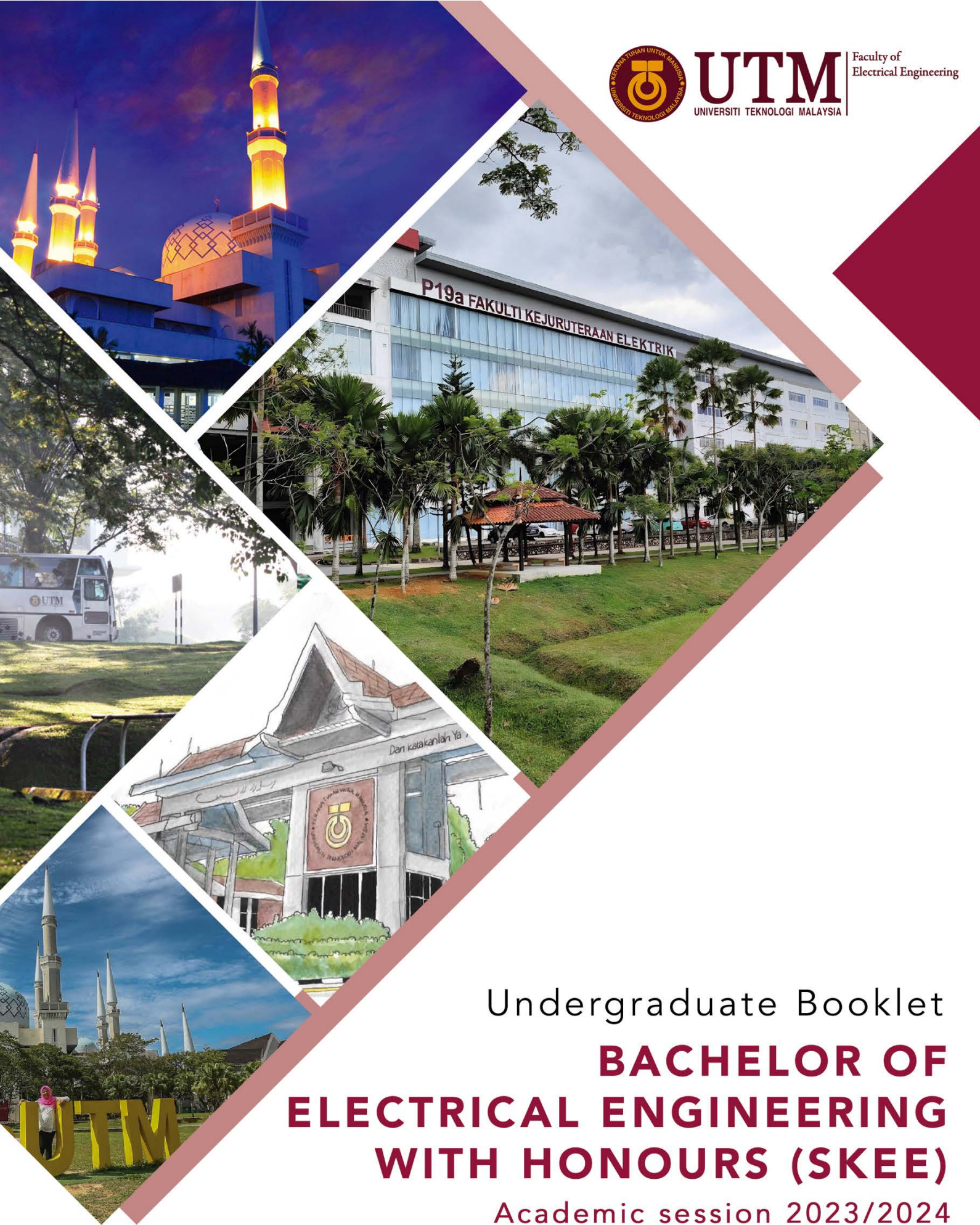




**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

Faculty of  
Electrical Engineering



Undergraduate Booklet

**BACHELOR OF  
ELECTRICAL ENGINEERING  
WITH HONOURS (SKEE)**

Academic session 2023/2024



# *Profile Page*

## **BACHELOR OF ELECTRICAL ENGINEERING WITH HONOURS (SKEE)**

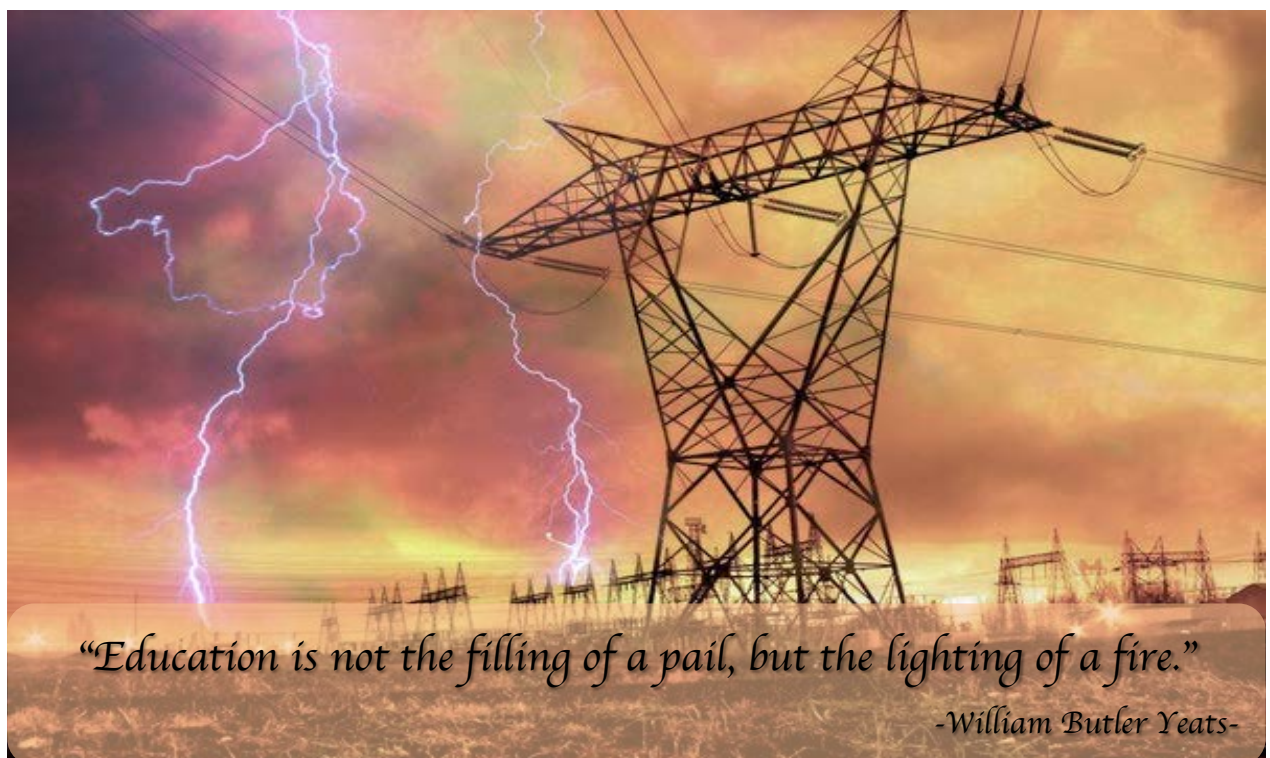
Name of Student : \_\_\_\_\_

Matric. No. : \_\_\_\_\_

Phone No. : \_\_\_\_\_

Email : \_\_\_\_\_

Name of Academic Advisor : \_\_\_\_\_



*“Education is not the filling of a pail, but the lighting of a fire.”*

*-William Butler Yeats-*

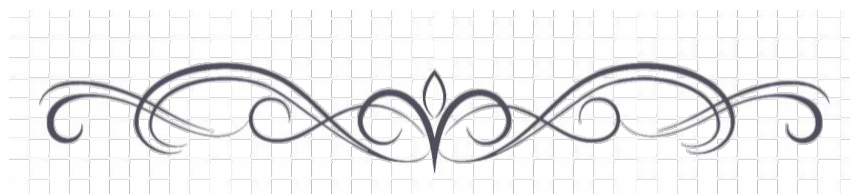
## PROGRAMME GUIDELINES

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 and Semester II 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 Electrical Engineering with Honours (SKEE) 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 programme 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. <i>Mengaplikasi pengetahuan matematik, sains dan kejuruteraan elektrik untuk penyelesaian masalah kejuruteraan yang kompleks.</i>
PLO2 (Problem Analysis)	Identify, formulate, and conduct research literature to analyse complex engineering problems using engineering knowledge. <i>Mengenalpasti, merumus dan menjalankan kajian literatur untuk menganalisa masalah kejuruteraan yang kompleks menggunakan pengetahuan kejuruteraan.</i>
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. <i>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.</i>
PLO4 (Investigation)	Perform research-based analysis, conduct experiments and interpret data for complex engineering problems. <i>Melakukan analisis berasaskan penyelidikan, menjalankan eksperimen dan mentafsir data untuk masalah kejuruteraan yang kompleks.</i>
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. <i>Mengaplikasi amalan kejuruteraan dan menggunakan peralatan kejuruteraan dan IT yang moden untuk masalah kejuruteraan yang kompleks dengan pemahaman tentang batasan teknologi.</i>
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. <i>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.</i>

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

## PROFESSIONAL SKILLS CERTIFICATE (PSC)

UTM has designed its own UTM Professional Skills Certificate (UTM PSC) programme managed by UTM School of Undergraduate Studies (UGS) 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:

No.	PSC COURSES	CODE
<b>Compulsory Courses (all THREE (3) courses)</b>		
1	Design Thinking for Entrepreneur	GLRB0010
2	Talent and Competency Management	GLRM0010
3	English Communication Skills for Graduating Students	GLRL0010
<b>Elective Courses (any TWO (2) courses)</b>		
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

## PRISMS (PROGRAM INTEGRASI SARJANA MUDA - SARJANA)

PRISMS is a newly introduced programme that integrates undergraduate high-level elective SE\*\*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 SE\*\*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 SE\*\*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.

# **BACHELOR OF ELECTRICAL ENGINEERING WITH HONOURS (SKEE)**

## **Introduction**

The Bachelor of Electrical Engineering with Honours (SKEE) program is offered by the Faculty of Electrical Engineering to prepare graduates for careers in electrical engineering. Throughout the program, emphasis is placed on acquiring a thorough understanding of the basic principles and skills in Electrical Engineering. The curriculum includes core and specialised electrical engineering courses, related general education courses, and non-technical support courses.

The students' exposure to engineering practice is integrated within the curriculum through the combinations of industrial training and invited lectures from the industries. The program also provides the students with the opportunities for analytical, critical and constructive thinking besides communication, team-working and lifelong learning skills in order to prepare them for careers as an electrical engineer in private / public sectors or continuing education at postgraduate level.

## **Programme Specifications**

The Bachelor of Electrical 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 subject 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 (16) to eighteen (18) credit hours per semester. Assessment is based on coursework's 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	Programme Educational Objectives	Target
PEO1	Become Electrical 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

<b>1.</b>	Awarding Institution	<b>Universiti Teknologi Malaysia</b>		
<b>2.</b>	Teaching Institution	<b>Universiti Teknologi Malaysia</b>		
<b>3.</b>	Programme Name	<b>Bachelor of Electrical Engineering with Honours</b>		
<b>4.</b>	Final Award	<b>Bachelor of Electrical Engineering with Honours</b>		
<b>5.</b>	Programme Code	<b>SKEE</b>		
<b>6.</b>	Professional or Statutory Body of Accreditation	<b>Board of Engineers Malaysia (BEM)</b>		
<b>7.</b>	Language(s) of Instruction	<b>English and Bahasa Melayu</b>		
<b>8.</b>	Mode of Study (Conventional, distance learning, etc)	<b>Conventional</b>		
<b>9.</b>	Mode of operation (Franchise, self-govern, etc)	<b>Self-governing</b>		
<b>10.</b>	Study Scheme (Full Time/Part Time)	<b>Full Time</b>		
<b>11.</b>	Study Duration	<b>Minimum: 4 yrs Maximum: 6 yrs</b>		
<b>Type of Semester</b>	<b>No. of Semesters</b>		<b>No. of Weeks/ Semester</b>	
	<b>Full Time</b>	<b>Part Time</b>	<b>Full Time</b>	<b>Part Time</b>
<b>Normal</b>	<b>8</b>	<b>-</b>	<b>18</b>	<b>-</b>
<b>Short</b>	<b>4</b>	<b>-</b>	<b>10</b>	<b>-</b>

## Course Classification

### Bachelor of Electrical Engineering with Honours - SKEE

No.	Classification	Credit Hours	Percentage
i.	University General Courses	16	11.68 %
ii.	Mathematics	15	10.95 %
iii.	Programme Core	89	64.96 %
iv.	Programme Electives	12	8.76 %
v.	Free Electives	5	3.65 %
	<b>Total</b>	<b>137</b>	<b>100 %</b>
<b>A</b>	<b>Engineering Courses</b>		<b>73.72 %</b>
	a) Lecture/Project/Laboratory	90	
	b) Workshop/Field/Design Studio	-	
	c) Industrial Training	5	
	d) Final Year Project	6	
<b>Total Credit Hours for Part A</b>		<b>101</b>	
<b>B</b>	<b>Related Courses</b>		<b>26.28 %</b>
	a) Applied Science/ Mathematic/ Computer	15	
	b) Management/ Law/ Humanities/ Ethic/ Economy	8	
	c) Language	6	
	d) Co-Curriculum	2	
	e) Free Electives	5	
<b>Total Credit Hours for Part B</b>		<b>36</b>	<b>100</b>
<b>Total Credit Hours for Part A and B</b>		<b>137</b>	<b>100</b>
<b>Total Credit Hours to Graduate</b>		<b>137</b>	

## Award Requirements

To graduate, students must:

- Attain a total of not less than 137 credit hours (SKEE) with a minimum CGPA of 2.0.
- Complete Professional Skills Certificates (PSC).

**STUDY PLAN**  
**Bachelor of Electrical Engineering with Honours – SKEE Cohort 2023/2024**

Code	Course	Credit	Pre-requisite	Total Credit
YEAR 1: SEMESTER 1				
ULRS 1032	Integrity and Anti-Corruption Course	2		16
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		
YEAR 1: SEMESTER 2				
SSCE 1793	Differential Equations	3	SSCE 1693	17
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)			
YEAR 2: SEMESTER 1				
SSCE 1993	Engineering Mathematics II	3	SSCE 1693	17
SSCE 2193	Engineering Statistics	3		
SKEE 2073	Signal and Systems	3		
SKEE 3223	Microprocessor	3	SKEE 1223	
SKEE 2433	Principles of Electrical Power Systems	3	SKEE 1013	
SKEE 2752	Electronic Design Laboratory	2		
YEAR 2: SEMESTER 2				
SSCE 2393	Numerical Methods	3		18
SKEE 2523	Electromagnetic Field Theory	3	SSCE 1993	
SKEE 3133	System Modelling and Analysis	3	SKEE 2073	
SKEE 3633	Electrical Machines	3	SKEE 2433	
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)			

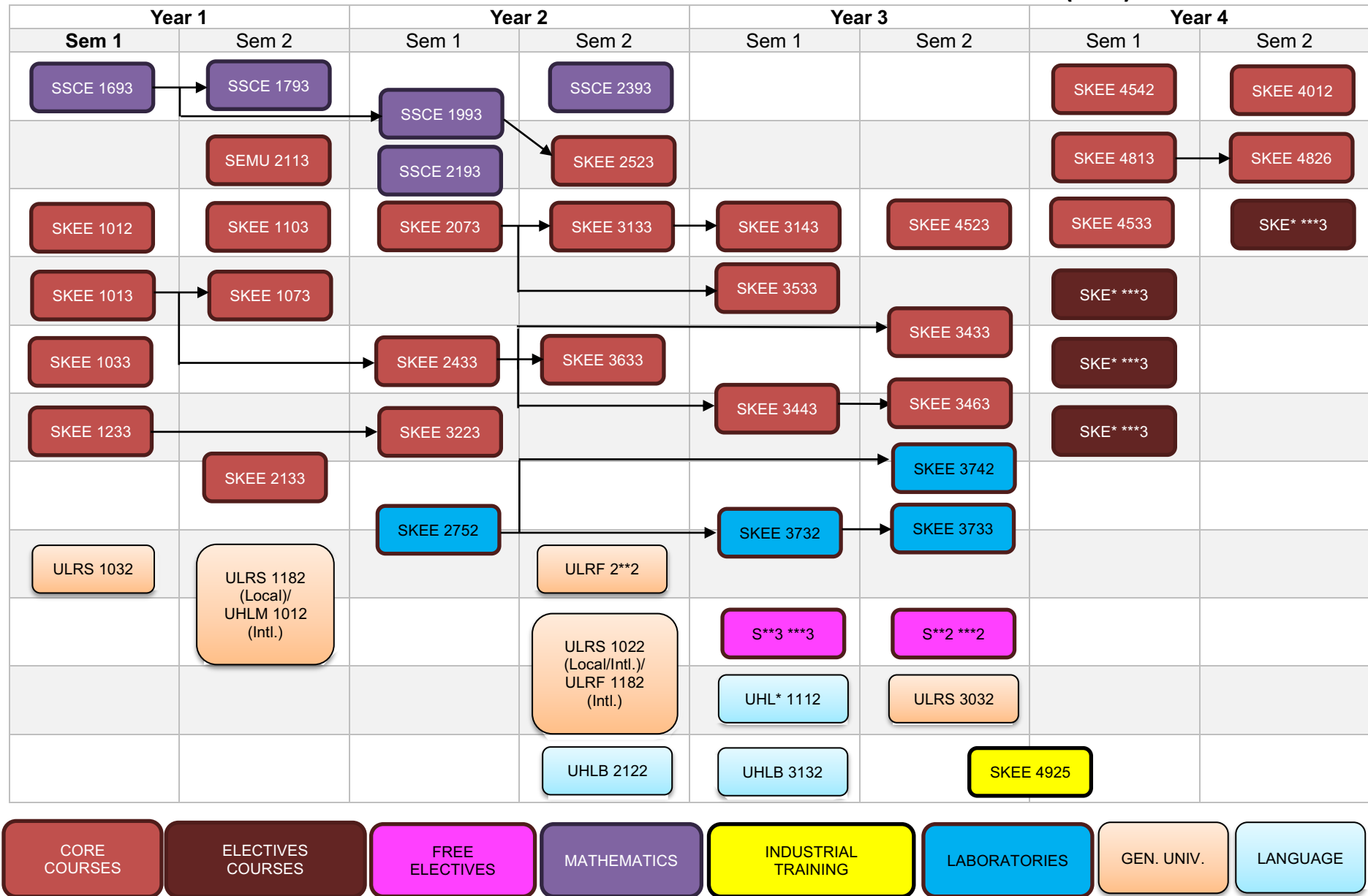
YEAR 3: SEMESTER 1				
UHL* 1112	Elective of Foreign Language for Communication	2		18
UHLB 3132	Professional Communication Skills 2	2		
SKEE 3143	Control System Design	3	SKEE 3133	
SKEE 3533	Communication Principles	3	SKEE 2073	
SKEE 3443	Power System Analysis	3	SKEE 2433	
SKEE 3732	Common Third Year Laboratory	2		
S*** **3	Free Elective 1	3		
YEAR 3: SEMESTER 2				
SKEE 3742	Specialized Third Year Laboratory	2		18
SKEE 3733	Integrated Design Project	3		
SKEE 3433	Power Electronic and Drives	3	SKEE 2433	
SKEE 4523	Power System Protection	3	SKEE 3443	
SKEE 3463	High Voltage Technology	3	SKEE 3443	
S*** **2	Free Elective 2	2		
ULRS 3032	Entrepreneurship & Innovation	2		
YEAR 3: SEMESTER 3				
SKEE 3925	Industrial Training	5		5
YEAR 4: SEMESTER 1				
SKEE 4542	Engineering Management Principles	2		17
SKEE 4533	Electrical Energy Utilization	3		
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 / Faculty Free Elective	3		
YEAR 4: SEMESTER 2				
SKEE 4012	Professional Engineering Practice	2		11
SKEE 4826	Final Year Project	6	SKEE 4813	
SKE* **3	Field Elective 4 / PRISMS Elective 4	3		
CUMULATIVE CREDITS				137

## Elective Fields (\*Choose 4)

FIELD ELECTIVES			
Code	Course	Credit	Pre-requisite
<b>Power Engineering</b>			
SKEE 4453	Power System Control	3	SKEE 4523
SKEE 4613	High Voltage Testing and Calibration	3	SKEE 3463
SKEE 4643	Control and Design of Power Electronic System	3	SKEE 3433
SKEE 4563	Renewable Energy System and Technology	3	SKEE 3433
SKEE 4663	Electricity for Sustainable Energy	3	SKEE 4523
SKEE 4673	Electrical Energy Market	3	SKEE 3443
SKEE 4683	Power System Design and Operation	3	SKEE 3443
SKEE 4693	Smart Grid	3	
SKEE 4513	Special Topic in Electrical Engineering	3	
<b>Control Engineering</b>			
SKEE 4153	Digital Control System	3	SKEE 3143
SKEE 4173	Industrial Process Control	3	SKEE 3143
SKEM 4113	Modern Control Theory	3	SKEE 3143
SKEM 4183	Industrial Instrumentations and Applications	3	SKEE 2133
SKEM 4193	Advanced Transducers and Sensors	3	SKEM 4183
SKEM 4313	PLC and SCADA System Design	3	SKEE 3143
SKEM 4173	Artificial Intelligence	3	
SKEE 4513	Special Topic in Electrical Engineering	3	
<b>Electronic Engineering</b>			
SKEL 3613	Semiconductor Material Engineering	3	SKEE 1073
SKEL 3263	Electronic System	3	SKEE 1073
SKEL 3233	Digital Signal Processing	3	SKEE 2073
SKEL 3383	RTL Design	3	SKEE 1223
SKEL 4663	Embedded Processor System	3	SKEE 1073
SKEL 4743	Basic Digital VLSI Design	3	SKEE 3263
SKEL 4283	Analog CMOS IC Design	3	SKEE 1223
SKEL 4373	IC Testing Techniques	3	SKEE 1223 SKEL 4283
SKEE 4513	Special Topic in Electrical Engineering	3	
<b>Communication Engineering</b>			
SKET 3573	Microwave Engineering	3	SKEE 3533
SKET 3623	Data Communication and Networks	3	SKEE 3533
SKET 3583	Digital Communication Systems	3	SKEE 3533
SKET 4523	Optical Communication Systems	3	SKEE 3533
SKET 4533	Wireless Communication Systems	3	SKET 3573
SKET 4543	RF Microwave Circuit Design	3	SKET 3573
SKET 4593	Acoustic Engineering	3	SKEE 3533
SKET 4623	Network Programming	3	SKET 3623
SKEE 4513	Special Topic in Electrical Engineering	3	
<b>PROGRAM INTEGRASI SARJANA MUDA-SARJANA (PRISMS)</b>			
SKEE 5533	Power Electronics Systems	3	
SKEE 5583	High Voltage and Electrical Insulation	3	
SKEE 5603	Power System Analysis and Computational Method	3	
SKEE 5633	Power System Devices and Apparatus	3	
SKEL 5113	Advanced Nanoelectronics Devices	3	

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 Network	3	
SKET 5423	Advanced Wireless Communication System	3	
SKET 5513	Sustainable Design, Engineering and Management	3	
SKET 5523	Internet of Things Technologies	3	
SKEM 5753	Advanced Instrumentation and Measurement	3	
SKEM 5713	Artificial Intelligence and Applications	3	
SKEM 5703	Control System Engineering	3	

## COURSE FLOW BACHELOR OF ELECTRICAL ENGINEERING WITH HONOURS (SKEE)



## GRADUATION CHECKLIST

It is the responsibility of the students to ensure that all courses are taken and passed. In order to graduate, students must pass all courses in the following checklist. Students who do not complete any of the courses are not eligible to graduate.

NO	CODE	COURSE	CREDIT EARNED	CREDIT COUNTED	TICK (/) IF PASSED
<b>ENGINEERING COURSES</b>					
1	SKEE 1012	Introduction to Electrical Engineering	2	2	
2	SKEE 1013	Electrical Circuit Analysis	3	3	
3	SKEE 1033	Scientific Programming	3	3	
4	SKEE 1233	Digital Electronic Systems	3	3	
5	SEMU 2113	Engineering Science	3	3	
6	SKEE 1103	C Programming for Engineers	3	3	
7	SKEE 1073	Electronic Devices and Circuits	3	3	
8	SKEE 2133	Electronic Instrumentation and Measurement	3	3	
9	SKEE 2073	Signals and Systems	3	3	
10	SKEE 3223	Microprocessor	3	3	
11	SKEE 2433	Principles of Electrical Power Systems	3	3	
12	SKEE 2752	Electronic Design Laboratory	2	2	
13	SKEE 3133	System Modelling and Analysis	3	3	
14	SKEE 2523	Electromagnetic Field Theory	3	3	
15	SKEE 3633	Electrical Machines	3	3	
16	SKEE 3143	Control System Design	3	3	
17	SKEE 3533	Communication Principles	3	3	
18	SKEE 3443	Power System Analysis	3	3	
19	SKEE 3732	Common Third Year Laboratory	2	2	
20	SKEE 3742	Specialized Third Year Laboratory	2	2	
21	SKEE 3733	Integrated Design Project	3	3	
22	SKEE 3433	Power Electronic and Drives	3	3	
23	SKEE 4523	Power System Protection	3	3	
24	SKEE 3463	High Voltage Technology	3	3	
25	SKEE 3925	Industrial Training	5	HL	
26	SKEE 4542	Engineering Management Principles	2	2	
27	SKEE 4533	Electrical Energy Utilization	3	3	
28	SKEE 4813	Methodology of Research and Development	3	3	
29	SKEE 4826	Final Year Project	6	6	
30	SKEE 4012	Professional Engineering Practice	2	2	
31	SKE* ***3	Field Elective 1 / PRISMS Elective 1	3	3	
32	SKE* ***3	Field Elective 2 / PRISMS Elective 2	3	3	
33	SKE* ***3	Field Elective 3 / PRISMS Elective 3 / Faculty Free Elective	3	3	
34	SKE* ***3	Field Elective 4 / PRISMS Elective 4	3	3	

		<b>Total Credit of Engineering Courses (A)</b>	<b>101</b>	<b>96</b>	
<b>MATHEMATICS COURSES</b>					
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	
		<b>Total Credit of Mathematics Courses (B)</b>	<b>15</b>	<b>15</b>	
<b>UNIVERSITY GENERAL COURSES</b>					
<b>Cluster 1: Malaysia Core Value</b>					
1	UHMS 1182	Appreciation of Ethics and Civilizations (for Local Students)	2	2	
	UHS 1022 OR UHMS 1182	Philosophy and Current Issues OR Appreciation of Ethics and Civilizations (for International Students)			
2	UHS 1022	Philosophy and Current Issues (for Local Students)	2	2	
	UHLM 1012	Malay Language 2 (for International Students)			
<b>Cluster 2: Value and Identity</b>					
1	ULRS 1012	Value and Identity	2	2	
<b>Cluster 3: Global Citizen</b>					
1	UKQF 2**2	Service Learning & Community Engagement	2	2	
<b>Cluster 4: Communication Skill</b>					
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	
<b>Cluster 5: Enterprising Skill</b>					
1	ULRS 3032	Entrepreneurship & Innovation	2	2	
		<b>Total Credit of University General Courses (C)</b>	<b>16</b>	<b>16</b>	
<b>FREE ELECTIVE COURSES</b>					
1	S*** **3	Free Elective 1	3	3	
2	S*** **2	Free Elective 2	2	2	
		<b>Total Credit of Free Elective Courses (D)</b>	<b>5</b>	<b>5</b>	
<b>Total Credit to Graduate (A + B + C + D)</b>			<b>137</b>	<b>132</b>	

**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.

<b>COMPULSORY PSC COURSES (Enroll all 3 courses)</b>			
1	GLRB0010	Design Thinking for Entrepreneur	
2	GLRM0010	Talent and Competency Management	
3	GLRL0010	English Communication Skills for Graduating Students	
<b>ELECTIVE PSC COURSE (Choose 2 only)</b>			
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 STAFF**  
**DEPARTMENT OF ELECTRICAL POWER ENGINEERING**

**DIRECTOR**

**Assoc. Prof. Ts. Dr. Shahrin Md. Ayob | e-shahrin@utm.my**

B. Eng. (Electrical), M. Eng. (Electrical -Power), Ph. D. (Electrical Engineering) (UTM), P. Tech, SMIEEE.  
*Power Electronics, Fuzzy Logic Control, Energy Management, Engineering Education*

**PROFESSOR**

**Prof. Ir. Dr. Mohd. Wazir Mustafa | wazir@utm.my**

B. Eng. (Electrical & Electronics), M. Sc. (Electrical Power Engineering), Ph. D. (Electrical Power Engineering) (Strathclyde, UK), P. Eng., MIEEE, MIEM.  
*Power System Analysis, HVDC System, FACTS, Microwave power transmission, Deregulated Power System*

**Prof. Dr. Zulkurnain Abd. Malek | zulkurnain@utm.my**

B. Eng. (Electrical & Computer System) (Monash, Australia), M. Sc. (Electrical & Electromagnetic) (Wales, UK), Ph. D. (High Voltage) (Cardiff, UK), MIET, SMIEEE, MCIGRE.  
*High Voltage Systems, Overvoltage Protection System & Insulation Coordination, Measurement Techniques, High Voltage Surge Arrestors, Magnetic Engineering*

**Prof. Dr. Nik Rumzi Nik Idris | e-nrumzi@utm.my**

B. Eng. (Electrical) (Wollongong, Australia), M. Sc. (Power Electronics) (Bradford, UK), Ph. D. (Electrical Engineering) (UTM), SMIEEE.  
*AC Motor Drives, Power Electronic Converters and Simulation*

**ASSOCIATE PROFESSOR**

**Assoc. Prof. Dr. Mohamed Afendi Mohamed Piah | fendi@utm.my**

B. Eng. (Electrical) (UTM), M. Sc. (Power Systems) (Strathclyde, UK), Ph. D. (Electrical Engineering) (UTM), MIEEE.  
*High Voltage Insulation Diagnostic and Coordination, Partial Discharge and Surface Tracking Phenomena, Polymer Insulating Material, Insulation Condition Monitoring*

**Assoc. Prof. Dr. Awang Jusoh | awang@utm.my**

B. Eng. (Electrical & Electronics) (Brighton, UK), M. Sc. (Power Electronics), Ph. D. (Electrical) (Birmingham, UK), MIET.  
*DC-DC Converter Power, Electric Vehicle, DC Drive*

**Assoc. Prof. Dr. Naziha Ahmad Azli | naziha@utm.my**

B. Sc. (Electrical Engineering) (Univ. of Miami, USA), M. Eng. (Electrical), Ph. D. (Electrical Engineering) (UTM), MIEEE.  
*Power Converters Static Application*

**Assoc. Prof. Ir. Dr. Md Pauzi Abdullah | mpauzi@utm.my**

B. Eng. (Electrical & Electronic) (UNITEN), M. Sc. (Electrical - Power), Ph. D. (Power) (Strathclyde, UK), P. Eng., C. Eng., MIET, SMIEEE, MIEM.  
*Power Systems Analysis, Deregulated Electricity Market, Demand Side Management*

**Assoc. Prof. Dr. Mohd. Junaidi Abd. Aziz | junaidi@utm.my**

B. Eng. (Electrical) (UTM), M. Eng. (Electrical) (UTM), Ph. D. (Electrical & Electronic Engineering) (Nottingham, UK), MIEEE.  
*Power Electronics Converter, Electric Vehicle and Battery Management System (BMS)*

**Assoc. Prof. Ir. Ts. Dr. Dalila Mat Said | dalila@utm.my**

B. Eng. (Electrical), M. Eng. (Electrical), Ph. D. (Electrical Engineering) (UTM), P. Eng, SMIEEE, MIET.  
*Power Quality, Power System Measurement and Monitoring, Electrical Energy Management*

**Assoc. Prof. Ir. Ts. Dr. Jasrul Jamani Jamian | jasrul@utm.my**

B. Eng. (Electrical), M. Eng. (Elec. Power), Ph. D. (Electrical Engineering) (UTM), P. Eng  
*Distributed Generation, Electric Vehicle, Meta-Heuristic Optimization Technique, Renewable Energy and Voltage Stability Index*

**Assoc. Prof. Eur. Ing. Ir. Ts. Dr. Lau Kwan Yiew | kwanyiew@utm.my**

B. Eng. (Electrical), M. Eng. (Electrical Power) (UTM), Ph. D. (Electronics & Electrical Engineering) (Southampton, UK), P. Eng, C. Eng, MIET, SMIEEE.  
*High Voltage Engineering, Dielectric Materials, Renewable Energy Systems*

**Assoc. Prof. Ts. Dr. Norzanah Rosmin | norzanah@utm.my**

Dip. Eng (Electrical Communication), B. Eng. (Electrical), M. Eng. (Electrical) (UTM), Ph. D. (Electronics and Electrical Engineering) (Loughborough, UK), P. Tech.  
*Alternative/Renewable Energy, RE Integration & Control, Energy Audit & Energy Management System*

**Assoc. Prof. Ir. Dr. Saifulnizam Abd. Khalid | saifulnizam@utm.my**

B. Eng. (Electrical), M. Eng. (Electrical) (UTM), Ph. D. (Electrical Engineering) (UTM).  
*Power System Deregulation, Application of AI in power system and Power Tracing*

**Assoc. Prof. Ir. Ts. Dr. Tan Chee Wei | cheewei@utm.my**

B. Eng. (Electrical) (UTM), DIC & Ph. D. (Electrical Engineering - Power Electronics) (Imperial College London, UK), P. Eng, C. Eng., P. Tech., MIET, SMIEEE, MySET, Grad IEM.  
*Renewable Energy, Power Electronics for Renewable Energy Applications, Solar/PV System, Energy Management*

**SENIOR LECTURER**

**Dr. Hasmat Malik | hasmat@utm.my**

B. Eng. (Electrical & Electronics), M. Eng. (Electrical - Power), Ph. D. (Electrical Engineering) (IIT Delhi), P.Eng, C.Eng, FIETE, SMIEEE, LMISTE, MIE(I), MIET.  
*AI/Machine Learning, Data Analytics, Condition Monitoring, Fault Detection & Diagnosis, Energy Efficiency, Renewable Energy*

**Dr. Madihah Md. Rasid | madihahmdrasid@utm.my**

B. Eng. (Electrical), M. Eng. (Electrical Power) (UTM), D. Eng (Electrical Engineering) (Kyushu University, Japan).  
*Distributed Generation, Meta-Heuristic Optimization, Renewable Energy*

**Ts. Mohd. Zaki Daud | mdzaki@utm.my**

B. Eng. (Electrical)(University of Southampton, U.K.), MSc. (Electric Power) (University of Newcastle upon Tyne, U.K.), P. Tech.  
*Power Quality in Renewable Energy Systems, Electric Motor Drives, Power Electronics Converter and Applications, Engineering Education*

**Dr. Mohd Fadli Rahmat | mfadli@utm.my**

B. Eng. (Electrical), M. Eng. (Electrical - Power) (UTM), Ph. D. (Electrical Power Engineering) (RMIT, Australia).  
*Power System Analysis, Power System Protection*

**Ts. Dr. Mohd Hafiz Habi Buddin | mdhafiz@utm.my**

B. Eng. (Electrical), M. Eng. (Electrical) (UTM), D. Eng. (Electrical) (Hiroshima, Japan), P. Tech, MIEEE.  
*Power System Planning and Operation; Power System Protection; Demand and Supply Management; Smart Grid.*

**Ir. Ts. Dr. Mohd Hafizi Ahmad | mohdhafizi@utm.my**

B. Eng. (Electrical Power), Ph. D. (Electrical Engineering) (UTM), P. Eng, P. Tech, MIEEE.  
*High Voltage Insulation, Partial Discharge Measurement and Detection, Nanodielectrics*

**Dr. Mohd. Rodhi Sahid | rodhi@utm.my**

B. Eng. (Electrical), M. Eng. (Electrical), Ph. D. (Electrical Engineering) (UTM).  
*Power Electronics Converter, Converter Modelling*

**Ts. Dr. Mona Riza Mohd Esa | monariza@utm.my**

B. Eng. (Electrical - Telecommunications), M. Eng. (Electrical - Electronics & Telecommunications) (UTM).  
Ph. D. (Atmospheric Discharges) (Uppsala Universitet, Sweden), P. Tech, MIET.  
*Lightning Physics, EMC, DSP (Wavelet)*

**Nik Din Muhamad | nikd@utm.my**

B. Eng. (Electrical Engineering), M. Eng. (UTM).  
*Power Electronics Converter, converter Modelling and Control*

**Dr. Norjulia Mohamad Nordin | norjulia@utm.my**

B. Eng. (Electrical) (UTM), M. Eng. Sc. (Energy System) (UNSW, Australia), Ph. D. (Electrical Engineering) (UTM).  
*AC Motor Drives, Power Electronics Converter and Applications*

**Dr. Norhafezaidi Mat Saman | norhafezaidi@utm.my**

B.Eng.(Electrical Engineering), Ph. D. (Electrical Engineering) (UTM).  
*High Voltage System, Insulation Diagnostic, Development and Application of Plasma, Nanodielectrics.*

**Ts. Dr. Norazliani Md Sapari | norazliani.ms@utm.my**

B. Eng. (Electrical- Power), M. Eng. (Electrical - Power), Ph.D. (Electrical Engineering) (UM), P. Tech.  
*Load Shedding, Distributed Generation, Voltage Stability Index, Islanding*

**Ts. Dr. Noor Azlinda Ahmad | noorazlinda@utm.my**

B. Eng. (Electrical), M. Eng. (Electrical) (UTM), Ph. D. (Atmospheric Discharge) (Uppsala Univ., Sweden),  
P. Tech, C. Eng, MIET, MIEEE.  
*Lightning Characterization, Electromagnetic Field & Radio Frequency Emission*

**Dr. Noor Syazwani Mansor | noor.syazwani@utm.my**

B. Eng. (Electrical), M. Eng. (Electrical Power) (USM), Ph. D. (Electrical Engineering) (USM)  
*High Voltage System, Polymer Insulating Material, Insulation Condition Monitoring (liquid and solid dielectric)*

**Dr. Nur Aqilah Mohamad | nuraqilah.m@utm.my**

B. Eng. (Electrical & Electronic - Power) (UPNM), M. Eng. (Electrical Power), Ph. D. (Electrical Power) (UPM)  
*High Voltage System, Insulation Condition Monitoring (liquid and solid dielectric), Nanomaterials*

**Dr. Nur Faizal Kasri | nurfaizal@utm.my**

B. Eng. (Mechatronics), M. Eng. (Electrical Engineering) (UTM), Ph.D. Engineering (Electrical) (UTM).  
*Circuit Design, Power Electronics, Insulation Diagnostics, Food Technology, High Voltage*

**Dr. Rasyidah Mohamad Idris | rasyidahidris@utm.my**

B. Eng. (Electrical, Electronic & System Engineering) (UKM), M. Sc. (Electrical Power) (Newcastle Upon Tyne, UK), Ph. D. (Electrical Engineering) (UTM), C. Eng, MIEEE, MIET.  
*Deregulated Power System, Available Transfer Capability, FACTS Devices*

**Dr. Razman Ayop | razman.ayop@utm.my**

B. Eng. (Electrical - Power), M. Eng. (Electrical - Power), Ph. D. (Electrical Engineering) (UTM).  
*Power Electronics, Renewable Energy, Energy Management System.*

**Dr. Siti Maherah Hussin | sitimaherah@utm.my**

B. Eng. (Electrical), M. Eng. (Electrical Power), Ph. D. (Electrical Engineering) (UTM).

*Generation Scheduling, MILP Optimization, Energy Management, Renewable Energy.*

**Dr. Siti Mahfuza Saimon | [sitimahfuza@utm.my](mailto:sitimahfuza@utm.my)**

B. Eng. (Electrical-Telecommunications), Ph. D. (Electrical Engineering) (UTM).

*Power Electronics, Optical Sensors and Applications*

**Ir. Ts. Dr. Syed Norazizul Syed Nasir | [syednorazizul@utm.my](mailto:syednorazizul@utm.my)**

B. Eng. (Electrical - Power), M. Eng. (Electrical - Power), Ph. D. (Electrical Engineering) (UTM), P. Eng, P. Tech.

*Optimization, Power System Protection, Operation, Stability and Control; Distributed Generation and Smart Grids*

**Ts. Dr. Zulkarnain Ahmad Noorden | [zulkarnain-an@utm.my](mailto:zulkarnain-an@utm.my)**

B. Eng. (Electrical), M. Eng. (Electrical Power) (UTM), Ph. D. (Electrical Engineering) (Shibaura Inst. Tech., Japan), P. Tech, MIEEE, MIET.

*High Voltage Generation & Measurement, Power Equipment Diagnosis & Testing, Electrochemical Capacitor Technology*

**Dr. Zuraimy Adzis | [zuraimy@utm.my](mailto:zuraimy@utm.my)**

B. Eng. (Electrical), M. Eng. (Electrical), Ph. D. (Electrical Engineering) (UTM).

*EMC & EMI in High Voltage Systems, Lightning, Electrical Safety and Forensics, Sustainability*

# Course Approval

## More than 18 credits

Students are not allowed to take more than 21 credit hours

### 21 credits

Academic Advisor + Dean



**PROF.DR. JAFRI BIN DIN**  
Dean

### 20 credits

Academic Advisor + Deputy Dean (AA)



**PROF. IR. DR. MUHAMMAD NADZIR BIN MARSONO**  
Deputy Dean (Academic & Student Affairs) [mnadzir@utm.my](mailto:mnadzir@utm.my)

### 19 credits

Academic Advisor + Director of Department



**PROF. IR.DR. RUBITA BINTI  
SUDIRMAN**  
Director of Electronic & Computer  
Engineering Department

[rubita@utm.my](mailto:rubita@utm.my)



**ASSOC. PROF. TS. DR.  
SHAHRIN BIN MD. AYOB**  
Director of Electrical Power  
Engineering Department

[e-shahrin@utm.my](mailto:e-shahrin@utm.my)



**PROF. IR. DR. HAZLINA BINTI  
SELAMAT**  
Director of Control & Mechatronics  
Engineering Department

[hazlina@utm.my](mailto:hazlina@utm.my)

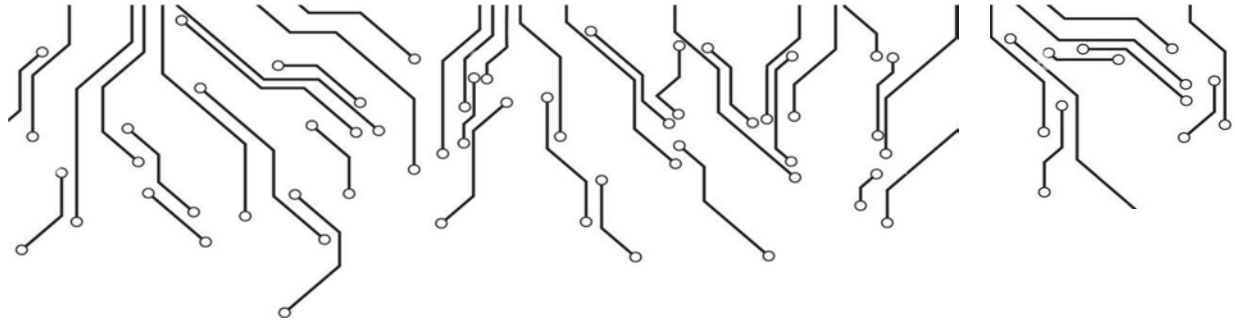


**IR. TS. DR.  
ASNIDA BINTI ABDUL WAHAB**  
Director of Biomedical Engineering &  
Health Sciences Department

[asnida@utm.my](mailto:asnida@utm.my)

## Notes









**For any enquiry or further information, you may contact:**

## ACADEMIC OFFICE UNDERGRADUATE PROGRAM

P19a, Faculty of Electrical Engineering  
Universiti Teknologi Malaysia  
81310 UTM Johor Bahru  
Johor, Malaysia



 [undergraduate-office@fke.utm.my](mailto:undergraduate-office@fke.utm.my)  
 [ElectricalCircleUTM](#)  
 <https://linktr.ee/ugskeutm>

 +607-5557029(Rogayah/ Shazwani)  
 +607-5557007 (Armanusa)  
 +607-5557238(Siti Suhana/Amira)

