Title (Units): **COMP7025 Artificial Intelligence for Digital Transformation (3,2,1)**

Course Aims: To help students gain understanding of the artificial intelligence (AI) as the essential tools in pursuing the digital transformation journey, through the discussion of AI basics, applications and tools with use cases in various areas of an enterprise including sales and marketing, customer service, operations, risk management and other support functions. While applications in different sectors will be explored, those for the banking industry will be highlighted. Students will also look at the issues and challenges of adopting AI technologies in addition to its benefits, and learn the implementation aspect of digital transformation. This course is designed to prepare students to take part in digital transformation projects involving AI technologies in different roles such as a business user, solution analyst, project manager and AI solution provider.

Prerequisite: Nil

Course Intended Learning Outcomes (CILOs):
Upon successful completion of this course, students should be able to:

No.	Course Intended Learning Outcomes (CILOs)
	Knowledge
1	Explain the basics, applications and tools of artificial intelligence
2	Describe the essence of digital transformation concepts and approach, and organizational readiness for adopting AI technologies
3	Relate the real-life use cases and the related AI solutions
	Professional Skill
4	Perform different professional roles in AI transformation projects from different perspectives
5	Analyze and plan the readiness to adopt AI technologies in a digital transformation journey
6	Identify and recommend AI solutions for business transformation

Calendar Description: Students will gain the understanding of artificial intelligence (AI) as the essential technology in pursuing the digital transformation journey, through the discussion of AI basics, applications and tools with use cases in various functions of an enterprise including sales and marketing, customer service, operations, risk management and other support functions. While applications in different sectors will be explored, those for the banking industry will be highlighted. Students will also look at the issues and challenges of adopting AI technologies in addition to its benefits, and learn the implementation aspect of digital transformation. This course is designed to prepare students to take part in digital transformation projects involving AI technologies in different roles such as a business user, solution analyst, project manager and AI solution provider.

Teaching and Learning Activities (TLAs):

CILOs	Type of TLA
1,2	Lectures, mini-project, class presentation, or assignments
3	Lectures, video presentation / live demonstration / hands-on experience of AI solutions
4,5	Lectures, exercises, assignments, problem-solving assignments, or mini-project
6	Lectures, exercises and assignments, or independent information search and research as required by the mini-project.

Assessment:

No.	Assessment Methods	Weighting	CILOs to be addressed	Description of Assessment Tasks
1	Continuous Assessment	70%	1-6	This may include a mid-term test, assignments, and mini-project. The test will be used to assess the students' understanding and application of the artificial intelligence under the digital

				transformation context, and is related primarily to learning outcomes 1 and 2. Assignments are designed to assess the students' mastery of the methods and applications of artificial intelligence technologies and are related mainly to learning outcomes 1 and 2. The problem-solving assignment or mini-project is designed to achieve learning outcomes 4, 5, and 6 by requiring students to work in a team environment to address digital transformation scenarios through the application of the concepts and approach learned.
2	Examination	30%	1-6	The final examination is designed to measure the extent to which the students have reached all of the learning outcomes. Students are required to have a good mastery of the concepts, methods, and applications of artificial intelligence for digital transformation as well as addressing business situations and problems.

Assessment Rubrics:

Excellent (A)	• Achieves all six CILOs, demonstrating a good mastery of both the theoretical and practical aspects of the knowledge and skills associated with artificial intelligence • Demonstrates a thorough understanding and solid knowledge of digital transformation • Able to draw on a variety of artificial intelligence technologies and relevant knowledge and appropriately apply them to challenging digital transformation scenarios
Good (B)	• Achieves all six CILOs, demonstrating a good understanding of the associated concepts and underlying technologies of artificial intelligence • Demonstrates a competent level of knowledge of digital transformation • Ability to make use of appropriate artificial intelligence technologies and knowledge and apply them to familiar digital transformation scenarios
Satisfactory (C)	• Achieves most of the six CILOs, demonstrating a basic level of understanding of the associated concepts and underlying technologies of artificial intelligence • Demonstrates an adequate level of knowledge of digital transformation • Ability to make use of some artificial intelligence technologies and knowledge and apply them to familiar digital transformation scenarios
Fail (F)	• Achieves less than three of the six CILOs, with little understanding of the associated concepts and underlying technologies of artificial intelligence • Knowledge of digital transformation falling below the basic minimum level • Unable to apply artificial intelligence technologies and knowledge to digital transformation scenarios

Course Content and CILOs Mapping:

Content		**CILO No.**
I	The Artificial Intelligence and Digital Transformation	1,2
II	Reshaping customer experience with AI	1,2,3,6
III	Reengineering the corporation with AI	1,2,3,6
IV	Intelligence Automation	1,2,3,6
V	AI in Modern Banking	1-6
VI	Transforming the Business with AI: Strategy, Capabilities and Organization	2,4,5

References:

- Danny Samson, Alon Ellis, Stuart Black, Business Model Transformation - The AI & Cloud Technology Revolution, Routledge, 2023.

- Kavita Ganesan, The Business Case for AI: A Leader's Guide to AI Strategies, Best Practices & Real-World Applications, Opinosis Analytics Publishing, 2022.
- Haq, Rashed, Enterprise artificial intelligence transformation: a playbook for the next generation of business and technology leaders, Wiley, 2020.
- Seth Earley, The AI-Powered Enterprise: Harness the Power of Ontologies to Make Your Business Smarter, Faster, and More Profitable, LifeTree Media, 2020.
- Gentsch, Peter, AI in Marketing, Sales and Service: How Marketers without a Data Science Degree can use AI, Big Data and Bots, Palgrave Macmillan, 2019.
- Bornet, Pascal; Barkin, Ian; Wirtz, Jochen. Intelligent Automation: Learn how to harness Artificial Intelligence to boost business & make our world more human, Lulu.com, 2020.
- Evans, Nicholas D., Mastering Digital Business: How powerful combinations of disruptive technologies are enabling the next wave of digital transformation, BCS, The Chartered Institute for IT, 2017.
- Sacolick, Issac, Driving Digital: The Leader′ s guide to business transformation through technology, AMACOM, 2017.

(More references will be given in class, some of which may be given as reading assignments)

Course Content:

Topic

I. The Artificial Intelligence and Digital Transformation
   A. Overview of artificial intelligence: concepts, methods and development
   B. AI applications and tools, and development activities at-a-glance
   C. Digital transformation under the business and Industry 4.0 context

II. Reshaping customer experience with AI
   A. Customer experience across the customer journey
   B. AI for marketing, sales and service
   C. Real life use cases*

III. Reengineering the corporation with AI
   A. Challenges facing the enterprises
   B. AI for operations, risk management, and other business support functions
   C. Real life use cases*

IV. Intelligence Automation
   A. Integration of artificial intelligence and robotic process automation and its applications
   B. Real life use cases*

V. AI in Modern Banking
   A. Reshaping Banking with AI
   B. AI applications across various functions of a bank
   C. Real life use cases*

VI. Transforming the Business with AI: Strategy, Capabilities and Organization
   A. AI and transformation strategy
   B. AI capability maturity model and readiness for adoption
   C. AI and transformation project: agility and project organization
   D. Social issues, regulatory and other concerns

   * With demonstration / hands-on experience of AI solutions wherever appropriate