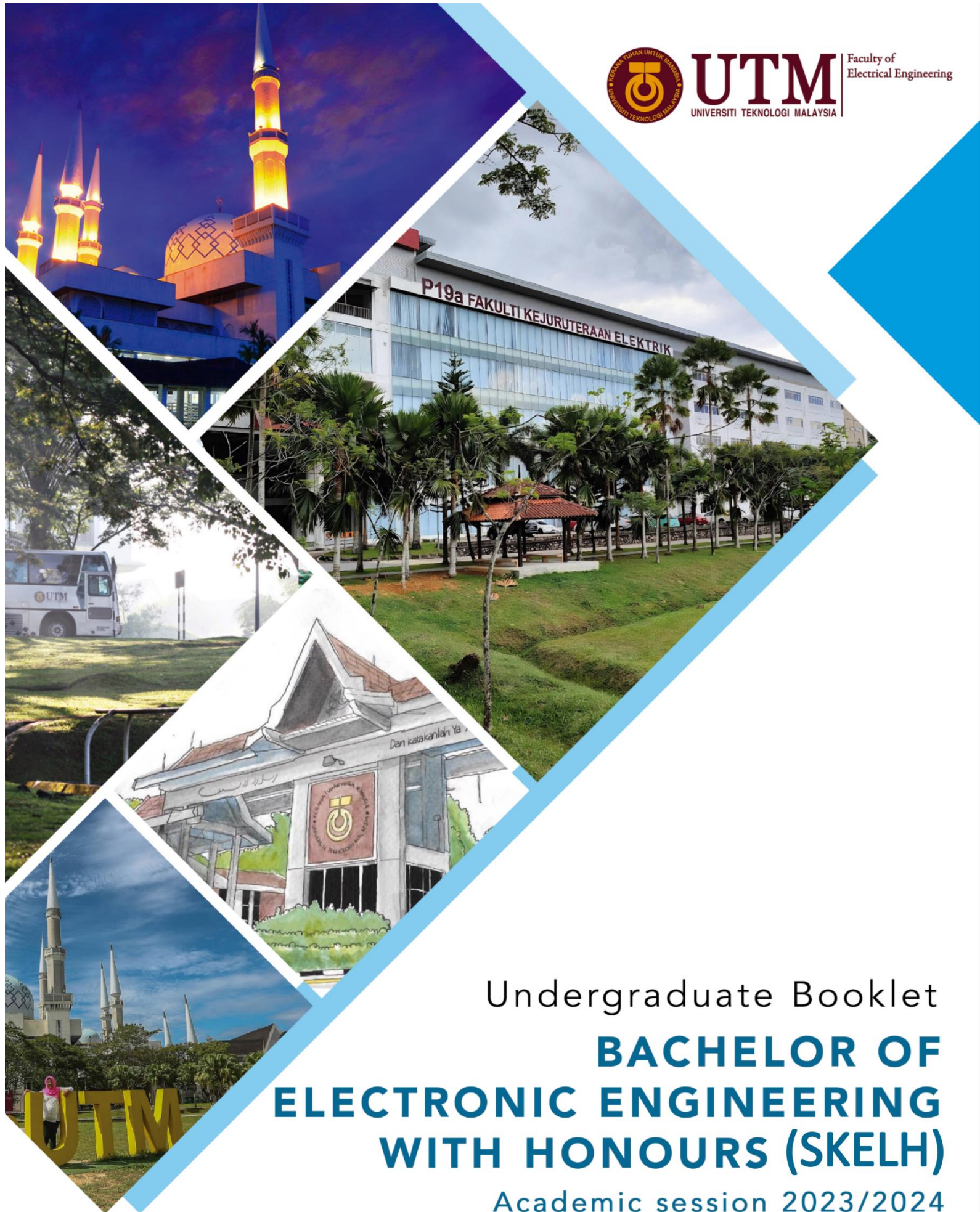UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Faculty of
Electrical Engineering

Undergraduate Booklet

BACHELOR OF ELECTRONIC ENGINEERING WITH HONOURS (SKELH)

Academic session 2023/2024

Profile Page

BACHELOR OF ELECTRONIC ENGINEERING
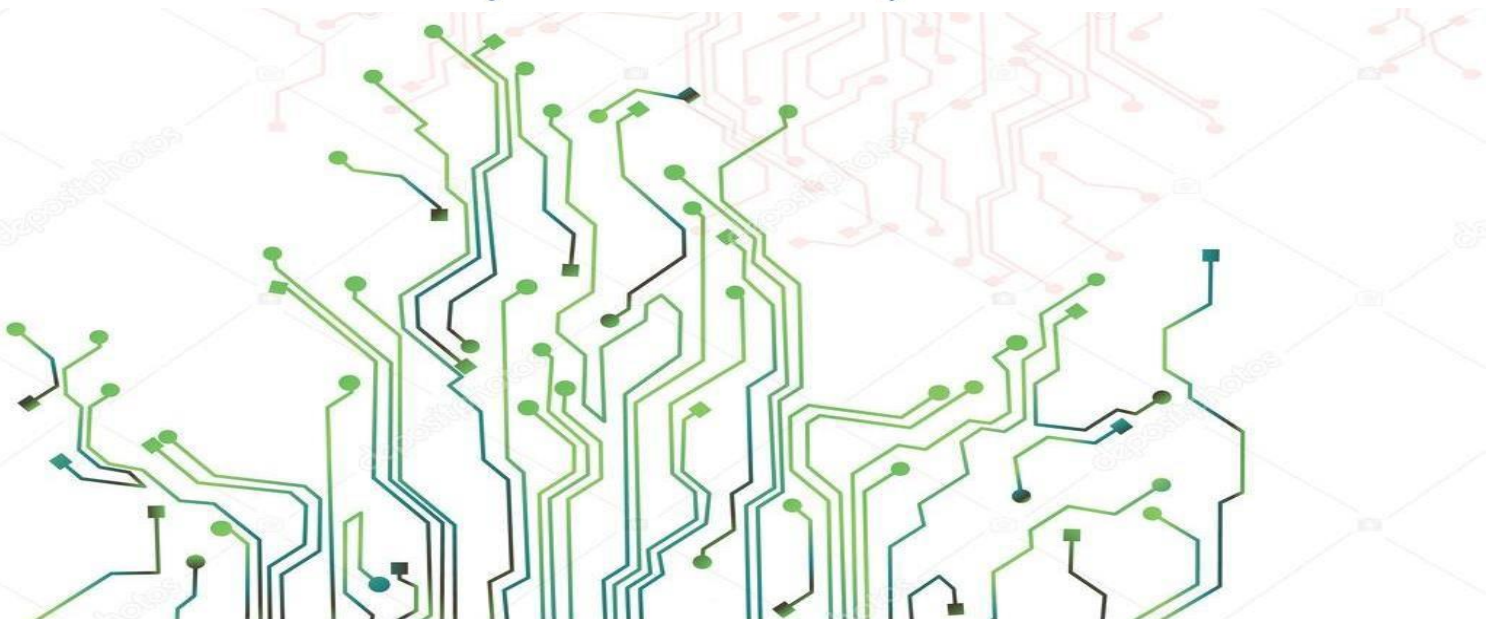## WITH HONOURS (SKELH)

Name of Student : _____

Matric. No. : _____

Phone No. : _____

Email : _____

Name of Academic Advisor : _____

A journey of thousand miles begins with a single step.

PROGRAMME GUIDELINES

The University adopts the semester system, for an academic year it is divided into two (2) normal semesters, namely Semester I and Semester II, and a short semester at the end of Semester II. New intake of undergraduate students is normally made during Semester I of an academic year. The minimum duration of the programme is 4 years (8 semesters).

All courses offered by the faculty have credits, except for courses which are approved by the University Senate. One (1) credit is equivalent to 14 hours of lectures or 30 hours of practical sessions (studio/project), in a semester. The total number of credits for the Bachelor of Electronic Engineering with Honours (SKELH) programme is 137 credits.

All students' performance and achievements are assessed formally. Normally, every course is assessed based on the coursework, which constitutes not less than 50% of the overall marks, and a final exam paper, which constitutes another 50%. Coursework can be in the form of homework, quiz, test and presentation. Final examination is held at the end of each academic semester. Students' performance in a course is indicated by the letter grade, generally the passing grade for any course is a 'D+'. Students who failed a course (obtained a grade 'D' and below) are required to repeat the course the following semesters when it is offered. Students may improve the grade of any course with a 'B-' or lower grade with a maximum of 15 credits allowed. Subject to the Faculty and University's Academic Regulation, students may withdraw from a course within the stipulated period. Other information on academic regulation can be retrieved from UTM website (UTM Academic Regulations).

A student must pass all courses specified in his/her programme of study and fulfil all the requirements specified for his/her programme of study set by the Faculty and University in order to be awarded with the Bachelor degree.

PROGRAMME LEARNING OUTCOMES (PLO)

All undergraduate programmes offered in FKE share a common Programme Learning Outcomes (PLO). After having completed the Bachelor degree programme, graduates should be able to demonstrate the following competencies:

PLO	PLO STATEMENTS
PLO1 (Engineering Knowledge)	Apply knowledge of mathematics, science, and electrical engineering to the solution of complex engineering problems. *Mengaplikasi pengetahuan matematik, sains dan kejuruteraan elektrik untuk penyelesaian masalah kejuruteraan yang kompleks.*
PLO2 (Problem Analysis)	Identify, formulate, and conduct research literature to analyse complex engineering problems using engineering knowledge. *Mengenalpasti, merumus dan menjalankan kajian literatur untuk menganalisa masalah kejuruteraan yang kompleks menggunakan pengetahuan kejuruteraan.*
PLO3 (Design)	Design solutions for complex engineering problems and design systems and processes that meet specified needs with appropriate consideration for public health and safety, culture, society, and environment. *Mereka bentuk penyelesaian untuk masalah kejuruteraan yang kompleks dan mereka bentuk sistem dan proses yang memenuhi keperluan spesifik dengan pertimbangan yang sesuai untuk kesihatan dan keselamatan awam, budaya, masyarakat dan alam sekitar.*
PLO4 (Investigation)	Perform research-based analysis, conduct experiments and interpret data for complex engineering problems. *Melakukan analisis berasaskan penyelidikan, menjalankan eksperimen dan mentafsir data untuk masalah kejuruteraan yang kompleks.*
PLO5 (Modern Tool Usage)	Apply engineering practice and use modern engineering, and IT tools for complex engineering problems with an understanding of the limitations of the technology. *Mengaplikasi amalan kejuruteraan dan menggunakan peralatan kejuruteraan dan IT yang moden untuk masalah kejuruteraan yang kompleks dengan pemahaman tentang batasan teknologi.*
PLO6 (Engineer & Society)	Comprehend the impact of global and contemporary issues, the role of engineers on society, including health, safety, legal and cultural issues, and the consequent responsibilities relevant to professional engineering practices and complex engineering problems. *Memahami kesan isu global dan kontemporari, peranan jurutera ke atas masyarakat, termasuk isu kesihatan, keselamatan, perundangan dan budaya, serta tanggungjawab yang berkaitan dengan amalan kejuruteraan profesional dan masalah kejuruteraan yang kompleks.*

PLO	PLO STATEMENTS
PLO7 (Environment & Sustainability)	Comprehend and evaluate the sustainability and impact of professional engineering work in the solutions of complex engineering problems in societal and environmental contexts. *Memahami dan menilai kemampanan dan impak kerja kejuruteraan profesional dalam penyelesaian masalah kejuruteraan yang kompleks dalam konteks masyarakat dan alam sekitar.*
PLO8 (Ethics)	Grasp and execute responsibility professionally and ethically in professional engineering practices. *Menguasai dan melaksanakan tanggungjawab secara profesional dan beretika dalam amalan kejuruteraan profesional.*
PLO9 (Individual & Teamwork)	Function effectively as an individual, and as a member or leader in diverse teams. *Berfungsi secara berkesan sebagai individu, dan sebagai ahli atau ketua dalam pelbagai kumpulan.*
PLO10 (Communication)	Articulate ideas, communicate effectively, in writing and verbally, on complex engineering activities with the engineering community and with society at large. *Menyatakan idea, berkomunikasi secara berkesan, secara bertulis dan lisan, mengenai aktiviti kejuruteraan yang kompleks dengan komuniti kejuruteraan dan dengan keseluruhan masyarakat.*
PLO11 (Project Management)	Demonstrate knowledge and understanding of engineering and management principles, and economic decision- making to manage projects in multidisciplinary environments. *Menunjukkan pengetahuan dan pemahaman tentang prinsip kejuruteraan dan pengurusan, danmembuat keputusan secara ekonomik untuk mengurus projek dalam persekitaran pelbagai disiplin.*
PLO12 (Life-Long Learning)	Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. *Mengenalpasti keperluan dan mempunyai persediaan serta keupayaan untuk melibatkan diri dalam pembelajaran kendiri dan pembelajaran sepanjang hayat merangkumi konteks perubahan teknologi yang luas.*

PROFESSIONAL SKILLS CERTIFICATE (PSC)

UTM has designed its own UTM Professional Skills Certificate (UTM PSC) programme to enhance the knowledge and skills of UTM students. It provides students with value-added courses so that they will have a competitive-edge skills when they enter the employment market. Students will receive a Certificate of UTM Professional Skills Programme and the courses taken will appear in the student transcript. Students are required to undertake and must pass five (5) PSC courses as listed as follows in order to graduate:

COMPULSORY COURSES (ALL THREE (3) COURSES)

NO	COURSES	CODE
1	Design Thinking for Entrepreneur	GLRB0010
2	Talent and Competency Management	GLRM0010
3	English Communication Skills for Graduating Students	GLRL0010

ELECTIVE COURSES (ANY TWO (2) OF THESE COURSES)

NO	COURSES	CODE
1	Data Analytics for Organization	GLRT0010
2	Professional Ethics and Integrity	GLRM0020
3	Construction Measurement (Mechanical & Electrical)	GLRT0020
4	OSHE For Engineering Industry and Laboratory	GLRT0030
5	Quality Management for Built Environment and Engineering Professionals	GLRT0050
6	Safety and Health Officer Introductory Course	GLT0060
7	Industrial Machinery and Lubrication	GLRT0070

PRISMS
(PROGRAM INTEGRASI SARJANA MUDA - SARJANA)
(4 YEARS BACHELOR DEGREE + 1 YEAR MASTER DEGREE)

PRISMS is a newly introduced programme that integrates undergraduate high-level elective SKE* 5**3 courses with the core courses of the Master degree programme. Under PRISMS, students have an opportunity to complete and receive two degrees which are Bachelor degree and Master degree within 5 years (4+1).

REQUIREMENTS

Students who have completed third year second semester courses with a cumulative grade point average (CGPA) of 3.3 and above are eligible to apply for PRISMS. Students can apply using the PRISMS application form and must be recommended by the Academic Advisor, approved by the Program Director, and certified by the Dean of Faculty. Once the application to join PRISMS is approved, students can register for the SKE* 5**3 courses during the course pre-registration or compulsory registration period.

PRISMS CREDIT TRANSFER

Students must obtain grade B and above of the high-level elective SKE* 5**3 courses for vertical credit transfer into the Master degree program that students plan to enroll. Maximum unit allowed for the credit transfer is twelve (12) credits.

For more information on PRISMS, kindly visit FKE website.

BACHELOR OF ELECTRONIC ENGINEERING WITH HONOURS (SKELH)

Introduction

A rapid development in electronics, computer and telecommunication industry is one of the major contributors to the Malaysian economy. Rapid development has enabled the electronic, computer and telecommunication industry to flourish. This means that more and more competent electronic graduates are required, to meet the growing demand of skilled manpower. The requirements towards professionals in this field is gradually intensifying and it is predicted that the need will be continued in the next few years. Electronic Engineering is a vast area of studies and is gradually expanding. Graduates undertaking this programme will face a demanding professional career ahead. Various courses are being offered within the programme with the intention of preparing graduates with sufficient knowledge in the electronic field.

Programme Specifications

The Bachelor of Electronic Engineering with Honours is offered either on a full-time or part time basis. The full-time programme is offered only at the UTM Main Campus in Johor Bahru, while the part-time programme is offered at various learning centres throughout Malaysia. The duration of study for the full-time programme is subjected to the student's entry qualifications and lasts between four (4) years to a maximum of six (6) years.

The programme is offered on full-time basis and is based on a 2-Semester per academic session. Generally, students are expected to undertake courses equivalent to between fifteen (15) to eighteen (18) credit hours per semester. Assessment is based on courseworks and final examinations given throughout the semester.

Programme Educational Objectives (PEO)

After having exposed to 3 to 5 years working experience, our graduates should become professionals who demonstrate the following competencies:

Code	Educational Objectives	Target/KPI
PEO1	Become Electronic Engineers who are competent, innovative, and productive in addressing stakeholders' needs.	60% of graduates work as engineer AND 10% of graduates work as senior engineer
PEO2	Grow professionally with proficient soft skills.	5% of graduates pursued postgraduate studies or enrolled in self-improvement skill-based workshops (or equivalent) AND 1% of graduates become Professional Engineers or attain equivalent professional qualification
PEO3	Demonstrate high standards of ethical conduct, positive attitude, and societal responsibilities.	10% of graduates are involved in services to community.

PROGRAMME GENERAL INFORMATION		
1.	Awarding Institution	**Universiti Teknologi Malaysia**
2.	Teaching Institution	**Universiti Teknologi Malaysia**
3.	Programme Name	**Bachelor of Electronic Engineering with Honours**
4.	Final Award	**Bachelor of Electronic Engineering with Honours**
5.	Programme Code	**SKELH**
6.	Professional or Statutory Body of Accreditation	**Board of Engineers Malaysia (BEM)**
7.	Language(s) of Instruction	**English and Bahasa Melayu**
8.	Mode of Study (Conventional, distance learning, etc)	**Conventional**
9.	Mode of operation (Franchise, self-govern, etc)	**Self-governing**
10.	Study Scheme (Full Time/Part Time)	**Full Time**
11.	Study Duration	**Minimum: 4 yrs Maximum: 6 yrs**

Type of Semester	No. of Semesters		No. of Weeks/ Semester	
	Full Time	Part Time	Full Time	**Part Time**
Normal	8	-	18	-
Short	**4**	**-**	**10**	**-**

COURSE CLASSIFICATION
BACHELOR OF ELECTRONIC ENGINEERING WITH HONOURS - SKELH

No.	Classification	Credit Hours	Percentage (%)
1	University General Courses	16	11.7
2	Mathematics	15	10.9
3	Programme Core	80	58.4
4	Programme Electives	21	15.3
5	Free Electives	5	3.7
	Total	137	100
A	**Engineering Courses**		
	a) Lecture/Project/Laboratory	90	
	b) Workshop/Field/Design Studio	-	73.7
	c) Industrial Training	5	
	d) Final Year Project	6	
	Total Credit Hours for Part A	101	
B	**Related Courses**		
	a) Applied Science/ Mathematic/ Computer	15	
	b) Management/ Law/ Humanities/ Ethic/ Economy	8	
	c) Language	6	26.3
	d) Co-Curriculum	2	
	e) Free Electives	5	
	Total Credit Hours for Part B	36	100
	Total Credit Hours for Part A and B	137	100
	Total Credit Hours to Graduate	**137**	

Award Requirements

To graduate, students must:
- Attain a total of not less than 137 credit hours (SKELH) with a minimum CGPA of 2.0.
- Complete Professional Skills Certificates (PSC).

STUDY PLAN
BACHELOR OF ELECTRONIC ENGINEERING WITH HONOURS – SKELH
COHORT 2023/2024

COURSE MENU YEAR 1

CODE	COURSE	CREDIT	PRE-REQUISITE
YEAR 1: SEMESTER 1			
ULRS 1032	Integrity and Anti-Corruption	2	
SSCE 1693	Engineering Mathematics I	3	
SKEE 1012	Introduction to Electrical Engineering	2	
SKEE 1013	Electrical Circuit Analysis	3	
SKEE 1033	Scientific Programming	3	
SKEE 1233	Digital Electronic Systems	3	
	Total Credits	**16**	
YEAR 1: SEMESTER 2			
SSCE 1793	Differential Equations	3	SSCE 1693
SEMU 2113	Engineering Science	3	
SKEE 1103	C Programming for Engineers	3	
SKEE 1073	Electronic Devices and Circuits	3	SKEE 1013
SKEE 2133	Electronic Instrumentation and Measurement	3	
ULRS 1182	Appreciation of Ethics and Civilizations (for Local Students)	2	
UHLM 1012	Malay Language for Communication 2 (for International Students)		
	Total Credits	**17**	

COURSE MENU YEAR 2

CODE	COURSE	CREDIT	PRE-REQUISITE
YEAR 2 : SEMESTER 1			
SSCE 1993	Engineering Mathematics II	3	SSCE 1693
SKEE 2073	Signal and Systems	3	
SKEE 3223	Microprocessor	3	SKEE 1223
SKEE 2433	Principles of Electrical Power Systems	3	SKEE 1013
SKEE 3263	Electronic Systems	3	SKEE 1073
SKEE 2752	Electronic Design Laboratory	2	
	Total Credits	**17**	
YEAR 2: SEMESTER 2			
SSCE 2193	Engineering Statistics	3	
SKEE 2523	Electromagnetic Field Theory	3	SSCE 1993
SKEE 3133	System Modelling and Analysis	3	SKEE 2073
SKEL 3233	Digital Signal Processing	3	SKEE 2073
UHLB 2122	Professional Communication Skills 1	2	
ULRF 2**2	Elective of Service Learning and Community Engagement	2	
ULRS 1022	Philosophy and Current Issues. (for Local Students)	2	
ULRS 1022 OR ULRS 1182	Philosophy and Current Issues OR Appreciation of Ethics and Civilizations (for International Students)		
	Total Credits	**17**	

COURSE MENU YEAR 3

CODE	COURSE	CREDIT	PRE-REQUISITE
YEAR 3: SEMESTER 1			
UHL* 1112	Elective of Foreign Language for Communication	2	
UHLB 3132	Professional Communication Skills 2	2	
SSCE 2393	Numerical Methods	3	
SKEE 3143	Control System Design	3	SKEE 3133
SKEE 3533	Communication Principles	3	SKEE 2073
SKEE 3732	Common Third Year Laboratory	2	SKEE2752
S*** ***3	Free Elective 1	3	
	Total Credits	18	
YEAR 3: SEMESTER 2			
SKEE 3733	Integrated Design Project	3	SKEE 3732
SKEL 3383	RTL Design	3	SKEE 1233
SKEE 3742	Specialized Third Year Laboratory	2	SKEE2752
SKE* ***3	Field Core 1	3	
SKE* ***3	Field Core 2	3	
S*** ***2	Free Elective 2	2	
ULRS 3032	Entrepreneurship & Innovation	2	
	Total Credits	18	
YEAR 3: SEMESTER 3			
SKEE 3925	Industrial Training	5	
	Total Credits	**5**	

COURSE MENU YEAR 4

CODE	COURSE	CREDIT	PRE-REQUISITE
YEAR 4: SEMESTER 1			
SKEE 4542	Engineering Management Principles	2	
SKEE 4813	Methodology of Research and Development	3	
SKE* ***3	Field Elective 1 / PRISMS Elective 1	3	
SKE* ***3	Field Elective 2 / PRISMS Elective 2	3	
SKE* ***3	Field Elective 3 / PRISMS Elective 3	3	
SKE* ***3	Field Elective 4 / PRISMS Elective 4/ Faculty Free Elective 1	3	
	Total Credits	**17**	
YEAR 4: SEMESTER 2			
SKEE 4012	Professional Engineering Practice	2	
SKEE 4826	Final Year Project	6	SKEE 4813
SKE* ***3	Field Elective 5 / Faculty Free Elective 2	3	
	Total Credits	**11**	
	CUMULATIVE CREDITS	**137**	

ELECTIVE FIELDS

1. ELECTRONIC SYSTEM DESIGN				Total Credit
Type of Elective	**Course Code**	**Course Name**	**Credit Hours**	
Core Elective	SKEL 4743	Basic Digital VLSI Design	3	6
	SKEL 4373	IC Testing Techniques	3	
Field Elective (*choose 5)	SKEL 4293	Advanced Digital Signal Processing	3	15
	SKEL 4333	Computer Architecture and Organization	3	
	SKEL 4363	Digital Image Processing	3	
	SKEL 4283	Analog CMOS IC Design	3	
	SKEL 4663	Embedded Processor System	3	
	SKEL 4673	DSP Architectures	3	
	SKEE 4513	Special Topic in Electrical Engineering	3	
Total Credit Hours				**21**

2. MICROELECTRONICS				Total Credit
Type of Elective	**Course Code**	**Course Name**	**Credit Hours**	
Core Elective	SKEL 3613	Semiconductor Material Engineering	3	6
	SKEL 4743	Basic Digital VLSI Design	3	
Field Elective (*choose 5)	SKEL 4283	Analog CMOS IC Design	3	15
	SKEL 4373	IC Testing Techniques	3	
	SKEL 4613	Semiconductor Device Engineering	3	
	SKEL 4623	Solid State Electronic Device	3	
	SKEL 4633	Microelectronic Device Fabrication and Characterization	3	
	SKEL 4683	Nanoelectronics Materials and Applications	3	
	SKEL 4653	Modelling and Simulation of Microelectronic Devices	3	
	SKEE 4513	Special Topic in Electrical Engineering	3	
Total Credit Hours				**21**

3. COMPUTER ENGINEERING

Type of Elective	Course Code	Course Name	Credit Hours	Total Credit
Core Elective	SKEL 4333	Computer Architecture and Organization	3	6
	SKEL 4663	Embedded Processor System	3	
Field Elective (*choose 5)	SKEL 4213	Software Engineering	3	15
	SKEL 4343	Information Security	3	
	SKEL 4673	DSP Architectures	3	
	SECR 2043	Operating System	3	
	SKEM 4173	Artificial Intelligence	3	
	SKET 3623	Data Communication and Networks	3	
	SKEE 4513	Special Topic in Electrical Engineering	3	
Total Credit Hours				**21**

4. MEDICAL ELECTRONICS

Type of Elective	Course Code	Course Name	Credit Hours	Total Credit
Core Elective	SKEB 3503	Physiology and Introduction to Medicine	3	6
	SKEB 3043	Instrumentation and Measurement in Biomedical	3	
Field Elective (*choose 5)	SKEB 3423	Clinical Engineering 1	3	15
	SKEB 4023	Biomedical Signal Processing	3	
	SKEL 4543	Biosystem Modelling	3	
	SKEB 3023	Biomedical Imaging	3	
	SKEL 4563	Biosensors and Transducers	3	
	SKEB 3313	Biomedical Materials	3	
	SKEE 4513	Special Topic in Electrical Engineering	3	
Total Credit Hours				**21**

5. TELECOMMUNICATION ENGINEERING

Type of Elective	Course Code	Course Name	Credit Hours	Total Credit
Core Elective	SKET 3573	Microwave Engineering	3	6
	SKET 3623	Data Communication and Networks	3	
Field Elective (*choose 5)	SKET 3583	Digital Communication Systems	3	15
	SKET 4523	Optical Communication Systems	3	
	SKET 4533	Wireless Communication Systems	3	
	SKET 4543	RF Microwave Circuit Design	3	
	SKET 4593	Acoustic Engineering	3	
	SKET 4613	Antenna Theory and Design	3	
	SKET 4623	Network Programming	3	
	SKET 4643	Optical Materials and Sensors	3	
	SKET 4663	Optical Network	3	
	SKEE 4513	Special Topic in Electrical Engineering	3	
Total Credit Hours				**21**

Type of Elective	Course Code	Course Name	Credit Hours	Total Credit
PROGRAM INTEGRASI SARJANA MUDA-SARJANA (PRISMS)				**Total Credit**
Field Elective (*maximum choose 4)	SKEL 5113	Advanced Nanoelectronics Devices	3	12
	SKEL 5123	Advanced Microprocessor System	3	
	SKEL 5173	Advanced Digital System Design	3	
	SKEL 5193	Advanced Analog CMOS IC Design	3	
	SKET 5313	Communication and Computer Networks	3	
	SKET 5423	Advanced Wireless Communication Systems	3	
	SKET 5513	Sustainable Design, Engineering and Management	3	
	SKET 5523	Internet of Things Technologies	3	

COURSE FLOW BACHELOR OF ELECTRONIC ENGINEERING WITH HONOURS (SKELH)

	YEAR 1		YEAR 2		YEAR 3		YEAR 4	
	SEM 1	SEM 2	SEM 1	SEM 2	SEM 1	SEM 2	SEM 1	SEM 2
	SSCE 1693	SSCE 1793	SSCE 1993	SSCE 2193	SSCE 2393		SKEE 4542	SKEE 4012
		SEMU 2113		SKEE 2523			SKEE 4813	SKEE 4826
	SKEE 1012	SKEE 1103	SKEE 2073	SKEE 3133	SKEE 3143	SKE* ***3	SKE* ***3	SKE* ***3
	SKEE 1013	SKEE 1073	SKEE 3263	SKEL 3233		SKE* **3	SKE* ***3	
	SKEE 1033	SKEE 2433			SKEE 3533		SKE* ***3	
	SKEE 1233		SKEE 3223		SKEL 3383		SKE* ***3	
		SKEE 2133						
						SKEE 3742		
			SKEE 2752		SKEE 3732	SKEE 3733		
	ULRS 1012	ULRS 1182 (Local)/ UHLM 1012 (Intl.)		ULRF 2**2				
				ULRS 1022 (Local/Intl.)/ ULRF 1182 (Intl.)	S**3 ***3	S**2 ***2		
					UHL* 1112	ULRS 3032		
				UHLB 2122	UHLB 3132	SKEE 4925		

Legend:

University	Language	Mathematics	Free Electives	Eng. Core	Eng. Electives	Laboratory	Industrial Training

GRADUATION CHECKLIST

It is the responsibility of the students to ensure that all courses are taken and passed. Students who do not complete any of the courses are not eligible to graduate.

NO	CODE	COURSE	CREDIT EARNED	CREDIT COUNTED	TICK (/) IF PASSED
ENGINEERING COURSES					
1	SKEE 1012	Introduction to Electrical Engineering	2	2	
2	SKEE 1013	Electrical Circuit Analysis	3	3	
3	SKEE 1033	Scientific Programming	2	2	
4	SKEE 1073	Electronic Devices and Circuits	3	3	
5	SKEE 1233	Digital Electronic Systems	3	3	
6	SKEE 2073	Signal and Systems	3	3	
7	SKEE 2133	Electronic Instrumentation & Measurement	3	3	
8	SKEE 2433	Principles of Electrical Power Systems	3	3	
9	SKEE 2523	Electromagnetic Field Theory	3	3	
10	SKEE 2752	Electronic Design Laboratory	2	2	
11	SKEE 3133	System Modeling & Analysis	3	3	
12	SKEE 3143	Control System Design	3	3	
13	SKEE 3223	Microprocessor	3	3	
14	SKEE 3263	Electronic Systems	3	3	
15	SKEL 3383	RTL Design	3	3	
16	SKEE 3533	Communication Principles	3	3	
17	SKEE 3732	Common Third Year Laboratory	2	2	
18	SKEE 4012	Professional Engineering Practice	2	2	
19	SKEE 3742	Specialized Third Year Laboratory	2	2	
20	SKEL 3233	Digital Signal Processing	3	3	
21	SKEE 3733	Integrated Design Project	3	3	
22	SKEE 4813	Methodology of Research and Development	3	3	
23	SKEE 4826	Final Year Project	4	4	
24	SKEE 3925	Industrial Training	5	HL	
25	SEMU 2113	Engineering Science	3	3	
26	SKE* ***3	Field Core 1	3	3	
27	SKE* ***3	Field Core 2	3	3	
28	SKE* ***3 / SKE* 5**3	Field Elective 1 / PRISMS Elective 1	3	3	
29	SKE* ***3 / SKE* 5**3	Field Elective 2 / PRISMS Elective 2	3	3	
30	SKE* ***3 / SKE* 5**3	Field Elective 3 / PRISMS Elective 3	3	3	
31	SKE* ***3 / SKE* 5**3	Field Elective 4 / PRISMS Elective 4	3	3	
32	SKE* ***3	Field Elective 5	3	3	
33	SKE* ***3	Field Elective 6	3	3	
34	SKEE 1103	C Programming for Engineers	3	3	
35	SKEE 4542	Engineering Management Principles	2	2	
		Total Credit of Engineering Courses (A)	**101**	**95**	

NO	CODE	COURSE	CREDIT EARNED	CREDIT COUNTED	TICK (/) IF PASSED
MATHEMATICS COURSES					
1	SSCE 1693	Engineering Mathematics 1	3	3	
2	SSCE 1793	Differential Equations	3	3	
3	SSCE 1993	Engineering Mathematics 2	3	3	
4	SSCE 2193	Engineering Statistics	3	3	
5	SSCE 2393	Numerical Methods	3	3	
		Total Credit of Mathematics Courses (B)	**15**	**15**	
UNIVERSITY GENERAL COURSES					
Cluster 1: Malaysia Core Value					
1	UHMS 1182	Appreciation of Ethics and Civilizations (for Local Students)			
	UHIS 1022 or UHMS 1182	Philosophy and Current Issues OR Appreciation of Ethics and Civilizations (for International Students	2	2	
2	UHIS 1022	Philosophy and Current Issues (for Local Students)			
	UHLM 1012	Malay Language 2 (for International Students)	2	2	
Cluster 2: Value and Identity					
1	ULRS 1032	Integrity and Anti-Corruption Course	2	2	
Cluster 3: Global Citizen					
1	UKQF 2**2	Service Learning & Community Engagement	2	2	
Cluster 4: Communication Skill					
1	UHLB 2122	Professional Communication Skills 1	2	2	
2	UHLB 3132	Professional Communication Skills 2	2	2	
3	UHL* 1112	Foreign Language for Communication	2	2	
Cluster 5: Enterprising Skill					
1	ULRS 3032	Entrepreneurship & Innovation	2	2	
		Total Credit of University General Courses (C)	**16**	**16**	
FREE ELECTIVE COURSES					
1	S*** ***3	Free Elective 1	3	3	
2	S*** ***2	Free Elective 2	2	2	
		Total Credit of Free Elective Courses (D)	**5**	**5**	
		Total Credit to Graduate (A + B + C + D)	**137**	**132**	

OTHER COMPULSORY COURSES - PROFESSIONAL SKILLS CERTIFICATE (PSC)

Students are required to enroll and pass FIVE (5) PSC courses, in order to be eligible to graduate.

NO	CODE	COURSE	TICK (/) IF PASSED
COMPULSORY PSC COURSES (Enroll all 3 courses)			
1	GLRB0010	Design Thinking for Entrepreneur	
2	GLRM0010	Talent and Competency Management	
3	GLRL0010	English Communication Skills for Graduating Students	
ELECTIVE PSC COURSE (Choose 2 only)			
1	GLRT0010	Data Analytics for Organization	
2	GLRM0020	Professional Ethics and Integrity	
3	GLRT0020	Construction Measurement (Mechanical & Electrical)	
4	GLRT0030	OSHE For Engineering Industry and Laboratory	
5	GLRT0050	Quality Management for Built Environment and Engineering Professionals	
6	GLRT0060	Safety and Health Officer Introductory Course	
7	GLRT0070	Industrial Machinery and Lubrication	

ACADEMIC PROGRESS

No	Session (Semester)	GPA	CGPA	Remarks
1	2023/2024(1)			
2	2023/2024(2)			
3	2024/2025(1)			
4	2024/2025(2)			
5	2025/2026(1)			
6	2025/2026(2)			
7	2025/2026(3)			
8	2026/2027(1)			
9	2026/2027(2)			
10				

OUTCOME-BASED EDUCATION: COURSE LINKAGE TO PLOs

The 12 Programme Learning Outomes (PLOs) are achieved through teaching & learning activities in the courses throughout the programme. The emphasized PLO in the offered courses are show in the following table.

Year/ Sem	CODE	COURSES	Type	Emphasis to the PLO											
				PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
1/1	SKEE 1012	Introduction to Electrical Engineering	Core						✓	✓	✓			✓	
	SKEE 1033	Scientific Programming	Core	✓	✓								✓		
	SKEE 1233	Digital Electronic Systems	Core	✓	✓	✓		✓							
	SKEE 1013	Electrical Circuit Analysis	Core	✓								✓			
	ULRS 1032	Integrity and Anti-Corruption	General												
	SSCE 1693	Engineering Mathematics I	General												
1/2	SEMU 2113	Engineering Science	Core												
	SKEE 1103	C Programming for Engineers	Core	✓	✓			✓				✓			
	SKEE 1073	Electronic Devices and Circuits	Core	✓				✓							
	SKEE 2133	Electronic Instrumentation and Measurement	Core	✓			✓	✓					✓		
	SSCE 1793	Differential Equations	General												
	ULRS 1182	Appreciation of Ethics and Civilizations (for Local Students)	General												
	UHLM 1012	Malay Language for Communication 2 (for International Students)	Genaral												
2/1	SKEE 2073	Signal and Systems	Core	✓								✓			
	SKEE 3223	Microprocessor	Core	✓	✓	✓		✓							
	SKEE 2433	Principles of Electrical Power Systems	Core		✓								✓		
	SKEE 3263	Electronic Systems	Core	✓						✓					
	SKEE 2752	Electronic Design Laboratory	Core			✓	✓	✓				✓	✓		
	SSCE 1993	Engineering Mathematics II	General												
2/2	SKEE 2523	Electromagnetic Field Theory	Core		✓								✓		
	SKEE 3133	System Modeling & Analysis	Core	✓	✓			✓							
	SKEL 3233	Digital Signal Processing	Core	✓	✓			✓							
	SSCE 2193	Engineering Statistics	General												
	UHLB 2122	Professional Communication Skills 1	General												
	ULRF 2**2	Elective of Service Learning & Community Engagement	General												
	ULRF 1182	Appreciation of Ethics and Civilizations (International Student)	General												
	ULRS 1022	Philosophy and Current Issues (Local Student)	General												

Year/ Sem	CODE	COURSES	Type	Emphasis to the PLO											
				PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
3/1	SKEE 3143	Control System Design	Core			✓		✓							
	SKEE 3533	Communication Principles	Core	✓								✓			
	SKEE 3732	Common 3rd Year Laboratory	Core	✓			✓		✓	✓					
	SSCE 2393	Numerical Methods	General												
	UHLB 3132	Professional Communication Skills 2	General												
	UHL* 1112	Elective of Foreign Language for Communication	General												
	S*** ***3	Free Elective 1	General												
3/2	SKEE 3733	Integrated Design Project	Core			✓			✓	✓			✓	✓	
	SKEL 3383	RTL Design	Core		✓	✓		✓							
	SKEL 3742	Specialized 3rd Year Laboratory	Core				✓	✓			✓	✓	✓		
	SKE* ***3	Field Core 1	Elective	Refer to field elective courses											
	SKE* ***3	Field Core 2	Elective												
	ULRS 3032	Entrepreneurship and Innovation	General												
	S*** ***2	Free Elective 2	General												
3/3	SKEE 3925	Industrial Training	Core					✓			✓	✓	✓		✓
4/1	SKEE 4542	Engineering Management Principles	Core									✓	✓	✓	
	SKEE 4813	Methodology of Research and Development	Core	✓	✓								✓	✓	✓
	SKE* ***3	Field Elective 1 / PRISMS Elective 1	Elective	Refer to field elective courses											
	SKE* ***3	Field Elective 2 / PRISMS Elective 2	Elective												
	SKE* ***3	Field Elective 3 / PRISMS Elective 3	Elective												
	SKE* ***3	Field Elective 4 / PRISM Elective 4/ / Faculty Free Elective 1	Elective												
4/2	SKEE 4012	Professional Engineering Practice	Core							✓	✓	✓			
	SKEE 4826	Final Year Project	Core		✓		✓	✓			✓	✓	✓		
	SKE* ***3	Field Elective 5/ Faculty Free Elective 2	Elective	Refer to field elective courses											

Field Elective Courses mapping to PLOs

Field	Code	Course	Emphasis to the PLO											
			PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
Telecommunication Engineering	SKET 3573	Microwave Engineering	✓	✓										
	SKET 3623	Data Communication and Networks	✓	✓	✓									
	SKET 3583	Digital Communication System	✓	✓								✓		
	SKET 4523	Optical Communication Systems	✓	✓	✓									
	SKET 4533	Wireless Communication Systems	✓	✓								✓		
	SKET 4543	RF Microwave Circuit Design		✓	✓									
	SKET 4593	Acoustic Engineering	✓	✓	✓									
	SKET 4613	Antenna Theory and Design	✓	✓	✓									
	SKET 4623	Network Programming	✓	✓	✓									
	SKET 4643	Optical Materials And Sensors		✓	✓									
	SKET 4663	Optical Network	✓	✓	✓									
	SKEE 4513	Special Topic in Electrical Engineering	✓	✓	✓									
Electronic System Design	SKEL 4743	Basic Digital VLSI Design	✓	✓	✓									
	SKEL 4373	IC Testing Techniques		✓	✓									
	SKEL 4293	Advanced Digital Signal Processing		✓	✓									
	SKEL 4333	Computer Architecture and Organization	✓	✓	✓									
	SKEL 4363	Digital Image Processing	✓	✓			✓							
	SKEL 4283	Analog CMOS IC Design	✓	✓	✓									
	SKEL 4663	Embedded Processor System	✓	✓	✓									
	SKEL 4673	DSP Architectures			✓		✓					✓		
	SKEE 4513	Special Topic in Electrical Engineering	✓	✓	✓									
Microelectronics	SKEL 3613	Semiconductor Material Engineering	✓	✓								✓		
	SKEL 4743	Basic Digital VLSI Design	✓	✓	✓									
	SKEL 4283	Analog CMOS IC Design	✓	✓	✓									
	SKEL 4373	IC Testing Techniques		✓	✓									
	SKEL 4613	Semiconductor Device Engineering	✓	✓			✓					✓		
	SKEL 4623	Solid-State Electronic Devices	✓	✓										
	SKEL 4633	Microelectronic Device Fabrication and Characterization	✓	✓								✓		
	SKEL 4683	Nanoelectronics Materials and Applications	✓	✓								✓		
	SKEL 4653	Modelling And Simulation of Microelectronic Devices	✓	✓								✓		
	SKEE 4513	Special Topic in Electrical Engineering	✓	✓	✓									

Field	Code	Course	Emphasis to the PLO											
			PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
Computer Engineering	SKEL 4333	Computer Architecture and Organization	✓	✓	✓									
	SKEL 4663	Embedded Processor System	✓	✓	✓									
	SKEL 4213	Software Engineering		✓	✓		✓							
	SKEL 4343	Information Security	✓	✓	✓									
	SKEL 4673	DSP Architectures			✓		✓					✓		
	SECR 2043	Operating System												
	SKEM 4173	Artificial Intelligence	✓	✓	✓		✓							
	SKET 3623	Data Communication and Networks	✓	✓	✓									
	SKEE 4513	Special Topic in Electrical Engineering	✓	✓	✓									
Medical Electronics	SKEB 3503	Physiology and Introduction to Medicine	✓	✓										✓
	SKEB 3043	Instrumentation and Measurement in Biomedical	✓	✓	✓	✓								
	SKEB 3423	Clinical Engineering 1	✓			✓				✓				
	SKEB 4023	Biomedical Signal Processing	✓	✓	✓							✓		
	SKEL 4543	Biosystem Modelling	✓	✓			✓							
	SKEB 3023	Biomedical Imaging	✓	✓								✓		
	SKEL 4563	Biosensors And Transducers	✓	✓										
	SKEB 3313	Biomedical Material	✓		✓									
	SKEE 4513	Special Topic in Electrical Engineering	✓	✓	✓									
PRISMS	SKEL 5113	Advanced Nanoelectronics Devices	✓	✓			✓					✓		
	SKEL 5123	Advanced Microprocessor System	✓	✓	✓							✓		
	SKEL 5173	Advanced Digital System Design	✓		✓		✓							
	SKEL 5193	Advanced Analog CMOS IC Design	✓	✓	✓									
	SKET 5313	Communications and Computer Networks	✓	✓			✓							
	SKET 5423	Advanced Wireless Communication Systems	✓	✓								✓		
	SKET 5513	Sustainable Design, Engineering and Management	✓				✓			✓	✓	✓		
	SKET 5523	Internet of Things Technology	✓		✓		✓					✓		

COURSE APPROVAL

(MORE THAN 18 CREDITS)

Students are not allowed to take more than 21 credit hours

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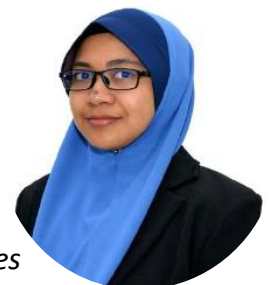
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ACADEMIC OFFICE
UNDERGRADUATE PROGRAM

UGFKE
ACADEMIC OFFICE
(UNDERGRADUATE)
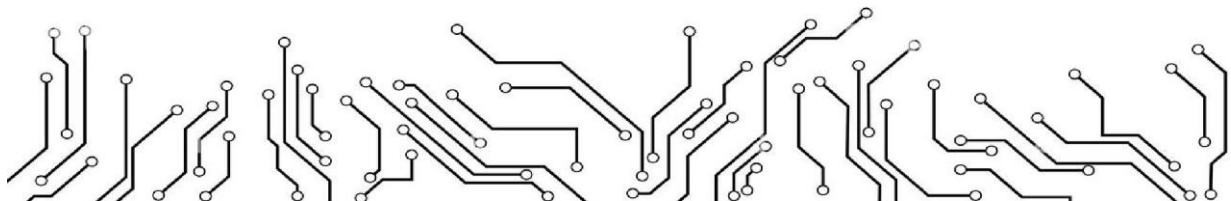FACULTY OF ELECTRICAL ENGINEERING
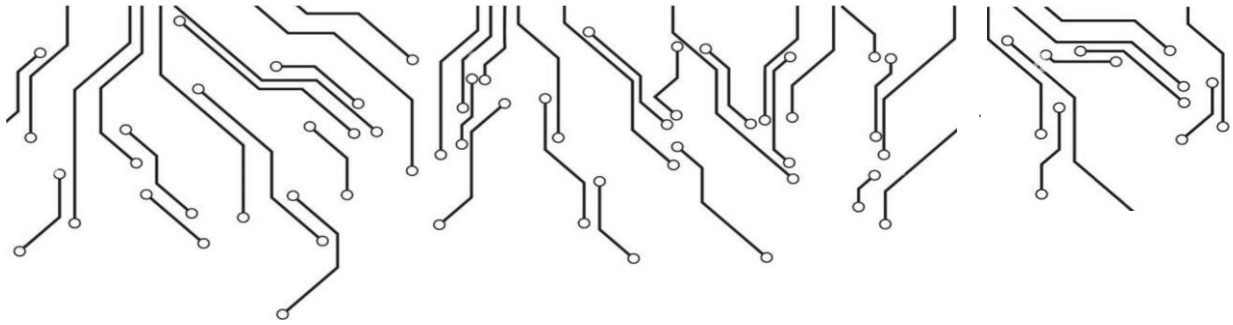
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