

DIPLOMA IN MECHANICAL ENGINEERING (MANUFACTURING)

STUDENT'S STUDY GUIDE



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***Diploma in Mechanical Engineering (Manufacturing)
(DTP)***

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VISION AND MISION

JPPKK & PSAS

QUALITY POLICY

1.1 JPPKK VISION AND MISSION

JPPKK VISION & MISSION

HALA TUJU STRATEGIK

VISI

MENJADI PENERAJU INSTITUSI TVET YANG UNGGUL
To be the leading-edge TVET institution

MISI

Menyediakan akses yang meluas kepada program TVET berkualiti dan diiktiraf
To provide wide access to quality and recognized TVET programmes

Memperkasa komuniti melalui pembelajaran sepanjang hayat
To empower communities through lifelong learning

Melahirkan graduan holistik, berciri keusahawanan dan seimbang
To develop holistic, entrepreneurial and balanced graduates

Memanfaatkan sepenuhnya perkongsian pintar dengan pihak berkepentingan
To capitalise on smart partnership with stakeholders

1.2 PSAS VISION AND MISSION

Politeknik Sultan Azlan Shah (PSAS) VISION

- *Menjadi institusi TVET perdana terpinpin industri menjelang 2020*
To become a premier industry-led TVET institution by 2020

Politeknik Sultan Azlan Shah (PSAS) MISSION

- *Melahirkan graduat yang holistik berciri keusahawanan dan seimbang berteraskan kurikulum terpinpin industri melalui ekosistem pengajaran dan pembelajaran yang berkualiti inovatif dan dinamik serta mendapat pengiktirafan global.*
To produce holistic, entrepreneurial and balanced graduates via globally recognized industry-led curriculum through an innovative, dynamic and quality teaching and learning ecosystem.

1.3 QUALITY POLICY

DASAR KUALITI

PSAS BERTEKAD UNTUK MEMBERIKAN PERKHIDMATAN PENDIDIKAN DAN LATIHAN DALAM BIDANG TEKNIKAL DAN VOKASIONAL MELALUI PELAKSANAAN SISTEM PENGURUSAN KUALITI YANG DIPERTINGKATKAN KEBERKESANANNYA SECARA BERTERUSAN BAGI MELAHIRKAN MODAL INSAN YANG HOLISTIK, BERCIRI KEUSAHAWANAN DAN SEIMBANG SELARAS DENGAN KEPERLUAN GUNA TENAGA NEGARA.





OUTCOME BASED EDUCATION

LEARNING OUTCOME IN OBE

HOW DOES THE OBE EFFECT TEACHING

STUDENT LEARNING TIME (SLT)

EXPECTATION ON STUDENTS

2.1 OUTCOME- BASED EDUCATION (INTRODUCTION)

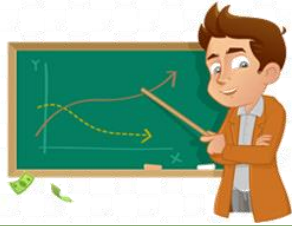
Outcome-based education (OBE) is an educational model for students to demonstrate their knowledge and able to perform according to the required outcomes. It is a student-centered approach that focuses on student's learning. It starts with a clear picture of what student should know, what they should able to do, and what desirable attitudes and values needed to organize the curriculum, instruction, and assessment to ensure an ultimate learning (Spady, 1994:1). Thus, OBE involves the restructuring of curriculum and assessment that reflects achievement of high learning order and mastery learning.

OBE helps students to be aware of what they should learn, aware of what they are learning and the control over their own learning. It leads to successful student learning and encourages lecturer to be well prepared. It is also provides students with appropriate, purposeful learning experiences and opportunities for students to develop originality, self-motivation and independence while acquiring useful knowledge and skills.

2.2 LEARNING OUTCOME IN OBE



2.3 HOW DOES OBE EFFECT TEACHING-LEARNING



Teacher-Centered



Student -Centered

- Course objective is the learning target
- No mapping of learning outcomes
- Student independent learning time not calculated
- Contact hours reflects credit value

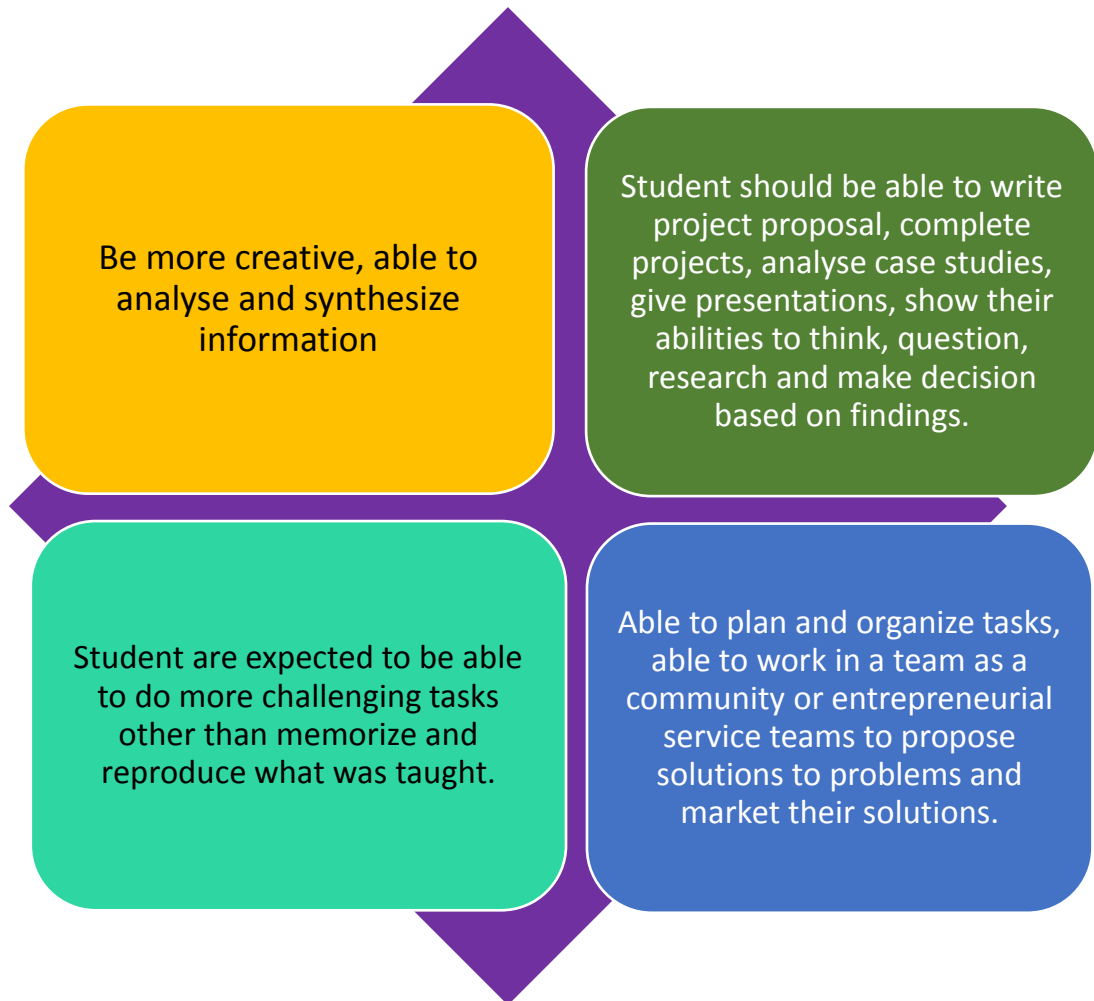
- Learning outcome is the learning target
- Mapping of learning outcomes
- Student independent learning time are calculated
- Total Student Learning Time(SLT) reflects credit value

2.4 STUDENT LEARNING TIME (SLT)

A period of time a student should spend on the learning-teaching activities for a given credit which comprises guided learning, independent and assessment time.

- Effective learning time or student effort in learning or the learning volume (a quantitative measurement of all learning activities), in order to achieve the specified learning outcomes.
- Inclusive all learning time components (learning activities), i.e. formal and non-formal. Total time required by student to learn a particular component of curriculum (i.e. official contact time + guided learning time + self-student time (independent learning) + Assessment time.
- Synonym to student's academic load, e.g. credit hours; subjects, modules; etc.

2.5 EXPECTATION ON STUDENTS





PROGRAMME OVERVIEW

PROGRAMME SYNOPSIS

JOB PROSPECT

PROGRAMME AIMS (PAI)

PROGRAMME EDUCATION OBJECTIVES (PEO)

PROGRAMME LEARNING OUTCOMES (PLO)

PEO VS PLO

PROGRAMME STRUCTURE FOR DTP

COURSES VS PLO

3.1 PROGRAMME OVERVIEW

For the past few decades, industries have evolved and progressed rapidly. The Ninth Malaysia Plan was drawn in response to the current global needs and to enable Malaysia stay competitive in the world market. Thus, to keep abreast with rapid technological advancements and evolving requirements in industries today, Department of Polytechnic Education (DPE) constantly collaborates with major industry players in the country in developing the respective curriculum. One of the most important factors towards the growth of productivity is by having a qualified and talented manpower in order for the industry to develop and remain competitive in the world market. This is equally true in industries where there is a rapidly growing demand for highly competent and technically savvy workforce. The activities of many industries require increasingly competent technician in engineering field, particularly in mechanical engineering and manufacturing.

In response to these issues, Curriculum Development and Evaluation Division of the Department of Polytechnic Education has developed and introduced Diploma in Mechanical Engineering (Manufacturing) for polytechnic. This programme aims to prepare students with knowledge, skills and abilities necessary in the manufacturing industries. To ensure the curriculum content fulfils the industrial requirements, several key players from related industries have been involved in the curriculum development process.

Diploma in Mechanical Engineering (Manufacturing) for polytechnic is developed to give balanced emphasis on theoretical and practical aspects. The programme will take six semesters to complete, relatively three academic semesters at their respective polytechnics and one semester of industrial training at relevant industries during the fourth semester. Students are required to return to their respective institutions for the completion of the programme in the fifth and sixth semester.

3.2 PROGRAMME SYNOPSIS

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

3.3 JOB PROSPECT

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

- *Assistant Engineer (Pembantu Jurutera)*
- *Production / Process Executive (Eksekutif Proses / Pengeluaran)*
- *Procurement Executive (Eksekutif Perolehan)*
- *Quality Officer (pegawai Kualiti)*
- *CNC Programmer (Pengaturcara CNC)*
- *Product Designer (Pereka Produk)*
- *Technical Specialist (Pakar Teknikal)*
- *Production / Process Supervisor (Penyelia Proses / pengeluaran)*
- *Technical Assistant (Pembantu Teknikal)*
- *Precision Machinist (Pakar PemesinanJitu)*

3.4 PROGRAMME AIMS (PAI)

Graduates of diploma in mechanical engineering programme at Polytechnics will have knowledge, technical and generic skills to adapt themselves with new technological advancement and challenges in the mechanical and manufacturing engineering field.

3.5 PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

The Diploma in Mechanical Engineering (Manufacturing) programme shall produce semi-professionals who are:

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 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 manufacturing fi

3.6 PROGRAMME LEARNING OUTCOME (PLO)

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

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, 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 need for professional development and engage in independent and lifelong learning



3.7 MATRIX OF PEO vs. PLO

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.	v	v	v	v							
2	Effective in communication and contribute effectively as a team member with the capability of being a leader.						v	v				
3	Ethically and socially responsible towards developing the country and the community.					v			v		v	
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.									v		v

Learning Dominion

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

3.8 PROGRAMME STRUCTURE FOR DIPLOMA IN MECHANICAL ENGINEERING (MANUFACTURING)

Semester 1	BIL	KOD KURSUS	NAMA KURSUS	STATUS	JAM KREDIT
	1	DUB 1012	PENGAJIAN MALAYSIA	C	2
	2	DUE 1012	COMMUNICATIVE ENGLISH 1	C	2
	3	DRB 1XX0	ASAS UNIT BERUNIFORM	C	0
	4	DBM 1013	ENGINEERING MATHEMATICS 1	CC	3
	5	DBS 1012	ENGINEERING SCIENCE	CC	2
	6	DUW 1012	OCCUPATIONAL, SAFETY & HEALTH	CC	2
	7	DJJ 1012	ENGINEERING DRAWING	DC	2
	8	DJJ 1032	MECHANICAL WORKSHOP PRACTICE 1	DC	2
	9	DJJ 1043	WORKSHOP TECHNOLOGY	DC	3
		Jumlah Jam Kredit		18	
Semester 2	BIL	KOD	NAMA KURSUS	STATUS	JAM KREDIT
	1	DUA 2012	SAINS, TEKNOLOGI DAN KEJURUTERAAN DALAM ISLAM*	C	2
	2	DUB 2012	NILAI MASYARAKAT MALAYSIA**	C	
	3	DRS 2XX1	SUKAN	C	1
	4	DRB 2XX1	UNIT BERUNIFORM 1 & 2	C	
	5	DBM 2013	ENGINEERING MATHEMATICS 2	CC	3
	6	DJJ 2022	ELECTRICAL TECHNOLOGY	DC	2
	7	DJJ 2062	COMPUTER AIDED DESIGN 1	DC	2
	8	DJJ3053	ENGINEERING MECHANICS	DC	3
	9	DJJ 2093	FLUID MECHANICS	DC	3
	10	DJF 2012	MANUFACTURING WORKSHOP PRACTICE 1	S	2
		Jumlah Jam Kredit		18	
Semester 3	BIL	KOD KURSUS	NAMA KURSUS	STATUS	JAM KREDIT
	1	DUE3012	COMMUNICATIVE ENGLISH 2	C	2
	2	DRK3XX2	KELAB/ PERSATUAN	C	2
	3	DRB3XX2	UNIT BERUNIFORM 2	C	
	4	DBM3013	ENGINEERING MATHEMATICS 3	CC	3
	5	DJJ 2073	THERMODYNAMICS	DC	3
	6	DJJ3103	STRENGTH OF MATERIALS	DC	3
	7	DJJ3213	MATERIAL SCIENCE	DC	3
	8	DJF3012	MANUFACTURING WORKSHOP PRACTICE 2- TIG	S	2
		Jumlah Jam Kredit		18	
Semester 4	BIL	KOD KURSUS	NAMA KURSUS	STATUS	JAM KREDIT
	1	DUE5012	COMMUNICATIVE ENGLISH 3	C	2
	2	DJJ5123	PNEUMATICS & HYDRAULICS	DC	3
	3	DJJ5141	PROJECT 1	S	1
	4	DJF5022	MANUFACTURING SYSTEM	S	2
	5	DJF5032	CADCAM	S	2
	6	DJF5042	INDUSTRIAL ROBOTICS	S	2
	7	DJF5053	JIGS, FIXTURES AND TOOLING DESIGN	S	3
8	DJF5062	MATERIAL TECHNOLOGY	E	2	
		Jumlah Jam Kredit		17	

Semester 5	BIL	KOD KURSUS	NAMA KURSUS	STATUS	JAM KREDIT
	1	DUA6022	KOMUNIKASI DAN PENYIARAN ISLAM	C	2
	2	DPB2012	ENTREPRENEURSHIP	CC	2
	3	DJF6081	MANUFACTURING ENGINEERING LABORATORY-RAPID	S	1
	4	DJF6092	MANUFACTURING CONTROL	S	2
	5	DJJ6143	PROJECT 2	S	3
	6	DJF6102	QUALITY CONTROL	S	2
	7	DJJ5133	ENGINEERING DESIGN	E	3
	Jumlah Jam Kredit				
Semester 6					
	BIL	KOD KURSUS	NAMA KURSUS	STATUS	JAM KREDIT
	1	DUT40110	INDUSTRIAL TRAINING		10
Jumlah Jam Kredit					10
total Credit hours					96

3.9 DURATION OF STUDY

For Diploma in Mechanical Engineering (Manufacturing) will be study from semester 1 until semester 6, its equivalence with 3 year and 95 credit hours. All students have to undergo 20 weeks of industrial training at semester 6.

No	COURSE CLASSIFICATION	CREDIT	%
1	Compulsory	15	15.79
2	Common core	15	15.79
3	Discipline Core	29	30.52
4	Specialization	22	23.16
5	Elective	4	4.21
6	Industrial Training	10	10.53
	TOTAL	95	100%



**COURSE, SYNOPSIS &
COURSE LEARNING OUTCOME**

SEMESTER 1 SEMESTER 2 SEMESTER 3
SEMESTER 4 SEMESTER 5
SEMESTER 6

LIST OF COURSE OFFERED FOR CO-CURICULLUM

4.1 LIST OF COURSES SYNOPSIS FOR SEMESTER 1

COURSE	DUB 1012 – PENGAJIAN MALAYSIA
CREDIT	2
PRE REQUISITE	None
SYNOPSIS	
<p>PENGAJIAN MALAYSIA memupuk penghayatan ke arah melahirkan generasi yang cintakan negara. Kursus ini juga dapat mendidik kelompok masyarakat yang mempunyai daya juang yang tinggi dan mampu menghadapi cabaran di peringkat antarabangsa. Kursus ini memberi penghayatan tentang sejarah dan politik, perlembagaan Malaysia, kemasyarakatan dan perpaduan, pembangunan negara dan isu-isu keprihatinan negara. Objektif kursus ini adalah untuk melahirkan warganegara yang setia dan cintakan negara, berwawasan serta bangga menjadi rakyat Malaysia</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Menerangkan dengan baik sejarah bangsa dan negara (C2, LD1) 2. Menjelaskan Perlembagaan Malaysia dan sistem pemerintahan negara (C2, LD1) 3. Melaksanakan aktiviti berkaitan kenegaraan kearah peningkatan patriotisme pelajar (C3, LD1 : A3, LD6) 	

COURSE	DUE 1012 – COMMUNICATIVE ENGLISH 1
CREDIT	2
PRE REQUISITE	None
SYNOPSIS	
<p>COMMUNICATIVE ENGLISH 1 focuses on developing student's speaking skills to enable them to communicate effectively and confidently in group discussions and in a variety of social interactions. It is designed to provide students with appropriate reading skills to comprehend a variety of texts. It is also aimed to equip students with effective presentation skills</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Apply appropriate language and communication skills in discussions and conversations. (C3) 2. Apply effective listening skills to demonstrate comprehension of audio recordings in a variety of situations.(C3) 3. Comprehend a variety of reading texts by applying effective reading skills. (C2) 4. write in response to a stimulus using appropriate visual aids, verbal and non-verbal communication skills (C3, A3) 	

COURSE	DBM 1013 ENGINEERING MATHEMATICS 1
CREDIT	2
PRE REQUISITE	None
SYNOPSIS	
<p>ENGINEERING MATHEMATICS 1 expose students to the basic algebra including perform partial fractions. This course also exposes the concept of trigonometry and the method to solve trigonometry problems by using basic identities, compound angle and double angle formulae. Students also will be introduces students to concept of vector and scalar.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Identify mathematical methods in solving the mathematical problems.(C2, LD1). (C2, LD1). 2. Solve the mathematical problems by using appropriate techniques and solutions. (C3, LD1) 3. Practice mathematical knowledge and skills in different mathematics problem. (C3, LD1) 	

COURSE	DBS 1012 ENGINEERING SCIENCE
CREDIT	2
PRE REQUISITE	None
SYNOPSIS	
ENGINEERING SCIENCE is an applied science with theoretical concepts and practical learning sessions that can be applied in the engineering fields. This course focuses on the Physical Quantities, Measurement, Linear Motion, Force, Work, Energy, Power, Solid, Fluid, Temperature and Heat.	
COURSE LEARNING OUTCOME(CLO)	
<ol style="list-style-type: none"> 1. Solve the basic engineering science problem by using related concept. (C3,LD1) 2. Organise an appropriate experiments to prove related physic principles. (P3,LD2) 3. Apply related physic principles in various situations to enhance knowledge. (C3,LD1) 	

COURSE	DUW 1012 – OCCUPATIONAL, SAFETY & HEALTH
CREDIT	2
PRE REQUISITE	None
SYNOPSIS	
OCCUPATIONAL SAFETY AND HEALTH course is designed to impart understanding of the self-regulatory concepts and provisions under the Occupational Safety & Health Act (OSHA). This course presents the responsibilities of employers in implementing and complying with the safety procedures at work. This course provide an understanding of the key issues in OSH management, incident prevention, Emergency Preparedness and Response (EPR), fire safety, occupational first aid, Hazard Identification, Risk Assessment and Risk Control (HIRARC) and guide the students gradually into this multi-disciplinary science.	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Identify the OSH legislation and its compliance in Malaysia. (C2, LD1) 2. Explain briefly incident hazards, risks and safe work practices in order to maintain health and safe work environment. (C2, LD1) 3. Discuss cooperatively in responding to an accident action at workplace.(C3, LD1 : A2, LD4 4. Adhere to the safety procedures in respective fields. (A3,LD8) 	

COURSE	DJJ 1012 - ENGINEERING DRAWING
CREDIT	2
PRE REQUISITE	None
SYNOPSIS	
ENGINEERING DRAWING course provides the student with the fundamental of engineering drawings. It emphasizes on the practical knowledge of drawing instruments and drawing techniques that will be applied in workshop practical activities and in Computer Aided Design courses.	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Apply the basic fundamentals of engineering drawing in comply to telated problems (C3, PLO1) 2. Construct engineering drawings according to the required standards (P4, PLO4) 3. Demonstrate the understanding of engineering norms and practices in engineering drawing (A3, PLO8) 	

COURSE	DJJ1032 - MECHANICAL WORKSHOP PRACTICE 1
CREDIT	2
PRE REQUISITE	None
SYNOPSIS	
<p>MECHANICAL WORKSHOP PRACTICE 1 exposes the students to welding, machining and fitting which involves the use of arc and gas welding machine, lathe machine, drilling machine, grinding, hand tools, marking out tools, measuring and testing tools. Students are also taught to emphasize on safety procedures and cleanliness in the workshop.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Perform fitting, machining and welding works according to Standard Operation Procedure (SOP) (P4, PLO4) 2. Demonstrate the awareness of social responsibility and safety in practical work procedures and practices (A3, PLO5) 3. Demonstrate an understanding of professional ethics, responsibilities and norms of engineering practices according to the workshop safety regulation. (A3, PLO8) 	

COURSE	DJJ1043 - WORKSHOP TECHNOLOGY
CREDIT	3
PRE REQUISITE	None
SYNOPSIS	
<p>WORKSHOP TECHNOLOGY provides exposure and knowledge in using hand tools, machine operation such as drilling, lathe, milling and computer numerical control. It also covers on gear measurement and inspection welding process in oxy acetylene, Shielded Metal Arc Welding (SMAW), Gas Tungsten Arc Welding (GTAW) and Gas Metal Arc Welding (GMAW).</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Apply the knowledge of basic mechanical components and equipment, hand tools and measuring equipment in workshop technology (C3, PLO1) 2. Explain the types of the removal and joining process in mechanical engineering. (C3, PLO1) 3. Demonstrate continuous learning and information management skills to complete assigned task. (A3, PLO11) 	

COURSE	DRB 1XX0- ASAS UNIT BERUNIFORM
CREDIT	0
PRE REQUISITE	None
<p>Kursus ini hanya perlu di daftarkan sekiranya pelajar memilih laluan 1 iaitu memilih untuk menyertai badan beruniform. Pilihan badan beruniform:</p> <ol style="list-style-type: none"> 1. Pengakap 2. RELASIS 3. PISPA 4. Askar Wataniah 5. <p>(Rujuk pada 3.7 untuk maklumat berkaitan kursus yang ditawarkan bagi Unit beruniform)</p>	

4.2 LIST OF COURSES SYNOPSIS FOR SEMESTER 2

COURSE CREDIT	DUA 2012 – SAINS TEKNOLOGI DAN KEJURUTERAAN DALAM ISLAM
PRE REQUISITE	2
	NONE
SYNOPSIS	
<p>SAINS, TEKNOLOGI DAN KEJURUTERAAN DALAM ISLAM memberi pengetahuan tentang konsep Islam sebagai al-Din dan seterusnya membincangkan konsep sains, teknologi dan kejuruteraan dalam Islam serta impaknya, pencapaiannya dalam tamadun Islam, prinsip serta peranan syariah dan etika Islam, peranan kaedah fiqh serta aplikasinya.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Menghuraikan konsep Islam sebagai cara hidup. (C2,LD1 : P2,LD2) 2. Menjelaskan konsep sains, teknologi dan kejuruteraan dalam Islam. (C2,LD1) 3. Membincangkan prinsip syariah dan kaedah fiqh dalam sains, teknologi dan kejuruteraan. (C3,LD1 :A3,LD6) 	

COURSE CREDIT	DUB 2012 – NILAI MASYARAKAT MALAYSIA
PRE REQUISITE	2
	NONE
SYNOPSIS	
<p>NILAI MASYARAKAT MALAYSIA membincangkan aspek sejarah pembentukan masyarakat Malaysia, nilai-nilai agama serta adat resam dan budaya masyarakat majmuk. Selain itu, pelajar diberi kefahaman mengenai tanggungjawab individu dalam kehidupan dan cabaran-cabaran dalam membangunkan masyarakat Malaysia.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Menerangkan sejarah pembentukan masyarakat dan nilai agama di Malaysia. (C2,LD1) 2. Menghubung kait tanggungjawab individu dalam kehidupan masyarakat dan negara. (C3,LD1 :A2,LD5) 3. Membincangkan cabaran-cabaran dalam membangunkan masyarakat Malaysia. (C3,LD1 :A3,LD6) 	

Course Credit	DJJ2022 - Electrical Technology
Pre requisite	2
	None
SYNOPSIS	
<p>ELECTRICAL TECHNOLOGY exposes students to the basic electrical circuit concepts, the application of electromagnetism in electrical machines and transformers. The course focuses on the different types of electrical circuits, the relationship between current and voltage including the resistance. It also provides the skills on the methods of constructing basic circuits and operation of electrical machines and transformers. This course also exposes the students to the demonstration of experiments in Electrical Technology.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Apply the principles of electrical circuits, electromagnetism, transformers and electrical machines to solve related problems. (C3, PLO1) 2. Organize appropriately experiments in groups according to the Standard Operating Procedures. (P4, PLO4) 3. Demonstrate continuous learning and information management skills while engaging in independent acquisition of new knowledge and skills in laboratory report. (A3, PLO11) 	

Course	DJJ2062 - Computer Aided Design 1
Credit	2
Pre requisite	None
SYNOPSIS	
<p>COMPUTER AIDED DESIGN 1 provides a comprehensive introduction to Computer-Aided Design software. It is an introductory level where the students will learn to navigate and use the software to create two-dimensional design in engineering. Students shall be able to demonstrate competency in using some standard available features of a CAD application to create and manipulate objects or elements and to modify them. They should be able to change object properties and to undertake printing or plotting activity associated with the delivery outputs. In addition, students are required to use some advanced features of CAD software, such as inserting objects from other applications.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Apply the fundamental features of CAD software in producing engineering drawing. (C3, PLO1) 2. Construct 2D drawing using fundamental features of CAD software. (P4, PLO4) 3. Demonstrate continuous learning and information management skill while engaging in independent acquisition of new knowledge and skill to solve assigned task. (A3, PLO11) 	

Course	DJJ3053 - Engineering Mechanics
Credit	3
Pre requisite	None
SYNOPSIS	
<p>ENGINEERING MECHANICS focuses on theoretical knowledge in statics and dynamics. This course provides students with fundamental understanding of forces and equilibrium, resultants, equilibrium of a particles and structural analysis. This course also covers kinematics and kinetics of particles. This course also exposes the students to the demonstration of experiments in Engineering Mechanics.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Analyse problems related to statics and dynamics based on the concept and principles of engineering mechanics. (C4, PLO2) 2. Organize appropriately experiments in groups according to the Standard Operating Procedures. (P4, PLO4) 3. Demonstrate ability to work in team to complete assigned tasks during practical work sessions. (A3, PLO7) 	

Course	DJJ2093 - Fluid Mechanics
Credit	3
Pre requisite	None
SYNOPSIS	
<p>FLUID MECHANICS provides students with a strong understanding of the fundamentals of fluid mechanics principles related to the fluid properties and behaviour in static and dynamic situations. This course also exposes the students to the demonstration at the real equipment of fluid mechanics.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Apply the fundamentals of fluid mechanics to solve related problems. (C3, PLO1) 2. Organize appropriately experiments in groups according to the Standard Operating Procedures. (P4, PLO4) 3. Demonstrate ability to work in team to complete assigned tasks during practical work sessions. (A3, PLO7) 	

Course	DJF2012 - MANUFACTURING WORKSHOP PRACTICE 1
Credit	2
Pre requisite	None
SYNOPSIS	
<p>MANUFACTURING WORKSHOP PRACTICE 1 exposes the students to the basic principles of manufacturing processes, industrial environment, and hands on experiences. This course enables student to apply knowledge and develop required technical skills on plastic processing, sand casting, conventional machining and TIG/MIG welding. The workshop practice helps the students to practice appropriate safety procedures and standard operation on completing a project. The practical skill also covers the planning skills, supervising the design, inspecting and testing the welding task in order to meet the quality requirement.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Make a simple project using casting, plastic, TIG/MIG welding and conventional machine process based on standard operational procedures. (P4, PLO 4) 2. Demonstrate safety awareness in practical work procedures and practices. 3. (A3, PLO 5) 4. Demonstrate an understanding of professional ethics, responsibilities, norms and practices in manufacturing processes during practical work session. (A3, PLO8) 	

COURSE	DRB 2XX0- UNIT BERUNIFORM 1 & 2
CREDIT	0
PRE REQUISITE	(Mengikuti badan beruniform yang dipilih pada semester 1)
<p>Kursus ini hanya boleh dipilih sekiranya pelajar telah mengambil dan lulus KOKO 1 (DRB 1xxx0). Kursus yang ditawarkan juga mempunyai syarat kemasukan dari kursus yang diambil pada semester</p> <p>Rujuk 3.7 untuk senarai kursus yang ditawarkan. Penawaran kursus adalah mengikut ketetapan Unit Sukan Politeknik</p>	

atau

COURSE	DRS 2XX1- SUKAN
CREDIT	0
PRE REQUISITE	NONE
<p>Kursus ini wajib diambil oleh pelajar yang tidak memilih untuk menyertai badan beruniform pada semsester 1.</p> <p>Rujuk 3.7 untuk senarai kursus yang ditawarkan. Penawaran kursus adalah mengikut ketetapan Unit Sukan Politeknik.</p>	

4.3 LIST OF COURSES SYNOPSIS FOR SEMESTER 3

Course	DUE3012 – Communicative English 2
Credit	2
Pre requisite	DUE1012 – Communicative English 1
SYNOPSIS	
<p>COMMUNICATIVE ENGLISH 2 emphasises the skills required at the workplace to describe products or services as well as processes or procedures. It also focuses on the skills to give and respond to instructions. This course will also enable students to make and reply to enquiries and complaints.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Describe products or services related to their field of studies using appropriate language. (C3,A3, LD3) 2. Transfer information of a process or procedure accurately from linear to non-linear form and vice versa. (C3, LD1) 3. Listen and respond to enquiries using appropriate language. (C3,LD1) 4. Make and respond to complaints using appropriate language. (C3,LD3) 	

Course	DBM3013 – Engineering Mathematics 3
Credit	3
Pre requisite	DBM2013 – Engineering Mathematics 2
SYNOPSIS	
<p>ENGINEERING MATHEMATICS 3 exposes students to the statistical and probability concepts and their applications in interpreting data. The course also introduces numerical methods concept to solve simultaneous equations by using Gaussian Elimination method, LU Decomposition using Doolittle and Crout methods, polynomial problems using Simple Fixed Point Iteration and Newton-Raphson methods. In addition, the course also discusses optimization problems by using Linear Programming. In order to strengthen the students in solving advanced engineering problems, Ordinary Differential Equation (ODE) is also included.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Solve the mathematical problem by using appropriate techniques and solution. (C3,LD1) 2. Show the solution for statistics and probability problems and linear programming by using appropriate mathematical methods. (C3, LD1) 3. Practice mathematical knowledge and skills in different mathematical problem. (C3,LD1) 	

Course	DJJ2073 - Thermodynamics
Credit	3
Pre requisite	None
SYNOPSIS	
<p>THERMODYNAMICS provides knowledge of theory, concept and application of principles to solve problems related to thermodynamics. It emphasizes on concept of non-flow process and flow process, properties of steam, Carnot cycle and Rankine cycle. This course also exposes the students to the demonstration of experiments in Thermodynamics by using the real equipment.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Apply the fundamentals of thermodynamics to solve related problems. (C3, PLO1) 2. Organize appropriately experiments in groups according to the Standard Operating Procedures. (P4, PLO4) 3. Demonstrate the ability to work in team to complete assigned tasks during practical work sessions. (A3, PLO7) 	

Course	DJJ3103 – Strength of Material
Credit	3
Pre requisite	None
SYNOPSIS	
<p>STRENGTH OF MATERIALS provides knowledge on concepts and calculation of forces on materials, thermal stress, shear force and bending moment, bending stress, shear stress and torsion in shafts. It also deals with the experiments conducted on tensile test, bending moment, shearing force and torsion and deflection.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Apply the concepts of strength of materials to solve related problems. (C3, PLO1) 2. Organize appropriately experiments in groups according to the Standard Operating Procedures. (P4, PLO4) 3. Demonstrate ability to work in team to complete assigned tasks. (A3, PLO7) 	

Course	DJJ3213 – Material Science
Credit	3
Pre requisite	None
SYNOPSIS	
<p>MATERIAL SCIENCE provides students with an understanding of material science and engineering which emphasizes on atomic and crystal structure, material properties and behaviour including material classification and its application in the engineering field. The topic also covers the processes of metal work used to produce engineering components and apply basic principles of material testing and processing through practical.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Explain the fundamental of material science including identification of various types of materials, mechanical behaviour, metal production processes, and various principles of material testing. (C3, PLO1) 2. Organize appropriately experiments in groups according to the Standard Operating Procedures. (P4, PLO4) 3. Demonstrate ability to work in team to complete assigned tasks during practical work sessions. (A3, PLO7) 	

Course	DJF3012 MANUFACTURING WORKSHOP PRACTICE 2
Credit	2
Pre requisite	None
SYNOPSIS	
<p>MANUFACTURING WORKSHOP PRACTICES 2 develop student's knowledge and skills on welding, conventional and advanced machining. The conventional machining emphasis on handling of milling and grinding while advanced machining exposes the student to EDM, CNC lathe and CNC milling. This module also covers TIG and MIG welding for 3G position and pipe welding.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Make a project using TIG and MIG welding, conventional machine, EDM, CNC machine based on standard operational procedures. (P4, PLO 4) 2. Demonstrate safety awareness in practical work procedures and practices (A3, PLO 5) 3. Demonstrate an understanding of professional ethics, responsibilities, norms and practices in manufacturing processes during practical work session. (A3, PLO8) 	

COURSE	DRB 3XX0- UNIT BERUNIFORM 2
CREDIT	0
PRE REQUISITE	(Mengikuti badan beruniform yang dipilih pada semester 1)
<p>Kursus ini hanya boleh dipilih sekiranya pelajar telah mengambil dan lulus KOKO 1 (DRB 1xxx0). Kursus yang ditawarkan juga mempunyai syarat kemasukan dari kursus yang diambil pada semester</p> <p>Rujuk 3.7 untuk senarai kursus yang ditawarkan. Penawaran kursus adalah mengikut ketetapan Unit Sukan Politeknik</p>	

COURSE	DRK 3XX1- KELAB / PERSATUAN
CREDIT	0
PRE REQUISITE	NONE
<p>Kursus ini wajib diambil oleh pelajar yang tidak memilih untuk menyertai badan beruniform pada semester 1.</p> <p>Rujuk 3.7 untuk senarai kursus yang ditawarkan. Penawaran kursus adalah mengikut ketetapan Unit Sukan Politeknik.</p>	

4.4 LIST OF COURSES I SYNOPSIS FOR SEMESTER 4

Course	DUE5012 – Communicative English 3
Credit	2
Pre requisite	DUE3012 – Communicative English 2
SYNOPSIS	
<p>COMMUNICATIVE ENGLISH 3 aims to develop the necessary skills in students to analyse and interpret graphs and charts from data collected as well as job hunting mechanics. Students will learn the process of job hunting which includes job search strategies and making enquiries. They will also learn to write resumes and cover letters. The students will develop skills to introduce themselves, highlight their strengths and abilities, present ideas, express opinions and respond appropriately during job interviews.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Describe and analyse information contained in graphs and charts clearly and accurately based on a mini project. (C4,LD1 : A3,LD3) 2. Write an effective resume and a supporting cover letter for a relevant job opening. (C3, LD1) 3. Handle a job interview effectively and confidently. (C3,LD3) 	

Course	DJJ5123 – Pneumatics & Hydraulics
Credit	3
Pre requisite	None
SYNOPSIS	
<p>PNEUMATICS & HYDRAULICS provides knowledge and understanding to the importance of pneumatics and hydraulics circuits, equipment and design along with its usage in the industry.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Analyse the basic concept and function of pneumatics and hydraulics system.(C4,PLO2) 2. Construct pneumatic, electro-pneumatic and hydraulic circuit according to assigned tasks.(C5, PLO3 & P4, PLO4) 3. Demonstrate understanding of engineering norm and practices in pneumatics and hydraulics during practical work sessions. (A3, PLO8) 	

Course	DJJ5141 – Project 1
Credit	1
Pre requisite	None
SYNOPSIS	
PROJECT 1 provides students with solid foundation on knowledge and skills in preparing project proposal, writing and presentation of proposal.	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Organize research or project systematically. (C4, PLO3) 2. Demonstrate good communication skill of oral presentation in group. (A3, PLO6) 3. Demonstrate continuous learning and information management skills while engaging in independent acquisition of new knowledge and skill to develop a project. 4. (A3, PLO11) 	

Course	DJF5022 MANUFACTURING SYSTEM
Credit	2
Pre requisite	None
SYNOPSIS	
MANUFACTURING SYSTEM explains the terminologies and concepts that are necessary in the learning of manufacturing system. It provides knowledge regarding fundamental of manufacturing system, process analysis, process layout, scheduling, lean systems and material handling system. It also emphasizes on systematic way to analyse processes, the important of group technology, flexible manufacturing system and scheduling the job shop.	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Apply the basic concept of manufacturing system, process analysis, process layout, scheduling and material handling system. (C3, PLO 1) 2. Organize one of lean systems approach (C5, PLO 3) 3. Demonstrate good communication skill in group oral presentation, on assigned topics within a stipulated time frame. (A3, PLO 6) 	

Course	DJF5032 - CAD/CAM
Credit	2
Pre requisite	None
SYNOPSIS	
CAD/CAM explains the theory and basic of coding languages, structures and the use of CAD/CAM systems for generating and verifying tool path. The students will learn how to use CAD/CAM software to design an object, produce a code and simulate machining. Besides, students will also be exposed to modern manufacturing system as well as Flexible Manufacturing System (FMS), Computer Integrated Manufacturing (CIM) and Reverse Engineering (RE).	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Explain briefly CAD, NC, CAM and various type of modern manufacturing system. (C4,PLO2) 2. Create NC code for a particular product design by utilizing related CAD/CAM simulation software. (P7,PLO4) 3. Demonstrate continuous learning and information management skill while engaging in independent acquisition of new knowledge and skill to develop a project. (A3,PLO11) 	

Course	DJF5042 - INDUSTRIAL ROBOTICS
Credit	2
Pre requisite	None
SYNOPSIS	
<p>INDUSTRIAL ROBOTICS introduces to the robotic system which emphasize on industrial robot components such as actuators, robot sensors, robot end effectors and control system. Topics also discuss on industrial robot application including the advantages and disadvantages of using robots. The course complete with an explanation of the robot classification, robot programming operations, ANSI robotics safety standard and maintenance process.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Explain the application of industrial robot in manufacturing process including robot configurations and components. (C4, PLO2) 2. Prepare the robot programming and maintenance operations that comply with the standard of industrial robotics safety requirements. (C3, PLO1) 3. Demonstrate good communication skills in oral presentation in a group, on the assigned topics within a stipulated time frame. (A3, PLO6) 	

Course	DJF5053 - JIG, FIXTURE AND TOOLING DESIGN
Credit	3
Pre requisite	None
SYNOPSIS	
<p>JIG, FIXTURE AND TOOLING DESIGN exposes the students to the knowledge of datum concept, geometric tolerances and fundamentals to build the tooling based on clamping and locating principle. The topics are also covering the principle of tooling applications in metal and non-metal process. All the topics discussed will help the students to understand, able to plan and identified the use of tooling. Students will also be exposed to the application of tooling in related industries</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Apply the concepts of tool design method, tooling material, jig and fixture. (C3, PLO 1) 2. Perform the simulation of mould, tool and die design. (P4, PLO 4) 3. Demonstrate ability to work in team to complete the assigned practical task. (A3, PLO 7) 	

Course	DJF5062 - MATERIAL TECHNOLOGY 3
Credit	2
Pre requisite	None
SYNOPSIS	
<p>MATERIAL TECHNOLOGY exposed students on several types of metal, alloy and other non-metal materials that are commonly used in the engineering field. Varieties of components will be covered such as stainless steel, non-ferrous alloy, polymers, environmental effect and electrical features of materials.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Relate the characteristics of stainless steel, nonferrous alloy and polymer materials and electrical features in material engineering (C3,PLO1) 2. Analyse the environmental effects of mechanic features materials. (C4,PLO2) 3. Demonstrate ability to work in team to complete assigned topic for case study. (A3,PLO7) 	

4.5 LIST OF COURSES SYNOPSIS FOR SEMESTER 5

Course	DUA6022 – KOMUNIKASI DAN PENYIARAN ISLAM
Credit	2
Pre requisite	None
SYNOPSIS	
<p>KOMUNIKASI DAN PENYIARAN ISLAM memfokuskan kepada penguasaan konsep, kemahiran komunikasi dan penyiaran Islam bagi meningkatkan kefahaman pelajar secara holistic terhadap kursus ini</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Menjelaskan konsep, bentuk komunikasi dan hubungannya dalam Islam (C2,LD1) 2. Menunjukkan kemahiran pengurusan komunikasi dalam bidang penyiaran Islam (C3, LD1 : A4,LD5) 3. Menghubung kait isu-isu semasa dalam komunikasi dan penyiaran Islam. (C3,LD1 : A3,LD6) 	

Course	DPB2012 – ENTREPRENEURSHIP
Credit	2
Pre requisite	None
SYNOPSIS	
<p>ENTREPRENEURSHIP focuses the principles and concept of entrepreneurship. This course concentrates on the systematic methods of getting business ideas. This course also prepare the students on conducting business using social media marketing. It also emphasizes a preparation of business plan, thus developing their entrepreneurial skills.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Explain clearly the concept of entrepreneurship and process of developing an effective business. (C2,LD1) 2. Prepare completely a business plan according to standard format. (P2, LD2) 3. Build the online business presence using the social media marketing. (P3, LD2 : A4,LD7) 	

Course	DJF6081- MANUFACTURING ENGINEERING LABORATORY
Credit	1
Pre requisite	NONE
SYNOPSIS	
<p>MANUFACTURING ENGINEERING LABORATORY 2 aims to enable the learners to develop knowledge and skills in Industrial Robot Application, Programmable Logic Control, Statistical Process Control (SPC) and Inventory Control. In Robot Application, learners will learn about programming, hands on training and robot application while in PLC, they will learn about creating a simple program using PLC which is used in manufacturing and mechanical processes. Statistical Process Control (SPC) however, uses statistical tools to observe the performance of the production process in order to predict significant deviations that may later result in rejected product. The inventory control will focus on understanding the quantity discounts and controlling the inventory while rapid prototyping is used in designing complex design shapes which involves in modifying and completing design of a prototype.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Organize data and graph control charts in observing the performance of a production process along with appropriate quality improvement tools such as MRP, Pareto Diagram, Cause and Effect diagram and control chart. (C5, PLO3) 2. Manipulate robot programming, PLC programming and rapid prototyping design process to complete a specific task based on standard operating procedure.(P2, PLO4) 3. Demonstrate ability to work in team to complete assigned tasks during practical work sessions. (A3, PLO7) 	

Course	DJJ6143 – Project 2
Credit	3
Pre requisite	DJJ5141 – Project 1
SYNOPSIS	
<p>PROJECT 2 introduces the students to the concepts of conducting a design or case study. The students select a project, list the project’s needs, the processes involved, cost estimation, project schedule by applying appropriate methodology in the project planning. It also involves project implementation, project report and presentation.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Develop creative solution to solve the problems in the project design or case study (C5, PLO3) 2. Organize the selected design or case study based on the project planning (P5, PLO4). 3. Demonstrate good communication skills of presentation in group. (A3, PLO6) 4. Demonstrate ability to lead a team to complete assigned project during practical work sessions. (A3, PLO7) 5. Demonstrate awareness of management, business practices and entrepreneurship related to product of project. (A3, PLO9) 6. Demonstrate awareness of social responsibility in practical work procedure and practices. (A3, PLO10) 	

Course	DJF6102– QUALITY CONTROL
Credit	2
Pre requisite	NONE
SYNOPSIS	
<p>QUALITY CONTROL provides knowledge on basic principle and concept of quality including statistical method in controlling products quality or services. This course also emphasises on the application of Control Chart and Quality Control tools and also explains the importance of International Standard of Quality Assurance Standard, ISO 9000 for an organization.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Apply the relation of statistics and quality management system in understanding of quality control and their application tools. (C3, PLO1). 2. Propose the related quality tools and techniques to control the quality of products or services based on case study. (C5, PLO 3). 3. Demonstrate ability to work in team to complete the assigned tasks. (A3, PLO7). 	

Course	DJJ5133 - ENGINEERING DESIGN
Credit	3
Pre requisite	NONE
SYNOPSIS	
<p>ENGINEERING DESIGN provides knowledge on basic engineering design. It emphasizes on mathematical analysis for simple component designs in engineering such as key, rivet and welding joint. It also provides knowledge on gear design and selection of bearing.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Analyse well-defined the concept of design process and stress in an engineering product or component. (C4, PLO2) 2. Conduct investigations in the design of simple engineering components by using mathematical analysis, taking into consideration the safe load limitation. (C5, PLO3) 3. Demonstrate good written communication skills of case study in group, on assigned topic. (A3,PLO6) 	

4.6 LIST OF COURSES INFORMATION FOR SEMESTER 6

Course	DUT 40110 – INDUSTRIAL TRAINING
Credit	10
Pre requisite	KHIDMAT MASYARAKAT
SYNOPSIS	
<p>INDUSTRIAL TRAINING exposes students to related work competencies demanded by industries. This course provides exposure to students in term of technology literacy, effective communication, practice social skills and teamwork, policies, procedures and regulations, professional ethics and reporting. It also equips student with real work experiences, thus helping students to perform as novice workers.</p>	
COURSE LEARNING OUTCOME (CLO)	
<ol style="list-style-type: none"> 1. Apply related knowledge and skills at workplace (C3, P2) 2. Communicate effectively with others (A3) 3. Practice teamwork (A5) 4. professional and ethically comply with policies, procedures, and rules of organization, (A5) 5. Explain the tasks assigned (during the industrial training) according to the prescribed format (P2, A4) 	

4.7 LIST OF COURSES SYNOPSIS OFFERED FOR CO-CURICULLUM

COURSE	DRB1060 – PENGAKAP KELANA
CREDIT	0
PRE REQUISITE	None
SYNOPSIS	
<p>PENGAKAP KELANA memfokuskan kepada penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif</p>	
COURSE LEARNING OUTCOME	
<ol style="list-style-type: none"> 1. Menunjukkan kemahiran khusus yang dipelajari (P2, LD2) 2. Melaksanakan aktiviti-aktiviti berdasarkan penguasaan kemahiran yang dipelajari (A2, LD4, LD9) 	

COURSE	DRB 1090 - RELASIS
CREDIT	0
PRE REQUISITE	None
SYNOPSIS	
<p>RELASIS memfokuskan kepada penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif</p>	
COURSE LEARNING OUTCOME	
<ol style="list-style-type: none"> 1. Menunjukkan kemahiran khusus yang dipelajari (P2, LD2) 2. Melaksanakan aktiviti-aktiviti berdasarkan penguasaan kemahiran yang dipelajari (A2, LD4, LD9) 	

COURSE	DRB 1050 - PISPA
CREDIT	0
PRE REQUISITE	None
SYNOPSIS	
PISPA memfokuskan kepada penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif	
COURSE LEARNING OUTCOME	
<ol style="list-style-type: none"> 1. Menunjukkan kemahiran khusus yang dipelajari (P2, LD2) 2. Melaksanakan aktiviti-aktiviti berdasarkan penguasaan kemahiran yang dipelajari (A2, LD4, LD9) 	

COURSE	DRB 1010 – ASKAR WATANIAH
CREDIT	0
PRE REQUISITE	None
SYNOPSIS	
ASKAR WATANIAH memfokuskan kepada penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif	
COURSE LEARNING OUTCOME	
<ol style="list-style-type: none"> 1. Menunjukkan kemahiran khusus yang dipelajari (P2, LD2) 2. Melaksanakan aktiviti-aktiviti berdasarkan penguasaan kemahiran yang dipelajari (A2, LD4, LD9) 	

COURSE	DRB2061 – PENGAKAP KELANA 1
CREDIT	1
PRE REQUISITE	DRB1060 – PENGAKAP KELANA
SYNOPSIS	
PENGAKAP KELANA 1 memfokuskan kepada penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif .	
COURSE LEARNING OUTCOME	
<ol style="list-style-type: none"> 1. Mempamerkan kompetensi kemahiran khusus yang dipelajari (P2, LD2) 2. Melaksanakan aktiviti-aktiviti berdasarkan penguasaan kemahiran yang dipelajari (A2, LD4, LD9) 	

COURSE	DRB3061 – PENGAKAP KELANA 2
CREDIT	2
PRE REQUISITE	DRB2061 – PENGAKAP KELANA 1
SYNOPSIS	
PENGAKAP KELANA 2 memfokuskan kepada penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif.	
COURSE LEARNING OUTCOME	
<ol style="list-style-type: none"> 1. Mempamerkan kompetensi kemahiran khusus yang dipelajari (P3, LD2) 2. Melaksanakan aktiviti-aktiviti berdasarkan penguasaan kemahiran yang dipelajari (A3, LD4, LD9) 	

COURSE	DRS2131 – MEMANAH
CREDIT	1
PRE REQUISITE	TIADA
SYNOPSIS	
MEMANAH memfokuskan kepada penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif.	
COURSE LEARNING OUTCOME	
<ol style="list-style-type: none"> 1. Mempamerkan kompetensi kemahiran khusus yang dipelajari (P3, LD2) 2. Melaksanakan aktiviti-aktiviti berdasarkan penguasaan kemahiran yang dipelajari (A3, LD4, LD9) 	

COURSE	DRK3052 – FOTOGRAFI
CREDIT	2
PRE REQUISITE	TIADA
SYNOPSIS	
FOTOGRAFI memfokuskan kepada penguasaan pengetahuan dan kemahiran khusus secara holistik bagi mengukuhkan pembentukan kemahiran insaniah pelajar yang positif.	
COURSE LEARNING OUTCOME	
<ol style="list-style-type: none"> 3. Mempamerkan kompetensi kemahiran khusus yang dipelajari (P3, LD2) 4. Melaksanakan aktiviti-aktiviti berdasarkan penguasaan kemahiran yang dipelajari (A3, LD4, LD9) 	

Senarai kursus kokurikulum yang ditawarkan boleh di rujuk dengan Jabatan Sukan kebudayaan dan Kokurikulum

KURSUS DRS	
Badminton	Futsal
Bola keranjang	Softbol
Sepaktakraw	Golf
Bola Jaring	Ragbi
Bola Tampar	Silat
Memanah	Bowling
Tae Kwan Do	Tenis
Skuasy	Hoki

KURSUS DRK	
Kembara	Bahasa Inggeris
Nasyid	Audio Visual
Amalan 5S	Inovasi & Rekacipta
Fotografi	Study Circle
Kompang	Mesra Alam
Komputer	Tarian Tradisional
Kaunseling	Keusahawanan
Pengguna	

KURSUS DRB
PISPA
WATANIAH
PENGAKAP KELANASISWA
RELASIS



PERATURAN

PEPERIKSAAN

(Hendaklah dibaca bersama dengan buku
Arahan-arahan Peperiksaan dan Kaedah
Penilaian Edisi 5 Dis 2015)

5.1 SISTEM GRED

Markah	Nilai Mata	Gred	Status
90-100	4.00	A+	Sangat Cemerlang
80-89	4.00	A	Cemerlang
75-79	3.67	A-	Kepujian
70-74	3.33	B+	Kepujian
65-69	3.00	B	Kepujian
60-64	2.67	B-	Lulus
55-59	2.33	C+	Lulus
50-54	2.00	C	Lulus
47-49	1.67	C-	Lulus
44-46	1.33	D+	Lulus
40-43	1.00	D	Lulus
30-39	0.67	E	Gagal
20-29	0.33	E-	Gagal
0-19	0.00	F	Gagal

5.2 PERATURAN AM KAEDAH PENILAIAN

Pelajar hendaklah memenuhi syarat-syarat berikut sebelum layak untuk dinilai prestasi akademiknya:

- i. Telah mendaftar/melapor diri untuk mengikuti pengajian
- ii. Telah mendaftar kursus berkenaan
- iii. Kehadiran kuliah mencapai 80% seperti yang ditetapkan bagi sesuatu kursus

5.3 PERATURAN PENDAFTARAN KURSUS

- i. Pendaftaran kursus akan dilaksanakan pada setiap awal semester dalam tempoh selewat-lewatnya **TUJUH** hari dari tarikh rasmi seis pengajian.
- ii. Pelajar perlu mendapat nasihat daripada **Penasihat Akademik** sebelum mendaftar
- iii. **Jumlah kredit** yang perlu diambil oleh pelajar bagi setiap semester adalah diantara **12 hingga 20 jam kredit** atau seperti yang ditetapkan di dalam Dokumen Kurikulum dan Struktur Program.
- iv. **Pindah kredit** dan pengecualian kursus boleh dipohon dalam tempoh **TIGA minggu** semester pertama perkuliahan
- v. **MENAMBAH DAN MENGGUGURKAN KURSUS** boleh dibuat pada pinggu ke **TIGA** hingga minggu ke **ENAM** sesi pengajian. Pelajar hendaklah mendapatkan nasihat dan sokongan Penasihat Akademik serta mendapat kelulusan Ketua Jabatan.

5.4 MENGULANG KURSUS

- i. Pelajar hendaklah mendaftarkan kursus yang gagal pada semester sebelumnya sebelum mendaftar kursus-kursus program bagi semester semasa.
- ii. Bagi pelajar semester akhir yang gagal **DUA** kursus atau lebih dikehendaki mengulang kursus yang gagal pada semester semasa.
- iii. Bagi pelajar yang lulus kursus dengan gred **C-, D+ dan D** dibenarkan untuk memperbaiki gred kursus hanya sekali sahaja sepanjang pengajian bagi kursus tersebut. Keputusan yang diambil kira adalah dari gred terbaik.

5.5 SYARAT KELAYAKAN UNTUK MENDUDUKI PEPERIKSAAN AKHIR

- i. Telah mendaftar kursus berkenaan
- ii. Telah menghadiri 80% atau lebih kuliah/tutorial /amali bagi jangkasama yang telah ditetapkan.
Peratus kehadiran pelajar dikira seperti berikut ;

$$\% \text{kehadiran} = \frac{\text{Jumlah kehadiran sebenar (jam)}}{\text{Jumlah kehadiran sepatutnya (jam)}} \times 100\%$$

- iii. Pelajar yang kehadirannya kurang 80% adalah tidak layak untuk menduduki peperiksaan akhir. Pelajar akan diberi gred F bagi kursus tersebut. Kaedah ini juga terpakai bagi kursus yang dinilai secara kerja kursus sahaja.

5.6 TEMPOH PENGAJIAN

- i. Tempoh pengajian bagi program sepenuh masa adalah

Minimum	– LIMA Semester
Maksimum	– SEMBILAN Semester
- ii. Pelajar yang dikenakan tindakan disiplin (digantung pengajian mengikut akta 174) adalah termasuk dalam pengiraan tempoh pengajian.
- iii. Pelajar yang tidak mendaftar kursus tanpa sebarang sebab yang munasabah, semester tersebut diambilkira sebagai tempoh pengajian
- iv. Sebarang penangguhan pengajian yang diluluskan oleh Pengarah tidak diambilkira sebagai tempoh pengajian.



GARIS PANDUAN

ANUGERAH PELAJAR CEMERLANG POLITEKNIK (APCP)
SISTEM PENGURUSAN MAKLUMAT POLITEKNIK (SPMP)

PERINCIAN ANUGERAH**6.1 ANUGERAH KETUA JABATAN PNM ≥ 3.50**

Anugerah ini akan diberikan kepada para pelajar yang telah mencapai tahap prestasi akademik yang cemerlang pada semester dinilai kecuali ketika menjalani latihan industri. Bilangan penerima anugerah ini adalah tidak terhad.

Penerima akan dianugerahkan:

- i. Sijil Anugerah Ketua Jabatan (AKJ) yang ditandatangani oleh Ketua Jabatan dan disampaikan pada Majlis Anugerah Ketua Jabatan masing-masing.
- ii. Slip Keputusan Penilaian Akhir Semester bercetak dengan perkataan 'Anugerah Ketua Jabatan'.

Syarat-syarat Penganugerahan

- i. Mendapat keputusan Kedudukan Baik (KB) dengan Purata Nilai Mata (PNM) bersamaan atau melebihi 3.50 pada semester yang dinilai.
- ii. Telah mencapai Nilai Mata bersamaan atau melebihi daripada 2.00 bagi setiap kursus yang diambil pada semester yang dinilai.
- iii. Telah mengambil jumlah kredit bersamaan 12 kredit (pelajar sepenuh masa) dan 5 kredit (pelajar KSS) atau lebih pada semester yang dinilai seperti yang telah ditetapkan dalam buku 'Arahan-Arahan Peperiksaan dan Kaedah Penilaian Politeknik Kementerian Pendidikan Malaysia'.
- iv. Tidak pernah dikenakan tindakan tatatertib oleh Pihak Berkuasa Tatatertib Politeknik pada semester yang dinilai.

Kaedah Penganugerahan

- i. Keputusan penilaian akhir bagi setiap semester akan digunakan sebagai asas penganugerahan.
- ii. Keputusan penganugerahan akan disenarai dan disahkan dalam Mesyuarat Jawatankuasa Peperiksaan Politeknik.
- iii. Keputusan Jawatankuasa Peperiksaan Politeknik adalah muktamad.

6.2 ANUGERAH KHAS KETUA JABATAN HPNM \geq 3.50

Anugerah Khas ini akan diberikan kepada pelajar yang telah mencapai tahap prestasi akademik yang cemerlang dengan Himpunan Purata Nilai Mata (HPNM) bersamaan atau melebihi 3.50 pada semester akhir pengajian.

Penerima akan dianugerahkan:

- i. Pingat Ketua Jabatan yang dipakai semasa menghadiri majlis konvokesyen politeknik; dan
- ii. Sijil Anugerah Khas Ketua Jabatan (AKKJ) yang ditandatangani oleh Ketua Jabatan dan diserahkan kepada pelajar semasa majlis konvokesyen politeknik.

Syarat-syarat Penganugerahan

- i. Mendapat keputusan Lulus Penuh (LP) dengan Himpunan Purata Nilai Mata (HPNM) bersamaan atau melebihi 3.50 pada semester akhir pengajian.
- ii. Tidak pernah dikenakan tindakan tatatertib oleh Pihak Berkuasa Tatatertib Politeknik.

Kaedah Penganugerahan

- i. Keputusan penilaian semester akhir akan digunapakai sebagai asas penganugerahan.
- ii. Keputusan penganugerahan disenarai dan disahkan dalam Mesyuarat Jawatankuasa Peperiksaan Politeknik.
- iii. Keputusan Jawatankuasa Peperiksaan Politeknik adalah muktamad.

6.3 ANUGERAH KECEMERLANGAN AKADEMIK & KOKURIKULUM (JABATAN)

Penerima anugerah ini terdiri daripada lulusan yang telah menamatkan pengajiannya di politeknik. Penerima anugerah adalah pelajar yang telah mencapai tahap prestasi akademik dan kokurikulum yang cemerlang sepanjang tempoh pengajian. Bilangan penerima adalah terhad kepada seorang bagi setiap jabatan dengan memenuhi syarat yang ditetapkan. Nama penerima anugerah akan direkodkan sebagai Pelajar Cemerlang Jabatan di jabatan yang berkenaan. Semua bentuk anugerah akan disampaikan semasa majlis konvokesyen politeknik.

Penerima akan dianugerahkan:

- i. Sijil Anugerah Kecemerlangan Akademik dan Kokurikulum yang ditandatangani oleh Pengarah;
- ii. Wang tunai atau cek bernilai sekurang-kurangnya RM300.00; dan
- iii. Plak iringan.

Syarat-syarat Penganugerahan

- i. Mendapat keputusan Lulus Penuh (LP) dengan HPNM pada Semester Akhir bersamaan atau melebihi 3.50.
- ii. Telah mencapai Nilai Mata bersamaan atau melebihi daripada 2.00 bagi setiap kursus yang telah diambil.
- iii. Bergiat secara aktif dalam bidang kokurikulum.
- iv. Calon mesti mencapai jumlah markah minimum 80%. Rujuk Borang Pencalonan Anugerah Kecemerlangan Akademik & Kokurikulum (Jabatan) seperti di Lampiran APCP 01 (A).
- v. Tidak pernah dikenakan tindakan tatatertib oleh Pihak Berkuasa Tatatertib Politeknik.

Kaedah Pencalonan dan Pemilihan

- i. Anugerah ini diberikan kepada lulusan terbaik dari jabatan bagi setiap sesi pengajian ketika majlis konvokesyen politeknik.
- ii. Penerima anugerah terdiri daripada seorang penerima sahaja bagi setiap jabatan.
- iii. Keputusan penilaian semua semester, rekod dan sijil kegiatan sukan dan kokurikulum akan digunapakai sebagai asas pencalonan.
- iv. Jawatankuasa Pemilihan Induk akan membuat pemilihan berdasarkan markah tertinggi dalam Borang Pencalonan Anugerah Kecemerlangan Akademik & Kokurikulum (Jabatan) seperti di Lampiran APCP 02.
- v. Keputusan Jawatankuasa Induk adalah muktamad.

6.4 ANUGERAH PENGARAH POLITEKNIK

Anugerah Pengarah Politeknik terbahagi kepada dua iaitu:

- i. Anugerah Kecemerlangan Akademik & Kokurikulum Politeknik
- ii. Anugerah Projek Terbaik

6.4.1 Anugerah Kecemerlangan Akademik & Kokurikulum (Politeknik)

Calon-calon bagi anugerah ini adalah terdiri daripada penerima Anugerah Kecemerlangan Akademik & Kokurikulum Jabatan. Daripada keseluruhan calon-calon ini, seorang pelajar akan dipilih sebagai penerima Anugerah Kecemerlangan Akademik & Kokurikulum. Nama

penerima anugerah akan direkodkan sebagai Pelajar Cemerlang Politeknik. Semua bentuk anugerah akan disampaikan semasa majlis konvokesyen politeknik.

Penerima akan dianugerahkan:

- i. Sijil Anugerah Pengarah Politeknik yang ditandatangani oleh Pengarah Politeknik;
- ii. Wang tunai atau cek bernilai sekurang-kurangnya RM 500.00;
- iii. Plak iringan; dan
- iv. Piala pusingan.

Kaedah Pencalonan dan Pemilihan

- i. Seorang lulusan terbaik keseluruhan untuk setiap sesi pengajian akan dipilih.
- ii. Jawatankuasa Kecil Pemilihan akan membuat pemilihan berdasarkan markah tertinggi dalam Borang Ringkasan Pencalonan Anugerah Kecemerlangan Akademik & Kokurikulum (Jabatan) seperti di Lampiran APCP 03.
- iii. Keputusan Jawatankuasa Pemilihan adalah muktamad.

6.4.2 Anugerah Projek Terbaik (Politeknik)

Anugerah ini akan disampaikan kepada kumpulan pelajar yang telah Berjaya menghasilkan projek Semester Akhir yang terbaik di Politeknik berkenaan bagi setiap sesi pengajian. Kriteria pemarkahan bagi Anugerah Projek Terbaik ini adalah merujuk kepada Borang Pencalonan Anugerah Projek Terbaik (Politeknik) Lampiran APCP 04(A) atau (B).

Penerima akan dianugerahkan:

- i. Sijil Anugerah Projek Terbaik Politeknik bagi setiap ahli kumpulan yang ditandatangani oleh Pengarah Politeknik;
- ii. Wang tunai atau cek bernilai sekurang-kurangnya RM 500.00;
- iii. Plak iringan (setiap ahli kumpulan); dan
- iv. Piala Pusingan.

Kaedah Penganugerahan dan Kelayakan Penerima

- i. Anugerah disampaikan pada hari konvokesyen.
- ii. Semua ahli kumpulan layak menerima anugerah ini walaupun terdapat ahli kumpulan yang belum berstatus graduan dan masih pelajar politeknik.

6.5 SISTEM PENGURUSAN MAKLUMAT POLITEKNIK (SPMP)

LAYARI : www.spmp.psas.edu.my

Maklumat berikut boleh didapati dari SPMP



MECHANICAL ENGINEERING DEPARTMENT
POLYTECHNIC SULTAN AZLAN SHAH



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