Master of Science in Advanced Manufacturing Engineering with Management

Program description

To further enhance postgraduate offerings, Master of Science Degree Programme by coursework mode have also been introduced. In Academic Session 2025/2026, a course work programme known as the **Master of Science in Advanced Manufacturing Engineering with Management** is established. This programme provides candidates with comprehensive exposure to the latest theoretical and practical aspects of advanced manufacturing systems, industrial automation, and management strategies. It is designed to equip graduates with the knowledge and skills necessary to address real-world industrial challenges and to lead innovation in manufacturing and operations management.

For all information related to Postgraduate Studies please go to https://onlineips.usm.my/

Programme Structure

This programme comprises a combination of programme core courses, university general courses, electives, and a Master Project. All students are required to complete THREE (3) university courses, FOUR (4) core courses, FOUR (4) elective courses, and a Master Project aligned with the selected area of specialization. A minimum enrolment of FIVE (5) students is required for any track or course to be offered. This condition may be adjusted based on coordination between the programme coordinator and students prior to the start of the semester.

University Course		
EKC500	3 unit	Science and Engineering Research Methodology
EPP501	3 unit	Lean Six Sigma
ADC601	3 unit	Managing People in The Organization in Digital Age
Core Course		
EMH501	3 unit	Sustainable Energy Resources and Management
EPP502	3 unit	Operational Management
ADC605	3 unit	Accounting for Managers
ADC610	3 unit	Corporate Strategy and Policy
Elective Course		
EMM501	3 unit	Statistical Quality Control for Managers
EPP503	3 unit	Robotics and Smart Factory
EPP504	3 unit	Artificial Intelligence and Smart Manufacturing
EPP505	3 unit	Additive Manufacturing
ADC603	3 unit	Technology and Information Management
ADE619	3 unit	Global and Supply Chain Management
ADE621	3 unit	Productivity and Quality Management
ADE624	3 unit	Logistics and Distribution Management
Master Project		
EPD501	10 unit	Master Project

Courses per semester (Full time and Part time)

Full time (2 semester, 1 Year)

Year 1							
Semester 1				**Semester 2**			
Class	**Code**	**Course**	**Credit Value**	**Class**	**Code**	**Course**	**Credit Value**
Comp	EPP501	Lean Six Sigma	3	Core	EPD501	Master Project	10
Core	EMH501	Sustainable Energy Resources and Management	3	Core	EPP502	Operational Management	3
Comp	ADC601	Managing People in The Organization in Digital Age	3	Core	ADC605	Accounting for Managers	3
Core	ADC610	Corporate Strategy and Policy	3	Elective	EPP503	Robotics and Smart Factory	3
Comp	EKC500	Science and Engineering Research Methodology	3	Elective	EPP504	Artificial Intelligence and Smart Manufacturing	3
Elective	EMM501	Statistical Quality Control for Managers	3	Elective	EPP505	Additive Manufacturing	3
Elective	ADE619	Global and Supply Chain Management	3	Elective	ADC603	Technology and Information Management	3
Elective	ADE621	Productivity and Quality Management	3	Elective	ADE624	Logistics and Distribution Management	3
TOTAL CREDIT VALUE		**18**		**TOTAL CREDIT VALUE**		**25**	

Part time (4 semester, 2 Year)

Year 1							
Semester 1				**Semester 2**			
Class	**Code**	**Course**	**Credit Value**	**Class**	**Code**	**Course**	**Credit Value**
Comp	EPP501	Lean Six Sigma	3	Core	EPP502	Operational Management	3
Comp	ADC601	Managing People in The Organization in Digital Age	3	Elective	EPP503	Robotics and Smart Factory	3
Comp	EKC500	Science and Engineering Research Methodology	3	Elective	EPP504	Artificial Intelligence and Smart Manufacturing	3
				Elective	ADC603	Technology and Information Management	3
TOTAL CREDIT VALUE		**9**		**TOTAL CREDIT VALUE**		**9**	
Year 2							
Semester 1				**Semester 2**			
Class	**Code**	**Course**	**Credit Value**	**Class**	**Code**	**Course**	**Credit Value**
Core	EMH50	Sustainable Energy Resources and Management	3	Core	EPD501	Master Project	10
Core	ADC610	Corporate Strategy and Policy	3	Core	ADC605	Accounting for Managers	3
Elective	EMM501	Statistical Quality Control for Managers	3	Elective	EPP505	Additive Manufacturing	3
Elective	ADE619	Global and Supply Chain Management	3	Elective	ADE624	Logistics and Distribution Management	3
Elective	ADE621	Productivity and Quality Management	3				
TOTAL CREDIT VALUE		**9**		**TOTAL CREDIT VALUE**		**16**	

Tuition fee

Semester	Malaysian Student (MYR)	International Student (USD)
1	Registeration fee	
	RM280.00	USD132.50
	Personal bond	
	NIL	USD1000.00
	Convocation fee	
	RM200.00	USD200
	Fee for EKC500 (IPS)	
	RM320.00	USD80
	Credit fees	
	RM605 / credit RM605 x 18 Unit = RM10,890.00	USD200/credit USD200 × 18 Unit = USD3600.00
2	Credit fees	
	RM605 x 22 Unit = RM13,310.0	USD200 x 22 Unit = USD4,400.00
Total	**RM 25,000.00**	**USD 9412.50**

Admission Requirement

A. Bachelor's degree in STEM

A minimum CGPA of 2.75/4.00 or equivalent and a minimum of 1 year of working experience in business/management background; or

A minimum CGPA of 3.25/4.00 or equivalent (without working experience); or

For those who do not meet the above requirement should at least meet one (1) of the following additional conditions:

a) Research experience for at least three (3) years; or

b) Work experience in a related field for at least three (3) years; or

c) At least one (1) academic publication in the relevant field; or

d) Grade B+ for the final year project

B. Bachelor's degree in other than STEM

A minimum CGPA of 2.75/4.00 or equivalent and a minimum of 1 year of working experience in the technical field/manufacturing industry; or

A minimum CGPA of 3.50/4.00 or equivalent (without working experience); or

For those who do not meet the above requirement should at least meet one (1) of the following additional conditions:

a) Research experience for at least three (3) years; or

b) Work experience in a related field for at least three (3) years; or

c) At least one (1) academic publication in the relevant field; or

C. APEL A (Level 7)

Language Requirement

The applicant is not a Malaysian citizen;

- MUET minimum 3.5; or
- IELTS minimum 5.0; or
- TOEFL iBT minimum 40; or
- TOEFL Essentials (online) minimum 7.5; or
- PTE Academic minimum 47; or
- Cambridge English: B1/B2/C1/C2/Linguaskill Online minimum 154

Exception if English is the mother tongue or has completed the Bachelor's degree fully in English.

Basic qualification requirements include the MUET band
Minimum score of Band 3.5 in MUET (Malaysian University English Test)

Contact person

For further information, please contact:

PROGRAMME COORDINATOR
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School of Mechanical Engineering, Engineering Campus,
Universiti Sains Malaysia
14300 Nibong Tebal, Penang.
Tel: 604 -5996365
Email: msc_amem@usm.my
Website: https://mechanical.eng.usm.my

SCAN HERE
https://mechanical.eng.usm.my

Course synopsis

EPP501| Lean Six Sigma | 3 Units
This course introduces students to lean manufacturing and six sigma, including thinking, tools and techniques.

EPP502|Operation management | 3 Units
This course focused on various areas of management in designing and controlling the production process, as well as rethinking company activities in the production of goods or services.

EMH501| Sustainable Energy Resources and Management | 3 Units
This course provides sustainable energy overview that covers various sustainable energy resources, technologies, and applications.

EPD501| Master Project | 10 Units
The master project provides a space for students to apply the knowledge they have learned throughout the program. This course focuses on the abilities of students in the process of conducting research projects based on current issues or problems faced in the industry.

EMM501| Statistical quality control for managers | 3 Units
The course covers the principles of quality control and total quality system, statistical foundations and statistical process of quality control, and acceptance sampling procedures.

EPP 503| Robotics and smart factory | 3 Units
The course emphases on both principles and strategies of robotics and manufacturing automation, to prepare the learners in resolving future challenges especially technological deployment and management in smart factory.

EPP504| Artificial intelligence in smart manufacturing| 3 Units
In this course, the concentration will be allocated on three areas: knowledge representation, search techniques and architecture and AI learning system.

EPP505| Additive manufacturing| 3 Units
In this course student will learn the importance of additive manufacturing (a.k.a. 3D Printing) and its huge role in global product development and innovation.

ADC601| Managing People in The Organization in Digital Age | 3 Units
Managing people and organization covers the basic functions and roles of managers in an organizational environment.

ADC605| Accounting for Managers | 3 Units
This course covers the core knowledge of the essential features of financial accounting and management accounting from the perspective of a non-business major.

ADC610| Corporate Strategy and Policy | 3 Units
This subject is about the comprehensive plan of action of all kinds of organizations.

EKC500| Science and Engineering Research Methodology | 3 Units
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.

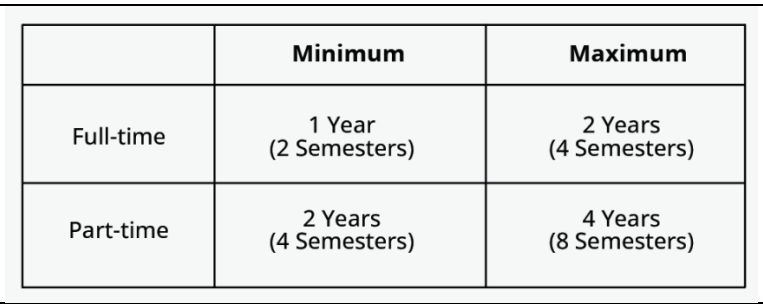
ADC 603| Technology and information management | 3 Units
This course provides principles, theories, applications, strategies and issues in information system management.

ADE 619 | Global supply chain management| 3 Units
This course is meant to provide as the introductory class in full-fledged of supply chain management.

ADE 621| Quality and productivity management| 3 Units
Productivity and quality management is mainly concerned with how management can best provide a profitable level of services to customers through effective planning, organizing and controlling of the workers efficiency and effectiveness and quality of the product and services.

ADE 624| Logistics and distribution management| 3 Units
This course is meant to provide as the introductory class in full-fledged of logistics and distribution.

General information

Awarding Institution	Universiti Sains Malaysia
Teaching Faculty	School of Mechanical Engineering & Graduate School of Business
Programme Name	Master of Science in Advanced Manufacturing Engineering with Management
Final Award	Master of Science in Advanced Manufacturing Engineering with Management
Professional or Statutory Body of Accreditation	Malaysian Qualification Agency (MQA) MQA/PSA 18479
Language(s) of Instruction	English
Mode of Study	Conventional (traditional, online and blended learning)
Study Scheme	Full Time / Part Time
Study Duration	

Program Educational Objectives

PEO 1	Establish themselves as a leader in the manufacturing industry.
PEO 2	Industry practitioners and professionals well-versed in manufacturing and management for a sustainable future.
PEO 3	Progression of a career in the manufacturing industry.

Program Learning Outcomes

PLO 1	Demonstrate an understanding of theory and knowledge in relation to the functional field of manufacturing engineering and management.
PLO 2	Provide innovative solutions for manufacturing engineering and management related problems
PLO 3	Identify and analyse manufacturing engineering and management scenarios.
PLO 4	Demonstrate a high proficiency in written and oral communication.
PLO 5	Demonstrate meaningful contribution to team-based activities.
PLO 6	Demonstrate awareness of Ethics and Professionalism in decision-making.
PLO 7	Demonstrate the skills necessary for effective lifelong learning and personal development.
PLO 8	Comprehend manufacturing engineering and management issues from the lens of sustainability.
PLO 9	Demonstrate Leadership, Autonomy and Responsibility.
PLO 10	Demonstrate ability to utilize technologies and digital skills in manufacturing engineering and management decision-making.
PLO 11	Demonstrate ability to perform statistical and business analysis in decision-making and problem-solving.

Brochure

INTRODUCTION

Master of Science in Advanced Manufacturing Engineering with Management is the first MSc coursework program offered by the School of Mechanical Engineering at Universiti Sains Malaysia. The program aims to train professionals and equip them with advanced knowledge in manufacturing technology and organizational management skills. It will be delivered in a hybrid format, expertise of both the School of Mechanical Engineering and the Graduate School of Business (GSB) at USM. The courses offered cover topics in manufacturing engineering relevant to Industry 4.0, such as automation, robot control systems, IoT, additive manufacturing technology, and CAD/CAM. The course also includes management-related subjects such as leadership practices, organizational control, and strategic planning.

PROGRAMME REQUIREMENTS

Compulsory Courses

Students must take all the listed compulsory courses:

EPP501 Lean Six Sigma	3 units
ADC601 Managing People in The Organization in Digital Age	3 units
EKC500 Science and Engineering Research Methodology	3 units

Core Courses

Students must take all the listed core courses:

EPP502 Operation Management	3 units
EMH501 Sustainable Energy Resources and Management	3 units
ADC605 Accounting for Managers	3 units
ADC610 Corporate Strategy and Policy	3 units
EPD501 Master Project	10 units

Elective Courses

Students must take only four elective courses (12 Units) out of the listed below:

EPP503 Robotics and Smart Factory	3 units
EPP504 Artificial Intelligence and Smart Manufacturing	3 units
EPP505 Additive Manufacturing	3 units
EMM501 Statistical Quality Control for Managers	3 units
ADC603 Technology and Information Management	3 units
ADE619 Global and Supply Chain Management	3 units
ADE621 Productivity and Quality Management	3 units
ADE624 Logistics and Distribution Management	3 units

Credit Requirements for Graduation

Students enrolling under this programme must fulfill 40 credits to graduate. The credit distributions for compulsory courses, elective courses and project are as follows:

Compulsory Courses	9 units
Core Courses	22 units
Elective Courses	12 units

Duration of Candidature

	Minimum	Maximum
Full-time	1 Year (2 Semesters)	2 Years (4 Semesters)
Part-time	2 Years (4 Semesters)	4 Years (8 Semesters)

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APPLICATION

To apply for admission please visit Institute of Post Graduate Studies (IPS) at http://ips.usm.my

For further information, please contact:

PROGRAMME COORDINATOR
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MASTER OF SCIENCE IN ADVANCED MANUFACTURING ENGINEERING WITH MANAGEMENT

SCHOOL OF MECHANICAL ENGINEERING & GRADUATE SCHOOL OF BUSINESS

"FUTURE-READY TECHNOCRATS: WHERE ENGINEERING MEETS MANAGEMENT"

Disclaimer: The commencement of this program is subjected to approval from the MOHE

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Poster


UNIVERSITI SAINS MALAYSIA
APEX
MASTER OF SCIENCE
IN ADVANCED MANUFACTURING
ENGINEERING WITH MANAGEMENT
COURSEWORK MODE
FUTURE-READY TECHNOCRATS:
WHERE ENGINEERING MEETS MANAGEMENT
MQA/PSA18479
Benefits Include:
Earn an MSc with Certified Lean Six Sigma Yellow Belt
Gain both technical and managerial expertise
Advance your career with industry-relevant skills
Flexible schedule designed for working professionals
Application Deadline
for the first intake, Semester I, Academic Session 2025/2026
31 AUGUST 2025
MALAYSIAN
15 JULY 2025
INTERNATIONAL
REGISTER NOW
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Graduate School of Business USM