Universiti Putra Malaysia

Bachelor of Process and Food Engineering with Honours

Prepared by:
Dr. Noor Zafira Noor Hasnan , Dr. Nur Hamizah Abdul Ghani & Dr. Alifdalino Sulaiman
Department of Process and Food Engineering, Faculty of Engineering

Update: 11 October 2024

ADMISSION REQUIREMENT (LOCAL)

Bil.	(i) Program Pengajian (ii) Kod (iii) Tempoh Pengajian	Kelayakan Minimum STPM	Kelayakan Minimum Matrikulasi/ Asasi	Kelayakan Minimum Diploma/ Setaraf
		Memenuhi Syarat Am Universiti serta SYARAT KHAS PROGRAM	**Memenuhi Syarat Am Universiti serta SYARAT KHAS PROGRAM**	**Memenuhi Syarat Am Universiti serta SYARAT KHAS PROGRAM**
8.	**ALIRAN SAINS** Bacelor Kejuruteraan Proses dan Makanan dengan Kepujian **UP6541004** 8 Semester	Mendapat sekurang-kurangnya **PNGK 2.80;** **dan** Mendapat sekurang-kurangnya **Gred B** pada peringkat STPM dalam mata pelajaran berikut: • Mathematics (T); **dan** • Physics / Chemistry / Biology; **dan** Mendapat sekurang-kurangnya **Band 3.0** dalam Malaysian University English Test **(MUET)** untuk peperiksaan bermula Sesi 1 tahun 2021 atau **Band 3** untuk peperiksaan sehingga tahun 2020; **atau** Mendapat sekurang-kurangnya **Band 2.0** dalam Malaysian University English Test **(MUET)** untuk peperiksaan bermula Sesi 1 tahun 2021 atau **Band 2** untuk peperiksaan sehingga tahun 2020 dan sekurang-kurangnya **Gred C** dalam mata pelajaran Bahasa Inggeris peringkat SPM; **dan** Tidak ketidakupayaan fizikal yang menyukarkan kerja amali.	Mendapat sekurang-kurangnya **PNGK 2.80;** **dan** Mendapat sekurang-kurangnya **Gred B (3.00)** pada peringkat Matrikulasi / Asasi dalam mata pelajaran berikut: • Mathematics; **dan** • Physics / Chemistry / Biology; **dan** Mendapat sekurang-kurangnya **Band 3.0** dalam Malaysian University English Test **(MUET)** untuk peperiksaan bermula Sesi 1 tahun 2021 atau **Band 3** untuk peperiksaan sehingga tahun 2020; **atau** Mendapat sekurang-kurangnya **Band 2.0** dalam Malaysian University English Test **(MUET)** untuk peperiksaan bermula Sesi 1 tahun 2021 atau **Band 2** untuk peperiksaan sehingga tahun 2020 dan sekurang-kurangnya **Gred C** dalam mata pelajaran Bahasa Inggeris peringkat SPM; **dan** Tidak ketidakupayaan fizikal yang menyukarkan kerja amali.	Memiliki Diploma dalam bidang yang sesuai dengan mendapat sekurang-kurangnya **PNGK 2.80** atau kelayakan lain yang diiktiraf oleh Senat UPM; **dan** Mendapat sekurang-kurangnya **Gred C** pada peringkat SPM dalam mata pelajaran berikut: • Matematik / Mathematics; **dan** Mendapat sekurang-kurangnya **Band 3.0** dalam Malaysian University English Test **(MUET)** untuk peperiksaan bermula Sesi 1 tahun 2021 atau **Band 3** untuk peperiksaan sehingga tahun 2020; **atau** Mendapat sekurang-kurangnya **Band 2.0** dalam Malaysian University English Test **(MUET)** untuk peperiksaan bermula Sesi 1 tahun 2021 atau **Band 2** untuk peperiksaan sehingga tahun 2020 dan sekurang-kurangnya **Gred C** dalam mata pelajaran Bahasa Inggeris peringkat SPM; **dan** Tidak ketidakupayaan fizikal yang menyukarkan kerja amali.

Overview on Program Educational Objectives (PEOs) and Program Outcomes (POs)

Program Educational Objectives
Bachelor of Process and Food Engineering with Honours

Programme Educational Objectives (PEO) describe the career and professional accomplishments that the programme would prepares the graduates to achieve in a few years after their graduation

To produce engineers:

I. with competent knowledge and professionalism in Process and Food Engineering as well as having appropriate skills and attitude that fulfil the need of the market and the industry.

II. that are creative and innovative, who are sensitive and responsible towards dynamic community, culture and surroundings.

III. who are able to adapt with the global working environment, engage in life-long learning, research and development in the field of Process and Food Engineering.

IV. who have knowledge and ability to solve engineering problems including design and advance development in the relevant processing industries.

PROGRAM OUTCOMES (PO)

1. The **programme outcomes** (POs) for the Bachelor of Process and Food Engineering programme have been formulated to achieve programme objectives and to fulfil the **accreditation body's requirements (EAC).**

2. These outcomes consist of three main domains: **cognitive (C), psychomotor (P) and affective (A).**

3. The POs are distributed accordingly to each course and all the POs are expected to be attained by the time students complete their degree programme.

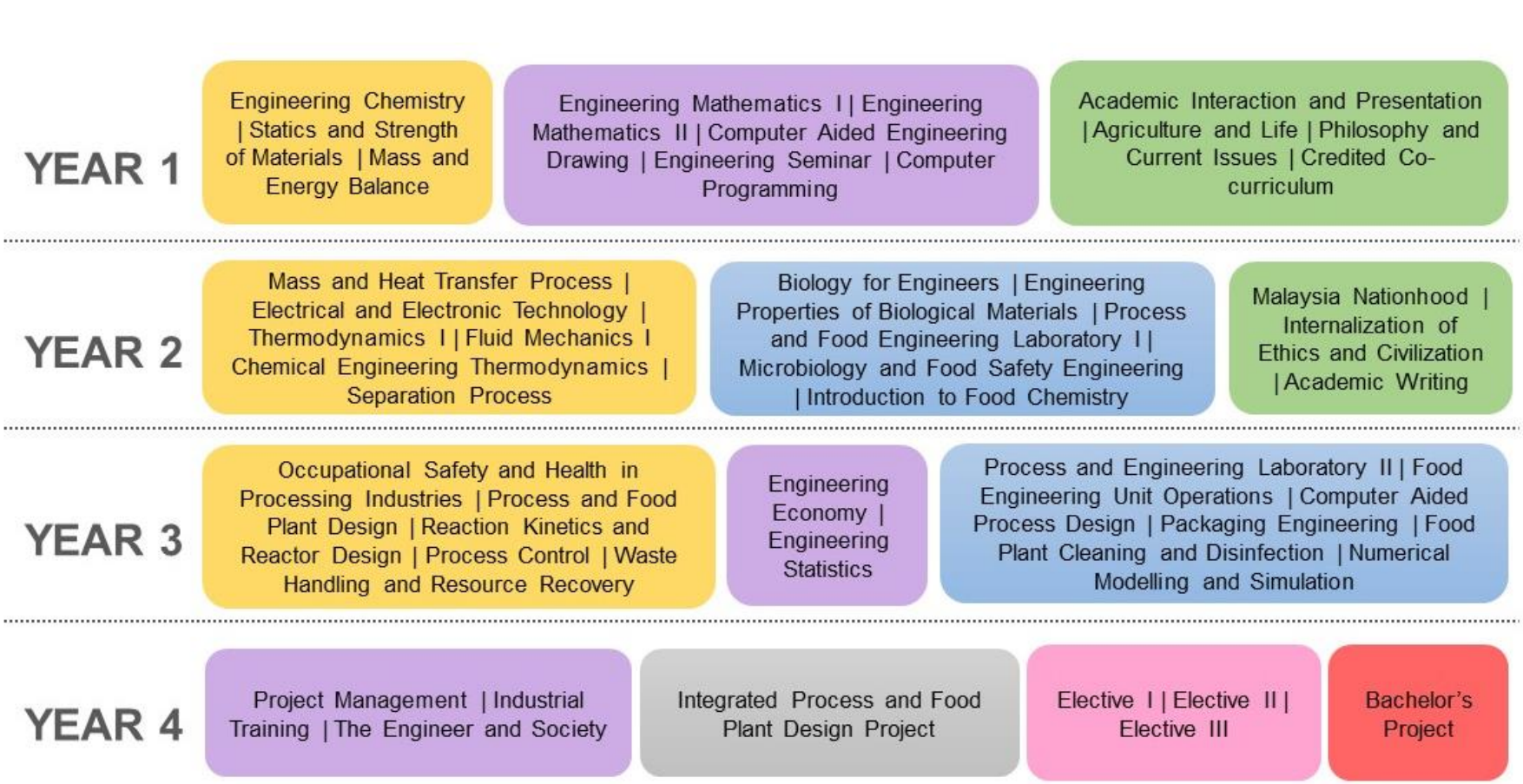
List of Program Outcomes (POs)

PROGRAMME OUTCOMES (PO)
CURRICULUM 2021-2025

PO	Graduate Attributes
EAC1 (C)	(Engineering Knowledge) Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialisation to the solution of complex engineering problems.
EAC2 (C)	(Problem Analysis) Identify, formulate, research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
EAC3 (C)	(Design and Development of Solutions) Design solution 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.
EAC4 (C)	(Investigation) Investigate complex problems using research-based knowledge and research methods including design and conduct of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.
EAC5 (P)	(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.
EAC6 (C)	(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.
EAC7 (C)	(Environment and Sustainability) Understand the impact of professional engineering work in solving complex engineering problems within societal and environmental contexts, and demonstrate knowledge of and the need for sustainable development.
EAC8 (C)	(Ethics) Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
EAC9 (A)	(Individual and Teamwork) Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary setting.
EAC10 (A)	(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 report and design documentation, make effective presentations, and give and receive clear instructions.
EAC11 (C)	(Project Management and Finance) Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, to manage projects and in multidisciplinary environments.
EAC12 (A)	(Lifelong 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.
EAC13 (A)	(Entrepreneurship) Identify basics and opportunities in entrepreneurship related to engineering.

Study structure and courses

Bachelor Academic Programs



KEY: CORE COURSES | COMMON ENGINEERING COURSES | GENERAL COURSES | FOOD ENGINEERING COURSES | DESIGN PROJECT | ELECTIVE | RESEARCH PROJECT

Note: Refer next page for details of study structure/plan according to semesters

Study Plan

Bachelor of Process and Food Engineering With Honours 2021-2025

YEAR 1					
ENG3001	Engineering Mathematics I	3(3+0)	ENG3002	Engineering Mathematics II	3(3+0)
ENG3201	Computer Aided Engineering Drawing	3(1+2)	ENG3202	Computer Programming	3(2+1)
ENG3101	Engineering Seminar	1(0+1)	EPF3002	Statics and Strength of Materials	3(3+0)
ECH3122	Engineering Chemistry	3(3+0)	EPF3110	Mass and Energy Balance	3(3+0)
PRT2009	Agriculture and Life	2(1+1)	EPF3111	Biology for Engineers	3(3+0)
SKP3112*	Philosophy and Current Issues*	2(2+0)	LPE2403	Academic Interaction and Presentation	3(3+0)
SKP3113**	Philosophy and Current Issues in Civil Society	3(3+0)**	QKXXXXX	Credited Co-curriculum	1(0+1)
QKXXXXX	Credited Co-curriculum	1(0+1)			
	TOTAL	**15*|16****		**TOTAL**	**19**
YEAR 2					
ENG3102	Engineering Economics	4(4+0)	ECH3129	Chemical Engineering Thermodynamics	3(3+0)
EEE3030	Electrical and Electronic Technology	3(2+1)	EPF3112	Process and Food Engineering Laboratory I	1(0+1)
EMM3226	Thermodynamics I	3(3+0)	EPF3114	Microbiology and Food Safety Engineering	3(3+0)
EMM3316	Fluid Mechanics I	3(3+0)	ECH3125	Mass and Heat Transfer Process	3(3+0)
EPF3604	Engineering Properties of Biological Materials	3(3+0)	FST3107	Introduction to Food Chemistry	3(2+1)
LPE2503	Academic Writing	3(3+0)	SKP2101*	Malaysia Nationhood	3(3+0)
			SKP3122*	Internalization of Ethics and Civilization	2(2+0)
			FEM2401**	Malaysian Politics and Society	2(2+0)**
			LPM2100**	Bahasa Melayu Komunikasi	2(2+0)**
	TOTAL	**19**		**TOTAL**	**18*|17****
YEAR 3					
EPF3204	Separation Process	3(3+0)	ENG3004	Engineering Statistics	3(3+0)
EPF3113	Process and Food Engineering Laboratory II	1(0+1)	EPF3504	Occupational Safety and Health in Processing Industries	3(3+0)
EPF3205	Food Engineering Unit Operations	3(3+0)	EPF3702	Packaging Engineering	3(3+0)
EPF3305	Process Control	3(3+0)	EPF4710	Food Plant Cleaning and Disinfection	3(3+0)
EPF3503	Waste Handling and Resource Recovery	3(3+0)	EPF4810	Process and Food Plant Design	3(3+0)
EPF3802	Reaction Kinetics and Reactor Design	3(3+0)	EPF4302	Numerical Modelling and Simulation	3(2+1)
EPF4809	Computer Aided Process Design	1(0+1)			
	TOTAL	**17**		**TOTAL**	**18**
YEAR 4					
ENG3103	Project Management	3(3+0)	ENG3104	The Engineer and Society	3(2+1)
ENG4901	Industrial Training[1]	5(0+5)	ENG4949B	Bachelor's Project	4(0+4)
EPF4948	Integrated Process and Food Plant Design Project	4(0+4)	EPFXXXX	Elective II[#]	3(3+0)
ENG4949A	Bachelor's Project	2(0+2)	EPFXXXX	Elective III[#]	3(3+0)
EPFXXXX	Elective I[#]	3(3+0)			
	TOTAL	**17**		**TOTAL**	**13**
				TOTAL CREDIT	**136**

*For local students only

This study plan applies until cohort 22/23

Study Plan

Study Plan for Bachelor of Process and Food Engineering with Honours 2021-2025

YEAR 1					
ENG3001	Engineering Mathematics I	3(3+0)	ENG3002	Engineering Mathematics II	3(3+0)
ENG3201	Computer Aided Engineering Drawing	3(1+2)	ENG3202	Computer Programming	3(2+1)
ENG3101	Engineering Seminar	1(0+1)	EPF3002	Statics and Strength of Materials	3(3+0)
ECH3122	Engineering Chemistry	3(3+0)	EPF3110	Mass and Energy Balances	3(3+0)
PRT2009	Agriculture and Life	2(1+1)	EPF3111	Biology for Engineers	3(3+0)
SKP3112*	Philosophy and Current Issues*	2(2+0)*	LPE2403	Academic Interaction and Presentation	3(3+0)
SKP3113**	Philosophy and Current Issues in Civil Society**	3(3+0)**	FEM2313	Integrity and Anti-corruption	1(1+0)
QKXXXXX	Credited Co-curriculum	1(0+1)	QKXXXXX	Credited Co-curriculum	1(0+1)
	TOTAL	15*|16**		TOTAL	20
YEAR 2					
ENG3102	Engineering Economics	3(3+0)	ECH3129	Chemical Engineering Thermodynamics	3(3+0)
EEE3030	Electrical and Electronic Technology	3(2+1)	EPF3112	Process and Food Engineering Laboratory I	1(0+1)
EMM3226	Thermodynamics I	3(3+0)	EPF3114	Microbiology and Food Safety Engineering	3(3+0)
EMM3316	Fluid Mechanics I	3(3+0)	ECH3125	Mass and Heat Transfer Processes	4(4+0)
EPF3604	Engineering Properties of Biological Materials	3(3+0)	FST3107	Introduction to Food Chemistry	3(2+1)
LPE2503	Academic Writing	3(3+0)	SKP2101*	Malaysia Nationhood	3(3+0)*
			SKP3122*	Internalization of Ethics and Civilization	2(2+0)*
			FEM2401**	Malaysian Politics and Society	2(2+0)**
			LPM2100**	Bahasa Melayu Komunikasi	2(2+0)**
	TOTAL	18		TOTAL	19*|18**
YEAR 3					
EPF3204	Separation Process	3(3+0)	ENG3004	Engineering Statistics	3(3+0)
EPF3113	Process and Food Engineering Laboratory II	1(0+1)	EPF3504	Occupational Safety and Health in Processing Industries	3(3+0)
EPF3205	Food Engineering Unit Operations	3(3+0)	EPF3702	Packaging Engineering	3(3+0)
EPF3305	Process Control	3(3+0)	EPF4710	Food Plant Cleaning and Disinfection	3(3+0)
EPF3503	Waste Handling and Resource Recovery	3(3+0)	EPF4810	Process and Food Plant Design	3(3+0)
EPF3802	Reaction Kinetics and Reactor Design	3(3+0)	EPF4302	Numerical Modelling and Simulation	3(2+1)
EPF4809	Computer Aided Process Design	1(0+1)			
	TOTAL	17		TOTAL	18
YEAR 4					
ENG3103	Project Management	3(3+0)	ENG3104	The Engineer and Society	3(2+1)
ENG4901	Industrial Training[1]	5(0+5)	ENG4949B	Bachelor's Project	4(0+4)
EPF4948	Integrated Process and Food Plant Design Project	4(0+4)	EPFXXXX	Elective II[#]	3(3+0)
ENG4949A	Bachelor's Project	2(0+2)	EPFXXXX	Elective III[#]	3(3+0)
EPFXXXX	Elective I[#]	3(3+0)			
	TOTAL	17		TOTAL	13
				TOTAL CREDIT AMOUNT	137

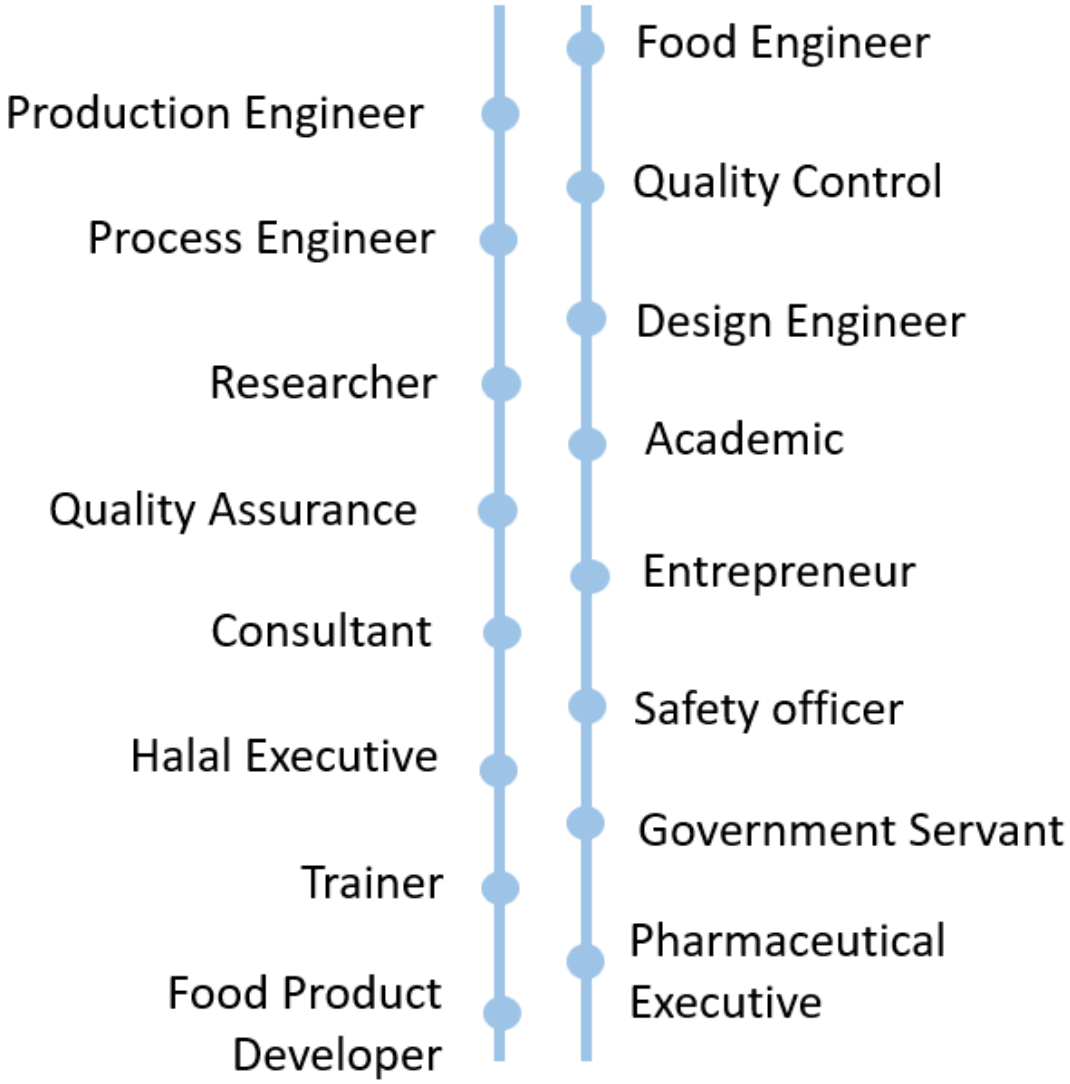
*For local students only
** For International students only
[1] Industrial training runs for 10 weeks in between Semester 6 and 7
[#] Refer to attachment for Process and Food Engineering Electives

This study plan applies beginning cohort 23/24

Important change is the addition of FEM2313 Integrity and Anti-corruption (university course) in Semester 2 Year 1

ELECTIVE COURSES BASED ON SUB-FIELDS OF PROCESS AND FOOD ENGINEERING		
BIO-MATERIAL PROCESSING ENGINEERING		
EPF4609	Biological Process Engineering	3(3+0)
EPF4610	Palm Oil Processing	3(3+0)
EPF4611	Nutraceutical Technology	3(3+0)
EPF4612	Plantation Crops Processing	3(3+0)
EPF4613	Biopolymer Technology	3(3+0)
FOOD ENGINEERING		
EPF4002	Production and Operation Management	3(3+0)
EPF4717	Food Engineering Systems	3(3+0)
EPF4718	Food Extrusion Technology	3(3+0)
EPF4719	Powder Technology	3(3+0)
EPF4720	Rice Processing	3(3+0)
EPF4721	Design and Technology of Fabricated Food	3(3+0)
PACKAGING ENGINEERING		
EPF4711	Packaging Machinery and Automation	3(3+0)
EPF4712	Packaging Evaluation and Testing	3(3+0)
EPF4716	Package Permeability and Shelf Life of Food	3(3+0)
PROCESSING MACHINERY DESIGN ENGINEERING		
EPF4811	Processing Machinery Dynamics	3(3+0)
EPF4812	Processing Machinery Elements Design	3(3+0)
EPF4813	Processing Machinery System and Automation	3(3+0)

CAREER OPPORTUNITIES



CONTACT US

Address	**:**	**Department of Process and Food Engineering** **Faculty of Engineering** **Universiti Putra Malaysia** **43400 UPM Serdang** **Selangor, MALAYSIA**
Tel	**:**	**+603-9769 6363/6364**
Email	**:**	**eng.kpm@upm.edu.my**
Website	**:**	**https://eng.upm.edu.my/jabatan/jabatan_kejuruteraan_proses_dan_makanan/pengenalan-1906** **www.eng.upm.edu.my**
Instagram	**:**	**kpm_upm**
Facebook	**:**	**Process and Food Engineering UPM**
Bulletins	**:**	**https://eng.upm.edu.my/department/department_of_process_and_food_engineering/bulletin_kpm-67701**
Video	**:**	**https://youtu.be/DaVZJhwymr4?feature=shared**

Terima Kasih