SCHOOL OF MATERIALS AND MINERAL RESOURCES ENGINEERING

POSTGRADUATE HANDBOOK

Master of Science in Materials Engineering (Mixed Mode)

Academic Session 2026/2027

Postgraduate Handbook

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TABLE OF CONTENTS

01

Background

1.1 SMMRE Background

The School of Materials and Mineral Resources Engineering (SMMRE) started its program since 1984 in Universiti Sains Malaysia (USM), Penang under the School of Industrial Technology and Engineering Sciences. With the advancement of technology and market demand for skilled engineers in the country, USM took the initiative to fulfill the requirement by having its own engineering school separated from other disciplines of applied sciences.

In March 1986, the engineering disciplines under the School of Industrial Technology were separated to form their own schools, which include the formation of the School of Materials and Mineral Resources Engineering. USM had then housed the new campus at Ipoh before moving to Seri Iskandar, Perak.However, after a lapsed of 15 years, in May 2001, the campus was moved to the new site situated at Nibong Tebal, Seberang Perai Selatan, Penang.

Compared to other schools or faculty in other Institutes of Higher Learning in Malaysia, the School of Materials and Mineral Resources Engineering is unique because it offers three programs, these are Materials Engineering, Mineral Resources Engineering and Polymer Engineering at bachelor degree (honours) level for each programme.

Polymer Engineering program is the latest addition to the school that commenced in April 2002. The program is an upgrading of Polymer Technology program that was originally under the School of Industrial Technology in USM Penang.

In general, the three programs include specialization as follows:

(i) The Material Engineering emphasizes on materials such as metal, ceramic, composite, polymer and semiconductor and electronic materials. These involve design and production of materials, quality control and the materials properties.

(ii) Mineral Resources Engineering focuses on areas of mining, processing and management of mineral resources and the environment.

(iii) Polymer Engineering focuses on polymeric materials such as plastics, rubber, latex and composites. These involve synthesis, processing, design and production of polymer products, quality control and the properties of polymers.

In principal, Universiti Sains Malaysia, upholds the mission among which to build a greater understanding and strive to provide quality education as well as efficient and professional services through vast knowledge, innovation and latest expertise while upholding common ethical values.

With that, SMMRE through its three programmes have one similar objective that is to produce materials, mineral resources and polymer engineers that are professionally qualified, knowledgeable and matured, highly skilled and capable to perform in relevant engineering activities including giving ideas and solution towards complex engineering problem through analytical, innovative and proactive thinking. With these philosophies, the curriculum has been design to fulfill the aspiration and goals of Industrial Revolution 4.0, sustainable development goals (SDGs), industrial needs and in line with the growth of world globalization technology. Therefore, the existing curriculum is moulded with the following quality:

- Recognized by professional bodies including Board of Engineers Malaysia (BEM) and Institution of Engineers Malaysia (IEM).
- Balanced integration of teaching based on theory with practical skills.
- Continuously up-dated with various specializations in tandem with the needs and development of local and international market.
- Develop and generate graduates with knowledge, ethics, quality, skill, innovative and strong commitment towards excellent performance.

VISION OF SMMRE

To be an established and respectable world class academic and research school of excellence based on current technology.

MISSION OF SMMRE

To be globally recognized as a dynamic engineering school that produces creative, innovative and resourceful intellectuals with an ethos towards life-long learning that will contribute towards the creation of knowledge based society.

02

Organization Chart

ADMINISTRATIVE ORGANIZATIONAL CHART

DEPUTY DEAN
(Academic, Career & International)
Dr. Suhaina Ismail

DEPUTY DEAN
(Research, Innovation & Inustrial-Community Engagement)
Assoc. Prof. Ir. Ts. Dr. Hasmaliza Mohamad

DEAN
Prof. Ts. Dr. Zulkifli Mohamad Ariff

PROGRAMME CHAIRMAN (Materials Engineering)
Dr. Syazana Ahmad Zubir

MANAGER
(Corporate Affairs & Community Engagement)
Dr. Mohamad Danial Shafiq

PROGRAMME CHAIRMAN
(Mineral Resouces Engineering)
Dr. Nurul'Ain Jabit

PROGRAMME CHAIRMAN
(Polymer Engineering)
Assoc. Prof. Ir. Ts. Dr.
Zuratul Ain Abdul Hamid

SENIOR ASSISTANT REGISTRAR
Mrs. Normala Omar

SENIOR ASSISTANT ENGINEER
Mr. Khairul Nasrin Abas

SENIOR ASSISTANT REGISTRAR
Mrs. Norasyidah Binti Mohd Yusoff

03

Academic Programme

3.1 PROGRAMME OVERVIEW

The School of Materials and Mineral Resources Engineering, Universiti Sains Malaysia offers a postgraduate Master of Science in Materials Engineering by Mixed Mode degree programme. The mode is a combination of 50% coursework and 50% research project (dissertation). The Mixed Mode programme covers in-depth topics related to materials development, processes, and properties; at the same time, it provides a platform to develop students the research skills.

3.2 PEO, PLO & IEG

PEO - With the mission of the School of Materials and Mineral Resources Engineering, the Master of Science in Materials Engineering (Mixed Mode) program offers a high-quality academic program with the aim of producing graduates with the following program educational objectives (PEO):

PEO	Description of the educational objectives of the program
PEO 1	Skilled graduates with knowledge and competencies in fields related to Materials Engineering
PEO 2	Graduates have good leadership quality with the right attitude and ethics
PEO 3	Graduates who are involved in the pursuit of knowledge continuity through research, lifelong education and professional development

PLO - Students pursuing this master's degree program will have in-depth knowledge of subjects related to Materials Engineering. Students should be able to achieve the following program learning outcomes (PLO) at the end of their studies.

PLO	Description of Learning Outcomes
PLO 1- Engineering Knowledge	Apply relevant theoretical knowledge to solve problems in Materials Engineering.
PLO 2- Cognitive skills	Employ skills to identify, interpret, evaluate, apply, adapt, and critically and scientifically solve problems in Materials Engineering practice.
PLO 3- Practical skills	Conduct practical work, procedures, and research related to Materials Engineering in compliance with standards and quality control requirements.
PLO 4- Interpersonal skills	Demonstrate interpersonal skills, social responsibility, and teamwork in coordinating activities related to Materials Engineering practice.
PLO 5- Communication skills	Communicate effectively, both orally and in writing, to convey information, findings, and results in the context of Materials Engineering.
PLO 6- Digital skills	Demonstrate ICT skills in various digital applications involving technology and data to obtain, process, and support information for Materials Engineering practice.
PLO7- Numeracy skills	Demonstrate skills in using, interpreting, analysing, and evaluating numerical, visual, and graphical data in presenting information, findings, and results in Materials Engineering.
PLO 8- Leadership skills	Apply knowledge and experience in leadership to lead effectively and contribute to the advancement of Materials Engineering.
PLO 9- Personal skills	Demonstrate lifelong learning skills for academic and career development.
PLO 10- Entrepreneurial skills	Demonstrate fundamental management and financial skills relevant to Materials Engineering.
PLO 11-Ethics and Professionalism	Demonstrate high levels of moral values, ethics, and professionalism by adhering to ethical principles, codes of conduct, laws, sustainability principles, and regulations in Materials Engineering practice, based on sound standards and quality assurance.

USM Institutional Education Goal (IEG) is based on its HEBAT Agenda which aims to produce holistic, entrepreneurial mindset, balanced, articulate and thinking graduates to contribute to the wellbeing of the society, as well as meeting national and global needs. Five (5) USM IEG aims to produce graduates who are able to:

IEG 1: To demonstrate knowledge and skills, particularly in the graduate's professional discipline, with a global mindset through critical thinking and problem-solving approaches.

IEG 2: To exhibit a balanced character encompassing noble values and attitudes, ethics and professionalism, scientific thinking, as well as the arts and humanities, towards the development of an excellent citizenry and national civilisation.

IEG 3: To highlight socio-entrepreneurial skills and mindsets, enabling contributions to societal well-being by narrowing inequality gaps and enhancing sustainability.

IEG 4: To communicate effectively and confidently, encompassing intra-disciplinary and interdisciplinary contexts, society, and technology.

IEG 5: To demonstrate leadership, teamwork capabilities, and a commitment to lifelong learning, particularly within the graduate's professional discipline.

3.3 PROGRAMME STRUCTURE

FULL TIME

Semester 1			Semester 2			Long Vacation (KSCP)		
Code	Name of Course	Unit	Code	Name of Course	Unit	Code	Name of Course	Unit
EBB514	Principle and Processing of Advanced Materials	3	EBB555	Research Project	TL	EBB555	Research Project	20
EBB511	Materials Characterisation Techniques	3	EBB515	Materials Selection, Processing and Design	2			
EBB522	Surface and Corrosion Engineering	3						
EBB525	Electronic Materials and Optical Devices	3						
EBB516	Biomaterials	3						
EKC500	Science and Engineering Research Methodology	3						
Total		18	Total		2	Total		20

PART TIME

Semester 1			Semester 2			Semester 3			Semester 4			Long Vacation (KSCP)		
Code	Name of Course	Unit	Code	Name of Course	Unit	Code	Name of Course	Unit	Code	Name of Course	Unit	Code	Name of Course	Unit
EBB 514	Principle and Processing of Advanced Materials	3	EBB 516	Biomaterials	3	EBB 522	Surface and Corrosion Engineering	3	EBB 555	Research Project	TL	EBB 555	Research Project	20
EBB 511	Materials Characterisation Techniques	3	EBB 515	Materials Selection, Processing and Design	2	EBB 525	Electronic Materials and Optical Devices	3						
						EKC 500	Science and Engineering Research Methodology	3						
Total		6	Total		5	Total		9	Total		TL	Total		20

3.4 COURSE CONTENT

EBB511 Materials Characterisation Techniques

This course is focused on materials characterization techniques from the theoretical aspect, instrumentation and applications. This course covers thermal analysis (e.g. Thermogravimetry Analysis (TGA), Differential Thermal Analysis (DTA), Differential Scanning Calorimetry (DSC) and Dynamic Mechanical Analysis (DMA)), surface analysis (e.g. Auger Electron Spectroscopy (AES), Secondary Ion Mass Spectrometry (SIMS), X-Ray Photoelectron Spectroscopy (XPS)), microstructural analysis (e.g. Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), Atomic Force Microscopy (AFM)), molecular spectroscopy e.g. Fourier Transform Infrared Spectroscopy, and phase analysis using X-Ray diffractometer (XRD). In this course, students will also perform several experimental analysis using selected equipment.

EBB522 Surface and Corrosion Engineering

This course covers two parts, which are (1) Surface Engineering and (2) Corrosion Engineering. In the surface engineering section, the relationship of basic surface science with engineering applications will be discussed. Problems with surfaces and solutions which are commonly used will be described in conjunction with surface characterization techniques. Corrosion Engineering will cover the corrosion measurement and protection of other materials. Mostly will focus on the corrosion aspects of metals and their protection.

EBB 514 Principle and Processing of Advanced Materials

This course describes the interaction between processing, microstructure and properties of advanced metals, polymer and ceramics to fulfil integrated requirements and latest engineering applications. Concept on materials development to satisfy specified application will be discussed. Current status and outlook on nanomaterials is overviewed.

EKC 500 Science & Engineering Research Methodology

This course aims to provide an introduction to the basic principles of research methodology which includes

- philosophy and conceptual framework,
- research methodology techniques and
- systematic data analysis

This course approach for postgraduate students undergoing high quality research activities in science and engineering.

EBB515 Materials Selection, Processing and Design

This course is focused on the process of materials selection, processing and engineering design for a component. The role of materials selection, the relation between materials and processing with engineering design process will be explored through various case studies or class discussion, and learning technique of Problem Based Learning (PBL). The various aspects that influence selection of materials will be covered, such as cost, environmental impact, processing technology, as well as design of the component. Several typical processing techniques for engineering materials will also be covered, as well as exploring advanced processing techniques that are in line with the global engineering advances.

EBB 525 Electronic Materials and Devices

This course covers the basic knowledge of materials science, modern theory of solid, electrical and thermal conductivity of solids, magnetic properties and superconductivity, optical properties for electronic materials which include semiconductor materials, metal, dielectric materials and insulation. The applications of these electronic materials and working principle in electronic devices are generally discussed.

EBB 555 Research Project

This course relates to the research project on selected topic in Materials Engineering. Each student is given a title for an individual research project. Research activities include literature review, analysis of previous work, research experimental design and experimental set up, executing experimental work, collecting data, discussion, dissertation writing and oral presentation. In the oral presentation, the student is expected to produce a written report and to be defended in front of a panel of examiners.

EBB 516 Biomaterials

This course provides fundamental knowledge of topics in biomaterials, which is oneof the advanced materials. Different classes of biomaterials and properties, processing and application of biomaterials in medicine (both medical and dental) will be covered in the first part of this course. This is followed by regenerative medicine which includes designing scaffolds for tissue engi-neering, selecting suitable cells and cell culture systems for tissue engineering, predict the biological responses to implanted biomaterials and describe the appropriate testing and regulation of biomaterials

International Student: Compulsory course
LKM111 Malaysian Culture and Malay Language
This course is compulsory and must be taken and passed prior to graduation.

- Code course Z (Prerequisite).
- The passing grade is C.

3.5 EXPERTISE

3.6 GRADUATION REQUIREMENTS

For the award of the Master degree (Materials Engineering) a candidate has to:

- Accumulate Total Number of units = 40 unit
- (Full-time; 18+22) (Part-time; 6 + 5 + 9 + 20)
- Pass each course minimum C+ (2.33)
- CGPA must be 3.00 and above
- Pass the Research Project

Malaysian (MYR)	• Registration Fee : 330.00 • Tuition Fee : 450.00 X 40 Units = 18,000.00 • Convocation Fee : 200.00
International (USD)	• Registration Fees : 225.00 • Personal Bond : 1,000.00 • Tuition Fees : 160.00 X 40 Units = 6,400.00 • Convocation Fee : 50.00

Disclaimers

- The above rates are effective from Academic Session 2025/2026.
- Fees are subject to change.
- Final fees should be confirmed before any commitment to be made.
- Any discrepancies on the fees, the correct amount by USM Bursary are to be used.

3.8 RENEWAL OF REGISTRATION AND COURSE(S) REGISTRATION

It is the responsibility of a student to renew registration every semester and pay tuition fees within the renewal registration period. The announcement for the registration renewal and courses registration period will be published on the IPS website, https://ips.usm.my/ usually two (2) months before the commencement of the new semester. Students are advised to check the website and USM official email regularly for information updates prior to the registration period. Renewal of registration guideline is available in IPS website. Compulsory to be completed via the Campus Online Portal before the beginning of each semester.

3.9 PRE-REQUISITE COURSE(S)

Not applicable

3.10 ADD/DROP OF COURSES

Any add/drop of course(s) must be made using the Add/Drop form available at: https://ips.usm.my/index.php/download/candidature.
Final confirmation of course registration after the add/drop of courses can be checked through Campus Online Portal (http://campusonline.usm.my) Upon receiving the form, students will be contacted by IPS should there is any extra payment required or eligible for refund.

Add of Course(s)
Course(s) can be added within the first two (2) weeks of the semester. The application must be made using the Add/Drop Form.

Drop of Course(s)

Course(s) can be dropped up to the sixth (6) week after the semester commence. Tuition fee will be credited into the student's account for the following semester if the course(s) is dropped within the first two (2) weeks of the semester. No refund will be made for courses dropped on the third (3rd) and onwards of the semester. The application must be made through Online Registration System (ORSPG). Students are required to check the final list of courses registered through the Campus Online Portal latest by the ninth (9th) week of the semester.

3.11 DURATION OF APPLICATION DETAILS

Application sends to School of Materials and Mineral Resources Engineering before the new semester commence until week-2 of the new semester.
Retaining Fee will be imposed:

- Local – RM150
- International – RM250
- Week-3 until Week-9; 50% of the tuition fee will be imposed
- After Week-9; Full tuition fee will be imposed

Note: Retaining Fee is also to ensure student's candidature status remain ACTIVE

3.12 CONVERSION OF STATUS

A student can apply for conversion of his/her status from full-time to part-time or vice-versa. Application for conversion must be made using IPS/HEP – 03. Approval must be obtained from the Dean of the School of Materials and Mineral Resources Engineering. The conversion of status is only permitted twice during the entire period of candidature.

3.13 EXTENSION OF CANDIDATURE

Application for extension of candidature must be made two (2) months prior to the date of expiration of a student's candidature. The maximum period of extension allowed is two (2) semesters only. Application must be made using the available form at: https://ips.usm.my/index.php/download/candidature

3.14 WITHDRAWAL FROM THE PROGRAMME

Withdrawal from programme can be made by sending a withdrawal letter to Dean of School of Materials and Mineral Resources Engineering.

3.15 CHANGE OF MODE OF STUDY

Student must submit a new application for admission together with the processing fees for change of mode of study.

3.16 TERMINATION OF CANDIDATURE

The University reserves the right to terminate a student's candidature based on:

- Student's failure to renew the registration before new semester commences.
- Unsatisfactory academic performance
- Failure to pay the tuition fees
- Reach maximum candidature period

3.17 REACTIVATION OF CANDIDATURE

All students may reactivate their candidature within 1 year after termination subjected to period of candidature. The reactivation of the candidature is subjected to the decision of the University.

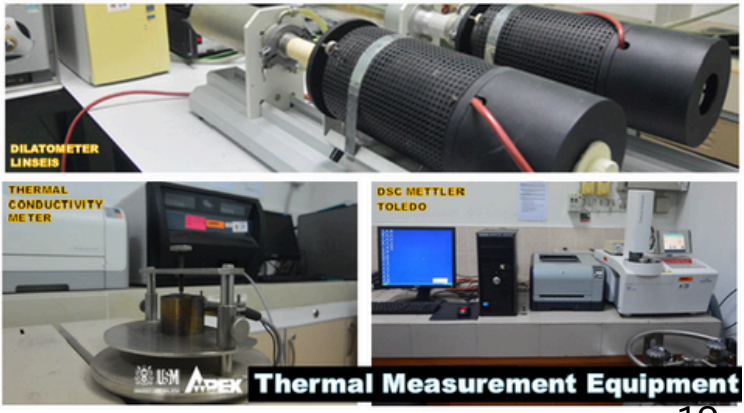
3.18 PLAGIARISM

Plagiarism is defined as the act of presenting, quoting, copying, paraphrasing or passing off of ideas, images, processes, works, data, own words or those of other people or sources without proper acknowledgement, reference or quotation to the original source(s). The acts of plagiarism include but are not limited to the following:

- Quoting verbatim word for word replication of work of other people.
- Paraphrasing another person's work by changing some of the words, or the order of the words, without due acknowledgement of the source(s).
- Submitting another person's work in whole or part as one's own.
- Auto-plagiarising or self-plagiarising one's own previous work or work that has already been submitted for assessment or for any other academic award and pass it as a new creation without citing the original content.
- Insufficient or misleading referencing of the source(s) that would enable the reader to check whether any particular work has indeed been cited accurately and/or fairly and thus identify the original writer's particular contribution in the work submitted.

Any other acts, which in the opinion of the University, fall into the plagiarism definition

3.8 TESTING FACILITY




DIFFERENTIAL SCANNING CALORIMETER
DIFFERENTIAL SCANNING CALORIMETER
DYNAMIC MECHANICAL ANALYSIS
THERMO GRAVIMETRIC ANALYZER
Thermal Measurement Equipment


Rheology Related Equipment
ALPHA
CONE & PLATE RHEOMETER ANTON PAAR
VISCOMETER MOONEY


Physical Testing Equipment
MICROHARDNESS TESTER LECO
VICKERS HARDNESS
UNIVERSAL TESTING MACHINE INSTRON


Materials Testing Laboratory
ISO/IEC 17025:2017
MATERIALS TESTING LABORATORY

Instrument Equipment / Test	Method / Equipment
Hardness Test	Rockwell C, ASTM E18-2017ε1
Tensile Test	Metal, ASTM E8/8M-16a, Instron
Tensile Test	Plastic, ASTM D638-14, Instron
Ageing Test (Polymeric Materials)	Oven (RT-400°C)
Aggregate Crushing Value (ACV)	Standard Crushing Tester
Aggregate Impact Value (AIV)	Standard Impact Tester
Autotitration/Zeta Potential	Zeta Sizer
Analytical chemistry	UV-Visible Spectrometer
Autoclave (max T 250°C)	Thermal exposure
Bending Test/3-point Bend Test	Instron Machine
Chemical Composition	X-ray fluorescence (XRF)
Chemical Resistant Polymer lab testing	Chemical Resistant Polymer lab testing
Compression Moulding	Hot Press Machine
Compression Test	Instron Machine
Compression Test	Universal Testing Machine (UTM), 50 ton
Colour Measurement	Colori-Meter
Corrosion	Polarization Test, Potentiostat
Corrosion	Open Circuit Potential / Galvanic Cell
Corrosion	Salt Spray machine (max 5 sample per run)
Corrosion	Immersion test
Concentration of Electron, Mobility of Electron	Hall effect
Creep Test	8M-6 Tech Equipment
Cyclic Voltamogram	Potentiostat
Conductivity at Different Temperature and Current/Voltage Characteristic	Parameter Analyzer
Contact Angle Measurement	Statistic and Dynamic, Goinometer
Crushing Testwork	Jaw Crusher/ Double Swing Jaw Crusher/ Cone Crusher
Crushing Testwork (Min. 2 ton)	Min. 2 ton, BARMACVSI Crusher
Density Pycnometer	Density/Archimedes
Dynamic Mechanical Testing Analysis	Normal, > Room Temperature
Dynamic Mechanical Testing Analysis	Low, < Room Temperature
Elemental Analysis	Normal Scan, energy-dispersive X-ray (EDX)
Elemental Analysis	Line Scan EBSD, EDX Mapping
Elemental Analysis	Atomic Absorption Spectrometry (AAS)
Elemental Analysis	ICP-OES
Electrical Resistivity Test	High Resistant Meter
Electrical Resistivity Test	4 Points Probe
Fatigue to Failure Test	FTFT machine
Fatigue Test	UTM Machine
Film Thickness/Optical parameters	Filematric
Fine Grinding	Planetary Mill
Fine Grinding	Milling machine (roller machine)
Fine Grinding	3-micron, Fluidized Jet Milll
Flotation Test	Denver Flotation Test
Flow Cone Test (NZS)	Flow Cone
Functional Group and Bonding analysis	Fourier Transform Infrared Spectroscopy (FTIR)
Functional Group and Bonding analysis	Fourier Transform Infrared Spectroscopy (FTIR)
Furnaces (max T 1600°C)	Gas furnace
Furnaces (max T 1600°C)	Chamber/tube furnace
Furnaces (max T 1600°C)	LOI Test
Furnaces (max T 1600°C)	Glass melting furnace

Instrument Equipment / Test	Method / Equipment
Geophysics Survey	Resistivity, Seismic
Geological Mapping	Drone
Gravity Concentrator	Spiral Shaking Table
Hardenability Test	Jominy test
Hardness Test	Rockwell, Brinell (micro), Vickers (micro)
Internal Mixer for Polymer	Internal Mixer
Impact Test	ZWICK Impact Test (Izod & Charpy)
Impedance Spectroscopy	Potentiostat
Magnetic Separator	Magnetic Separator/ Eddy Current Separator
Metallographic Sample Preparation	Cutting, mounting, grinding
Microstructure/Morphology	Field Emission Scanning Electron Microscopy (FESEM)
Microstructure/Morphology	Table-top Scanning Electron Microscopy (SEM)
Microstructure/Morphology	Optical microscopy
Melt Flow Index (MFI)	Melt Indexer
Modulus Test	Sonic Modulus Tester
Molecular Weight Measurement	Gel Permission Chromatography
Non-Destructive Test	Ultrasonic
Non-Destructive Test	Eddy Current
Non-Destructive Test	Liquid Penetrant
Oven (max temp 200°C)	Heating/Drying
Particle Size Analysis	Laser Sizer
Particle Size Analysis	Zeta Sizer
Particle Size Analysis	Sieves
Particle Classification	Hydrocyclone
pH value	pH meter
Phases Characterization (But Not Inclusive Detail Phase Analysis)	X-ray diffraction (XRD) – Bruker D2/D8
Plastic Injection Moulding	Injection Moulding Machine
Plastic Mixing	Heated Two Roll Mill
Plastic Mixing (Extrusion)	Single Screw Extruder
Plastic Mixing (Extrusion)	Twin Screw Extruder
Powder Compaction	Cold Isostatic Press
Powder Compaction	Hot Isostatic Press
Polarized Microscope (Petrography/Petrology) Polished Section (with photomicrograph)	Microscope
Polarized Microscope (Petrology) Thin Section (with photomicrograph)	Microscope
Rock Breakage Characterization	Drop Weight Tester
Rock Strength	Point Load Tester
Rubber Compounding	Two Roll Mill
Rubber Curing Characteristics	Rheometer
Rubber Injection Moulding	Injection Moulding Machine
Shape Analysis (BS) Elongation Index	Elongation Gauge
Shape Analysis (BS) Flakiness Index	Flakiness Gauge
Sound and Vibration Measuring for blasting	Blastmate
Solder Reliability Test	Solder Checker
Standard Bond Grindability Test	Ball Mill
Standard Polished Section Preparation (Ore Specimen)	Sample cutter and Polishing Machine
Standard Thin Section Preparation (Ore & Rock Specimen)	Sample cutter and Polishing Machine

Instrument Equipment / Test	Method / Equipment
Surface Analysis	Atomic Force Microscope
Surface Area	Brunauer–Emmett–Teller (BET)
Surface Resistivity	Resistivity Meter
Thermal analysis	Thermal Gravimetric Analysis (TGA) (Normal, > Room Temperature)
Thermal analysis	Differential Thermal Analysis (DTA) (Normal, > Room Temperature)
Thermal analysis	Differential scanning calorimetry (DSC) (Normal, > Room Temperature)
Thermal analysis	Differential scanning calorimetry (DSC) (Low, < Room Temperature)
Tensile Test	Universal Testing Machine (UTM)
Thermal Conductivity Analysis	Thermal Conductivity Analyzer
Thermal Expansion Coefficient	Dilatometer
Total Dissolved Solid (Latex/Emulsion)	-
Total Solid (Latex/Emulsion)	-
Total Suspended Solid (Latex/Emulsion)	-
Torsion Test	UTM Servo Hydraulic
Viscosity	Cone and Plate Rheometer
Voids Contents (ASTM)	TGA/Furnace
Weathering Test	Q-UV
Weathering Test	Q-Sun
Zeta Potential	Nano Particle Size Analysis, Zeta Sizer
Inductively Coupled Plasma Optical Emission Spectroscopy	Multiple Element Analysis (Not include sample preparation)
Atomic Absorption Spectroscopy (AAS) Analysis	Single Element
Scanning Probe Microscopy (AFM) Image Topography	Surface Roughness
Goniometer	Contact Angle; Surface Tension; Surface Energy
Potentiostat/ Galvanostat	Linear polarization (Corossion); Impedance (EIS); Cyclic Voltammetry (CV); Chronoamperometry
Thermal Constant Analyser	Thermal conductivity, thermal Diffusity, Specific Heat (Not include sample preparation)
Fourier- Transform Infrared Spectroscopy (FTIR)	Chemical Bonding, Functional Group (Not include sample preparation)
Rockwell Hardness Microhardness Test	Not include sample preparation
Vickers Hardness Microhardness Test	Not include sample preparation
Brinel Harsness Microhardness Test	Not include sample preparation
Vickers Hardness (Micro)	Microhardness Test (Not include sample preparation)
Vickers Hardness (Micro)	Specific place (10 micron)
Point Load	Rock strength
Scanning Electron Microscope (SEM) – Tabletop SEM (Morphological/ Cross section observation)	-
Thermomechanical Analysis (TMA)	Coefficient of Thermal Expansion (CTE) – Vertical sample position (Not include sample preparation)
Hot Press Compression Moulding	-
Two Roll Mill	Rubber Compounding
Ball Mill	Standard Bond Grandability Test
Pycnometer Density	Density
Crusher/ Granulator	Crushing
Mini Crusher	Crushing
Bandsaw	Cutting
Preparataion Sample	Thin Section; Mounting/ Grinding & Polishing; Etching; Microscopic
Diamond Cutter	Metal Cutting
LOI (Limited Oxygen Index)	Burning
Thermal Gravimetric Analysis (TGA)	Thermal Analysis For Polymer Sample
Tribometer	Friction Coefficent
Horizontal Vertical Flame Chamber (HVUL)	Horizontal/ Vertical Flammability Test
Salt Spray Corossion Test	-
Cold Isostatic Pressing (CIP)	Cold Isostatic Press
Frank & Cup Rebound Resillence Test	-
Abrassion Test (GT-7012-A)	Sample Preparation (Hot Press); Cure Time (Rheometer); Abrasion; Density Test (Running total 9500 revolution)
Metallurgical microscope	Surface Morphology
Rubber Processing Analyzer (RPA)	-
Simulation & Modelling	Starting From

04

Academic Calender

UNIVERSITI SAINS MALAYSIA

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)	Monday, 28.06.2027 - Sunday, 04.07.2027	
	41/18	Examination (3 Week)	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		Monday, 12.07.2027 - Sunday, 18.07.2027	
COURSES DURING SEMESTER BREAK	43/20	Semester II Break / Industrial Training (10–11 Weeks)	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)

05

Directory

5.1 ADMINISTRATIVE

DEAN
Prof. Ts. Dr. Zulkifli Bin Mohamad Ariff
6100/5262 zulariff@usm.my

DEPUTY DEAN (Academic,Career &International)
Dr. Suhaina Binti Ismail
6102/6180 suhaina@usm.my

DEPUTY DEAN (Research, Innovation & Industrial-Community Engagement)
Assoc. Prof. Ir. Ts. Dr. Hasmaliza Bt Mohamad
6103/6122 biokhairul@usm.my

PROGRAMME CHAIRMAN (Materials Engineering)
Dr. Syazana Binti Ahmad Zubir
5263 syazanazubir@usm.my

PROGRAMME CHAIRMAN (Mineral Resources Engineering)
Dr. Nurul'ain Binti Jabit
6124 ainjabit@usm.my

PROGRAMME CHAIRMAN (Polymer Engineering)
Assoc. Prof. Ir. Ts. Dr. Zuratul Ain Binti Abdul Hamid
6153 srzuratulain@usm.my

MANAGER OF CORPORATE AFFAIRS & POSITIONING
Dr. Mohamad Danial Shafiq
6129 danialshafiq@usm.my

SENIOR ASSISTANT REGISTRAR (UNDERGRADUATE)
Mrs. Normala bt. Omar
6168 normala@usm.my

SENIOR ASSISTANT REGISTRAR (POSTGRADUATE)
Mrs. Norasyidah Mohd Yusoff
6105 cerasyidah@usm.my

SENIOR ASSISTANT ENGINEER
Mr. Khairul Nasrin Abas
6120 srkhairul@usm.my

5.2 ACADEMIC STAFF

Name	Tel. Ext	Email
Ahmad Azmin Bin Mohamad (Prof. Dr.)	6118	aam@usm.my
Anasyida Bt Abu Seman @ Hj Ahmad (Assoc. Prof. Ir. Ts. Dr.)	5216	anasyida@usm.my
Arjulizan Binti Rusli (Ts. Dr.)	6132	arjulizan@usm.my
Azura Binti A. Rashid (Prof. Dr.)	6111	srazura@usm.my
Cheong Kuan Yew (Prof. Ir. Dr.)	5259	srcheong@usm.my
Chow Wen Shyang (Prof. Dr.)	6160	shyang@usm.my
Hareyani Binti Zabidi (Assoc. Prof. Dr.)	6124	srhareyani.zabidi@usm.my
Hasmaliza Bt Mohamad (Assoc. Prof. Ir. Ts. Dr.)	5263	hasmaliza@usm.my
Hazizan Mohd Akil (Prof. Dr.)	6161	hazizan@usm.my
Khairul Anuar Bin Shariff (Assoc. Prof. Dr.)	6103	biokhairul@usm.my
Khairunisak Binti Abdul Razak (Prof. Dr.)	6126	khairunisak@usm.my
Khatijah Aisha Binti Yaacob (Assoc. Prof. Dr.)	5267	mraisha@usm.my
Ku Esyra Hani Binti Ku Ishak (Ts. Dr.)	6125	kuesyrahani@usm.my
Ku Marsilla Binti Ku Ishak (Assoc. Prof. Ts. Dr.)	5266	ku_marsilla@usm.my
Mariatti Binti Jaafar @ Mustapha (Prof. Ir. Dr.)	5000	mariatti@usm.my
Mohamad Danial Shafiq (Dr.)	6131	danialshafiq@usm.my
Mohamad Riduwan Bin Ramli (Ir. Dr.)	6174	riduwan@usm.my
Mohd Hazizan Bin Mohd Hashim (Assoc. Prof. Ir. Ts. Dr.)	6109	mohd_hazizan@usm.my
Muhamad Sharan Bin Musa (Ts. Dr.)	6107	sharanmusa@usm.my
Muhamed Abdul Fatah Bin Muhamed Mukhtar (Ts. Dr.)	6116	fatahmukhtar@usm.my
Muhammad Irman Khalif Bin Ahmad Aminuddin (Dr.)	6187	irmankhalif@usm.my
Muhammad Khalil Bin Abdullah @ Harun (Ir. Dr.)	6171	mkhalil@usm.my
Nadras Binti Othman (Assoc. Prof. Ir. Dr.)	6177	srnadras@usm.my
Norazharuddin Shah Bin Abdullah (Assoc. Prof. Dr.)	5261	azhar.abdullah@usm.my
Nurazreena Bt Ahmad (Dr.)	6117	nurazreena@usm.my
Nurul'ain Binti Jabit (Dr.)	6119	ainjabit@usm.my
Nurulakmal Binti Mohd Sharif (Assoc. Prof. Ir. Dr.)	6180	srnurul@usm.my
Pung Swee Yong (Assoc. Prof. Ir. Ts. Dr.)	5215	sypung@usm.my
Raa Khimi Bin Shuib (Assoc. Prof. Dr.)	6183	raakhimi@usm.my
Razaina Binti Mat Taib (Assoc. Prof. Dr.)	6123	razaina@usm.my
Shah Rizal Bin Kasim (Dr.)	6172	srshahrizal@usm.my
Sivakumar A/l Ramakrishnan (Dr.)	6110	srsivakumar@usm.my
Srimala A/p Sreekantan (Prof. Ir. Dr.)	5255	srimala@usm.my
Suhaina Binti Ismail (Dr.)	6102	suhaina@usm.my
Syazana Binti Ahmad Zubir (Dr.)	6193	syazanazubir@usm.my
Syed Fuad Bin Saiyid Hashim (Assoc. Prof. Ir. Dr.)	6181	mrsyfuad@usm.my
Tuti Katrina Binti Abdullah (Assoc. Prof. Dr.)	5768	tutikatrina@usm.my
Yanny Marliana Binti Baba Ismail (Assoc. Prof. Ts. Dr.)	6154	yannymarliana@usm.my
Yeoh Fei Yee (Assoc. Prof. Dr.)	6175	feiyee@usm.my
Zainovia Binti Lockman (Prof. Dr.)	6178	zainovia@usm.my
Zakaria Bin Endut (Dr.)	5225	zakaria.endut@usm.my
Zuhailawati Binti Hussain (Prof. Ir. Ts. Dr.)	5258	zuhaila@usm.my
Zulkifli Bin Mohamad Ariff (Prof. Ts. Dr.)	6100	zulariff@usm.my
Zuratul Ain Binti Abdul Hamid (Assoc. Prof. Ir. Ts. Dr.)	6153	srzuratulain@usm.my

5.3 RESEARCH OFFICIER

Name	Tel. Ext	Email
Mohd Nazri b. Idris (Dr.)	-	srmnazri@usm.my
Nik Akmar b. Rejab (Dr.)	-	akmarnik@usm.my

5.4 VOCATIONAL TRAINING OFFICER

Name	Tel. Ext	Email
Suhani bt. Abdullah (Mrs.)	6130	srsuhani@usm.my
Hasliza bt. Mat Saad (Mrs.)	6119	srhasliza@usm.m
Mohamad Azwan b. Mad Naser (Ir.)	-	srazwan@usm.my

5.5 ADMINISTRATIVE STAFF

Name	Tel. Ext	Email
Badilah Binti Baharom (Mrs.)	6169	chdilah@usm.my
Maslina Binti Che Ahmat (Mrs.)	6196	cemaslina@usm.my
Mohamad Syamirul Hakim Bin Abdullah (Mr.)	6196	syamirulhakim@usm.my
Mohd Ali Bin May (Mr.)	6196	alimay@usm.my
Muhammad Adam Haikal Bin Mohd Raffil (Mr.)	6104	adamhaikal@usm.my
Najmah Binti Sabri (Mrs.)	6106	najmah@usm.my
Norasyidah Binti Mohd Yusoff (Mrs.)	6105	cerasyidah@usm.my
Normala Binti Omar (Mrs.)	6168	normala@usm.my
Nurshalydah Binti Salleh (Mrs.)	6106	cenursha@usm,my
Nurul Masfirah Binti Abd Rahim (Mrs.)	6186	masfirah@usm.my
Sharmila Azlin Binti Ramly (Mrs.)	6101	azlynn@usm.my
Zaliha Binti Othman (Mrs.)	6186	jzaleha@usm,my

5.6 TECHNICAL STAFF

Name	Tel. Ext	Email
Haslina Binti Zulkifli (Mrs.)	6140	srhaslina@usm.my
Junaidi Bin Ramli (Mr.)	6142	junaidi1@usm.my
Kamsiah Binti Ishak (Mrs.)	6144	kamsiah_ishak@usm.my
Khairul Nasrin Bin Abas (Mr.)	6120	srkhairul@usm.my
Mahani Binti Mohd (Ms.)	6170	srmahani@usm.my
Meor Mohamad Noh Bin Abdul Majid (Mr.)	6143	meor@usm.my
Mohamad Hasnor Bin Husin (Mr.)	6133	hasnor@usm.my
Mohamad Syafiq Bin Mustapa Sukri (Mr.)	6149	apit@usm.my
Mohamad Zaini Bin Saari (Mr.)	6136	srmzaini@usm.my
Mohammad Azrul Bin Zainol Abidin (Mr.)	6134	srazrul@usm.my
Mohammad Firdaus Bin Fauzi (Mr.)	6152	firdausffauzi97@usm.my
Mohd Azam Bin Rejab (Mr.)	6145	srazam@usm.my
Mohd Faizal Bin Mohd Kassim (Mr.)	6163	srfaizal@usm.my
Mohd Farid Bin Abdul Rahim (Mr.)	6143	fareed@usm.my
Mohd Halim Bin Hassan (Mr.)	6190	srhalim@usm.my
Mohd Helmi Bin Khir (Mr.)	6192	srhelmi@usm.my
Mohd Sayuti Bin Azeman (Mr.)	6191	srmsayuti@usm.my
Mohd Suharudin Bin Sulong (Mr.)	6184	suharudin@usm.my
Muhammad Sofi Bin Jamil (Mr.)	6162	msofi@usm.my
Norshahrizol Bin Nordin (Mr.)	6192	shahrizol@usm.my
Saarani Bin Ijak (Mr.)	5292	saarani@usm.my
Shahril Amir Bin Salleh (Mr.)	6192	mrshahril@usm.my
Syahiran Bin Ibrahim (Mr.)	6143	syahiran_94@usm.my
Syed Saifuddin Bin Syed Mohamad (Mr.)	6184	saifuddin@usm.my
Ummi Hani Binti M.rozlin (Ms.)	6137	hanirozlin@usm.my
Zulkarnain Bin Hasbolah (Mr.)	6144	mrzul@usm.my

Contact Us:

School of Materials and Mineral Resources Engineering, Tuanku Syed Sirajuddin Engineering Campus, Universiti Sains Malaysia,
14300, Nibong Tebal, Pulau Pinang.
Tel : 604-5996101 Fax: 604-5996107

CONTACT INFORMATION

Phone 604-599 6101/6105

Website https://material.eng.usm.my

Email smmreinfo@usm.my

Address School of Material and Mineral Resources Engineering, Kampus Kejuruteraan Tuanku Syed Sirajuddin, Universiti Sains Malaysia , Nibong Tebal, 14300 Seberang Prai Selatan, Pulau Pinang