



UNIVERSITY
of
TECHNOLOGY,
MAURITIUS

School of Innovative Technologies And Engineering

MSc Artificial Intelligence with Machine Learning

PROGRAMME DOCUMENT

VERSION 1.1
MAIML v1.1
April 2021

University of Technology, Mauritius

La Tour Koenig, Pointe aux Sables, Mauritius

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A. Programme Information

Artificial Intelligence (AI) is transforming the way machines assist human beings in various ways, ranging from simple voice command and face recognition systems, to more advanced technologies such as improved medical diagnosis systems and self-driving vehicles. The dynamic evolution of AI technologies is shaping ahead a new society where machines are no longer programmed to execute tasks but can learn and take decisions on their own. Machine Learning (ML) is thus a very important component which is empowering and driving forward the various applications of AI. This programme focuses on the core principles of Machine Learning for AI, giving students the ability to understand and apply state of the art techniques to solve modern day challenges.

B. Programme Aims

The MSc Artificial Intelligence with Machine Learning programme aims at enhancing the skills of the students by focusing on applied aspects of Machine Learning and Artificial Intelligence. Students will be in better position to understand how machines are trained to solve real world problems as well as the challenges faced by these systems and their limitations. Student will be able to take appropriate decisions about application of AI and ML in different fields.

C. Programme Objectives

After successful completion of the programme, the students are expected to have developed:

- knowledge of the fundamental computational and mathematical foundations of AI and ML
- understanding of the current ML algorithms and techniques
- ability to apply ML techniques in different domains using various method and tools
- understanding of the role of data and computing power for AI and ML
- knowledge of data processing techniques
- designing, programming and deployment capabilities of ML algorithms for autonomous systems

PART I - Regulations

D. General Entry Requirements

As per UTM'S Admissions Regulations, and 'Admission to Programmes of Study at Master's Degree Level'.

E. Programme Entry Requirements

A honours degree in Computer Science/Software Engineering/Information Systems, Electronic Engineering, Mathematics with Computer Science, Physics with Computing or any other qualifications (academic or professional) with significant programming content acceptable to the University of Technology, Mauritius.

F. Programme Mode and Duration

Full Time: 1 Year (2 semesters)

Part Time: 1 & 1/2 Years (3 semesters)

G. Teaching and Learning Strategies

- Lectures, Tutorials and Practical Laboratory Sessions
- Structured Discussions and Self-Directed Study
- Workshops and Seminars

H. Attendance Requirements

As per UTM's Regulations and Policy.

I. Credit System

1 module = 6 credits

Master's Project = 18 credits

Minimum Credits Required for Award of:

Master's Degree: 90

Postgraduate Diploma: 60

Postgraduate Certificate: 30

J. Student Progress and Assessment

The programme can be delivered in different modes, including face-to-face sessions, online and blended modes, through lectures, tutorials, and practical laboratory sessions. Each module consists of 150 hours of learning, comprising of 45 hours of delivery and 105 hours of self-study. Students are expected to be autonomous and adopt a research-oriented approach, as far as possible. Activities may include reading research papers, delivering presentations, taking part in quizzes, case-studying, coding challenges, preparing and recording software demonstrations amongst others.

Each module carries 100 marks and unless otherwise specified, will be assessed as follows: Written and / or practical examination, and continuous assessment carrying up to 50% of total marks. Continuous assessment can be based on a combination of assignments, field study, workshops, practical and written class tests.

Modules Data Processing Techniques, Research Methods for Computing, Deep Learning Techniques, Big Data Analytics, Artificial Neural Networks, Smart Autonomous Systems and Unsupervised Machine Learning Techniques may be assessed by 100% coursework.

K. Evaluation of Performance

The percentage mark contributes a 100 percent weighting towards the degree classification.

Module grading structure:

Grade	Marks x (%)
A	$x \geq 70$
B	$60 \leq x < 65$
C	$50 \leq x < 55$
D	$40 \leq x < 45$
F	$x < 40$
A-D	Pass
F	Fail

L. Award Classification

Overall weighted mark x (%)	Classification
$x \geq 70$	MSc with Distinction
$60 \leq x < 70$	MSc with Merit
$40 \leq x < 60$	MSc
$x < 40$	No Award

M. Programme Organisation and Management

Programme Director and Coordinator: Dr. Geerish Suddul

Contact Details:

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- Telephone Number: 207 5250
- Email: g.suddul@umail.utm.ac.mu

Part II - Programme Structure

N. MSc Artificial Intelligence with Machine Learning – Full Time (Version 1.1)

YEAR 1							
<i>Semester 1</i>				<i>Semester 2</i>			
Code	Modules	Hrs/Wk L+P/T+SS	Credits	Code	Modules	Hrs/Wk L+P/T+SS	Credits
SCG5128C	Supervised Machine Learning Techniques	2+1+7	6	SCG5129C	Unsupervised Machine Learning Techniques	2+1+7	6
MSN5207C	Data Processing Methods	2+1+7	6	MSN5206C	Big Data Analytics	2+1+7	6
MATH5351C	Essential Mathematics for Machine Learning	2+1+7	6	SCG5131C	Deep Learning Techniques	2+1+7	6
SCG5127C	Research Methods for Computing	2+1+7	6	INT5104C	Smart Autonomous Systems	2+1+7	6
SCG5130C	Artificial Neural Networks	2+1+7	6	SCG5133C	Reinforcement Learning	2+1+7	6
SCG5132C	Ethics of Artificial Intelligence & Machine Learning	2+1+7	6	SCG5134C	Enterprise AI Solutions	2+1+7	6
PROJ5201C	Dissertation						18

O. MSc Artificial Intelligence with Machine Learning – Part Time (Version 1.1)

<i>Semester 1</i>				<i>Semester 2</i>			
Code	Modules	Hrs/Wk L+P/T+SS	Credits	Code	Modules	Hrs/Wk L+P/T+SS	Credits
SCG5128C	Supervised Machine Learning Techniques	2+1+7	6	SCG5129C	Unsupervised Machine Learning Techniques	2+1+7	6
MATH5351C	Essential Mathematics for Machine Learning	2+1+7	6	SCG5130C	Artificial Neural Networks	2+1+7	6
SCG5127C	Research Methods for Computing	2+1+7	6	MSN5206C	Big Data Analytics	2+1+7	6
MSN5207C	Data Processing Methods	2+1+7	6	SCG5133C	Reinforcement Learning	2+1+7	6
				PROJ5201C	Dissertation		9

<i>Semester 3</i>			
Code	Modules	Hrs/Wk L+P/T+SS	Credits
SCG5131C	Deep Learning Techniques	2+1+7	6
INT5104C	Smart Autonomous Systems	2+1+7	6
SCG5134C	Enterprise AI Solutions	2+1+7	6
SCG5132C	Ethics of Artificial Intelligence & Machine Learning	2+1+7	6
PROJ5201C	Dissertation		9