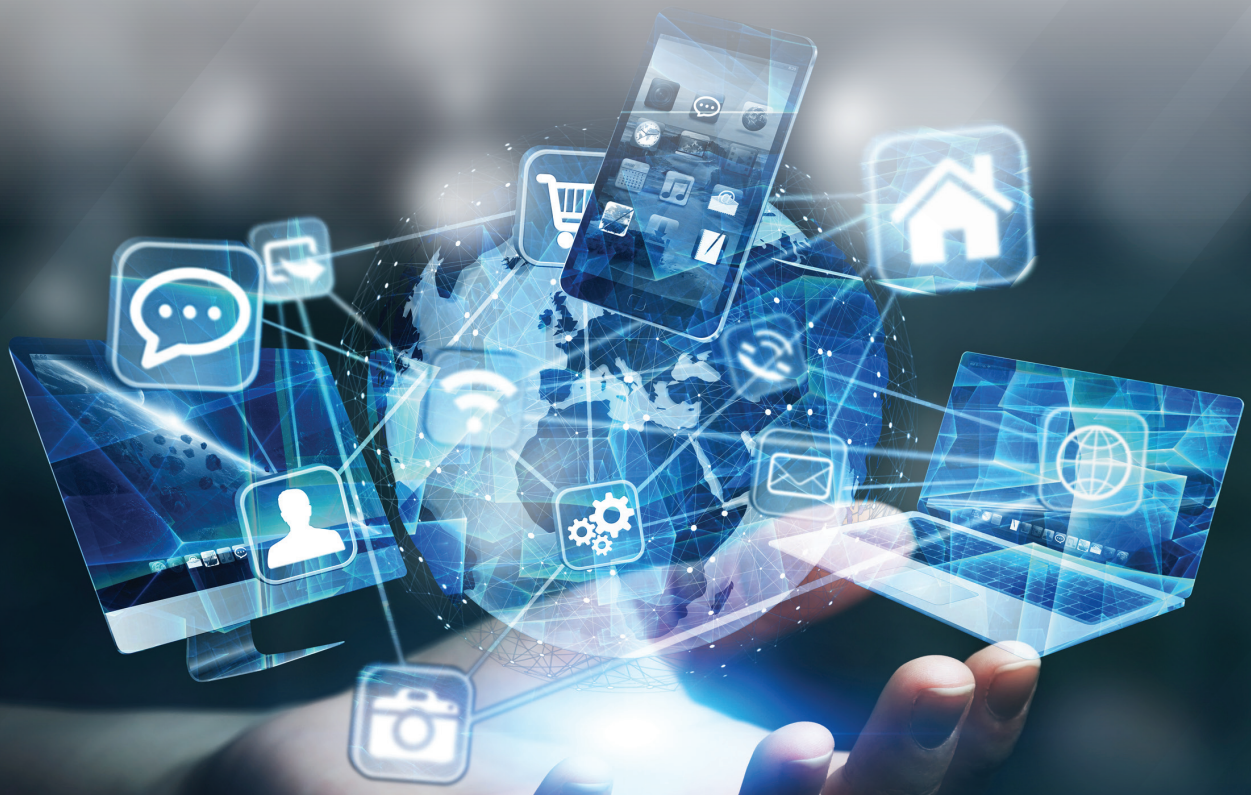
MMU®
MULTIMEDIA UNIVERSITY

MICRO-CREDENTIALS FOR
PERSONAL AND PROFESSIONAL DEVELOPMENT

MASTER OF ENGINEERING
(BY COURSEWORK)



HRDF
TRAINING
PROVIDER

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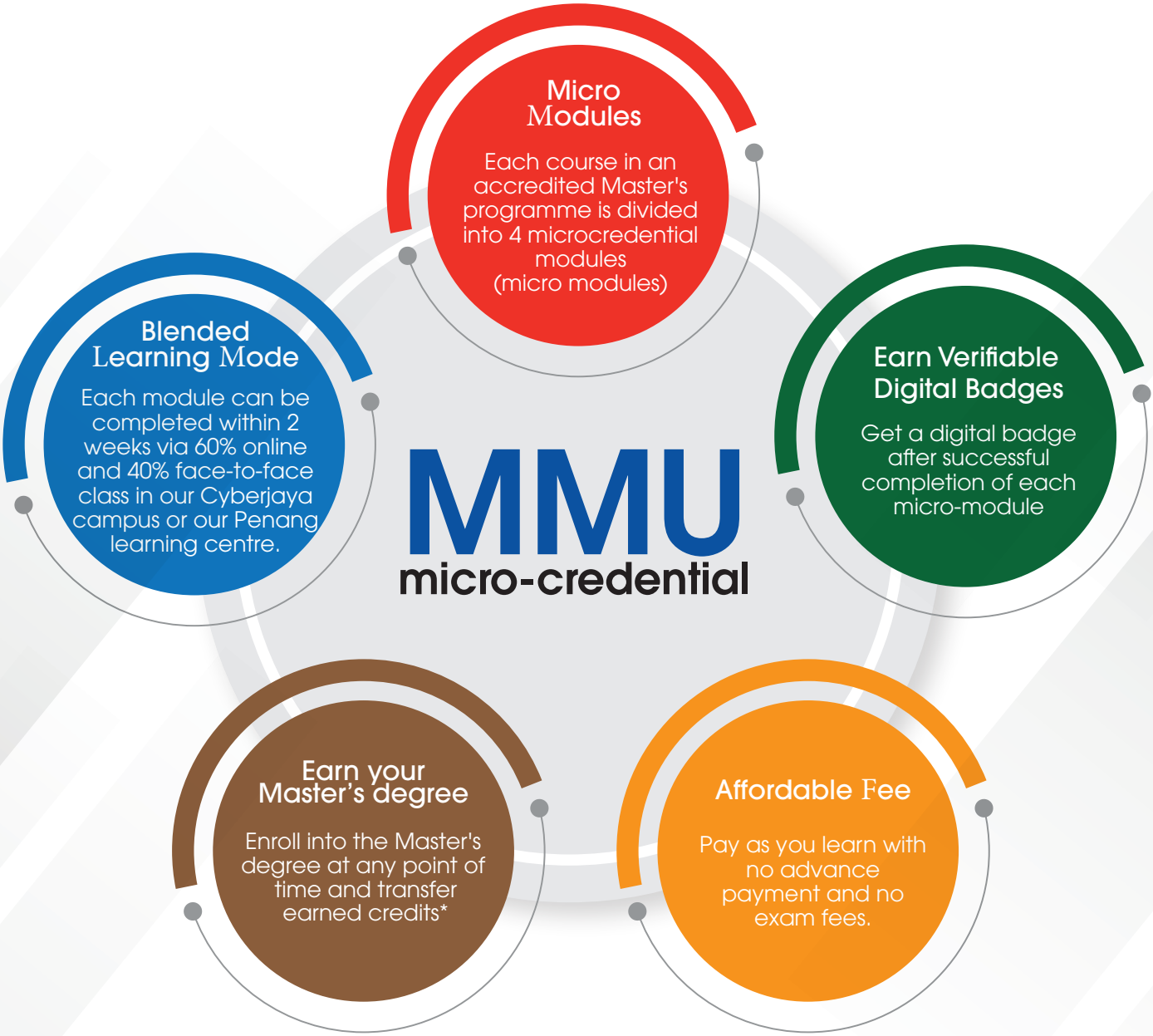
TM Group

MMU micro-credentials

Earn a Master's degree in Engineering from Multimedia University (MMU) through micro-credential programme module.



FEE**	RM
Core Modules (16MC)	11,200
Elective Modules (16MC)	11,200
Research Methodology (1MC)	700
Industry Project (2MC)	1,400
Total	**24,500**

* Must meet the minimum entry requirements or via APEL A certification
** RM700 per micro module.

STUDY PATHWAY

Master of Engineering (Microelectronics) (R2/523/7/0165) 06/24 (A10521)

4 CORE MODULES WITH 16 MICRO MODULES (2 WEEKS PER MICRO MODULE)

- **VEEE7216 - Engineering Optimization**
  - MC1: Engineering Optimization 1 - A Hands-on Approach
  - MC2: Engineering Optimization 2 - Advanced Applications
  - MC3: Engineering Optimization 3 - Heuristic Techniques and Neural Networks
  - MC4: Engineering Optimization 4 - Analytic Case Studies
- **VEEN7026 – Semiconductor Physics and Materials**
  - MC1: Basic Quantum Concepts
  - MC2: Semiconductor Crystal Structure
  - MC3: Semiconductor Band Structure
  - MC4: Charge Transport in Semiconductors
- **VEEN7036 – Device Processing and Technology**
  - MC1: Wafer Preparations
  - MC2: Film Deposition
  - MC3: Doping Processes
  - MC4: Device Patterning Processes
- **VEEN7086 – Embedded IoT Systems**
  - MC1: Embedded System Programming
  - MC2: Embedded System Hardware and Interfacing
  - MC3: Embedded Machine Learning
  - MC4: Embedded System for IoT

4 ELECTIVE MODULES WITH 16 MICRO MODULES (2 WEEKS PER MICRO MODULE)

- **VEEN7046 – VLSI Design**
  - MC1: Analogue Active Amplifiers Configuration
  - MC2: Advanced Studies on Op-amp Parameters
  - MC3: Design of CMOS Combinational and Sequential Logic
  - MC4: VLSI Digital Custom Design and Chip
- **VEEN7136 – Digital System Engineering**
  - MC1: Introduction of Digital System Modeling
  - MC2: Hardware Design Language Modeling for Digital System Design
  - MC3: Implementation Issues of Digital System
  - MC4: High Performance Digital Systems Design
- **VEEN7156 – Analog CMOS Integrated Circuits**
  - MC1: Device Model, Current Source and Current Mirrors
  - MC2: Op-amp Design and Analysis
  - MC3: Frequency Response, Stability and Frequency Compensation
  - MC4: Nonlinearity, Mismatch and Short-Channel Effects
- **VEEN7166 – Digital Integrated Circuits**
  - MC1: From Devices to Gates, Logic and Systems
  - MC2: Design Under Constraints: Power, Timing and Robustness
  - MC3: Digital IC Design: From Schematics to Layout Implementation
  - MC4: Arithmetic Building Blocks, Memory & Array Structures

PROJECT (4-6 MONTHS)

- **Research Methodology**
- **Industry Project 1 & 2**

Master of Engineering (Telecommunications) (R3/523/7/0011) 01/26 (A6741)

4 CORE MODULES WITH 16 MICRO MODULES (2 WEEKS PER MICRO MODULE)

- **VETM7136 - Digital Communication Systems and Design**
  - MC1: Fundamentals to Digital Communications
  - MC2: Digital Modulation Techniques and Applications
  - MC3: Principles and Applications of Block Error-Correcting Codes
  - MC4: Principles and Applications of Convolutional Error-Correcting Codes
- **VETM7146 - Switching and Networking Techniques and Systems**
  - MC1: Switching
  - MC2: Link Layer
  - MC3: Network Layer
  - MC4: Transport Layer
- **VETM7166 - Digital Signal Processing Systems and Design in Telecommunications**
  - MC1: DSP Fundamentals
  - MC2: Digital Filter Design
  - MC3: Advanced Signal Processing
  - MC4: DSP Applications in Telecommunication
- **VETM7156 - Mobile Wireless Communications**
  - MC1: Cellular Concept & Mobile Technologies
  - MC2: Equalisation, Diversity and Channel in Mobile Communications
  - MC3: Modulation and Multiple Access Techniques in Mobile Communications
  - MC4: Teletraffic and Radio Network Planning in Mobile Communications

ANY 4 ELECTIVE MODULES WITH 16 MICRO MODULES (2 WEEKS PER MICRO MODULE)

- **VETM 7206 - Special Topics on Emerging Technologies and Standards**
  - MC1: 5G Technology Overview
  - MC2: 5G Technology, Services and Markets
  - MC3: 5G Enabling Technologies
  - MC4: Cognitive Radio of 5G Wireless Networks and GNU Radio
- **VETM7176 - Optical Communication Systems**
  - MC1: Introduction to Optical Communication System
  - MC2: Optical Fiber Communications : Transmission Characteristics & Multiplexing Techniques
  - MC3: Optical Devices in Optical Fiber Communications
  - MC4: Optical Communication System Design
- **VEEE7216 - Engineering Optimization**
  - MC1: Engineering Optimization 1 - A Hands-on Approach
  - MC2: Engineering Optimization 2 - Advanced Applications
  - MC3: Engineering Optimization 3 - Heuristic Techniques and Neural Networks
  - MC4: Engineering Optimization 4 - Analytic Case Studies
- **VETM 7106 - Network Security**
  - MC1: Malware and Vulnerabilities
  - MC2: Fundamentals of Cryptography
  - MC3: Network Security Techniques
  - MC4: Ethical Hacking and Forensics
- **VETM 7256 - Telecommunication Policy & Regulation**
  - MC1: National Communication and Multimedia (C&M) Frameworks
  - MC2: Policies & licensing on Frequency Bands
  - MC3: Technical Frameworks on Infrastructure and Interference Management
  - MC4: Global Spectrum Management
- **VETM 7256 - Cellular Network Planning & Optimization**
  - MC1: Overview of Cellular Networks
  - MC2: Basics of Cellular Network Planning and Optimization
  - MC3: 4G Radio Network Planning and Optimization
  - MC4: 5G Radio Network Planning and Deployment

PROJECT (4-6 MONTHS)

- **Research Methodology**
- **Industry Project 1 & 2**

How does micro-credential work?

Example: Micro-Credential for VEEE 7126 Engineering Optimization

MC1: (**1 Micro Module**) Engineering Optimization 1 - A Hands-on Approach

MC2: (**1 Micro Module**) Engineering Optimization 2 - Advanced Applications

MC3: (**1 Micro Module**) Engineering Optimization 3 - Heuristic Techniques and Neural Networks

MC4: (**1 Micro Module**) Engineering Optimization 4 - Analytic Case Studies

Total 4 micro modules

Part-time

(a) **Duration: 2 weeks/Micro Module**

(b) **No final examination**

(c) **Blended learning Mode**

- 60% online + 40% face to face and e-learning tools

VEEE 7216: (**4 credit hours**) Engineering Optimization

Example of assessment such as:

(a) Case Study
(b) Quiz
(c) Hand-on simulation project
(d) Project presentation

For more information on this programme, please visit **https://www.mmu.edu.my/microcredential/** or email your enquiries to **mahaniza.jaafar@mmu.edu.my**

www.mmu.edu.my

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