Title (Units): **GTSC2805 Critical AI literacies: Embracing AI for Social Good (3,1,2)**

Course Aims:

The course aims to equip students with the knowledge and skills needed to develop critical AI-literacies. This includes;
(1) Technological knowledge by understanding key concepts and principles behind the new and emerging developments of Artificial Intelligence (AI);
(2) Productive and impactful application by understanding potential uses of AI in different domains and gaining ability to utilize AI tools productively in students' personal, academic and professional lives;
(3) Ethical and critical awareness by critically evaluating the risks, debates, and impacts of AI, in view of being responsible users of AI tools;
(4) Sustaining human uniqueness and agency by analysing the wider effects of AI on human well-being, including creativity and innovation, critical thinking and behaviour, and sustained sense of agency while collaborating with AI for social good.
By focusing on the four aspects of critical AI-literacies, we will ensure that students are well-equipped with transdisciplinary and subject-specific competence to productively, critically and ethically utilise current and emerging AI technologies into their studies, future careers and life.

Remarks: It is under the GE Level 2 theme -: Science, Technology and Society, and is designed with examples and case studies tailored to and thus recommended for SCI, SCM, and BUS students.

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 key concepts and principles behind AI as well as its applications
2	Utilize AI tools productively in their personal, academic, and professional lives
3	Critically evaluate the risks, debates and issues around AI developments towards responsible use of AI
4	Analyse the wider effects of AI on human actions, thoughts, and behaviours

Calendar Description:

The first part of the course focuses on (1) and (2): development of students' technological knowledge and effective application of AI tools. Lectures and tutorial sessions will be interleaved to help students understand the key AI concepts and finish related lab exercises of using AI tools. The flipped classroom approach will be adopted where students will be provided with a repository of video lectures and online lab materials. Students with varying levels of technical background can pace their learning and better engage in in-class discussion points.

The second part of the course focuses on (3) and (4): development of ethical and critical awareness and sustaining human uniqueness and agency. Lectures combined with debates, scenarios and story presentations help students learn to critically explore productive uses of AI in their personal, academic, and professional lives while at the same time reflecting on the potential impact to human futures and responsible collaboration with AI for social good.

Teaching and Learning Activities (TLAs):

CILOs	Type of TLA

1,2,3,4	Lectures / Flipped Content Students will engage in interactive lectures to learn AI concepts and principles as well as its innovative and responsible use in the society.
1,2	Hands-on-lab Sessions Students will take part in hands-on lab sessions to gain experience of AI tools and the skills needed to utilise AI tools productively in their personal, academic, and professional lives.
3,4	In-class debates Students will actively engage in debates, conversations and sharing to analyse the wider effects of AI on human actions, thoughts, and behaviours.
3,4	Scenario/Story explorations Students will work in groups to explore ethical and critical issues pertaining to the use of AI in various areas of life and society.

Assessment:

No.	Assessment Methods	Weighting	CILOs to be addressed	Description of Assessment Tasks
1	Quizzes	30%	1,2,3,4	Two quizzes will be designed to evaluate the students' understanding of AI concepts and principles and its innovative and responsible use in society.
2	Lab Exercises	20%	1,2	Lab exercises will be designed to evaluate how well the students can make effective use of AI tools and understand their limitations.
3	In-Class Debates	20%	3,4	Two in-class debates will be arranged to evaluate how well the students can analyse the wider effects of AI on human actions, thoughts, and behaviours.
4	Scenario/ Story Presentation	30%	3,4	Students will be asked to create and present scenarios/narratives/imaginaries to illustrate how to identify and evaluate potential impacts of AI to future life and social good.

Assessment Rubrics:

Excellent (A)	• Demonstrates a deep understanding of key AI concepts and principles, and effectively applies them to real-world scenarios. • Demonstrates advanced proficiency in using AI tools across personal, academic, and professional settings, resulting in significant outcomes. • Provides insightful, comprehensive evaluations of AI risks, debates, and issues, leading to well-informed and responsible use of AI. • Conducts thorough and insightful analyses of the broader impacts of AI on human actions, thoughts, and behaviours, demonstrating a nuanced understanding.
Good (B)	• Shows a solid grasp of AI concepts and principles, and applies them accurately in various contexts. • Shows proficient use of AI tools in various contexts with positive outcomes. • Demonstrates a good understanding of AI risks, debates, and issues, and evaluates them thoughtfully. • Provides detailed analyses of the effects of AI on human aspects, showcasing a solid understanding.
Satisfactory (C)	• Demonstrates a basic understanding of AI concepts, but may lack depth in application. • Utilizes AI tools adequately, but may lack consistency or depth in application. • Offers basic evaluations of AI risks, debates, and issues, but may lack depth or critical analysis. • Offers basic analyses of the impacts of AI on human aspects, but may lack depth or complexity.
Marginal Pass (D)	• Shows some understanding of AI concepts, but struggles to apply them effectively. • Demonstrates some ability to use AI tools, but struggles to do so effectively. • Shows limited ability to critically evaluate AI risks, debates, and issues. • Shows limited ability to analyze the effects of AI on human actions, thoughts, and behaviours.

Fail (F)	• Fails to demonstrate a basic understanding of key AI concepts and principles. • Fails to demonstrate basic competence in utilizing AI tools. • Fails to demonstrate any meaningful evaluation of AI risks, debates, and issues. • Fails to provide any meaningful analysis of the wider effects of AI on human aspects.

Course Content and CILOs Mapping:

Content		**CILO No.**
I	Technological knowledge – Key AI concepts1	1
II	Productive and impactful application – Key AI tools across disciplines and human domains	2
III	Ethical and critical awareness - Impact, ethics, and responsible use of AI	3
IV	Sustaining human uniqueness and agency	4
V	Scenario/ Story Presentation	1-4

References:

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• Moorhouse, B.L., Yeo, M., & Wan, Y. (2023). Generative AI tools and Assessment: Guidelines of the World's top-ranking universities, Computers & Education Open. https://doi.org/10.1016/j.caeo.2023.100151
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• Fui-Hoon Nah, F., Zheng, R., Cai, J, Siau, K. & Chen., L. (2023). Generative AI and ChatGPT: Applications, challenges, and AI-human collaboration, Journal of Information Technology Case and Application Research, 25:3, 277-304, DOI: 10.1080/15228053.2023.2233814
• Rayner, M. (2023). AI: 3 ways artificial intelligence is changing the future of work https://www.weforum.org/agenda/2023/08/ai-artificial-intelligence-changing-the-future-of-work-jobs/
• Webster, A., & Wyatt, S. (2020). Health, technology and society. Springer Singapore.
• Szymkowiak, A., Melović, B., Dabić, M., Jeganathan, K., & Kundi, G. S. (2021). Information technology and Gen Z: The role of teachers, the internet, and technology in the education of young people. Technology in Society, 65, 101565.
• Markauskaite, L., Marrone, R., Poquet, O., Knight, S., Martinez-Maldonado, R., Howard, S., ... & Siemens, G. (2022). Rethinking the entwinement between artificial intelligence and human learning: What capabilities do learners need for a world with AI? Computers and Education: Artificial Intelligence, 3, 100056.
• Checketts, L. (2024). Poor Technology: Artificial Intelligence and the Experience of Poverty. Fortress Press.

Course Content:

Topic

I. Technological knowledge – Key AI concepts1
   A. AI acts like a human (Sensing and Robotics)
   B. AI beats human world champions (Planning and Game Playing)
   C. AI represents and reasons about knowledge (Knowledge and Symbolic AI)
   D. AI learns from data (Machine Learning)
   E. AI communicates like a human (Natural Language Processing)
   F. AI generates novel contents (Generative AI)

II. Productive and impactful application – Key AI tools across disciplines and human domains

A. AI for learning
B. AI for work
C. AI for recreational activities

III. Ethical and critical awareness - Impact, ethics, and responsible use of AI
A. Generative AI vs. misinformation (e.g., deepfake); copyrights
B. Machine learning competences vs. bias, privacy, safety
C. AI and humanity: Algorithmic cultures, digital divide, digital dignity
D. Principles of AI governance and responsible use

IV. Sustaining human uniqueness and agency
A. Creativity and innovation in the age of AI
B. Human/AI co-creation and collaboration
C. Well-being, human agency, and critical thinking

V. Scenario/ Story Presentation