



How to Apply

Information on the procedures, regulations and application form can be obtained from the Student Recruitment & Admission Division (SRAD)

www.sps.utm.my/sps/admission.html

Tuition Fees

Student Category	Fees for Per Semester by Programme			
	Master (Taught Course) Local students		Master (Taught Course) International students	
	Full Time (RM)	Part Time (RM)	Full Time (RM)	Part Time (RM)
New Student (First Semester)	3,485.00	2,485.00	7,810.00	5,310.00
Continuing Student	2,935.00	1,935.00	7,260.00	4,760.00
Continuing Student (Semester III)	2,935.00	1,935.00	7,260.00	4,760.00
Continuing Student (Semester IV & beyond)	** (Any extra sem)	1,935.00	** (Any extra sem)	4,760.00
Total Tuition Fees (Normal Duration)	9,355.00	8,290.00	22,330.00	19,590.00

****Any extra semester will be charged according to University charges.**

Fees for an international applicant (is not include Personal Bond; VISA, Medical Check-up & Accommodation).

Facilities & Labs

- Production Laboratory
- Material Science Laboratory
- Computer-Aided Design/Engineering (CAD/CAE) Laboratory
- Machine Shop and Foundry
- Mechanics of Materials Laboratory
- Computer & IT Laboratory
- Control and Industrial Automation Laboratory
- Metrology Laboratory
- Centre for Composites

Benefit from our programme

- Kolej Kemahiran Tinggi Mara Balik Pulau
- Intel Penang
- SCHOTT Glass (M) Sdn Bhd
- German Malaysian Institute (GMI)
- Proton Holdings Berhad
- JCY International Berhad



**Faculty of Mechanical Engineering,
Universiti Teknologi Malaysia,**
81310 Johor Bahru, Johor,
Malaysia
Tel: +607-555 7061/7062/7034
Fax: +607-556 6159
Email: postgraduate@mail.fkm.utm.my
Website: www.fkm.utm.my



Master of Science Advanced Manufacturing Technology



innovative • entrepreneurial • global

Programme Objective

The objectives of the Master of Science programme in Advanced Manufacturing Technology are to enhance participants with related knowledge and skills in advanced manufacturing technology and to expose participants with application-based manufacturing problems. After completion of the programme, the participants should be well prepared for their professional task and responsibilities. Students are required to complete 40 credits inclusive of a Master Project.

Programme Duration

For a full-time student, the completion of a master programme typically requires three semesters (1½ years). However, the programme may be completed in a minimum time of 1 year (2 normal and 1 short semesters). The maximum duration allowed for full-time students is 6 normal semesters (or 3 years) while part-time students are given a maximum of 8 normal semesters. The full time student is allowed to take a maximum of 20 credits in a normal semester and 10 credits in a short semester. The part time student is allowed to take a maximum of 12 credits in a normal semester and 6 credits in a short semester.

Admission Requirement

The normal requirement for admission to the programme is a four-year bachelor degree recognized by the university in either engineering or sciences with a minimum overall grade point average of 3.0 or equivalent. Students applying for admission with an overall grade point average of less than 3.0 but with relevant professional experiences may however be considered.

Graduation Requirement

Students must obtain a minimum grade of B- (60%) for each course and overall average grade of B (65%) to graduate. Students are required to complete a total of 40 credits. For the award of Master of Science (Advanced Manufacturing Technology), the students should achieve a total minimum of 40 credit hours with minimum CPA of 3.0, including the completion of Master Project.

Programme Description

Advanced Manufacturing Technology programme offers a broad and diverse subject that derives its breadth from various manufacturing tools and technologies. Throughout the period of study, students may learn about product design, CAD/CAM tools, advanced manufacturing technologies, manufacturing science, modern machining processes, tooling for production and many more. The breadth of the advanced manufacturing discipline allows students a variety of career options.

Programme Structure :

Course	Credit			Total Credit
	Sem 1 Year 1	Sem 2 Year 1	Sem 3 Year 2	
University Core (1 course only) UHAP 6013 Development & Global Issues UHAW6023 Science Philosophy & Social Development(or other courses UXXX xxx3)	3			3
Programme Core MKMP1703 CAD/CAM MKMP1713 Product Development and Manufacture MKMP2763 Advanced Manufacturing MKMP1903 Research Methodology	3	3 3		12
Programme Electives # (5 courses only) MKMP1723 Engineering and Technology Management MKMP1733 Automation and Robotics MKMP1743 Tooling for Production MKMP1753 Manufacturing Science MKMP1763 Design for Manufacture and Assembly MKMP1773 Advanced Quality Engineering MKMP2703 Information Technology for Manufacturing MKMP2713 Computer Aided Process Planning MKMP2723 Modern Machining Processes MKMP2733 Computer Integrated Manufacturing MKMP2743 Production Operation Management MKMP2753 Precision Engineering MKMP2773 Machining and Machine Tools Technology MKMP2003 Special Topic (subjected to Faculty approval) MKMP2013 Special Topic (subjected to Faculty approval) MKMI x8x3 Option (Approved subjects in MSc Industrial Engineering) MKxx xxx3 Free Engineering Elective	9	6		15
Master Project MKMP 1914 Master Project 1 MKMP 2926 Master Project 2		4	6	10
Total Credits	18	16	6	40

*Elective courses are offered based on availability of academic staff and facilities

List of Academic Staff

Noordin Hj. Mohd Yusof
Prof., PhD, Universiti Teknologi Malaysia, Malaysia
Area of Expertise: Machining, Quality Improvement, Design of Experiment
Email: noordin@fkm.utm.my

Safian Sharif
Prof., PhD, Coventry University, UK
Area of Expertise: Machining, Rapid Prototyping, Plastic Technology, CAD/CAM
Email: safian@fkm.utm.my

Mohd Hasbullah Hj. Idris
Prof., PhD, Universiti Teknologi Malaysia, Malaysia
Area of Expertise: Precision Casting
Email: hsbullah@fkm.utm.my

Izman Sudin
Prof., PhD, Universiti Teknologi Malaysia, Malaysia
Area of Expertise: Machining, Surface Treatment & Industrial Engineering.
Email: izman@utm.my

Wong Kuan Yew
Prof., PhD, University of Birmingham, UK
Area of Expertise: Operations Management, Industrial Engineering & Operations Research.
Email: wongky@mail.fkm.utm.my

Masine Md. Tap
Assoc. Prof., PhD, University of Dundee, UK
Area of Expertise: CAD/CAM, Work Design
Email: masine@mail.fkm.utm.my

Adnan Hassan
Assoc. Prof., PhD, Universiti Teknologi Malaysia, Malaysia
Area of Expertise : Quality Engineering, Industrial Engineering
Email: adnan@mail.fkm.utm.my

Muhamad Zameri Mat Saman
Assoc. Prof., PhD, Coventry University, UK
Area of Expertise : Sustainable Product Design, Life Cycle Assessment, Manufacturing System
Email: zameri@fkm.utm.my

Norizah binti Hj Redzuan
PhD, University of Glasgow, UK
Area of Expertise: Laser Technology and Manufacture, Plasma Development, Machining
Email: norizah@mail.fkm.utm.my

Dr. Azanizawati bt Ma'aram
PhD (Performance Measurement of Supply Chain Mngt), University of Liverpool, UK
Area of Expertise: Supply Chain Management, Performance Measurement, Lean Manufacturing, Industrial Engineering
Email : niza@mail.fkm.utm.my

Aini Zuhra Abdul Kadir
PhD, University of Auckland, NZ
Area of Expertise: CAD/CAPP/CAM/CNC, Virtual Manufacturing, Machining simulation, Ergonomics
Email: aini@mail.fkm.utm.my

Foo Jin Hoe, Richard
PhD, Shibaura Institute of Technology, Japan
Area of Expertise: Nano-composite material, Automation in manufacturing
Email: jinhoe@fkm.utm.my

Denni Kurniawan
D.Eng, Dongguk University, Korea.
Area of Expertise: Manufacturing of Biomaterials and composites
Email: kurniawan@fkm.utm.my

Dr. Syed Ahmad Helmi bin Syed Hassan
Phd, Universiti Teknologi Malaysia
Area of Expertise: Engineering Education, System Dynamics Modelling, Manufacturing System Optimization, Facilities Design and Management.
Email: helmi@fkm.utm.my

Dr. Jafri bin Mohd. Rohani
PhD, Universiti Teknologi Malaysia
Area of Expertise: Occupational Safety, Egonomics and Quality Engineering.
Email : jafri@fkm.utm.my

Zulkepli Muhamad
MEng, Universiti Teknologi Malaysia, Malaysia
Area of Expertise: Foundry Engineering, Manufacturing processes
Email: zulkepli@fkm.utm.my

Khidzir Zakaria
MEng, University of Portsmouth, UK
Area of Expertise: CAD/CAM, Additive Manufacturing
Email: khidzir@fkm.utm.my

Rozaimi Mohd Saad
MEng, University Teknologi Malaysia, Malaysia
Area of Expertise: CAD/CAM, Machining, Product Design
Email: rozaimi@fkm.utm.my

CORE COURSES

MKMP 1703 – CAD/CAM

This core course exposed students with techniques involved in computer graphics and modelling. It also covers issues in selection, implementation & management of a Computer Aided Design (CAD) system/Computer Aided Manufacturing (CAM) systems. The importance of CAM, CNC machine technology, manufacturing systems and programming are also discussed. Students are required to complete CAD/CAM projects using up-to-date facilities available in the Production Laboratory.

MKMP 1713 – Product Development and Manufacture

This core course presents the techniques and methods for an efficient product development activity. It includes issues affecting needs for reduced development cycle times, phases of product design and development, and capturing customer requirements. Other topics include definition of product needs, development of product specifications, product selection, product architecture and prototyping. Aspects of components classification, process selection, materials and component manufacture, finishing and assembly operation will be exposed.

MKMP 2763 – Advanced Manufacturing

This core course covers topics on automation and advanced techniques used in modern manufacturing. Various automation systems, their applications and advantages are given. Other topics include the principles and basic concepts of CAD/CAM, CAPP and their applications in various manufacturing, and automation systems such as GT, FMC, FMS and CIM. The CNC technology and part programming of simple components is also presented. Current issues related to advanced manufacturing practices such as lean, agile, networking and cyber manufacturing are highlighted. Students will be assigned a case study related to advanced manufacturing knowledge.

MKMP 1903 – Research Methodology

This course aims to provide students with fundamental knowledge of research and the methodologies commonly used in conducting research. It encompasses literature review, problem formulation, designing research methods, analysis methods and report writing.

ELECTIVE COURSES

MKMP 1723 – Engineering and Technology Management

This course provides students with knowledge on engineering management, function of management, planning, coordinating, organising, leading and monitoring. It highlights the role of engineers as managers. The topics covers technology management, definition and components of technology, technology acquisition strategies, case studies of technology transfer, competitive advantage of organisations, characteristics of fast response organisations, innovation management and intellectual property.

MKMP 1733 – Automation & Robotics Technology

This course covers the principles of design and selection of automated systems. Various software and hardware involved in automation system are introduced. The robotic technology and its use in various industrial applications is also presented.

MKMP 1743 – Tooling for Production

This course is designed to provide students with various toolings, their importance, design procedures and responsibilities of a tooling engineer. Procedures in designing jigs and fixtures and selection of tooling for various applications are given. The selection and design of various types of dies for press working is also presented. Computer aided analysis of jigs and fixture design and stamping dies is highlighted.

MKMP 1753 – Manufacturing Sciences

This course covers the principles and theories of various manufacturing processes. The characteristics of processes including setting of parameters for processes and their tooling are given. It involves further analysis and development of manufacturing techniques.

MKMP 1763 – Design for Manufacture and Assembly

This course provides knowledge towards cost reduction by drawing attention to the design procedures. Techniques on how to improve product design for easy and low cost manufacturing and assembly are given. Issues in designing for casting, welding, machining and other manufacturing processes and products that require assembly are also discussed.

MKMP 1773 – Advanced Quality Engineering

This course is designed to expose the students to engineering design of experiments technique for process and quality improvement. It involves the application of Factorial Design, 2-level Fractional Factorial design, Fold Over and Plackett-Burman and design optimisation techniques such as response surface methodology. Taguchi Method for quality and process improvement will also be discussed.

MKMP 2703 – IT for Manufacturing

This course provides the concepts of Information Technology (IT) and the importance of IT in manufacturing. It covers basic software, operating systems and existing IT tools. Relationship between role of IT and design methods, implementation and managing IT systems are also incorporated.

MKMP 2713 – Computer Aided Process Planning

This course offers knowledge in the role of process planning in CAD/CAM integration. Approaches in Computer Aided Process Planning (CAPP) systems and their implementation techniques are also covered. Selection criteria for CAPP systems are highlighted.

MKMP 2723 – Modern Machining Processes

This course introduces the principles and theories of various modern machining processes. Characteristics of processes including process parameters, rate of material removal, surface finish, accuracy and characteristics of shapes produced. It also covers materials that may be processed, effects of processes on material properties, tooling considerations, process equipment and applications of processes.

MKMP 2733 – Computer Integrated Manufacturing

This course covers a wide range of Computer Integrated Manufacturing (CIM) concepts and philosophies. The relationship between CAD/CAM, CAE and CIM is also given. It also introduces students with the current tools and softwares used in CIM system. The knowledge on the design, implementation and management aspects of CIM systems are also presented.

MKMP 2743 – Production Operations Management

This course provides students with the principles of operations management as well as techniques and strategies practiced in operations management. Two approaches are presented which include the quantitative and qualitative techniques in decision making. Overall, it covers the state-of-the-art techniques in operation management.

MKMP 2753 – Precision Engineering

This course provides theories of ultra-precision turning and grinding and their departure from Merchant's theory. It also introduces fundamentals of special elements in ultra-precision turning and grinding machines such as hydrostatic and aerostatic bearings, linear motor and, C drives. Focus is given to single crystal diamond cutting tools and diamond wheels for ultra-precision machining. Taniguchi's classification of precision engineering products, their tolerances, and their fabrication are also included. It also covers manufacture of MEMS (Micro Electro Mechanical Sensors) using LIGA and FIB techniques.

MKMP 2773 – Machining & Machine Tools Technology

This course covers various machining operations for product manufacture and machine tool technology. Various aspects of machine tools technology are addressed such as the constructional and design features, major components, drives, vibration and chatter, machine tool metrology, machine tool maintenance and trouble shooting. Students are given various individual assignments and exercises, and group based case study.

MKMP 1914 and MKMP 2926 – Master Project

The project is divided into 2 parts. The first part (MKMP 1914) covers literature review, problem definition, and methodology/experimentation set-up. The second part (MKMP 2926) covers experimentation/data collection, analysis, discussion and conclusions. For both MKMP 1914 and MKMP 2926, students are required to make an oral presentation to panel of evaluators. MKMP 1914 and MKMP 1914 are pre-requisites to MKMP 2926. However, MKMP 1914 and MKMP 2926 are not necessarily being conducted in two consecutive semesters.