Course Outline

TU107 Digital Skill and Problem Solving

Semester:	Semester 2/2024 (January 20 – May 14, 2024)
Number of credits:	3 credits
Instructor:	Dr. Hugh Patrick O'Connell
E-mail:	hugh@planit.co.th
Office hours:	By appointment
Class Schedule:	Starting Date: 20 January 2024
	Monday 09.00 – 12.000
Class Room:	**206, 2nd floor, Faculty of Economics**
Online materials:	https://able-gateway.com/online
Prerequisites:	None

Course Description:

Basic computational thinking skill for solving problems and developing new social and economic opportunities. Efficient access and search for information. Information

reliability evaluation. Filtering and managing information systematically. Ethical digital usage and professional online communication.

Teaching Materials and Resources:

This course is designed to be contemporary and does not rely on a specific text book. Materials, exercises, case studies and quizzes will be provided by your instructor but you will also be required to do your own research and use various online and offline resources.

Recommended readings:

- Supplemental readings and videos will be posted in the online classroom for you

Tentative Class Schedule:

Week	Date	Topic	Details
1	20 Jan 2025	Introduction to Digital Skills and Problem Solving	This introductory session explores the integration of digital innovation with computational thinking, emphasizing how these skills can create social and economic opportunities.
2	27 Jan 2025	Efficient Information Access and Evaluation	This week focuses on developing strategies for efficiently accessing and evaluating information, ensuring reliability and relevance in digital contexts.
3	3 Feb 2025	Applied Problem Solving in Digital Contexts	Students will learn to apply problem-solving skills in various digital scenarios, using digital tools to address and resolve real-world issues.
4	10 Feb 2025	Ethical UX/UI Design	This session delves into the ethical aspects of UX/UI design, teaching students to create user interfaces that are both ethically sound and user-friendly.
5	17 Feb 2025	Basics of Ethical Application Development	The focus here is on embedding ethical considerations and professional practices into the foundations of application development.
6	24 Feb 2025	Collaborative Digital Solutions	Students will engage in collaborative projects, emphasizing ethical coding practices and teamwork in digital solution development.
7	3 Mar 2025	Data Management and Ethics	This week covers ethical data management strategies, including systematic approaches to data handling and visualization.
8	**10 Mar 2025**	**Mid-Term Week**	No Examination – Assignment 1 Due
9	17 Mar 2025	Evaluating Digital Opportunities	Students will explore and assess various digital opportunities, considering their social and economic impacts on different sectors.
10	24 Mar 2025	Data Protection and Ethics	This session reinforces the importance of data protection, introducing an ethical framework for handling sensitive information.
11	31 Mar 2025	Cybersecurity and Ethical Considerations	Cybersecurity principles are taught with an emphasis on ethical considerations, highlighting responsible practices in digital security.
12	7 Apr 2025	Digital Communication and Engagement	The focus shifts to strategies for professional online communication and digital engagement, essential for modern digital environments.
13	14 Apr 2025	Ethical Implications of AI and ML	An exploration into the ethical implications of AI and Machine Learning, discussing responsible use and potential impacts of these technologies.
14	21 Apr 2025	Ethical Use of AR in Problem Solving	This week is dedicated to understanding the ethical applications of Augmented Reality in solving real-world problems, beyond its business applications.

Week	Date	Topic	Details
15	28 Apr 2025	Creativity and Innovation in Problem Solving	Students will learn to harness creativity and innovation for ethical problem-solving, applying these skills in various digital contexts.
16	5 May 2025	Emerging Technologies and Ethical Implications	The course concludes with a look at emerging technologies, discussing their ethical implications and how they can be harnessed for innovative problem-solving.
	May 7	**Final Examination**	**13.30-16.30**

Policy on attendance and class participation:

Attendance, attitude, and preparation are important. Positive contributions to the class can provide rich reciprocal learning experiences. The right attitude means: a desire and willingness to study and learn, preparation as directed, and putting forth effort even when it may be inconvenient or difficult. It also means: being ready to answer questions when called upon, volunteering answer to questions or asking questions and actively listening to the instructor and other class members.

Grading:

Workshop presentation - Group	25%
Assignment - Group	25%
Final Examination	50%
	100%

Assignment – Individual

Due Date: Midterm Examination Day

"Ethical Considerations of AI in Education: An Analytical Reflection"

Assignment Instructions:

Objective:

Your task is to critically analyse the ethical implications of Artificial Intelligence (AI) applications in education. This assignment requires you to research, reflect, and present a balanced viewpoint on the potential and challenges of AI in educational settings, focusing on ethical considerations.

Length:

Your submission should be approximately 1,000 words (with a 10% margin allowed), neatly formatted and clearly structured.

Content Guidelines:

Introduction (approx. 150 words):

- Briefly introduce the topic of AI in education.
- State the purpose of your reflection and what aspects of AI applications you will focus on.

AI Applications in Education (approx. 250 words):

- Describe various AI technologies currently used in educational contexts (e.g., adaptive learning systems, AI tutors).
- Briefly discuss their intended benefits and potential impacts on learning.

Ethical Analysis (approx. 400 words):

- Critically examine the ethical implications of these AI applications.
- Consider issues such as data privacy, algorithmic bias, the impact on teacher roles, and student equity.
- Reflect on different stakeholder perspectives (students, educators, administrators).

Case Study (approx. 100 words):

- Briefly analyse a specific case where AI has been implemented in education.
- Highlight the ethical challenges and successes noted in this case.

Personal Reflection and Conclusion (approx. 100 words):

- Reflect on how AI in education might affect your own learning or teaching experiences.
- Conclude by summarizing your stance on the ethical use of AI in education and any recommendations for ethical guidelines or standards.

Formatting and Submission:

Ensure your assignment is well-organized and clearly written, with proper citations for any sources used.
Use a standard font (e.g., Times New Roman, 12-point) and double spacing.
Include a word count at the end of your document.
Submit your assignment in PDF digital format on Able-Gateway

Evaluation Criteria:

- Depth and relevance of research.
- Clarity and effectiveness of ethical analysis.
- Insightfulness of case study evaluation.
- Depth and personalization of reflection.
- Overall quality of writing and adherence to formatting guidelines.

This assignment provides you with an opportunity to delve into a significant aspect of digital technology in education, encouraging you to think critically about the role and impact of AI in learning environments.

Assignment – Group:

Due Date: Final examination day

Assignment Title:

"Revolutionizing Tradition: A Group Challenge in Digital Transformation Strategy Development"

Objective:

Your group is tasked with developing a comprehensive digital transformation strategy for a company in a traditional industry, addressing the challenges and opportunities of the digital age. This project aims to apply the concepts learned in the "Digital Skill and Problem Solving" course, focusing on innovative solutions, ethical considerations, and practical problem-solving strategies.

Industry and Company Selection:

- Choose a traditional industry (such as healthcare, education, manufacturing, agriculture, or tourism).
- Create a hypothetical company within this industry facing digital age challenges.

Length:

- Your group's submission should be approximately 3,000 words, with a 10% margin allowed. This count includes all sections of the report but excludes references and appendices.

Content Guidelines:

Industry Analysis and Company Challenges (approx. 700 words):

- Provide a detailed analysis of how the digital era impacts the chosen industry.
- Describe the hypothetical company and its specific challenges in adapting to the digital age.

Digital Transformation Strategy (approx. 1200 words):

- Propose innovative strategies for leveraging digital technologies in the company's key areas.
- Include specific recommendations for digital skills development, technology adoption, and implementation steps.

Ethical and Societal Considerations (approx. 600 words):

- Discuss the ethical considerations and societal impacts of the proposed digital transformation.
- Suggest strategies to address ethical challenges and promote responsible digital practices.

Problem-Solving Approach and Conclusion (approx. 500 words):

- Demonstrate the application of digital problem-solving strategies in your plan.
- Conclude with a summary of your strategy's potential effectiveness and long-term benefits.

Formatting and Submission:

- Organize the report clearly with headings and subheadings.
- Use a standard font (e.g., Times New Roman, 12-point) and double spacing.
- Include citations for all sources used and a reference list formatted according to your academic guidelines.
- Submit the report in PDF digital format and upload to Able-gateway by the specified deadline.

Evaluation Criteria:

- Creativity and Innovation: Originality of the digital transformation strategy.
- Analytical Depth: Comprehensive and insightful industry and company analysis.
- Practicality and Ethical Consideration: Realism, feasibility, and ethical soundness of the proposed strategy.

- Collaboration and Clarity: Quality of writing, organization of the report, and effective collaboration among group members.

This group project will assess your ability to collaboratively apply digital skills and problem-solving strategies in a real-world context, encouraging a deep understanding of the complexities and ethical dimensions of digital transformation.

Mini Cases and Quizzes:

Mini cases and quizzes, available weekly on Able Gateway, are intended to give you a review of lesson learnt each week. You will be expected to complete them both during class time, and in your own time. Submission of your work will be done online.

Remark

ACADEMIC CALENDAR & HOLIDAY
SEMESTER 2/2024

Semester 2/2024 (January 20 – May 14, 2025)	
Create Plan from Quota via TU Greats App (*ID 64 – 67)	December 13 – 20, 2024
Registration via TU Greats App (*ID 64 – 67)	December 16 – 20, 2024
Tuition Fee Payment Period (Via TU Greats App) (*ID 64 – 67)	December 16, 2024 – January 17, 2025
Classes Begin	January 20, 2025
Add-drop period	January 20 – February 2, 2025 *(from 9.00 AM of January 20 to 10.30 PM of February 2).*
Tuition Fee Payment Period (Via TU Greats App)	January 20 – February 3, 2025 *(9 AM - 10.30 PM)*
*Makha Bucha Day**	*February 12, 2025*
Mid-term Examination Period	March 9 – 16, 2025
Withdrawal period with "W" on record	February 3 – March 30, 2025 *(from 9.00 AM of February 3 to 10.30 PM of March 30).*
Special Withdrawal with "W" on record	March 31 – 2 May, 2025
*Substitution for Chakri Memorial Day**	*April 7, 2025*
*Songkran Festival Day**	*April 13 – 16, 2025*
Last day of class for Semester 2/2024	May 14, 2025
*Substitution for Visakha Bucha Day**	*May 12, 2025*
Final exam period	May 16 - 30, 2025
Submitting Forms for Degree Conferral	January 20 – February 2, 2025

Remark * Holiday, No classes during this period
Updated: *October 17, 2024*