UNIVERSITI KUALA LUMPUR
British Malaysian Institute

STUDENT HANDBOOK
V7

WHERE KNOWLEDGE IS APPLIED

UniKL BMI PROGRAMME HANDBOOK

First Version	July 2009
Second Version	October 2011
Third Version	November 2013
Fourth Version	September 2016
Fifth Version	July 2019
Sixth Version	August 2021
Seventh Version	March 2024

ACKNOWLEDGMENT

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2. Zurin Zuraida Abu Baharin

3. Nor Amalia Sapiee @ Hamdan -Ts. Dr.

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21. Nurul Fazlin Roslan – Dr.

22. Fahteem Hamamy Anuwar

23. Siti Rohani Ahmad

24. Anis Nur Assila Rozmi – Dr.

25. Yanawati Yahya – Ts. Dr.

26. Nor Hidayah Abdul Kahar – Dr.

STUDENT'S PROFILE

Full name (as in the National Registration Identification Card - NRIC)	
NRIC Number	
Student Number	
Correspondence Address	
Permanent Address	
E-mail Address	
Contact Number	
Programme	
Academic Advisor	
Head of Technology	

TABLE OF CONTENT

UniKL's Vision:

To Be the Premier Entrepreneurial Technical University

UniKL's Mission:

To Produce Enterprising Global Technopreneurs

'The Academic Handbook is meant for student intake effective from January 2011. Universiti Kuala Lumpur and the institute reserved the right to change the contents without prior notice'

ACADEMIC CALENDAR

UNIVERSITI KUALA LUMPUR
BRITISH MALAYSIAN INSTITUTE

1a: Academic Calendars 2024-2025 for 14wks-7wks-14wks Programmes

	March semester 2024 (Long)										July semester 2024 (Short)								October semester 2024 (Long semester)											
	Mar-24		Apr-24		May-24		Jun-24		Jul-24		Aug-24		Sep-24		Oct-24		Nov-24		Dec-24		Jan-25		Feb-25		Mar-25					
Day		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date		
Sun														1						1										
Mon			Wk4	1					FE	1			Wk6	2					MSB	2										31
Tues				2	Wk7					2				3						3	Wk11									
Wed				3	*Worker's Day*	1			FE	3				4		2			MSB	4	*New Year*	1								
Thurs				4		2				4		1		5		3				5		2								
Friday		1		5		3			FE	5		2		6		4		1	MSB	6		3								
Sat		2		6		4		1		6		3		7		5		2		7		4	FE	1	Reg	1				
Sun		3		7		5		2	*Awal Muharram*	7		4		8		6		3		8		5		2	W&O	2				
Mon		4	MSB	8	Wk8	6	*YDPA B'day*	3		8	Wk2	5	Wk7	9		7	Wk4	4	Wk8	9	Wk12	6	FE	3	W&O	3				
Tues		5		9		7		4	FE	9		6		10	IEB	8		5		10		7		4						
Wed	IEB	6	*Eid Fitri**	10		8	Wk12	5		10		7		11		9		6		11		8	FE	5	WK1	5				
Thurs		7	*Eid Fitri**	11		9		6	FE	11		8		12	UEB	10		7		12		9		6		6				
Friday	UEB	8	MSB	12		10		7		12		9		13		11		8		13		10		7		7				
Sat	Reg	9		13		11		8		13		10	Rev	14	Reg	12		9		14		11	FE	8		8				
Sun	W&O	10		14		12		9	FE	14		11		15	W&O	13		10		15		12		9		9				
Mon	W&O	11	WK5	15	Wk9	13	Wk13	10		15	Wk3	12	*Hari Hari Maulud Rasul*	16	W&O	14	Wk5	11	Wk9	16	Wk13	13	FE	10	Wk2	10				
Tues	Wk1	12		16		14		11		16		13	Rev	17	Wk1	15		12		17		14		11		11				
Wed	Senate	13		17		15		12		17		14		18		16		13		18		15	FE	12		12				
Thurs		14		18		16		13		18		15	Rev	19		17		14		19		16		13		13				
Friday		15		19		17		14		19		16		20		18		15		20		17	FE	14		14				
Sat		16		20		18		15		20		17	FE	21		19		16		21		18	FE	15		15				
Sun		17		21		19		16		21		18		22		20		17		22		19		16		16				
Mon	Wk2	18	Wk6	22	Wk10	20	*Eid Adha**	17		22	Wk4	19		23	Wk2	21	Wk6	18	Wk10	23	Wk14	20		17	Wk3	17				
Tues		19		23		21	*Eid Adha**	18	IEB	23		20	FE	24		22		19		24		21		18		18				
Wed		20		24	*Wesak Day*	22	Wk14	19		24		21		25		23		20	*X'mas*	25		22		19		19				
Thurs		21		25		23		20	UEB	25		22	FE	26		24		21		26		23		20		20				
Friday		22		26		24		21		26		23		27		25		22		27		24		21		21				
Sat		23		27		25		22	Reg	27		24	FE	28		26		23		28		25		22		22				
Sun		24		28		26		23	W&O	28		25		29		27		24		29		26		23		23				
Mon	Wk3	25	Wk 7	29	Wk11	27	Rev	24	W&O	29	Wk5	26		30	Wk3	28	Wk7	25	Wk 11	30	Rev	27	IEB	24	Wk4	24				
Tues		26		30		28		25	Wk1	30		27				29		26		31		28		25		25				
Wed		27				29	Rev	26		31		28			Senate	30		27			*CNY*	29	UEB	26		26				
Thu		28				30		27				29			*Diwali**	31		28			*CNY*	30		27		27				
Fri		29				31	Rev	28				30						29			Rev	31	Senate	28		28				
Sat		30					FE	29			*Merdeka Day*	31						30								29				
Sun		31						30																		30				

Reg	New Intake Registration	MSB	Mid-Semester Break	FE	Final Examination	Public Holiday (Fixed)
W&O	Welcome & Orientation	Rev	Revision			* Public Holiday (subject to change)

UNIVERSITI KUALA LUMPUR
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Table 1a: Summary of Semesters, Activities and Important Dates in the UniKL Academic Calendar 2024/2025 (14wks-7wks-14wks)

Semester	March Sem 2024 (Long Sen		July Sem 2024 (short sem)		October semester 2024	
	Date	Duration	Date	Duration	Date	Duration
Registration	9-Mar-24	1 day	27-Jul-24	1 day	12-Oct-24	1 day
W&O	09-11 March	3 days	27-29 Jul	3 days	12-14 Oct	3 days
Lesson	12 Mar-5Apr	4 weeks	30 Jul-13 Sept	7 weeks	15 Oct-29 Nov	7 weeks
MSB	8-12 Apr	1 week			2-6 Dec 2024	1 week
Lesson	15 Apr-21 June	10 weeks			9 Dec 24-24 Jan 2025	7 weeks
Revision	24-28 June	1 week	16-20 Sept	1 week	27-31 Jan 2025	1 week
Final	29 June-14 July	2 weeks	21-28 Sept	8 days	1-14 Feb	2 weeks
SemesterBreak	15-30 July	2 weeks	30 Sept-18 Oct	3 weeks	15 Feb-7 March	2 weeks

UNIVERSITI KUALA LUMPUR
BRITISH MALAYSIAN INSTITUTE

1b: Industrial Training Calendar for 24 weeks for 14-7-14 programmes

	March semester 2024 (InTra 24 weeks)								July semester 2024 (InTra 24 weeks)								October semester 2024															
	Mar-24		Apr-24		May-24		Jun-24		Jul-24		Aug-24		Sep-24		Oct-24		Nov-24		Dec-24		Jan-25		Feb-25		Mar-25		Apr-25		May-25			
Day		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date
Sun														1						1												
Mon			Wk4	1					Wk17	1				2						2					Eid Fitri*	31						
Tues				2	Wk 8					2				3	Wk10	1				3							Eid Fitri*	1				
Wed				3	Worker's Day	1				3			Wk6	4		2			Wk19	4	New Year	1						2				
Thurs				4		2				4		1		5		3				5	Wk23	2						3	Worker's Day	1		
Friday		1		5		3				5		2	Deadline Results Submission	6		4		1	Wk6	6	Wk10	3					Wk23	4		2		
Sat		2		6		4		1		6		3		7		5		2		7		4		1		1		5		3		
Sun		3		7		5		2		7		4		8		6		3		8		5		2		2		6		4		
Mon		4	Wk5	8	Wk9	6	YDPA B'day	3	Wk18	8	Wk22	5		9		7		4		9		6		3	Wk1	3		7		5		
Tues		5		9		7		4		9		6	IEB Intra	10		8		5		10		7		4		4		8		6		
Wed	IEB	6	Eid Fitri*	10		8	Wk13	5		10	Wk2	7		11	Wk11	9	Wk15	6	Wk20	11	Wk24	8		5		5		9		7		
Thurs		7	Eid Fitri*	11		9		6		11		8	Wk7	12		10		7		12		9		6		6		10		8		
Friday	UEB	8		12		10		7		12		9	UEB Intra	13		11	Wk2	8	Wk7	13	Wk11	10	Wk15	7	Wk19	7	Wk24	11		9		
Sat		9		13		11		8		13		10		14		12		9		14		11		8		8		12		10		
Sun		10		14		12		9		14		11		15		13		10		15		12		9		9		13		11		
Mon	Wk1	11	Wk6	15	Wk 10	13	Wk14	10	Wk19	15	Wk23	12	Wisa Dapi Maulidur Rasul	16		14		11		16		13		10	Wk2	10		14		12		
Tues		12		16		14		11		16		13	Wk8	17		15		12		17		14		11		11		15		13		
Wed		13		17		15		12		17	Wk3	14		18	Wk12	16	Wk16	13	Wk21	18		15		12		12		16		14		
Thurs		14		18		16		13		18		15		19		17		14		19		16		13		13		17		15		
Friday		15		19		17		14		19		16		20		18	Wk3	15	Wk8	20	Wk12	17	Wk16	14	Wk20	14		18		16		
Sat		16		20		18		15		20		17		21		19		16		21		18		15		15		19		17		
Sun		17		21		19		16		21		18		22		20		17		22		19		16		16		20		18		
Mon	Wk2	18	Wk7	22	Wk 11	20	Eid Adha*	17	Wk20	22	Wk24	19		23		21		18		23		20		17		17		21		19		
Tues		19		23		21	Eid Adha*	18		23		20		24		22		19	Wk22	24		21		18		18		22		20		
Wed		20		24	Wesak Day	22	Wk15	19		24	Wk4	21	Wk9	25	Wk13	23	Wk17	20	X'mas	25		22		19		19		23		21		
Thurs		21		25		23		20		25		22		26		24		21		26	Wk13	23		20		20		24		22		
Friday		22		26		24		21		26		23		27		25	Wk4	22	Wk9	27		24	Wk17	21	Wk21	21	Deadline Results Submission	25		23		
Sat		23		27		25		22		27		24		28		26		23		28		25		22		22		26		24		
Sun		24		28		26		23		28		25		29		27		24		29		26		23		23		27		25		
Mon	Wk3	25	Wk 8	29	Wk12	27	Wk16	24	Wk21	29		26	Wk10	30		28		25	Wk23	30	Deadline Results Submission	27		24		24	IEB Intra	28		26		
Tues		26		30		28		25		30		27			Wk14	29		26	Wk10	31		28		25		25		29		27		
Wed		27				29		26	Wk1	31	Wk5	28				30	Wk18	27			IEB Intra	29		26		26	UEB Intra	30		28		
Thu		28				30		27				29			Diwali*	31		28			Wk14	30		27		27				29		
Fri		29				31		28				30			Wk1		Wk5	29			UEB Intra	31	Wk18	28	Wk22	28				30		
Sat		30						29			Merdeka Day	31						30								29				31		
Sun		31						30																		30						

UNIVERSITI KUALA LUMPUR
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Table 1b: Summary of Industrial Training Sessions -24 Weeks in Feb, July and October semesters 2024

		Activity	March sem 2024	*July sem 2024*	October Sem 2024
	Public Holiday (Fixed)	Start/End of Intra	11 Mar-23 Aug 24 (24 Weeks)	*29Jul 24-10 Jan 25 (24 Weeks)*	28 Oct 24-11 Mar 25 (24 Weeks
*	Public Holiday (subject to change)	Results Submission	6/9/2024	*27-Jan-25*	25-Apr-25
		IEB	10-Sep	*29-Jan-25*	28-Apr-25
		UEB	13-Sep	*31-Jan-25*	30-Apr-25

UNIVERSITI KUALA LUMPUR
BRITISH MALAYSIAN INSTITUTE

1c:Industrial Training Calendar for 18 weeks for 14-7-14 programmes

	March semester 2024 (Long)								July semester 2024 (Short)						October semester 2024 (Long semester)											
	Mar-24		Apr-24		May-24		Jun-24		Jul-24		Aug-24		Sep-24		Oct-24		Nov-24		Dec-24		Jan-25		Feb-25		Mar-25	
Day		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date		Date
Sun														1						1						
Mon			Wk4	1					Wk17	1				2						2					*Eid Fitri**	31
Tues				2	Wk8					2				3	*Wk10*	1				3						
Wed				3	*Worker's Day*	1				3			*Wk6*	4		2				4	*New Year*	1				
Thurs				4		2				4		1		5		3				5	*Wk23*	2				
Friday		1		5		3				5	UEB Intra	2		6		4		1		6	**Wk10**	3				
Sat		2		6		4		1		6		3		7		5		2		7		4		1		1
Sun		3		7		5		2		7		4		8		6		3		8		5		2		2
Mon		4	Wk5	8	Wk9	6	*YDPA B'day*	3	Wk18	8		5		9		7		4		9		6		3		3
Tues		5		9		7		4		9	*Wk2*	6		10		8		5		10		7		4		4
Wed		6	*Eid Fitri**	10		8	Wk13	5		10		7		11	*Wk11*	9	*Wk15*	6		11	*Wk24*	8		5		5
Thurs		7	*Eid Fitri**	11		9		6		11		8	*Wk7*	12		10		7		12		9		6		6
Friday		8		12		10		7		12		9		13		11	**Wk2**	8	**Wk7**	13	**Wk11**	10	**Wk15**	7		7
Sat		9		13		11		8		13		10		14		12		9		14		11		8		8
Sun		10		14		12		9		14		11		15		13		10		15		12		9		9
Mon	Wk1	11	Wk6	15	Wk10	13	Wk14	10		15		12	*Mula Dapl Maulidur Rasul*	16		14		11	*Deadline Results*	16		13		10		10
Tues		12		16		14		11		16		13	*Wk8*	17		15		12		17		14		11		11
Wed		13		17		15		12		17	*Wk3*	14		18	*Wk12*	16	*Wk16*	13	IEB Intra	18		15		12		12
Thurs		14		18		16		13		18		15		19		17		14		19		16		13		13
Friday		15		19		17		14		19		16		20		18	**Wk3**	15	UEB Intra	20	**Wk12**	17	**Wk16**	14		14
Sat		16		20		18		15		20		17		21		19		16		21		18		15		15
Sun		17		21		19		16		21		18		22		20		17		22		19		16		16
Mon	Wk2	18	Wk7	22	Wk11	20	*Eid Adha**	17		22		19		23		21		18		23		20		17	Deadline Results	17
Tues		19		23		21	*Eid Adha**	18		23		20		24		22		19	*Wk22*	24		21		18		18
Wed		20		24	*Wesak Day*	22	Wk15	19		24	*Wk4*	21	*Wk9*	25	*Wk13*	23	*Wk17*	20	*X'mas*	25		22		19	IEB Intra	19
Thurs		21		25		23		20		25		22		26		24		21		26	**Wk13**	23		20		20
Friday		22		26		24		21		26		23		27		25	**Wk4**	22	**Wk9**	27		24	**Wk17**	21	UEB Intra	21
Sat		23		27		25		22		27		24		28		26		23		28		25		22		22
Sun		24		28		26		23		28		25		29		27		24		29		26		23		23
Mon	Wk3	25	Wk 8	29	Wk12	27	Wk16	24	Deadline Results Submission	29		26	*Wk10*	30	*Wk14*	28		25	*Wk23*	30	*Deadline Results*	27		24		24
Tues		26		30		28		25	*Wk1*	30		27				29		26	**Wk10**	31		28		25		25
Wed		27				29		26	IEB Intra	31	*Wk5*	28				30	*Wk18*	27			*IEB Intra*	29		26		26
Thu		28				30		27				29			*Diwali**	31		28			**Wk14**	30		27		27
Fri		29				31		28				30			**Wk1**		**Wk5**	29			*UEB Intra*	31	**Wk18**	28		28
Sat		30						29			*Merdeka Day*	31						30								29
Sun		31						30																		30

UNIVERSITI KUALA LUMPUR
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	Public Holiday (Fixed)
*	Public Holiday (subject to change)

Table 1cSummary of Industrial Training Sessions -18 Weeks in March, July and October semesters 2024

Activity	March sem 2024	*July sem 2024*	October Sem 2024
Start/End of Intra	11 March-12 July (18 Weeks)	*29 July to 29 Nov (18 Weeks)*	28 Oct 24-28 Feb 2025 (18
Results Submission	29 July 2024	*16-Dec-24*	17-Mar-25
IEB	30 July 2024	*18-Dec-24*	19-Mar-25
UEB	2-Aug-24	*20-Dec-24*	21-Mar-25

ACADEMIC ACTIVITIES GUIDELINES

ACTIVITIES	TIMELINE (ACADEMIC WEEK)
SEMESTER REGISTRATION	
Registration for NEW students	○ 1 week before Class begins
Semester Registration for returning students	○ 1 week before class begins until academic week 1
Late Semester Registration ○ ADD Subject is not allowed (Refer to ADD/DROP/WITHDRAWAL FROM SUBJECT BELOW)	
Late Registration ends.	○ Week 2 ○ Students may be deferred or terminated from study.
ADD/DROP/WITHDRAWAL FROM SUBJECT	
ADD Subject is allowed **DROP** Subject is allowed	○ Week 1
ADD Subject is NOT allowed **DROP** Subject is allowed	○ Week 2 - 4
ADD and DROP Subject are NOT allowed **WITHDRAW** is allowed (use form)	○ Week 5 - 9
Withdrawal from Subject is NOT allowed	○ Week 10 onwards
Verification Data for Convocation (Final Semester Student Only)	○ **Week 9 (final semester)**
Distribution of Examination Slip	○ Week 18 ○ Students must clear their status with Finance Department before collecting the Examination Slip at Academic and Affair Department. ○ Students must check to confirm correctness of spelling or names, student ID and IC numbers.
Revision Week	Week 18
FINAL EXAMINATION	Week 19 - 20
Academic Appeal	Within 3 weeks after Student Results are released

Academic Management Team:	
1	Ts. Dr. Zulkifli Mahmoodin Head of Campus/Dean
2	Dr. Muhammad Noor Nordin Deputy Dean (Academic & Technology)
3	Dr. Azriaty Mazlan Deputy Dean (Student Development and Campus Lifestyle)
4	Ir. Dr. Mohd Badrulhisham Ismail Deputy Dean (International, Industrial & Institutional Partnership)
5	Mohamad Zairi B. Asri Head of Department (Academic Affairs)
6	Dr. Suhairi Rizuan Che Ahmad Head of Section (Electrical Technology)
7	Dr. Muhammad Ghazali Abdul Rahman Head of Section (Electronics Technology)
8	Ts. Dr. Noor Hidayah Mohd Yunus Head of Section (Communication Technology)
9	Dr. Mohd Zubir Suboh Head of Section (Medical Engineering Technology)
10	Shariah Bt. A. Wahid Head of Section (Student Development)
11	Dr. Anis Nur Assila Rozmi Head of Unit (Technopreneur)
12	Dr. Ainor Khaliah Mohd Isa Head of Section (Quality Assurance)
13	Dr. Siti Marwangi Mohamad Maharum Head of Section (Research and Innovation)

Introduction:

Universiti Kuala Lumpur British Malaysian Institute (UniKL BMI) started from a smart partnership between the Malaysian and British Government. MARA representing the Malaysian Government has delivered its mandate by providing the infrastructure and human capital while the British Government contributed by providing support and expertise through its key players in various industries.

Located in Gombak Selangor, UniKL BMI is fulfilling the demands of the Malaysian government in providing entrepreneurial technopreneurs in the electrical, electronics, medical electronics and telecommunication sectors.

Areas:

- Electrical Engineering Technology
- Electronics Engineering Technology
- Communication Engineering Technology
- Medical Electronics Engineering Technology
- Electrical Engineering

UNIVERSITI KUALA LUMPUR
BRITISH MALAYSIAN INSTITUTE

Electrical Technology Section Dr. Suhairi Rizuan Che Ahmad PhD (UTEM)			
1	Prof. Dr. Kushsairy B. Abdul Kadir PhD (Strathclyde University)	19	Azuki B. Abdul Salam MSc (IIUM)
2	Assoc. Prof. Dr. Mohd Izhar B. Abu Bakar PhD (USM)	20	Fahteem Hamamy Anuwar MSc (UiTM)
3	Dr. Nurul Fazlin Bt. Roslan PhD (Universitat Politecnica de Catalunya)	21	Mohamad Shaiful B. Osman MSc (UiTM)
4	Dr. Idris B. Abd Latiff PhD (Sheffield University)	22	Mohd Akram B. Dandu MSc (IIUM)
5	Dr. Mohd Fahmi B. Hussin PhD (Cardiff University)	23	Norrolhoda Bt. Sanif MEng (UTHM)
6	Dr. Rohaida Bt. Hussain PhD (Strathclyde University)	24	Shaharudin B. Yub MSc (IIUM)
7	Dr. Nor Shafiqin Bt. Shariffuddin PhD (UPM)	25	Najiyah Bt. Saleh MEng (UTM)
8	Dr. Mohammad Miqdad B. Abdul Aziz PhD (UniKL)	26	Nor Azman B. Othman MEd (UTM)
9	Norhafiza Bt. Mohamad MEng (UTM)	27	Norziany Bt. Mohd Nor MEng (UTM)
10	Abdul Rashid B. Othman MEd (UTM)	28	Pusparini Dewi Bt. Abd Aziz MSc (UiTM)
11	Abdul Razak B. Ahmad MSc (IIUM)	29	Saharuddin B. Othman MSc (IIUM)
12	Ahmad Zaki B. Abdul Karim MSc (UKM)	30	Shamsul Zahari B. Shahidin MSc (UM)
13	Azmi B. Hashim MEng (UTM)	31	

Electronics Technology Section Dr. Muhammad Ghazali Bin Abdul Rahman PhD (Glasgow University)			
1	Prof. Dr. Mohd Amir B. Abas PhD (Newcastle University)	15	Azliza Bt. Mohamad Arshad MSc (IIUM)
2	Dr. Aizat Faiz B. Ramli PhD (York University)	16	Ahmad Basri B. Hj Zainal MSc (Loughborough University)
3	Dr. Faezah Bt. Harun PhD (Sheffield University)	17	Azman B. Abdul Aziz@ Yusof MSc (IIUM)
4	Dr. Ismail B. Adam PhD (IIUM)	18	Hazizuldeen B. Abdul Aziz MSc (UiTM)
5	Dr. Izanoordina Bt. Ahmad PhD (Queensland University)	19	Izwan Arief B. Abd Malik MSc (Staffordshire University)
6	Dr. Julie Roslita Bt. Rusli PhD (UPM)	20	Kamalulfaizin B. Mohd Suhut MSc (IIUM)
7	Dr. Mohd Azraie B. Mohd Azmi PhD (Swansea University)	21	Md. Tarmizi B. Hj Mustaffa MSc (IIUM)
8	Dr. Mohd Zaki B. Ayob PhD (York University)	22	Mohamed Shaharudeen Yunos MSc (UTM)
9	Dr. Muhd Khairulzaman B. Abdul Kadir PhD (Warwick University)	23	Mohd Aswadi B. Alias MSc (Leicester University)
10	Dr. Nor Amalia Bt. Sapiee @ Hamdan PhD (USM)	24	Muhyi B. Yaakob MSc (UniMAP)
11	Dr. Siti Marwangi Mohamad Maharum PhD (UTM)	25	Norhaslinawati Bt. Ramli MSc (USM)
12	Dr. Suhaimi Bahisham B. Jusoh @ Yusof PhD (UPM)	26	Nor Zunaini Bt. Abdul Kadir MSc (IIUM)
13	Dr. Zarith Liyana Bt. Zahari PhD (UMP)	27	Johara Bt. Ghazali BSc (Staffordshire University)
14	Abdul Halim B. Abdul Rahman MSc (UKM)	28	Yosof B. Kadase BSc (UTM)

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Communication Technology Section Ts. Dr. Noor Hidayah Bt. Mohd Yunus PhD (UKM)			
1	AP. Ts. Dr. Zuhanis Bt. Mansor PhD (Bristol University)	12	Tengku Azita Bt. Tengku Aziz MEng (UKM)
2	Dr. Alipah Pawi PhD (Brunel University)	13	Safyzan B. Salim MEng (UTHM)
3	Dr. Punithavathi A/P Thirunavakkarasu PhD (UPM)	14	Nor Khairiah Bt. Ibrahim MSc (UPM)
4	Dr. Suraya Bt. Mohamad - Head Phd (Manchester University)	15	Nurul Husna Bt. Mohd Rais MSc (UniMAP)
5	Dr. Zarina Bt. Mohd Hussin PhD (Brunel University)	16	Siti Zaiummi Bt. Mohd Zawawi MEng (UKM)
6	Dr. Mohd Zain @ Mohd Fauzi B. Ismail PhD (UniKL)	17	Siti Hajar Bt. Ab Aziz MSc (UiTM)
7	Dr. Ainor Khaliah Bt. Mohd Isa PhD (Bristol University)	18	Salmi Bt. Idin MSc (UPM)
8	Ahmad Roshidi B. Amran MSc (Salford University)	19	Muhammad Hazwan B Muhd Hilmi MSc (UiTM
9	Mohd Raziff B. Abd Razak MSc (Glasgow University)	20	Nurhamima Bt. Fini Master (UM)
10	Lili Azwani Bt. Tiron MSc (USM)	21	Muhd Ghazali B. Twahir @ Hj Tahir BSc (George Washington University)
11	Saiful Yusri B. Mohd Yassin MEng (UKM)		

Medical Engineering Technology Section Dr Mohd Zubir B. Suboh - Head PhD (UKM)			
1	AP. Dr. Ahmad Sabry B. Mohamad PhD (Surrey University)	8	Ts. Hisham B. Mohamad Desa MSc (La Rochelle University)
2	Ts. Dr. Zulkifli B. Mahmoodin PhD (UiTM)	9	Mohd Syazwan B. Md Yid MSc (Nice Sophia Antipolis University)
3	Dr. Muhammad Noor B. Nordin PhD (Hull University)	10	Muhammad Rosli B. Abdullah MSc (UKM)
4	Ts. Dr. Noor Hasmiza Bt. Harun PhD (UPM)	11	Ts. Naszariah Bt. Mohd Noor MSc (UiTM)
5	Dr. Zabariah Bt. Zakaria PhD (UPM)	12	Ts. Sabrina Bt. Mohamed MET (UniKL)
6	Ahmad Zuber B. Ahmad Zainuddin MSc (USM)	13	Shah Rizailli B. Mukhtar MEng (UM)
7	Azleena Bt. Kamarul Bahrain MSc (UKM)	14	Siti Afifah Bt. Hj Mohshim MSc (USM)

Campus Lifestyle Section Shariah Bt. A Wahid - Head MA (UPM)			
1	Dr Azriaty bte Mazlan Phd in Human Communication (UPM)	7	Siti Rabiah Bt. Nasrudin MEd (UM)
2	Maziatul Husni Bt. Mior Harun MEd (IIUM)	8	Siti Rohani Bt. Ahmad MedM (UM)
3	Roziah Bt. Mohamed Rasip MEd (IIUM)	9	Ramli B. Rasid BA (UKM)
4	Noor Hidayah Bt. Mohd Yunan MHsc (IIUM)	10	Saiful Azri bin Sharuddin MA (Hadith) (USM)
5	Muhammad Nadzri bin Abdul Aziz MESL (UM)	11	Mohammad Hendra Che Morad MA (USM)
6	Mahyani Bt. Hj. Hamid MA (UM)		

Technopreneur Section Dr. Anis Nur Assila Rozmi Coordinator Technopreneur Development Unit PhD (UKM)			
1	Dr. Ainul Yusnita Mohamad Yusop DBA (UUM)	5	Shahrudin B. Hashim MBA (Southern Cross University)
2	Mohammad Pauzi B. Mushif MBA (Newcastle University)	6	Razali B. Abdul Majid MBA (Charles Sturt University)
3	Mohd Hazli B. Mohd Rusli MBA (UiTM)	7	Sudirman B. Zainal Abidin MBA (IIUM)
4	Norida Bt. Kamaruddin MBA (IIUM)	8	Roslina Abd Samad BBA (UKM)

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Electrical Engineering Section Dr. Nurul Hanis Azhan Dr. Eng. (Tokai University)			
1	Prof. Ir. Dr. Mohd. Khairil Rahmat PhD (University of Strathclyde)	8	Ts. Dr. Muhammad Haziq Kamarul Azman PhD (Université Côted' Azur/UniKL)
2	Ir. Dr. Mohd Badrulhisham Bin Ismail PhD (Uitm)	9	Dr. Nadia Hanis Abd Rahman PhD (Brunel University)
3	Ir. Dr. Alhamrouni Ibrahim Mohamed Ali PhD (UTM)	10	Dr. Mohd Helmy Hakimie Mohd Rozlan PhD (Brunel University)
4	Ir. Ahmad Syukri Bin Mohamad MSc (UPM)	11	Dr. Muhammad Nubli Bin Zulkifli PhD (UKM)
5	Ir. Mohd Fairuz Abdul Hamid MEng (UTM)	12	Dr. Ezzidin Hassan Elmabrouk Aboadla PhD (IIUM)
6	Dr. Nor Hidayah Abdul Kahar PhD (Brunel University)	13	Ms. Suriyati Bt Harun MSc Statistics (UKM)
7	Ts. Dr. Yanawati Yahya PhD (UniMAP)	14	

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Programme Title: **BACHELOR of ENGINEERING TECHNOLOGY (Hons) in ELECTRICAL**

A. Program Descriptor

1	Programme	Bachelor of Electrical Engineering Technology with Honours
2	Programme Code	B20
3	Final Award	Bachelor of Electrical Engineering Technology with Honours
4	Teaching Institution	UniKL British Malaysian Institute
5	Study Duration	Min: 4 years Max: 8 years

B. Programme Educational Objectives:

1. UniKL graduates who are **knowledgeable, competent, and innovative**, which will contribute towards the requirement of human capital in Engineering Technology field.

2. UniKL graduates who are **effective leaders** with **teamwork skills,** as well as verbal and non-verbal interpersonal **communication skills** to support their role in industry.

3. UniKL graduates who are committed towards the importance of **lifelong learning** and **continuous improvement**.

4. UniKL graduates who are **professional, ethical, and socially responsible**.

5. UniKL graduates who are capable of **embarking on business and technopreneurial activities.**

C. Programme Learning Outcomes:

1. **Knowledge:** Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialisation to define and applied engineering procedures, processes, systems or methodologies. (SK1 to SK4), (C)

2. **Problem Analysis:** Identify, formulate, research literature and analyse broadly-defined engineering problems reaching substantiated conclusions using analytical tools appropriate to their discipline or area of specialisation. (SK1 to SK4), (C)

3. **Dsegin/Development of Solutions:** Design solutions for broadly-defined engineering technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental consideration. (SK5) (C)

4. **Investigation:** Conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions. (SK8), (P)

5. **Modern Tool Usage:** Select and apply appropriate techniques, resources and modern engineering and IT tools, including prediction and modelling, to broadly-defined engineering problems, with an understanding of the limitations. (SK6), (P)

6. **The Engineer and Society:** Demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technology practice and solutions to broadly-defined engineering problems. (SK7), (A)

7. **Environment and Sustainability:** Understand the impact of engineering technology solutions of broadly-defined engineering problems in societal and environmental context and demonstrate knowledge of and need for sustainable development. (SK7), (A)

8. **Ethics:** Understand and commit to professional ethics and responsibilities and norms of engineering technology practices. (SK7), (A)

9. **Individual and Teamwork:** Function effectively as an individual, and as a member or leader in diverse technical teams. (A)

10. **Communications:** Communicate effectively on broadly-define engineering activities with the engineering community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. (A)

11. **Project Management and Finance:** Demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member and leader in a team and to manage projects in multidisciplinary environments. (A)

12. **Life long Learning:** Recognize the needs for and have the ability to engage in independent and life-long learning in specialist technologies. (A)

D. Programme Structure

Semester 1			**Semester 2**		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WEB10302	Fundamental English	2	BTB10403	Engineering Mathematics 2	3
WEB20202	Professional English 1	2	BEB14403	Introduction to Electronics	3
BTB10103	Engineering Mathematics 1	3	BPB12603	Introduction to Electric Circuits	3
MPU3192 /MPU3142	Falsafah dan Isu Semasa /Bahasa Melayu Komunikasi 2	3	BPB11903	Introduction to Measurement & Instrumentation	3
BEB14303	Electrical and Electronics Workshop	3	BEB17203	Introduction Digital Electronics	3
BMB22303	Engineering Mechanics	3	MPU3182/ MPU3192	Penghayatan Etika dan Peradaban/Philosophy and Current Issues	2
Total Credit Hours		15	Total Credit Hours		17

Semester 3			Semester 4		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BTB20304	Engineering Mathematics 3	4	BEB25303	Microprocessor and Embedded System	3
BPB22703	Electric Circuit Theorems	3	BPB22803	Network Analysis	3
BTB22403	Electromagnetic Waves	3	BEB34303	Internet of Things & System Integration	3
BEB25403	Programming for Engineers	3	BPB23203	Power Electronics	3
BPB26103	Sustainable Energy	3	BPB22503	Engineering Drawing	3
BGB21003	Essential Management Principles	3	BGB32003	Industrial Safety and Health	3
W*****01	Foreign Language 1	1	WEB20302	Professional English 2	2
Total Credit Hours		20	Total Credit Hours		20

Semester 5			Semester 6		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BPB33103	Power System	3	WPB49804	Final Year Project 1	4
BPB31803	Control System	3	BPB33503	Power Quality	3
BEB31103	Engineering Ethics and Professionalism in Society	3	BPB33603	Programmable Logic Controller and Application	3
BTB35203	Communication Systems	3	BPB44603	High Voltage Technology	3
WBB20103	Technopreneurship	3	BPB31303	Electrical Machines and Drives	3
W*****01	Foreign Language 2	1	B*B****3	Elective	3
MPU3332/MPU3342	Isu-isu Kontemporari Muslim di Malaysia/Culture and Lifestyle in Malaysia 2	2			
Total Credit Hours		18	Total Credit Hours		19

Semester 7			Semester 8		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WPB49906	Final Year Project 2	6	WIB41012	Industrial Training	12
MPU3242	Innovation Management	2			
BPB43403	Electrical Systems in Building	3			
MPU34*2	Co-Curriculum 2	2			
B*B****3	Elective	3			
B*B****3	Elective	3			
Total Credit Hours		19	Total Credit Hours		12

Elective Courses

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BEB45203**	Electronic Ticketing Systems	3	BMB41303***	Introduction to Bionanotechnology	
BEB36403**	Semiconductor Materials and Devices	3	BMB41403***	Biomedical LaserTechnology	3
BEB46503**	Analog and Digital IC Design	3	BMB43703***	Biomedical Management & Planning	3
BTB44303*	Digital Signal Processing	3	BMB41503***	Physics of Diagnostic Radiology	3
BEB35303**	Applied Python Programming	3	BPB34203****	Measurement and Instrumentation System	3
BPB41603****	Robotics & Intelligent Systems	3	BPB34603****	Power System Protection	3
BTB46303*	Optoelectronics and Optical Fibre	3	BPB41703****	Industrial Control	3
BTB45303*	Digital Communication System	3	BPB36403****	Energy Efficiency	3
BTB42203*	Multimedia over Data Networks	3	BPB47103****	Green Building	3
BTB47203*	Satellite Communication	3	BPB47303****	Smart Grid and SE System	3
BTB42503*	Network Security Operation	3	BEB45303**	Mobile System Development	3
BTB44403*	Probability and Stochastic Processes	3	BEB45403**	Industrial IoT	3
BMB32403***	Electromechanical Medical Devices	3	BEB46603**	IC Faults and Tests	3
BMB32503***	Rehabilitation Engineering	3	BEB44503**	Electronic Power Systems	3
BMB43503***	Telemedicine Technology	3	BEB44603**	Certification, Standards, and Regulations in Electronic Assemblies	3

Additional

Note: Bahasa Kebangsaan A is not included in Total Credit Graduate (TCG)

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU3212	Bahasa Kebangsaan A	2			

Co-Curriculum

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU3412	Career Guidance 2	2	MPU34102	Integriti & Anti-Rasuah	2
MPU3422	Community Service 2	2	MPU34112	Huffaz Professional 2	2
MPU3442	Rakan Masjid 2	2	MPU3432	Culture 2	2
MPU3462	Kor Siswa Siswi Pertahanan Awam 2	2	MPU3452	Siswa-siswi Bomba & Penyelamat 2	2
MPU3472	Sport Management 2	2	MPU3482	Personal Financial Management 2	2
MPU3492	Askar wataniah	2			

Centralised foreign language courses

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WAD10101	Arabic Language 1	1	WKD10101	Korean Language 1	1
WAD10101	Arabic Language 2	1	WKD10201	Korean Language 2	1
WFD10101	French Language 1	1	WMD10101	Mandarin 1	1
WFD10201	French Language 2		WMD10201	Mandarin 2	1
WID10201	Italian Language 1		WSD10101	Spanish Language 1	1
WID10202	Italian Language 2	1	WSD10201	Spanish Language 2	1

Programme Title: **BACHELOR of ELECTRICAL ENGINEERING TECHNOLOGY (Sustainable Energy) with Honours**

A. Program Descriptor

1	Programme	Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours
2	Programme Code	B25
3	Final Award	Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours
4	Teaching Institution	UniKL British Malaysian Institute
5	Study Duration	Min: 4 years Max: 8 years

B. Programme Educational Objectives:

1. UniKL graduates who are **knowledgeable, competent, and innovative**, which will contribute towards the requirement of human capital in Engineering Technology field.

2. UniKL graduates who are **effective leaders** with **teamwork skills,** as well as verbal and non-verbal interpersonal **communication skills** to support their role in industry.

3. UniKL graduates who are committed towards the importance of **lifelong learning** and **continuous improvement**.

4. UniKL graduates who are **professional, ethical, and socially responsible**.

5. UniKL graduates who are capable of **embarking on business and technopreneurial activities.**

C. Programme Learning Outcomes:

1. **Knowledge:** Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialisation to define and applied engineering procedures, processes, systems or methodologies. (SK1 to SK4), (C)

2. **Problem Analysis:** Identify, formulate, research literature and analyse broadly-defined engineering problems reaching substantiated conclusions using analytical tools appropriate to their discipline or area of specialisation. (SK1 to SK4), (C)

3. **Dsegin/Development of Solutions:** Design solutions for broadly-defined engineering technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental consideration. (SK5) (C)

4. **Investigation:** Conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions. (SK8), (P)

5. **Modern Tool Usage:** Select and apply appropriate techniques, resources and modern engineering and IT tools, including prediction and modelling, to broadly-defined engineering problems, with an understanding of the limitations. (SK6), (P)

6. **The Engineer and Society:** Demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technology practice and solutions to broadly-defined engineering problems. (SK7), (A)

7. **Environment and Sustainability:** Understand the impact of engineering technology solutions of broadly-defined engineering problems in societal and environmental context and demonstrate knowledge of and need for sustainable development. (SK7), (A)

8. **Ethics:** Understand and commit to professional ethics and responsibilities and norms of engineering technology practices. (SK7), (A)

9. **Individual and Teamwork:** Function effectively as an individual, and as a member or leader in diverse technical teams. (A)

10. **Communications:** Communicate effectively on broadly-define engineering activities with the engineering community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. (A)

11. **Project Management and Finance:** Demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member and leader in a team and to manage projects in multidisciplinary environments. (A)

12. **Life long Learning:** Recognize the needs for and have the ability to engage in independent and life-long learning in specialist technologies. (A)

D. Programme Structure

Semester 1			**Semester 2**		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WEB10302	Fundamental English	2	BTB10403	Engineering Mathematics 2	3
WEB20202	Professional English 1	2	BEB14403	Introduction to Electronics	3
BTB10103	Engineering Mathematics 1	3	BPB12603	Introduction to Electric Circuits	3
MPU3192 /MPU3142	Falsafah dan Isu Semasa /Bahasa Melayu Komunikasi 2	3	BPB16003	Industrial Instrumentation	3
BEB14303	Electrical and Electronics Workshop	3	BEB17203	Introduction Digital Electronics	3
BMB22303	Engineering Mechanics	3	MPU3182/ MPU3192	Penghayatan Etika dan Peradaban/Philosophy and Current Issues	2
Total Credit Hours		15	Total Credit Hours		17

Semester 3			Semester 4		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BTB20304	Engineering Mathematics 3	4	BPB22803	Network Analysis	3
BPB26203	Computional Engineering for RE System	3	BPB23203	Power Electronics	3
BEB25403	Programming for Engineers	3	BTB23403	Electromagnetic Waves	3
BPB22703	Electrical Circuit Theorems	3	BPB27603	Energy Efficiency	3
W*****01	Foreign Language 1	1	BEB34303	Internet of Things and System Integration	3
BPB26103	Sustainable Energy	3	BGB32003	Industrial Safety and Health	3
BGB21003	Essential Management Principles	3	WEB20302	Professional English 2	2
Total Credit Hours		20	Total Credit Hours		20

Semester 5			Semester 6		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BPB33103	Power System	3	WPB49804	Final Year Project 1	4
BPB31803	Control System	3	BPB47503	Energy Management	3
BEB31103	Engineering Ethics and Professionalism in Society	3	BPB33603	Programmable Logic Controller and Application	3
BTB35203	Communication Systems	3	BPB44603	Industrial Photovoltaic	3
WBB20103	Technopreneurship	3	BPB31303	Electrical Machines and Drives	3
W*****01	Foreign Language 2	1	B*B****3	Elective	3
MPU3332 /MPU3342	Isu-isu Kontemporari Muslim di Malaysia/Culture and Lifestyle in Malaysia 2	2			
Total Credit Hours		18	Total Credit Hours		19

Semester 7			Semester 8		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WPB49906	Final Year Project 2	6	WIB41012	Industrial Training	12
BPB36503	Measurement and Verification	3			
MPU3242	Innovation Management	2			
MPU34*2	Co-Curriculum 2	2			
B*B****3	Elective	3			
B*B****3	Elective	3			
Total Credit Hours		19	Total Credit Hours		12

Additional Module

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU3212	Bahasa Kebangsaan A	2			

Electives Courses

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BTB45303	Digital Communication System	3	BMB32403**	Electromechanical Medical Devices	3
BTB42203	Multimedia over Data Networks	3	BMB32503**	Rehabilitation Engineering	3
BTB46303	Optoelectronics and Optical Fibre	3	BMB43503**	Telemedicine Technology	3
BTB44303	Digital Signal Processing	3	BMB41303**	Introduction to Bionanotechnology	3
BTB47203	Satellite Communication	3	BMB41403**	Biomedical Laser Technology	3
BTB42503	Network Security Operation	3	BMB43703**	Biomedical Management & Planning	3
BTB44403	Probability and Stochastic Processes	3	BMB41503**	Physics of Diagnostic Radiology	3
BEB41103*	Artificial Intelligence	3	BPB34203***	Measurement and Instrumentation System	3
BEB45203*	Electronic Ticketing Systems	3	BPB34603***	Power System Protection	3
BEB36403*	Semiconductor Materials and Devices	3	BPB44303***	Industrial Control	3
BEB46503*	Analog and Digital IC Design	3	BPB33303***	Power Quality	3
BEB35303*	Applied Python Programming	3	BPB47103***	Green Building	3
BEB45303*	Mobile System Development	3	BPB47203***	Hydro Technology	3
BEB45403*	Industrial IoT	3	BPB47403***	Solar Thermal	3
BEB46603*	IC Faults and Tests	3	BPB47003***	Policy in Sustainable Energy	3
BEB44503*	Electronic Power Systems	3	BPB47303***	Smart Grid and SE System	3
BEB44603*	Certification, Standards, and Regulations in Electronic Assemblies	3	BPB44103****	Robotics & Intelligent Systems	3

MPU Courses

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU3213	Tamadun Islam & Tamadun Asia (TITAS)	3	MPU3113	Hubungan Etnik	3
MPU3143	Bahasa Melayu Komunikasi 2		MPU3173	Pengajian Malaysia 3	
MPU3333	Isu-isu Kontemporari Muslim di Malaysia	3	MPU34*2	Co-Curriculum 2	2
MPU3343	Culture & Lifesytle in Malaysia 2				

Co-Curriculum

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU3412	Career Guidance 2	2	MPU34102	Integriti & Anti-Rasuah	2
MPU3422	Community Service 2	2	MPU34112	Huffaz Professional 2	2
MPU3442	Rakan Masjid 2	2	MPU3432	Culture 2	2
MPU3462	Kor Siswa Siswi Pertahanan Awam 2	2	MPU3452	Siswa-siswi Bomba & Penyelamat 2	2
MPU3472	Sport Management 2	2	MPU3482	Personal Financial Management 2	2
MPU3492	Askar wataniah	2			

Centralised foreign language courses

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WAD10101	Arabic Language 1	1	WKD10101	Korean Language 1	1
WAD10101	Arabic Language 2	1	WKD10201	Korean Language 2	1
WFD10101	French Language 1	1	WMD10101	Mandarin 1	1
WFD10201	French Language 2		WMD10201	Mandarin 2	1
WID10201	Italian Language 1		WSD10101	Spanish Language 1	1
WID10202	Italian Language 2	1	WSD10201	Spanish Language 2	1

Programme Title: **BACHELOR of ELECTRONIC ENGINEERING TECHNOLOGY with HONOURS**

A. Program Descriptor

1	Programme	Bachelor of Electronic Engineering Technology with Honours
2	Programme Code	B21
3	Final Award	Bachelor of Electronic Engineering Technology with Honours
4	Teaching Institution	UniKL British Malaysian Institute
5	Study Duration	Min: 4 years Max: 8 years

B. Programme Educational Objectives:

1. UniKL graduates who are **knowledgeable, competent, and innovative**, which will contribute towards the requirement of human capital in Engineering Technology field.

2. UniKL graduates who are **effective leaders** with **teamwork skills,** as well as verbal and non-verbal interpersonal **communication skills** to support their role in industry.

3. UniKL graduates who are committed towards the importance of **lifelong learning** and **continuous improvement**.

4. UniKL graduates who are **professional, ethical, and socially responsible**.

5. UniKL graduates who are capable of **embarking on business and technopreneurial activities.**

C. Programme Learning Outcomes:

1. **KNOWLEDGE:** Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialisation to define and applied engineering procedures, processes, systems or methodologies.(SK1 to SK4)

2. **PROBLEM ANALYSIS:** Identify, formulate, research literature and analyse broadly-defined engineering problems reaching substantiated conclusions using analytical tools appropriate to their discipline or area of specialisation. (SK1 TO SK4).

3. **DESIGN/DEVELPMENT OF SOLUTIONS:** Design solutions for broadly-defined engineering technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental consideration. (SK5)

4. **INVESTIGATION:** Conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions. (SK8)

5. **MODERN TOOL USAGE:** Select and apply appropriate techniques, resources and modern engineering and IT tools, including prediction and modelling, to broadly-defined engineering problems, with an understanding of the limitations. (SK6)

6. **THE ENGINEER AND SOCIETY:** Demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technology practice and solutions to broadly-defined engineering problems, (SK7).

7. **ENVIRONMENT AND SUSTAINABILITY:** Understand the impact of engineering technology solutions of broadly-defined engineering problems in societal and environmental context and demonstrate knowledge of and need for sustainable development. (SK7)

8. **ETHICS:** Understand and commit to professional ethics and responsibilities and norms of engineering technology practices. (SK7)

9. **INDIVIDUAL AND TEAM WORK:** Function effectively as an individual, and as a member or leader in diverse technical teams.

10. **COMMUNICATIONS:** Communicate effectively on broadly-define engineering activities with the engineering community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **PROJECT MANAGEMENT AND FINANCE:** Demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member and leader in a team and to manage projects in multidisciplinary environments.

12. **LIFE LONG LEARNING:** Recognize the needs for and have the ability to engage in independent and life-long learning in specialist technologies.

D. Programme Structure

Semester 1			**Semester 2**		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WEB10302	Fundamental English	2	BPB12603	Introduction to Electric Circuits	3
WEB20202	Professional English 1	2	BEB14403	Introduction to Electronics	3
BEB14303	Electrical and Electronics Workshop	3	BTB10403	Engineering Mathematics 2	3
BMB22303	Engineering Mechanics	3	WEB20302	Professional English 2	2
BTB10303	Engineering Mathematics 1	3	BPB11903	Introduction to Measurement and Instrumentation	3
MPU3192 /MPU3142	Falsafah Dan Isu Semasa /Bahasa Melayu Komunikasi 2	2	BEB17203	Introduction to Digital Electronics	3
			BGB21003	Essential Management Principles	3
Total Credit Hours		15	Total Credit Hours		20

Semester 3			Semester 4		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BTB20304	Engineering Mathematics 3	4	BEB27303	FPGA Principles and Applications	3
BEB27403	Digital Electronics	3	BEB24403	Electronics Amplifier Circuits	3
BEB24503	Electronic Devices and Circuits	3	BEB25303	Microprocessor and Embedded System	3
BPB22703	Electric Circuit Theorems	3	BTB23403	Electromagnetic Waves	3
BEB25403	Programming for Engineers	3	MPU3182 /MPU3192	Penghayatan Eitka dan Peradaban / Philosophy and Current Issues	2
BPB22503	Engineering Drawing	3	MPU3332 /MPU3342	Isu-isu Kontemporari Muslim di Malaysia /Culture and Lifestyle in Malaysia 2	2
W*****01	Foreign Language 1	1			
Total Credit Hours		20	Total Credit Hours		16

Semester 5			Semester 6		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BPB31803	Control System	3	WPB49804	Final Year Project 1	4
BEB34303	Internet of Things and System Integration	3	BEB44403	Electronic Assemblies	3
WBB20103	Technopreneurship	3	BGB32003	Industrial Safety & Health	3
BTB34203	Signal and Systems	3	BEB41103	Artificial Intelligence	3
BTB35203	Communication Systems	3	B*B****3	Elective	3
BEB33303	Electronic Design Project	3	MPU3242	Innovation Management	2
			W*****01	Foreign Language 2	1
Total Credit Hours		18	Total Credit Hours		19

Semester 7			Semester 8		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WPB49906	Final Year Project 2	6	WIB41009	INDUSTRIAL TRAINING	12
BEB31103	Engineering Ethics and Professionalism in Society	3			
BEB43403	Big Data Analytics	3			
MPU34*2	Co-Curriculum 2	2			
B*B****3	Elective	3			
B*B****3	Elective	3			
Total Credit Hours		20	Total Credit Hours		12

Elective Courses

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BEB45203**	Electronic Ticketing Systems	3	BMB41303***	Introduction to Bionanotechnology	
BEB36403**	Semiconductor Materials and Devices	3	BMB41403***	Biomedical LaserTechnology	3
BEB46503**	Analog and Digital IC Design	3	BMB43703***	Biomedical Management & Planning	3
BTB44303*	Digital Signal Processing	3	BMB41503***	Physics of Diagnostic Radiology	3
BEB35303**	Applied Python Programming	3	BPB34203****	Measurement and Instrumentation System	3
BPB41603****	Robotics & Intelligent Systems	3	BPB34603****	Power System Protection	3
BTB46303*	Optoelectronics and Optical Fibre	3	BPB41703****	Industrial Control	3
BTB45303*	Digital Communication System	3	BPB36403****	Energy Efficiency	3
BTB42203*	Multimedia over Data Networks	3	BPB47103****	Green Building	3
BTB47203*	Satellite Communication	3	BPB47303****	Smart Grid and SE System	3
BTB42503*	Network Security Operation	3	BEB45303**	Mobile System Development	3
BTB44403*	Probability and Stochastic Processes	3	BEB45403**	Industrial IoT	3
BMB32403***	Electromechanical Medical Devices	3	BEB46603**	IC Faults and Tests	3
BMB32503***	Rehabilitation Engineering	3	BEB44503**	Electronic Power Systems	3
BMB43503***	Telemedicine Technology	3	BEB44603**	Certification, Standards, and Regulations in Electronic Assemblies	3

Additional

Note: Bahasa Kebangsaan A is not included in Total Credit Graduate (TCG)

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU3212	Bahasa Kebangsaan A	2			

Co-Curriculum

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU3412	Career Guidance 2	2	MPU34102	Integriti & Anti-Rasuah	2
MPU3422	Community Service 2	2	MPU34112	Huffaz Professional 2	2
MPU3442	Rakan Masjid 2	2	MPU3432	Culture 2	2
MPU3462	Kor Siswa Siswi Pertahanan Awam 2	2	MPU3452	Siswa-siswi Bomba & Penyelamat 2	2
MPU3472	Sport Management 2	2	MPU3482	Personal Financial Management 2	2
MPU3492	Askar wataniah	2			

Foreign Language 1

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WMD10101	Mandarin 1	1	WID10101	Italian 1	1
WAD10101	Arabic 1	1	WKD10101	Korean Language 1	1
WFD10101	French 1	1	WSD10101	Spanish 1	1

Foreign Language 2

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WMD10201	Mandarin 2	1	WID10201	Italian 2	1
WAD10201	Arabic 2	1	WKD10201	Korean Language 2	1
WFD10201	French 2	1	WSD10201	Spanish 2	1

Programme Title: **BACHELOR of TELECOMMUNICATION ENGINEERING TECHNOLOGY with HONOURS**

A. Program Descriptor

1	Programme	Bachelor of Telecommunication Engineering Technology with Honours
2	Programme Code	B24
3	Final Award	Bachelor of Telecommunication Engineering Technology with Honours
4	Teaching Institution	UniKL British Malaysian Institute
5	Study Duration	Min: 4 years Max: 8 years

B. Programme Educational Objectives:

1. UniKL graduates who are **knowledgeable**, **competent**, and **innovative**, will contribute towards the requirement of human capital in Engineering Technology field.

2. UniKL graduates who are **effective leaders** with **teamwork skills,** as well as verbal and non-verbal interpersonal **communication skills** to support their role in industry.

3. UniKL graduates who are committed towards the importance of **lifelong learning** and **continuous improvement**.

4. UniKL graduates who are **professional**, **ethical**, and **socially responsible**.

5. UniKL graduates who are capable of embarking on **business** and **technopreneurial activities.**

C. Programme Learning Outcomes:

1. **Knowledge**: Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialisation to defined and applied engineering procedures, processes, systems or methodologies; (SK1 to SK4) (C)

2. **Problem analysis**: Identify, formulate, research literature and analyse broadly-defined engineering problems reaching substantiated conclusions using analytical tools appropriate to their discipline or area of specialisation; (SK1 to SK4) (C)

3. **Design/Development of solution**: Design solutions for broadly-defined engineering technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations; (SK5) (C)

4. **Investigation**: Conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions; (SK8) (P)

5. **Modern Tool Usage**: Select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to broadly-defined engineering problems, with an understanding of the limitations; (SK6) (P)

6. **The Engineer and Society**: Demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technology practice and solutions to broadly-defined engineering problems; (SK7) (A)

7. **Environment and Sustainability**: Understand the impact of engineering technology solutions of broadly-defined engineering problems in societal and environmental context and demonstrate knowledge of and need for sustainable development; (SK7) (A)

8. **Ethics**: Understand and commit to professional ethics and responsibilities and norms of engineering technology practice; (SK7) (A)

9. **Individual and Team Work**: Function effectively as an individual, and as a member or leader in diverse technical teams; (A)

10. **Communication**: Communicate effectively on broadly-defined engineering activities with the engineering community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions; (A)

11. **Project Management and Finance**: Demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member and leader in a team and to manage projects in multidisciplinary environments; (A)

12. **Life Long Learning**: Recognize the need for, and have the ability to engage in independent and life-long learning in specialist technologies. (A)

D. Programme Structure

Semester 1			**Semester 2**		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WEB10302	Fundamental English	2	BTB10403	Engineering Mathematics 2	3
WEB20202	Professional English 1	2	WEB20302	Professional English 2	2
BTB10303	Engineering Mathematics 1	3	MPU3332	Isu-isu Kontemporari Muslim di Malaysia (M)	2
MPU3192	Falsafah dan Isu Semasa (M,NM)	2	MPU3342	Culture and Lifestyle in Malaysia 2 (NM,I)	
MPU3142	Bahasa Melayu Komunikasi 2 (I)		BEB14403	Introduction to Electronics	3
BEB14303	Electrical and Electronics Workshop	3	BPB12603	Introduction to Electric Circuits	3
BMB22303	Engineering Mechanics	3	BEB25403	Programming for Engineers	3
			MPU3182	Penghayatan Etika dan Peradaban (M,NM)	2
			MPU3192	Phylosophy and Current Issues (I)	
Total Credit Hours		15	Total Credit Hours		18

Semester 3			Semester 4		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BTB20304	Engineering Mathematics 3	4	BTB25403	Communication Technology Principles	3
BEB17203	Introduction to Digital Electronics	3	BTB26303	Optical Fibre Technology	3
BEB24503	Electronic Devices and Circuits	3	BTB23403	Electromagnetic Waves	3
BPB22703	Electrical Circuit Theorems	3	BTB22403	Network Technology	3
W*****01	Foreign Language 1	1	BTB22603	Internet of Things (IoT) Technology	3
BTB22503	Network Fundamental	3	W*****01	Foreign Language 2	1
BTB25503	Transmission Systems	3	BGB21003	Essential Management Principles	3
Total Credit Hours		20	Total Credit Hours		19

Semester 5			Semester 6		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WBB20103	Technopreneurship	3	BPB49804	Final Year Project 1	4
BGB32003	Industrial Safety and Health	3	BTB31203	Application Interface Controller	3
BTB34203	Signals and Systems	3	BTB32503	Advanced Data Communications	3
BEB31103	Engineering Ethics and Professionalism in Society	3	MPU3242	Innovation Management	2
BTB37303	Wireless Network Architecture	3	BTB33203	RF, Microwave and Antenna	3
BTB32403	Data Communications	3	B*B****3	Elective	3
			MPU34*2	Co-Curriculum 2	2
Total Credit Hours		18	Total Credit Hours		20

Semester 7			Semester 8		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BPB49906	Final Year Project 2	6	WIB41012	Industrial Training	12
BTB42303	Network Security	3			
BTB47403	Mobile Communications	3			
B*B****3	Elective	3			
B*B****3	Elective	3			
Total Credit Hours		18	Total Credit Hours		12

Elective Courses

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BTB45303	Digital Communication System	3	BEB44603*	Certification, Standards, and Regulations in Electronic Assemblies	3
BTB42203	Multimedia over Data Networks	3	BMB32403**	Electromechanical Medical Devices	3
BTB46303	Optoelectronics and Optical fibre	3	BMB32503**	Rehabilitation Engineering	3
BTB44303	Digital Signal Processing	3	BMB43503**	Telemedicine Technology	3
BTB47203	Satellite Communication	3	BMB41303**	Introduction to Bionanotechnology	3
BTB42503	Network Security Operation	3	BMB41403**	Biomedical Laser Technology	3
BTB44403	Probability and Stochastic Processes	3	BMB43703**	Biomedical Management & Planning	3
BEB41103*	Artificial Intelligence	3	BMB41503**	Physics of Diagnostic Radiology	3
BEB45203*	Electronic Ticketing Systems	3	BPB34203***	Measurement and Instrumentation System	3
BEB36403*	Semiconductor Materials and Devices	3	BPB34603***	Power System Protection	3
BEB46503*	Analog and Digital IC Design	3	BPB41703***	Industrial Control	3
BEB35303*	Applied Python Programming	3	BPB36403***	Energy Efficiency	3
BEB45303*	Mobile System Development	3	BPB47103***	Green Building	3
BEB45403*	Industrial IoT	3	BPB47303***	Smart Grid and SE System	3
BEB46603*	IC Faults and Tests	3	BPB41603***	Robotics and Intelligent Systems	3
BEB44503*	Electronic Power Systems	3			

Additional

Note: Bahasa Kebangsaan A is not included in Total Credit Graduate (TCG)

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU3212	Bahasa Kebangsaan A (M,NM)	2			

Co-Curriculum 2

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU3412	Career Guidance 2	2	MPU34102	Integriti & Anti-Rasuah 2	2
MPU3422	Community Service 2	2	MPU34112	Huffaz Professional 2	2
MPU3442	Rakan Masjid 2	2	MPU3432	Culture 2	2
MPU3462	Kor Siswa Siswi Pertahanan Awam 2	2	MPU3452	Siswa-siswi Bomba & Penyelamat 2	2
MPU3472	Sports Management 2	2	MPU3482	Personal Financial Management 2	2
MPU3492	Askar Wataniah	2			

Foreign Language 1

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WMD10101	Mandarin 1	1	WID10101	Italian 1	1
WAD10101	Arabic 1	1	WKD10101	Korean Language 1	1
WFD10101	French 1	1	WSD10101	Spanish 1	1

Foreign Language 2

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WMD10201	Mandarin 2	1	WID10201	Italian 2	1
WAD10201	Arabic 2	1	WKD10201	Korean Language 2	1
WFD10201	French 2	1	WSD10201	Spanish 2	1

UNIVERSITI KUALA LUMPUR
BRITISH MALAYSIAN INSTITUTE

Programme Title: BACHELOR of ELECTRONICS ENGINEERING TECHNOLOGY (MEDICAL ELECTRONICS) with HONOURS

A. Program Descriptor

1	Programme	Bachelor of Electronics Engineering Technology (Medical Electronics) with Honours
2	Programme Code	B23
3	Final Award	Bachelor of Electronics Engineering Technology (Medical Electronics) with Honours
4	Teaching Institution	UniKL British Malaysian Institute
5	Study Duration	Min: 2 years 3 months Max: 8 years

B. Programme Educational Objectives:

1. UniKL graduates who are **knowledgeable, competent, and innovative**, which will contribute towards the requirement of human capital in Engineering Technology field.

2. UniKL graduates who are **effective leaders** with **teamwork skills,** as well as verbal and non-verbal interpersonal **communication skills** to support their role in industry.

3. UniKL graduates who are committed towards the importance of **lifelong learning** and **continuous improvement**.

4. UniKL graduates who are **professional, ethical, and socially responsible**.

5. UniKL graduates who are capable of **embarking on business and technopreneurial activities.**

C. Programme Learning Outcomes:

1. **KNOWLEDGE:** Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialisation to define and applied engineering procedures, processes, systems or methodologies. (SK1 to SK4)

2. **PROBLEM ANALYSIS:** Identify, formulate, research literature and analyse broadly-defined engineering problems reaching substantiated conclusions using analytical tools appropriate to their discipline or area of specialisation. (SK1 TO SK4).

3. **DESIGN/DEVELPMENT OF SOLUTIONS:** Design solutions for broadly-defined engineering technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental consideration. (SK5)

4. **INVESTIGATION:** Conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions. (SK8)

5. **MODERN TOOL USAGE:** Select and apply appropriate techniques, resources and modern engineering and IT tools, including prediction and modelling, to broadly-defined engineering problems, with an understanding of the limitations. (SK6)

6. **THE ENGINEER AND SOCIETY:** Demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technology practice and solutions to broadly-defined engineering problems, (SK7).

7. **ENVIRONMENT AND SUSTAINABILITY:** Understand the impact of engineering technology solutions of broadly-defined engineering problems in societal and environmental context and demonstrate knowledge of and need for sustainable development. (SK7)

8. **ETHICS:** Understand and commit to professional ethics and responsibilities and norms of engineering technology practices. (SK7)

9. **INDIVIDUAL AND TEAM WORK:** Function effectively as an individual, and as a member or leader in diverse technical teams.

10. **COMMUNICATIONS:** Communicate effectively on broadly-define engineering activities with the engineering community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **PROJECT MANAGEMENT AND FINANCE:** Demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member and leader in a team and to manage projects in multidisciplinary environments.

12. **LIFE LONG LEARNING:** Recognize the needs for and have the ability to engage in independent and life-long learning in specialist technologies.

D. Programme Structure

Semester 1			**Semester 2**		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WEB10302	Fundamental English	2	BTB10403	Engineering Mathematics 2	3
WEB20202	Professional English 1	2	WEB20302	Professional English 2	2
BTB10303	Engineering Mathematics 1	3	BEB25403	Programming for Engineers	3
MPU3182	Penghayatan Etika dan Peradaban	2	BEB14403	Introduction to Electronics	3
MPU3142	Bahasa Melayu Komunikasi 2				
BEB14303	Electrical & Electronic Workshop	3	BPB22703	Electrical Circuit Theorems	3
BPB12603	Introduction to Electric Circuits	3	BEB17203	Introduction to Digital Electronics	3
BMB22303	Engineering Mehanics	3	MPU3192 /MPU3192	Falsafah dan Isu Semasa /Physiolophy and Current Issue	2
Total Credit Hours		18	Total Credit Hours		19

Semester 3			Semester 4		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BTB20304	Engineering Mathematics 3	4	BTB34203	Signals and Systems	3
BEB27403	Digital Electronics	3	BTB35203	Communication Systems	3
BMB23303	Introduction to Medical Device & Systems	3	BEB25303	Microprocessor and Embedded System	3
BMB22403	Human Anatomy & Physiology	3	BMB23203	Physiological Measurement	3
BEB24503	Electronic Devices & Circuits	3	BMB31303	Medical Physics	3
BGB21003	Essential Management Principles	3	BGB32003	Industrial Safety and Health	3
WMD10101	Mandarin 1	1	WMD10201	Mandarin 2	1
Total Credit Hours		20	Total Credit Hours		19

Semester 5			Semester 6		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BMB33603	Machine Learning in Medical System	3	WPB49804	Final Year Project 1	4
BTB22603	Internet of Things (IoT) Technology	3	BEB31103	Engineering Ethics and Professionalism in Society	3
BMB33403	Biomedical Imaging Systems	3	BMB31403	Biomedical Optics and Photonics	3
BMB32603	Medical Instrumentation	3	BMB33803	Medical Devices Technology	3
WBB20103	Technopreneurship	3	MPU3242	Innovation Management	2
MPU3332	Isu-isu Kontemporari Muslim di Malaysia (M)	2	B*B****3	Elective	3
MPU3342	Culture and Lifestyle in Malaysia 2 (NM)				
Total Credit Hours		17	Total Credit Hours		18

Semester 7			Semester 8		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WPB49906	Final Year Project 2	6	WIB41012	INDUSTRIAL TRAINING	12
BMB43904	Hospital Management & Regulatory Practice	3			
MPU34*2	Co-Curriculum 2	2			
B*B****3	Elective	3			
B*B****3	Elective	3			
Total Credit Hours		17	Total Credit Hours		12

Elective Courses

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BMB32404	Electromechanical Medical Devices	3	BMB43504	Telemedicine Technology	3
BMB32504	Rehabilitation Engineering	3	BMB41303	Introduction to Bionanotechnology	3
BMB41403	Biomedical Laser Technology	3	BMB43703	Biomedical Management & Planning	3
BMB41503	Physics of Diagnostic Radiology	3			

Additional

Note: Bahasa Kebangsaan A is not included in Total Credit Graduate (TCG)

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU3213	Bahasa Kebangsaan A	2			

Co-Curriculum

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU3412	Career Guidance 2	2	MPU3472	Sport Management 2	2
MPU3422	Community Service 2	2	MPU3482	Personal Financial Management 2	2
MPU3432	Culture 2	2	MPU3492	Askar Wataniah	2
MPU3462	Kor Siswa Siswi Pertahanan Awam 2	2	MPU3442	Rakan Masjid 2	2
MPU34102	Integriti & Anti - Rasuah 2	2	MPU34112	Huffaz Professional 2	2

Programme Title: BACHELOR of ELECTRICAL ENGINEERING with HONOURS

A. Program Descriptor

1	Programme	Bachelor of Electrical Engineering with Honours
2	Programme Code	B22 (Regular) or B22-W (Flexi Learn)
3	Final Award	Bachelor of Electrical Engineering with Honours
4	Teaching Institution	UniKL British Malaysian Institute
5	Study Duration	Min: 4 years (Regular) or 5 years (Flexi Learn) Max: 8 years

B. Programme Educational Objectives:

1. UniKL graduates who are **knowledgeable**, **competent**, and **innovative**, which will contribute towards the requirement of human capital in **Electrical Engineering Field**.

2. UniKL graduates who are effective leaders with good **communication** and **teamwork** skills.

3. UniKL graduates who are committed towards the importance of **lifelong learning** and **continuous improvement**.

4. UniKL graduates who are **professional, ethical, and socially responsible**.

5. UniKL graduates who are capable of **embarking on business and technopreneurial activities.**

C. Programme Learning Outcomes:

1. **Engineering Knowledge** – Apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialisation as specified in **WK1 to WK4** respectively to the solution of complex engineering problems.

2. **Problem Analysis** – Identify, formulate, conduct research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences (**WK1 to WK4**).

3. **Design/Development of Solutions** – Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations (**WK5**).

4. **Investigation** – Conduct investigation of complex engineering problems using research-based knowledge (**WK8**) and research methods, including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

5. **Modern Tool Usage** – Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering problems, with an understanding of the limitations (**WK6**).

6. **The Engineer and Society** – Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solutions to complex engineering problems (**WK7**).

7. **Environment and Sustainability** – Understand and evaluate the sustainability and impact of professional engineering work in the solutions of complex engineering problems in societal and environmental contexts. (**WK7**).

8. **Ethics** – Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice (**WK7**).

9. **Individual and Team Work** – Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.

10. **Communication** – Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project Management and Finance** – Demonstrate knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, to manage projects in multidisciplinary environments.

12. **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.

D. Programme Structure

Bachelor of Electrical Engineering with Honours (Regular)

Semester 1			**Semester 2**		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BKB 10103	Mathematics for Engineers 1	3	BKB 10203	Circuit Theory 1	3
WEB10302	Fundamental English	2	BKB 10303	Electronic Devices	3
WEB20202	Professional English 1	2	BKB 10403	Engineering Mechanics	3
MPU3192 / MPU3142	Falsafah dan Isu Semasa / Bahasa Melayu Komunikasi 2	2	BKB 10503	Computer Programming for Engineers	3
BKB 20303	Internet of Things Engineering	3	BKB 10603	Mathematics for Engineers 2	3
			BKB 10702	Engineering Practice and Professionalism	2
			W** ****1	Foreign Language 1	1
Total Credit Hours		12	Total Credit Hours		18

Semester 3			Semester 4		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BKB 20103	Circuit Theory 2	3	BKB 20703	Electronic Circuits	3
BKB 20203	Digital Electronic Fundamentals	3	BKB 20803	Electrical Machines and Drives	3
BKB 21103	Statistics for Engineers	3	BKB 20904	Microcontroller and Interfacing Systems	4
BKB 20403	Engineering Drawing and CAD	3	BKB 21002	Electronics Lab	2
BKB 20502	Basic Electrical Lab	2	BKB 30303	Communication System	3
BKB 20603	Mathematics for Engineers 3	3	WEB20302	Professional English 2	2
W** ****1	Foreign Language 2	1	MPU34*2	Co-curriculum 2	2
Total Credit Hours		18	Total Credit Hours		19

Semester 5			Semester 6		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BKB 30103	Power Systems	3	BKB 30603	Electromagnetic Theory	3
BKB 30202	Electrical Power Lab	2	BKB 30702	Engineers in Society	2
WBB20103	Technopreneurship	3	BKB 30804	Integrated Design Project 2	4
BKB 30403	Power Electronics	3	BKB 30903	Control System Analysis	3
BKB 30502	Integrated Design Project 1	2	BKB 31002	Industrial Safety and Health	2
MPU3333 / MPU3343	Isu-isu Kontemporari Muslim di Malaysia / Culture and Lifestyle in Malaysia 2	2			
MPU 3182 / MPU 3192	Penghayatan Etika & Peradaban / Philosophy and Current Issues	2			
Total Credit Hours		17	Total Credit Hours		14

Inter semester					
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WIB 36005	Industrial Training	5			
Total Credit Hours		5	Total Credit Hours		0

Semester 7			Semester 8		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BKB 40103	High Voltage Engineering	3	BKB 40403	Power System Control	3
BKB 4**03	Elective 1	3	BKB 4**03	Elective 3	3
BKB 4**03	Elective 2	3	BKB 4**03	Elective 4	3
BKB 40203	Power System Analysis	3	MPU 3242	Innovation Management	2
BKB 49803	Engineering Final Year Project 1	3	BKB 49905	Engineering Final Year Project 2	5
BKB 40303	Electrical Energy Utilisation	3			
Total Credit Hours		18	Total Credit Hours		16

Bachelor of Electrical Engineering with Honours (Flexi Learn)

Semester 1			Semester 2		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BKB 10103	Mathematics for Engineers 1	3	MPU3192 / MPU3142	Falsafah dan Isu Semasa / Bahasa Melayu Komunikasi 2	2
BKB 10303	Electronic Devices	3	BKB 10603	Mathematics for Engineers 2	3
WEB10302	Fundamental English	2	BKB 10203	Circuit Theory 1	3
WEB20202	Professional English 1	2	BKB 10503	Computer Programming for Engineers	3
Total Credit Hours		10	Total Credit Hours		11

Inter semester					
BKB 10702	Engineering Practice and Professionalism	2			
BKB 10403	Engineering Mechanics	3			
Total Credit Hours		5			

Semester 3			Semester 4		
BKB 20103	Circuit Theory 2	3	BKB 20403	Engineering Drawing and CAD	3
BKB 20203	Digital Electronic Fundamentals	3	BKB 20703	Electronic Circuits	3
BKB 20303	Internet of Things Engineering	3	BKB 20803	Electrical Machines and Drives	3
BKB 20603	Mathematics for Engineers 3	3	W** ****1	Foreign Language 1	1
Total Credit Hours		12	Total Credit Hours		10

Inter semester					
BKB 20502	Basic Electrical Lab	2			
BKB 21002	Electronics Lab	2			
Total Credit Hours		4			

Semester 5			Semester 6		
BKB 20904	Microcontroller and Interfacing Systems	4	W** ****1	Foreign Language 2	1
BKB 21103	Statistics for Engineers	3	BKB 30403	Power Electronics	3
BKB 30103	Power Systems	3	BKB 30603	Electromagnetic Theory	3
BKB 30303	Communication System	3	WEB20302	Professional English 2	2
Total Credit Hours		13	Total Credit Hours		9

Inter semester					
BKB 30202	Electrical Power Lab	2			
BKB 30702	Engineers in Society	2			
Total Credit Hours		4			

Semester 7			Semester 8		
BKB 30903	Control System Analysis	3	BKB 40103	High Voltage Engineering	3
MPU34*2	Co-curriculum 2	2	MPU3333 / MPU3343	Isu-isu Kontemporari Muslim di Malaysia / Culture and Lifestyle in Malaysia 2	2
WBB20103	Technopreneurship	3	BKB 40203	Power System Analysis	3
BKB 31002	Industrial Safety and Health	2	BKB 30804	Integrated Design Project 2	4
BKB 30502	Integrated Design Project 1	2			
Total Credit Hours		12	Total Credit Hours		12

Semester 9			Semester 10		
BKB 40303	Electrical Energy Utilisation	3	BKB 4**03	Elective 3	3
BKB 40403	Power System Control	3	MPU 3242	Innovation Management	2
BKB 4**03	Elective 1	3	BKB 4**03	Elective 4	3
MPU 3182 / MPU 3192	Penghayatan Etika & Peradaban / Philosophy and Current Issues	2	BKB 49905	Engineering Final Year Project 2	5
BKB 49803	Engineering Final Year Project 1	3			
Total Credit Hours		14	Total Credit Hours		13

Inter semester					
WIB 36005	Industrial Training	5			
BKB 4**03	Elective 2	3			
Total Credit Hours		8			

Additional Module					
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU 3213	Bahasa Kebangsaan A	2			

Elective Courses					
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BKB 40503	Renewable Energy	3	BKB 41603	Automation & Robotics	3
BKB 40603	Artificial Intelligence	3	BKB 41703	Further Control System	3
BKB 40703	Electrical Protection System	3	BKB 41803	Power Quality	3
BKB 40803	Industrial Electrostatics	3	BKB 41903	Power Economics and Market	3
BKB 40903	Industrial Control	3	BKB 42003	Power System Operation and Management	3
BKB 41003	Electrical System Reliability	3	BKB 42103	Numerical Analysis and Computing	3
BKB 41103	Data Communication & Switching Systems	3	BKB 42203	Linear Programming	3
BKB 41203	Wireless Communication Systems	3	BKB 42303	Engineering Economics	3
BKB 41303	Computer Systems & Multimedia	3	BKB 42403	Energy Efficiencies	3
BKB 41403	Digital Signal Processing	3	BKB 42503	Engineering Project Management	3
BKB 41503	Digital Control Systems	3			

MPU Courses					
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU 3412	Career Guidance 2	2			
MPU 3422	Community Service 2	2			
MPU 3442	Rakan Masjid 2	2			
MPU 3462	Kor Siswa Siswi Pertahanan Awam 2	2			
MPU 3472	Sports Management 2	2			
MPU 3492	Askar Wataniah	2			
MPU 34102	Integriti & Anti-Rasuah	2			
MPU 34112	Huffaz Professional 2	2			

Centralised Foreign Language Courses					
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WMD10101	Mandarin 1	1	WMD10201	Mandarin 2	1
WAD10101	Arabic 1	1	WAD10201	Arabic 2	1
WFD10101	French 1	1	WFD10201	French 2	1
WID10201	Italian 1	1	WID10202	Italian 2	1
WKD10101	Korean Language 1	1	WKD10201	Korean Language 2	1
WSD10101	Spanish 1	1	WSD10201	Spanish 2	1

UNIVERSITI KUALA LUMPUR
BRITISH MALAYSIAN INSTITUTE

Programme Title: **DIPLOMA of ELECTRICAL and ELECTRONICS ENGINEERING TECHNOLOGY**

A. Program Descriptor

1	Programme	Diploma of Electrical and Electronics Engineering Technology
2	Programme Code	B02
3	Final Award	Diploma of Electrical and Electronics Engineering Technology
4	Teaching Institution	UniKL British Malaysian Institute
5	Study Duration	Min : 3 years Max: 6 years

B. Programme Educational Objectives:

1. UniKL graduates who are **knowledgeable, competent, and innovative**, which will contribute towards the requirement of human capital in Engineering Technology field.

2. UniKL graduates who are **effective leaders** with **teamwork skills,** as well as verbal and non-verbal interpersonal **communication skills** to support their role in industry.

3. UniKL graduates who are committed towards the importance of **lifelong learning** and **continuous improvement**.

4. UniKL graduates who are **profesional, ethical, and socially responsible**.

5. UniKL graduates who are capable of **embarking on business and technopreneurial activities.**

C. Programme Learning Outcomes:

1. Apply knowledge of mathematics, science, engineering fundamentals to well defined practical procedures and practices in electrical and electronic engineering technology

2. Analyze well-defined engineering problems in electrical and electronic engineering technology.

3. Formulate solutions for well-defined technical problems in electrical and electronic engineering technology.

4. Assist with the formulation of systems, components or processes to meet specified needs in electrical and electronic engineering technology.

5. Conduct investigations of well-defined electrical and electronic technology engineering problems.

6. Apply appropriate techniques, resources and modern engineering tools, including prediction and modeling to well-defined electrical and electronic engineering technology activities with an awareness of the limitations.

7. Function effectively as an individual and as a member or leader in diverse technical teams.

8. Communicate effectively on electrical and electronic engineering by being able to comprehend and write effective reports, make effective presentations, give and receive clear instructions.

9. Demonstrate awareness and consideration for the societal, health, safety, legal and cultural issues and the consequent responsibilities and norms of practices.

10. Demonstrate an understanding of professional ethics, responsibilities and norms of engineering technology practices.

11. Demonstrate understanding of the impact of engineering practices, taking into account the need for sustainable development.

12. Demonstrate an awareness and understanding of management, business practices and entrepreneurship.

13. Recognize the needs for professional development and have the ability to engage in independent and lifelong learning.

D. Programme Structure

Semester 1			**Semester 2**		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WQD10103	Technical Mathematics 1	3	WQD10203	Technical Mathematics 2	3
BMD12103	Engineering Physics	3	BED18403	Fundamentals of Electronics	3
BED18303	Fundamentals of Electrical and Electronic Workshop	3	BPD13303	Fundamentals of Electrical Circuits	3
MPU2182 /MPU2192	Penghayatan Etika dan Peradaban/Falsafah dan Isu Semasa(M) /Bahasa Melayu Komunikasi 1	2	BED17203	Fundamentals of Digital Electronics	3
WBD20203	Introduction to Entrepreneurship	3	BED15203	Fundamentals of Programming	3
WED10402	Competency English	2	WED20202	Communication English 1	2
MPU24**	Co-Curriculum 1	2			
Total Credit Hours		18	Total Credit Hours		17

Semester 3			Semester 4		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BTD20203	Technical Mathematics 3	3	BPD22304	Engineering Project Design	4
BED25403	Fundamentals of Microprocessor and Embedded Systems	3	BPD31503	Fundamentals of Control Systems	3
BPD23303	Fundamentals of Electrical Circuit Theorems	3	W*D10101	Foreign Language 1	2
BED28503	Fundamentals of Electronic Devices and Circuits	3	MPU2232	Interpersonal skills	2
BPD21503	Fundamentals of Measurement and Instrumentations	3	MPU2312 /MPU2322/MPU2342	Amalan Islam di Malaysia /Religious Practices in Malaysia / Cultrue and Lifestyle in Malaysia 1	2
WED20302	Communication English 2	2	B*D****	Elective	3
Total Credit Hours		17	Total Credit Hours		15

Semester 5			Semester 6		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WPD39806	Final Year Project	6	WID41009	INDUSTRIAL TRAINING	9
BED34303	Internet of Things	4			
W*D10201	Foreign Language 2	1			
	Elective	3			
Total Credit Hours		14	Total Credit Hours		9

Elective Courses

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BED27303	Digital Electronics Principles	3	BPD22503	Engineering Drawing Principles	3
BED28403	Electronic Amplifier Circuits Principles	3	BPD21603	Programmable Logic Controller Principles	3
BED35403	Python Programming Principles	3	BPD33403	Electrical Systems in Building Principles	3
BED38503	Electronic Assemblies Principles	3	BPD33103	Electrical Power Principles	3
BTD31203	Application Interface Controller Principles	3	BTD37203	Wireless Communications	3

Additional

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU3213	Bahasa Kebangsaan A	3			

Co-Curriculum

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU2412	Career Guidance 1	2	MPU2462	Pasukan Siswa Pertahanan Awam 1	2
MPU2422	Community Service 1	2	MPU2472	Sport Management 1	2
MPU2432	Culture 1	2	MPU2482	Personal Financial Management 1	2

UNIVERSITI KUALA LUMPUR
BRITISH MALAYSIAN INSTITUTE

Programme Title: **DIPLOMA of ELECTRICAL ENGINEERING TECHNOLOGY (TELECOMMUNICATION)**

A. Program Descriptor

1	Programme	Diploma of Electrical Engineering Technology (Telecommunication)
2	Programme Code	B04
3	Final Award	Diploma of Electrical Engineering Technology (Telecommunication)
4	Teaching Institution	UniKL British Malaysian Institute
5	Study Duration	Min: 3 years Max: 6 years

B. Programme Educational Objectives:

1. UniKL graduates who are **knowledgeable, competent, and innovative**, which will contribute towards the requirement of human capital in Engineering Technology field.
2. UniKL graduates who are **effective leaders** with **teamwork skills,** as well as verbal and non-verbal interpersonal **communication skills** to support their role in industry.
3. UniKL graduates who are committed towards the importance of **lifelong learning** and **continuous improvement**.
4. UniKL graduates who are **professional, ethical, and socially responsible**.
5. UniKL graduates who are capable of **embarking on business and technopreneurial activities.**

C. Programme Learning Outcomes:

1. Apply knowledge of mathematics, science, engineering fundamentals to well defined practical procedures and practices in telecommunication engineering technology.
2. Analyze well-defined technical problems in telecommunication engineering technology.
3. Formulate solutions for well-defined technical problems in telecommunication engineering technology.
4. Assist with the formulation of systems, components or processes to meet specified needs in telecommunication engineering technology.
5. Conduct investigations of well-defined telecommunication engineering technology problems.
6. Apply appropriate techniques, resources, and engineering tools, including prediction and modeling to well-defined telecommunication engineering technology activities with an awareness of the limitations.
7. Function effectively as an individual and as a member or leader in diverse technical teams.
8. Communicate effectively on telecommunication engineering activities with the engineering community and with society at large, by being able to comprehend and write effectively report and design documentation make effective presentations and give and receive clear instruction.

9. Demonstrate awareness and consideration for the societal, health, safety, legal and cultural issues and the consequent responsibilities and norms of practices.

10. Demonstrate an understanding of professional ethics, responsibilities and norms of engineering technology practices.

11. Demonstrate the understanding of the impact of engineering practices, taking into account the need for sustainable development.

12. Demonstrate an awareness and understanding of management, business practices and entrepreneurship.

13. Recognize the needs for professional development and have the ability to engage in independent and lifelong learning.

D. Programme Structure

Semester 1			**Semester 2**		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
WQD10103	Technical Mathematics 1	3	WQD10203	Technical Mathematics 2	3
BMD12103	Engineering Physics	3	BED18403	Fundamentals of Electronics	3
WED10402	Competency English	3	BPD13303	Fundamentals of Electrical Circuits	3
BED18303	Fundamentals of Electrical and Electronics Workshop	3	BED17203	Fundamentals of Digital Electronics	3
MPU2163	Pengajian Malaysia 2	2	BED15203	Fundamentals of Programming	3
MPU2133	Bahasa Melayu Komunikasi 1	2	WED20202	Communication English 1	2
MPU24**	Co-Curriculum 1	2			
Total Credit Hours		18	Total Credit Hours		17

Semester 3			**Semester 4**		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BTD20203	Technical Mathematics 3	3	BPD22304	Engineering Project Design	4
BTD25303	Introduction to Telecommunication	3	BTD28303	Data Communications and Networks 1	3
BPD23303	Fundamentals of Electrical Circuit Theorems	3	BTD26303	Optical Fibre Communication Systems	3
BTD25403	Transmission Lines	3	MPU2232	Interpersonal Skills	2
WED20302	Communication English 2	2	WBD10102	Introduction to Entrepreneurship	2
MPU2313	Amalan Islam di Malaysia	3	W*D10101	Foreign Language 1	1
MPU2323	Religious Practices in Malaysia				
Total Credit Hours		17	Total Credit Hours		13

Semester 5			Semester 6		
Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BPD39806	Final Year Project	6	WID41009	INDUSTRIAL TRAINING	9
BTD31103	Introduction to Internet of Things	3			
BTD38203	Data Communication and Networks 2	3			
W*D10201	Foreign Language 2	1			
B*D*****	Elective	3			
Total Credit Hours		16	Total Credit Hours		9

Elective Courses

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
BTD31203	Application Interface Controller Principles	3	BTD37303	Fundamental of Mobile Communications	3
BTD37203	Wireless Communications	3			

Additional

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU3213	Bahasa Kebangsaan A	3			

Co-Curriculum

Course Code	Course Title	Credit Hours	Course Code	Course Title	Credit Hours
MPU2412	Career Guidance 1	2			
MPU2422	Community Service 1	2			
MPU2462	Kor Siswa-Siswi Pertahanan Awam 1	2			

UNIVERSITI KUALA LUMPUR
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BACHELOR IN ENGINEERING TECHNOLOGY

COMMON COURSES (SEMESTER 1 – SEMESTER 3)

SEMESTER 1

Course Title	Engineering Mathematics 1		Semester	1
Course Code	BTB10303		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	56 Hours	**Non Face to Face (NonF2F)**	64 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of the course, students should be able to: • **Solve** common mathematical functions in engineering problems **(C3)**. • **Apply** concept of complex numbers into engineering problems **(C3)**. • **Apply** differentiation and integration to solve mathematical and engineering problems **(C3)**. • **Solve** mathematical problems related to functions, matrices, complex numbers and calculus **(C3)**.			
Synopsis	The unit provides the basic analytical knowledge and techniques for engineering program. This unit will provide students with the knowledge related to the basic mathematics such as functions, matrices, complex numbers and basic calculus. Students will be expose to the technical applications from each topic.			
Main Reference	J. O. Bird (2021). Higher Engineering Mathematics, Nineth Edition, New York : Routledge, Taylor & Francis Group.			
Additional References	1. Croft, CR Davidson & M Hargreaves. (2001). Engineering Mathematics: A Foundation For Electronic, Electrical, Communications, and Systems Engineers, 3rd Edition, Pearson: Prentice Hall. 2. KA Stroud. (2013). Engineering Mathematics, Palgrave, 7th Edition.			

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Course Title	Fundamental English		Semester	1
Course Code	WEB10302		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	32 Hours	**Non Face to Face (NonF2F)**	48 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • Demonstrate correct language skills in given situations (A3, MQFLO C3C) • Share opinion on current issues through digital platform (A3, MQFLO C4A) • Demonstrate appropriate presentation techniques (A3, MQFLO C3C)			
Synopsis	This course aims to improve students' ability as language learners. It will equip students with necessary grammar and vocabulary skills. Apart from that, students will also be exposed to basic sentence structures and learn how to identify and correct sentence errors. As one of the assignments, they will be required to write a post on social media to express their opinion based on materials shared. At the end of the course, students will demonstrate their presentation skills and techniques based on a given topic.			
Main Reference	Caplan, N. A., & Douglas, S. R. (2020). Q skills for Success - Reading & Writing. Oxford University Press. De Silva, K., Pakirisamy, S., Azura, O., Fatin Zawani, Z. A., Lau, C.K., … Mohd Hafizh, M. (2020). Fundamental English (2nd ed). Petaling Jaya, Selangor: Cengage Learning Asia. McClure, K., Vargo, M., & Kristin, S. (2020). Q: Skills for success - Listening & Speaking. Oxford University Press.			
Additional References				

UNIVERSITI KUALA LUMPUR
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Course Title	Professional English 1		Semester	1
Course Code	WEB20202		Credit Hours	2
Pre-requisites	Fundamental English			
Total SLT	80 Hours			
Face to Face (F2F)	34 Hours	**Non Face to Face (NonF2F)**	46 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • Prepare business correspondence and proposal using appropriate mechanics in writing (A4, MQFLO C3C) • Organise a project based on a proposal through effective participation in meetings (A4, MQFLO C3F) • Demonstrate skills for seeking employment, developing resume and cover letter, and engaging in a job interview (A3, MQFLO C3C)			
Synopsis	This module covers the important aspects of workplace communication. Students are first introduced to professional correspondence which covers important workplace communication tasks. This module provides a platform for students to apply effective meeting skills, managerial skills and job hunting skills.			
Main Reference	Bovee, C.L., & Thill, J.V. (2021). Excellence in Business Communication, 15th Edition. United Kingdom: Pearson Education Limited. Quintanilla, K.M., & Wahl, S.T. (2020). Business and Professional Communication KEYS for Workplace Excellence, 4th Edition. SIngapore: SAGE Publications, Inc. Aina Suriana binti Mahmood @ Md. Zawawi, Azrul Hisyam bin Abdul Rahman, Fazrul Azmi bin Zulkifli, Ida Suriana binti Basri, Noorhayati binti Saharuddin, Nor Hafizah binti Ismail… Suguna K Dazz. (2015). Business communication. Petaling Jaya, Selangor: Cengage Learning Asia Pte Ltd. Nick Brieger. (2011). Collins English for Business. US: Harpercollins Publisher. Shirley Taylor. (2015). Workplace Communication: The Basics Global Edition. G/E Pearson. Unknown author. (2015). Practical English Grammar, and Business Correspondence: For Use in Business Colleges, Normal and High Schools, and Advanced Classes in the Public Schools (Classic Reprint). United States: Forgotten Books			
Additional References	-			

UNIVERSITI KUALA LUMPUR
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Course Title	Falsafah dan Isu Semasa		Semester	1
Course Code	MPU3192		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	28 Hours	**Non Face to Face (NonF2F)**	52 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Di akhir kursus ini, pelajar akan dapat: • Menjelaskan isu semasa berlandaskan ilmu falsafah, Falsafah Pendidikan Kebangsaan dan Rukun Negara.(C3) • Menerangkan isu semasa berdasarkan aliran pemikiran utama dalam pelbagai aliran falsafah.(A2) • Menghuraikan isu semasa melalui perspektif perbandingan falsafah sebagai asas bagi menjalin dialog antara budaya.(A4)			
Synopsis	Kursus ini merangkumi ilmu falsafah dengan Falsafah Pendidikan Kebangsaan dan Rukun Negara. Penggunaan falsafah sebagai alat untuk memurnikan budaya pemikiran dalam kehidupan melalui seni dan kaedah berfikir serta konsep insan.Topik utama dalam falsafah ialah epistemologi, metafizik dan etka dibincangkan dalam kontes isu semasa. Penekanan diberikan kepada falsafah sebagai asas bagi menjalin dialog antara budaya serta memupuk nilai sepunya. Di hujung kursus ini pelajar akan mampu melihat disiplin-disiplin ilmu sebagai satu badan ilmu yang komprehensif dan terkait antara satu sama lain.			
Main Reference	1. 1. Ros Aiza Mohd Mokhtar dan Latifah Abdul Latif (2022), Falsafah dan Isu Semasa, Nilai: USIM Press			
Additional References	1. 1.Mohd Shauki Abdul Majid (2019), Dialog Antara Agama Membangun Peradaban Yang Rahmah, YADIM: Kuala Lumpur 2. 2. Dzulkifli, A.R.&Rosnani, H. (2019) Pentafsiran Baharu Falsafah Pendidikan Kebangsaan dan Pelaksanaannya Pasca 2020. Kuala Lumpur: IIUM Press. 3. 3.Mohd Farid Mohd Shahran , Wan Roslaili Abdul Majid (2019)Al-Quran dan Peradaban, IKIM: Kuala Lumpur 4. 4. Rosnani Hashim (2017). Revitalization of Philosophy and Philosophical Inquiry in Muslim Education. Kull of Education. IIUM. 5. 5. Mohd Zaidi Ismail (2016), Aqal dalam satu Tinjauan Epistemologi (ed ke 3), IKIM: Kuala Lumpur. 6. 6. Philips, D.C. (Ed.) (2014) Encyclopedia of Educational Theory and Philosophy (1st Ed). SAGE Publication. 7. 7. Mohd Zaidi Ismail (2011)Kreativiti dan Imaginasi Dalam Psikologi Islami: Pengamatan al-Ghazzali, al-Baghdadi dan al-Razi, IKIM: Kuala Lumpur . 8. 8. Mitchell, H.B. (2011) Roots of Wisdom: A Tapestry of Philosophical Traditions (6th Ed.). Wadsworth: Cengage Learning. 9. 9. Weiming, T. & Ikeda, D. (2011). New Horizons in Eastern Humanism: Buddhism, Confucianism and The Quest for Global Peace. London: I.B. Tauris. 10. 10. Awang Sariyan (2010).Asas Falsafah dan Pemikiran Melayu Berteraskan Islam. Penerbit Ilham Baru . 11. 11. Solomon, R.C. & Hinggins, K.M. (2010) The Big Questions: A Short Introduction to Philosophy (8th Ed.). Wadsworth: Cengage Learning.			

	12. 12. Ahmad Sunawari Long.(2006)Sejarah Falsafah. Penerbit UKM : Bangi.

Course Title	Bahasa Melayu Komunikasi 2		Semester	1
Course Code	MPU3142		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	36 Hours	**Non Face to Face (NonF2F)**	44 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Di akhir kursus ini, pelajar akan dapat: • Menghuraikan kandungan teks penuh yang menggunakan ayat mudah dan ayat berlapis. (A3, MQF LO 9) • Bertutur dalam pelbagai situasi dengan menggunakan ayat mudah dan ayat berlapis.(A2, MQF LO 5) • Mengeluarkan idea secara kreatif dan sistematik dalam pelbagai bentuk penulisan.(A4, MQF LO 9)			
Synopsis	Kursus ini melatih pelajar antarabangsa untuk berkomunikasi dalam bahasa Melayu asas yang meliputi situasi kehidupan harian. Pelajar akan diperkenalkan dengan pertuturan dan penulisan bahasa Melayu mudah. Pengajaran dan pembelajaran akan dilaksanakan dalam bentuk kuliah, tutorial, tugasan dan pengalaman pembelajaran pelajar di dalam dan di luar kelas. Pada akhir kursus ini, pelajar diharapkan dapat berkomunikasi dan menggunakan ayat mudah dengan berkesan.			
Main Reference	Bahasa Melayu1 Khuzaiton Zakaria(2020) Publisher 2019Universiti Malaysia Kelantan			
Additional References	1. Zarina Othman, Roosfa Hashim & Rusdi Abdullah (2012). Modul Komunikasi Bahasa Melayu Antarabangsa, KPT: Penerbit UKM Press. 2. Siti Hajar Abdul Aziz (2008). Siri Pendidikan Guru Bahasa Melayu I. Shah Alam: Oxford Fajar Sdn Bhd. 3. Adenan Ayon (2009). Bahasa Kebangsaan. Shah Alam: Oxford Fajar. 4. Nik Safiah Karim, Farid M Onn, Hasyim Haji Musa & Hamid Mahmood (2004). Tatabahasa Dewan. 5. Yong Chyn Chye, Rohaidah Mashudi, Maarof Abd Rahman (2012). Bahasa Kebangsaan untuk Pelajar Luar Negara: Malay Language for International Students. Petaling Jaya: Pearson Malaysia.			

Course Title	Electrical and Electronics Workshop		Semester	1
Course Code	BEB14303		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	51 Hours	**Non Face to Face (NonF2F)**	69 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of the course, students should be able to: • **Assemble** and test on passive and active components and circuits construction by applying safety&health procedures and SI units. **(P3, PLO4)** • **Perform** appropriate techniques in developing, simulating and testing circuits using lab components, IT tools and equipment for various measuring techniques. **(P4, PLO5)** • **Demonstrate** the understanding on the impact of engineering management and finance principle for development on business opportunities. **(A3, PLO11)**			
Synopsis	This course will allow students to work with the lab equipment with safety procedures in the lab or workshop. The contents cover the contextual learning process through electrical and electronics theories and practice. This will also guide the students with their future preparations where they can practice and apply this unit as the fundamental activities for other electrical and electronics module and career.			
Main Reference	Charles Platt, (2021). Make : Electronics (Learning By Discovery) 3rd Edition, O'Reilly Media, Inc, USA. ISBN:9781680456875.			
Additional References	1. IPC-A-610 :Acceptability of Electronic Assemblies (2020) 2. IPC-7711/21: Rework and Repair Application Specilist training reference note (2020)			

Course Title	Engineering Mechanics		Semester	2
Course Code	BMB22303		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of the course, students should be able to: • **Perform** experiments and use appropriate formula that is related to engineering mechanics knowledge in engineering field **(P4)**. • **Evaluate** the formulation of solutions to fundamental problems for engineering systems **(C5)**. • **Solve** problems, give reasons and provide solution in engineering mechanics **(P6)**. • **Explain** in relationship between theoretical and practical of engineering mechanics knowledge in engineering field **(A4)**.			
Synopsis	The aim of this course is to provide an introduction to engineering mechanics and their applications in engineering. The first outcome focuses on fundamental physics that covers the principles and the thermal changes in engineering such as thermal stress and strain. The second outcome is concerned with the dynamic system, which covers the linear, angular and simple harmonic motion. The third outcome deals with heat energy transfer through the rectangular and cylindrical wall. The fourth outcome covers the fluid system by introducing the fluid in motion and conservation of energy in fluid system.			
Main Reference	Serway, R.A., & Jewett, J.W (2015). Physics for Scientists and Engineers. Cengage Learning.			
Additional References	1. Giancoli, D.C (2014). Physics: Principles with Applications (Global Edition). Pearson Education. 2. Cutnell, J.D., & Johnson, K.W (2004). Physics. John Wiley & Sons. 3. Reid, D (2002). Physics an Introduction First edition. Prentice Hall, Inc.			

SEMESTER 2

Course Title	Engineering Mathematics 2		Semester	2
Course Code	BTB10403		Credit Hours	3
Pre-requisites	Engineering Mathematics 1			
Total SLT	120 Hours			
Face to Face (F2F)	56 Hours	**Non Face to Face (NonF2F)**	64 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of the course, students should be able to: • **Apply** series methods to solve mathematical functions **(C3)**. • **Apply** vector to solve mathematical problems **(C3)**. • **Perform** various methods to solve differential equations **(C4)**. • **Analyze** statistical data using the concepts of statistics and probability **(C3)**. • **Solve** engineering problems related to series methods, differential equations, vectors, statistic and probability **(C4)**.			
Synopsis	This course is aimed at providing advanced concepts of calculus. The students will be exposed to vectors, statistics & probability and various methods of solving differential equations as well as applications of ordinary differential equations. Students also will be introduced with the series method to solve mathematical functions. These are essential since the students will encounter the components in science and engineering technology problems.			
Main Reference	J.O. Bird. (2021). Higher Engineering Mathematics, Nineth Edition, London ; New York : Routledge, Taylor & Francis Group			
Additional References	1. CR Davidson & M Hargreaves. (2017). Engineering Mathematics A Foundation For Electronic, Electrical, Communications, and Systems Engineers, 5th Ed, Harlow : Pearson Education. 2. KA Straud & DJ Booth (2013). Engineering Mathematics 7th Edition. Palgrave: Macmillan: UK.			

Course Title	Introduction to Electric Circuits		Semester	2
Course Code	BPB12603		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of the course, students should be able to: • **Analyze** basic electrical laws for circuit analysis, alternating voltage and current, methods of analysis, capacitors and inductors and electromagnetism **(C4, PLO2)**. • **Build** basic electrical circuit for analysis **(P3, PLO4)**. • **Measure** the characteristics of alternating current and voltage waveform **(P4, PLO4)**. • **Demonstrate** the usage of basic electrical laws for circuit analysis and concept of electric and magnetic fields, capacitance and inductance **(A3, PLO9)**. • **Generalize** the principle of magnetism and electromagnetism **(A3, PLO9)**.			
Synopsis	This module will enable students to gather the combination selected material, information & knowledge and in relation to other units; apply circuit theory to solve simple circuit problems; use circuit theorem techniques to solve more complex d.c. circuit problems; use a.c. circuit theory to solve simple a.c. circuit problems; display waveforms to determine the main parameters of alternating voltage and currents; apply fundamental laws involving capacitors, inductors and electromagnetism.			
Main Reference	Alexander, C. and Sadiku, M., 2021, Fundamentals of Electric Circuits, Seven Edition, McGraw Hills Education (NY)			
Additional References	1. Bird, J., 2010, Fundamentals of Electric Circuits, Fourth Edition, Newnes. 2. Boylestad, R. L., 2003, Introductory Circuit Analysis, Tenth Edition, Prentice Hall. 3. Mehta, V.K, Mehta R, 2007, Principle of Electrical Engineering and Electronics, Multicolour Illustrative Edition, S. Chand & Company Ltd, Ram Nagar, New Delhi 4. Mahmood Nahvi & Joseph A. Edminister, 2003, Theory and Problems of Electric Circuits, 4th Edition, Mc Graw Hill			

Course Title	Introduction to Electronics		Semester	2
Course Code	BEB14403		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of the course, students should be able to: • **Apply** knowledge of mathematics and electronics engineering technology to investigate the atomic structure of semiconductor materials against non-conductors and conductors and investigate important parameters of semiconductor diodes and its applications, BJT and JFET biasing circuits. **(C3,PLO1)** • **Perform** circuit simulation to evaluate the important parameters of semiconductor diodes application, BJT and JFET DC biasing circuits by using any appropriate simulation techniques (i.e. Multisim, PSpice, etc). **(P4,PLO5)** • **Construct** circuit to investigate the important parameters of semiconductor diodes application, BJT and JFET DC biasing circuits by using correct design and experimental procedures. **(P4,PLO4)**			
Synopsis	This course covers the behavior of semiconductor diode and diode applications. It also contains the analysis of DC biasing of BJT, UJT and the operation of power supply. The laboratory experiment of this course includes designing, constructing, and testing of the required electronics circuits and gaining the hand of experience in the used of the electronic equipment.			
Main Reference	Thomas L. Floyd (2018). Electronics Devices: Conventional Current Version, 10th Edition, Pearson.			
Additional References	1. Boylestad, R. L & Nashesky, L (2013). Electronics Devices and Circuit Theory 11th Edition. Prentice Hall. 2. Floyd, T.L (2009). Electronics Fundamentals Circuit, Devices and Applications 8th Edition. Prentice Hall.			

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Course Title	Professional English 2		Semester	4
Course Code	WEB20302		Credit Hours	2
Pre-requisites	Fundamental English, Professional English 1			
Total SLT	80 Hours			
Face to Face (F2F)	18 Hours	**Non Face to Face (NonF2F)**	52 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • Demonstrate appropriate language for report writing (A3, MQFLO C3C) • Prepare reports with necessary components by incorporating research skills (A4, MQFLO C3C) • Present report orally (A5, MQFLO C3C)			
Synopsis	This course focuses on equipping students with appropriate technical communication skills and skills in writing a technical report. Students will embark on a technical writing project where they are exposed to the proper method in writing a technical report. Students are required to contact a personnel from the industry. Once the person is identified, students are then to correspond with him/her formally, which involves them setting a meeting to interview the person they have chosen.			
Main Reference	Leedy, P.D & Ormrod J.E (2020). Practical research: Planning and design (12th ed). Boston. Pearson. Murphy, R (2019). English grammar in use (5th ed). Singapore: Cambridge University Press. Pfeifer, W.A & Adkins, K.E (2013). Technical communication : A practical approach (8th ed). Singapore: Pearson Wang, G.T & Keumjae, P. (2016). Student Research and report writting : From topic selection to the complete paper. West Sussex, UK : Wiley			
Additional References	-			

Course Title	Introduction to Digital Electronics		Semester	2
Course Code	BEB17203		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of the course, students should be able to: • **Apply** knowledge of engineering for numbering systems and the operation of digital logic circuits. **(C3, PLO1)** • **Perform** investigation on the operation of combinational and sequential logic circuits. **(P4, PLO4)** • **Construct** combinational and sequential logic circuit using modern engineering techniques and tools. **(P7, PLO5)**			
Synopsis	This course will enable students to investigate concepts and devices appropriate to digital electronics system and practice their application for specific purposes. Also to give an overview of digital area by investigating a number of digital principles that underpins the operation of engineering.			
Main Reference	Tocci, R.J (2017). Digital Systems Principles and Applications. Prentice Hall.			
Additional References	1. Dr. Nor Amalia, Norhayati, Norhaslinawati, Workbook for Combinational Logic in Digital Electronics, Universiti Kuala Lumpur , 2021 2.Givone, D.D. (2002). Digital principles and Design. McGraw Hill. 3. Roger, T. (2013). Digital Electronics Principles & Applications. 8th Edition, McGraw Hill. 4. Floyd, T. L. (2014). Digital Fundamentals. Pearson Education.			

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Course Title	Essential Management Principles		Semester	3
Course Code	BGB21003		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	74 Hours	**Non Face to Face (NonF2F)**	46 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Explain** roles of managers and the theories of management in organization **(C2)**. • **Apply** planning function in work setting **(C3)**. • **Apply** organizing function in work setting **(C3)**. • **Apply** leadership function in work setting **(A3)**. • **Apply** control in work setting **(A3)**.			
Synopsis	This course covers the fundamental principles of management and its application in today's work environment. It will focus on in-depth understanding of management theories, principles and the four pillars of management, i.e., planning, organizing, leading and controlling. Students will have the opportunity to explore current issues and practices related to management in a real business environment as well as to enable them to seek effective solutions to a given problem using established management philosophy. At the end of the course, students will learn and apply the necessary skills required to be effective managers. The teaching approach will incorporate lectures, tutorials, industrial visit, group projects and project presentations.			
Main Reference	Kamaluddin N, Hassan Z, Abdul Wahab R & Mohd Hussein R (2014). Principles of Management 2nd Edition. Oxford Fajar.			
Additional References	1. Robbins, S.P & Decenzo, D.A (2013). Fundamentals of Management 8th Edition. Prentice Hall. 2. Goodman S. H, Fandi P. M, Michlitsch J. F & Lewis P. S (2007). Management Challenges for Tomorrow's Leaders. International Student Edition, South-Western. 3. Kinicki, A & Williams, B.K (2006). Management – A Practical Introduction, McGrawhill. 4. Schermerhorn, J.R Jr (2005). Management 8th Edition. John Wiley & Sons Inc. 5. Kouzes, James M. & Barry Z. Posner (2005). The Leadership Challenge 2nd Edition. San Francsico: Jossey Bass.			

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Course Title	Introduction to Measurement & Instrumentation		Semester	3
Course Code	BPB11903		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Examine** the characteristics of measurement and instrumentation tools **(C4, PLO2)**. • **Manipulate** the use of measurement and instrumentation process and tools **(P4, PLO4)**. • **Explain** the function and application of transducers/sensors **(A4, PLO10)**.			
Synopsis	This is an introductory course aimed at providing students with the fundamental concepts in measuring different electrical variables using different instruments which form the foundation for their study in later years. Various types of temperature transducers are also introduced. These concepts are essential since the students will encounter these components in electric and electrical system in their study.			
Main Reference	Robert B Northrop, Introduction to Instrumentation and Measurements, 2020.			
Additional References	1. Alan S Morris, Reza Langari, Measurement and Instrumentation:Theory and Application, Prentice Hall, 2015 2. Arun K Ghosh, Introduction to Instrumentation and Measurements, 2009 3. Richard S.F., Donald E.B., Theory and Design for Mechanical Measurements, John Wiley & Sons, Inc., 2015.			

Course Title	Industrial Instrumentation		Semester	2
Course Code	BPB16003		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**		67 Hours
Program	Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours			
Assessment Methods	Coursework	100 %	Final Examination	-
Course Learning Outcomes	Upon completion of the course, students should be able to: • **Apply the knowledge of industrial instrumentation in relevant area.(PLO 2, C3)** • **Assembles various industrial instrumentation sensors based on the industrial application (PL0 4, P4)** • **Generalizes the theory to real-life problems (PLO 9,A4)**			
Synopsis	This unit contains the hands-on studies of modern instrumentation and measurement practices and the part played by electronic systems and computers in processing signals derived from a range of transducers. It starts with the basics of measurement systems, students will be introduced to various types of instruments used to measure different variables. Students will then need to understand the functions and applications of various types of transducers. Finally, students are required to examine Electronics measuring instruments and computerized data acquisitions techniques.			
Main Reference	1. Alan S Morris, Reza Langari, Measurement and Instrumentation: Theory and Application,Third Edition,Academic Press, 2021			
Additional References	1. Robert B Northrop, Introduction to Instrumentation and Measurements, 2005 2. Arun K Ghosh, Introduction to Instrumentation and Measurements, 2009 3. Richard S.F., Donald E.B., Theory and Design for Mechanical Measurements, John Wiley & Sons, Inc., 2006.			

SEMESTER 3

Course Title	Engineering Mathematics 3		Semester	3
Course Code	BTB20304		Credit Hours	4
Pre-requisites	Engineering Mathematics 2			
Total SLT	160 Hours			
Face to Face (F2F)	73 Hours	**Non Face to Face (NonF2F)**	87 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course, students should be able to: • **Solve** systems of linear equations by using linear algebra methods **(C3)**. • **Apply** Fourier series to solve engineering problem **(C4)**. • **Apply** vector calculus to solve vector theorems in engineering **(C4).** • **Solve** second order differential equations **(C4)**. • **Evaluate** mathematical problem related to algebra, Fourier Series, vector and differential equations **(C5)**.			
Synopsis	This course will cover the analytical knowledge and techniques in preparing students to apply them to other scientific and engineering principles. This unit has been designed to enable students to use linear algebra, vector calculus, Fourier series and differential equatios to solve engineering problems at a higher level.			
Main Reference	John Bird (2021). Higher Engineering Mathematics, Nineth Edition, New York : Routledge, Taylor & Francis Group			
Additional References	1. Anton, Biven & Davis. (2007). Calculus, Seventh Edition, Wiley. 2. Hass, Weir & Thomas. (2007). University Calculus, Pearson. 3. Cheng Mee Choi. (2004). Engineering Mathematics Vol 1, Pearson.			

Course Title	Programming for Engineers		Semester	3
Course Code	BEB25403		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of the course, students should be able to: • **Discover** the use of control structures (sequential, selection and iteration) in programming language. **(C3,PLO1)** • **Perform** software debugging procedures using appropriate techniques to solve programming problems **(P4, PLO5)** • **Organize** a small scale commercial software application and documentation **(A4, PLO11)**			
Synopsis	This module will enable students to design and test programs to find solutions to engineering problems. It will expose students to the features and operation of high level language compiler, develop modular program designs, and produce appropriate documentation of a software project. Emphasis is given to C programming language with introduction to Python programming language to strengthen and enliven programming concept and algorithm.			
Main Reference	1. Rama Reddy and Carol Ziegler. (2009). C Programming For Scientists And Engineers With Applications. Jones and Bartlett Publishers. ISBN-10: 07637395 2. Paul Barry. (2016). Head First Python: A Brain-Friendly Guide. O'Reilly Media. ISBN-10: 1491919531			
Additional References	1. Rama Reddy and Carol Ziegler. (2009). C Programming For Scientists And Engineers With Applications. Jones and Bartlett Publishers. ISBN-10: 07637395 2. Paul Barry. (2016). Head First Python: A Brain-Friendly Guide. O'Reilly Media. ISBN-10: 1491919531			

Course Title	Electrical Circuit Theorems		Semester	3
Course Code	BPB22703		Credit Hours	3
Pre-requisites	Introduction to Electric Circuits			
Total SLT	120 Hours			
Face to Face (F2F)	45 Hours	**Non Face to Face (NonF2F)**	75 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Analyze** the principles of DC circuit theorems, DC transient, single phase AC circuit, resonant circuit, balanced and unbalanced three phase system **(C4, PLO2)** • **Manipulate** the knowledge of DC circuit theorems, DC transient, single phase AC circuit and resonant circuit **(P3, PLO4)** • **Demonstrate** the usage of DC circuit theorems, DC transient, single phase AC circuit and resonant circuit **(A3, PLO9)**.			
Synopsis	This module will enable students to apply circuit theorems to dc circuits, predict transient behavior of simple R-L and R-C circuits, apply AC circuit theory to single phase AC circuits and to apply the basic theory of balanced three-phase circuits. Emphasis will also be given to practical measurement skills, good practice and correct use of instruments. Methods used in delivering this unit will be through theory (lecture) and discussion in class and confirming them with laboratory works.			
Main Reference	Charles Alexander & Matthew Sadiku (2022). Fundamentals of Electric Circuits 7th Edition. McGraw Hills Education. ISBN 978935532016			
Additional References	1. John Birds (2022). Electrical Circuit Theory and Technology 7th Edition. Routledge. ISBN 9780367672225			

Course Title	Sustainable Energy		Semester	3
Course Code	BPB26103		Credit Hours	3
Pre-requisites	NA			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Analyze** sustainable energy projects by using applied engineering procedures, processes, systems, or methodologies **(C4, PLO2).** • **Constructs** the renewable energy laboratory or mini project with appropriate procedures, tools, and techniques **(P5, PLO4).** • **Explains** the energy conversion principles, issues and policy, renewable energy resources and their technology, clean energy technology and its application for sustainable development solutions **(A4, PLO7)**.			
Synopsis	Sustainable energy is a course that introduces the fundamentals of solar, hydropower, wind, biomass & biofuels, and geothermal energy conversion systems including energy storage and clean energy. Given the current trends and the future importance of renewable energy, that will play a key role to the future sustainable energy system.			
Main Reference	1. Mehmet Kanoğlu, Yunus A. Çengel and John M. Cimbala, Fundamentals and Applications of Renewable Energy, McGraw-Hill Education 2020. 2. Anil Kumar, Om Prakash, Prashant Singh Chauhan and Samsher, Energy Management Conservation and Audits, CRC Press 2020.			
Additional References	1. D.P. Kothari, K.C. Singh & Rakesh Rajan, Renewable energy source and emerging technologies, 2016 Edition, New Delhi PHI Learning 2016.			

Course Title	Foreign Language 1		Semester	3
Course Code	W*****01		Credit Hours	1
Pre-requisites	Nil			
Total SLT	40 Hours			
Face to Face (F2F)		**Non Face to Face (NonF2F)**		
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100%	Final Examination	0%
Course Learning Outcomes	Refer to Table Foreign Language 1			
Synopsis				
Main Reference				
Additional References				

Course Title	Electronic Devices and Circuits		Semester	3
Course Code	BEB24503		Credit Hours	3
Pre-requisites	Introduction to Electronics (BEB14403)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Explain** and analyze BJT Small Signal Circuits, Power Amplifier and Op-Amp Circuits using knowledge of mathematics and engineering fundamentals **(C3,PLO1).** • **Construct** experimental investigations with appropriate techniques and resources of BJT Small Signal Circuits and Op-Amp Circuits **(P4,PLO4).** • **Perform** learning activities of BJT Small Signal Circuits and Op-Amp Circuits using modern engineering tools **(P4,PLO5).**			
Synopsis	This course covers studies on behavior and characteristics of some active electronic devices and analog circuits. Devices covered are Bipolar Junction Transistor (BJT) and Operational Amplifiers (opamp). Circuit analyses include Small Signal Amplifier circuits, Power Amplifier and active filters. The laboratory experiments of this unit include the designing, constructing and testing of the required electronics circuits as well as hands-on experience in using electronics laboratory equipment and software tools.			
Main Reference	Thomas L. Floyd (2017), Electronic Devices (Conventional Current Version) (10th Edition) (What's New in Trades & Technology)			
Additional References	1. Boylestad, R.L. & Nashelsky, L. (2013). Electronics Devices and Circuit Theory. 11th Edition. Prentice Hall.			

Course Title	Digital Electronics		Semester	3
Course Code	BEB27403		Credit Hours	3
Pre-requisites	Introduction to Digital Electronics (BEB17203)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of the course, students should be able to: • **Apply** knowledge of engineering to investigate the operation of combinational logic circuits and sequential logic circuits. **(C5, PLO1).** • **Conduct** experimental investigations of Combinational and sequential logic circuits **(P4, PLO4).** • **Apply** appropriate techniques, resources and modern engineering tools of combinational and Sequential logic circuits **(P5, PLO5).**			
Synopsis	This course covers the theory from a basic understanding of simple digital techniques, to more practical and complex applications of Combinational Logic Devices, Combinational Logic, Sequential Logic Devices, Sequential Logic, and Digital System.			
Main Reference	1. Tocci, Ronald J., Digital Systems Principles and Applications, 12th Edition, Prentice Hall, Inc, 2017. 2. Dr. Nor Amalia, Norhayati, Norhaslinawati, Workbook for Combinational Logic in Digital Electronics, Universiti Kuala Lumpur , 2021			
Additional References	1. Donald D. Givone, Digital principles and Design, McGraw Hill, 2003. 2. Schuler, Electronics Principles and Applications, Seventh Edition, 2002 McGraw HillSchuler (2002). Electronics Principles and Applications. McGraw Hill.			

Course Title	Network Fundamental		Semester	3
Course Code	BTB22503		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Integrate** knowledge on OSI layers, TCP/IP protocol suite and IP networking in a computer network **(C4)**. • **Configure** basic router/switch configuration **(P4)**. • **Performs** the planning and configuration of a small network **(P4)**.			
Synopsis	The course will enhance the student's knowledge on computer networks. It explains the basic process of protocol, interfacing and internetworking between computer networks and switching components in telecommunication systems. The students will be taught various possible techniques to build a computer networks.			
Main Reference	Behrouz A. Forouzan (2022), Data Communications and Networking with TCP/IP Protocol Suite, Sixth Edition, McGrawHill Higher Education			
Additional References	1. Graziani R, Johnson A. (2020). Introduction to Networks Companion Guide (CCNAv7) 1st Edition, Cisco Press, ISBN-13: 978-0136633662, ISBN-10: 0136633668.			

Course Title	Transmission Systems		Semester	3
Course Code	BTB25503		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Integrate** the main characteristic of different types of transmission in transmission systems **(C4)**. • **Perform** labarotary exercise related with transmission system **(P4)**. • **Collaborate** with team members in network design and transmission technology of transmission system **(A2)**.			
Synopsis	The increase in demand for data transmission coupled with the availability of wideband communication channels and sophisticated integrated circuits have led to the development of efficient and reliable transmission methods. This subject introduces the fundamental concepts of data transmission. Starting with the key aspects of transmission, interfacing, link control and multiplexing, it covers the internal mechanisms and network interfaces that have been developed to support data communications.			
Main Reference	Annabel Z. Dodd (2019), Essentials Guide To Telecommunications, 6th Edition, Pearson, ISBN: 9780135748886.			
Additional References	1. Louis Frenzel (2015). Principal of Electronic Communication Systems, McGraw-Hill Education; 4th Edition. ISBN: 978007337385. 2. William Stallings (2014). Data Communications And Neworking, 10th Edition, Pearson. 3. Jeffery S. Beasley (2014). Electronic Communications: A System Approach, Pearson, ISBN: 9780133514278. 4. Haykin, S, Moher M. (2009), Analog and Digital Communications, 2nd Edition, Wiley.			

Course Title	Introduction to Medical Devices and Systems		Semester	3
Course Code	BMB23303		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course, students should be able to: • **Determine** basic medical application and principle operation of common medical devices (C4, PLO1) • **Display** ability to operate and conduct common medical devices (P3, PLO4) • **Demonstrate** understanding of common medical devices knowledge to other healthcare professional (A3, PLO6)			
Synopsis	This course comprises of the introduction and application of common medical devices from low risk level of medical equipment to high risk level of medical equipment such as spirometer and defibrillator, respectively. Since the importance of Diagnostic, Therapeutic, Medical Laboratory and Radiology/Imaging systems of medical equipment is becoming more significant in the healthcare industry demand, therefore, it is essential to associate terminologies, its medical application and principle of operation.			
Main Reference	Medical Devices and Systems, Joseph D. Bronzino and Donald R. Peterson, 1st Edition, CRC Press, 2015, ISBN-13: 9781439825266			
Additional References	1. Medical Devices Technologies: A System Based Overview Using Engineering Standards, Gail Baura, Academic Press, 2020, ISBN: 9780128119853 2. Inspection of Medical Devices: For Regulatory Purposes, Almir Badnjevic et. al., Springer, 2018, ISBN: 9789811066498 3. Introduction to Medical Devices,Volume 1, Retama, PediaPress, LIMSwiki Book, 2018 4. Medical Device Technologies, Gail Baura, Elsevier - Academic Press, 2012, ISBN:9780123749765 5. Medical Devices and Systems, Joseph D. Bronzino, 3rd Edition, Taylor & Francis, 2006, ISBN-13: 9780849321221			

Course Title	Human Anatomy & Physiology		Semester	3
Course Code	BMB22403		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Explain** the knowledge of selected human anatomical and physiological systems orally and in writing **(C5,PLO1)**. • **Measure, analyze** and associate the human physiological signals and medical instrumentation **(P4,PLO4)**. • **Lead**, perform and complete the assigned tasks with responsibility, in a timely and efficient manner **(A4,PLO9)**.			
Synopsis	This subject governs in shallow anatomical and physiological concept on various body systems. The topics to be covered include the organization of body systems, nervous, cardiovascular, respiratory, skeletal muscle, skeletal, digestive and urinary systems. At the end of the course, successful students will be able to extend their theoretical understanding on the above mentioned body systems and be able to adapt their knowledge into the relevant field.			
Main Reference	Elaine N. Marieb, Katja N. Hoehn, "Anatomy & Physiology" 7th ed. Pearson, 2020.			
Additional References	2. David Shier, Jackie Butler & Ricki Lewis, Hole's Essentials of Human Anatomy & Physiology, 12th edition, McGraw Hill. 3. Kenneth S. Saladin, Anatomy & Physiology: the unity of form and 4. function, 5th edition, Mc Graw Hill, 2010. 5. Carola, Harley, Noback, , Human Anatomy and Physiology, 2nd edition, Mc Graw Hill, 1992.			

Course Title	Computional Engineering for RE System		Semester	3
Course Code	BPB26203		Credit Hours	3
Pre-requisites	N/A			
Total SLT	120 Hours			
Face to Face (F2F)	54 Hours	**Non Face to Face (NonF2F)**	66 Hours	
Program	Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours			
Assessment Methods	Coursework	100 %	Final Examination	-
Course Learning Outcomes	Upon completion of this course students should be able to: • **Analyze the varieties of different types of energy modelling software for standard set of drawings and energy performance of buildings. (C4)** • **Perform creation and interpretation of engineering drawings, descriptive geometrics and graphical solution techniques using both manual and computer methods.(P4)** • **Display understanding and abilities to use common building energy software tools learned in topics.(P4)**			
Synopsis	The course covers topics related to computer engineering for RE systems through: • The examination of varieties of different types of plans that are included in standard sets of drawings, and development of skills in creation, viewing, reading, interpretation and production of engineering drawings, descriptive geometrics and graphical solution techniques using both manual and computer methods, which include all phase of design, drawing production and schedule development for a given project. • The understanding of common building energy modelling software tools, their advantages and disadvantages for different building types, their underlines thermodynamic based assumption and their limitations and use it to build an energy model of a commercial and residential building and use it to analyse monthly and sub-monthly energy use, and to evaluate alternative energy conversation strategies including performance before and after efficiency upgrade.			
Main Reference	1. AutoCAD 2015 instructor a student guide to complete coverage of AutoCAD's commands and features / James A. Leach, Thomas D. Bledsaw. 2. Printed Circuits Handbook, Seventh Edition 7th Edition (2013) by Clyde Cooms, McGraw-Hill Professional (ISBN-13:978-0071833950) 3. Suruhanjaya Tenaga: Guidelines for Electrical Wiring in Residential Building 2008 Edition. 4. Building Energy Simulation: A Workbook Using DesignBuider, Vishal Gary, Jyotirmay Mathur, Surekha Tetali, Aviruch Bhatia, 2017 by CRC Press.			
Additional References	1. Kicklighter, D, Brown, C, Drafting & Design Engineering Drawing Using Manual and CAD Techniques, Prentice-Hall, 2006. 2. Bthune, J, Svatik, L, Introduction to Electrical Drafting with CAD, Elsvier paperback Press, 2006. 3. Energy- Efficient HVAC Design, An Essential Guide for Sustainable Building, Khazaii, Javad, 2014.			

SEMESTER 4

Course Title	FPGA Principles and Applications		Semester	4
Course Code	BEB27303		Credit Hours	3
Pre-requisites	Digital Electronics (BEB27403)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	867 Hours	
Program	Bachelor Electronic Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Design** solutions for digital system engineering technology **(C4,PLO3)** • **Apply** appropriate techniques in developing digital system **(P4,PLO5)** • **Communicate** effectively with the engineering communities to demonstrate the knowledge of digital system design of FPGA **(A4,PLO10)** • **Demonstrates** using appropriate techniques, resources and modern engineering tools of the digital systems to create awareness on technopreneurial competencies **(A4,PLO11)**			
Synopsis	This course covers the introduction to the design and analysis of digital systems using hardware description languages (HDLs). It includes digital systems design, introduction to HDL, sequential and finite state machines and design, system modeling using HDL and synthesis towards FPGA. Teaching and learning approach will incorporate lectures and problem solving activities involving laboratory works, digital systems design and testing.			
Main Reference	Ming, B. L (2015). Digital Systems Design and Practice: Using Verilog HDL and FPGAs 2nd Edition. CreateSpace Independent Publishing Platform			
Additional References	1. Batros, & Nazeih (2006). HDL Programming Fundamentals VHDL and Verilog. Da Vinci Engineering Press. 2. Samir, P (2003). Verilog HDL: A Guide to Digital Design and Synthesis. Prentice Hall. 3. Wolf, W (2002). Modern VLSI design – System-on-chip Design. Prentice Hall			

Course Title	Electronic Amplifier Circuits		Semester	4
Course Code	BEB24403		Credit Hours	3
Pre-requisites	Electronic Devices and Circuits (BEB24503)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Electronic Engineering Technologies with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** the knowledge of mathematics and electronics engineering technology to investigate the important parameters of BJT, JFET and power amplifier circuits **(C5, PLO1)** • **Conduct** experimental investigations on important parameters of BJT and JFET amplifier circuits **(P4, PLO4)** • **Apply** appropriate techniques (MultiSim, PSpice, etc) on important parameters of BJT and JFETamplifier circuits **(P5, PLO5)** • **Demonstrate** knowledge and understanding of amplifier principles and their application in multidisciplinary environments **(A2, PLO11)**.			
Synopsis	This course covers the analytic skills in Small Signal Amplifier, which consists of BJT and FET for small signal model and BJT power amplifier. The laboratory experiments of this unit include constructing, testing and analysis of the required amplifiers circuits and also in gaining the hands-on experience in the use of the electronics equipment. Students will also be exposed to simulations of this circuits using computer software packages.			
Main Reference	1. Floyd, TL. (2018), "Electronics Devices: Conventional Current Editor / 10th Edition, Prentice Hall. 2. Boylestad, R.L. & Nashelsky, L (2013). Electronics Devices and Circuit Theory. 11th Edition. Prentice Hall.			
Additional References	Green, T.L. F (2009). Electronics Fundamentals Circuit, Devices and Applications. Prentice Hall.			

Course Title	Microprocessor and Embedded System		Semester	4
Course Code	BEB25303		Credit Hours	3
Pre-requisites	Programming for Engineers (BEB25403)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Provide** design solutions to microprocessor-related problems that contribute to the design of systems, components or processes **(C4, PLO3)** • **Appreciating** appropriate modern engineering techniques, resources and tools, in the development of embedded systems **(P5, PLO5)** • **Acknowledge** management, business practices and entrepreneurship in the development of embedded systems **(A3, PLO11)**			
Synopsis	This course covers basic microprocessors/microcontrollers and ARM-based processors system, GPIO programming, extended interrupt programming, programming of internal modules such as ADC and Timer, and programming of communication units such as USART and i2c.This course will allow students to code, debug, and develop embedded system projects based on the Cortex-M ARM Processor. This course will allow students to write code, debug, and develop embedded system projects based on the ARM Cortex-M Processor using standard ARM Integrated Development Environment (IDE), hardware, and debugging tools. The content of this course is designed to guide students in planning and developing embedded system projects based on ARM processors in their future.			
Main Reference	Nucleo board,Multi-leaning board, Type A to mini Type B USB serial cable, PC, Keil (R) MDK ARM IDE, STM32CubeMX, Serial Terminal Console, ST Link driver, STMstudio			
Additional References	1. Donald Norris, " Programming with STM32: Getting Started with the Nucleo Board and C/C++, McGraw-Hill Education, 2018" 2. Warren Gaym, "Beginning STM32. Developing with FreeRTOS, libopencm3 and GCC", Apress, 2018 3. Muhammad Ali Mazidi, “The 8051 Microcontroller: A Systems Approach ”, Pearson, 2013			

Course Title	Network Analysis		Semester	4
Course Code	BPB22803		Credit Hours	3
Pre-requisites	Electrical Circuit Theorems (BPB22703)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Electrical Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** appropriate electrical circuit analysis and theorem to solve AC circuits **(C5, PLO2)** • **Construct** the AC circuits using network analysis fundamental **(P4, PLO4)** • **Measure** power factor correction in AC circuit **(P4, PLO4)** • **Perform** AC circuit analysis using two-port network theory **(P4, PLO4)** • **Explain** AC circuit fundamental using Mathematical Tools **(A4, PLO9)**			
Synopsis	This course will cover fundamental and higher circuit theory analysis of AC circuits, AC Power, and two-port networks. The course can help students to develop skills, analyse AC circuits and prepare them for design concepts.			
Main Reference	Alexander C.K. and Sadiku, M. 2021, Fundamentals of Electric Circuits, 7th Edition, McGraw Hills Education (NY).			
Additional References	1. John Bird, Electrical Circuit Theory and Technology, 6th Edition, Routledge, 2017. 2. Floyd, Electronics Fundamentals: Circuits, Devices and Applications, 8th Edition, Prentice Hall, 2009.			

Course Title	Power Electronics		Semester	4
Course Code	BPB23203		Credit Hours	3
Pre-requisites	NA			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electrical Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** engineering problems in power electronics by applying the appropriate fundamental equations and mathematical equations **(C5, PLO2).** • **Measure** the performance of power converter using the appropriate methods and equipment **(P4, PLO4).** • **Construct** simulation circuit of power converter by using the appropriate simulation software/IT tools **(P4, PLO4).** • **Identify** problems in power conversion system **(A4, PLO10).**			
Synopsis	The course introduces various techniques used in power conversion systems. It covers the operation principles and controls of single phase and three phase power electronics converters. The content incorporated the applications of power electronics devices in the field of electrical and electronics engineering. The impact of various types of loads on a device operation is also included.			
Main Reference	Vinod Kumar, Dheeraj Joshi, Ranjan Kumar Behera, Ramesh Bansal,Power Electronics, Drives, and Advanced Applications, CRC Press; 2020 (ISBN: 9781138062399)			
Additional References	1. Rozanov, Yuriz, Power electronics basics: operating principles,design, formulas, and applications, CRC Press; 2016 (ISBN: 9781482298796). 2. J.S. Chitode, A Comprehensive Approach to Power Electronics, Technical Publications; May 2012(ISBN: 9788184314182). 3. PE Application, 3rd Ed. 3. 3. PE Applications, Prentice Hall; 2004 (ISBN 0-13-678996-X).			

UNIVERSITI KUALA LUMPUR
BRITISH MALAYSIAN INSTITUTE

Course Title	Engineering Drawing		Semester	3
Course Code	BPB22503		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	54 Hours	**Non Face to Face (NonF2F)**	66 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Build** Multi -sheet design project and draw various sysmbols using the tools and commands available in Electrical and Electronic software **(P4, PLO4).** • **Builds** schematic drawing using CAD based on electrical and electronic service arrangement **(P5, PLO5)**. • **Apply** electrical engineering drawing in relevant areas **(C3, PLO3).**			
Synopsis	This subject aims to develop on students knowledge and skill necessary to model, design and implement electrical engineering diagram and sketches using state-of-art CAD tools. To facilitate hand-on learning, computer-based design assignments using CAD tools are conducted throughout the course. This subject is designed to meet the needs of a new generation of Electrical Tecnologies. This subject begins with the creation of wireframe models and evolves into complex creation of soled models 3D in later units.			
Main Reference	1. Up and Running with AutoCAD 2022: 2D and 3D Drawing, Design Modelling 1st. edition by Elliot J. Gindis (Author), Robert C. Kaebisch (Author) Publisher Academic Press. 2. Autodesk AutoCAD Certified User Study Guide, Published January 6, 2022. By William G. Wyatt ED. D. CET. 3. Tutorial Guide to AutoCAD 2022, 2D Drawing, 3D Drawing, By Shawna Lockhart, Copyright Year 2021. ISBN 9781630574406.Published July 22, 2021 by SDC Publications.			
Additional References	AutoCAD 2022 Instructor 1st Edition James A. Leach, Shawna Lockhart, SDC Publications; 1st edition (October 4, 2021).			

Course Title	Communication Technology Principles		Semester	4
Course Code	BTB25403		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** the principles of analogue and digital communication systems, the concept of modulations, transmission and multiplexing **(C5)**. • **Perform** laboratory work on analog modulation techniques **(P3)**. • **Analyse** the laboratory exercise on digital modulation techniques **(P4)**.			
Synopsis	This course aimed at providing students to a view of communication technology with important concepts and aspects of communication theory. It discusses the analog and digital modulation techniques that are used nowadays. This includes the amplitude and frequency modulation, digital transmission, digital modulation techniques, shift keying, sampling, quantization process and line coding. The system performance due to the presence of noise is also presented. The approach involves a combination of lecture, tutorial and lab work.			
Main Reference	Louis Frenzel. (2016). Principles of Electronic Communication Systems, McGraw-Hill Education; 4th Edition. ISBN: 9780073373850.			
Additional References	1. Simon Haykin (2010). Communication Systems 5th Edition. John Wiley & Sons. 2. Bernard Sklar (2005). Digital Communications: Fundamentals and Applications. Prentice Hall. 3. Wayne Tomasi (2004). Electronic Communication Systems, Fundamental Through Advanced 5th Edition.			

Course Title	Optical Fibre Technology		Semester	4
Course Code	BTB26303		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** related parameters in optical fibre transmission, detection and communication systems **(C5)**. • **Executing** laboratory procedures for optical fiber transmission, detection and troubleshooting **(P4)**. • **Design** optical fiber links using simulation software **(P4)**.			
Synopsis	Students will acquire knowledge in fibre communications technology, growth, characteristics of optical fibres waveguides, attenuation and dispersion. Principles of optical communication for analog and digital communications will be described. Optical modulation, multiplexing and optical fibre system hardware and components will be investigated. Evaluation of system design and performance parameters will be carried out.			
Main Reference	Partha Pratim Sahu, Optical networks and components : fundamentals and advances, CRC Press, 2020			
Additional References	Le Nguyen Binh, Photonics Signal Processing. CRC Press, 2019			

Course Title	Electromagnetic Waves		Semester	4
Course Code	BTB23403		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours Bachelor of Electronics Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Assembles** the knowledge of electrostatic, magnetostatic and electromagnetic concept in lab experiments **(P3)**. • **Analyze** the electrostatic, magnetostatic, electromagnetism, wave propagations and transmission lines and its applications **(C4)**. • **Evaluate** the electrostatic, magnetostatic, electromagnetism, wave propagations and transmission lines and its applications **(C5)**.			
Synopsis	This course unit develops the ability to describe mathematically in the electromagnetic waves concept, thus providing the foundation of important applications later in the programme. The course will lay out the fundamentals required for students to explore in various engineering fields.			
Main Reference	F.T.Ulaby, Eric Michielssen & Umberto Ravaioli (2015). Fundamental of Applied Electromagnetics Seventh Edition. Prentice Hall.			
Additional References	1. M.N.O.Sadiku (2015). Elements of Electromagnetics 6th Edition. Oxford. 2. J.D.Kraus and D.A.Fleisch (1999). Electromagnetics with Applications 5th Edition. McGraw-Hill.			

Course Title	Network Technology		Semester	4
Course Code	BTB22403		Credit Hours	3
Pre-requisites	Network Fundamental (BTB22503)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Analyze** various methods of routing protocol **(C4)**. • **Design** an appropriate addressing scheme using Variable Length Subnet Mask (VLSM) **(P4).** • **Configure** Static and Dynamic routing protocols **(P5).**			
Synopsis	The course focuses on initial router configuration, Router IOS Software management and routing protocol configuration. Students will develop skills on how to configure a router, managing network IOS Software and configuring routing protocol on routers.			
Main Reference	Behrouz A. Forouzan (2022), Data Communications and Networking with TCP/IP Protocol Suite, Sixth Edition, McGrawHill Higher Education.			
Additional References	1. Graziani R, Johnson A. (2020). Introduction to Networks Companion Guide (CCNAv7) 1st Edition, Cisco Press, ISBN-13: 978-0136633662, ISBN-10: 0136633668. 2. Vachon B, Johnson A. (2020). Switching, Routing, and Wireless Essentials Companion Guide (CCNAv7) 1st Edition, Cisco Press, ISBN-13: 978-0136729358, ISBN-10: 0136729355. 3. Vachon B, Johnson A. (2020). Enterprise Networking, Security, and Automation Companion Guide (CCNAv7) 1st Edition, ISBN-13: 978-0136634324, ISBN-10: 013663432X.			

Course Title	Internet of Things (IoT) Technology		Semester	4
Course Code	BTB22603		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	80 Hours	**Non Face to Face (NonF2F)**	40 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Integrate** an Internet of Things (IoT) framework and architecture application **(C4)**. • **Design** IoT elements with surroundings in solving engineering application **(P7)**. • **Forms** an IoT solution that reflect better environment and sustainability development **(A4)**.			
Synopsis	This course unit offers the fundamental concepts of Internet of Things (IoT) and Big Data (BD). Student will also develop skills in developing IoT & BD projects. These concepts are essentials as students will encounter them at higher-level courses.			
Main Reference	Vijender Kumar Solanki, Vicente Garcia Diaz, J. Paulo Davim (2019). IoT and Big Data, CRC Press.			
Additional References	1. David Hanes, Gonzalo Salgueiro, Patrick Grossetet, Robert Barton, Jerome Henry (2017). IoT FUndamentals: Networking Technologies, Protocols and Use Cases for the Internet of Things, Cisco Press. 2. Klaus Swab (2017). The fourth industrial revolution. Great Britain: Portfolio Penguin.			

Course Title	Penghayatan Etika dan Peradaban		Semester	4
Course Code	MPU3182		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	28 Hours	**Non Face to Face (NonF2F)**		52 Hours
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Di akhir kursus ini, pelajar akan dapat: • Menjelaskan konsep etika dan peradaban dalam konteks penghayatannya mengikut acuan Malaysia. (C2). • Menganalisis sistem, tahap perkembangan, kemajuan sosial dan kebudayaan merentas etnik. (A2) • Menilai isu kontemporari berkaitan ekonomi, politik, sosial, budaya dan alam sekitar daripada perspektif etika dan peradaban. (A3)			
Synopsis	Kursus ini mempersiapkan pelajar untuk menghayati etika dan peradaban yang wujud dalam masyarakat kepelbagaian etnik di Malaysia untuk memperteguhkan pemikiran kritikal dan analitikal mereka bagi menangani kehidupan yang lebih mencabar. Pengisian kursus ini memfokuskan kepada penghayatan etika dan peradaban dalam acuan Malaysia. Pelajar akan didedahkan dengan dinamika konsep etika dan peradaban yang menjadi kekuatan kepada pembentukan negara Malaysia berdasarkan susur masa evolusi sejarahnya dari era pra-kolonial sehingga ke pasca-kolonial. Kefahaman tentang pembentukan etika dan peradaban dalam masyarakat kepelbagaian dibincangkan bagi meningkatkan penghayatan etika dan peradaban ke arah pemantapan kesepaduan nasional dan bangsa Malaysia. Peradaban acuan Malaysia perlu dikupas serta diperdebatkan dalam aktiviti akademik berpandukan Perlembagaan Persekutuan sebagai tapak integrasi dan wahana etika dan peradaban. Pembinaan kesepaduan nasional amat dipengaruhi oleh globalisasi dan perkembangan teknologi maklumat dan komunikasi yang kompleks. Oleh kerana itu, penghayatan etika dan peradaban menzahirkan perilaku tanggungjawab sosial dan digerakkan pada peringkat individu, keluarga, komuniti, masyarakat, dan negara. Justeru, perubahan yang berlaku dalam masyarakat dan pembangunan langsung ekonomi telah membawa cabaran baru dalam mengukuhkan kelestarian etika dan peradaban di Malaysia. Amalan Pendidikan Berimpak Tinggi (HIEPs) dipraktikkan dalam pengajaran dan pembelajaran bagi mendalami kursus ini. (pengajaran & pembelajaran). .			
Main Reference	1. Muslim, N. (2014). Islam dan Melayu dalam Perlembagaan: Tiang Seri Hubungan Etnik di Malaysia, Penerbit UKM 2.A.Aziz, S. (2012),. Kuasa dan Peranan Raja-Raja Melayu dalam Perlembagaan Sejarah dan Masa Depan/Sham Rahayu A.Aziz 3.Shamrahayu A. Aziz, “Kuasa dan Peranan Raja-Raja Melayu Dalam Perlembagaan: Sejarah dan Masa Depan, https://www.arkib.gov.my/documents/10157/6f1c6800-188b-4885-8ba8-698102207ad 4. Baharuddin, S.A. (Ed). (2012). Modul hubungan etnik (2nd ed.). Bangi: Institut Kajian Etnik, UKM. 5. M.B. Hooker. (1970). Readings in Malay Adat Laws. Singapore: Singapore University Press.			

	6. Hooker, M. B. (1972). Adat laws in modern Malaya: land tenure, traditional government, and religion. Oxford University Press. 7. Hooker, M.B. (1972), Adat Laws in Modern Malaya: Land Tenure, Tradisional Government and Religion. Oxford University Press. 8. Al- Atas. S.M.N. (1972), Islam dan Adat dalam Kebudayaan Melayu, 9. Sayyid Muhammad Naquib Al-Atas, Islam Dalam Sejarah Dan Kebudayaan Melayu/Sayyid Muhammad Naquib Al-Atas ABIM
Additional References	-

Course Title	Isu-isu Kontemporari Muslim di Malaysia		Semester	4
Course Code	MPU3332		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	28 Hours	**Non Face to Face (NonF2F)**	52 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Di akhir kursus ini, pelajar akan dapat: • Menerangkan sejarah, aspek-aspek perkembangan Islam dan cabaran pemikiran umat Islam di Malaysia. (A3, MQF LO 9) • Menghuraikan isu-isu semasa dalam pelbagai aspek kehidupan umat Islam di Malaysia. (A4, MQF LO 4) • Menjelaskan peranan dan tanggungjawab muslim yang seimbang dalam menghadapi cabaran semasa dan mendatang. (A5, MQF LO 8)			
Synopsis	Kursus ini memberikan pengetahuan berkaitan isu-isu kontemporari yang melingkari masyarakat Islam di Malaysia. Sejarah dan perkembangan Islam, ideologi dan fahaman yang mempengaruhi umat Islam turut dikupas dalam kursus ini. Isu-isu yang berkaitan dengan kepenggunaan, institusi keluarga dan masyarakat turut diperbincangkan . Begitu juga sains dan teknologi serta masa depan Islam dan implikasinya diperjelaskan dengan sandaran dalil wahyu dan realiti semasa.			
Main Reference	1. Mohamad Imran Ahmad et.al, (2020). Isu-isu Kontemporari Dalam Pengajian Islam II, Selangor: Penerbit Fakulti Peradaban Islam KUIS. .			
Additional References	1. Fahrul Irfan Ishak et.al, (2016). Isu-Isu Kontemporari Muslim di Malaysia, Shah Alam: Oxford Fajar .			

Course Title	Culture & Lifestyle in Malaysia 2		Semester	4
Course Code	MPU3342		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	50 Hours	**Non Face to Face (NonF2F)**	30 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Compare** acceptable cultural practices, norms and lifestyle in Malaysia **(A4)**. • **Organize** program on cultural values, ethnicity and lifestyle in Malaysia **(A4)**. • **Analyze** information on cultural and lifestyle issues **(A5)**.			
Synopsis	The main objective of this course is to expose students to the rich culture and lifestyle in Malaysia. This is to foster and instill national unity. It will introduce various cultures to the local as well as the international students. This course will help to bridge the gap among students as well as further develop the understanding and respect for Malaysian culture and lifestyle.			
Main Reference	1. Malaysian Studies Third Edition, Dr. Mardiana Nordin et al, ISBN 13 9789834728557, Dec 2018. 2. Hubungan Etnik di Malaysia, Professor Dr. Zaid Ahmad et al, ISBN 13 9789834721404, May 2017			
Additional References	-			

Course Title	Physiological Measurement		Semester	4
Course Code	BMB23203		Credit Hours	3
Pre-requisites	BMB22403			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** the principle and the parameters of biomedical signal, skin resistance measurement, cardiovascular measurement, respiratory measurement, temperature measurement and the principle of gait assessment and hearing impaired device to address health, safety and clinical issues **(C5, PLO1)**. • **Assemble** the principle and the parameters of biomedical signal, skin resistance measurement, cardiovascular measurement, respiratory measurement, temperature measurement and the principle of gait assessment and hearing impaired device in biomedical applications **(P5, PLO5)**. • **Perform** awareness and consideration for health, safety, and clinical issues in using biomedical equipment **(A2, PLO6)**.			
Synopsis	The aim of this unit is to provide student with an understanding on the principles of measurement of physiological variables in living systems.			
Main Reference	Andrew, G.Webb (2019). Principles of Biomedical Instrumentation (First Edition). Cambridge University Press			
Additional References	1. Khandpur, R.S. (2014). Handbook of Biomedical Instrumentation (Third Edition). Tata McGraw-Hill. 2. Webster, J.G. (2009). Medical Instrumentation Application & Design (Fourth Edition). John Wiley & Sons.			

Course Title	Medical Physics		Semester	4
Course Code	BMB31303		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Apply** knowledge of mathematics, science and engineering fundamentals in Medical Physics **(C5, PLO1)** • **Performs** preliminary computational simulations and simple experiments to study the concept of radioactive nuclei and photon interactions **(P4, PLO5).** • **Explain** radiation safety and radiation detector by presenting effectively both in writing and orally **(A3, PLO8).**			
Synopsis	This course is aimed to enhance the concept and provide the knowledge of basic structure of atoms and nucleus with respect to their interaction with matter and to use the appropriate energy for the selected radiation in medical field. These concepts are essential to handle safety of radioactive materials in clinical application.			
Main Reference	Khan's The Physics of Radiation Therapy, 6th edition, John P. Gibbons Ph.D, Wolters Kluwer, (2019).			
Additional References	The Physics & Technology of Radiation Therapy, 2nd edition, Patrick N. McDermott Colin G. Orton, Medical Physics Publishing, (2019).			

Course Title	Energy Efficiency		Semester	4
Course Code	BPB27603		Credit Hours	3
Pre-requisites	N/A			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**		60 Hours
Program	Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours			
Assessment Methods	Coursework	100 %	Final Examination	-
Course Learning Outcomes	Upon completion of this course students should be able to: • **Analyze energy efficiencies, energy conservation, and energy saving measures by using applied engineering procedures, processes, systems or methodologies. (C5, PLO3)** • **Construct appropriate procedures, techniques, and tools to perform energy efficiency laboratory analyses on a range of electrical appliances. (P5, PLO5)** • **Demonstrate understanding of the electricity billing system, including pricing structures and how they relate to energy efficiency and conservation efforts, as well as the potential impact of these measures on energy savings. (A4, PLO11)**			
Synopsis	This course is designed to provide students with a comprehensive understanding of the energy field, with a focus on energy efficiency and conservation to achieve positive environmental and economic impacts. Through this course, students will learn the principles and techniques of energy auditing, as well as various technologies and analysis techniques for assessing energy efficiency and conservation potential in reducing energy consumption in buildings. The course covers fundamental and theoretical aspects of the field, supplemented by practical applications such as case studies, industrial visits, and laboratory work.			
Main Reference	1.Energy Manager Training Course, Training Workbook, Toward the future, Greentech, 2018 Malaysia 2. Andreas Sumpe and Angelo Baggini, Electrical Energy Efficiency: Technologies and Applications, 2012 John Wiley & Sons 2012. 3.Energy efficiency and conservation guidelines for Malaysian industries : part 1 : Electrical Energy-use Equipment / by [Kementerian Tenaga, Air daKomunikasi Malaysia]..[et al] - viii, (ISBN:9789834021665) 4.MS1525 latest version (non residential)			
Additional References	1. D. Yogi Goswami and Frank Kreith, Energy Efficiency and Renewable Energy Handbook, Second Edition, CRC Press 2016. 2. Barney L. Capehart, Wayne C. Turner and William J. Kennedy, Guide to energy management, Eighth Edition, River Publishers 2020. 3.Eastop,T.D, Energy efficiency : for engineers and technologists / T. D. Eastop, D. R. Croft - Harlow, Essex, England New York : Longman Scientific & Technical : Wiley, 1990. - xiv, 385 p. : ill., (ISBN:0582031842) 4.Schipper, Lee, Energy efficiency and human activity : past trends, future prospect / Lee Schipper and Stephen Meyers with Richard B.Howarth and Ruth Steiner; prologue by John Holdren - 1st paperback ed - Cambridge, UK New York : Cambridge University Press, 2005.(ISBN:9780521479851) 5.ASEAN Centre for Energy (ACE)			

SEMESTER 5

Course Title	Control Systems		Semester	5
Course Code	BPB31803		Credit Hours	3
Pre-requisites	Network Analysis			
Total SLT	120 Hours			
Face to Face (F2F)	48 Hours	**Non Face to Face (NonF2F)**	72 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	-
Course Learning Outcomes	Upon completion of this course students should be able to: • **Determine** feedback controller parameters and performance using appropriate control system analysis techniques **(C4, PLO2)**. • **Assemble** feedback control system based on mathematical model and time-response analysis **(P4, PLO4)**. • **Explain** closed-loop control system design using Matlab modeling and simulation (**A4, PLO6)**.			
Synopsis	This course will enable students to study and apply feedback control systems modelling and analysis of a linear time-invariant (LTI) system. Students will learn the characteristics and performance of an LTI system in time and frequency domains. The main practical exercises on this course involve system design on PID servo controllers. Students wil also learn stability analysis using bode plot and root locus techniques. Matlab Control System Toolbox and Simulink are used extensively as simulation and design tools as well as teaching and learning aids.			
Main Reference	Dorf, R.C. and Bishop, R.H., Modern Control Systems 14th Edition, Pearson, 2022.			
Additional References				

Course Title	Power System		Semester	5
Course Code	BPB33103		Credit Hours	3
Pre-requisites				
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40%
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** the knowledge of power system **(C5, PLO2)**. • **Assembles** test setup using equipment and performs measurements technique including data analysis in power system **(P4, PLO4)**. • **Generalizes** the theory of real-life problems **(A4, PLO9)**.			
Synopsis	This course covers operation, performance and analytical technique in electrical power generation,transmission and distribution. The covered topics are introduction to alternative energy sources, complex power, phasors, per-unit system, power transformer and generator, modeling of short, medium and long transmission lines, frequency and voltage control methods; and optimal power flow.			
Main Reference	Fundamentals of Electrical Power Systems Analysis 1st ed. 2020 Edition, by Md. Abdus Salam (Author).			
Additional References				

Course Title	Internet of Things and System Integration		Semester	5
Course Code	BEB34303		Credit Hours	3
Pre-requisites	Programming For Engineers (BEB25403)			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Design** solutions for broadly-defined engineering technology problems and contribute to the design of Internet of Things and System Integration. **(C6, PLO3)** • **Conduct** investigations of Internet of Things and System Integration. **(P6, PLO4)** • **Demonstrate** knowledge and understanding of Internet of Things and System Integration. **(A3, PLO11)**			
Synopsis	This course aims to provide students with the ability to develop a new product, system or services by integrating building blocks and modules of the IoT hardware, software, networks and cloud system. The accompanying laboratory activities are designed to provide students with experiential practices to develop a product, system or service that is smarter and ready for prototype deployment.			
Main Reference	1. Muhammad Azhar Iqbal, Sajjad Hussain, Huanlai Xing, Muhammad Ali Imran (2020). Enabling the Internet of Things: Fundamentals, Design and Applications, Wiley-IEEE Press. 2. Sudhir Kumar (2021). Fundamentals of Internet of Things. Chapman and Hall/CRC			
Additional References	1. Klaus Schwab (2017). The Fourth Industrial Revolution. Penguin Group ISBN-13: 978-0241300756 2. Chuck Martin (2018). Digital Transformation 3.0: The New Business-to-Consumer Connections of The Internet of Things. CreateSpace Publishing Platform ISBN-13: 978-1985862807 3. David Hanes , Gonzalo Salgueiro , Patrick Grossetete , Robert Barton , Jerome Henry (2017). IoT Fundamentals : Networking Technologies, Protocols, and Use Cases for the Internet of Things. Pearson Education (US) 4. Timothy Chou (2016). Precision: Principles, Practices and Solutions for the Internet of Things. Lulu.com ISBN-13: 978-1329843561			

UNIVERSITI KUALA LUMPUR
BRITISH MALAYSIAN INSTITUTE

Course Title	Technopreneurship		Semester	1
Course Code	WBB20103		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	66 Hours	**Non Face to Face (NonF2F)**	54 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Describe** business environment and management within the scope of the course **(C2)**. • **Estimate** operation capacity and material requirement planning **(C4)**. • **Prepare** sale forecast and financial projection statement **(C3)**. • **Develop** a viable business plan and be involved in entrepreneurship activities **(C6, ES)**.			
Synopsis	The course will enhance student's knowledge and skills in business planning, financial management, business operations and marketing. The focus will be on attributes of Technopreneurs, searching for viable opportunities, taking into considerations the trends and new challenges in the business world; and gathering the resources necessary to convert a viable opportunity into a successful business.			
Main Reference	Azahari Jamaludin, Abd Razak Mohd Yusoff, Mohd Hazli Mohd Rusli, Hamidon Katan, Jimisiah Jaafar, Mohd Fauzi Zainol Abidin, Mohd Radzi Zainuddin, Rosnizza Ramlan, Salwah Che Mat & Zawiah Abdul Majid (2013). Technopreneurship. Kuala Lumpur: Oxford Fajar.			
Additional References	1. Azahari Jamaludin, Abd Razak Mohd Yusoff, Mohd Hazli Mohd Rusli, Salwah Che Mat, Zawiah Abdul Majid (2011). Introduction to Entrepreneurship. Oxford Fajar. 2. Donald F. Kuratko (2013). Entrepreneurship: Theory, Process, Practice 9th Edition. South Western Cengage Learning. 3. Kamariah Ismail et al. (2009) Technology Entrepreneurship. Malaysia: Prentice Hall. 4. Mohd Nazri Khan Adam Khan (2006). Cyberpreneurship. Malaysia: Prentice Hall. 5. Hisrich, Peters and Shepherd (2013). Entrepreneurship, International 9th Edition. Mc Graw Hill. 6. Kotler, P., Armstrong G. (2014). Principles of Marketing 15th Ed. New Jersey: Prentice Hall. 7. Stevenson, W.J, Sum, C.C (2010). Operations Management: An Asian Perspective. McGraw-Hill Education (Asia) 8. Official Website for Intellectual Property Corporation of Malaysia (MyIPO) at http://www.myipo.gov.my			

Course Title	Signals and Systems		Semester	5
Course Code	BTB34203		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** continuous-time and discrete-time signals and systems, including the characteristic, the operation and the transformation of the signals and systems **(C5)**. • **Apply** appropriate computer-based design tools **(P4)**. • **Demonstrate** the laboratory practice used to solve the given signals and system questions **(A3)**.			
Synopsis	This course aimed at providing students with the fundamental concepts of signals and systems theory. The concepts of signal and system will be applied to solve electrical and electronics analytical problems.			
Main Reference	Luis Chaparro and Aydin Akan (2019). Signals and Systems Using MATLAB, Academic Press, 3rd Edition.			
Additional References	1. Sanjay Sharma (2015). Signals and Systems, New Delhi, India S.K. Kataria & Sons. 2. Oktay Alkin (2014). Signals and Systems: a MATLAB Integrated Approached. CRC Press. 3. M Nahvi. (2013). Signals & Systems 1st Edition. McGraw-Hill Education. 4. Rodger E. Ziemer, William H. Trenter & D. Ronald Fannin (1998). Signals and Systems 4th Edition. 5. Simon Haykin & Barry Van Veen (2002). Signals and Systems 2nd Edition. 6. B. P. Lathi (2004). Linear Systems and Signals 2nd Edition. 7. Alan V. Oppenheim, Alan S. Willsky & S. Hamid (1996). Signals and Systems 2nd Edition.			

Course Title	Communication Systems		Semester	6
Course Code	BTB35203		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** different types of analogue and digital modulation techniques **(C5)**. • **Perform** laboratory procedure for different types of modulation techniques **(P3)**. • **Collaborate** with team members in planning and performing communication systems investigation **(A2)**.			
Synopsis	This course unit offers the fundamental background in the communication area. Student will develop skills in identifying elements of a communication system. This module explains bandwidth requirements, demonstrates the effect of noise of communication system and analyses different types of modulation and coding.			
Main Reference	Louis Frenzel (2016). Principles of Electronic Communication System 4th Edition. Prentice Hall.			
Additional References	John G. Proakis & Masoud Salehi (2014). Fundamental of Communication 2nd Edition. Pearson.			

Course Title	Electronic Design Project		Semester	5
Course Code	BEB33303		Credit Hours	3
Pre-requisites	Programming for Engineers (BEB25403)			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Design**/ development of solutions for broadly-defined engineering technology problems and contribute to the design of Electronic Design Project **(PLO3,C6)** • **Evaluate** and understand the sustainability and impact of Electronic Design Project in the solution of well-defined engineering problems in societal and environmental contexts **(PLO7, A3)** • **Function** effectively as an individual, and as a member in diverse technical teams in Electronic Design Project **(PLO9, A4)** • **Communicate** effectively on well-defined engineering activities in Electronic Design Project **(PLO10, A5)** • **Demonstrate** knowledge and understanding of engineering management principles in Electronic Design Project **(PLO11,A3)**			
Synopsis	An electronic product starts with an idea. To turn the idea into a laboratory prototype does not need a lot of steps. To turn the idea to a commercial product would require various steps. The student will learn these steps and at the end of the course will produce a prototype that look and function as the final product. The roadmap is to turn the Idea to Manufacturing for the new hardware product Steps to turn an idea for a new electronic hardware product and that can be manufactured and sold. • -How to properly research and define a product • -How to understand the big picture including all of the costs and obstacles that lie ahead • -How to formulate a plan to deal with the identified costs and obstacles • -Various strategies to get the product developed • -Design steps required for the electronics • -Design steps required for the enclosure • -Software requirements • -Reduce design risk • -How to prototype the product			
Main Reference	Fundamental of Electronic System Design , Jens Lienig,Hans Bruemmer, SpringerLink, ISBN 978-3-319-55840-0			
Additional References				

Course Title	Wireless Network Architecture		Semester	5
Course Code	BTB37303		Credit Hours	3
Pre-requisites	Network Fundamental (BTB22503)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Determine** the standard and properties of wireless network technology **(C4)**. • **Perform** wireless network installation, configuration, testing and troubleshooting **(P3)**. • **Measure** and analyze wireless network performance **(P4)**. • **Prepare** wireless network design and documentation **(A4)**.			
Synopsis	This course aimed at providing students with the concepts of wireless network components which form the skill for their study. These concepts are essential since the students will encounter these components in any networking and computer system in their study, at work and at home.			
Main Reference	Agrawal D.P & Zeng Q (2016). Introduction to wireless and mobile systems. Boston MA: Cengage Learning.			
Additional References	Geier J. (2015). Designing and Deploying 802.11 Wireless: A Practical Guide to Implementing 802.11n and 802.11ac Wireless Networks for Enterprise Based Applications 2nd Edition.			

Course Title	Data Communications		Semester	5
Course Code	BTB32403		Credit Hours	3
Pre-requisites	Network Technology (BTB22403)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Explain** the concepts of switched LAN network **(C5).** • **Configure** Virtual LANs (VLANs), VLAN Trunking Protocal (VTP) and inter-VLAN routing **(P5)**. • **Produce** network design proposal **(A3)**.			
Synopsis	This module provides a comprehensive approach to learn the technologies and protocols needed to design and implement a LAN switched network.			
Main Reference	Behrouz A. Forouzan (2022), Data Communications and Networking with TCP/IP Protocol Suite, Sixth Edition, McGrawHill Higher Education.			
Additional References	1. Graziani R, Johnson A. (2020). Introduction to Networks Companion Guide (CCNAv7) 1st Edition, Cisco Press, ISBN-13: 978-0136633662, ISBN-10: 0136633668. 2. Vachon B, Johnson A. (2020). Switching, Routing, and Wireless Essentials Companion Guide (CCNAv7) 1st Edition, Cisco Press, ISBN-13: 978-0136729358, ISBN-10: 0136729355. 3. Vachon B, Johnson A. (2020). Enterprise Networking, Security, and Automation Companion Guide (CCNAv7) 1st Edition, ISBN-13: 978-0136634324, ISBN-10: 013663432X			

Course Title	Biomedical Imaging Systems		Semester	5
Course Code	BMB33403		Credit Hours	3
Pre-requisites	BMB31103			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Displays** knowledge of medical imaging engineering fundamentals to define and applied engineering procedures, processes, systems or methodologies **(C4, PLO2).** • **Perform** solutions for broadly defined medical imaging technology problem by applying and practicing the knowledge of basic fundamentals of medical imaging devices in medical engineering field. **(P5, PLO5)** • **Identify** substantial knowledge, awareness and consideration for the society, health, safety, legal, cultural issues and the consequent responsibilities and norms of medical imaging practices. **(A4, PLO8).**			
Synopsis	This course is aimed to provide the knowledge and application of medical modalities in medical imaging. This is to enrich the students with the basic concept of image quality. These concepts are essential for the student to gain up to date knowledge of the medical imaging devices.			
Main Reference	Ashutosh Kumar Shukla. (2019). Medical Imaging Methods. Springer..			
Additional References	1. Washington, C.M. & Leaver, D.T. (2015). Principles and Practice of Radiation Therapy (4e 4th Edition). Mosby 2. Hendee, W.R., (2002). Medical Imaging Physics (4th edition). New York, Wiley-Liss 3. Cherry, S.R., Sorenson, J.A., & Phelps, M.E. (2003). Physics in Nuclear Medicine (3rd edition). Saunders			

Course Title	Machine Learning in Medical Systems		Semester	5
Course Code	BMB33603		Credit Hours	3
Pre-requisites	BTB34203			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Assess** the viability of machine learning as a tool to solve broadly defined healthcare related problems. **(C5, PLO2)** • **Develop** medical related solutions by applying machine learning. **(P5, PLO5)** • **Display** understanding on the impact of machine learning practices in solving healthcare related problems. **(A5, PLO7)**			
Synopsis	The aim of this syllabus is to provide introduction to machine learning and its application in healthcare. Course content include extracting and selecting features from acquired biosignals or given datasets, understanding different machine learning algorithms and selecting the most appropriate, analyzing the performance of the applied machine learning model and make improvements.			
Main Reference	1. Andreas C. Müller, Sarah Guido (2016), Introduction to Machine Learning with Python, O'Reilly Media, Inc. 2. Aurélien Géron (2017), Hands-On Machine Learning with Scikit-Learn and TensorFlow, O'Reilly Media, Inc.			
Additional References	Pete Warden, Daniel Situnayake (2020), TinyML, O'Reilly Media Inc.			

Course Title	Medical Instrumentation		Semester	5
Course Code	BMB32603		Credit Hours	3
Pre-requisites	BMB23103			
Total SLT	120 Hours			
Face to Face (F2F)	59 Hours	**Non Face to Face (NonF2F)**	61 Hours	
Program	Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Apply** knowledge of relate physiological transducer with signal conditioning of a physical measurand in amplification and filterization techniques **(C5, PLO3).** • **Construct** signal conditioning process in data acquisition system which relates to accuracy and electrical environment **(P5, PLO5).** • **Propose** design solution for manipulating signal conditioning of physical measurand relating to control and monitoring through instrumentation system **(A5, PLO12).**			
Synopsis	The aim of this unit is to illustrate the principles of physiological transducers, signal conditioning and processing and also data acquisition. It focuses on the design and analysis of medical instrumentation systems that acquire and process physiological signal of human body measurement that would include amplification, filtration, ADC and its electrical environment disturbance (Noise, CMI, RFI, Isolation, CMRR and IMR). Fundamental concepts of virtual instrumentation system and computer based system will be introduced to display, analysis, control and storage of physiological data.			
Main Reference	Webster, J.G., Amit J. Nimunkar, (2020), Medical Instrumentation: Application & Design, 5th Edition, John Wiley & Sons. International, ISBN: 9781119457336.			
Additional References	1. Khandpur, R.S., (2020), Compendium of Biomedical Instrumentation, 3rd Edition, John Wiley & Sons, ISBN: 9781119288121. 2. Mesut S., Howard F., Raquel P-C., (2020), Instrumentation Handbook for Biomedical Engineers, 1st Edition, CRC Press, eBook ISBN 9780429193989. 3. Valentine B., Brojo M., Raghvendra K., (2020), Handbook of Deep Learning in Biomedical Engineering: Techniques and Applications, 1st Edition, Elsevier Academic Press, eBook ISBN: 9780128230473. 4. W. Mark Saltzman, (2015), Biomedical Engineering: Bridging Medicine and Technology, Cambridge University Press, ISBN: 9781107037199.			

SEMESTER 6

Course Title	Final Year Project 1		Semester	6
Course Code	WPB49804		Credit Hours	4
Pre-requisites	Subject to the programme requirements			
Total SLT	160 Hours			
Face to Face (F2F)	116 Hours	**Non Face to Face (NonF2F)**	44 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Demonstrate** the abilities to plan and to work effectively **(C3)**. • **Analyze** related literature for the proposed research problems **(C4)**. • **Propose** specific research method to solve the research problems **(C6)**. • **Produce** a feasible project proposal in accordance to the specified standard format **(C3)**. • **Present** and defend project proposal in a clear and concise manner **(C5)**.			
Synopsis	A final-year project may be an individual or a group project based on the titles proposed by the supervisor or by students. In this course, students will work on a project under appointed supervisors. Project titles are within the areas related to the student's specialisation. Each student will be assessed independently.			
Main Reference	FYP Central Committee (2015). UniKL Final Year Project Handbook 3rd Edition. Universiti Kuala Lumpur: Kuala Lumpur.			
Additional References	Nil			

Course Title	Electronic Assemblies		Semester	6
Course Code	BEB44403		Credit Hours	3
Pre-requisites	Electrical and Electronics Workshop (BEB14303)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Investiagte** standard test on soldering application and process **(P3, PL04)** • Apply appropriate techniques in utilizing the workstation, tools, material and process **(P4, PLO5)** • **Adapt** the skill of rework, modification and repair to given problem/circuit to fit the standard requirements **(A3, PLO12)**			
Synopsis	This course is to allow students to acquire skills and expose to IPC standards. Contents of this course covers the contextual learning process through assemble of PTH/SMT components with proper techniques of utilizing workstation, tools, material and process. Moreover, the skills will be expended up to rework, modification and repair of the given problems/ circuits in line with the industrial requirements. This will also guide the students with their future preparations where they can practice and apply this course as their activities for other electronic courses and career.			
Main Reference	Charles Platt, (2021). Make : Electronics (Learning By Discovery) 3rd Edition, O'Reilly Media, Inc, USA. ISBN:9781680456875.			
Additional References	1. IPC-A-610 :Acceptability of Electronic Assemblies (2020) 2. IPC-7711/21: Rework and Repair Application Specilist training reference note (2020)			

Course Title	Power Quality		Semester	6
Course Code	BPB33503		Credit Hours	3
Pre-requisites	Power System (BPB33103)			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electrical Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** the fundamental theory and issues related to power quality **(C5, PLO2).** • **Performs** the conditioning methods of power quality condition equipment for corresponding rectification related to power quality problems **(P4, PLO4).** • **Measures** various power quality problems by applying appropriate power quality measurement monitoring tools **(P4, PLO4).** • **Explain** the issues driving the formation of power quality standard organizations, standard formulation, and the significance of such standards **(A4, PLO 11).** • **Demonstrate** an understanding of power quality economics **(C3, PLO2).**			
Synopsis	Powers are classified as clean or dirty power. Power sources that produce undistorted voltage and current waveform are considered clean power while others are considered dirty power. This course covers all important aspects of power quality. The main topics are introduction to power quality, power quality characteristics, power quality solution, wiring and grounding, power quality survey, power quality standard, and power quality economics. Delivery methods include lectures, tutorials, laboratory experiments and simulation.			
Main Reference	P. Jayaprakash, D. P. Kothari, Power Quality and Distributed Generation, 1st Edition, Alpha Science International, Limited, 2022.			
Additional References	1. P. Sivaraman, C. Sharmeela, Jens Bo Holm-Nielsen, Power Quality in Modern Power Systems, Academic Press, United Kingdom, 2020. 2. Roger C.Dugan, Mark F.McGranaghan, Surya Santoso, H. Wayne Beaty, Electrical Power Systems Quality, 3rd Edition, McGraw-Hill, New York, 2012. 3. Kennedy. B, Power Quality Primer, McGraw-Hill, New York, NY, USA, 2004.			

Course Title	Programmable Logic Controller		Semester	6
Course Code	BPB33603		Credit Hours	3
Pre-requisites	Introduction to Digital Electronics (BEB17203)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Electrical Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Apply** the knowledge of Control System and Basic configuration of PLC architecture for hardware **(C3, PLO2)**. • **Perform** the principles of PLC programing and behavior analog input and output module **(P4, PLO5)**. • **Perform** the configuration of SCADA system and PLC **(P4, PLO5)**. • **Explains** IR 4.0 System Integration **(A4, PLO9)**.			
Synopsis	The objective of this module is to teach the student different systems used in various industries through Programmable Logic Controller (PLC) Systems. The module introduces the common industrial control system elements including the Programmable Logic Controller, PC based control, process monitoring and SCADA system. This module is a multi-disciplinary subject. This module is classified under applied technology such as automation system, process control, robotic and industrial process.			
Main Reference	Frank Petruzella, ISE Programmable Logic Controllers, McGraw-Hill Education, 2022			
Additional References	1. John R. Hackworth, Frederick D. Hackworth Jr., Programmable Logic Controllers: Programming Methods and Applications, PEARSON EDUCATION, INC., 2022. 2. Frank Petruzella, PROGRAMMABLE LOGIC CONTROLLERS 5e, McGraw-Hill Education, 2019.			

Course Title	High Voltage Technology		Semester	6
Course Code	BPB44603		Credit Hours	3
Pre-requisites	NA			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electrical Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** the knowledge of the high voltage system **(C5, PLO3).** • **Perform** measurement techniques in high voltage system **(P4, PLO5)**. • **Demonstrate** effective communication, teamwork, leadership, problem solving and sustainability **(A5, PLO7).**			
Synopsis	Emphasis will also be given to practical measurement skills, good practice, and correct use of instruments. Methods used in delivering this unit will be through theory (lecture), PBL session and discussion in class and confirming them with laboratory works.			
Main Reference	Ravindra Arora, Wolfgang Mosch, "High Voltage and Electrical Insulation Engineering, 2nd Edition", ISBN: 978-1-119-56887-2, March 2022, Wiley-IEEE Press			
Additional References	1. M.S. Naidu, V. Kamaraju, "High Voltage Engineering, 5th Edition", ISBN: 978-1-25-906289-6, McGraw Hill, 2017. 2. Andreas Kuchler, "High Voltage Engineering Fundamentals Technology Applocations", ISBN: 978-3-642-11993-4, 2018.			

Course Title	Electrical Machine and Drives		Semester	6
Course Code	BPB31303		Credit Hours	3
Pre-requisites	NA			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electrical Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Differentiate** the concept of electrical generator and motor for various applications **(C4, PLO2).** • **Construct** the circuits and appropriate system for electrical machine and drives in single phase and three phase and for actual application **(P4, PLO4)**. • **Perform** the laboratory procedures and describe the fundamental understanding of electrical machines and drives system in AC and DC **(A3, PLO10).**			
Synopsis	This course will enable students to study the rotating machines are the workhorse of industries, whether manufacturing industries, service industries or electrical power producers. They are also found in numerous homes and domestic appliances. The dual nature of a rotating machine, i.e., it can operate both as a motor as well as a generator, increases its significance. Most rotating machines are equipped with a drive - a control circuit or device that can regulate or control their speed and torque. Knowledge of the working principles of the machines and methods of controlling them are essential for installation, servicing, maintenance and upgrading or designing of equipment or products that utilize these machines. Characteristics and performance of an LTI system in time and frequency domains. The main practical exercises on this course involve system design on PID servo controllers. Students will also learn bode plot and root locus techniques using Matlab Control System Toolbox.			
Main Reference	Uday A. Bakshi, Dr. Mayuresh V. Bakshi, Electrical Machines - I, Technical Publications, 2020.			
Additional References	1. Ned Mohan, Electric Machines and Drives, John Wiley & Sons Inc., 1st Edition. 2012. 2. M.N.Bandyopadhyay, Electrical ,Machine Theory and Practice PHI Learning Private Limited, 2011. 3. T. Wildi, Electrical Machines, Drives, and Power Systems, Pearson Prentice Hall, 2006. 4. Stephen J. Chapman, Electric Machinery Fundamentals, McGraw Hill, 2005			

Course Title	Industrial Safety & Health		Semester	5
Course Code	BGB32003		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	67 Hours	**Non Face to Face (NonF2F)**	53 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Integrate** an ethical behaviour and social responsibility to engineering situations **(A4)**. • **Apply** safe working procedures and environment to industrial operations **(C3)**. • **Apply** current health and safety legislation as the basis for safe work system at workplace **(C3)**. • **Synthesize** the hazard and systems for the assessment of risk and control **(A4)**.			
Synopsis	This course contains application of ethics in engineering and factors that need to be considered in relation to occupational safety and health organization, as well as supply and use of electrical and electronic equipment. This module also deals with aspects of the International Safety and Quality Control standards for electronics equipment and the legal framework surrounding them. Bringing safety and health knowledge to the students will enhance their value in the human resource market after completing their study. This module is in line with the government's effort to promote safety and health at the workplace.			
Main Reference	1. Occupational Safety & Health Act & Regulations (2017). MDC Publishers. 2. Factories & Machinery Act with Regulation (2017). MDC Publishers.			
Additional References	1. David L. Goetsch (2011). Occupational Safety & Health for Technologists, Engineers & Managers 5th Edition. 2. C. Ray Asfahl & David W. Rieske (2011). Industrial Safety & Health Management 6th Edition. Prentice Hall. 3. Phil Hughes & Ed Feret (2007). Introduction to Health & Safety at Work 3dr Edition. BH Publisher.			

Course Title	Artificial Intelligence		Semester	6
Course Code	BEB41103		Credit Hours	3
Pre-requisites	Programming for Engineers			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Design** solutions using Artificial Intelligence techniques for broadly defined engineering technology problems and contribute to the design of systems, components or processes to meet specified needs **(C6, PLO3).** • **Select** and apply appropriate techniques and modern engineering tools to implement Artificial Intelligent system to solve broadly define engineering problems. **(P4,PLO5) .** • **Understand** how Artificial Intel ligence techniques can be used to achieve sustainable development **(A3, PLO7).**			
Synopsis	Artificial Intelligence is becoming increasingly important due to its ability to make sense of huge amount of data collected by an organization, both in terms of volume and variety. This course provides explanation on the key philosophical concept of Artificial Intelligence A.I and machine learning M.L. Moreover, we will also explore the implementation of specific A.I and M.L algorithms to solve real-world problems.			
Main Reference	1. Eli Stevens, (2019). Deep Learning with PyTorch. MANNING 2. Russell, S. J. & Norvig, P. (2015). Artificial Intelligence: A Modern Approach. Pearson Education. 3. Negnevitsky, M. (2011, 3rd Edition). Artificial Intelligence, A guide to Intelligent System. Addison Wesley.			
Additional References	1. Yuxi (Hayden) Liu, (2020). Python Machine Learning By Example. Packt			

Course Title	Application Interface Controller		Semester	6
Course Code	BTB31203		Credit Hours	3
Pre-requisites	Internet of Things (IoT) Technology (BTB22603)			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Associate** comprehensive knowledge in working with program, single-board computer and microcontroller **(C2)**. • **Integrate** the interface with input and output peripherals **(C4).** • **Design** input and output peripherals over the internet **(P7)**. • **Create** database for microcontroller input data **(C6)**. • **Demonstrate** skills in the context of IoT development **(A3)**.			
Synopsis	This module intends to impart students with knowledge and skill on handling single-board computer and microcontroller in current internet technology. In this module, students will be exposed to microcontroller interfacing, database and cloud technology.			
Main Reference	Rajesh Singh, Anita Gehlot, Lovi Raj Gupta, Bhupenda SIngh, Mahendra Swain (2020). Internet Of things With Raspberry Pi and Arduino, CRC Press.			
Additional References	1. Gareth Halfacree (2019). The Official Raspberry Py Beginner's Guide, Raspberry Pi Press. 2. Simon Monk (2012). Programming ArduinoGetting Started with Sketches, The McGraw-Hill Companies. 3. Alan Forbes (2012). The Joy of PHP: A Beginner's Guide to Programming Interactive Web Applications with PHP and mySQL, Plum Island Publishing LLC.			

Course Title	Advanced Data Communications		Semester	6
Course Code	BTB32503		Credit Hours	3
Pre-requisites	Data Communications (BTB32403)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Explain** Wide Area Network (WAN) Technologies in use today including concepts and operations of high speed communication networks protocols. **(C6, PLO2)** • **Perform** configurations and troubleshooting on routes in WAN. **(P4, PLO5)**. • **Initiate** resolution to WAN operational issues. **(A2, PLO10)** • **Collaborate** with team members in planning and managing network troubleshooting approaches in WAN. **(A2, PLO11)**			
Synopsis	To provide understanding of Wide Area Network (WAN) technology and its application in different aspects. The module focuses on advanced IP addressing techniques, WAN technology and terminology, Point-to-point (PPP) protocol, Frame Relay, Network Security, Access Control Lists (ACL), Virtual Private Network (VPN) and network troubleshooting. This provides general understanding of WAN technologies in industry.			
Main Reference	J. Kurose and K. Ross. (2021). Computer Networking: A Top-Down Approach, 8th Edition. Pearson Educated Limited			
Additional References	1. Curt M. White (2016). Data Communications and Computer Networks 8th Edition. Cengage Learning Inc. 2. Bob Vachon Rick (2011). Accessing the WAN: CCNA Exploration Companion Guide. Published Dec 28, Cisco Press. 3. Patrick Regan (2004). Wide Area Networks 1st Edition. Prentice Hall. 4. William Stallings (2004). Business Data Communications 5th Edition. Prentice Hall. 5. Cisco Systems Inc., Cisco Networking Academy Program, CCNA 3 and 4 Companion Guide 3rd Edition. Cisco Press.			

Course Title	RF, Microwave and Antenna		Semester	6
Course Code	BTB33203		Credit Hours	3
Pre-requisites	Electromagnetic Waves (BTB23403)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Explain** the principles of radio frequency and microwave engineering and describe several types of antenna including smart antenna **(C5)**. • **Perform** laboratory procedures for microwave engineering and antenna **(P3)**. • **Design** an antenna based on the design requirements **(P4)**.			
Synopsis	This course unit develops the ability to describe mathematically for electromagnetic waves and plane wave propagations and introduces the students to the concept of antenna in telecommunication system. Student should have ability to explain the characteristics of radio wave propagation and analyze the characteristics of wave and transmission lines. Student should also have the ability to apply network techniques involving microwave communications for circuit analysis and design. In addition, the basic antenna properties and type of antenna will be discussed and the antenna design and measurement will be further analyzed.			
Main Reference	C.A. Balanis (2016). Antenna Theory 4th Edition., Analysis & Design, John Wiley and Sons.			
Additional References	1. Kai Chang (2016). RF and Microwave Wireless Systems. Print India Press. 2. J.D. Kraus (2003). Antennas 3rd Edition. McGraw-Hill. 3. F.T.Ulaby (2004). Fundamental of Applied Electromagnetics, 2004 Media Edition, Prentice Hall. 4. C.A. Balanis (2008). Modern Antenna Handbook 1st Edition. Wiley-Interscience. 5. Leo Setian (1998). Practical Communication Antennas with Wireless Applications, Prentice Hall.			

Course Title	Elective		Semester	6
Course Code	B*B****3		Credit Hours	3
Pre-requisites				
Total SLT				
Face to Face (F2F)		**Non Face to Face (NonF2F)**		
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework		Final Examination	
Course Learning Outcomes	Refer to Table Elective Courses for details			
Synopsis				
Main Reference				
Additional References				

Course Title	Innovation Management		Semester	6
Course Code	MPU3242		Credit Hours	2
Pre-requisites				
Total SLT	80 Hours			
Face to Face (F2F)	50 Hours	**Non Face to Face (NonF2F)**	30 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	70 %	Final Examination	30 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Identify** the importance of innovation in organization **(C3)**. • **Analyze** the different types of innovation, products classes and the impact to the industry **(C4)**. • **Distinguish** the steps in the innovation process **(C3)**. • **Classify** the key challenges to innovation **(C4, ES)**. • **Develop** a viable innovative project **(C5, CTPS)**.			
Synopsis	The concept of innovation as a management discipline focuses on achieving the organizational vision. It searches for unique opportunities in determining whether they fit the organizational strategic direction. The process involves evaluating opportunities and their rate of success.			
Main Reference	Hamidon Katan, Mohd Radzi Zainuddin, Azahari Jamaludin, Salwah Che Mat, Zawiah Abdul Majid, Suhaiza Ngah, Mohd Hazli Mohd Rusli, Mohd Fauzi Zainol Abidin, Rosnizza Ramlan, Abd Razak Mohd Yusoff, Jimisiah Jaafar, Sudirman Zainal Abidin, Muhammad Pauzi Mushif (2015). Innovation Management. Kuala Lumpur: Oxford Fajar.			
Additional References	1. Smith, D (2015). Exploring Innovation 3rd Ed. UK: McGraw-Hill. 2. Tidd, J. & Bessant, J (2013). Managing Innovation Integrating Technological, Market and Organizational Change 5th Ed. England: Wiley 3. Kotler, P., Armstrong G (2014). Principles of Marketing 15th Ed. New Jersey: Prentice Hall. 4. Azahari Jamaludin, Abd Razak Mohd Yusoff, Mohd Hazli Mohd Rusli, Salwah Che Mat & Zawiah Abdul Majid (2011). Introduction to Entrepreneurship. Oxford Fajar			

Course Title	Foreign Language 2		Semester	6
Course Code	W*****01		Credit Hours	1
Pre-requisites	Foreign Language 1 (W*****01)			
Total SLT	40 Hours			
Face to Face (F2F)		**Non Face to Face (NonF2F)**		
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Refer to Table Foreign Language 2 for details			
Synopsis				
Main Reference				
Additional References				

Course Title	Biomedical Optics and Photonics		Semester	6
Course Code	BMB31403		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Explain** the principles of biomedical optics and photonics system engineering and describe several application on healthcare industry. **(C5, PLO2)** • **Build** and **perform** biomedical optic and photonics laboratory practical towards it mechanism, service and maintenance. **(P5, PLO5)** • **Identify** the impact of biomedical optics and photonics technology in promoting sustainable healthcare system. **(A4, PLO7)**			
Synopsis	The aim of this course is to provide an understanding on the principles of optics and photonics in healthcare environment. This courses combine both knowledge of medical engineering with properties of light in order to improve medical diagnosis or therauputic or imaging systems. It will cover fundamental application of optic and photonics in medical engineering field such as spectroscopy, microscopy, and laser. It also will covers a hand-on on optical and photonic devices service and maintainance process.			
Main Reference	Tuan Vo-Dinh (2019). Biomedical Photonics Handbook.2nd Edition CRC Press. ISBN 9780367378462			
Additional References	1. De Gruyter (2012), Photonics & Lasers in Medicine, ISSN: 2193-0643 2. Berlien,H.P., & Muller, G.J. (2012). Applied Laser Medicine. Springer.			

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Course Title	Medical Device Technology		Semester	6
Course Code	BMB33803		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	59 Hours	**Non Face to Face (NonF2F)**	61 Hours	
Program	Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Relate** the knowledge of electronics and physiological instrumentation and measurement to the design, operation, inspection and maintenance of medical devices. **(C5, PLO1)** • **Performs** safe and efficient medical devices operations, inspections, and maintenance by integrates the theoretical and practical knowledge of medical devices in hospital environment. **(P4, PLO5)** • **Explain** effectively with clinicians and others in the biomedical field in the process of design and/or maintaining medical devices and patient safety. **(A4, PLO9)**			
Synopsis	The aim of this course is to introduce medical devices technology, based on a design and system overview by using engineering principle and standards. It provides the understanding on engineering principles applied in design, operational and maintenance of medical devices. To provide fundamental techniques for safety, inspection and maintenance of medical devices.			
Main Reference	1. Gail D.Baura (2020) Medical Device Technologies - A System Based Overview Using Engineering Standards. 2. Khandpur, R.S. (2014). Handbook of Biomedical Instrumentation (Third Edition). Tata McGraw Hill.			
Additional References	1. Webster, J.G. (2010). Medical Instrumentation Application & Design (Fourth Edition). John Wiley & Sons. 2. Carr, J.J., & Brown, J.M. (2003). Introduction to Biomedical Equipment Technology. Prentice Hall.			

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Course Title	Energy Management		Semester	6
Course Code	BPB47503		Credit Hours	3
Pre-requisites	BPB27603			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**		60 Hours
Program	Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours			
Assessment Methods	Coursework	100 %	Final Examination	-
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate the knowledge of energy management system (C5, PLO3)** • **Performs energy management technique and procedures required. (P5, PLO5)** • **Demonstrates importance of energy management for sustainability (A3, PLO7)**			
Synopsis	This subject involves the planning, monitoring, and optimization of energy use in various settings, including industrial plants, commercial buildings, and residential homes. The primary goal of energy management is to reduce energy consumption, decrease costs, and minimize environmental impact while maintaining the comfort and productivity of occupants. Energy management involves a range of activities, including measuring energy usage, identifying areas of waste or inefficiency, implementing energy-efficient technologies and practices, and monitoring and analyzing energy performance. It also includes the development of energy policies and strategies, as well as the training of personnel to ensure that energy-saving practices are effectively implemented.			
Main Reference	Guide to Energy Management, Eighth Edition - International Version Barney L. Capehart, William J. Kennedy, Wayne C. Turner, 2020, River Publishers. ISBN 9788770223324			
Additional References	Energy Management Conservation and Audits by Anil Kumar, Om Prakash, Prashant Singh Chauhan, Samsher Gautam ISBN 9780367343835 Published July 29, 2020 by CRC Press			

Course Title	Industrial Photovoltaic		Semester	6
Course Code	BPB46603		Credit Hours	3
Pre-requisites	BPB26103			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours			
Assessment Methods	Coursework	100 %	Final Examination	-
Course Learning Outcomes	Upon completion of this course students should be able to: • **Analyse** basic operation of photovoltaic system in generating electrical power **(C5)** • **Constructs** the photovoltaic design project with appropriates procedures and tools. **(P5).** • **Explains** the technical and business planning strategies for installation of photovoltaic system **(A4)**			
Synopsis	The number of solar PV projects and installations has increased tremendously since the enactment of FiT mechanism. Solar PV has proven to be fast growing industry due to its nature and availability and the cost which has reduced significantly This course exposes the students to fundamentals, primary components, principles of operation and economics to ensure the optimum performance and generations of the PV systems.			
Main Reference	1. Fundamentals of Solar Photovoltaic Technology, First edition 2022, Sustainable Energy Development Authority (SEDA) Malaysia. ISBN 978-967-12390-7-0 2. Design and sizing of grid-connected photovoltaic power system, Fourth published 2023, Sustainable Energy Development Authority (SEDA) Malaysia. ISBN 978-967-12390-8-7			
Additional References				

SEMESTER 7

Course Title	Final Year Project 2		Semester	7
Course Code	WPB49906		Credit Hours	6
Pre-requisites	Final Year Project 1 (BPB49804)			
Total SLT	240 Hours			
Face to Face (F2F)	211 Hours	**Non Face to Face (NonF2F)**	29 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Manage** a project plan in solving research problems **(C6)**. • **Analyze** project results using appropriate techniques or tools **(C4)**. • **Produce** a project report in accordance to the specified standard format **(C3)**. • **Defend** project outcomes effectively during presentation **(C5)**.			
Synopsis	This course is a continuation of Final-Year Project 1. It focusses on the implementation of students' final-year project, including the processes of collecting data, analyzing the results, and reaching a conclusion. Each student will be assessed independently.			
Main Reference	FYP Central Committee (2015). UniKL Final Year Project Handbook (3rd Edn). Universiti Kuala Lumpur: Kuala Lumpur.			
Additional References	Nil			

Course Title	Engineering Ethics and Professionalism in Society		Semester	7
Course Code	BEB31103		Credit Hours	3
Pre-requisites				
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Apply** knowledge of ethics and professionalism for Engineering Technologists **(C3, PLO1).** • **Demonstrate** awareness and consideration for ethics and professionalism and responsibilities of Engineering Technologists. **(A3, PLO6).** • **Demonstrate** an understanding of professional ethics in engineering technology practice **(A3, PLO8).**			
Synopsis	This course introduces the engineering ethics in the engineering technology profession. It covers personal and professional ethics and its relationship, professional and code of ethics, the rights and responsibilities of engineering technologists and ethical issues in engineering practices.			
Main Reference	1. Eli Stevens, (2019). Deep Learning with PyTorch. MANNING 2. Russell, S. J. & Norvig, P. (2015). Artificial Intelligence: A Modern Approach. Pearson Education. 3. Negnevitsky, M. (2011, 3rd Edition). Artificial Intelligence, A guide to Intelligent System. Addison Wesley.			
Additional References	1. Yuxi (Hayden) Liu, (2020). Python Machine Learning By Example. Packt			

Course Title	Electrical Systems in Building		Semester	7
Course Code	BPB43403		Credit Hours	3
Pre-requisites	Power System (BPB33103)			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electrical Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** the knowledge of electrical systems in building based on the concept of low voltage distribution systems **(C5, PLO 2)**. • **Perform** the testing and commissioning procedure for various application of low voltage distribution system **(P4, PLO 4)**. • **Demonstrate** the understanding of low voltage distribution system with the statutory, regulation and safety **(A3, PLO 11)**.			
Synopsis	This unit is designed to instill a strong understanding of basic wiring, key factors in managing or designing electrical systems in buildings and the occupational safety systems to ensure public protection in the use of the facilities provided. The topics are focusing on the act and the regulations that have been established and standardized by national and international standards. Students are also exposed to the design and calculation of the appropriate equipment and devices in buildings such as circuit breakers, cables, earthing, and other related electrical systems in buildings.			
Main Reference	1. Electrical Installation Design Guide: Calculations for Electricians and Designers, Institution of Engineering and Technology (IET) ,2022 (ISBN 9781839532573). 2. Teo Cheng Yu, Principles and Design of Low Voltage Systems, Final PDF Version, Byte Power Publications, 2015 (ISBN 9810060416).			
Additional References	1. Robert B Northrop, Introduction to Instrumentation and Measurements, 2017 2. Residential, Commercial and Industrial Electrical Systems, Everbest – 3GE, 2017 (ISBN 9781680955019). 3. Richard S.F., Donald E.B., Theory and Design for Mechanical Measurements, John Wiley & Sons, Inc., 2015. 4. B.D Jenkins, M. Coates, Electrical Installation Calculations, Fourth Edition, Wiley, 2010. (ISBN 978-1444-2426-6). 5. Darrel Locke, Wiring Regulations, 17th Edition IEE Wiring Regulations (BS 7671:2008), Wiley, 2008. (ISBN 978-0470516850).			

Course Title	Measurement and Verification		Semester	7
Course Code	BPB36503		Credit Hours	3
Pre-requisites	BPB47503			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**		60 Hours
Program	Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours			
Assessment Methods	Coursework	100 %	Final Examination	-
Course Learning Outcomes	Upon completion of this course students should be able to: • **Develop a comprehensive understanding of the principles, methodologies, and applications of measurement and verification in the context of energy efficiency and sustainability. (C5, PLO3)** • **Perform data acquisition using appropriate measurement tools and techniques, ensuring accuracy and relevance to assess energy performance.(P5, PLO5)** • **Explain economic analysis techniques to evaluate the cost-effectiveness and financial viability of energy-saving projects based on M&V results. (A3, PLO11)**			
Synopsis	This course explores the principles and applications of energy measurement and verification in accordance with the International Performance Measurement and Verification Protocol (IPMVP). Students will gain proficiency in using measurement tools to assess energy-saving initiatives. Additionally, the course covers aspects of social, cultural, and safety responsibilities related to energy management.			
Main Reference	1. Certified Measurement And Verification Professional A Complete Guide - 2020 Edition (ISBN9781867337539) 2. Certified Measurement and Verification Professional (CMVP) – Course Handbook & Exam Questions (ISBN B0CFZ9FHZG)			
Additional References	Energy Management Conservation and Audits by Anil Kumar, Om Prakash, Prashant Singh Chauhan, Samsher Gautam ISBN 9780367343835 Published July 29, 2020 by CRC Press			

Course Title	Big Data Analytics		Semester	7
Course Code	BEB43403		Credit Hours	3
Pre-requisites				
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Build** meaningful predictive models using various data analytic tools **(P7, PLO4)** • **Prepare** raw data to adjust missing values, peform normalization and make it useful for processing and effective presentation. **(A4, PLO10).** • **Perform** analysis of various data driven predictive models for effective business decisions**. (A5,PLO12).**			
Synopsis	In this course, students will learn how to use several data analysis tools and Python libraries to perform data retrieval, formating, processing, and visualization. The objective is to use data for predictive analytics, meaningful predictive modeling and performing statistical analysis. The students will gain hands-on experience in data manipulation and building data analytics skills by using various engineering case studies and practical real world projects.			
Main Reference	1. McKinney, Wes. Python for data analysis: Data wrangling with Pandas, NumPy, and IPython. " O'Reilly Media, Inc.", 2017.			
Additional References	1. Joseph Babcock, Mastering Predictive Analytics with Python Paperback – August 31, 2016			

Course Title	Network Security		Semester	7
Course Code	BTB42303		Credit Hours	3
Pre-requisites	Advanced Data Communications (BTB32503)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Discuss** network threats and mitigation, network security, principles of network security design, data confidentiality and integrity in cyptography **(C5)**. • **Apply** appropriate security protocols, appliances, software, services, policies, and configurations on routers in a secure network environment **(P4)**. • **Troubleshoot** network failure and security operational issues **(P5)**. • **Collaborate** with team members in determining methods for implementing Virtual Private Network **(A2)**.			
Synopsis	Network security has become a very important aspect in today's networking environments. This module will provide students with the knowledge related to network threats and defence as well as the algorithmn and techniques used in designing security system and in the protection of confidentiality, integrity and availability of data. Students will be exposed to the latest hardware, security appliances, application tools and encryption systems and standards used in network security.			
Main Reference	William Stallings (2017). Network Security Essentials 6th Edition: Application and Standards Guide. Pearson.			
Additional References	1. Troy McMillan. (2018). CCNA Security, Sybex. 2. William Stallings. (2016). Cryptography and Network Security, 7th Edition. Pearson. 3. A. Forouzan (2008). Cryptography and Network Security, McGraw-Hill. 4. Greg Holden. (2003). Guide to Network Defense and Countermeasures, Thosmas Course technology. 5. KA Stroud & DJ Booth (2013). Engineering Mathemathics, 7th Edition, New York : Palgrave Macmillan. 6. Peter V. O'Neil. (2012). Advanced Engineering Mathematics, 7th Ed,Australia : Cengage Learning.			

Course Title	Mobile Communications		Semester	7
Course Code	BTB47403		Credit Hours	3
Pre-requisites	RF, Microwave and Antenna (BTB33203)			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** the Mobile Communication Technology **(C4)**. • **Demonstrate** understanding of the societal, health, safety, legal and cultural issues in development of mobile radio propagation **(A4)**. • **Investigate** outdoor mobile signal propagation **(P4)**. • **Investigate** indoor mobile signal propagation **(P4)**.			
Synopsis	The technological advanced 21st century marks the mobile radio communication industry by orders of magnitude. The recent exponential growth in cellular mobile communication needs more skilled technicians for operation, maintenance & servicing of mobile cellular system. This subject is classified under technology group and it is based on communication theory, which gives theoretical as well as practical knowledge of different cellular system. The concepts of digital cellular mobile system and standards are essential since the students will encounter these components throughout the semester and could apply it in real job.			
Main Reference	Zaichen Zhang, Hao Jiang, and Guan Gui (2020). Channel Modeling in 5G Wireless Communication Systems, 1st Edition, Springer International Publishing			
Additional References	1. Dr. Sanjay Sharma. (2014). Mobile and Wireless Communication Fifth Edition, S.K. Kataria & Sons. 2. William Stallings (2005). Wireless Communications and Networks Second Edition. Prentice Hall. 3. Raj Pandya (2000). Mobile and Personal Communication Systems and Services. IEEE Press. 4. Steve Wisniewski (2005). Wireless and Cellular Networks. Pearson Prentice Hall. 5. Theodore S. Rappaport (2002). Wireless Communication, Principles and Practice Second Edition. Prentice Hall.			

UNIVERSITI KUALA LUMPUR
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Course Title	Hospital Management and Regulatory Safety Practice		Semester	7
Course Code	BMB43903		Credit Hours	3
Pre-requisites	BMB33803			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Explain** the clinical engineering management with good hospital design with basic specifications, production techniques, human factor engineering and its specifics design to medical devices. **(C5, PLO2)** • **Perform** the medical safety standard in term of electrical safety requirements and problems in clinical environments. **(P5, PLO4)** • **Identify** the requirements of standard to the issuesof risk in the use of medical devices on patients and others in biomedical field. **(A4, PLO6)**			
Synopsis	The aim of this course is to introduce medical devices technology, based on a design and system overview by using engineering principle and standards. It provides the understanding on engineering principles applied in design, operational and maintenance of medical devices. To provide fundamental techniques for safety, inspection and maintenance of medical devices.			
Main Reference	"1. Gerardus Blokdyk, ""Medical Equipment Management a Complete Guide"", Emerco Pty Limiterd, 2020 2. WHO Medical Device Technical series “Introduction to Medical Equipment Inventory Management” 3. Angus Dawson, Marcel Verweij, “Ethics, Prevention and Public Health, Oxford University Press, 2007"			
Additional References	1. “Peraturan-peraturan Peranti Perubatan 2012/ Medical Device Regulations 2012” 2. “MS ISO 13485: 2015”, Medical Devices – Quality Management Systems – Requirements for Regulatory Purposes 3. Dev Raheja, “Preventing Medical Device Recalls, CRC Press/Taylor and Francis Group, 2015”			

Course Title	Co-Curriculum 2		Semester	7
Course Code	MPU34*2		Credit Hours	2
Pre-requisites				
Total SLT				
Face to Face (F2F)		**Non Face to Face (NonF2F)**		
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Refer to Table Co-Curriculum 2 for details			
Synopsis				
Main Reference				
Additional References				

Course Title	Elective		Semester	6
Course Code	B*B****3		Credit Hours	3
Pre-requisites				
Total SLT				
Face to Face (F2F)		**Non Face to Face (NonF2F)**		
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework		Final Examination	
Course Learning Outcomes	Refer to Table Elective Courses for details			
Synopsis				
Main Reference				
Additional References				

SEMESTER 8

Course Title	Industrial Training		Semester	8
Course Code	WIB41009		Credit Hours	12
Pre-requisites	Nil			
Total SLT	960 Hours			
Face to Face (F2F)	898 Hours	**Non Face to Face (NonF2F)**	62 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Demonstrate** the ability to work professionally with leadership quality and group work skills with consideration on safety and health during the attachment **(A4, P3)**. • **Perform** task assigned with minimum supervision and in accordance with the quality required **(C3, P4)**. • **Apply** technical knowledge, analytical and problem solving skills to accomplish task assigned by the company **(C4, P5, A4)**. • **Report** effectively on work experience during attachment, including knowledge and skills acquired, in oral and written form **(C4, A3)**.			
Synopsis	This course is designed to provide students with technical knowledge and experience through extensive exposure in real industrial environments to enhance their competency and professionalism.			
Main Reference	Universiti Kuala Lumpur (2016). Industrial Training Student Handbook and Logbook (6th Edn). Universiti Kuala Lumpur: Kuala Lumpur.			
Additional References	Nil			

ADDITIONAL MODULE

Course Title	Bahasa Kebangsaan A		Semester	
Course Code	MPU3212		Credit Hours	2
Pre-requisites	Non Credit SPM			
Total SLT	80 Hours			
Face to Face (F2F)	28 Hours	**Non Face to Face (NonF2F)**	52 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Di akhir kursus ini, pelajar akan dapat: • Berkomunikasi dengan berkesan dalam situasi rasmi dan tidak rasmi. (A2,MQF LO 5) . • Menghasilkan penulisan yang jelas dan sistematik. (A4, MQF LO 9) . • Menerapkan kemahiran berorganisasi dalam kerja berpasukan. (A5, MQF LO 8)			
Synopsis	Kursus ini menawarkan kemahiran berbahasa dan aspek mendengar, bertutur, membaca dan menulis sesuai dengan tahap intelek pelajar. Tujuan kursus ini adalah untuk meningkatkan kecekapan berbahasa dalam konteks rasmi dan tidak rasmi. Pendengaran dan pembalajaran akan dilaksanakan dalam bentuk kuliah, tutorial, tugasan, aktiviti kebahasaan, main peranan (role-play) dan ujian. Pada akhir kursus ini, pelajar diharapkan dapat menguasai kemahiran berbahasa secara lisan dan tulisan.			
Main Reference	1. Buku Bahasa Kebangsaan A. Mohamed Nadzri Mohamed Sharif, Suhaila Ngadiron. 2019. Bahasa Kebangsaan A. Emeritus Publication Official Store			
Additional References	1. Muhammad Nadzri Mohd. Sharif, Mohd. Faiz Idris, Suhaila Ngadiron, (2012). Modul Bahasa Kebangsaan A: Silibus MQA. Tanjong Malim: Emeritus Publication. 2. Nik Safiah Karim, Farid M. Onn, Hashim Haji Musa, Abdul Hamid Mahmood (2015). Tatabahasa Dewan Edisi Ketiga. Kuala Lumpur: Dewan Bahasa dan Pustaka			

ELECTIVES COURSES

Course Title	Electronic Ticketing System		Semester	
Course Code	BEB45203		Credit Hours	3
Pre-requisites				
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Develop** a customized architecture of an automated fare collection (AFC) system based on specified needs **(C6, PLO3)** • **Implement** various ticket media, and fare & concession structures for real world cases **(P4, PLO5)** • **Justify** the affect and impact of automated fare collection AFC system to the society and the environment **(A3, PLO7)**			
Synopsis	This course covers the basic of an Automatic Fare Collection (AFC) system. This includes features of a typical AFC system, and its architecture such as fare media, field equipment and back office systems. The course also covers the working of ticket vending machine, automatic gates, ticket office equipment, station management system, central control system, card personalization & initialization machines, central clearance house, and key management system. It concludes with discussion on future service models, value added services and technological trends of the AFC system. The delivery includes lectures, group discussion, case studies, and practical.			
Main Reference	Equipment Technical Manuals 1. Automatic Gate (AG) 2. Ticket Vending Machine (TVM) 3. Office Ticket Processor (OTP) Equipment Operation Manuals 1. Automatic Gate (AG) 2. Ticket Vending Machine (TVM) 3. Office Ticket Processor (OTP) 4. Station Accouting Computer (SAC) 5. Virtual Central Computer (VCC)			
Additional References	Clifford N. Opurum (2012, 1st edition), Automated Fare Collection System & Urban Public Transportation: An Economic & Management Approach to Urban Transit Systems, Trafford Publishing			

Course Title	Semiconductor Materials and Devices		Semester	
Course Code	BEB36403		Credit Hours	3
Pre-requisites				
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Describe** type of semiconductor materials and their atomic structure in formulating various solid-state switching devices. **(C2, PLO3)** • **Investigate** and characterize electrical parameters of various semiconductor materials for fabricating solid state devices through moden CAD. **(P4, PLO5)** • **Design** and analyse performance of layout of semiconductor devices in digital/analog circuit using CAD. **(A3, PLO7)**			
Synopsis	The primary goal of this course is to enhance the understanding of students in formulating type of semiconductor for fabricating solid-state devices such as transistors, diodes, led and etc. There are various devices in modern electronics which are based on composition of semiconductor materials and structure of PN junction, energy gap and etc for various switching functions such as LED, transistors, diodes and logic gates. Packaging process is also been explored which would be the main stream production in most semiconductor industries in Malaysia. The materials, reliability and type of packaging as single devices or in modular package will be the main technical knowhow that must have for the graduates. The completion of this subject students gain knowledge of manufacturing process involving semiconductor materials, fabrication and packaging.			
Main Reference	CMOS: Circuit Design, Layout, and Simulation (IEEE Press Series on Microelectronic Systems Book 22) 4th Edition (2019), Kindle Edition			
Additional References	Streetman, B.G. & Banerjee, S.K. (2015). Solid State Electronic Devices. 7th Edition, Prentice Hall. Semiconductor Packaging: Materials Interaction and Reliability by Andrea Chen and Randy Hsiao-Yu Lo Apr 19, 2016			

Course Title	Analog and Digital IC Design		Semester	
Course Code	BEB46503		Credit Hours	3
Pre-requisites				
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Design** the Transistor Level diagram, Euler Path and Stick Diagram of an IC using both schematic and text entry method. **(C6, PLO3)** • **Perform** simulation of basic, simple and complex CMOS circuit using EDA tools. **(P4, PLO5)** • **Explain** knowledge of digital IC design history, technology and design flow for sustainable development. **(A3, PLO7)**			
Synopsis	This course extends the theory in digital electronics by providing the knowledge of IC design technology used in the industry. The students will learn to design a simple logic gates in transistor level by using DSCH and Microwind software.			
Main Reference	1. Yuan Taur and Tak H. Ning, Fundamentals of Modern VLSI Devices, Cambridge University Press, 2022. 2. C. P. Verma, VLSI Design, S.K. Kataria and Song, 2015 3. Sung-Mo Kang and Yusuf Leblebici, CMOS Digital Integrated Circuits: Analysis and Design, Third Edition,Mc Graw Hill Higher Education, 2005 4. John P.Uyemura, Introduction to VLSI circuit and system, Wiley & Sons, Inc. Publication 2003 5. John P. Uyemura, Chip Design for Submicron VLSI: CMOS Layout and Simulation, Thomson, 2006.			
Additional References				

Course Title	Robotics and Intelligent Systems		Semester	
Course Code	BPB41603		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Describe** the fundamentals of robots, its components and sensors **(C2, P3)**. • **Apply** the knowledge of Kinematics and dynamitic to improve the performance of the Robots and its problems **(C3, P4, A4)**. • **Analyze** the artificial intelligent techniques in robots application **(C4, P3)**. • **Apply** the techniques and methods of artificial intelligence and its principles in robotics **(C5, P4)**. • **Demonstrate** the functionality of the robots after applying the artificial intelligence in the system **(C5, P4, A5)**.			
Synopsis	This course covers the basic principal of design, intelligence and planning of robot is part of the system. The goal of this study is to provide students with comprehensive approach, competency and skills to apply robotics technology to real world engineering applications. The topics covered in this course are a Robot design and its configuration, kinematics analysis and its solution, trajectory generation, artificial intelligence systems, Neural network, intelligent search algorithms, expert & adaptive systems and multi-agent systems**.**			
Main Reference	J. J. Craig (2013). Introduction to Robotics: Mechanics and Control 3rd Edition.			
Additional References	1. J. J. Craig. Introduction to Robotics. Addison Wesley Publishers. 2. M. Negnevitsky (2011). Artificial Intelligence – A guide to intelligent systems Addison-Wesley 3rd edition. 3. S Hayking. Neural Networks 2nd Edition. Prentice Hall. 4. Artificial Intelligence: Structures and Strategies for Complex Problem-Solving.			

Course Title	Digital Communication Systems		Semester	6/7
Course Code	BTB45303		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Evaluate** the principles of digital communication systems, coding methods, transmission, multiplexing and multiple access techniques **(C5)**. • **Perform** laboratory procedures for digital communication systems **(P3)**. • **Collaborate** with team members in investigating digital communication systems application **(A2)**.			
Synopsis	This course unit introduces the students to the principles of digital communication technology. The importance of modulation and the performance of the system in the presence of noise are discussed. The students are also given the fundamental concepts of coding methods in digital communication. Topics covered include the study of digital modulation, digital transmission and multiple access techniques.			
Main Reference	Louis Frenzel. (2016). Principles of Electronic Communication Systems, McGraw-Hill Education; 4th Edition. ISBN: 9780073373850.			
Additional References	1. Wayne Tomasi. (2004). Electronic Communication Systems, Fundamental Through Advanced, 5th Edition. 2. Bernard Skalar. (2005). Digital Communication: Fundamental and Applications, Prentice Hall. 3. Simon Haykin. (2010). Communication Systems 5th Edition, John Wiley & Sons.			

Course Title	Multimedia over Data Networks		Semester	6/7
Course Code	BTB42203		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Analyze** the principles, standard and properties of multimedia over data networks **(C4)**. • **Perform** multimedia over data network design, installation, configuration, testing and troubleshooting **(P5)**. • **Measure** and analyse voice over data network performance **(A3)**.			
Synopsis	The emergence of high bandwidth technology has made voice, video and data as a multimedia application to be able to transport across data networks. The module covers the implementation of multiple media application in data network. The module introduced the components used to make the convergence of voice, video and IP data successfully. The implementation of the module will involve theory and practical of the multimedia network. Student will have the opportunity to install, configure and evaluate the performance of the multimedia network.			
Main Reference	Ivan Vidal, Ignacio Soto, Albert Banchs, Jaime Garcia-Reinoso, Ivan Lozano and Gonzalo Camarillo (2019). Multimedia Networking Technologies, Protocols, and Architectures. Artech House.			
Additional References	1. Peicevic, A. (2017). Introduction to Asterisk: Learn how to set up your own PBX telephone system, Geek University Press. 2. Hartpence, B. (2013). Packet Guide to Voice over IP, O'Relly Media, 1st Edition. 3. Davidson, J., Peters, J., Gracely, B. (2006). Voice Over IP Fundamental, Cisco Press, 2nd Edition.			

Course Title	Optoelectronics and Optical Fibre		Semester	6/7
Course Code	BTB46303		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Telecommunication Engineering Technology with Honours Bachelor of Electronics Engineering Technology with Honours Bachelor of Electrical Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Analyse** the optical theories related to optical fibre and the applications of semiconductor theory in light sources and detectors principles **(C4)**. • **Manage** the laboratory work on optical light guide and the usage of tool in troubleshooting the Fibre Network **(P5)**. • **Demonstrate** the laboratory work on optical sources **(A3)**.			
Synopsis	This course contents are comprised of optics theory and applications for which the physics of light is related to the optical light guides in optical fibre; the semiconductor theory is related to the principles of light applications for light emitting diodes and lasers as optical oscillator and optical detector. The optical applications such as sensing, communications, storage, processing and displaying of information can be found in the course contents and also in laboratory works. Thus, these could help the students to prepare themselves with the working knowledge in the optical fibre technology. The teaching and assessment methods for this course include a combination of lecture, tutorial and lab work.			
Main Reference	Edited by Lakshmi Narayana Deepak Kallepalli, Applications of Silicon Photonics in Sensors and Waveguides, 2018 (UniKL MIDI).			
Additional References	1. Ferreira M (2017). Optical Fibers: Technology, Communications and Recent Advances, Nova Science Publishers. 2. R Allen Shotwell (2015). Introduction to Fiber Optics 1st Edition. Pearson Education India. ISBN-10: 9332550549, ISBN-13: 978-9332550544. 3. Govind P. Agrawal (2015). Fiber-Optic Communication Systems 3rd Ed. Wiley Pubisher, ISBN-10: 8126513861, ISBN-13: 978-8126513864.			

Course Title	Digital Signal Processing		Semester	
Course Code	BTB44303		Credit Hours	3
Pre-requisites				
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Identify** design techniques for digital signal processing **(C4, A1)**. • **Design** and analyze digital filter using FIR and IIR filter design technique **(C4, P6)**. • **Apply** the software tools in the filter design **(C3, P6)**. • **Identify** and investigate several key aspects of digital adaptive filter in the application **(C4, P4)**.			
Synopsis	This course covers the signal processing techniques and tools for students from any area of electrical and electronic engineering. The topics covered are design of IIR, FIR filters and Adaptive filters. The students will learn and implement these filters using simulations tools such as MATLAB, C language etc.			
Main Reference	Vinay G. Proakis, Joan G. Proakis (2012). Essentials of Digital Signal Processing using MATLAB 3rd Edition. International Edition. ISBN 13-978-1-111-42738-2.			
Additional References	1. Ashok Ambardar (2007). Digital Signal Processing: A Modern Introduction, Thomson Learning. ISBN 0-495-08238-4. 2. Vinay K. Ingle & John G. Proakis (2007). Digital Signal Processing Using Matlab 2nd Edition. Thomson Learning. ISBN 0-495-07311-3. **3.** Emmanuel C. Ifeachor & Barrie W. Jervis (2001). Digital Signal Processing 2nd Edition, Prentice Hall.			

Course Title	Satellite Communications		Semester	
Course Code	BTB47203		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Explain** the satellite communications orbit, trajectories, link-design and their applications **(C4)**. • **Perform** laboratory procedures for satellite system **(P5)**. • **Describe** the various services of satellite system **(A3)**.			
Synopsis	To provide the understanding of satellite communications history, development and technology. This module also covers the orbital elements, installation, launching and spacecraft subsystem which gives effects on the performance of space link communication.			
Main Reference	Anil K. Maini, Varsha Agrawal (2019). Satellite Technology 4rd Edition. Wiley.			
Additional References	1. Louis J. Ippolito Jr. (2017) Satellite Communications Systems Engineering: Atmospheric Effects, Satellite Link Design and System Performance, Wiley. 2. Roddy & Dennis (2006). Satellite Communications 4th Edition. McGraw Hill. 3. Maral, G. & Bousquet, M (2020). Satellite Communications Systems. Wiley. 4. Pratt, Jeremy (2019). Satellite Communications. Wiley.			

Course Title	Network Security Operation		Semester	
Course Code	BTB42503		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Discuss** network threats and mitigation, network security, principles of network security design, data confidentiality and integrity in cyptography **(C5)**. • **Apply** appropriate security protocols, appliances, software, services, policies, and configurations on routers in a secure network environment **(P4)**. • **Collaborate** with team members in determining methods for implementing Virtual Private Network **(A2)**.			
Synopsis	Throughout this course, the students will learn about computer hardware and software, wired and wireless networking components, protocols and applications, and techniques for securing a network. The students will use the knowledge, skills and abilities gained to plan and implement technical solution for a small business.			
Main Reference	William Stallings (2017). Network Security Essentials 6th Edition: Application and Standards Guide. Pearson.			
Additional References	1. William Stallings (2011). Cryptography and Network Security, Principles and Practise 5th Edition. Pearson International. 2. A. Forouzan (2008). Cryptography and Network Security 1st Edition. McGraw-Hill. 3. Greg Holden (2003). Guide to Network Defense and Countermeasures. Thomas Course Technology.			

Course Title	Probability and Stochastic Processes		Semester	
Course Code	BTB44403		Credit Hours	3
Pre-requisites				
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Define** basic ideas of probability spaces, including sample spaces, events, random variables and vectors, distribution functions to solve related engineering problems **(C2)**. • **Analyze** specific signal processing, and/or control systems problems involving random variable processes **(C4, P3)**. • **Apply** random sequences and processes and their classification in signal processing, and control systems **(C3)**. • **Analyze** modern communication; signal processing based on probability and stochastic concepts **(C4)** • **Analyze** specific signal processing, and/or control systems problems involving Markov sequences processes **(C4, P3)**.			
Synopsis	This course provides the students with the basic knowledge of probabilities and stochastic processes. It emphasizes on developing students mathematical competencies in telecommunication mathematics. The main method of delivery combines lecture, tutorial and drill with occasional discussions to generate interest.			
Main Reference	Hisashi Kobayashi, Brian L. Mark & William Turin (2012). Probability, Random Processes and Statistical Analysis. Cambridge New York: Cambridge University Press.			
Additional References	1. Roy D. Yates & David J. Goodman (2005). Probability and Stochastic Processes 2nd Edition. John Wiley & Sons, Inc. 2. Grimmett, Geoffrey R; Stirzaker & David R (2001). Probability and Random Processes 3rd Edition. Oxford New York: Oxford University Press.			

Course Title	Electromechanical Medical Devices		Semester	
Course Code	BMB32403		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Investigate** the characteristic and performance of different drives and actuators **(C5)**. • **Demonstrate** the element of control for different drives and actuators **(P5)**. • **Analyze** the application of drives and actuators in medical devices **(C4)**.			
Synopsis	The aim of this unit is to provide a representative overview of drives and actuators are applied on the electronic circuit board. It covers the analysis and applications of electrical machine, hydraulic and pneumatic actuation systems. This unit has been designed to enable students to benefit from their applications in biomedical devices.			
Main Reference	Silva, C.W (2015). Sensor and Actuators 2nd Edition: Engineering System Instrumentation. CRC Press.			
Additional References	1. Khandpur, R.S (2014). Handbook of Biomedical Instrumentation 3rd Edition. Tata McGraw-Hill. 2. Webster, J.G (2010). Medical Instrumentation Application & Design 4th Edition. John Wiley & Sons. 3. Bishop, R.H (2007). Mechatronic Systems, Sensors, and Actuators 2nd Edition: Fundamentals and Modeling. CRC Press.			

Course Title	Rehabilitation Engineering		Semester	
Course Code	BMB32503		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	• **Investigate** the numerical models to represent the musculoskeletal system and apply these models to the development of prosthetics and orthotics in rehabilitation engineering. **(C4)** • **Demonstrate** the fundamental principles and design considerations of medical instruments. **(P5, A3)** • **Explain** extensive applications of medical instruments for rehabilitation. **(C5)**			
Synopsis	This course provides the fundamental medical engineering knowledge to complete the core units of degree programme. This unit has been designed to enable students to use fundamental of engineering knowledge in understanding the broad area of rehabilitation engineering and its application to assists people with impairments in sensing, communication, seating, manipulation and mobility.			
Main Reference	Eren, H., & Webster, J.G. (2015). *The E-Medicine, E-Health, M-Health, Telemedicine, and Telehealth Handbook (Two Volume Set): Telemedicine and Electronic Medicine*. CRC Press.			
Additional References	1. Cooper, R.A., Hisaichi, O., & Hobson, D.A. (2006). *An Introductionto Rehabilitation Engineering (Series in Medical Physics and Biomedical Engineering)*. CRC Press. 2. Smith, R.V., & John H.L.(1990). *Rehabilitation Engineering.*CRC Press. 3. Mann, W.C., & Pane, J.P. (1990). *Assistive Technology for Persons with Disabilities*. The American Occupation Therapy Association Inc. 4. Webster, J.G., et al, *Electronics Devices for Rehabilitation*.John Wiley & Sons. 5. Cooper, R.A. (1995). *Rehabilitation Engineering Applied to Mobility and Manipulation (Series in Medical Physics and Biomedical Engineering).* CRC Press.			

Course Title	Telemedicine Technology		Semester	
Course Code	BMB43503		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Investigate** and apply knowledge of communication engineering to telemedicine technology system. **(C3, P5)** • **Differentiate** fundamental concepts between medical equipment in hospital implementing telemetry system and wireless communication system. **(C3)** • **Apply** appropriate networking for medical equipment setting in hospital. **(P5)** • **Evaluate** the benefits of centralized monitoring system in hospital. **(C5)** • **Demonstrate** proposal for application and use of new technology towards smart hospital in future. **(P5)**			
Synopsis	The aim of this course is to develop an understanding of the principle involved in telemedicine technology. At the same time, implement telecommunication system in telemedicine technology in hospital using networking and wireless technology.			
Main Reference	RS Khandpur (2017). Telemedicine Technology and Application (Mhealth, Telehealth and Ehealth). PHI Learning Pvt. Ltd.			
Additional References	1. Webster, John G (2006). Telemedicine and Electronic Medicine. CRC Press / Taylor & Francis Group. 2. E. Halit & Webster John G (2016). Telehealth and Mobile Health. CRC Press / Taylor & Francis Group. 3. Xioa Yang & Chen Hui (2008). Mobile Telemedicine: a Computing and Networking Perspective. CRC Press / Taylor & Francis Group.			

Course Title	Measurement and Instrumentation System		Semester	6
Course Code	BPB34203		Credit Hours	3
Pre-requisites	Introduction to Measurement and Instrumentation (BEB11903)			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Explain** the output circuits of signal conditioning operations which yield results in agreement to the theoretical values **(C5, PLO3)**. • **Construct** signal conversion (ADC/DAC) circuit to obtain appropriate output digital or analog values **(P4, PLO5).** • **Perform** IoT solutions using sensor, signal conditioning, signal conversion, IoT tools to display output via a webpage or a web app **(A5, PLO7)**.			
Synopsis	This course covers the principle of signal conditioning, signal conversion techniques and Internet of Things. The analog signals are measured by sensor then the sensor output will be adjusted to the desired signals using a signal conditioning circuit such as Integrated Circuits (ICs) eg. OPAMP for magnification and filtering to eliminate unwanted signals. This signal will be processed and display the output with IoT devices.			
Main Reference	Electrical Measurements And Instrumentation, Uday A. Bakshi, Late Ajay V. Bakshi, Technical Publications, 2020.			
Additional References	1. Instrumentation, Automation, IoT, And Emerging Technologies For Engineers: Handbook, Madhukar Varshney, Sanjay Galhan, Independently published, 2022. 2. Measurement And Instrumentation, Edition 3 Theory And Application, Alan S. Morris and Reza Langari, Elsevier, 2020. 3. Electronic Measurements: A Practical Approach, Farzin Asadi, Kei Eguchi, Springer, 2021. 4. Internet Of Things (IoT) Concepts And Applications, Mansaf Alam, Kashish Ara Shakil, Samiya Khan, Springer, 2020. 5. Introduction To Sensors In IoT and Cloud Computing Applications, Ambika Nagaraj, Bentham Science Publishers, 2021.			

Course Title	Power System Protection		Semester	6
Course Code	BPB34603		Credit Hours	3
Pre-requisites	Power System (BEB33103)			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Perform** the fundamentals of protection systems in electrical power engineering **(P4, PLO3)**. • **Describe** the fundamental and the impact of power protection in sustainable power systems using appropriate coordination and discrimination methods **(C5, PLO7)**. • **Perform** the principles of various protection schemes and protective relaying **(P4, PLO3)**. • **Demonstrate** the concepts of difference protection schemes in power system components **(A3, PLO5)**. • **Perform** the coordination and discrimination of protection devices in power system **(P4, PLO3)**.			
Synopsis	This course provides the students with the knowledge of protection systems in electrical power engineering. Through the understanding of various protection schemes and protective relaying, the students will gain further knowledge on another part of the power system. The knowledge and understanding will serve them professionally for their future career.			
Main Reference	Power System Analysis and Design, ISBN-13: 978-1305632134, J. Duncan Glover 7th Edition, 2022.			
Additional References	1. Y. G. Paithankar, Fundamentals of Power System Protection, Second Edition, PHI Learning, 2013. (ISBN 9788120341234) 2. R. P. Singh (2011). Switchgear and Power System Protection. PHI Learning Provate Limited. ISBN 9788120336605. 3. B. Oza, N. Nair, R. Mehta & V. Makwana (2010). Power System Protectian & Switchgear. Tata McGraw Hill			

Course Title	Industrial Control		Semester	
Course Code	BPB41703		Credit Hours	3
Pre-requisites	Control System (BPB31803)			
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Demonstrate** the knowledge of Industrial Control components as well as the methods of implementing the theories **(C3, P4)**. • **Use** the relevant principles of the feed-forward and feedback theory to solve industrial control problems **(C3, P4)**. • **Justify** the application of PID controllers in industries **(C5, P4)**.			
Synopsis	This course will cover the analytical knowledge and techniques in preparing students to apply them to other scientific and engineering principles. This unit has been designed to enable students to use Industrial Control theories and analyzing the model and solves the realistic engineering problems at a higher level.			
Main Reference	Terry L.M. Bartelt (2012). Industrial Electronics: Circuits, Instruments, and Control Techniques 3rd Edition. Cencage Learning.			
Additional References	1. Norman S. Nise (2010). Control Systems Engineering 6th Edition. Wiley. 2. Curtis D. Johnson (2010). Process Control Instrumentation Technology 8th Edition. Prentice Hall. 3. M Gopal (2003). Control Systems 2nd Edition. Mc Graw Hill. 4. Carlos A. Smith & Armando Corripio (2006). Principles and Practice of Automatic Process Control 3rd Edition. Wiley.			

Course Title	Green Building		Semester	
Course Code	BPB47103		Credit Hours	3
Pre-requisites				
Total SLT	120 Hours			
Face to Face (F2F)	60 Hours	**Non Face to Face (NonF2F)**	60 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Analyze all components of green buildings by using appropriate Malaysian standards. (C5, PLO3)** • **Design green building systems using appropriate simulation software. (P5, PLO5)** • **Demonstrate understanding of green building impacts towards environment and sustainability. (A4, PLO7)**			
Synopsis	This course provides the students with the knowledge and skills in green technologies and systems approach in residential and commercial buildings to sustainability. Through the understanding of the design and construction fundamentals of green buildings features in compliance with provisions of green building standards, certifications and policies, the students will gain further knowledge in the energy conservation techniques in buildings. The knowledge and understanding will serve them professionally for use in daily life and their future career.			
Main Reference	Sustainable Construction: Green Building Design and Delivery, 4th Edition, Kibert Charles J. John Wiley and Sons, 2016.			
Additional References	1. Handbook of Green Building Design and Construction Book • 2012. Author: Sam Kubba 2. Green design and assembly of buildings and systems: Design for Disassembly a key to Life Cycle Design of buildings and building products: 2010 by Elma Durmisevic (Author) 3. Introduction to Architectural Science The Basis of Sustainable Design By Steven Szokolay			

BACHELOR OF ELECTRICAL ENGINEERING WITH HONOURS

SEMESTER 1

Course Title	**Mathematics for Engineers 1**		Semester	1
Course Code	BKB10103		Credit Hours	3
Pre-requisites	Nil			
Total SLT	123 Hours			
Face to Face (F2F)	44.5 Hours	**Non Face to Face (NonF2F)**	78.5 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Solve** the systems of linear equations by using linear algebra method (C3, PLO1) • **Apply** the concept of complex numbers to convert the complex numbers in various forms (C3, PLO1) • **Evaluate** the scalar and vector products in engineering application (C4, PLO1) • **Apply** the rules of derivative in differentiating various functions and partial derivatives (C3, PLO2) • **Apply** appropriate methods in integrating various functions and multiple integral (C3, PLO2)			
Synopsis	This module offers a fundamental study of linear algebra: solving system of equations by using matrix methods such as Cramer's Rule, Gauss Elimination/Gauss Jordan Method, LU Decomposition and inverse matrix, as well as evaluating the eigenvalues and eigenvectors. A recall on Complex Numbers is provided as a pre-requisite to convert complex numbers in various forms. The concept of vectors and its properties which are related to the student's field are also provided. This course also provides the fundamental of differential equation, partial derivatives, integration and multiple integrals.			
Main Reference	1. J.O. Bird. (2017). Higher Engineering Mathematics, Eighth Edition, London ; New York : Routledge, Taylor & Francis Group, 2017]			
Additional References				

Course Title	**Internet of Things Engineering**		Semester	1
Course Code	BKB20303		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	30 Hours	**Non Face to Face (NonF2F)**	90 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Examine** the Internet of Things (IoT) framework and architecture in engineering application (C4, PLO2) • **Apply** Internet of Things (IoT) elements in engineering application (P2, PLO5) • **Construct** an engineering project related to Internet of Things (IoT) (C3, PLO11)			
Synopsis	This is an introductory course aimed at providing students with fundamental concepts of Internet of Things (IoT) which form the foundation for their study in later years. These concepts are essential as student will encounter them at higher-level courses.			
Main Reference	1. Schwab, K. (2017). The fourth industrial revolution. Great Britain: Portfolio Penguin. 2. Tin, C.M., Gupta, G.S. Embedded Programming with Field-Progamable Mixed-Signal uControllers, 2012, Silicon Labs, USA			
Additional References				

SEMESTER 2

Course Title	**Circuit Theory 1**		Semester	2
Course Code	BKB10203		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	30 Hours	**Non Face to Face (NonF2F)**	90 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Apply** the basic concepts and laws in solving DC circuits (C3, PLO10) • **Analyze** DC circuits by applying circuit analysis techniques and circuit theorems (C4, PLO2) • **Solve** problems on capacitance, magnetism and induction by applying circuit analysis techniques and field analysis techniques (C3, PLO1) • **Analyze** transient RC and RL circuits by applying first-order analysis techniques (C4, PLO2)			
Synopsis	This course will enable students to gather the combination selected material, information and knowledge and in relation to other courses, apply circuit-theory to solve circuit problem, use circuit theorem techniques to solve more complex DC circuit problems; apply fundamental laws involving capacitors, electromagnetic and inductor and display waveforms to determine the main parameters of alternating voltage and currents.			
Main Reference	1. Alexander C. K. and Sadiku M.N.O., Fundamentals of Electric Circuits 6th Edition. McGraw Hills, 2017. [TK454.A452.2017] 2. Bird J., Electrical Circuit Theory and Technology Sixth Edition, Taylor & Francis Group, 2017. 3. Floyd T.L., Principles of Electric Circuits Conventional Current Version 9th Edition. Pearson Higher Ed, USA, 2013			
Additional References				

Course Title	**Electronic Devices**		Semester	2
Course Code	BKB10303		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	44 Hours	**Non Face to Face (NonF2F)**	76 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Explain** the fundamental theory of semiconductors (C2, PLO1) • **Discuss** operation of diodes, transistors in order to design basic circuits (C2, PLO1) • **Investigate** rectifier circuits and propose suitable solutions (C3, PLO1) • **Demonstrates** the configurations of diode and transistor biasing circuits (C3, PLO4)			
Synopsis	Knowledge in electronic devices provides the basic understanding in electrical engineering. The applications of semiconductor devices require the knowledge of basic electronic devices such as diodes and transistors.			
Main Reference	1. Thomas L. Floyd (2019). Electronic Devices (Conventional Current Version): Global Edition, 10th Edition: Pearson Education.			
Additional References	1. Robert L. Boylestad & Louis Nashelsky. (2014.) Electronic Devices and Circuit Theory. 11th Edition: Pearson Prentice Hall. [TK7867 .B69 2013] 2. Thomas L. Floyd (2009). Electronic Fundamentals: Circuits, Devices and Applications, 8th Edition: Prentice Hall. [TK7816 .F57 2010]			

UNIVERSITI KUALA LUMPUR
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Course Title	**Engineering Mechanics**		Semester	2
Course Code	BKB10403		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	44 Hours	**Non Face to Face (NonF2F)**	76 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Apply** appropriate formulae and explain the theoretical of engineering mechanics knowledge in engineering field (C3, PLO2) • **Identify** the formulations of solutions to fundamentals problems for static and dynamic engineering systems (C4, PLO2) • **Identify** problems, give reasons and provide solution in engineering mechanics (C4, PLO4)			
Synopsis	The aim of this course is to introduce engineering mechanics and their applications in engineering. The first outcome focuses on fundamental physics that covers the principles and the thermal changes in engineering such as thermal stress and strain. The second outcome is concerned with the dynamic system, which covers the linear, angular and simple harmonic motion. The third outcome deals with heat energy transfer through the rectangular and cylindrical wall. The fourth outcome covers the fluid system by introduce the fluid in motion and conservation of energy in fluid system. Delivery technique includes lectures and laboratory experiment.			
Main Reference	1. Serway, R.A., & Jewett, J.W. (2019). Physics for Scientists and Engineers (10th Edition). Cengage Learning. 2. Giancoli, D.C. (2015). Physics: Principles with Applications (7th Edition). Pearson Education. 3. Cutnell, J.D., & Johnson, K.W. (2018). Physics (11th Edition). John Wiley & Sons. 4. Bansal, R.K. (2019). A Textbook of Engineering Mechanics, (6th edition). Laxmi Publication.			
Additional References				

UNIVERSITI KUALA LUMPUR
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Course Title	**Computer Programming for Engineers**		Semester	2
Course Code	BKB10503		Credit Hours	3
Pre-requisites	Nil			
Total SLT	122 Hours			
Face to Face (F2F)	31 Hours	**Non Face to Face (NonF2F)**	91 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	100%	Final Examination	0%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Apply** fundamental programming concepts and methodologies which are essential to build program (C3, PLO1) • **Solve** real-life engineering and non-engineering problems using programming techniques (C3, PLO2) • **Adapt** the use of Integrated Development Environment (IDE) software for creating, compiling, testing, debugging, and executing program code (P6, PLO5)			
Synopsis	The objective of this course is to facilitate the student with knowledge, understanding and skill to code based on good programming language practices. This course covers an introduction to the computer system as well as C programming language. The students will learn the main concepts and elements of high-level programming that includes arithmetic and logics, input and output statements, decision control, function, array, and many more. This course will be the foundation to programming language in the engineering fields.			
Main Reference	1. Jeff Szuhay (2020). Learn C Programming. Packt Publishing. (ISBN-10: 178-9-34991-5)			
Additional References	1. Greg Perry, Dean Miller (2013). C Programming Absolute Beginner's Guide 3rd Edition. Que Publishing (ISBN-10: 078-9-75198-4)			

UNIVERSITI KUALA LUMPUR
BRITISH MALAYSIAN INSTITUTE

Course Title	**Mathematics for Engineers 2**		Semester	2
Course Code	BKB10603		Credit Hours	3
Pre-requisites	BKB10103 Mathematics for Engineers 1			
Total SLT	123 Hours			
Face to Face (F2F)	44.5 Hours	**Non Face to Face (NonF2F)**	78.5 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Solve** ordinary differential equations and partial differential equations' problems (C3, PLO1) • **Apply** Laplace Transforms to solve differential equations problems (C3, PLO2) • **Determine** Fourier series of given functions (C4, PLO1)			
Synopsis	This course covers ordinary differential equations and partial differential equations. It also provides advanced level engineering mathematics such as Laplace transforms and Fourier series in solving various engineering problems.			
Main Reference	1. J.O. Bird. (2017). Higher Engineering Mathematics, Eighth Edition, London ; New York : Routledge, Taylor & Francis Group, 2017]			
Additional References				

Course Title	**Engineering Practice and Professionalism**		Semester	2
Course Code	BKB10702		Credit Hours	2
Pre-requisites	Nil			
Total SLT	81 Hours			
Face to Face (F2F)	30 Hours	**Non Face to Face (NonF2F)**	51 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Explain** ethics and responsibilities of an engineer (A3, PLO8) • **Apply** problem solving and critical thinking techniques (C3, PLO6) • **Explain** basic error analysis and statistical methods (C2, PLO7) • **Demonstrate** leadership and team working skills (A3, PLO10) • **Discuss** issues effectively in oral discussion and written report (A2, PLO10)			
Synopsis	The topics that will be covered in this course are introduction to the engineering profession, including different engineering fields, professional societies, engineering ethics and responsibilities; engineering method and problem solving; critical thinking; leadership and team working; introductory error analysis and statistics; life-long learning skills; word processing, spread sheeting and graph plotting skills; oral presentations and laboratory report writing skills.			
Main Reference	1. Oakes, W. & Les, L. (2018) Engineering Your Future: A Brief Introduction to Engineering. 6th Edition: Oxford University Press			
Additional References	1. Harris, C.E.,Pritchard, M.S. & Rabins, M.J. (2017). Engineering Ethics: Concepts and Cases, 5th Edition: Wadsworth, Cengage Learning. 2. Baine, C. (2018) Is There an Engineer Inside You?: A Comprehensive Guide to Career Decisions in Engineering. 6th Edition. Bonamy Publishing. 3. National Academy of Engineering (2018). The Engineer of 2020: Visions of Engineering in the New Century. 3rd Edition. National Academics Press.			

SEMESTER 3

Course Title	**Circuit Theory 2**		Semester	3
Course Code	BKB20103		Credit Hours	3
Pre-requisites	BKB10203 Circuit Theory 1			
Total SLT	123 Hours			
Face to Face (F2F)	30.5 Hours	**Non Face to Face (NonF2F)**	92.5 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Apply** the relevant principles of the circuit theory to solve AC electrical circuit problems (C3, PLO1) • **Examine** the single phase and three phase AC Circuit problems (C4, PLO1) • **Apply** the basic principle of Laplace and Fourier transforms in the advanced circuit analysis (C3, PLO1) • **Design** the single phase and three phase application in software simulation (C4, PLO3) • **Investigate** the AC Circuit problems in both calculation and simulation aspects and present the outputs in formal report (C4, PLO4)			
Synopsis	This course will cover fundamental and higher circuit theory analysis of AC circuits, single and three phase AC circuit analysis and two port networks. The course can help students to apply the problem solving skills, investigate the AC circuit problems and prepare them for design concepts. Methods used in delivering this unit will be via theory (lecture) and discussion in class and vetting them with problem based learning activities.			
Main Reference	1. Alexander C. K. and Sadiku M.N.O., Fundamentals of Electric Circuits 6th Edition. McGraw Hills, 2017. [TK454.A452.2017]			
Additional References	1. Bird J., Electrical Circuit Theory and Technology Sixth Edition, Taylor & Francis Group, 2017. 2. Floyd T.L., Principles of Electric Circuits Conventional Current Version 9th Edition. Pearson Higher Ed, USA, 2013			

Course Title	**Digital Electronic Fundamentals**		Semester	3
Course Code	BKB20203		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	44 Hours	**Non Face to Face (NonF2F)**	76 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Solve** the numbering systems and codes in digital electronics (C3, PLO2) • **Apply** various techniques for digital logic fundamental and simplification (C3, PLO2) • **Solve** problems relating to combinational or sequential logic circuits (C3, PLO3)			
Synopsis	This course emphasizes on the fundamental of digital electronics. The course provides an in-depth study of the principles and applications of digital systems. It is designed to teach students the theory of digital electronics, the logic implementation of modules required for digital systems.			
Main Reference	1. Neal S. Widmer, Gregory L. Moss, Ronald J. Tocci (2018). Digital Systems Principles and Applications 12th Edition. Pearson Education Limited. (ISBN 10: 129-2-16200-7).			
Additional References	1. Thomas L. Floyd (2016). Digital Fundamentals, Global Edition 11th Edition. Pearson Education Limited. (ISBN 10: 129-2-07598-8).			

Course Title	**Statistics for Engineers**		Semester	3
Course Code	BKB21103		Credit Hours	3
Pre-requisites	Nil			
Total SLT	123 Hours			
Face to Face (F2F)	30.5 Hours	**Non Face to Face (NonF2F)**	92.5 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Describe** the fundamentals concepts of probability and random variables (C2, PLO1) • **Apply** the fundamental concepts of random variables to perform statistical inference (C3, PLO1) • **Identify** the appropriate statistical model that can be used to solve an engineering problem (C4, PLO2) • **Synthesize** a test statistic to determine the occurrence or not of an event (C6, PLO2)			
Synopsis	This course introduces two key notions in statistics for the engineering student. The first notion is that of fundamentals of statistics: probability, random variables, continuous and discrete densities and characteristic measures. The second notion is that of applications of statistics: sampling theory, estimation (point-wise, intervalwise) and its theories, and hypothesis testing (tests, detection) and its theories.			
Main Reference	1. Wasserman, Larry. All of statistics: a concise course in statistical inference. Springer Science & Business Media, 2013.			
Additional References	1. Kay, Steven M. Fundamentals of statistical signal processing: estimation theory. Prentice Hall PTR, 1993. 2. Kay, Steven M. Fundamentals of statistical signal processing: detection theory. Prentice Hall PTR, 1998.			

Course Title	**Engineering Drawing and CAD**		Semester	3
Course Code	BKB20403		Credit Hours	3
Pre-requisites	Nil			
Total SLT	122 Hours			
Face to Face (F2F)	32 Hours	**Non Face to Face (NonF2F)**	90 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	100%	Final Examination	0%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Interpret** technical drawings as a medium for engineering communications (C2, PLO2) • **Produce** engineering drawing accurately and efficiently (C3, PLO3) • **Produce** a 2D or 3D technical drawing using CAD software (P4, PLO5)			
Synopsis	This course is designed to teach engineering drawing to the students using Computer-Aided Design (CAD) software. This course leads students to an understanding of engineering drawing. The students also will be given exposure to use CAD software for exercising their skills and knowledge to complete 2D and 3D drawings by using AutoCAD.			
Main Reference	1. Omura, G. & Benton, B. (2018). Mastering AutoCAD 2019 and AutoCAD LT 2019. Indianapolis, Indiana: Autodesk Official Press/Sybex.			
Additional References				

Course Title	**Basic Electrical Lab**		Semester	3
Course Code	BKB20502		Credit Hours	2
Pre-requisites	BKB10203 Circuit Theory 1			
Total SLT	82 Hours			
Face to Face (F2F)	31 Hours	**Non Face to Face (NonF2F)**	51 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	100%	Final Examination	0%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Apply** essential resistor, capacitor and inductor in series and parallel connection with the appropriate SI unit (C3, PLO1) • **Apply** electronic lab equipment to determine AC and DC power supply, measure voltage, current and frequency (C3, PLO1) • **Construct** the electronics and electrical circuits on PCB layout (C3, PLO3) • **Investigate** the AC and DC circuit by applying AC and DC circuits theorem (C4, PLO4) • **Display** the concept of DC transients for RL and RC circuit including the behaviour and transient analysis (P4, PLO5)			
Synopsis	This course is aimed for students to acquire skills to expose students to safety and health procedure, apply electronics lab equipment and demonstrate the operation of electronics equipment. Student will also be exposed to the methods of wiring and test electrical circuits.			
Main Reference	1. Fernandez-Canque, Hernando Lautaro. (2017) Analog electronics applications : fundamentals of design and analysis. CRC Press/Taylor & Francis Group.			
Additional References	1. R.S. Figliola, D.E. Beasley (2011) Theory and Design for Mechanical Measurements. 5th Edition. John Wiley & Sons, Inc. 2. A.S. Morris (2001) Measurement and Instrumentation Principles. 3rd Edition. Butterwoth Heinmann.			

Course Title	**Mathematics For Engineers 3**		Semester	3
Course Code	BKB20603		Credit Hours	3
Pre-requisites	BKB10603 Mathematics for Engineers 2			
Total SLT	120 Hours			
Face to Face (F2F)	44 Hours	**Non Face to Face (NonF2F)**	76 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Solve** problems related to vector geometry (C3, PLO1) • **Apply** vector calculus theorems to solve engineering analytical problem (C4, PLO2) • **Apply** various numerical techniques to solve engineering problems (C4, PLO2)			
Synopsis	This course will cover the analytical knowledge and techniques in preparing students to apply them to other scientific and engineering principles. This topic has been designed to enable students to use vector geometry, vector calculus and numerical analysis to model and solve engineering problems at a higher level			
Main Reference	1. J.O. Bird. (2017). Higher Engineering Mathematics, Eighth Edition, London ; New York : Routledge, Taylor & Francis Group, 2017]			
Additional References	1. Kiusalaas, J. (2010). Numerical methods in engineering with Python. (2nd Ed). New York: Cambridge University Press. [TA345.K58 2010] 2. Spiegel, M.R. (2009). Schaum's Outline Vector analysis and an introduction to tensor analysis. New York: McGraw-Hill. [QA433. S67 2009]			

SEMESTER 4

Course Title	**Electronic Circuits**		Semester	4
Course Code	BKB20703		Credit Hours	3
Pre-requisites	BKB10303 Electronic Devices			
Total SLT	120 Hours			
Face to Face (F2F)	30 Hours	**Non Face to Face (NonF2F)**	90 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Apply** knowledge of mathematics and electronics engineering technology to investigate the important parameters of BJT, JFET, cascaded amplifier circuits and op amp circuits (C3, PLO1) • **Characterize** the important parameters of BJT, JFET, cascaded amplifier circuits and op amp circuits (C4, PLO2) • **Investigate** the performance of BJT, JFET, cascaded amplifiers and op amp circuits (C5, PLO4)			
Synopsis	Electronics Circuit is aimed to expose students to identify, analyze, investigate, and design amplifier circuits using BJT and FET. The operations of these circuits is analyzed under the influenced of input frequency, therefore frequency response will also be covered.			
Main Reference	1. Robert L. Boylestad & Louis Nashelsky. (2014.) Electronic Devices and Circuit Theory. 11th Edition: Pearson Prentice Hall. [TK7867 .B69 2013]			
Additional References	1. Thomas L. Floyd (2009). Electronic Fundamentals: Circuits, Devices and Applications, 8th Edition: Prentice Hall. [TK7816 .F57 2010]			

Course Title	**Electrical Machines And Drives**		Semester	4
Course Code	BKB20803		Credit Hours	3
Pre-requisites	BKB20103 Circuit Theory 2			
Total SLT	120 Hours			
Face to Face (F2F)	44 Hours	**Non Face to Face (NonF2F)**		76 Hours
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Analyse** magnetic circuit, magnetic properties and classification of magnetic material (C4, PLO2) • **Investigate** the construction, and operation of rotating machines (C5, PLO4) • **Analyse** the equivalent circuit, construction and operation of rotating machines (C4, PLO2) • **Analyse** the torque- speed relationship of rotating machines (C4, PLO1) • **Explain** the operation principles of various types of drives (C2, PLO1)			
Synopsis	Rotating machines are the workhorse of industries whether manufacturing industries, services industries or electrical power producers. They are also found in numerous home and domestic appliances. The dual nature of rotating machine i.e it can operate both as a motor as well as a generator increases its significance. Most rotating machines are equipped with Drive – a control circuit or device that can regulate or control their speed and torque. Knowledge of the working principles of the machines and methods of controlling them are essential for installation, servicing, maintenance and upgrading or designing of equipment or product that utilize these machines.			
Main Reference	1. Theodore Wildi. (2009), Electrical machines, drives and Power System, 6/E. Pearson Education India.			
Additional References	1. P.C Sen , N.K.DE. (2010), Electric Drives, PHI, New Delhi. 2. Austin Hughes. (2008), Electric motor and drives, Newnes U.K. 3. S. J. Chapman. (2005), Electric Machinery Fundamentals, McGraw-Hill, New York			

Course Title	**Microcontroller And Interfacing Systems**		Semester	4
Course Code	BKB20904		Credit Hours	4
Pre-requisites	Nil			
Total SLT	169 Hours			
Face to Face (F2F)	59 Hours	**Non Face to Face (NonF2F)**	110 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Express** the fundamental of microcontroller based system (C2, PLO2) • **Determine** microcontroller architecture and inputs/outputs (I/O) of microcontroller based system (C4, PLO2) • **Analyse** correct hardware and software design procedures to solve specific engineering problems (P4, PLO5) • **Apply** methods and tools of programming for microprocessor/microcontroller systems (C3, PLO11)			
Synopsis	This course provides the student with the fundamental on microcontroller system architecture and interfacing device. Student will be exposed to the hardware and software design for microcontroller system. They apply the appropriate design procedures and testing to proof the solution in system design.			
Main Reference	1. Sepehr Naimi, Sarmad Naimi, Muhammad Ali Mazidi, "The AVR Microcontroller and Embedded Systems Using Assembly and C: Using Arduino Uno and Atmel Studio", Pearson Education, 2017. 2. Simon Monk, "Programming Arduino: Getting Started with Sketches", McGraw Hill, 2016.			
Additional References	1. Zulkifli Mahmoodin, "Learning Arduino, From Zero to Hero", Cerdik Publications, 2017.			

Course Title	**Electronics Lab**		Semester	4
Course Code	BKB21002		Credit Hours	2
Pre-requisites	BKB10303 Electronic Devices			
Total SLT	82 Hours			
Face to Face (F2F)	31 Hours	**Non Face to Face (NonF2F)**	51 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	100%	Final Examination	0%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Build** the circuit configuration for certain electronic devices application of diode, Zener diode, Bipolar Junction Transistor (BJT), Junction Field Effect Transistor (JFET), and Operational Amplifier (Op-Amp) (C6, PLO2) • **Characterize** the electrical properties of electronic devices of diode, Zener Diode, BJT, JFET and Op-Amp (C3, PLO4) • **Evaluate** the electrical performance of electronic devices with certain circuit configuration of diode, Zener Diode, BJT, JFET and Op-Amp (P4, PLO5)			
Synopsis	Electronic devices are the important components for the construction of electronics systems. The characterization and the measurement of the electrical performance of electronics is thus crucial in order to fully understand how the electronic devices behave and operate. For this course, some of the important electronic devices namely diode, Zener dioder, bipolar junction transistor (BJT), junction field effect transistor (JFET) and operational amplifier (Op-Amp) are characterized and measured to obtain their characteristic or electrical performance.			
Main Reference	1. Robert L. Boylestad & Louis Nashelsky. (2014.) Electronic Devices and Circuit Theory. 11th Edition: Pearson Prentice Hall. [TK7867 .B69 2013] 2. Thomas L. Floyd (2009). Electronic Fundamentals: Circuits, Devices and Applications, 8th Edition: Prentice Hall. [TK7816 .F57 2010]			
Additional References				

Course Title	**Communication System**		Semester	4
Course Code	BKB30303		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	30 Hours	**Non Face to Face (NonF2F)**	90 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Identify** and demonstrate the understanding of communication system elements (C4, PLO1) • **Evaluate** and determine the needs for the importance of modulation / demodulation and coding (C4, PLO1) • **Investigate** the principle/operation bandwidth requirements in the commercial and industrial application (C4, PLO3) • **Investigate** and evaluate communication signals in time and frequency domain and the correlation with noise and its solutions (C3, PLO3)			
Synopsis	The course introduces students to analogue and digital communication systems. Representations of signals in time and frequency domains are reviewed. Various modulation techniques including amplitude, angle, pulse and digital modulation are covered and the performance of the systems in the presence of the noise is examined. Teaching approach will incorporate lectures, reading assignments, small projects/case study and etc.			
Main Reference	1. Rodger E. Ziemer “Principles of Communications Systems”, Modulation and Noise, 7th ed, Wiley, 2014 (TK5101 .Z57 1990 2. John Proakis and Masoud Salehi, “Communication Systems Engineering”, 2nd ed Pearson, 2014 (TK5101 .P75 2002) 3. Roy Blake, Electronic Communication Systems, 2nd ed. DELMAR 2001 4. Gary M. Miller,”Modern Electronic Communication”,6th ed, Prentice Hall,1998. (TK5101 .B43 2008) 5. B.P.Lathi,” Modern Digital and Analog Communication Systems”,3th ed, Oxford University Press,1998 (TK5101 .L333 1998)			
Additional References				

SEMESTER 5

Course Title	**Power Systems**		Semester	5
Course Code	BKB30103		Credit Hours	3
Pre-requisites	BKB20803 Electrical Machines and Drives			
Total SLT	125 Hours			
Face to Face (F2F)	45 Hours	**Non Face to Face (NonF2F)**	80 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Describe** the fundamental of power system networks (C2, PLO4) • **Perform** analysis of three phase power network using per unit system (C4, PLO11) • **Investigate** the various types of energy generation and compare advantages and disadvantages of each generation (C4, PLO4) • **Discuss** both AC and DC transmission and distribution lines of power systems (C3, PLO4)			
Synopsis	This course introduces the fundamental of electrical power system which are the overview of power system, generation, transmission lines, distribution, representation of components, basic power system analysis.			
Main Reference	1. De La Rosa, Francisco C, Harmonics, Power Systems, and Smart Grids, 2nd Edition, CRC Press / Taylor & Francis Group 2015, ISBN: 9781482243833 (hbk.); 1482243830.			
Additional References	1. Allen J. Wood, Bruce F. Wollenberg, Gerald B. Sheble, Power Generation, Operation and Control, 3rd Edition , John Wiley and Sons, 2013, ISBN: 978-0-471-79055-6. 2. B. M. Weedy, B. J. Cory, N. Jenkins, J. B. Ekanayake, G. Strbac, Electric Power Systems, 5th Edition, John Wiley and Sons, 2012, ISBN: 978-0-470-68268-5. 3. Juergen Schlabbach, Power System Engineering: Planning, Design, and Operation of Power Systems and Equipment, 2nd Edition John Wiley and Sons, 2014, ISBN: 978-3-527-41260-0.			

Course Title	**Electrical Power Lab**		Semester	5
Course Code	BKB30202		Credit Hours	2
Pre-requisites	Nil			
Total SLT	82 Hours			
Face to Face (F2F)	31 Hours	**Non Face to Face (NonF2F)**	51 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	100%	Final Examination	0%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Build** different rectification and conversion circuits to suit different voltage levels and forms (C6, PLO1) • **Investigate** the construction, synchronization and operation of rotating machines to supply various loads in power system (C4, PLO4) • **Assess** the efficiency and voltage regulation of short and medium transmission lines by measuring the main line parameters (C3, PLO2) • **Evaluate** the performance of electrical equipments with certain configuration in simulated environment (P4, PLO5)			
Synopsis	The electrical power system consists of three main parts, generation, transmission and distribution. Within these parts, there are many devices involved to transform the energy from one form to another to suit the end user requirements. This course presents lab experiments as well simulation works to synchronize generator sets to supply specific load. The conversion between AC and DC voltage is investigated through the inverter and rectification process. This course also measures and simulates the main parameters of transmission lines by assessing the voltage regulation and efficiency.			
Main Reference	1. Robert L. Boylestad & Louis Nashelsky. (2014.) Electrical Devices and Circuit Theory. 11th Edition: Pearson Prentice Hall. [TK7867 .B69 2013] 2. Thomas L. Floyd (2009). Electronic Fundamentals: Circuits, Devices and Applications, 8th Edition: Prentice Hall. [TK7816 .F57 2010]			
Additional References				

Course Title	**Power Electronics**		Semester	5
Course Code	BKB30403		Credit Hours	3
Pre-requisites	BKB20703 Electronic Circuits			
Total SLT	120 Hours			
Face to Face (F2F)	30 Hours	**Non Face to Face (NonF2F)**		90 Hours
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Demonstrate** the knowledge of power electronics devices as well as the methods of implementing the devices in electrical system (C3, PLO3) • **Analyse** the principle and operation of AC-to-DC and DC-to-AC converters (C4, PLO3) • **Analyse** the principle and operation of DC-to-DC and AC-to-AC converters (C4, PLO4) • **Examine** the power electronics applications in electrical systems (C4, PLO4)			
Synopsis	The course introduces students to power electronic devices and circuits. Students also exposed to circuit analysis techniques, circuit understanding and design capabilities for use in ac and dc power converters. Teaching approach will incorporate lectures, reading assignments, small projects/case study and etc.			
Main Reference	1. Muhammad H. Rashid, 2018, Power Electronics Handbook, 4th Edition, Butterworth-Heinemann (Elsevier)			
Additional References	1. Muhammad H. Rashid, 2014, Power Electronic: Circuits, Devices and Application, 4th ed. Prentice Hall (Library Ref No.TK7881.15 .R37) 2. Lander C.W., 1993, 'Power Electronics-Third Edition', McGraw-Hill International (UK) Limited, England (TK7881.15 .L36) 3. Mohan, Undeland, Robbins, 2003, 'Power Electronics-Converters, Applications and Design', John Wiley & Sons, USA (TK7881.15.M64)			

Course Title	**Integrated Design Project 1**		Semester	5
Course Code	BKB30502		Credit Hours	2
Pre-requisites	Minimum 65 SLT Credit			
Total SLT	87 Hours			
Face to Face (F2F)	24 Hours	**Non Face to Face (NonF2F)**	63 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	100%	Final Examination	0%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Develop** detailed design and project proposal for project approval (C5, PLO3) • **Produce** project proposal report complete with design and analysis, material selection and project budget (C5, PLO7) • **Defend** project proposal and implementation (A6, PLO10) • **Produce** a conceptual design in log progress report (A5, PLO9) • **Produce** a detail planning for the project design and implementation (C5, PLO11)			
Synopsis	In this subject, students will be exposed to consequences of desigining any electrical product and system in a teamwork and they must follow the regulations on the safety. This course is essential as it introduces electrical engineering project perspective from conceptual through practical frameworks. It provides a formal mechanism for dealing with the design and implementation of product or installation of electrical services. It is the capstone project for the electrical engineering programme. Aspects on budget, marketing and end user perspectives are also looked into.			
Main Reference	1. Hoffman, H.F., The Engineering Capstone Course: Fundamentals for Students and Instructors. Springer, 2014. 2. Ralph Ford , Chris Coulston, Design for Electrical and Computer Engineers 1st Edition, McGraw-Hill Education, 6 Aug 2007.			
Additional References				

SEMESTER 6

Course Title	**Electromagnetic Theory**		Semester	6
Course Code	BKB30603		Credit Hours	3
Pre-requisites	BKB30103 Power Systems			
Total SLT	120 Hours			
Face to Face (F2F)	44 Hours	**Non Face to Face (NonF2F)**	76 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Apply** vector analysis methods related to electromagnetism (C3, PLO1) • **Solve** problems of the static electric field using vector analysis methods (C3, PLO2) • **Solve** problems of the static magnetic field using vector analysis methods (C3, PLO2) • **Determine** magnetic force and induced electromotive force using vector analysis methods (C3, PLO2)			
Synopsis	This course unit develops the ability to describe mathematically for electromagnetic waves, as well as to balance out the student's technical skills and soft skills.			
Main Reference	1. F. T. Ulaby, Fundamental of Applied Electromagnetics, Media Edition, Prentice Hall 2004.			
Additional References	1. Gowri, R., Electromagnetic Fields & Waves, New Delhi: S.K. Kataria & Sons, 2015			

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Course Title	**Engineers In Society**		Semester	6
Course Code	BKB30702		Credit Hours	2
Pre-requisites	Nil			
Total SLT	81 Hours			
Face to Face (F2F)	30 Hours	**Non Face to Face (NonF2F)**	51 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Identify** ethical and professionalism issues in engineering (A4, PLO6) • **Evaluate** the decisions related to contemporary issues from a balanced ethical and engineering standpoint (C4, PLO7) • **Explain** both oral and written communication functions with a solid and competent ethical and engineering background (C5, PLO8)			
Synopsis	This course will cover topics on the link between Engineers and Society, Ethical and Moral Standards demanded in Society, Health and Safety Issues, Professional Practice, Legal Issues, Communication Skills and Management.			
Main Reference	1. C.E. Harris, M.S. Pritchard, M.J. Rabins, Engineering Ethics: Concepts and Cases, 7th Edition, Wadsworth, Cengage Learning, 2019 2. National Academy of Engineering, The Engineer of 2020: Visions of Engineering in the New Century, 3rd Edition, National Academics Press, 2018			
Additional References				

Course Title	**Integrated Design Project 2**		Semester	6
Course Code	BKB30804		Credit Hours	4
Pre-requisites	BKB30502 Integrated Design Project 1			
Total SLT	167 Hours			
Face to Face (F2F)	20 Hours	**Non Face to Face (NonF2F)**	147 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	100%	Final Examination	0%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Develop** detail project design via SDLC stages (C6, PLO3) • **Interpret** the detail project using by applying modern tool usage (C5, PLO5) • **Produce** a conceptual design in log progress report (A5, PLO9) • **Defend** detail project design, implementation, project planning and project costing (A5/C5, PLO10/PLO11)			
Synopsis	In this subject, students will be exposed to consequences of desigining any electrical product and system in a teamwork and they must follow the regulations on the safety. This course is essential as it introduces electrical engineering project perspective from conceptual through practical frameworks. It provides a formal mechanism for dealing with the design and implementation of product or installation of electrical services. It is the capstone project for the electrical engineering programme. Aspects on budget, marketing and end user perspectives are also looked into.			
Main Reference	1. Hoffman, H.F., The Engineering Capstone Course: Fundamentals for Students and Instructors. Springer, 2014. 2. Ralph Ford , Chris Coulston, Design for Electrical and Computer Engineers 1st Edition, McGraw-Hill Education, 6 Aug 2007			
Additional References				

Course Title	**Control System Analysis**		Semester	6
Course Code	BKB30903		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	30 Hours	**Non Face to Face (NonF2F)**	90 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Analyze** the fundamental theory of control systems (C4, PLO1) • **Compare** the methodology of fundamental control and modern control (C4, PLO4) • **Solve** Control System problems and recommend possible solutions (P6, PLO5) • **Modifies** the concept of feedback and feedforward servo design equipment (P7, PLO5) • **Apply** the concept of selection and application of State Space Algorithm as tools for system (C3, PLO4)			
Synopsis	This course covers the role of control system and its applications as widely used in industries. It gives the main types of control analysis and design to relate to the real world engineering problems using Engineering Software package. This includes the Introduction to Mathematical Model, System Response and System Stability, Performance Specification of first order and second order systems, Frequency plots and Root Locus analysis, Modern control technique and application. It also provides the basis for further in more specialist areas of modern control systems.			
Main Reference	1. Norman S. Nise, Control Systems Engineering, 7th Edition, Wiley, 2015. 2. Richard C. Dorf & Rober H. Bishop, Modern Control Systems, 12th Edition, Pearson, 2011. 3. M. Gopal, Control Systems, 4th Edition, McGraw Hill, 2012.			
Additional References				

Course Title	**Industrial Safety and Health**		Semester	6
Course Code	BKB31002		Credit Hours	2
Pre-requisites	Nil			
Total SLT	81 Hours			
Face to Face (F2F)	30 Hours	**Non Face to Face (NonF2F)**	51 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	100%	Final Examination	0%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Apply** current health and safety legislation and regulation as the basis for safe work system at workplace (C3, PLO6) • **Demonstrate** awareness and consideration for health, safety, and environment, legal, societal and cultural issues in managing the OSH management system (C3, PLO4) • **Identify** hazard and systems for the risk assessment and risk control (C4, PLO4) • **Investigate** safe working procedures and environment to industrial operations (C4, PLO8)			
Synopsis	This module contains application of ethics in engineering and factors that need to be considered in relation to occupational safety and health organization, as well as supply and use of electrical and electronic equipment. This module also deals with aspects of the International Safety and Quality Control standards for electronics equipment and the legal framework surrounding them. Bringing safety and health knowledge to the students will enhance their value in the human resource market after completing their study. This module is in line with the government effort to promote safety and health at the workplace.			
Main Reference	1. Occupational Safety & Health Act & Regulations. (2014). MDC Publishers. 2. Factories & Machinery Act with Regulation. (2014). MDC Publishers.			
Additional References				

INTER-SEMESTER 6 AND 7

Course Title	**Industrial Training**		Semester	Inter-semester 6 and 7
Course Code	WIB 36005		Credit Hours	5
Pre-requisites	Minimum 80 SLT Credit; Minimum 2.00 CGPA			
Total SLT	400 Hours			
Face to Face (F2F)	326 Hours	**Non Face to Face (NonF2F)**		74 Hours
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	100%	Final Examination	0%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Demonstrate** the ability to work professionally with leadership quality and group work skills with consideration on safety and health during the training (A3, PLO10) • **Analyze** engineering knowledge and problem solving skills in performing assigned task during the Industrial Training (C4, PLO1) • **Follow** responsibly assigned task with minimum supervision and in accordance to the quality required (A3, PLO9) • **Appraise** work experience gained on skills and knowledge during the Industrial Training in oral presentation and writing (C4, PLO6)			
Synopsis	This course provides students a venue to apply their knowledge and skills acquired during their studies. Students will be placed for 10 weeks in relevant industry to expose with all aspects of working environment especially towards to be competent engineer. The experience is essential to ensure the student is ready to work after completing his/her study. The student is also required to compile the experience gained by writing a formal report and present the report adequately.			
Main Reference	1. E-Industrial Training Student Logbook. Accessible by student through: INTRA Management System (IMSV1): Student Portal at (http://intra.unikl.edu.my) or INTRA Management System (IMSV2): (https://ecitie2.unikl.edu.my/); effective from July 2021 semester 2. INTRA Management System: Admin Portal. Accessible by INTRA Office at institute through: (https://imsadmin.crm5.dynamics.com) or (https://ecitie2.unikl.edu.my/); effective from July 2021 semester 3. INTRA Policy 4. INTRA Handbook			
Additional References				

SEMESTER 7

Course Title	**High Voltage Engineering**		Semester	7
Course Code	BKB40103		Credit Hours	3
Pre-requisites	BKB30603 Electromagnetic Theory			
Total SLT	125 Hours			
Face to Face (F2F)	45 Hours	**Non Face to Face (NonF2F)**		80 Hours
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Infer** the concept of high voltages and high currents generation and measurements in high voltage engineering system (C3, PLO1) • **Analyze** high voltage transient or surge travelling waves in electrical power system (C4, PLO2) • **Investigate** insulation coordination and their application in high voltage engineering system (C4, PLO2) • **Compare** different high voltage testing techniques of electrical apparatus according to international standards (C4, PLO4)			
Synopsis	High voltage engineering is an important area in power system. The students will be exposed to the concept and theory of insulation breakdown. Key principles of high voltage engineering and insulation coordination as well as insulation testing (including high voltage generators) are also covered. Lightning overvoltages will be discussed along with switching surges. Various types of electrical discharges, some of which are used for condition monitoring applications, are also discussed. The student is expected to be able to communicate effectively as well as to design selected high voltage components and subsystems.			
Main Reference	1. "High Voltage Engineering" by Naidu, M.S and Kamaraju, V., Tata McGraw-Hill, 2017.			
Additional References	1. High Voltage Engineering by Kuffel, E and Abdullah, M., Pergamon Press, Oxford, latest edition. 2. Extra High Voltage AC Transmission Eng. By Begamudre, R.D, Wiley Eastern, latest edition. 3. Insulation Coordination in HV Electric Power System by Diesendorf, W. Butterworth, latest edition. 4. High Voltage Technology by Alston, LL, Oxford University Press, Oxford, latest edition.			

Course Title	**Power System Analysis**		Semester	7
Course Code	BKB40203		Credit Hours	3
Pre-requisites	BKB30103 Power Systems			
Total SLT	123 Hours			
Face to Face (F2F)	44.5 Hours	**Non Face to Face (NonF2F)**	78.5 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Evaluate** the relevant methods in solving the non-linear power flow analysis problems using Gauss Seidel, Netwon Rahpson and Fast Decoupled techniques (C5, PLO2) • **Analyse** the balanced and unbalanced faults in power system using symmetrical component (C4, PLO2) • **Analyse** the stability assessment of the synchronous machine using equal area criterion (C4, PLO2) • **Design** a complete Power System network using a computational technique to evaluate the power system problems (C6, PLO3) • **Construct** the power network models using several simulation tools (P7, PLO5)			
Synopsis	This course provides a general knowledge and understanding on power flow analysis, fault or short circuit analysis and stability analysis in power system. The load flow studies will be done using several iterative techniquess. Next, other topics include balanced and unbalanced fault analysis including symmetrical component theory and its applications. Lastly, transient stability analysis in power system will be taught considering the derivation of the swing equation and analysing the stability assessment of the power system after fault occurrence using the equal area criteria. This course also involves modelling and analysing the power system using several software such as DigSILENT and PowerWorld Simulator for power flow, fault and stability analysis.			
Main Reference	1. Alexander C. K. and Sadiku M.N.O., Fundamentals of Electric Circuits 6th Edition. McGraw Hills, 2017. [TK454.A452.2017] 2. Bird J., Electrical Circuit Theory and Technology Sixth Edition, Taylor & Francis Group, 2017. 3. Floyd T.L., Principles of Electric Circuits Conventional Current Version 9th Edition. Pearson Higher Ed, USA, 2013			
Additional References				

Course Title	**Electrical Energy Utilisation**		Semester	7
Course Code	BKB40303		Credit Hours	3
Pre-requisites	BKB30103 Power Systems			
Total SLT	123 Hours			
Face to Face (F2F)	30.5 Hours	**Non Face to Face (NonF2F)**	92.5 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Analyse** the energy management and standards of efficient electrical energy utilization (C4, PLO1) • **Investigate** solution to problems related to demand side management and economic aspect of efficient energy equipment (C5, PLO4) • **Perform** energy saving solution evaluation based on electrical energy audits (P4, PLO5)			
Synopsis	This course provide students with knowledge and skill of an efficient and sustainable energy management. By improving energy efficiency in any electrical system, the energy costs can be reduced. The reduction in energy needs can help to control the greenhouse gases emissions. The knowledge and skill in this course are fundamental for the student to become future electrical energy manager and electrical engineer.			
Main Reference	1. Ian M. Shapiro, “Energy Audits and Improvements for Commercial Buildings”, Wiley-Interscience, 2016. 2. Frank Kreith and D. Yogi Goswami, Energy Management and Conservation Handbook, 2nd Edition, CRC Press, 2016			
Additional References	1. Gilbert M. Masters, “Renewable and Efficient Electric Power Systems”, Wiley-Interscience, 2004. 2. Wayne C. Turner, “Energy Management Handbook”, Fairmont Press Inc, 2005. 3. The Energy Efficiency and Conservation Guidelines Part 1: Electrical Energy-use Equipment, Kementerian Tenaga, Teknologi Hijau dan Air, 2011			

Course Title	**Engineering Final Year Project 1**		Semester	7
Course Code	BKB49803		Credit Hours	3
Pre-requisites	Minimum 90 SLT Credit			
Total SLT	121 Hours			
Face to Face (F2F)	30 Hours	**Non Face to Face (NonF2F)**	91 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	100%	Final Examination	0%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Investigate** the impact of engineering parameters to determine the engineering behavior of the system or equipment (C5, PLO4) • **Perform** critical review to identify the pros and cons of the state of the art of the research (C4, PLO12) • **Analyse** the research gap using the fundamental engineering theory (C4, PLO2) • **Propose** a specific research methodology to solve the research problem (C5, PLO3) • **Propose** suitable tools and techniques to analyse and solve complex engineering problem (C5, PLO5) • **Produce** a feasible project proposal (C5 PLO1) • **Demonstrate** the abilities to plan and work effectively (C3, PLO11) • **Explain** the project proposal inclusive of specified standard format (P3, PLO10)			
Synopsis	This course comprises of research abstract, literature review, problem statement, objectives and appropriate methodology to enhance the student's abilities in solving complex engineering problems. Students present their proposals and produce proposal reports individually.			
Main Reference	1. UniKL Engineering Final Year Project (EFYP) Handbook 4th Edition (2019).			
Additional References	1. Leedy, P.D. & Ormrod, J.E. (2014) Practical Research: Planning & Design. Pearson-Prentice Hall			

SEMESTER 8

Course Title	**Power System Control**		Semester	8
Course Code	BKB40403		Credit Hours	3
Pre-requisites	BKB30903 Control System Analysis			
Total SLT	120 Hours			
Face to Face (F2F)	44 Hours	**Non Face to Face (NonF2F)**	76 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	40%	Final Examination	60%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Evaluate** the relevant methods in solving of control problem using Routh Hourwith, PID controller, Bode Plot and Nyquist (C5, PLO2) • **Analyze** the model of amplifier, exciter, generator, sensor, excitation system stabilizer using rate feedback and PID controller, load frequency control and modern control application (C4, PLO2) • **Analyze** the fundamental of generator control loop and authomatic generation control in power operation (C4, PLO2) • **Design** a control power operation using several technique to evaluate the control operation problem (C6, PLO3) • **Construct** the control models using several simulation tools (P7, PLO5)			
Synopsis	This course provides the control of active and reactive power in order to keep the system in the steady state. It gives the main types of control analysis and design to relate to the real world engineering problems using Engineering Software package. This includes a brief review of fundamental of linier control system analysis, Some of the concepts of feedback control system, load frequency control, the role of automatic generation control (AGC) in power operation, basic generator control loops and introduction of modern control application.			
Main Reference	1. Richard C.Dorf, Robert H Bishop , Modern Control System 12th Ed, Pearson , 2011 2. M Gopal , Control Systems 3rd Ed , Mc Graw Hill , 2008 3. Norman S. Nise , Control Systems Engineering 6th Ed, Wiley , 2010 [0-471-44577-0]			
Additional References				

Course Title	**Engineering Final Year Project 2**		Semester	8
Course Code	BKB49905		Credit Hours	5
Pre-requisites	BKB49803 Engineering Final Year Project 1			
Total SLT	205 Hours			
Face to Face (F2F)	30 Hours	**Non Face to Face (NonF2F)**	175 Hours	
Program	**Bachelor of Electrical Engineering with Honours**			
Assessment Methods	Coursework	100%	Final Examination	0%
Course Learning Outcomes	Upon completion of the course, the students should be able to: • **Analyse** complex engineering problem using the fundamental engineering theory (C4, PLO2) • **Analyse** the research gap using the fundamental engineering theory (C4, PLO12) • **Apply** the project using appropriate techniques and tools (C4, PLO5) • **Explain** detailed engineering knowledge with an appropriate mathematical and science principle (C6, PLO1) • **Evaluate** the impact of engineering parameters to determine the behavior of the system or equipment and to draw essential engineering findings (C5, PLO4) • **Produce** a project report with a detailed engineering knowledge according to the specified standard format (C6, PLO12) • **Manage** the project to solve complex engineering problem (C5, PLO11) • **Defend** project effectively (A4, PLO10)			
Synopsis	This course will determine student ability to apply the engineering knowledge and practice. Students are required to conduct research analysis, discuss and interpret research findings, and draw conclusions and possible recommendations. Students are also required to present their project outcomes.			
Main Reference	1. UniKL Engineering Final Year Project (EFYP) Handbook 4th Edition (2019)			
Additional References	1. Leedy, P.D. & Ormrod, J.E. (2014) Practical Research: Planning & Design. Pearson-Prentice Hall			

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FOREIGN LANGUAGE 1

Course Title	Mandarin 1		Semester	
Course Code	WMD10101		Credit Hours	1
Pre-requisites	Nil			
Total SLT	40 Hours			
Face to Face (F2F)	30 Hours	**Non Face to Face (NonF2F)**	10 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • Use words, phrases and sentences in Pinyin system and/or Chinese characters. (A1, MQFLO C3C)). • Practice basic Chinese language for daily communication within the limits of vocabularies and sentence structures acquired in the course. (A2, MQFLO C3C) • Perform learned Chinese vocabularies, phrases or short sentences in limited contexts. (A2, MQFLO C3C).			
Synopsis	This course introduces the basic grammatical structures of Chinese sentences to acquire the basic oral and written communication skills. The contents of this course are Chinese writing system (including Pinyin), numbers, useful Chinese expressions to greet others, to introduce oneself and family members, date, time, food and beverages.			
Main Reference	Loi Hing Kee & Tan Hua An (2017). Learn Mandarin 1. Petaling Jaya: Cengage Learning Asia Pte Ltd.			
Additional References	1. Lai Siew Yoon, Tan Hua An & Tay Yang Lian (2013). Speak Chinese, An Introductory Course to the Chinese Language. Petaling Jaya: Cengage Learning Asia Pte Ltd. 2. Lai Siew Yoon & Lim Yoke Len (2010). Shenghuo Huayu, An Introductory Course to the Chinese Language. Singapore: Cengage Learning Asia Pte Ltd. 3. Yamin Ma & Xinying Li (2007). Easy Steps to Chinese. Beijing: Beijing Language & Culture University Press. 4. Zhongwei Wu (2010). Contemporary Chinese. Beijing: Sinolingua.			

Course Title	Arabic 1		Semester	
Course Code	WAD10101		Credit Hours	1
Pre-requisites	Nil			
Total SLT	40 Hours			
Face to Face (F2F)	25 Hours	**Non Face to Face (NonF2F)**	15 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes				
Synopsis				
Main Reference				
Additional References				

Course Title	French 1		Semester	
Course Code	WFD10101		Credit Hours	1
Pre-requisites	Nil			
Total SLT	40 Hours			
Face to Face (F2F)	28 Hours	**Non Face to Face (NonF2F)**	12 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes				
Synopsis				
Main Reference				
Additional References				

Course Title	Italian 1		Semester	
Course Code	WID10101		Credit Hours	1
Pre-requisites	Nil			
Total SLT	40 Hours			
Face to Face (F2F)	28 Hours	**Non Face to Face (NonF2F)**	12 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes				
Synopsis				
Main Reference				
Additional References				

Course Title	Korean Language 1		Semester	
Course Code	WKD10101		Credit Hours	1
Pre-requisites	Nil			
Total SLT	40 Hours			
Face to Face (F2F)	28 Hours	**Non Face to Face (NonF2F)**	12 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes				
Synopsis				
Main Reference				
Additional References				

Course Title	Spanish 1		Semester	
Course Code	WSD10101		Credit Hours	1
Pre-requisites	Nil			
Total SLT	40 Hours			
Face to Face (F2F)	28 Hours	**Non Face to Face (NonF2F)**	12 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes				
Synopsis				
Main Reference				
Additional References				

FOREIGN LANGUAGE 2

Course Title	Mandarin 2		Semester	4
Course Code	WMD10201		Credit Hours	1
Pre-requisites	Mandarin 1			
Total SLT	40 Hours			
Face to Face (F2F)	30 Hours	**Non Face to Face (NonF2F)**	10 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • Present Chinese words, phrases, short sentences about learned topics. (A2, MQFLO C3C) • Practice Chinese language for daily communication within the limits of vocabularies and sentence structures acquired in the course. (A2, MQFLO C3C). • Perform learned Chinese vocabularies, phrases or short sentences in various contexts. (A2, MQFLO C3C)			
Synopsis	This course introduces the basic grammatical structures of Chinese sentences in order to acquire the basic oral and written communication skills. The contents of this course are useful expressions in Mandarin to describe household objects, university facilities and activities, shopping and purchases, directions, locations, going to places and holiday activities.			
Main Reference	1. Loi Hing Kee, Tan Hua An (2018). Learn Mandarin 2. Petaling Jaya: Cengage LearningAsiaPteLtd. 2. Loi Hing Kee, Tan Hua An (2017). Learn Mandarin 1. Petaling Jaya: Cengage LearningAsiaPteLtd 3. Lai Siew Yoon, Tan Hua An, Tay Yang Lian. (2013). Speak Chinese, An Introductory Course to the Chinese Language. Petaling Jaya: Cengage Learning Asia Pte Ltd. .			
Additional References	OnlineReferences 1. Chinese lessons for Basic and Beginner Students https://www.freechineselessons.com/lessons/ 2. Contemporary Chinese. Beijing: Sinolingua Available from: http://www.yes-chinese.com/en/course/view.html?id=3691 3. Great Wall Chinese http://www.greatwallchin.			

Course Title	Arabic 2		Semester	
Course Code	WAD10201		Credit Hours	1
Pre-requisites	Nil			
Total SLT	40 Hours			
Face to Face (F2F)	25 Hours	**Non Face to Face (NonF2F)**	15 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes				
Synopsis				
Main Reference				
Additional References				

Course Title	French 2		Semester	
Course Code	WFD10201		Credit Hours	1
Pre-requisites	Nil			
Total SLT	40 Hours			
Face to Face (F2F)	28 Hours	**Non Face to Face (NonF2F)**	12 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes				
Synopsis				
Main Reference				
Additional References				

Course Title	Italian 2		Semester	
Course Code	WID10201		Credit Hours	1
Pre-requisites	Nil			
Total SLT	40 Hours			
Face to Face (F2F)	28 Hours	**Non Face to Face (NonF2F)**	12 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes				
Synopsis				
Main Reference				
Additional References				

Course Title	Korean Language 2		Semester	
Course Code	WKD10201		Credit Hours	1
Pre-requisites	Nil			
Total SLT	40 Hours			
Face to Face (F2F)	28 Hours	**Non Face to Face (NonF2F)**	12 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes				
Synopsis				
Main Reference				
Additional References				

Course Title	Spanish 2		Semester	
Course Code	WSD10201		Credit Hours	1
Pre-requisites	Nil			
Total SLT	40 Hours			
Face to Face (F2F)	28 Hours	**Non Face to Face (NonF2F)**	12 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes				
Synopsis				
Main Reference				
Additional References				

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CO-CURRICULUM

Course Title	Career Guidance 2		Semester	
Course Code	MPU3412		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	29 Hours	**Non Face to Face (NonF2F)**	51 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • Perform appropriate interpersonal skills. (A2, MQF LO 4) • Differentiate their self – concept and self – image which reflect their personalities. (A3, MQF LO 8) • Demonstrate ability to plan their future career and targets. (A3, MQF LO 9)			
Synopsis	This course is one of the co-curriculum modules offered to develop well-rounded individuals through involvement in social and community activities. Specifically, it enables students to understand the importance of career planning. It also promotes soft skills that can be applied in their future careers. Apart from that, it creates a better understanding about potential employers' expectations in job hunt.			
Main Reference	1. Annamaria, D.F. 2018. Narrative Interventions in Post-Modern Guidance and Career Counseling. Springer: New York.			
Additional References	1. Valerie, C.S, Jerome, R. & Laura, N. 2018. New Perspectives on Career Counseling and Guidance in Europe: Building Careers in Changing and Diverse Societies. Springer: New York			

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Course Title	Community Service 2		Semester	
Course Code	MPU3422		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	29 Hours	**Non Face to Face (NonF2F)**	51 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • Write a proposal for a community service projects (A2, MQF LO 9) • Organize a large scale or high impact community service project(s) (A4, MQF LO 8) • Demonstrate the benefits and values of organizing community service project(s), collaboration with other agency. (A4, MQF LO 4)			
Synopsis	This course provides opportunities for the students to enhance their skills in planning, organizing and implementing community service programmes and activities. This course also helps to build towering personalities among the students as they become more sensitive towards the environment other individuals or groups in a community.			
Main Reference	1. Shek, Daniel T.L, Hollister, Robert. 2017. Univeristy Social Responsiblity and Quality of Life. US: Springer. .			
Additional References	1. Christine M. Cress, Peter J. Collier & Vicki L. Reitenauer. 2013. Learning ThroughServing: A Student Guidebook for Service-Learning and Civic Engagement Across Academic Disciplines and Cultural Communities. US: Stylus. 2. Azizan Bahari. 2013. Bekerja Dengan Komuniti. Petaling Jaya: Pustaka Qarya. Pusat Transformasi Komuniti Universiti. 2013. Berilmu Berbakti 2012: Penglibatan Komuniti Untuk Penjanaan dan Perkongsian Ilmu. Serdang: Penerbit Universiti Putra Malaysia. 3. Saran Kaur Gill, Prabha Deri & Kamelia Shamsuddin. 2012. The Power of Community Engagement: A Selection of Inspiring Initiatives. Bangi: Penerbit Universiti Kebangsaan Malaysia.			

Course Title	Rakan Masjid 2		Semester	
Course Code	MPU3442		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	32 Hours	**Non Face to Face (NonF2F)**	48 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	1. Explain about the importance of religious programmes implemented in Malaysia; (A2, MQF LO 9) 2. Practice activities in relation to significant events in Islam; (A4, MQF LO 4) 3. Recognise the functions of agencies/bodies relevant to the development of Islam in Malaysia (A3, MQF LO 4)			
Synopsis	This course familiarises students with significant events in Islam and gives them the opportunity to organise activities in relation to these events. This course also explores Islamic institutions in Malaysia which serve different functions, including provision of Islamic counselling services.			
Main Reference	1. Zulkifli Mohamad al-Bakri (2015), Memperkasakan Pengurusan Masjid. Pustaka Cahaya Kasturi1.			
Additional References	1. Mohd Ismail Mustari, Bushrah Basiron & Azhar Muhammad .2013. Menginovasi Masjid Mensejahtera Ummah. UTM Press 2. Azman Ab Rahman. 2019. Tadbir urus pengurusan zakat bagi institusi masjid di Malaysia. Universiti USIM.			

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Course Title	Kor Siswa Siswi Pertahanan Awam 2 (Kor Sispa 2)		Semester	
Course Code	MPU3462		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	32 Hours	**Non Face to Face (NonF2F)**	48 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	1. Menerangkan ilmu pengetahuan dan kemahiran dalam pertahanan awam untuk membantu diri sendiri dan orang lain (A2,MQFLO4) 2. Mempamerkan nilai-nilai murni dan kemahiran kepimpinan serta kerja berpasukan dalam pertahanan awam (A3,MQFLO8) 3. Menjelaskan semangat kesedaran sivik, ketaatan dan cintakan negara serta penjagaan alam sekitar (A4,MQFLO8) 4. Mempraktikkan ketahanan fizikal, mental dan daya kerohanian yang seimbang (A5,MQFLO9)			
Synopsis	Kursus ini memfokuskan perbincangan tentang peranan dan fungsi Angkatan Pertahanan Awam dan mengaplikasi ilmu pengetahuan dalam pertolongan cemas, dan kawad kaki. Melalui aktiviti seperti ini, pelajar dapat membuat perancangan, perlaksanaan tugas, pertolongan kecemasan dan aktiviti kebakaran.			
Main Reference	1. Ahmad Zullaili Zamri & Shariff Harun (2018). Asas Pertahanan Awam. Oxford Fajar, Shah Alam			
Additional References	2. Kementerian Pendidikan Malaysia, Jabatan Pengajian Tinggi & Universiti Sains Islam Malaysia (2019). Panduan Pengurusan dan Latihan Kor Siswa Siswi Pertahanan Awam (Kor SISPA). Bandar Baru Nilai, Penerbit USIM			

Course Title	Sports Management 2		Semester	
Course Code	MPU3472		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	33 Hours	**Non Face to Face (NonF2F)**	47 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • Describes the rules & regulations for each sport (A3, MQF LO 9) • Organize a sports competition with knowledge on the rules, methods of playing, and judging the games involved (A4, MQF LO 8) • Demonstrate a healthy lifestyles. (A3,MQF LO 9).			
Synopsis	This course aims to enable students to enhance their understanding and skill in respective sports in term of games technique, rules, ruling and other aspects which are pertinent to the process of organizing sports competition. This course also aims to instil discipline among the students.			
Main Reference	1. Mark Nagel, Richard Southall (2019). Introduction to Sport Management: Theory and Practice. Kendall Hunt Publishing Company. 2. Anestis Fotiadis, Chris Vassiliadis (2020). Principles and Practices of Small-Scale Sport Event Management. IGI Global. 3. Trish Bradbury, OIan O'Boyle (2017). Understanding Sport Management: International Perspective. Routledge			
Additional References	1. Rusell Hoye, Matthew Nicholson, Aaron Smith, Bob Stewart & Hana Westerbeek (2012). Sport Management and Application 3rd edition. Routledge Taylor & Francis.			

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Course Title	Askar Wataniah 2		Semester	
Course Code	MPU3492		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	32 Hours	**Non Face to Face (NonF2F)**	48 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	1. Demonstrate leadership and team skills through WATANIAH activities (weapon usage, basic shooting and compass reading). (A2, MQF LO 8) 2. Practise actively in project (theoretically and practically about WATANIAH activities). (A5, MQF LO 8) 3. Apply appropriate fundamental foot marching technique, weapon usage, basic shooting course and compass reading. (A3, MQF LO4)			
Synopsis	This course aims to enable students to understand the roles and functions on the Malaysian Department and apply the knowledge of emergency aid as well as the foot marching technique. Apart from that, students will be exposed to the planning and implementation.			
Main Reference	1. Current Ministry of Defence Malaysia (MinDef) module. Ahmad Afandi Bin Abd Khalil dan Khairuhisham Bin Ramly, (2016). Askar Wataniah: Politeknik Malaysia: Kemahiran Asas 1. Politeknik Port Dickson.			
Additional References	1. Jabatan Pendidikan Politeknik, Kementerian Pendidikan Tinggi Malaysia, (2015). Garis Panduan Askar Wataniah Malaysia. Politeknik Sultan Abdul Halim Mu'adzam Shah. 2. Kol. Prof. Madya Dr. Ahmad Fawzi Bin Basri, (1998). Askar Wataniah: Warga Pembela Nusa. Kementerian Pertahanan Malaysia.			

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Course Title	Integriti & Anti-Rasuah 2		Semester	
Course Code	MPU34102		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	32 Hours	**Non Face to Face (NonF2F)**	48 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	1. Menghuraikan nilai integriti dalam kehidupan seharian. (A3, MQF LO8) 2. Membuat perbandingan bentuk perlakuan rasuah dan salah guna kuasa dalam kehidupan dan organisasi. (A4, MQF LO6) 3. Mempamerkan nilai integriti dan pencegahan rasuah melalui aktiviti masyarakat. (A3, MQF LO9)			
Synopsis	Kursus ini merangkum konsep asas tentang nilai integriti, bentuk pelakuan rasuah, salah guna kuasa dalam kehidupan seharian dan organisasi serta kaedah pencegahan rasuah. Isu dan kes rasuah sebenar dibincangkan dalam sesi pembelajaran.			
Main Reference	1. Zulkanain Abdul Rahman, Ahmad Kamal Ariffin Mohd Rus & ors (2017). Sejarah Perjuangan SPRM Satu Perjalanan. Universiti Malaya, Kuala Lumpur.			
Additional References	1. Rahimah Abdul Rahim (2016). Siri Penyelidkan Pengajian Rasuah: Rauah, Governans & Integriti. Penerbitan Akademi Pencegahan Rasuah Malaysia. 2. Mohamad Tarmize (2014). Nota Pencegahan Rasuah. Penerbit Bahagian Pendidikan Masyarakat, Suruhanjaya Pencegahan Rasuah Malaysia.			

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Course Title	Huffaz Professional 2		Semester	
Course Code	MPU34112		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	32 Hours	**Non Face to Face (NonF2F)**	48 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	1. Explain concepts related to Quranic sciences (A3, MQF LO 9) 2. Organize activities to fulfil Huffaz Professional objectives (A4, MQF LO8) 3. Memorizing selected surah from al-Quran (A2, MQF LO 9)			
Synopsis	This course explains the Ulum al-Quran, Tajweed, methodology of reciting and memorizing al-Quran, usage of technological applications, and challenges and of students learning al-Quran in Malaysia. In demonstrating activities of Huffaz Professionals and learning skills involving Quranic knowledge,this course also allows students to explore possible related careers in the future.			
Main Reference	1. Al-Nawawi (2017), Adab Pembaca Al-Quran. Kuala Lumpur: Telaga Biru.			
Additional References	1.Abdul Qadir Leong (2012). Tajwid al-Qur'an Rasm 'Uthmani. Tanjung Karang, Selangor: Abdul Kadir Bin Abdullah.			

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Course Title	Culture 2		Semester	
Course Code	MPU3432		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	32 Hours	**Non Face to Face (NonF2F)**	48 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Apply** knowledge gained in planning and organizing a cultural event **(C3)**. • **Demonstrate** appropriate skills in organizing a culture event **(C3, A4)**. • **Evaluate** the effectiveness of the management of a cultural event **(C5)**.			
Synopsis	This course aims to enable students to develop physically, mentally and socially through various cultural activities. This course also exposes students to the process of organizing, participating and performing in a cultural event.			
Main Reference	Hatta (2013). Teater Filem dan Pengurusan Seni. Kuala Lumpur; Dewan Bahasa dan Pustaka.			
Additional References	1. Ab Samad Kechot & Sabzali Musa Kahn (2011). Pengurusan Artistik: Kajian Mengenai Peranan Set Selaku Tenaga Kreatif Dalam Seni Persembahan Pentas di Malaysia. Bangi: Universiti Kebangsaan Malaysia. 2. Norliza Rofli & Eddin Khoo (2009). Malaysian Culture: An Introduction. Kuala Lumpur: Jabatan Kebudayaan dan Kesenian Negara. 3. Peter Robinson, Debra Wale & Geoff Dickson (2010). Events Management. Cambridge: Wallingford, Oxfordshire. 4. David Oswell (2006). Culture and Society: An Introduction to Cultural Studies. London; California. 5. Elaine Lee (2006). Ethnic Musical Instruments of Malaysia. Selangor : Win Publication.			

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Course Title	Siswa-siswi Bomba & Penyelamat 2		Semester	
Course Code	MPU3452		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	32 Hours	**Non Face to Face (NonF2F)**	48 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	1. Menunjukkan kemahiran kepimpinan dan kerjasama melalui aktiviti kebombaan (A4, MQF LO 4) 2. Mempamerkan kemahiran untuk melakukan aktiviti kebombaan secara teori dan praktikal (A4, MQF LO 8) 3. Menerangkan asas pengetahuan berkaitan kaedah penyelamatan, keselamatan kebakaran dan rawatan kecemasan (A4, MQF LO 9)			
Synopsis	Kursus ini memberi pendedahan mengenai peranan, jenis pangkat dan pakaian seragam di dalam Jabatan Bomba dan Penyelamat Malaysia. Selain itu, pelajar akan diperkenalkan dengan peralatan dan teknik asas dalam penyelamatan serta rawatan kebakaran. Pelajar juga akan dilatih dengan teknik asas kawad kaki dan ikatan tali.			
Main Reference	N/A			
Additional References	1. Akademi Bomba & Penyelamat Malaysia. 2012. Mencari dan Menyelamat. Jabatan Bomba dan Penyelamat Malaysia: Kuala Lumpur. 2. Akademi Bomba dan Penyelamat Malaysia. 2012. Pengenalan Tali, Simpulan dan Ikatan. Jabatan Bomba dan Penyelamat Malaysia: Kuala Lumpur. 3. Akademi Bomba & Penyelamat Malaysia. 2012. Kawad Operasi Kebombaan. Jabatan Bomba dan Penyelamat Malaysia: Kuala Lumpur.			

Course Title	Personal Financial Management 2		Semester	
Course Code	MPU3482		Credit Hours	2
Pre-requisites	Nil			
Total SLT	80 Hours			
Face to Face (F2F)	38 Hours	**Non Face to Face (NonF2F)**	42 Hours	
Program	Bachelor of Electronic Engineering Technology with Honours Bachelor of Electrical Engineering Technology (Sustainable Energy) with Honours Bachelor of Electrical Engineering Technology with Honours Bachelor of Electronic Engineering Technology (Medical Electronics) with Honours Bachelor of Telecommunication Engineering Technology with Honours			
Assessment Methods	Coursework	100 %	Final Examination	0 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Apply** concept of financial planning, building financial wealth and avoiding financial trouble **(C3)**. • **Organize** financial planning events at campus level **(C3, P3)**. • **Examine** the implementation of the organized programme **(C3)**.			
Synopsis	This course aims to ease student's financial worries by providing them useful tips to manage their money and plan for the future. It teaches them how to live well with the need to save and invest for tomorrow to ensure their financial dreams turn into reality.			
Main Reference	AKPK (2011). Power! Kuala Lumpur : Agensi Kaunseling dan Pengurusan Kredit			
Additional References	AKPK (2010). Money Sense: Getting Smart with Your Money. Kuala Lumpur: Agensi Kaunseling dan Pengurusan Kredit.			

DET Telecommunication

Course Title	Wireless Communications		Semester	5
Course Code	BTD37103		Credit Hours	3
Pre-requisites	Nil			
Total SLT	120 Hours			
Face to Face (F2F)	53 Hours	**Non Face to Face (NonF2F)**	67 Hours	
Program	Diploma Engineering Technologies in Telecommunication			
Assessment Methods	Coursework	60 %	Final Examination	40 %
Course Learning Outcomes	Upon completion of this course students should be able to: • **Explain** elements of wireless communication and its applications **(C4)**. • **Analyze** the OSI model layer and communication model **(A3)**. • **Investigate** the principles of wireless radio propagation **(P4)**. • **Analyze** the Wireless Channels, including the Capacity of Wireless Channel and AWGN Channel Capacity **(P3)**. • **Evaluate** various applications of physical media in wireless communication such as copper, satellite, fibre optic and Bluetooth **(A3)**.			
Synopsis	The aim of this course is to develop an understanding of the principals involved in wireless communication using cellular environment. The way in which information is transmitting from one base station to another and method by which the signals propagate are covered both theoretically and practically. Students will be exposed to physical media in wireless communication such as copper, satellite, fibre optic and Bluetooth. Teaching approach will incorporate lectures, reading assignments, laboratories work, group work and problem solving task.			
Main Reference	Keith Q. T. Zhang (2015). Wireless Communications: Principles, Theory and Methodology 1st Edition. Wiley.			
Additional References	1. Andreas. F. Molisch (2011). Wireless Communications 2nd Edition. John Wiley & Sons Ltd. 2. David Tse & Pramod Viswanath (2011). Fundamentals of Wireless Communication 5th Edition. Cambridge. 3. Roy Blake (1997). Comprehensive Electronic Communication. West Publishing House.			