Master of Data Science and Artificial Intelligence

2025 Intake

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

UNIVERSITY OF MORATUWA

INTRODUCTION

Master of Data Science & Artificial Intelligence (MDS&AI) degree program is a fully coursework-based, one-year degree which complies with the Sri Lanka Qualification Framework Level 9 (SLQF-L9). This program offers a curriculum specifically catered towards professionals from Engineering, Science, or relevant Technology backgrounds to upskill and sharpen their Data Science and AI competencies. This program is different from our SLQF-L10 MSc in Data Science & AI program due to L9 program's shorter duration and the full coursework-based (no research project) curriculum.

The following are some of the core modules and electives offered in the program:

- Data Science
- Advanced Machine Learning
- Advanced Deep Learning
- Advanced Data Mining
- Advanced Artificial Intelligence
- Information Visualization
- Statistical Inference
- Machine Learning for Graphs
- Advanced Databases
- Software Architecture Concepts
- Big Data Analytics
- Business Intelligence
- Machine Vision & Image Processing
- Advanced Natural Language Processing
- Advanced Bioinformatics
- Speech Processing
- Cloud Computing for DS & AI
- Game Theory
- Mobile Computing
- Information Security

COURSE MODULES AND PROGRAM STRUCTURE

The Master of DS & AI postgraduate degree program consists of compulsory modules, elective modules, and a capstone project.

The program is structured as a three-semester (one-year) degree program, with each semester consisting of 12 weeks of academic activities. The lectures are held in the online and/or asynchronous mode using the UoM online learning platform (online.mrt.ac.lk). Class forums and online discussion sessions may be used to clarify issues as organized by individual module coordinators.

In a typical study program arrangement, the first two semesters consist of taught course modules, while the third semester is recommended exclusively to do the capstone project.

The following are the course modules of the program:

Code	Course Modules	Credits	Compulsory / Optional
CS5617	Data Science	3	Compulsory
CS5803	Advanced Data Mining	3	Compulsory
CS5998	Capstone Project	6	Compulsory
CS5801	Advanced Artificial Intelligence	3	Optional
CS5802	Advanced Machine Learning	3	Optional
CS5805	Information Visualization	3	Optional
CS5651	Statistical Inference	3	Optional
CS5804	Advanced Deep Learning	3	Optional

Code	Course Modules	Credits	Compulsory / Optional
CS5224	Advanced Databases	3	Optional
CS5229	Big Data Analytics Technologies	3	Optional
CS5429	Distributed Computing	3	Optional
CS5820	Machine Vision and Image Processing	3	Optional
CS5821	Advanced Bioinformatics	3	Optional
CS5618	Business Intelligence	3	Optional
CS5822	Speech Processing	3	Optional
CS5823	Cloud computing for DS & AI	3	Optional
CS5824	Game theory	3	Optional
CS5825	Machine Learning for Graphs	3	Optional
CS5826	Advanced Natural Language Processing	3	Optional
CS5827	Data Classification	3	Optional
CS5701	Advanced Algorithms	3	Optional
CS5405	Performance Modelling and Analysis	3	Optional

Code	Course Modules	Credits	Compulsory / Optional
CS5212	Software Architecture Concepts	3	Optional
CS5430	Mobile Computing	3	Optional
CS5243	Client Side Application Development	3	Optional

Students are required to earn 30 credits to graduate. 6 of those credits would come from the capstone project. 6 more credits would come from the compulsory taught modules. That leaves 18 credits to be earned by optional taught modules. Which means, the students will be required to select and take a minimum of 6 optional courses in addition to the compulsory courses. They can select the courses based on their interest and intended research project direction in consultation with the course coordinator/project supervisor. If you need any additional information regarding course modules or the program structure, please contact the Master of DS & AI course coordinators through the contact details given on http://postgrad.cse.mrt.ac.lk website.

Note: Offering a particular course module during a given academic year is subject to having the minimum number of registrations and the availability of the lecturer in a particular semester.

RESOURCE PERSONS

The Master of DS & AI postgraduate degree program is conducted by senior academics of the University of Moratuwa with research specializations in specific study areas complemented by specialists from the industry.

Prof. Gihan Dias

BSc Eng Hons (Moratuwa), MSc (UCSB), PhD (UCD), MIE(SL), CEng

Professor, Dept of Computer Science and Engineering, University of Moratuwa

Prof. Sanath Jayasena

BSc Eng Hons (Moratuwa), MSc (UIUC), PhD (UIUC), MIE(SL), CEng

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Prof. Indika Perera

BSc Eng Hons (Moratuwa), MBS (Colombo), MSc (Moratuwa), PhD (St Andrews), PGDBM (Colombo), MIE (SL), CEng

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Prof. Chandana Gamage

BSc Eng Hons (Moratuwa), MEng (AIT), PhD (Monash), MIE(SL), CEng

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Prof. Dulani Meedeniya

BSc Hons (Peradeniya), MSc (Moratuwa), PhD (St Andrews)

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Prof.. Chathura De Silva

BSc Eng Hons (Moratuwa), MEng (NTU), PhD (NUS), MIE(SL), CEng

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Prof. Shantha Fernando

BSc Eng Hons (Moratuwa), MPhil (Moratuwa), PhD (Delft), MIE(SL), MIEE

(London), CEng

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Dr. Adeesha Wijayasiri

BSc Eng. (Hons) (Moratuwa), MSc (UFL), PhD (UFL)

Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Dr. Charith Chitraranjan

BSc Eng. (Hons) (Moratuwa), MSc (NDSU), PhD (NDSU)

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Dr. Kutila Gunasekera

BSc Eng Hons (Moratuwa), PhD (Monash)

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Dr. Shehan Perera

BSc Hons (Colombo), MSc (NDSU), PhD (NDSU)

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Ms. Vishaka Nanayakkara

BSc Eng Hons (Moratuwa), Tech Licentiate (Chalmers),

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Dr. Uthayasanker Thayasivam

BSc Eng Hons (Moratuwa), PhD (U. Georgia).

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Dr. Nisansa de Silva

BSc Eng Hons (Moratuwa), MS (UO), PhD (UO).

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Dr. Sapumal Ahangama

BSc Eng Hons (Moratuwa), PhD (NUS).

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Dr. Sunimal Rathnayake

BSc Eng Hons (Moratuwa), PhD (NUS).

Senior Lecturer, Dept. of Computer Science and Engineering, University of Moratuwa

Dr. Buddhika Karunarathne

BSc Eng Hons (Moratuwa), PhD (HKUST).

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Dr. Thanuja Ambegoda

Dr. Sc. (ETH Zurich), MSc. (ETH Zurich), BSc Eng Hons (Moratuwa)

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Dr. Sandareka Wickramanayake

PhD (NUS), BSc Eng. (Hons) (Moratuwa)

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Dr. Chathuranga Hettiarachchi

PhD (NTU), BSc Eng. (Hons) (Moratuwa)

Senior Lecturer, Dept of Computer Science and Engineering, University of Moratuwa

Mr. Chamara Disanayake

MSc (Moratuwa), BSc Eng. (Hons) (Moratuwa), MBS(Colombo), AMIE(SL)

Senior Lecturer, Department of Network and Security, Faculty of Computing, NSBM

ELIGIBILITY REQUIREMENTS

The Master of DS & AI postgraduate degree program requires a prospective candidate to fulfill one of the following eligibility criteria for course enrollment.

1. The degree of Bachelor of the Science of Engineering of the University of Moratuwa in a relevant field as may be approved by the Senate;

OR

2. Any other four-year degree in Engineering or Science or Technology from a recognized university in a relevant field as may be approved by the Senate;

OR

3. Any other three-year degree in Engineering, or Science, or Technology from a recognized University in a relevant field, subject to successful performance in the aptitude test as may be approved by the Senate;

OR

4. Any recognized category of membership of a recognized Professional Institute obtained through an academic route, as may be approved by the Senate.

SELECTION PROCESS

The selection to the Master of DS & AI postgraduate degree program is through an open competitive process. The applicant's educational qualifications, professional qualifications, commitment to advanced study, English language skills required for preparation of study outcomes and knowledge dissemination, and references all contribute to the evaluation of a candidate. Following are the steps in the selection process:

1. Each applicant is evaluated for conformity with the applicable eligibility criteria based on the information provided with the application. Applicants may be invited to a selection test according to the requirements of the eligibility criteria.

2. The selection test will be an online test of one-hour duration. The selection test consisting of multiple-choice, short-answer and similar questions will examine analytical skills, conceptual knowledge, and topic-specific knowledge in areas such as Programming, Data Structures and Algorithms, Operating Systems, Computer Systems and Organization, Software Engineering, Software Architecture, Theory of Computing, Databases, Artificial Intelligence, Networking, Computer Security, Professional Practice, and Management Information Systems. In addition, the candidates may be required to write a short essay (250 words) on a given topic. Successful applicants at the selection test will be invited to a selection interview.

3. The eligible applicants will face an interview of a few minutes by an interview panel of senior lecturers. The interview will ascertain the applicant's suitability and competency for the study program.

4. Based on the successful completion of the above steps, each applicant will be ranked into a "Selected Candidates List" and a "Waiting List". After the selection process, all applicants will be informed of their application status. If an applicant from the Selected Candidates List fails to enroll in the program within the stipulated period, that opportunity will be afforded to an applicant from the Waiting List.

COURSE FEE AND PAYMENT STRUCTURE

The total fee for the course is Rs. 454,500/-, which includes a registration fee of Rs. 50,000/- and a course fee of Rs. 404,500/-. It can be paid according to either plan A or B, as shown below.

Plan A

- Course registration fee - Rs. 50,000/- (by 23rd December 2024)
- Full course fee - Rs. 404,500/- (by 1st January 2025)

OR

Plan B

- Course registration fee - Rs. 50,000/- (by 23rd December 2024)
- First installment – Rs. 204,500/- (by 1st January 2025)
- Second installment – Rs. 200,000/- (by 02nd June 2025)

Above fees include Annual Academic Registration Fees, Semester Examination Fees, and a Library Deposit of Rs. 2,500/-. In the case of a change of government taxes, the student will have to incur the additional tax amount.

Foreign Students must pay an additional 1500 USD.

How to Apply

1. Pay the application processing fee.

   The application processing fee of Rs. 2,000/- may be paid either to University Shroff (weekdays from 9.00 AM to 12.30 PM and 1.30 PM to 3.00 PM) or as a pay-in voucher of Rs. 2,000/- obtainable at any Bank of Ceylon branch by paying Rs. 2,000/- to the credit of "University of Moratuwa – A/C No. 306836". You may also make an online transfer to the same account. Please indicate the course as "Master of DS & AI 2025" and your NIC number on the deposit slip or online transfer form (in case the online form does not allow all of this, please indicate your NIC).

2. Fill up the online application form at http://postgrad.cse.mrt.ac.lk, and submit and print the completed application.

   You need to attach all documents indicated in the application form and submit them by the application deadline. The copies of the degree certificate and the academic transcript you upload must be certified with digital signatures by you and your employer. The digital signature should be a certificate-based Digital ID obtained either from a cloud-based trust service provider or from the signer's local system. More information on the required type of digital signature can be found here. Once submitted, you will receive a PDF of the filled application as a record.

3. Arrange for Letters of Recommendation.

   You are required to provide two (02) Letters of Recommendation.

   Ensure that your reference forms are sent (emailed) to the relevant referees. Request the recommender to use the same e-mail address that you used while filling up the application, and request the recommender to use the official e-mail address whenever possible.

   Once the referees have completed the reference form, they can submit it online. The recommender will receive a confirmation e-mail with an attached PDF as a record. You will also receive a notification to the provided e-mail address.

4. Once your application is processed, you will be notified via e-mail whether you are invited for writing and selection tests and interviews or not. You may also receive e-mail notifications if the selection committee has any queries about your application.

If you are invited to the selection test (usually will be informed within one week from the application deadline), prepare the following application pack and have it ready at the selection test:

- A printed copy of the completed and signed “Application Form”
- Your National Identity Card (NIC), Driving License, or Passport
- Original certificates and copies of academic/professional qualifications, membership of professional institutes, etc.
- Updated “Curriculum Vitae” of the applicant
- Completed “Letter of Consent Form” from the employer (if applicable)
- Letter of sponsorship (if applicable)
- Copy of the application processing fee receipt

postgrad.cse.mrt.ac.lk