Master of Digital Transformation

The Master of Digital Transformation program is 60 credit points and consists of: (1) a core component covering essential topics related to any digital transformation initiatives; (2) an elective component covering prominent digital transformation technologies that can be used for the implementation of DT initiatives, and are highly in demand in the market, and (3) a professional practice & research component aiming at the application of the taught concepts to solving a real-life problem.

The program comprises a total of 10 subjects, including 5 core subjects, 3 elective subjects and a final project (counting as 2 subjects).

- A recognized bachelor's degree in a related field such as IT, engineering, business information systems or any bachelor's degree with relevant professional experience and/or certification.
- Students with bachelor's degrees in non-related fields could be admitted to the program subject to an interview and completion of remedial subjects.
- Minimum English language proficiency such as an overall IELTS score of 6.0 or equivalent.

Core Subjects

Digital transformation strategy and Industry 4.0

This subject aims to introduce the business context surrounding digital transformation, explain its role in the fourth industrial revolution, and address the business and management aspects of DT, with a specific focus on digital strategy development in organizations. Additionally, the subject provides an overview of the most prominent DT technologies. Topics covered include digital transformation and Industry 4.0, cultural and organizational challenges and opportunities, developing a digital transformation strategy, digital marketing, customer experience and operations management, organizational change and leadership, data analytics and cloud computing, and digital transformation technologies. Through this subject, students will gain a comprehensive understanding of the concepts, strategies, technologies, and best practices involved in digital transformation.

Cloud foundations & architecting

In this subject, students will learn the fundamentals of cloud computing and its architecture. Specifically, the following topics will be covered: the vision of cloud computing; its characteristics and benefits; cloud computing architecture including service-oriented architecture and mobile computing, service and deployment models; virtualization techniques and types; cloud operations and challenges; industry computing platforms; security in cloud computing and its future. The students will also be introduced to various cloud services and applications, such as migrating to the cloud; accessing and communicating with the cloud; using webmail services; cloud management.

AI Practitioner

This subject will equip student with advanced knowledge of modern AI and enhance their skills to appropriately choose and apply AI techniques to solve practical problems related to organizations and their transformation to industry 4.0. The subject covers a variety of topics including AI adoption approaches in the industry, machine learning and deep learning, natural language processing, computer vision, AI ethics, and the design of AI-powered solutions.

Research & Design Thinking for Digital Transformation

This subject combine's research training with modern design thinking skills to develop students' ability to conduct research, analyze needs, and identify requirements for innovative solutions. The subject covers the following topics: Introduction to research methods, ethical considerations in research, qualitative and quantitative research methods, mixed methods approach, role of innovation in digital transformation, Design thinking principles and Lifecyle, and applying design thinking techniques to real-life problems.

Data Science Practitioner

This subject presents a detailed overview of the field of data science, highlighting its role in digital transformation. It covers the fundamentals of data science, including data acquisition, pre-processing, machine learning, and data visualization. Students will learn how to manipulate and transform data, build and evaluate models, and gain insights through exploratory data analysis and visualization techniques. They will also be introduced to cutting-edge technologies such as big data and distributed computing, deep learning and neural networks, and cloud-based deployment of data models, as well as ethical considerations in data science.

Choose any three Electives from the approved list below:

Cloud Application Development

In this subject, students will learn to develop, test, and deploy cloud-based applications. The subject covers fundamental concepts, practical applications, and advanced topics related to cloud application development, including prominent cloud platforms, cloud application development fundamentals, managed services, deployment, containers and orchestration, DevOps services, securing cloud applications, and advanced topics such as microservices architecture, serverless computing, and machine learning on the cloud.

IoT Practitioner

This subject introduces the topics, technology, and skills required to gain practice in the successful implementation of IoT solutions. The objective of this subject is to equip students with skills required to create new solutions by combining sensor data with information analytics and AI, relevant to specific industries, as well as extracting valuable insights that

can improve different aspects of operations and enable innovative, new business models. More specifically, the students will be exposed to the following topics: Architecture and communication protocols for IoT; enabling technologies for IoT; IoT project design, prototyping, and resource management; understanding and managing IoT projects' security related issues and risks; and explore various IoT applications and platforms.

IoT Application Development

This subject introduces students to the fundamentals of Internet of Things (IoT) technologies and their applications in industry. The subject aims to develop students' skills in applying IoT and cloud computing concepts to build solutions based on devices connected to a cloud-based IoT platform. In this subject, students will learn about IoT technologies, IoT device connectivity protocols and M2M architecture. Students will analyze IoT use cases and their related architectures, and will develop IoT applications using REST APIs. IoT security best practices are also addressed, with a focus on data confidentiality, integrity, and availability, as well as security risks and threats in IoT. Students will learn about IoT security standards and best practices, and will work on securing IoT networks and data by implementing security features for an IoT system. The course also covers developing IoT applications using flow-based programming tools, such as Node-RED. Finally, students will learn about cloud-based IoT platforms and services and will have the opportunity to set up an IoT device and connect it to a cloud-based IoT platform.

Blockchain Practitioner

This subject aims at equipping the students with the skills needed to identify critical areas for the adoption of enterprise-grade blockchain solutions, and help organizations with their digital reinvention journeys. Focusing on the Blockchain practice, the subject topics include: the Blockchain technology benefits, current status, and use cases in finance, healthcare, and supply chains, as well as Blockchain architecture, DApps, cryptocurrency fundamentals, and Hyperledger/Ethereum platforms. Students will also learn about smart contracts, consensus, validation, and security protocols, as well as Blockchain regulation and ethics.

Business process management and automation

This subject provides students with a comprehensive understanding of managing and optimizing business processes through automation. The subject begins with an introduction to business process management, covering process modelling, improvement, and use cases. Students will learn about BPM architecture and methodology to effectively manage and automate business processes. The course then introduces Robotic Process Automation (RPA), including the tools, platforms, and design of RPA solutions. Students will also explore cognitive automation and artificial intelligence. The subject concludes with a case study on managing and scaling RPA solutions, including implementation and management.

Cyber Security Practitioner

This subject aims at equipping the students with the skills needed to increase enterprise cyber resilience and set the foundation for implementing an incident response team and a security

operations Center. Focusing on the Cyber security practice, the subject topics include: cyber resilience, threat intelligence, network security, mobile and IoT security, application and data security, cloud security, incident management and disaster recovery, and security operations centres.

Blockchain Application Development

This subject covers the principles, tools, and technologies of blockchain application development. Topics include blockchain architecture, smart contract development, tokenization, permissioned blockchains, decentralized applications, consensus algorithms, blockchain security, as well as IPFS and distributed storage. Students will gain hands-on experience setting up blockchain development environments, interacting with smart contracts, and deploying blockchain-based solutions. The subject culminates in a final project where students will design and implement a blockchain-based application.

Big Data Engineering

This subject covers the principles, tools, and technologies of big data engineering. Topics include data collection and storage, processing and transformation, analytics, visualization, real-time processing, success metrics, quantitative and qualitative outcomes, validation and verification of data models, security, and deployment and management. In this subject, students will develop the skills and knowledge needed to design, build, and manage Big Data systems that can efficiently process, store, and analyze large amounts of data, and make informed decisions based on data insights. The subject culminates in a final project where students will design and implement a data pipeline for a real-world use case.

Research project

Research Thesis

The Research Thesis subject is designed to equip students with the skills and knowledge necessary to conduct and communicate high-quality research in their field of study. Through a combination of lectures, discussions, and practical exercises, students will gain a comprehensive understanding of the research process, as well as develop the skills necessary to produce a well-written and well-structured research thesis.