



# Student Study Guide

Diploma in Electronic Engineering (Control)

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## INTRODUCTION

Politeknik Sultan Salahuddin Abdul Aziz Shah (PSA) is the 8<sup>th</sup> polytechnic established in 1997 and was granted Premier Polytechnic status in 2008. The 122-acre institution has a capacity of 3600 students at a time. The programmes offered are Degree, Diploma and Certificate. In addition, the PSA also conducts programs under the Time Sector Privatization (TSP) which are Short Term, Long Term and Subscribed Courses. All programs offered are accredited by MQA as well as professional bodies.

Various academic and co-curricular programs are being implemented to achieve the vision and mission of becoming a leading TVET leader. Now PSA is committed to achieve the Ministry



of Education's goal of producing holistic, balanced and entrepreneurial graduates. Fortunately, the institution has successfully surpassed national targets with 90% marketability. The close collaboration with the industry has contributed greatly to the success of this institution, especially through the Work Based Learning program. The PSA has also gained national and international recognition in various fields including academic, co-curriculum, research, innovation, community service and sports.

Responding to the challenges of New Malaysia, the PSA has always been proactive about its future. The PSA Strategic Plan 2018-2025 will be updated to ensure the goals are aligned with the goals and objectives of the National TVET Master Plan. Applying the principles of Proactive, Synergy and Agile we believe PSA will be able to move towards a University-level TVET institution.



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MOTTO

VISION

MISSION

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**MOTTO**

- “The Preferred Polytechnic”



**VISSION**

- To be the Leading-Edge TVET Institution



**MISSION**

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



# ACADEMIC DEPARTMENTS



## ELECTRICAL ENGINEERING DEPARTMENT

The Department of Electrical Engineering (JKE) is one of the main departments in PSA. It was established on June 1997. JKE offers four Diploma programmes and one Bachelor programme. The courses provide the knowledge on academic as well as practical skills. Relevant exposure to the real hands on, various innovative and Creativity projects and soft skills are also developed especially among students who undergone industrial training in their final year. In addition, students are also taught business skills through entrepreneurship course aimed to enhance students' thinking skills as well as to develop their characters.

## CIVIL ENGINEERING DEPARTMENT

The Department of Civil Engineering (JKA) provide education and training in the form of lectures, tutorials, assignments, projects, practical workshops and laboratories for Civil Engineering, Building Services Engineering, and Wood-Based Technology programmes at diploma levels. The lecturers are dedicated and qualified with Bachelor degree and Master's in relevant fields. The quality of teaching staff is continuously upgraded through regular courses and seminars. JKA has 14 laboratories and workshops that include a wide range of the latest equipment and machinery to support the teaching and learning process. JKA has 14 laboratories and workshops altogether which include a wide range of latest equipment and machineries to support the teaching and learning process. The workshops are fully equipped with Building Services Plant equipment such as air and fire prevention system, building automation

systems, lighting system, security systems, etc. Wood-based technology workshops are also furnished with facilities to conduct practical on pulp and paper, wood composites, wood composites and preservation, wood CNC and so on.



## MECHANICAL ENGINEERING DEPARTMENT

The Department of Mechanical Engineering (JKM) offers students General Mechanical Engineering and Packaging Engineering Courses. The main goal of this department is to produce semi-professional workforce in the field of General Mechanical Engineering and Packaging Engineering Course. The department is actively involved in TSP programmes to upgrade the

professionalism of the teaching staff besides maximizing the use of tools.



## COMMERCE DEPARTMENT

The Department of Commerce was established in July 1997. The department currently offers four Diploma programmes, namely Diploma in Business Studies, Diploma in Marketing, Diploma in International Business and Diploma in Insurance. There are 63 lecturers in this department since September 2012. The department is fully equipped with lecture rooms, lecture hall, computer laboratory and a cooperative unit.





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# SUPPORT DEPARTMENTS

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## GENERAL STUDIES DEPARTMENT

General Studies Department is an academic department that acts as the curriculum coordinator for English Language Studies, Islamic Education, Moral Education, Islamic Civilization and South East Asian Civilization Studies. It is also responsible for assisting the four core departments in implementing the curriculum and the administration work as a whole. JPA also helps educate students in facing the realities of life with the support of language skills as well as strong religious background.

## MATHEMATICS, SCIENCE AND COMPUTER DEPARTMENT

Department of Mathematics, Science and Computer (JMSK) is the department that is responsible for the provision of teaching and learning courses such as Engineering Mathematics, Engineering Science and Computer Applications. These courses are meant to support the programs that are offered in other main departments (JKM, JKE, JKA and JP) in PSA. JMSK also involved with teaching and learning Co-Curriculum and Part-Time Course (KSS). Computer Lab facilities are available in JMSK to accommodate computer-based courses conducted by other departments or institutions. The facilities available in JMSK are the Computer Laboratory (Link Centre), Laboratory of CAD (Computer Added Design) and Computer Lab (KAM). Here is the list of courses in JMSK offered to PSA's diploma students.

## SPORTS, CO-CURRICULAM AND CULTURE DEPARTMENT

Department of Co-Curriculum, Sports and Culture (JSKK) is a department that manages the matters related to sports, co-curricular creditworthy and arts and cultural activities at the Polytechnic Sultan Salahuddin Abdul Aziz Shah. JSKK ensure excellence in sports, co-curricular and cultural parallel with polytechnic KPI either nationally or internationally. The polytechnic co-curriculum covers all activities outside the classroom, such as sports, clubs, associations and uniform society. It is a field of study that focuses towards nurturing and development of the individual through the psychomotor, cognitive and affective.





# INFRASTRUCTURES



## HOSTEL



3 BLOCKS

The fees are as follow:

Hostel: RM60.00 per semester

## ISLAMIC CENTRE



## SPORTS CENTRE



Sports Centre provides facilities and infrastructure that gives access to students from 5.00 to 7.00 p.m. Mondays to Fridays. Among facilities provided are:

	SPORT	FIELD/ COURT		SPORT	FIELD/ COURT
1	Soccer	1	6	Volleyball	4
2	Rugby	1	7	Sepak Takraw	4
3	Tennis	8	8	Badminton	2
4	Netball	2	9	Ping Pong	4
5	Basketball	2	10	Squash	2

## CLINIC

PSA Health Clinic is located opposite the Students' Affairs Department. It started its operation since January 2011. The clinic is managed by a medical assistant officer.

### Service

Provides early treatment in emergency and non-emergency cases.



Treatment Hours:

**Office hours** 8.00 a.m. to 5.00 p.m.

**Warden's Office** 9.30 p.m. to 11.30 p.m.

**Emergency cases : 24 hours**

## LODGE: ANGGERIK INN



PSA provides the following facilities:

Room Type	Quantity	Fees (per night)
Queen	3 rooms	RM110.00
Twin	3 rooms	RM110.00
Single (ground floor)	2 rooms	RM70.00
Single (first floor)	16 rooms	RM70.00



## LIBRARY



### Operating Hours

Opened the whole semester during these times:

Day	Operating Hours	
Monday - Thursday		8.30 a.m. to 1.00 p.m.
	Lunch break	1.00 p.m. to 2.00 p.m.
		2.00 p.m. to 9.00 p.m.
Friday		8.30 a.m. to 12.15 p.m.
	Lunch break	12.15 p.m. to 2.45 p.m.
		2.45 p.m. to 6.00 p.m.
<b>CLOSED :-</b>	Saturday, Sunday and Public holidays	
<b>SEMESTER BREAKS :-</b>	Opened during office hours only (8.30 a.m. to 5.00 p.m.)	





# ADMISSION



## ENTRY REQUIREMENT

### Malaysia Certificate of Education (SPM) holders:

1. Malaysian Citizen
2. Having a Sijil Pelajaran Malaysia (SPM) or its equivalents and meets the minimum entry requirements
3. PASS in Sejarah (SPM year 2013 onwards)
4. PASS in English Language
5. FIVE (5) credits for the following subjects
  - a. Bahasa Melayu
  - b. Mathematics
  - c. One (1) subject from the following subjects
    - Additional Mathematics
    - Additional Science
    - Aplikasi Elektrik & Elektronik
    - Automotif Elektrik & Diesel
    - Automotif Kenderaan
    - Bahan Binaan
    - Biology
    - Chemistry
    - Fundamental of Programming
    - Grafik Berkomputer
    - Information & Communication Technology
    - Lukisan Kejuruteraan
    - Pemesinan Berkomputer
    - Pengajian Kejuruteraan Awam
    - Pengajian Kejuruteraan Elektrik & Elektronik
    - Pengajian Kejuruteraan Mekanikal
    - Penyamanan Udara
    - Penyejukan
    - Physics
    - Prinsip Elektrik & Elektronik
    - Programming and Development Tools
    - Reka Cipta
    - Sains Pertanian
    - Science
    - Teknologi Binaan
    - Teknologi Kejuruteraan
    - Teknologi Maklumat
  - d. TWO (2) other subjects whose credit has not been taken into account yet

6. Candidates are not colour blind and does not have any disability that will hinder practical work.

### Graduates other than SPM

1. Malaysian Citizen
2. Having a Sijil Pelajaran Malaysia (SPM)
3. PASS in Bahasa Malaysia
4. PASS in Sejarah (SPM year 2013 onwards)
5. Pass the Certificate level study as follows:
  - a. Phase 3 Polytechnic Certificate, MOH
    - Certificate in Electrical & Electronic Engineering
    - Certificate of Electrical Engineering (Control)
    - Certificate in Electrical Engineering (Computer)
    - Certificate in Electrical Engineering (Power)
    - Certificate of Electrical Engineering (Communication)
    - Certificate in Electrical Engineering (Medical)
    - Certificate in Electrical Engineering (Petroleum)
    - Certificate of Electronic Engineering (Petroleum)
  - b. Certificate of MARA Skills Institute Level 3, MOH
    - Certificate of Electronic Engineering Technology (Industrial)
    - Certificate of Electronic Engineering Technology (Instrumentation)
    - Certificate of Electronic Engineering Technology (Telecommunication)
  - c. Malaysia Skills Certificate Level 3 \* Need to follow the bridging program
    - Industrial Instrumentation & Control Operation and Maintenance (EE-230-3: 2013 :)
    - Industrial Instrumentation & Control Senior Technician (CM-010-3)
    - Senior Instrumentation of Industrial & Control Instrumentation (CM-010-3 :)





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# ACADEMIC PROGRAMME

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## DIPLOMA IN ELECTRONIC ENGINEERING (CONTROL)

The Diploma in Electronic Engineering (Control) is designed to cover the current wide discipline of electronic engineering with the added specialization of electronics used in the field of process and factory automation. Graduates are forecast to serve in the field of industrial process control and factory automation. The use of electronics in industrial process control and factory automation today require skilled and trained employees necessary for these new challenges. The factory simulated plant as laboratories for practical work given technical skill and practices work for the students of Polytechnic's Ministry of Education Malaysia.



## JOB PROSPECTS

This programmed provides the knowledge and skills in Electronics Engineering (Control) that can be applied to a broad range of careers in most engineering industry. The knowledge and skills that the students acquire from the programmed will

enable them to participate in the job market as:-

- a. Process Control Technical Assistant
- b. Industrial Automation Technical Assistant
- c. Technical Site Support
- d. Electrical / Electronic Technician
- e. Assistant Engineer
- f. Self-employed



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# PROGRAMME OVERVIEW

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## INTRODUCTION

Electrical engineering is the field of study which generally deals with the application of electrical and electronics towards designing, testing and development of circuitry and equipment for well-defined engineering activities. It requires the application of scientific and engineering knowledge and methods combined with practical skills in supporting well-defined engineering activities to prepare students for their future role in the industry.

Electrical engineering diploma graduates of the Polytechnic's Ministry of Education Malaysia are exposed to a comprehensive curriculum consisting of courses in personal development, mathematics, science, electrical disciplines and workplace competencies requirements. Graduates of the electrical engineering diploma programme will be equipped with specialized knowledge and skills which include power engineering, green technology, energy efficiency, computer technology, communication, medical electronics, optoelectronic and industrial automation.

The Diploma in Electronic Engineering (Control) is a three-year full-time programme comprising of five semesters course work with one full semester of industrial training.

## SYNOPSIS

The Diploma in Electronic Engineering (Control) programme is designed to cover the current wide discipline of electronic engineering, with the added specialization of electronics used in the field of control system and industrial automation. The broadbased electronic foundation of which includes electrical and electronic principles, computer aided design, fundamental programming and simulation. The green elements are also incorporate in the curriculum to provide awareness toward the importance of the sustainable energy.

## VISION

To be the Leading-Edge TVET Institution.

## MISSION

- i. To provide wide access to quality and recognized TVET programmes.
- ii. To empower communities through lifelong learning.
- iii. To develop holistic, entrepreneurial and balanced graduates.
- iv. To capitalise on smart partnership with stakeholders.

## PROGRAMME AIM

This programme believes that all individuals have potential to be a resourceful and adaptable technician to support the nation aspiration in providing engineering talent.

## PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

The engineering programme should produce balanced TVET graduates who are:

PEO1: practicing technician in electrical engineering related field.

PEO2: contributing to society with professional ethic and responsibilities.

PEO3: engaging in enterprising activities that apply engineering knowledge and technical skills.

PEO4: engaging in activities to enhance knowledge for successful career advancement.

## PROGRAMME LEARNING OUTCOMES (PLO)

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

PLO1: apply knowledge of applied mathematics, applied science, engineering fundamentals and an engineering specialisation as specified in DK1 to DK4 respectively 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.

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

Programme Education Objectives (PEO)		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
PEO1	Practicing technician in electrical engineering related field	√	√	√	√	√							
PEO2	Contributing to society with professional ethic and responsibilities						√	√	√				
PEO3	Engaging in enterprising activities that apply engineering knowledge and technical skills									√	√	√	
PEO4	Engaging in activities to enhance knowledge for successful career advancement												√

### Notes:

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

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

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

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

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

DK 6: Codified practical engineering knowledge in recognised practice area.

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

COMPONENTS	COURSE CODE	COURSE	CONTACT HOURS			CREDIT HOURS	PREREQUISITE
			L	P	T		
<b>SEMESTER 1</b>							
Compulsory	DUE 10012	Communicative English 1	1	0	2	2	
	MPU24XX1 MPU24XX1	Sukan Unit Beruniform 1	0	2	0	1	
Common Core	DUW10022	Occupational, Safety and Health for Engineering	2	0	0	2	
	DBM10013	Engineering Mathematics 1	2	0	2	3	
	DBS10012	Engineering Science	2	1	0	2	
Discipline Core	DET10013	Electrical Technology	2	2	0	3	
	DET10022	Electrical Wiring	1	3	0	2	
	DEE10013	Measurement Devices	2	2	0	3	
		<b>TOTAL</b>	<b>26</b>			<b>18</b>	
<b>SEMESTER 2</b>							
Compulsory	MPU21012	Pengajian Malaysia	1	0	2	2	
	MPU24XX1 MPU24XX1	Kelab/Persatuan Unit Beruniform 2	0	2	0	1	MPU24XX1
	Common Core	DBM20013	Engineering Mathematics 2	2	0	2	3
Discipline Core	DET20033	Electrical Circuits	2	2	0	3	DET10013
	DEE20023	Semiconductor Devices	2	2	0	3	
	DEE20033	Digital Electronics	2	2	0	3	
	DEC20012	Programming Fundamentals	1	2	0	2	
		<b>TOTAL</b>	<b>24</b>			<b>17</b>	
<b>SEMESTER 3</b>							
Compulsory	DUE30022	Communicative English 2	1	0	2	2	DUE10012
Common Core	DBM30043	Electrical Engineering Mathematics	2	0	2	3	DBM20023
Discipline Core	DEE30043	Electronic Circuits	2	2	0	3	
	DEE30052	Electronic Equipment Repair	1	3	0	2	DEE20023
	DEE30071	Electronic Computer Aided Design	0	2	0	1	
	DEE30061	Computer Aided Electrical Drawing	0	2	0	1	
Specialisation	DEJ30013	Basic Control System	2	2	0	3	
	DEJ30023	Instrumentation	2	2	0	3	
		<b>TOTAL</b>	<b>27</b>			<b>18</b>	
<b>SEMESTER 4</b>							
Compulsory	DUE50032	Communicative English 3	1	0	2	2	DUE30022
	MPU22012	Entrepreneurship	1	0	2	2	
Discipline Core	DEE40053	Embedded System Application	2	2	0	3	DEC20012
Specialisation	DEJ4033	Programmable Logic Controller (PLC) and Automation	2	2	0	3	
	DEJ40043	Control Systems	2	2	0	3	DEJ30013
	DEE40082	Project 1	1	2	0	2	
Electives		Elective 1	0	0	0	2	
		<b>TOTAL</b>	<b>21</b>			<b>17</b>	

SEMESTER 5							
Compulsory	MPU23052 MPU23042	Sains Teknologi dan Kejuruteraan Islam* Nilai Masyarakat Malaysia**	1	0	2	2	
Discipline Core	DEC30023	Computer Networking Fundamentals	2	2	0	3	
	DET40073	Power Electronics	2	2	0	3	
Specialisation	DEJ 50063	Process Measurement	1	2	0	3	
	DEE50102	Project 2	0	3	0	2	DEE40082
Electives		Elective 2	0	0	0	2	
		TOTAL	17			15	
SEMESTER 6							
Industrial Training	DUT600610	Engineering Industrial Training	0	0	0	10	
		TOTAL				10	
<b>TOTAL CREDIT VALUE</b>						<b>95</b>	

	Total Credit	%
i. (a) Compulsory	14	15%
(b) Compulsory (Bahasa Kebangsaan A) <sup>b</sup>	2 <sup>b</sup>	0%
ii. Common Core	13	14%
iii. Discipline Core	35	37%
iv. Specialisation	19	20%
<b>Total Credit</b>	<b>81</b>	
v. (a) Electives	4	4%
(b) Free Electives*	2*	0%
vi. Industrial Training	10	11%
<b>Grand Total Credit</b>	<b>95</b>	<b>100%</b>

Engineering & Engineering Technology Courses	Total Hours	%
i. Lecture	31	41%
ii. Practical	45	59%
iii. Tutorial	0	0%
<b>Total Contact Hours</b>	<b>76</b>	<b>100%</b>

**Legend:**

L : Lecture, P : Practical / Lab, T : Tutorial, O : Others

(The numbers indicated under L, P, T & O represent the contact hours per week, to be used as a guide for time table preparation)

\*For Muslim Students

\*\*For Non Muslim Students

**Notes:**

1. The minimum and maximum credit value of Electives must be referred to the programme standard or professional bodies.
2. **Free Electives** are courses which are not included in any programme structure but if taken, will contribute towards students' CGPA, provided that institutions adhere to the Jabatan Pendidikan Politeknik & Kolej Komuniti Free Electives Guidelines.
3. **MPU22042 Bahasa Kebangsaan A** is **COMPULSORY** for students who did not attain credit in Bahasa Melayu at Sijil Pelajaran Malaysia (SPM) level and will contribute to students' CGPA.
4. Co-curriculum pathways:
  - a. Path 1 : Sport and Club
  - b. Path 2 : Uniform Unit (Students are required to **PASS** Uniform Unit 1 as a prerequisite to Uniform Unit 2)
5. Clusters:
  - a. CLS1 : Knowledge & Understanding
  - b. CLS2 : Cognitive Skills
  - c. CLS3a : Practical Skills
  - d. CLS3b : Interpersonal & Communication Skills
  - e. CLS3c : Digital & Numeracy Skills
  - f. CLS3d : Leadership, Autonomy & Responsibility
  - g. CLS4 : Personal & Entrepreneurial Skills
  - h. CLS5 : Ethics & Professionalism



**SEMESTER 3**

**COURSE** : DEJ30013 **Basic Control System**  
**CREDIT(S)** : 3  
**PRE REQUISITE(S)** : NONE

**SYNOPSIS**

BASIC CONTROL SYSTEM introduces students to the fundamental ideas of classical control theory such as the basic concept of control system, transfer function and time domain analysis. Student will also be introduced to the concept of controller in control system. The goal is to instill the students' interests in the fields of control system and to provide a solid background for engineering applications in control system techniques

**COURSE** : DEJ30023 **Instrumentation**  
**CREDIT(S)** : 3  
**PRE REQUISITE(S)** : NONE

**SYNOPSIS**

INSTRUMENTATION provides knowledge regarding the concept and basic pneumatic system, electro-pneumatic system, hydraulic system and instrumentation drawing and equipment used in the processing industries. The emphasis of the course is to identify and provide knowledge of the general symbols, components in pneumatic and hydraulic systems as well as useful information on types of equipment used in a processing system

**SEMESTER 4**

**COURSE** : DEJ40033 **Programmable Logic Controller (Plc) And Automation**  
**CREDIT(S)** : 3  
**PRE REQUISITE(S)** : NONE

**SYNOPSIS**

PROGRAMMABLE LOGIC CONTROLLER (PLC) AND AUTOMATION provides knowledge regarding the concept and principle of automation system. This course emphasizes the relationship between conventional/hardwired/relay ladder logic (RLL) and PLC system, application of various industrial input and output devices of PLC, designing process, programming, constructing and PLC maintenance method. This course also provides knowledge and skills in designing environmentally friendly of automation control system based on conventional/hardwired/relay ladder logic (RLL) and PLC.

**COURSE** : DEJ40043 Control Systems  
**CREDIT(S)** : 3  
**PRE REQUISITE(S)** : DEJ30013 Basic Control System

### SYNOPSIS

CONTROL SYSTEMS introduces students to the concept and technique of classical control system. The main focus is to enable students to describe in detail the necessary mathematical tools used in the analysis of a system. Students will be exposed to the principles of analogue electronic controller and tuning of PID controllers, the concept of system stability and performance, frequency response analysis and Root Locus rules.

## SEMESTER 5

**COURSE** : DEE40082 Project 1  
**CREDIT(S)** : 2  
**PRE REQUISITE(S)** : NONE

### SYNOPSIS

PROJECT 1 provides knowledge regarding the implementation and development methods of a project based on hardware or software or a combination of tools and software. This course provides exposure to the selection and early planning of a project, techniques to develop project, application of computer aided design as well as methods of preparing and presenting project.

## SEMESTER 5

**COURSE** : DEJ50063 Process Measurement  
**CREDIT(S)** : 3  
**PRE REQUISITE(S)** : NONE

### SYNOPSIS

PROCESS MEASUREMENT provides knowledge regarding the concept and basic principles of level, flow, pressure and temperature measurement. The course emphasize on identifying and understanding the methods of measuring variables process and general equipment in process system. Overall, this course covers basic theories, structure diagrams, operating principles as well as the application of a particular instrument especially in processing industry.

**COURSE** : DEE50102 Project 2  
**CREDIT(S)** : 2  
**PRE REQUISITE(S)** : DEE40082 PROJECT 1

### SYNOPSIS

PROJECT 2 is the continuation of EE501 PROJECT 1 course. The course focuses on methods of circuit construction, testing, troubleshooting, debugging, repair and also completion of the project which was planned during the previous semester. This course also requires students to prepare a project report in a given format and deliver a project presentation at the end of the semester.



# LABORATORY FACILITIES

## LABORATORY FACILITY



The programme are complemented by laboratory work. This programme provides four laboratories to teaching objective and doing practical training. These laboratories are equipped with industrial, sophisticated and high-tech instruments in control, process and automation field.

Laboratories	Location	Lab Coordinator
Instrumentation and Control Laboratory	MB008	Pn Fa'izah Yaacob
Process Control Laboratory	MB013	PN Norhana Mohd Salleh
Automation and system Laboratory	MB014	Pn Rokiah Hassan
Industrial Technology Laboratory	MB014(A) MB016	Pn Rokiah Hassan

The laboratory is an introduction to the dynamic behavior of pilot-scale equipment and the operation of a feedback controller. The principle aim is to understand the role and operation of the main components in a feedback loops. The courses that engage students for practical training are EJ301 (Basic Control System), EJ502 (Control Systems) and EJ501 (Programmable Logic Controller (PLC & Automation))



## Instrumentation and control lab



## Process Control lab

Process Control laboratory provides a “hands-on” environment that is crucial for developing students’ understanding of theoretical concepts. Process Control laboratory provides training plant consists of temperature measurement, level measurement, pressure measurement and flow measurement. These are arranged in different control configuration to achieve specific control objectives. The courses that engage students for practical training are EJ301 (Basic Control Svstem). EJ302 (Instrumentation).



## Automation and system lab

The application of laboratory automation and system are robotics, pneumatic and hydraulic. More generally, the field of laboratory automation and system comprises automated laboratory instruments, devices and pneumatic and hydraulic trainers. The courses for students' practical training are EJ301 (Basic Control System), EJ302 (Instrumentation), EJ501 (Programmable Logic Controller (PLC & Automation), EJ502 (Control Systems) and EJ601 (Process Measurement)



## Industrial Technology lab

Industrial Technology Laboratory (ITL) is also known as High Technology Laboratory is a **PROBLEM BASE LAB (PBL)**. This lab has been setup at the end of year 2010 requires active participation of lecturers and students to do their research. The courses that engage students for practical training are EJ602 (Industrial Control), EE501 (Project 1), EE601 (Project 2) and EJ501 (Programmable Logic Controller (PLC & Automation)



# CONTACT

**For further information, don't be hesitate to contact us:**

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