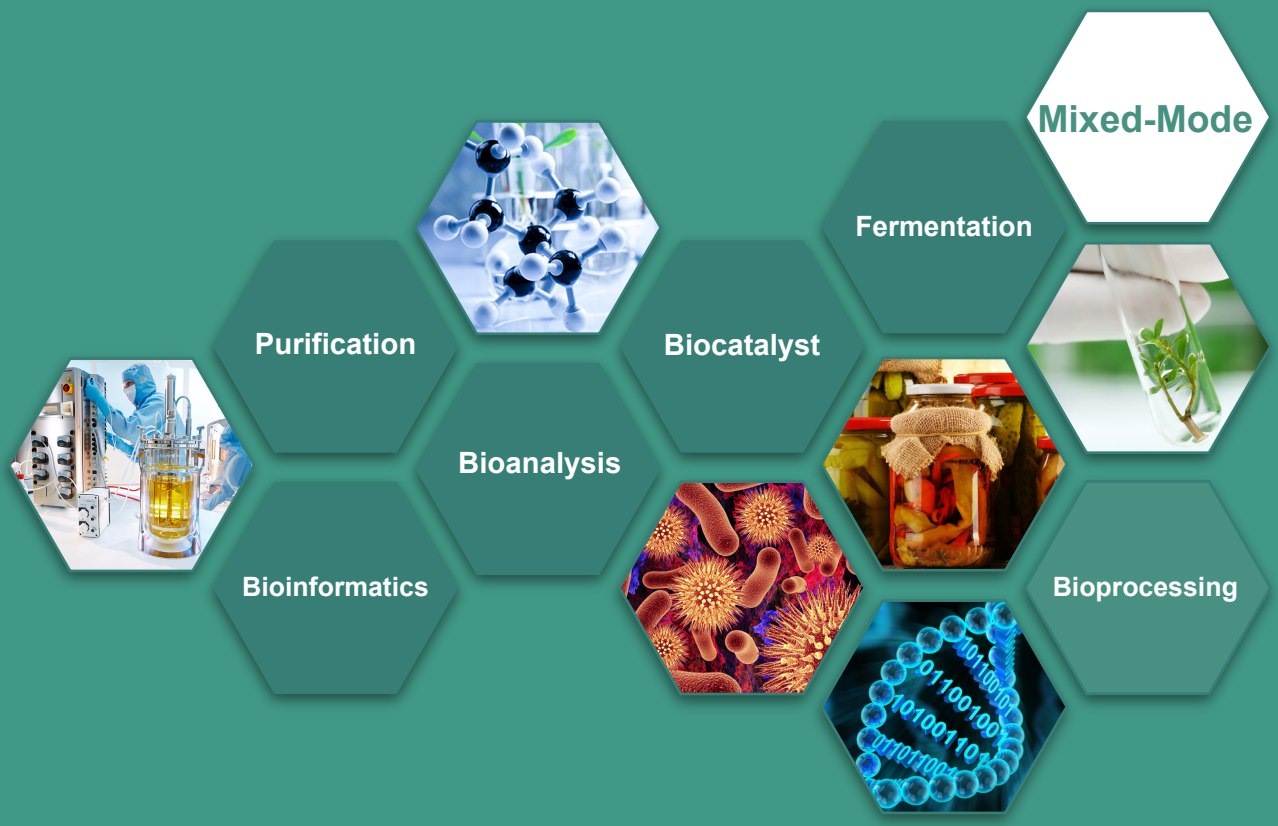
Master in Bioprocess Technology

STUDENT HANDBOOK

Academic Session 2026/2027



School of Industrial Technology

Universiti Sains Malaysia

indtech.usm.my

Student Handbook
Master in Bioprocess Technology
Academic Calendar 2026/2027

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1.0 Background

1.1 History

1973	The establishment of the School of Applied Sciences, offering the Bachelor of Applied Science programmes in Electronic Science and Technology, Food Science and Technology, and Polymer Science and Technology.
1984	The name of the School was changed to the School of Engineering Sciences and Industrial Technology. Hence, the curricula were amended to Bachelor of Engineering (B. Eng) and Bachelor of Technology (B. Tech) to meet the requirement of engineering and industrial technology courses.
1986	The School was split into: - School of Electrical and Electronic Engineering - School of Materials and Mineral Resources Engineering - School of Industrial Technology School of Industrial Technology offered Bachelor of Technology programmes in Food Technology, Polymer Science and Technology, Quality Control & Instrumentation, and Wood, Paper and Coatings Technology.
1999	Environmental Technology programme was introduced by School of Industrial Technology.
2001	Polymer Technology and Quality Control & Instrumentation programmes were upgraded into: - Polymer Engineering programme - Mechatronic Engineering programme
2002	Wood, Paper and Coatings Technology programme was renamed Bioresource, Paper and Coatings Technology programme.
2008	Bioprocess Technology programme was introduced by School of Industrial Technology.
2018	Master of Science (Environmental Science) programme was introduced by School of Industrial Technology.
2020	Bioresource, Paper and Coatings Technology programme was renamed Bioresource Technology programme.
2022	Bioprocess Technology programme was changed to Bioprocess Engineering Technology programme.
2025	Master in Bioprocess Technology programme was introduced by School of Industrial Technology.

1.2 The Vision and Mission: Universiti Sains Malaysia

The Vision

Transforming Higher Education for a Sustainable Tomorrow

The Mission

USM is a pioneering, transdisciplinary research intensive university that empowers future talents and enables the bottom billions to transform their socio-economic well-being

1.3 The Vision and Mission: School of Industrial Technology

The Vision

World class centre in technological innovation for a sustainable tomorrow

The Mission

1. To be the prime education provider of technologists who are competent, capable of independent thinking, possess communication and analytical skills, and able to fulfil the needs in various industries and socio-economic development.

2. To pursue cutting-edge research in the fields of Food Technology, Bioresource Technology, Environmental Technology, and Bioprocess Engineering Technology.

3. To contribute to the well-being of the community through sustainability-led dynamic transdisciplinary academic programmes, research innovation, teamwork, and continuous improvement.

1.4 Thrust Areas

1. Food Technology and Sustainability
2. Industrial Biotechnology and Sustainable Bioprocessing
3. Materials and Sustainability
4. Environmental Science and Sustainability

1.5 Principal Officers - School of Industrial Technology

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2.0 Academic System and General Information

2.1 General Information

The following general information is available on the Institute of Postgraduate Studies (USM) website: https://ips.usm.my/index.php/download/candidature.

1. Registration
2. Fees
3. Duration of Candidature
4. Renewal of Registration and Course(s) Registration
5. Malaysian Culture and Malay Language (LKM111)
6. Research Methodology for Research Mode Students
7. Pre-Requisite Course(s)
8. Add/Drop of Courses
9. Postponement of Studies
10. Conversion of Status
11. Conversion of Degree Level
12. Extension of Candidature
13. Withdrawal from Programme
14. Change of Mode of Study
15. Termination of Candidature
16. Reactivation of Candidature
17. Preparation, Submission and Examination of Thesis for Research Mode Students
18. Plagiarism
19. Graduation Requirements
20. Graduation-in-Council
21. Student Support Services
22. Student Card (ID)
23. Dress Code

2.2 School / Programme Requirements

2.2.1 General Entry Requirements

I. Bachelor's Degree

1. CGPA of at least 2.75/4.00; or

2. CGPA of 2.50 - 2.74/4.00 with; or
   a. Research experience – 1 year; or
   b. Professional experience in related field- 1 year; or
   c. One (1) academic publication in related field; or
   d. Grade B for major/ elective courses; or
   e. Grade B+ for final year project.

3. CGPA of 2.00 - 2.49/4.00 (Honours degree) with;
   a. Research experience - 5 years; or
   b. Professional experience in related field - 5 years, AND
      i. One (1) academic publication in related field; or
      ii. Grade B for major/elective courses; or
      iii. Grade B+ for final year project.

II. APEL A Certificate (APEL T-7)

http://www2.mqa.gov.my/APEL/
For non-CGPA qualifications, please refer to IPS for confirmation.

2.2.2 English Requirements

The minimum score for each programme can be vary from the below list, candidates are required to check for each programme requirements.

- A minimum of Band 5 for IELTS; or
- A minimum score of 40 for TOEFL (Internet-based); or
- A minimum of Band 7.5 for TOEFL Essentials (Online); or
- A minimum score of 154 for Cambridge English: Advance (CAE)/Proficiency (CPE) /Preliminary (PET) /First (FCE)/ Linguaskill Online; or
- A minimum score of 47 for Pearson Test of English (PTE); or
- A minimum of Band 107 for CIEP Level (ELS); or
- A minimum of Band 3.5 for Malaysian University English Test (MUET).

Exemption CAN BE CONSIDERED to candidate if:

- English is the candidate's mother tongue or National Language; or
- Candidate graduated from an Institution of Higher Learning in which the medium of instruction at Bachelor and/or Master degree level is English (statement of proof required).

2.2.3. Graduation Requirements

A Mixed-Mode student must comply with the following graduation requirements.

1. Pass all courses and examination determined by the School;
2. Pass dissertation/research project;
3. Obtain at least a CGPA of 3.00;
4. Fulfill the minimum duration of candidature;
5. Must obtain minimum grade C for Malaysian Culture and Malay Language (LKM111). This course is compulsory for all international students.

3.0 Academic Programme

3.1 Programme Overview

The Master in Bioprocess Technology mixed mode programme, which spans 1 to 2 years for full-time students and 2 to 4 years for part-time students, is gaining popularity and its significance needs no introduction, given the increasing global focus on biotechnology and sustainable industrial processes.

This programme is designed to equip our graduates to become thinkers, leaders, and innovators, capable of addressing various biotechnological challenges and driving any sector of industries towards sustainable bioprocessing.

The programme combines elements of natural and social sciences within a technology-based interdisciplinary framework, providing a solid foundation for candidates to appreciate the interconnectedness of biological systems, technological development, and industrial applications.

Registration is open twice a year. You can register in either the first or the second semester.

To graduate, you would need to complete 40-unit courses, which cover:

- Core courses: 36 units
- Elective courses: 4 units

A typical programme consists of two semesters. Each semester would be 18 weeks or four months long.

TYPE OF STUDY	MINIMUM	MAXIMUM
Full-Time	2 semesters	4 semesters
Part-Time	4 semesters	8 semesters

3.2 Programme Educational Objectives (PEO)

The goal of the programme is to train, to generate and to transfer knowledge to students or future employees in various technologies related to the bioprocess technology in support of related industries and service sectors.

The aims, objectives, and learning outcomes of the Master in Bioprocess Technology programme are supportive of the vision and mission of Universiti Sains Malaysia, since it is one of the programmes offered by the School of Industrial Technology that has been developing a world-class centre in technological innovation, which is in line with the Universiti Sains Malaysia vision to have a sustainable tomorrow.

The programme offers various courses related to bioprocess technology, which provide a holistic approach to solving environmental issues sustainably.

The objectives of the programme are to produce graduates who:

PEO	EDUCATIONAL OBJECTIVES
PEO1	Integrate knowledge and understanding of critical thinking using practical skills to produce innovative solutions in the field of Bioprocess Technology.
PEO2	Effectively communicate current issues and challenges in leading peers and stakeholders while ensuring professional and ethical practices are maintained.
PEO3	Manage personal skills efficiently in applying various digital and numerical technologies required in providing innovative solutions to the bioprocess industry.
PEO4	Organise lifelong learning resources through interpersonal skills and professionalism towards academic and career advancement in the bioprocess industry sector.

3.3 Programme Learning Outcomes (PLO)

At the end of the programme, students will be able to:

PLO	LEARNING OUTCOMES
PLO1	Demonstrate knowledge and comprehensive understanding of interdisciplinary concepts across bioprocess-related disciplines.
PLO2	Conduct research independently using appropriate technology tools in bioprocess to generate consistent and valid data.
PLO3	Analyse and solve bioprocess technology problems critically and innovatively using knowledge, skills, and research methods.
PLO4	Communicate effectively in activities related to bioprocess with peers and related communities.
PLO5	Demonstrate interpersonal skills in managing resources, planning, and solving problems in group settings.
PLO6	Exhibit understanding and compliance with biosafety, ethical, professional, social, and legal aspects in bioprocess.
PLO7	Integrate knowledge and skills across disciplines in a lifelong learning journey during technological change.
PLO8	Demonstrate knowledge and skills in entrepreneurship within bioprocess-related environments.
PLO9	Function effectively as a responsible individual and team member from diverse disciplines.
PLO10	Apply digital technologies and software to improve research quality.
PLO11	Analyse and evaluate bioprocess study data using both quantitative and qualitative methods.

3.4 Course Synopsis and Course Learning Outcomes (CLO)

No.	INFORMATION

1 **EKC500/3 Science and Engineering Research Methodology**

This course provides a hands-on course designed to impart to postgraduates the foundational methods and techniques of research in built environment, sciences, and engineering context. The students will be practically exposed to the main components of a research framework which are problem definition, research design, data collection, ethical issues in research, report writing and presentation.

CLO1: Able to use principles of research methodology in planning, managing, and executing a research project.

CLO2: Able to make informed decision in the process of selecting and designing research methods that are appropriate with the research aims and objectives with underlying understanding of the limitations of the selected methods.

CLO3: Able to develop skills in systematic data collection processes and research data analysis.

CLO4: Able to develop advanced analytical and critical thinking skills.

CLO5: Able to demonstrate writing skills and make effective research proposal.

2 **IBG501/4 Advanced Cellular Biotechnology**

This course combines a set of lectures and discussions around the fundamentals and current research topics in molecular biology and advanced cellular biotechnology. Students will be exposed to hands-on learning on host genetics recombination, gene expression and regulation, bioinformatics tools and production of desired value-added products from the host cells.

CLO1: Able to analyse advanced concepts in microbiology, biotechnology, and related areas in molecular biology including recombinant DNA techniques, gene expression and regulation, and protein synthesis.

CLO2: Able to develop practical skills in microbiology, molecular biology and biotechnology according to the laboratory Standard Operating Procedures (SOPs).

CLO3: Able to defend research ideas using sound scientific communication skills and able to work as a team.

CLO4: Able to develop a good skill set in synthesizing and analysing biological sequences using bioinformatics tools to understand the key principles of molecular biology.

CLO5: Able to develop scientific writing skill in microbiology, molecular biology and biotechnology according to the laboratory Standard Operating Procedures (SOPs).

3 **IBK502/3 Bioprocess Design and Optimization**

This course provides a comprehensive understanding related to bioprocess design and optimization. It covers pilot-scale process design from an engineering perspective. Students will learn how to optimize a process using appropriate optimization software. This course also encompasses the impact of the process on the environment as well as the economical perspective.

CLO1: Able to relate design and optimization knowledge with bioprocessing.

CLO2: Able to develop collaboration among group members in designing an experiment with analysis related to bioprocess.

CLO3: Able to organize bioprocess experimental data by applying optimization skills through analytical approach.

CLO4: Able to develop design and optimization of bioprocesses using computer software.

CLO5: Able to correlate relevant quantitative and numeracy skills with bioprocess design.

No.	INFORMATION

4 **IBG503/4 Integrated Bioprocessing**

This course is designed to prepare Bioprocess Technologists to supervise downstream processes using industrial fermentation in the production of medicines, fine chemicals, enzymes, foods and food components, and other goods. It is generated by a fermentation process utilizing a bioprocess method and has commercial value. Students' understanding of enzyme technology and enzyme applications in industry, from upstream to downstream processes, is also highlighted throughout the course. The final waste in each industry will be addressed in depth, as well as how each treatment mechanism may be integrated at the same time to improve treatment quality.

CLO1: Able to demonstrate the ability to identify various uses of bioreactor types in different fermentation modes according to the target bioproduct to be produced.

CLO2: Able to integrate and apply the principles, types, modes of operation and integration of upstream & downstream techniques for each type of fermentation.

CLO3: Able to design and relate enzyme characteristics to the selection of appropriate integration techniques for enzyme purification and immobilization.

CLO4: Able to organise the concepts of safety, programming, and economics to bioprocess systems.

CLO5: Able to demonstrate writing skills and make effective research proposal.

5 **IBK504/2 Biosafety and Evaluation of Biohazard**

This course is related to the guidelines, standards & regulations of biosafety, risk assessment and management of biohazards. Good microbiological practices and guidelines for recombinant DNA technology, with safety organization and contingency plan and procedures are also emphasized in this course. Issues pertaining to biosecurity are also included.

CLO1: Able to analyze good microbiological practices and guidelines for recombinant DNA technology, in relation to the safety organization and contingency plan and procedures.

CLO2: Able to design appropriate control measures based on biohazard risk assessments in different settings and backgrounds.

CLO3: Able to explain effectively regarding the issues of biosecurity, laboratory safety and the related procedures in organized manner

CLO4: Able to propose ethical and professional solutions regarding arising issues based on guidelines, standards and regulations of biosafety, risk assessment and biohazard management

6 **IBA505/4 Bioprocess Practice in Medical and Health Sectors**

This course provides a solid foundation for biotechnological solutions and their applications in health care or medical surveillance, enabling development of in-depth skills needed for product and technological transfer from laboratory to the market. It encompasses the rapidly evolving fields of nutraceutical, biopharmaceutical, and biotechnology for medical diagnostic and therapeutic. This course will prepare the students to be competent in these areas, thus enabling career development in the fields of medical and health biotechnology.

CLO1: Able to evaluate the use of bioprocess technology to solve the product development issues related to the nutraceutical, biotechnological and biopharmaceutical industries.

CLO2: Able to justify the use of modern analytical tools for nutraceutical, biotechnological and biopharmaceutical products manufacturing and commercialisation to comply with the requirement by Malaysian Regulatory Agencies Malaysian using the existing presentation tools.

CLO3: Able to develop a business model canvas for newly formulated nutraceutical, biotechnological and biopharmaceutical products.

CLO4: Able to relate ethical implications of bioprocess products related to medical and health biotechnology to the society.

No.	INFORMATION
7	**IBA506/4 Omics Technology**

The course will be based on selected dataset and present different experimental strategies, including a description on the principles behind the methods. The strengths and weaknesses of each technology will be discussed with a focus on the decisions that guide the choice of an experimental strategy. Hands on sessions in computational data analyses are included in performing experiments in given technologies. The students will learn about selected Omics technologies and their strengths and limitations. The candidate will also learn underlying principles of these technologies and how to critically judge the robustness of the Omics data.

CLO1: Able to relate the disciplines in Omics Technology and its use in understanding physiological and pathological processes.

CLO2: Able to justify the use of modern analytical tools to critically analyze the contribution of 'omics' technology to modern molecular biology by using existing presentation tools.

CLO3: Able to develop entrepreneurial ideas for startups that analyze different datasets through omics technology, specifically: Genomics/Metagenomics, Transcriptomics, Proteomics, & Metabolomics.

CLO4: Able to relate the ethical implications of omics data analysis that includes genomics, transcriptomics, proteomics and metabolomics.

8 **IBA507/20 Dissertation**

Course is offered in TWO (2) semesters course. The course includes literature review and synthesis of research problem related to bioprocess technology; Development of research methodology; Implementation of research work and problem solving; Analysis of research findings; Writing and presentation of research findings. All components will be evaluated through proposal defense, thesis, and viva-voce.

CLO1: Able to evaluate an effective research plan to achieve research objectives.

CLO2: Able to prepare dissertation of research project ethically.

CLO3: Able to defend research results clearly with confidence during presentation sessions.

CLO4: Able to infer findings in literature review and research in written form.

CLO5: Able to perform quantitative reasoning and logical thinking in analysing the research data.

3.5 Programme Structure - Full-Time

COURSE TYPE	2026/2027 ACADEMIC SESSION		
	SEMESTER I		SEMESTER II
CORE (T)	EKC500/3 IBG501/4 IBK502/3 IBA507/20*	SEM BREAK	IBG503/4 IBK504/2 IBA507/20*
	20		16
ELECTIVE (E) (*Choose one*)			IBA505/4 IBA506/4
	0		4
Total Unit	20		20

*Course is offered in TWO (2) semesters (unit counted per semester is 10).

3.6 Programme Structure - Part-Time

Course Type	2026/2027 Academic Session		
	Semester 1		Semester 2
CORE (T)	EKC500/3 IBG501/4 IBK502/3	SEM BREAK	IBG503/4 IBK504/2
	10		6
ELECTIVE (E) (*Choose one*)			IBA505/4 IBA506/4
	0		4
Total Unit	10		10
Course Type	**2027/2028 Academic Session**		
	Semester 1		**Semester 2**
CORE (T)	IBA507/20*	SEM BREAK	IBA507/20*
	10		10
ELECTIVE (E) (*Choose one*)			
	0		0
Total Unit	10		10

*Course is offered in TWO (2) semesters (unit counted per semester is 10).

3.0 Expertise

1. Food Technology

No.	Name	Expertise & USM Expert Link
1	Prof. Dato' Dr. Azhar bin Mat Easa	1. Protein-Nutrient Interactions 2. Functional Foods 3. Almost-Illegal Foods *USM Expert: https://experts.usm.my/cvitae/azhar*
2	Assoc. Prof. Dr. Cheng Lai Hoong	1. General Food Processing - Industrial Problems Solving 2. Product shelf life 3. Food Quality *USM Expert: https://experts.usm.my/cvitae/lhcheng*
3	Assoc. Prof. Dr. Lee Lai Kuan	1. Human Nutrition 2. Nutritional Biochemistry 3. Nutrigenomic 4. Food Security 5. Biostatistic 6. Human Clinical Trial *USM Expert: https://experts.usm.my/cvitae/l.k.lee*
4	Assoc. Prof. Dr. Tan Thuan Chew	1. Food Regulations 2. Kinetic Study 3. Beverage Processing and Technology 4. Alternative Proteins 5. Food Defense 6. Food Fraud *USM Expert: https://experts.usm.my/cvitae/thuanchew*
5	Dr. Uthumporn Utra @ Sapina Abdullah	1. Food Chemistry and Analysis 2. Starch Structure and Functionality 3. Functional Food Product *USM Expert: https://experts.usm.my/cvitae/sapina*
6	Dr. Abdorreza Mohammad Nafchi	1. Textural, Rheological, and Thermal Properties of Foods 2. Bionanocomposites and Smart Packaging 3. Food Plant Layout 4. Simulation and Optimization of Food Processing Lines *USM Expert: https://experts.usm.my/cvitae/amohammadi*
7	Dr. Effarizah binti Mohd Esah	1. Microbiological Food Safety 2. Molecular Microbiology 3. Bacterial Foodborne Pathogens *USM Expert: https://experts.usm.my/cvitae/effarizah*
8	Dr. Hayati binti Samsudin	1. Food Packaging 2. Biodegradable Polymers 3. Mass Transfer in Food Packaging Application *USM Expert: https://experts.usm.my/cvitae/hayatis*

No.	Name	Expertise & USM Expert Link
9	Dr. Maizura binti Murad	1. Food Sensory Evaluation 2. Food Analysis 3. Halal Food Management *USM Expert: https://experts.usm.my/cvitae/maizura*
10	Dr. Musfirah binti Zulkurnain	1. Edible Oil Applications Technologies 2. Structuring Fatty Food Systems 3. Fats & Oils Processing Technologies 4. Non-Thermal Processing Technologies *USM Expert: https://experts.usm.my/cvitae/musfirah.z*
11	Dr. Nor Shariffa binti Yussof	1. Food Bioploymers and Colloids 2. Food Nanotechnology 3. Lipid Technology *USM Expert: https://experts.usm.my/cvitae/nshariffa*
12	Dr. Norazatul Hanim binti Mohd Rozalli	1. Food Processing and Engineering 2. Heat and Mass Transfer in Food Processing 3. Food Rheology 4. Kinetic Analysis *USM Expert: https://experts.usm.my/cvitae/norazatulhanim*
13	Dr. Norlia binti Mahror	1. Food Microbiology 2. Mycology 3. Mycotoxins *USM Expert: https://experts.usm.my/cvitae/norlia.mahror*
14	Dr. Syahariza binti Zainul Abidin	1. Food Chemistry and Analysis 2. Texture-Modified Food 3. Starch Structure-Digestibility Study 4. Halal Food Authentication *USM Expert: https://experts.usm.my/cvitae/syahariza*

2. Bioresource Technology

No.	Name	Expertise & USM Expert Link
1	Assoc. Prof. Dr. Leh Cheu Peng	1. Biomass Utilization for value-added products (Pulp, Papermaking and Bioenergy) 2. Cellulose and Fiber Technology 3. Sustainable Wood and Biomass Processing (Pulping and Bleaching) *USM Expert: https://experts.usm.my/cvitae/cpleh*
2	Assoc. Prof. Ts. Dr. Mohamad Haafiz bin Mohamad Kassim	1. Isolation and Characterization of Microcrystalline Cellulose and Cellulose Nanowhisker 2. Cellulose and Cellulose Derivative 3. Pulp and Paper Making *USM Expert: https://experts.usm.my/cvitae/mhaafiz*

No.	Name	Expertise & USM Expert Link
3	Assoc. Prof. Dr. Nurul Fazita binti Mohammad Rawi	1. Natural Fibre 2. Biocomposites and Biopolymer 3. Manufacture and Thermoforming of Biocomposite Sheets 4. Packaging Material from Biocomposites *USM Expert: https://experts.usm.my/cvitae/fazita*
4	Assoc. Prof. Dr. Tay Guan Seng	1. Lignocellulosic Based Polymer Composites (Thermoplastic and Thermoset) 2. Chemical Modification of Lignocellulosic Materials 3. Polyurethane Research and UV Curing Technology *USM Expert: https://experts.usm.my/cvitae/taygs*
5	Dr. Arniza binti Ghazali	1. Eco-Friendly Pulping of Oil Palm Biomass 2. Fundamental Study of Alkaline Peroxide Reaction Towards Pulp and Biomass 3. Pulp Based Products *USM Expert: https://experts.usm.my/cvitae/arniza*
6	Dr. Azniwati binti Abd Aziz	1. Synthesis and Characterization of Diblock Copolymers 2. Self-Assembly of Amphiphiles 3. Synthesis and Characterization of Surface-Active Janus Particles 4. Utilising Natural Resources as Surfactants in (Mini)Emulsion UV-Curable Coatings *USM Expert: https://experts.usm.my/cvitae/azniwati*
7	Dr. Faheem Ullah	1. Biopolymer Chemistry 2. Hydrogel Technology 3. Controlled Drug Delivery 4. Nanomedicine 5. Regenerated Products of Hydrogel, Aerogel, Xerogel, *USM Expert: https://experts.usm.my/cvitae/faheem*
8	Dr. Kushairi bin Mohd Salleh	1. Biopolymers 2. Bioadhesives 3. Biocomposites 4. Cellulose and its Derivatives 5. 3-D Bioprinting, Skin-issue Engineering *USM Expert: https://experts.usm.my/cvitae/kmsalleh*
9	Dr. Mohamad Shazeli bin Che Zain	1. Phytochemistry and Applications *USM Expert: https://experts.usm.my/cvitae/shazeli*
10	Dr. Mohd Nurazzi bin Norizan	1. Biocomposite 2. Natural Fibre Composite 3. Hybrid Composite 4. Polymer Chemistry and Structure 5. Materials Characterisation 6. Nanocomposite *USM Expert: https://experts.usm.my/cvitae/mohd.nurazzi*

No.	Name	Expertise & USM Expert Link
11	Dr. Nur Izzaati binti Saharudin	1. Physical and Mechanical Properties of Bio-Composites and Bamboo-Based Composites Material for Structural and Non-Structural Application 2. Furniture Design and Manufacturing *USM Expert: https://experts.usm.my/cvitae/nurizzaati*
12	Dr. Sumarni binti Mansur	1. Membrane Technology 2. Haemodialysis Membrane 3. Biomaterials 4. Functional Materials 5. Biomass 6. Biocomposites *USM Expert: https://experts.usm.my/cvitae/sumarni90*

3. Environmental Technology

No.	Name	Expertise & USM Expert Link
1	Prof. Dr. Norli binti Ismail	1. Water 2. Wastewater 3. Solid Waste Treatment Technology 4. Management *USM Expert: https://experts.usm.my/cvitae/norli*
2	Assoc. Prof. Dr. Yusri bin Yusup	1. Boundary-Layer Meteorology 2. Air-Sea Interaction *USM Expert: https://experts.usm.my/cvitae/yusriy*
3	Assoc. Prof. Dr. Mardiana Idayu binti Ahmad	1. Renewable and Sustainable Energy Technologies 2. Bio-Based Micro and Nanotechnology/Materials for Pollution control 3. Environmental and Energy Management 4. Indoor Environmental Quality *USM Expert: https://experts.usm.my/cvitae/mardianaidayu*
4	Assoc. Prof. Dr. Japareng bin Lalung	1. Environmental microbiology *USM Expert: https://experts.usm.my/cvitae/japareng*
5	Assoc. Prof. Dr. Syahidah binti Akmal Muhammad	1. Stable Isotope Fingerprinting 2. Chemical Fingerprinting in Environmental Forensics 3. Environmental Monitoring of Organic Contaminant *USM Expert: https://experts.usm.my/cvitae/syahidah*
6	Assoc. Prof. Dr. Muhammad Izzuddin bin Syakir Ishak	1. Environmental Isotopes 2. Green material Technology for Watershed Management *USM Expert: https://experts.usm.my/cvitae/misyakir*
7	Assoc. Prof. Dr. Mohd Hafiidz bin Jaafar	1. Occupational Safety and Health *USM Expert: https://experts.usm.my/cvitae/mhafiidz*

No.	Name	Expertise & USM Expert Link
8	Assoc. Prof. Ts. Dr. Mohamad Anuar bin Kamaruddin	1. Solid Waste Characteristics Study 2. Water Quality 3. Environmental Management 4. Landfill Technology 5. Waste Diversion *USM Expert: https://experts.usm.my/cvitae/anuarkamaruddin*
9	Dr. Harlina binti Ahmad	1. Environmental Engineering 2. Environmental Monitoring 3. Environmental Assessment *USM Expert: https://experts.usm.my/cvitae/harlinaa*
10	Dr. Khozema bin Ahmed Ali	1. Catalysis 2. Reaction Engineering 3. Air Pollution Monitoring and Control 4. Nanotechnology *USM Expert: https://experts.usm.my/cvitae/khozema*
11	Dr. Mark Harris Zuknik	1. Supercritical Carbon Dioxide (SC-CO_2) Extraction *USM Expert: https://experts.usm.my/cvitae/zuknik*
12	Dr. Mohd Saiful bin Samsudin	1. Environmental Analysis and Modelling 2. Environmental Monitoring and Assessment 3. Environmental Toxicology *USM Expert: https://experts.usm.my/cvitae/saifulsamsudin*
13	Dr. Norhaniza binti Amil	1. Particulate Matter (PM) Characterization 2. Chemical Composition and Particle Number Distribution (PNC) 3. Source Apportionment of Atmospheric Aerosol 4. Atmospheric Pollution and Human Health 5. Occupational Health and Safety *USM Expert: https://experts.usm.my/cvitae/norhaniza_amil*
14	Dr. Santhana Krishnan Chandrasekar	1. Biogas 2. Bioconversion 3. Fermentation 4. Wastewater USM Expert: *https://experts.usm.my/cvitae/santhanakc*
15	Dr. Widad binti Fadhullah	1. Isotope Ecology 2. Ecological Risk Assessments *USM Expert: https://experts.usm.my/cvitae/widad*

4. Bioprocess Technology

No.	Name	Expertise & USM Expert Link
1	Prof. Dr. Liong Min Tze	1. Fermentation Technology 2. Functional Food 3. Food Processing Plant and Machinery Design 4. Food Microbiology 5. Clinical Nutrition USM Expert: https://experts.usm.my/cvitae/mintze.liong
2	Assoc. Prof. Ir. Dr. Husnul Azan bin Tajarudin	1. Biofeedstocks 2. Bioprocess Design 3. Downstream Processing 4. Factory Environment *USM Expert: https://experts.usm.my/cvitae/azan*
3	Assoc. Prof. Dr. Lee Chee Keong	1. Biological Macromolecules 2. Waste Valorisation 3. Biocatalyst and Enzyme Technology 4. Bioplastic Technology 5. Fermentation Technology *USM Expert: https://experts.usm.my/cvitae/cklee*
4	Assoc. Prof. Dr. Tan Joo Shun	1. Fermentation Technology 2. Bioreactor Food Fermentation 3. Functional Food Technology 4. Next Generation Food 5. Bioprocess Technologies *USM Expert: https://experts.usm.my/cvitae/jooshun*
5	Ts. Dr. Ana Masara binti Ahmad Mokhtar	1. Biochemical Genetics 2. Tumour Biology and Immunology 3. Cancer Cell Biology *USM Expert: https://experts.usm.my/cvitae/anamasara*
6	Dr. Mohamad Hafizi bin Abu Bakar	1. Cell Culture Technology 2. Biopharmaceuticals 3. Cell Biology 4. Molecular Pharmacology 5. Metabolomics *USM Expert: https://experts.usm.my/cvitae/mhafizi88*
7	Dr. Mohd Asyraf bin Kassim	1. Environmental Microbiology 2. Industrial Microbiology 3. Phycoremediation 4. Biomass Energy Technology 5. Bioremediation, Bioconversion and Biodegradation *USM Expert: https://experts.usm.my/cvitae/asyrafkassim*

No.	Name	Expertise & USM Expert Link
8	Dr. Muaz bin Mohd Zaini Makhtar	1. Bioconversion 2. Biofuel 3. Bioremediation 4. Bioprocess Engineering 5. Biomass Energy Technology *USM Expert: https://experts.usm.my/cvitae/muazzaini*
9	Dr. Noor Aziah binti Serri	1. Biochemical Process 2. Biocatalyst and Enzyme Technology 3. Bioprocess Technologies *USM Expert: https://experts.usm.my/cvitae/aziah_serri*
10	Dr. Nor Hawani binti Salikin	1. Cloning and Genetic Engineering 2. Marine Microbiology 3. Industrial Microbiology 4. Agricultural Microbiology *USM Expert: https://experts.usm.my/cvitae/norhawani*
11	Dr. Noreen Suliani binti Mat Nanyan	1. Gene Isolation 2. Gene Transformation 3. Microbial Technology 4. Nucleic Acids 5. Proteins *USM Expert: https://experts.usm.my/cvitae/noreen_nanyan*
12	Ts. Dr. Siti Baidurah binti Yusoff	1. Biofeedstocks 2. Biofuel 3. Bioplastic 4. Fermentation Technology 5. Biodegradable Packaging *USM Expert: https://experts.usm.my/cvitae/sitibaidurah*
13	Dr. Siti Balqis binti Zulfigar	1. Proteomics 2. Biocatalyst 3. Downstream Processing 4. Enzyme Technology *USM Expert: https://experts.usm.my/cvitae/balqiszulfigar*
14	Dr. Wan Zafira Ezza binti Wan Zakaria	1. Statistical Computing 2. Computer-Aided Geometric Design (CAGD) 3. Calculus *USM Expert: https://experts.usm.my/cvitae/ezzafira*
15	Dr. Zakir Khan	1. Biomass Conversion 2. Biomass Gasification 3. Waste-to-Energy Technologies 4. Hydrogen Production 5. Bioenergy Systems 6. Thermochemical Conversion 7. Catalytic Gasification 8. Carbon Capture

5.0 Facilities

5.1 Laboratory Facilities for Undergraduate Teaching

NO.	LAB NO.	LAB NAME	PIC
1	019	Food Processing Lab	Mohd. Firdaus
2	031	Paper Processing Lab	Mazlan
3	042	Unit Operations Lab	Noraida / Alfenddi / Jeffiz
4	056	Furniture Workshop	Basrul
5	114	CAI/Computer Lab	Muhammad Khairi
6	137	Food Technology Equipment Lab	Abdul Rahim
7	A203	Microbial Agent and Strain Improvement (MASI) Lab	Najmah
8	A204	Bioanalysis and Biocatalysis (BB) Lab	Azmaizan
9	206	Microbiology Lab	Abdul Ghoni
10	233	Food Biochemistry Lab	Abdul Rahim
11	243	Liquid Chromatography Lab	Abdul Rahim / Norita
12	250	Food Sensory Analysis Lab	Najmah
13	255	Food Analysis Lab	Norita
14	262	Water Analysis Lab 1	Noraida / Alfenddi
15	306	Bioresource Lab 1	Azhar
16	340	Coating Lab 1	Shamsul
17	352	Paper Lab 1	Noorhasni / Mazlan

5.2 Laboratory Support Facility

NO.	LAB NO.	LAB NAME	SERVICE	PIC
1	048	Centre of Technical Facility	Maintenance / Repair	Zahidil Aswad
2	056	Furniture Workshop	Furniture workshop	Basrul
3	172	Lab Management Office	Service	Jeffiz / Mohd Syukri

5.3 Computer Laboratory and Research Laboratory

NO.	LAB NO.	LAB NAME	PURPOSE	PIC
1	025	Food Processing Lab	Teaching & Research	Mohd. Firdaus
2	031B	Mechanical Test Lab	Teaching & Research	Munir
3	031C	Mechanical Test Lab	Research	Munir
4	114	CAI/Computer Lab	Teaching & Computing Facility	Muhammad Khairi
5	119	Microbiology Lab	PG Research	Alfenddi
6	131	Super Critical & Special Instrument	PG Research	Alfenddi

NO.	LAB NO.	LAB NAME	PURPOSE	PIC
7	133	Environmental Technology Research Lab	Research	Alfenddi
8	137	Food Technology Equipment Lab	Teaching & Research	Abdul Rahim
9	140	Vermitech Lab	Research	Jeffiz
10	144	Sewage Lab	Research	Jeffiz
11	148	Environmental Technology Lab	Research	Jeffiz
12	154	Env.Tech Instrumental Lab	PG Research	Mohd Syukri
13	210	Food Technology Research Lab I	PG Research	Abdul Ghoni
14	215	Food Technology Research Lab II	PG Research	Abdul Ghoni
15	225	Food Technology Research Lab III	PG Research	Norita
16	225A	Spectroscopy Lab	Elemental Analysis Lab	Khairul Azhar
17	229	Paper Research Lab	PG Research	Mazlan
18	232	Food Technology Research Lab I	PG Research	Abdul Rahim
19	243	Liquid Chromatography Lab	Teaching and Research	Abdul Rahim / Norita / Azmaizan
20	307	Density Profiler Lab	Teaching and Research	Mohd Syukri
21	308	Bioresource Lab 1	Teaching and Research	Azhar
22	317	Paper Lab 2	Teaching and Research	Noorhasni
23	320	BPC Research Lab I	PG Research	Azhar
24	329	Ibn Hayyan Lab	Research	Khairul Azhar
25	331	Coating Lab 3	PG Research	Shamsul
26	333	Coating Lab 2	Thermal Analysis Lab	Noraida
27	337	UV Machine Lab	PG Research	Noraida
28	345	BPC Research Lab II	PG Research	Shamsul
29	348	Lignocellulosic Polymer Composite Lab	PG Research	Shamsul
30	350	Weather Station Lab	PG Research	Noraida
31	352	Paper Lab 1	Teaching and Research	Noorhasni
32	A001	Pilot Scale Lab	PG Research	Azmaizan
33	A202	Bioprocess Technology Lab	Teaching and Research	Azmaizan/Najmah
34	A307	PRHONE Research Lab	PG Research	Najmah
35	A309	Integrated Bioprocessing Research Lab	PG Research	Azmaizan
36	A407a	Fermentation, Microbiology, Microalgae, Enzyme (FeMEs) Lab	PG Research	Azmaizan
37	A408a	ProCeDa Lab	PG Research	Najmah
38	A409a	Bioprocess Technology Lab	Research/Instrument	Najmah

* Undergraduate students will have practical classes and final year research projects in laboratories assigned as teaching and research laboratories
* PG research laboratories are dedicated to postgraduate students.

5.4 Centralised Laboratory

NO.	LAB NO.	LAB NAME	PURPOSE	PIC
1	047	Microscope Laboratory	Teaching & Research	Munir / Mohd Syukri
2	225A	Elemental Analysis Laboratory	Teaching & Research	Khairul Azhar / Mohd Syukri
3	243	Liquid Chromatography Laboratory	Teaching & Research	Azmaizan
4	329	Gas Chromatography Laboratory	Teaching & Research	Khairul Azhar / Mohd Syukri
5	333	Thermal Analysis Laboratory	Teaching & Research	Noraida / Shamsul

5.5 Other Facilities

In addition, the school also provides the following facilities:

1. A Student Corner at the School foyer
2. Muslim Prayer Rooms (Surau) (Room 302A/B/ A607)
3. A Seminar Room (Room 171)
4. Conference Room (Ground floor of the School)
5. Cuckoo Water Machines (Level 1 & Level 3)
6. Student Lockers (available at the respective division)
7. A mini garden
8. Wireless network “Wi-Fi” throughout USM campus
9. Postgraduates Rooms – Environmental Technology (Room 049 & 350)
10. Postgraduates Room – Food Technology (Room 221)
11. Postgraduates Room – Bio-Resource, Paper and Coating Technology (Room 319)
12. Postgraduate Space (Room A605)
13. ePlas Multipurpose Classroom (A601)

ACADEMIC CALENDAR - ACADEMIC SESSION 2026/2027

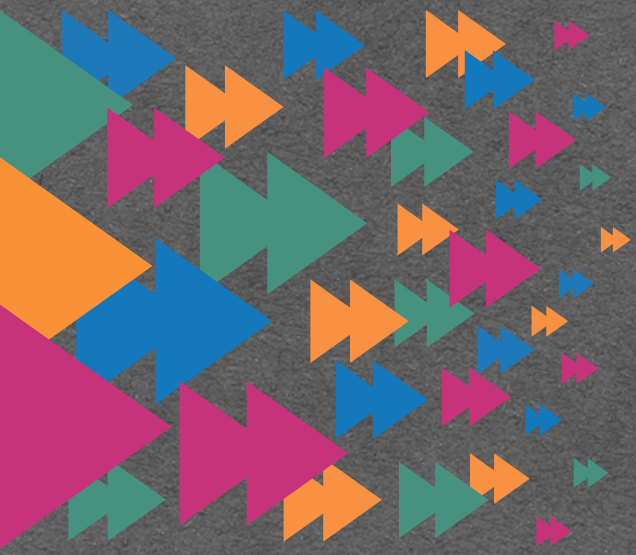
FOR ALL SCHOOLS (EXCEPT FOR SCHOOL OF MEDICAL SCIENCES AND SCHOOL OF DENTAL SCIENCES)

Main Campus : Registration for New Student (18 - 20 September 2026) / **Orientation Week (21 - 26 September 2026)
Engineering Campus : Registration for New Student (20 September 2026) / **Orientation Week (21 - 26 September 2026)
Health Campus : Registration for New Student (19 September 2026) /Orientaion Week (21 - 26 September 2026)**

SEM	WEEKS	ACTIVITIES	DATES	REMARKS
ONE	1	Teaching & Learning (T&L 7 Weeks)	Monday, 28.09.2026 - Sunday, 04.10.2026	29 & 30.09.2026, Tuesday & Wednesday - Sultan of Kelantan's Birthday (Health Campus)
	2		Monday, 05.10.2026 - Sunday, 11.10.2026	
	3		Monday, 12.10.2026 - Sunday, 18.10.2026	
	4		Monday, 19.10.2026 - Sunday, 25.10.2026	
	5		Monday, 26.10.2026 - Sunday, 01.11.2026	
	6		Monday, 02.11.2026 - Sunday, 08.11.2026	08.11.2026, Sunday - Deepavali**
	7		Monday, 09.11.2026 - Sunday, 15.11.2026	
	8	Mid-Semester Break (Sem I) (1 Week)	Monday, 16.11.2026 - Sunday, 22.11.2026	
	9	Teaching & Learning (T&L 7 Weeks)	Monday, 23.11.2026 - Sunday, 29.11.2026	
	10		Monday, 30.11.2026 - Sunday, 06.12.2026	
	11		Monday, 07.12.2026 - Sunday, 13.12.2026	
	12		Monday, 14.12.2026 - Sunday, 20.12.2026	
	13		Monday, 21.12.2026 - Sunday, 27.12.2026	25.12.2026, Friday - Christmas Day
	14		Monday, 28.12.2026 - Sunday, 03.01.2027	01.01.2027, Friday - New Year 2027
	15		Monday, 04.01.2027 - Sunday, 10.01.2027	
	16	Revision Week (1 Week)	Monday, 11.01.2027 - Sunday, 17.01.2027	
	17	Examination (3 Weeks)	Monday, 18.01.2027 - Sunday, 24.01.2027	22.01.2027, Friday - Thaipusam
	18		Monday, 25.01.2027 - Sunday, 31.01.2027	
	19		Monday, 01.02.2027 - Sunday, 07.02.2027	06 & 07.02.2027, Saturday & Sunday - Chinese New Year
	20	Mid-Semester Break / Industrial Training (4 Weeks)	Monday, 08.02.2027 - Sunday, 14.02.2027	08.02.2027, Monday - First Day of Ramadan
	21		Monday, 15.02.2027 - Sunday, 21.02.2027	
	22		Monday, 22.02.2027 - Sunday, 28.02.2027	24.02.2027, Wednesday - Nuzul Al-Quran
	23		Monday, 01.03.2027 - Sunday, 07.03.2027	
TWO	24/1	Teaching & Learning (T&L 7 Weeks)	Monday, 08.03.2027 - Sunday, 14.03.2027	10 & 11.03.2027, Wednesday & Thursday - Eid al-Fitr**
	25/2		Monday, 15.03.2027 - Sunday, 21.03.2027	
	26/3		Monday, 22.03.2027 - Sunday, 28.03.2027	
	27/4		Monday, 29.03.2027 - Sunday, 04.04.2027	
	28/5		Monday, 05.04.2027 - Sunday, 11.04.2027	
	29/6		Monday, 12.04.2027 - Sunday, 18.04.2027	
	30/7		Monday, 19.4.2027 - Sunday, 25.04.2027	
	31/8	Mid-Semester Break (Sem II) (1 Week)	Monday, 26.04.2027 - Sunday, 02.05.2027	01.05.2027, Saturday - Labour Day 02.05.2027, Sunday - Substitute Holiday for Labour Day (Health Campus)
	32/9	Teaching & Learning (T&L 7 Weeks)	Monday, 03.05.2027 - Sunday, 09.05.2027	
	33/10		Monday, 10.05.2027 - Sunday, 16.05.2027	
	34/11		Monday, 17.05.2027 - Sunday, 23.05.2027	17.05.2027, Monday - Eid al-Adha** 18.05.2027, Tuesday - Substitute Holiday for Eid al-Adha** (Health Campus) 20.05.2027, Thursday - Wesak Day
	35/12		Monday, 24.05.2027 - Sunday, 30.05.2027	
	36/13		Monday, 31.05.2027 - Sunday, 06.06.2027	06.06.2027, Sunday - Islamic New Year
	37/14		Monday, 07.06.2027 - Sunday, 13.06.2027	07.06.2027, Monday - Substitute Holiday for Islamic New Year (Main Campus & Engineering Campus) 07.06.2027, Monday - Yang di-Pertuan Agong's Birthday
	38/15		Monday, 14.06.2027 - Sunday, 20.06.2027	
	39/16	Revision Week (1 Week)	Monday, 21.06.2027 - Sunday, 27.06.2027	
	40/17	**Examination (2 Week) / Examination (3 Week)	Monday, 28.06.2027 - Sunday, 04.07.2027	
	41/18		Monday, 05.07.2027 - Sunday, 11.07.2027	07.07.2027, Wednesday - Georgetown World Heritage City Day 10.07.2027, Saturday - Penang Governor's Birthday
	42/19	Semester II Break / Industrial Training (10–11 Weeks)	Monday, 12.07.2027 - Sunday, 18.07.2027	
COURSES DURING SEMESTER BREAK	43/20		Monday, 19.07.2027 - Sunday, 25.07.2027	
	44/21		Monday, 26.07.2027 - Sunday, 01.08.2027	
	45/22		Monday, 02.08.2027 - Sunday, 08.08.2027	
	46/23		Monday, 09.08.2027 - Sunday, 15.08.2027	15.08.2027, Sunday - Prophet Muhammad's Birthday
	47/24	*T&L	Monday, 16.08.2027 - Sunday, 22.08.2027	16.08.2027, Monday - Substitute Holiday for Prophet Muhammad's Birthday
	48/25		Monday, 23.08.2027 - Sunday, 29.08.2027	
	49/26	Examination	Monday, 30.08.2027 - Sunday, 05.09.2027	31.08.2027, Tuesday - National Day
	50/27		Monday, 06.09.2027 - Sunday, 12.09.2027	
	51/28		Monday, 13.09.2027 - Sunday, 19.09.2027	16.09.2027, Thursday - Malaysia Day
	52/29		Monday, 20.09.2027 - Sunday, 26.09.2027	

**This Academic Calendar is subject to change

HEBAHAN BPA BIL. 1/2026 (13 FEBRUARI 2026)
SENAT KE-297 (29 JANUARI 2026)



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