



DIPLOMA IN APPLIED ARTIFICIAL INTELLIGENCE (T69)

Course Overview

Does the exciting world of smartphones, chatbots and digital assistants like Siri and Alexa excite you? Then Artificial Intelligence (AI) is the course for you!

We see AI transforming our daily lives. From analysing online search patterns, identifying your favourite movie genres and shopping habits, powering autonomous vehicles, and accelerating the development of vaccines for COVID-19, AI is vital to Singapore's drive towards becoming a Smart Nation.

Learn about the fundamental concepts of AI, how it can be applied, and how smart applications can be created. Deepen your knowledge in AI with subjects such as machine and deep learning. With our broad-based curriculum, you will be equipped with the necessary skills to develop smart applications useful for commercial businesses, healthcare, education, transportation and manufacturing.

Join us and be at the forefront of creating new technologies for tomorrow!

Get the opportunity to attain the certifications(s) below through your course of study:

- NVIDIA Certificate in Fundamentals of Deep Learning
- SCS + IMDA Certificate in AI Ethics & Governance
- UIPath Certified RPA Associate

AWS Cloud Practitioner Certification

Many companies are now placing their information on the cloud, as well as creating applications and services on the cloud. Due to cloud computing, we are seeing a big shift from the traditional way businesses think about IT resources. Cloud Computing professionals are in high demand in the IT industry. The AWS Certified Cloud Practitioner offers a foundational understanding of AWS Cloud concepts, services, and terminology.

The School of Informatics & IT curriculum prepares students to acquire the AWS certified cloud practitioner qualification. Industry-recognised certificates give students and prospective employers an added confidence about the cloud proficiency of graduates.

Supported by:

 **aws academy**
Member Institution



INNOVATIVE AI SOLUTIONS

Our AI Application Centre provides a showcase of innovative AI solutions created by staff and students, in collaboration with industry partners.



RICH INDUSTRY PARTNERSHIPS

Gain access to and learn more about leading technologies through our partnerships with key industry players such as NVIDIA, IBM, Huawei and SenseTime.



GET CERTIFIED FOR AI

Take up the Deep Learning Institute (DLI) Certification Programme offered to our students by NVIDIA and gain a competitive edge when you apply for jobs.

Entry Requirements

The minimum entry requirements for the course are as follows:

Subject	Grade
English Language (EL1)*	1-7
Mathematics (E or A)	1-6
Any two other subjects, excluding CCA	1-6
2023 Planned Intake	50
Net ELR2B2 aggregate range (2023 JAE)	4 - 12

To be eligible for selection, applicants must also have sat for one of the following subjects listed under ELR2B2-C:

Additional Combined Science, Additional Science, Biology, Biotechnology, Chemistry, Combined Science, Computing/Computer Studies, Creative 3-D Animation, Design & Technology, Food & Nutrition, Electronics/Fundamentals of Electronics, General Science, Human & Social Biology, Integrated Science, Physics/Engineering Science, Science (Chemistry, Biology), Science (Physics, Biology), Science (Physics, Chemistry)/ Physical Science, Science (Physics, Chemistry, Biology).

* Sijil Pelajaran Malaysia (SPM)/ Unified Examination Chinese (UEC) holders must have a minimum of grade 6 for the relevant English Language subject (e.g. Bahasa Inggeris).

Diploma Subjects - Core Subjects

Subject Code	Subject	Credit Units	
CIT1C21	<p>Application Development Project</p> <p>This subject will introduce the skills required to develop a web application using the latest technologies. Project design, development and deployment will also be covered.</p>	4	^
CIT1C18	<p>Computational Thinking</p> <p>This subject introduces students to the fundamentals of computational thinking and their application in developing programming solutions for problems. Topics covered include programming concepts, simple data structures and programming techniques.</p>	4	^
CCF1C03	<p>Cybersecurity Fundamentals</p> <p>This subject will introduce the principles of cybersecurity and their application in real world scenarios. It also covers what is required to protect and defend digital systems and applications in cyber space. Common types of cyber risks, threats and attacks, as well as the applicable controls will also be discussed.</p>	2	^
CIA1C11	<p>Data Visualisation and Analytics</p> <p>This subject covers the data analytics lifecycle, including gathering, cleaning, processing and visualising of data. Exploratory data analysis methods, descriptive and predictive analytics and the presentation of insights will also be covered.</p>	4	^
CIA1C06	<p>Database Application Development</p> <p>This subject introduces the fundamental concepts of relational</p>	4	^

database systems, the design methods specific to relational database, database manipulation using a database query language, and the techniques of implementing relational databases. It will also cover implementation of simple applications to access relational database.

CIT1C14

Data Structures and Algorithms

4



This subject introduces students to the fundamentals of recursion and data structures in solving problems using a programming language. Topics covered include stacks, queues, linked lists and trees. Searching techniques and sorting algorithms will also be covered.

CIA1C07

Logic and Mathematics

3



This subject covers logic, sets, functions, recursion and graphs. It covers mathematical processes for developing algorithms in computing and other real-life applications. Topics covered include the fundamental mathematical concepts needed for computing.

CCF1C04

Network and Cloud Technology

4



This subject covers the theoretical and practical aspects of network and cloud technology. Topics covered include how data is transmitted within an organisation and via the internet, as well as cloud computing technologies, its benefits, organisation, cloud usage, and risks.

CIT1C19

User Experience and Interface Design

3



This subject introduces the concept of Human-Centered Design, and its practice to create useful digital products and interfaces that offer an enriching user experience (UX). The topics covered include designing interfaces, need findings, sketching and prototyping for interactive experiences, and usability testing.

Diploma Subjects - Core Subjects

Subject Code	Subject	Credit Units	
CAI2C01	Robotic Process Automation <p>This subject introduces students to the techniques of using an automation tool to automate tasks within a business process. It touches on the various use cases of robotic process automation (RPA) and provides a platform for students to creatively apply the concepts to different scenarios. It also discusses the challenges and limitations of RPA such as integration with unsupported third-party tools, security and governance, etc.</p>	4	^
CMC2C16	IoT Application Development <p>This subject covers the concepts of Distributed System Architecture like Service-Oriented Architecture, Representational State Transfer (REST) and Web Services, identification of technology and design principles for connected devices as well as prototyping techniques for developing web services.</p>	4	^
CIT2C18	Mobile App Development <p>This subject introduces the techniques and practices of programming and implementation of applications on multiple devices and platforms. Topics covered include an overview of how mobile applications are used in various industries, user interface and mobile application development across platforms.</p>	4	^
CAI2C02	AI and Ethics <p>This subject provides students with insights on the usage and implications of AI in daily life. It touches on the</p>	4	^

risks of applying AI without a certain set of moral and ethical principles, and discusses issues brought about by machine learning, such as the four types of bias: sample bias, prejudice bias, measurement bias, and algorithm bias.

CAI2C03

Deep Learning and Object Recognition

4



This subject introduces students to the fundamental principles of deep learning and how it is applied to a collection of computer vision tasks to implement object recognition. It covers the concepts and architecture of convolutional neural networks such as the various layers within, and the hyperparameters involved, using available tools and libraries.

CAI2C09

Cloud Technologies for AI

4



This subject introduces the concepts of developing and deploying machine learning applications to a cloud platform. It also covers the use of application programming interfaces (APIs) and relevant tools provided by the cloud platform.

CAI2C05

Natural Language Processing

4



This subject introduces students to the concepts and application of natural language processing (NLP). It covers the standard NLP workflow through various aspects such as text scraping, text wrangling and pre-processing, etc. using available libraries. It also explores the application of NLP to chatbot development using available tools and libraries.

CAI2C08

Machine Learning for Developers

4



This subject introduces the fundamentals of machine learning principles and practices. It covers a range of machine learning models and algorithmic machine learning methods, such as supervised learning.

YEAR 1

YEAR 2

YEAR 3

TPFUN

Diploma Subjects - Core Subjects

Subject Code	Subject	Credit Units	
CAI2C06	<p>AI for Advanced Manufacturing</p> <p>This subject provides students with the knowledge and skills to explore and apply AI to various challenges in advanced manufacturing such as monitoring of equipment failures, inventory management, quality improvement, etc.</p>	4	^
CAI2C07	<p>AI for Cybersecurity</p> <p>This subject provides students with the knowledge and skills to explore and apply AI to various challenges in cybersecurity such as fraud detection, malware detection, intrusion detection, user/machine behavioral analysis, etc.</p>	4	^
CMP3101	<p>Major Project</p> <p>This subject involves the integration of knowledge and skills acquired from the various subjects in the course. It helps students develop a practical understanding of the products, methodologies, processes, systems, project management and presentation skills needed for AI related application projects. Students will develop, present and demonstrate solutions to a problem.</p>	10	^

YEAR 1

YEAR 2

YEAR 3

TPFUN

You will also take this set of subjects that equips you with the crucial 21st-Century life skills you need to navigate the modern world as an agile, forward-thinking individual and team player.

TP Fundamentals (TPFun) Subjects

Subject Code	Subject	Credit Units
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CSI3004

Student Internship Programme

16



This structured programme is designed to link your learning with the real work environment. You will be placed in organisation(s) with opportunities to apply the concepts and skills acquired in the course of your study. Besides reinforcing technical concepts and mastering of skills in areas that you have been trained, the practical training will enable you to build important skills such as problem-solving, communication, teamwork, and to cultivate good attitude and a strong work ethic.

CTX1001

Effective Communication

3



This subject introduces the fundamentals of effective communication. It also covers how to communicate with and convince an audience through writing and speaking tasks. The skills in this subject will include the application of strategies for communication, appropriate vocabulary, language features, visual aids, tone and style. The **Message, Audience, Purpose and Strategy** (MAPS) framework will also be applied when planning and engaging in written and verbal communication. There will be opportunities to communicate and collaborate through active learning activities, apply digital and information literacy skills and build competence through self-directed learning.

CTX1002

Professional Communication

3



This subject covers professional communication skills for the workplace and employability skills in the areas of career preparation. It covers communication and interpersonal skills, including effective virtual communication etiquette, and conducting oneself professionally in the workplace. In addition, essential career preparation skills such as

resume writing and interview skills, needed to seek and secure work would be included. The **Message, Audience, Purpose and Strategy (MAPS)** framework would also be applied when engaging in written and verbal communication. There will be opportunities to communicate and collaborate through active learning activities, apply digital and information literacy skills and build competence through self-directed learning.

GTP1301

Current Issues & Critical Thinking

3



This subject covers current issues, including diverse local and global concerns, that will impact lives and may have critical implications for Singapore. There will be opportunities to build competence through self-directed learning, communicate and collaborate in active discussions and objectively analyse issues using digital and information literacy skills and critical thinking scaffolds.

GTP1201

Career Readiness

1



This subject focuses on personal management skills. It develops an understanding of one's career interests, values, personality and skills for career success. It covers the necessary knowledge, skills and attitudes needed to succeed in the workplace and achieve professional goals. There will be exposure to apply digital and information literacy skills, build competence through self-directed learning methods, and acquire the skills of being a lifelong learner.

GTP1202

Career Management

1



This subject focuses on career management skills. It covers the importance of workplace readiness skills to adapt and respond to the changing job market environment.

Career ownership and continuous learning for lifelong employability will be emphasised. There will be exposure to apply digital and information literacy skills, build competence through self-directed learning, and acquire the skills of being a lifelong learner.

CGS1002

Global Studies

3



This subject provides essential skills and knowledge to prepare students for an overseas experience. They will examine the elements of culture and learn the key principles of cross-cultural communication. In addition, they will gain an appreciation and awareness of the political, economic, technological and social landscape to function effectively in a global environment. The subject prepares students to be responsible global citizens and leaders who can contribute to the global community through effective communication and collaboration.

GTP1302

Guided Learning*

3



The subject introduces students to the concepts and process of self-directed learning in a chosen area of inquiry. The process focusses on four stages: planning, performing, monitoring and reflecting. Students get to plan their individual learning project, refine and execute the learning plan, as well as monitor and reflect on their learning progress and project. The learning will be captured and showcased through a curated portfolio. The self-directed learning project will broaden and/or deepen a student's knowledge and skills. Students will enhance their problem solving and digital literacy skills through this subject.

CIN1001

Innovation & Entrepreneurship

2



The subject is designed for learners from all disciplines to embrace

innovation in either their specialised field or beyond. Learners will be taught to apply the Design Thinking framework to develop problem statements, ideate and identify feasible solutions. Learners will be exposed to several tools for prototyping. In addition, commercial awareness will be imbued in learners through various innovation and entrepreneurship concepts or tools. This subject also prepares students to be self-directed lifelong learners who are digital and information literate. It nurtures communicative and collaborative citizens who can use objective analysis in problem-solving.

GTP1101

Leadership Fundamentals

2



This subject focuses on self-leadership based on the values of integrity, respect, and responsibility. Increasing awareness of self and others will lay the foundations for personal and relationship effectiveness. Consequential thinking, clear articulation of personal values and visions, emphatic listening, and collaboration in serving others are some of the essential skills covered in this leadership journey. There will be opportunities to build and to apply the concepts of being a values-centred leader.

GTP1102

Leadership in Action

1



This subject focuses on Service Learning as an experiential platform to apply the tenets of Self and Team Leadership. Service Learning will be the capstone project for this subject, which will require an analysis of the diverse needs of the community, collaboration with community partners and demonstration of learning, including key elements of empathy. There will be opportunities to build and to apply the concepts of being a values-centred leader.

LSW1002

Sports & Wellness

2



The subject enables students to build a good foundation for healthy living. Students will have the opportunity to participate in hands-on practical sessions where they will experience and develop both physical and technical skills in their chosen sports or fitness activities. Through a structured curriculum that facilitates group participation, practice sessions and mini competitions, students will be able to build lifelong skills such as resilience, leadership, communication and teamwork. Physical activity sessions will also be supplemented by health-related topics that span the dimensions of health, such as diet, nutrition, stress and weight management, to provide students with a holistic approach to healthy living. This subject also prepares students to be self-directed and accountable for lifelong learning for good health.

TGS1001

Sustainability & Climate Action*

3



This subject prepares students to be responsible global citizens and future leaders who can contribute to the global community. It introduces the topics of sustainability and explores how human societies can act to build a sustainable future. This subject focuses on the impact of climate change, potential solutions to climate change, and the future of the green economy from global and local perspectives.

* Students must choose to take either **Sustainability & Climate Action** or **Guided Learning**.

GRADUATION REQUIREMENT

Cumulative Grade Point Average	min 1.0
TP Fundamental Subjects	40 credit units
Diploma Subjects - Core Subjects	82 credit units
Total Credit Units Completed	min 122 credit units