | √ | √ | √ | | | | | | | |
| 2 | *effective in communication and contribute effectively as a team member with the capability of being a leader.* | | | | | | √ | √ | | | | |
| 3 | *ethically and socially responsible towards developing the country and the community.* | | | | | √ | | | √ | | √ | |
| 4 | *able to demonstrate entreprenuership skills and recognize the need of lifelong learning for a successful career advancement and able to adapt themselves with new technological challenges in mechanical fields.* | | | | | | | | | √ | | √ |

***Learning Domain***
*LD1 Knowledge*
*LD2 Practical Skills*
*LD3 Communication Skills*
*LD4 Critical Thinking and Problem Solving Skills*
*LD5 Social Skills and Responsibilities*
*LD6 Continuous Learning and Information Management Skills*
*LD7 Management and Entreprenuership skills*
*LD8 Professionalism, Ethics and Moral*
*LD9 Leadership and Teamwork Skills*

**PLO VS PEO (2019)**

***1. Diploma in Mechanical Engineering (Plant)***

***2.Diploma in Mechanical Engineering (Manufacturing)***

***3.Diploma in Mechanical Engineering***

***4.Diploma in Mechanical Engineering (Textile)***

**MATRIX OF PROGRAMME OUTCOME (PO) VS PROGRAMME EDUCATIONAL OBJECTIVES (PEO)**

| PROGRAMME LEARNING OUTCOMES (PLO) | | PROGRAMME EDUCATIONAL OBJECTIVES (PEO) | | | |
|---|---|---|---|---|---|
| | | PEO1 | PEO2 | PEO3 | PEO4 |
| PLO1 | 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 | / | | | |
| 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 | 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) | | | | / |
| 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 | | / | | |

## COMMERCE DEPARTMENT

### *1. Diploma in Accountancy*

***Programme Educational Objectives (PEO) :***

*The Diploma in Accountancy programme shall produce semi professionals who are :*

| PEO | | PLO1 | PLO2 | PLO3 | PLO4 | PLO5 | PLO6 | PLO7 | PLO8 | PLO9 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | LD 1 | LD2 | LD3 | LD4 | LD5 | LD6 | LD7 | LD8 | LD9 |
| 1. | *Knowledgeable and technically competent in accounting discipline in-line with the industry requirement.* | √ | √ | | | | | | | |
| 2. | *Effective in communication and demonstrate good leadership quality in an organization* | | | √ | | √ | | | | √ |
| 3. | *Capable to solve problems in business situations innovatively, creatively and ethically through sustainable approach.* | | | | √ | | | | √ | |
| 4. | *Able to demonstrate entrepreneurship skills and recognize the needs of life-long learning for successful career advancement.* | | | | | | √ | √ | | |

***Learning Domain***

*LD1 Knowledge*
*LD2 Practical Skills*
*LD3 Communication Skills*
*LD4 Critical Thinking and Problem Solving Skills*
*LD5 Social Skills and Responsibilities*
*LD6 Continuous Learning and Information Management Skills*
*LD7 Management and Entrepreneurial Skills*
*LD8 Professionalism, Ethics and Moral*
*LD9 Leadership and Teamwork Skills*

## PLO VS PEO (2019)

### *Diploma in Accountancy*

## MATRIX OF PROGRAMME LEARNING OUTCOME (PLO) VS PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

| PROGRAMMME LEARNING OUTCOME (PLO) | | PROGRAMME EDUCATIONAL OBJECTIVE (PEO) | | | |
|---|---|---|---|---|---|
| | | PEO1 | PEO2 | PEO3 | PEO4 |
| PLO1 | Discuss knowledge of accounting and related field in an organization | / | | | |
| PLO2 | Apply financial and non financial information in decision making process | / | | | |
| PLO3 | Prepare financial statements and internal reports that comply with approved standards and provide tax, audit and other accounting related services | / | | | |
| PLO4 | Demonstrate effective communication to relevant stakeholders in all aspects of decision making process | | | / | |
| PLO5 | Apply various types of digital application ethically and propose data driven solutions | | | | / |
| PLO6 | Develop leadership to manage diverse team in order to be effective members in organisation | | | / | |
| PLO7 | Demonstrate a commitment to continue in professional development and possess entrepreneurial skills | | | | / |
| PLO8 | Demonstrate positive values, ethics and accountability with professional scepticism in engaging with society and stakeholders | | / | | |

## *2. Diploma in Islamic Banking and Finance*

***Programme Educational Objectives (PEO) :***
*The **Diploma in Islamic Banking and Finance** programme shall produce semi professionals who are:*

| PEO | PLO1<br>LD 1 | PLO2<br>LD2 | PLO3<br>LD3 | PLO4<br>LD4 | PLO5<br>LD5 | PLO6<br>LD6 | PLO7<br>LD7 | PLO8<br>LD8 | PLO9<br>LD9 |
|---|---|---|---|---|---|---|---|---|---|
| knowledgeable and technically competent in Islamic banking and finance discipline and able to adapt themselves with new technological advancement and challenges in Islamic banking and finance fields. | √ | √ | | | | | | | |
| effective in communication and able to prepares them with social skills, leadership qualities and willing to be responsible towards developing country and community. | | | √ | | √ | | | | √ |
| capable to solve Islamic banking and finance problems innovatively, creatively and ethically to secure organizations against internal and external security threats. | | | | √ | | | | √ | |
| able to demonstrate entrepreneurship skills and recognize the need of lifelong learning for successful career advancement. | | | | | | √ | √ | | |

***Learning Domain***
*LD1 Knowledge*
*LD2 Practical Skills*
*LD3 Communication Skills*
*LD4 Critical Thinking and Problem Solving Skills*
*LD5 Social Skills and Responsibilities*
*LD6 Continuous Learning and Information Management Skills*
*LD7 Management and Entrepreneurial Skills*
*LD8 Professionalism, Ethics and Moral*
*LD9 Leadership and Teamwork Skills*

### PLO VS PEO (2019)

### *Diploma in Islamic Banking and Finance*

## MATRIX OF PROGRAMME LEARNING OUTCOME (PLO) VS PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

| PROGRAM LEARNING OUTCOME (PLO) | | PROGRAMME EDUCATIONAL OBJECTIVE (PEO) | | | | | |
|---|---|---|---|---|---|---|---|
| | | PEO1 | PEO2 | PEO3 | PEO4 | PEO5 | PEO6 |
| PLO1 | Apply principles of islamic banking,financial services and compliance in accordance with emerging changes and challenges in islamic banking and finance field. | / | | | | | |
| PLO2 | Analyze issues and solutions in islamic banking and finance by employing appropriate and relevant approaches. | / | | | | | |
| PLO3 | Display islamic banking and financial technical skills in banking and finance operations. | | / | | | | |
| PLO4 | Demonstrate effective interactive communication in executing islamic banking and finance operation. | | / | | | | |
| PLO5 | Use digital applications and interprate data in islamic banking and finance operation. | | | / | | | |
| PLO6 | Demonstrate role as a leader in team | | | / | | | |
| PLO7 | Participate in acquire new knowledge and entrepreneurship relating activities. | | | | / | | |
| PLO8 | Demonstrate positive values and accountability in islamic banking and finance practices. | | | | / | | |

## 3. Diploma in Logistics and Supply Chain Management

***Programme Educational Objectives (PEO) :***
*The* ***Diploma in Logistics and Supply Chain Management*** *programme shall produce semi professionals who are:*

| PEO | PLO1 | PLO2 | PLO3 | PLO4 | PLO5 | PLO6 | PLO7 | PLO8 | PLO9 |
|---|---|---|---|---|---|---|---|---|---|
| | LD 1 | LD2 | LD3 | LD4 | LD5 | LD6 | LD7 | LD8 | LD9 |
| knowledgeable, technically competent and be able to adapt in Logistics and Supply Chain Management discipline with new technological advancement and challenges. | √ | √ | | | | | | | |
| communicative in social skills, leadership qualities and willing to be responsible towards developing community and country. | | | √ | | √ | | | | √ |
| capable to solve logistic security problems innovatively, creatively and ethically to secure organizations against internal and external security threats. | | | | √ | | | | √ | |
| able to demonstrate entrepreneurship skills and recognize the need of lifelong learning for successful career advancement. | | | | | | √ | √ | | |

**Learning Domain**
LD1 Knowledge
LD2 Practical Skills
LD3 Communication Skills
LD4 Critical Thinking and Problem Solving Skills
LD5 Social Skills and Responsibilities
LD6 Continuous Learning and Information Management Skills
LD7 Management and Entrepreneurial Skills
LD8 Professionalism, Ethics and Moral
LD9 Leadership and Teamwork Skills

### PLO VS PEO (2019)

### *Diploma in Logistics and Supply Chain Management*

## MATRIX OF PROGRAMME LEARNING OUTCOME (PLO) VS PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

| PROGRAM LEARNING OUTCOME (PLO) | | PROGRAMME EDUCATIONAL OBJECTIVE (PEO) | | | |
|---|---|---|---|---|---|
| | | PEO1 | PEO2 | PEO3 | PEO4 |
| PLO1 | Apply principles of logistics and supply chain and other related areas in managing business operations | / | | | |
| PLO2 | Utilize concept of logistics and supply chain in solving industrial operation. | / | | | |
| PLO3 | Perform technical skills in managing logistics and supply chain activities. | | / | | |
| PLO4 | Demonstrate effective communication and interpersonal skills in a team. | | | / | |
| PLO5 | Use digital application and interpret data in managing business operations. | | / | | |
| PLO6 | Demonstrate social skills and responsibilities by taking alternate role as a leader or member of a diverse team | | | / | |
| PLO7 | Demonstrate personal and entrepreneurial skills in managing business operating activities. | | | | / |
| PLO8 | Integrates professionalism, positive attitudes and values in engaging with society and stakeholders. | | | | / |

## 4. *Diploma in Business Studies*

***Programme Educational Objectives (PEO) :***
*The **Diploma in Business Studies** programme shall produce semi professionals who are:*

| PEO | PLO1 | PLO2 | PLO3 | PLO4 | PLO5 | PLO6 | PLO7 | PLO8 | PLO9 |
|---|---|---|---|---|---|---|---|---|---|
| | LD 1 | LD2 | LD3 | LD4 | LD5 | LD6 | LD7 | LD8 | LD9 |
| knowledgeable and technically competent in business discipline in-line with the industry requirement. | √ | √ | | | | | | | |
| effective in communicating socially, responsible and demonstrate good leadership quality in an organization | | | √ | | √ | | | | √ |
| capable to solve problems in business situations innovatively, creatively and ethically through sustainable approach. | | | | √ | | | | √ | |
| able to demonstrate entrepreneurship skills and recognize the need of life-long learning for successful career advancement. | | | | | | | √ | | |

**Learning Domain**
LD1 Knowledge
LD2 Practical Skills
LD3 Communication Skills
LD4 Critical Thinking and Problem Solving Skills
LD5 Social Skills and Responsibilities
LD6 Continuous Learning and Information Management Skills
LD7 Management and Entrepreneurial Skills
LD8 Professionalism, Ethics and Moral
LD9 Leadership and Teamwork Skills

**PLO VS PEO (2019)**

***Diploma in Business Studies***

**MATRIX OF PROGRAMME LEARNING OUTCOME (PLO) VS PROGRAMME EDUCATIONAL OBJECTIVES (PEO)**

| PROGRAM LEARNING OUTCOME (PLO) | | PROGRAMME EDUCATIONAL OBJECTIVE (PEO) | | | |
|---|---|---|---|---|---|
| | | PEO1 | PEO2 | PEO3 | PEO4 |
| PLO1 | Apply principles of business and other related areas in managing business operations | / | | | |
| PLO2 | Analyse issues and solutions in conducting business operations | / | | | |
| PLO3 | Demonstrate business technical skills in business activities | | / | | |
| PLO4 | Demonstrate effective communication and interpersonal skills in a team | | | / | |
| PLO5 | Use digital application and interpret data in managing business operations | | / | | |
| PLO6 | Demonstrate social skills and responsibilities by taking alternate roles as a leader or member of a diverse team | | | / | |
| PLO7 | Demonstrate personal and entrepreneurial skills in managing business operating activities | | | | / |
| PLO8 | Integrate professionalism, positive attitudes and values in engaging with society and stakeholders | | | | / |

# APPENDIX D: RUBRICS

## 1. Communication, Leadership and Teamwork Skills Rubrics

| Attribute | Sub attribute | Level of Applicability | Very Weak | Weak | Fair | Good | Very Good | Example of Assessment Tasks |
|---|---|---|---|---|---|---|---|---|
| Verbal Communication | Clear delivery of ideas | All levels of study | Not able to deliver ideas clearly and require major improvements | Able to deliver ideas and require further improvements | Able to deliver ideas fairly clearly and require minor improvements | Able to deliver ideas clearly | Able to deliver ideas with great clarity | Presentation, critique, role play, drama, demonstration |
| | Confident delivery of ideas | All levels of study | Not able to deliver ideas confidently | Able to deliver ideas with limited confidence and require further improvements. | Able to deliver ideas fairly confidently and require minor improvements | Able to deliver ideas confidently | Able to deliver ideas with great confidence | Presentation, critique, role play, drama, demonstration |
| | Effective and articulate delivery of ideas | All levels of study | Not able to deliver ideas effectively | Able to deliver ideas with limited effect and require further improvements | Able to deliver ideas fairly effectively and require minor improvements | Able to deliver ideas effectively and articulately | Ability to deliver ideas with great effect and articulate | Presentation, critique, role play, drama, demonstration |
| | Understand and respond to questions | All levels of study | Not able to understand and respond to a question | Able to understand and answer questions but not able to accurately answer the question | Able to understand and answer questions satisfactorily | Able to respond to questions well | Able to fully understand and respond to questions very well | Presentation, critique, role play, drama, demonstration |
| | Adapt delivery to audience level | All levels of study | Not able to deliver appropriately to the audience level | Able to deliver ideas with limited appropriateness to the target audience and require further improvements. | Able to deliver ideas appropriately to the target audience satisfactorily | Able to deliver ideas appropriately to the target audience well | Able to fully deliver ideas appropriately very well | Presentation, critique, role play, drama, demonstration |
| Written Communication | Clearly written academic discourse | All levels of study | Not able to write ideas clearly | Able to write ideas with limited clarity and require further improvements | Able to write ideas fairly clearly but require minor improvements | Able to write ideas clearly | Able to write ideas with excellent clarity | Assignment, case study, critique, review, journal article, thesis) |
| | Coherently written academic discourse | All levels of study | Not able to write ideas coherently | Able to write ideas with limited coherence and require further improvements | Able to write ideas fairly coherently but require minor improvements | Able to write ideas coherently | Able to write ideas with excellent coherence | Assignment, case study, critique, review, journal article, thesis) |
| | Systematically written academic discourse | All levels of study | Not able to write ideas systematically | Able to write ideas with limited system and require further improvements | Able to write ideas fairly systematically but require minor improvements | Able to write ideas systematically | Excellent ability to write ideas systematically | Assignment, case study, critique, review, journal article, thesis) |

| Attribute | Subattribute | Level of Applicability | Very Weak | Weak | Fair | Good | Very Good | Example of Assessment Tasks |
|---|---|---|---|---|---|---|---|---|
| Leadership | Knowledge and skills in leadership | All levels of study | No clear evidence of knowledge and understanding demonstrated in practice | Able to demonstrate knowledge and understanding in practice but require improvements | Able to demonstrate knowledge and understanding in practice and require minor improvements | Able to demonstrate knowledge and understanding in practice well | Very clear evidence of knowledge and understanding demonstrated in practice | Group Tasks (Presentation, Discussion, Project) |
| | Effective leadership | All levels of study | No clear evidence of ability to lead self and/or others | Able to lead self and/or others towards goal achievement but with limited effect and require further improvements | Able to lead self and/or others towards goal achievement with some effect and require minor improvements | Able to lead effectively self and/or others towards goal achievement | High ability to lead effectively self and/or others towards goal achievement. | Group Tasks (Presentation, Discussion, Project) |
| Teamwork | Foster good relationship | All levels of study | No clear evidence of ability to foster good relationships and work together effectively with other group members towards goal achievement. | Able to foster relationship and work together with other group members towards goal achievement but with limited effect and require improvements | Able to foster relationship and work together with other group members towards goal achievement with some effect(s) and require minor improvements | Able to foster good relationship and work together with other group members towards goal achievement | High ability to foster good relationship and work together effectively with other group members towards goal achievement | Group Tasks (Presentation, Discussion, Project) |
| | Alternate roles | All levels of study | No clear evidence of ability to assume alternate roles as a group leader and group members demonstrated in practice | Attempt to demonstrate in practice the ability to alternate roles as a group leader and group members but with limited effect and require improvements | Able to demonstrate in practice the ability to assume alternate roles as a group leader and group members with some effect(s) and require minor improvements | Able to demonstrate in practice the ability to assume alternate roles as a group leader and a group member to achieve the same goal | Show clear evidence to assume alternate roles as a group leader and a group member demonstrated in practice | Group Tasks (Presentation, Discussion, Project) |
| | Respect and accept opinions | All levels of study | Not able to respect and accept opinion of others that leads to conflicts | Limited respect and acceptance of others' opinions in achievement group's objectives | Able to respect and accept opinion of others in achieving group's objectives | Able to well respect and accept opinion of others in achieving group's objectives | Able to very well respect and accept opinion of others in achieving group's objectives | Group Tasks (Presentation, Discussion, Project) |

## 2. Problem Solving And Scientific Skills Rubrics

| Attribute | Sub attribute | Level of Applicability | Very Weak | Weak | Fair | Good | Very Good | Examples of Assessment Task |
|---|---|---|---|---|---|---|---|---|
| Problem Solving | Problem Identification | Initial phase of study | Not able to explain a problem, even with assistance. | Able to partially explain a problem with maximum assistance. | Able to explain a problem with minimum assistance. | Independently able to explain a problem clearly without assistance. | Able to provide explanation of problem very clearly and accurately. | Exam (long essay question), Assignment, Project report, Performance of student during execution of project/practical, Case study, Role-play, Final year project, Internship |
| | Analysis | All levels of study | Not able to organise and analyse gathered information or data and fails to define the factors that contribute to the problem/issue or explain the root of the problem. | Finds difficulty in organizing and analysing gathered information or data and finds difficulty in explaining the factors that neither contribute to the problem/issue nor explains the root of the problem. | Able to organise and analyse gathered information or data, but does not clearly describe the factors that contribute to the problem/issue or clearly explain the root of the problem. | Able to organise and analyse gathered information or data, clearly describe the some factors that contribute to the problem/issue or explain the possible roots of the problem. | Able to organise and analyse gathered information or data, clearly describe the factors that contribute to the problem/issue or explain the root of the problem. | Exam (long essay question), assignment, test, project report, performance of student during execution of project/practical, Case study, Final year project, Internship |
| | Application | Early or middle phase of study | Not able to apply any new idea or knowledge to a given problem. | Limited ability to apply new idea or knowledge. | Able to apply new idea or knowledge to a given problem with assistance from lecturer or student. | Able to apply new idea or knowledge to a given problem independently. | Able to apply new idea or knowledge to a given problem and able to propose alternative applications. | Exam (long essay question), assignment, project report, performance of student during execution of project/practical, case study, Role-play, Final year project, Internship |
| | Synthesis and Evaluation | Middle phase of study | Fails to gather information for synthesis and evaluation. | Has difficulty in gathering, synthesising and evaluating information. | Able to gather relevant information, synthesise and evaluate the information and offers simple, unsupported conclusions. | Able to gather and thinks about information, synthesise, able to offer responsible interpretations; provides sufficient evidence to support conclusions. | Able to gather and evaluates information, chooses a clear interpretation, and provides sufficient evidence (quality and quantity) to support conclusions. | Exam (long essay question), assignment, project report, performance of student during execution of project/practical, case study, Role-play, Final year project, Internship |
| | Decision Making | Middle phase of study | Not able to make decisions based on comparison and contrast between information, ideas and solutions even with assistance. | Able to make decisions based on comparison and contrast between information, ideas and available solutions with some assistance. | Able to make decisions based on comparison and contrast between information, ideas and available solutions. | Able to make good decisions based on comparison and contrast between information, ideas and available solutions. | Able to make excellent decisions based on comparison and contrast between information, identify problems and available solutions. | Exam (long essay question), assignment, project report, performance of student during execution of project/practical, case study, Role-play, Final year project, Internship |

| Attribute | Sub attribute | Level of Applicability | Very Weak | Weak | Fair | Good | Very Good | Examples of Assessment Task |
|---|---|---|---|---|---|---|---|---|
| Scientific Skills | Conceptualisation | All levels of study | Not able to generate any new idea. | Able to generate a simple idea or an idea independently. | Able to generate a new idea or ideas with some help from lecturer or colleagues | Able to generate a new idea or ideas that is or are relevant and appropriate. | Able to generate new idea or ideas that have potential to be applied, has depth, quality and novel in nature. | Exam (long essay question), assignment, project report, performance of student during execution of project/practical, case study, Role-play, Final Year project, Internship |
| | Generation of Solutions | Middle phase of study | Not able to solve problems or offer alternative solutions. | Able to solve problems or offer alternative solutions with maximum assistance. | Able to partially solves problems or provide alternative solutions with some assistance. | Able to solve problems or provide alternative solutions well without assistance. | Able to solve problems and provide alternative solutions with accuracy, clarity and detailed. | Exam (long essay question), Assignment, Project report, performance of student during execution of project/practical, Case study, Role-play, Final year project, Internship |
| | Evaluation / Selection | Middle phase of study | Not able to select appropriate alternative solution. | Able to evaluate several solutions but not able to select an appropriate solutions with maximum assistance. | Able to evaluate several solutions and able to select a solution that partially solves a problem with minimum assistance. | Able to evaluate several solutions and clearly and accurately select alternative solutions without assistance. | Able to evaluate several solutions and able to clearly and accurately select alternative solutions in detail. | Exam (long essay question), Assignment, Project report, Performance of student during execution of project/practical, Case study, Role-play, Final year project, Internship |
| | Implementation | Middle phase of study | Able to apply the same strategy / old ideas / old solutions to solve problems. | Able to identify a variety of strategies / ideas /solutions, but needs assistance to choose an appropriate one. | Able to identify a variety of strategies / ideas /solutions and able to choose an appropriate one. | Able to identify a variety of strategies / ideas /solutions, chooses an appropriate one, and applies the strategies individually or in combination. | Able to compare a variety of strategies /ideas/solutions, evaluates and chooses the most effective, and applies the strategies to improve the situations or solve the problem. | Exam (long essay question), Assignment, Project report, Performance of student during execution of project/practical, Case study, Role-play, Final year project, Internship |
| | Integration | Final phase of study | Not able to integrate existing ideas. | Able to integrate existing ideas but unable to provide new solution | Able to integrate existing ideas and provide new solutions with assistance. | Able to integrate existing ideas and provide new solutions clearly. | Able to integrate existing ideas and provide new solutions very clearly. | Exam (long essay question), Assignment, Project report, Performance of student during execution of project/practical, Case study, Role-play, Final year project. |

| Attribute | Sub attribute | Level of Applicability | Very Weak | Weak | Fair | Good | Very Good | Examples of Assessment Task |
|---|---|---|---|---|---|---|---|---|
| Scientific Skills | Development | Final phase of study | Not able to think and generate new ideas for improvement . | Able to think and produce some new ideas for improvement but with substantial assistance. | Able to think and produce some new ideas for improvement but may not be practical. | Able to think and produce new ideas for improvement that may be practical. | Able to think independently and produce many new ideas for improvement that are very practical. | Performance of student during execution of project/practical, Case study, Role-play, Final Year project. |
| | Creation | Final phase of study | Not able to create any new idea/ product. | Able to create a new idea with substantial assistance. | Able to create a new idea /product with some assistance. | Able to create a new idea /product without assistance. | Able to create new ideas /product beyond expectation. | Performance of student during execution of project/practical, Case study, Role-play, Final year project. |
| | Synthesis and Evaluation | Middle phase of study | Fails to gather information for synthesis and evaluation. | Has difficulty in gathering, synthesising and evaluating information. | Able to gather relevant information, synthesise and evaluate the information and offers simple, unsupported conclusions. | Able to gather and thinks about information, synthesise, able to offer responsible interpretations; provides sufficient evidence to support conclusions. | Able to gather and evaluates information, chooses a clear interpretation, and provides sufficient evidence (quality and quantity) to support conclusions. | Exam (long essay question), assignment, project report, performance of student during execution of project/practical, case study, Role-play, Final year project, Internship |
| | Decision Making | Middle phase of study | Not able to make decisions based on comparison and contrast between information, ideas and solutions even with assistance. | Able to make decisions based on comparison and contrast between information, ideas and available solutions with some assistance. | Able to make decisions based on comparison and contrast between information, ideas and available solutions. | Able to make good decisions based on comparison and contrast between information, ideas and available solutions. | Able to make excellent decisions based on comparison and contrast between information, identify problems and available solutions. | Exam (long essay question), assignment, project report, performance of student during execution of project/practical, case study, Role-play, Final year project, Internship |

# APPENDIX E: FORMS

## 1. Report of OBE Activity

**LAPORAN AKTIVITI SEBARLUAS OBE**
**POLITEKNIK SEBERANG PERAI 2018**

| | |
|---|---|
| **Nama Penasihat Akademik :** | |
| **Jabatan:** | **JKM/JKE/JTMK/JP** |
| **Program:** | |
| **Kelas:** | |

| | **Aktiviti 1** | **Aktiviti 2** |
|---|---|---|
| **Tarikh** | *5 September 2018* | *15 September 2018* |
| **Lokasi** | *Bilik Kuliah 5 JKM* | *Bilik Kuliah 5 JKM* |
| **Aktiviti** | *- PA menerangkan kepentingan OBE kepada akreditasi diploma pelajar*<br>*- PA memaklumkan bahawa pelajar perlu membaca rubric dengan teliti sebelum melaksanakan aktiviti pentaksiran yang diberi agar markah yang diperolehi adalah baik.* | *- PA menerangkan berkenaan SLT*<br>*- PA menerangkan berkenaan kaedah pengiraan jam kredit* |
| **Gambar Aktiviti** |  <br>*pelajar bergambar bersama PA selepas tamat taklimat*<br>  <br>*pelajar bergambar bersama PA selepas tamat taklimat* |  <br>*Sesi taklimat sedang berlangsung*<br>  <br>*Sesi taklimat sedang berlangsung* |

**PA boleh melaksanakan beberapa siri aktiviti mengikut keperluan*
**sertakan tandatangan pelajar sebagai bukti setiap aktiviti*

| **PENGESAHAN AKTIVITI** | |
|---|---|
| **PENGESAHAN PELAKSANAAN AKTIVITI** | **PENGESAHAN OLEH KJ/ KP** |
| Nama:<br>Jawatan:<br>Tarikh: | Nama:<br>Jawatan:<br>Tarikh: |
| **PENGESAHAN UNIT OBE PSP** | |
| | |

# APPENDIX E: FORMS

## 2. OBE Checklist for Student

**SENARAI SEMAK OBE UNTUK PELAJAR**

| BIL | SENARAI TOPIK | REMARKS |
|---|---|---|
| 1. | **Definisi OBE** | |
| 2. | **Kenapa OBE** | |
| 3. | **Prinsip OBE** | |
| 4. | **Kepentingan OBE** | |
| 5. | **Hasil pembelajaran (*Learning Outcome*)** | |
| 6. | ***Learning Domain*** | |
| 7. | **Pembelajaran Aktif (*Active Learning*)** | |
| 8. | ***Teacher-centred Learning vs Student-centred Learning*** | |
| 9. | **Aspek penting dalam *Student-centred Learning*** | |
| 10. | **Pengajaran dan pembelajaran di dalam Student-*Centred Learning*** | |
| 11. | **Outcome Based Assessment (OBA)** | |
| 12. | **Rubrik** | |
| 13. | **Kaedah pentaksiran (*assessment methods*)** | |
| 14. | ***Student Learning Time* (SLT)** | |
| 15. | **Kredit** | |

# APPENDIX E: FORMS

## 3. Continuous Quality Improvement (CQI) Form

**BORANG PENAMBAHBAIKAN BERTERUSAN (CQI) – Pencapaian Hasil Pembelajaran Kursus (CORR)**

**SESI** : DIS 2017
**KURSUS** : DEE6122 – SIGNAL AND SYSTEM
**PROGRAM** : DEP

1. Pencapaian Hasil Pembelajaran Kursus (CLO) :

| COURSE LEARNING OUTCOME | Description |
|---|---|
| **CLO 1** | apply the concept and theory of signals and systems are needed in electrical and signal and system.(C3, PLO1) |
| **CLO 2** | Solve problems related to signals and systems by using continuous-time signal and discrete-time signal. (C4, PLO2) |
| **CLO 3** | analyze continuous-time signal and discrete-time signal signals using related signal and system application .(C4, PLO3) |

| COURSE LEARNING OUTCOME | Average Group Attainment % DEP JUN 2017 | Average Group Attainment % DEP DIS 2017 |
|---|---|---|
| **CLO 1** | 63.4 | 70 |
| **CLO 2** | 53.8 | 63 |
| **CLO 3** | 44.6 | 64 |

2. Analisis Hasil Pembelajaran Kursus (CLO):

| COURSE LEARNING OUTCOME | SESI JUN 2017 | SESI DIS 2017 | PERBEZAAN PENCAPAIAN |
|---|---|---|---|
| **CLO 1** | 63.4 | 70 | +6.6 |
| **CLO 2** | 53.8 | 63 | +9.2 |
| **CLO 3** | 44.6 | 64 | +19.4 |

3. Ulasan Pencapaian (Merujuk kepada CLO < 80%)
   Pada keseluruhannya kesemua peratusan CLO bertambah. Pendekatan yang dicadangkan pada semester lalu telah dipalikasikan pada semester ini. Pendekatan ini berjaya menambah peratusan setiap CLO.

4. Cadangan Tindakan sesi JUN 2018

| COURSE LEARNING OUTCOME | TINDAKAN |
|---|---|
| **CLO 1** | - Soalan penilaian berterusan akan dimurnikan selaras bentuk peperiksaan. |
| **CLO 2** | - Soalan tutorial akan ditambah dengan diberi penekanan terhadap bentuk sebenar soalan peperiksaan. |
| **CLO 3** | |

5. Kesimpulan Keseluruhan Pencapaian Pelajar
   - Kesimpulan pencapaian pelajar adalah di tahap sederhana.

**Disediakan Oleh:**

(**AZLINA BINTI ABDUL AZIZ**)
Penyelaras Kursus
DEE6122 – Signal and System

**Disahkan Oleh:**

(**MOHAMAD FADZIL BIN HJ BASIR AHMAD**)
Ketua Jabatan
Jabatan Kejuruteraan Elektrik