

Introduction of Engineering Approach 2

Basic Course Information			
Course Number	2006070	Subject Category	Compulsory 4D
Class Format	Lecture	Credit Type and Number of Credits	1
Department	Computer	Student Category	Year 1
Period of Study	Semester 2	Classes per Week	2
Required Materials	To be announced		
Instructor	Linsson Kestermann		

Course Objective
 The main objective of engineering problems. In order to solve the problems, engineers need to know how to choose the best approach to find the solution. The course provides students with basic knowledge of Logical thinking, Critical Thinking, lateral thinking, and Fundamental skills of computer for tackling problems. This subject is consisted with Engineering Design Reverse Engineering, and Lab work, respectively. Group work and presentation skills are also aimed to be developed.

Evaluation Rubric	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fair)
Understanding Engineering Approach Concept	Demonstrates very good knowledge and understanding of Engineering Approach concept.	Demonstrates good knowledge and understanding of Engineering Approach concept.	Lacks the appropriate knowledge and understanding of Engineering Approach concept.
Logical thinking	Identifies and summarizes main issues and successfully and rationally explains why/how they are problems.	Identifies and summarizes the main issue/problems but insufficiently explains why or how they are problems.	Fails to identify or misunderstands the main problem or question.
Application of thinking tools	Apply thinking tools to identify the problem properly.	Apply thinking tools to identify the problem and to propose a solution.	Inproper application of thinking tools to identify or solve the problem.
Presentation	Presentation slides are well prepared. Effectively presents ideas and information in logical.	Presentation slides are organized. Presents ideas and information in logical sequence which audience can follow.	Presentation slides are not well prepared. Presents ideas and information, but the audience feel difficult to follow the sequence.
Group work	Almost always listens to and support others. Shares ideas with others positively and helps the team to solve the problem.	Usually or try to listen to the others. Shares ideas with, and positively supports others.	Rarely listen to others. Do not share ideas and supports others. Often is not a good team player.

Relationship with Learning Outcomes
G(1) Wide knowledge on Science and Engineering and practical ability to apply them to solve problems in the society.
G(2) As an engineer, attitude to act with awareness of social roles and responsibility to make a better society.
CE(8) Ability to apply the update technologies (e.g., artificial intelligence (AI), Big data etc.) to build up computer system to support the development of society.

Teaching Method	
Outline:	Students will study the concept and methodology of Engineering Approach. This course covers 4Cs (Creativity, Critical Thinking, Collaboration, and communication) and POSEB education, 21st Century skills, Mind mapping, Venn diagram, SWOT analysis, SMART Goals. Student will apply their skills, knowledge and learning through case study.
Class Format:	Online lecture and group work
Please Note:	Group work and presentation will be an important part of your learning in this subject. Communication and collaboration are keys for the success of group work. Although this syllabus is designed for 15 weeks format, the midterm and final examination will not provided.

Course Plan	Semester 2	Contents and Method of Course	Goals	Related MCC
1st week		Introduction / Thailand 4.0	Understand the concept of the course and Thailand 4.0	V-D B 97
2nd week		SDGs (1) Categories with Venn Diagram	Understand the concept of SDGs and Venn diagram	V-D B 98
3rd week		SDGs (2) Gallery walk	Understand the concept of SDGs and Venn diagram and how to design a presentation	V-D B 98
4th week		KISS Analysis	Apply the KISS principle with problem solving	V-D B 97
		Holiday	12/05/2023	V-D B 97
5th week		SCAMPER Analysis	Apply the SCAMPER principle with problem solving	V-D B 98
6th week		SCAMPER Presentation	Apply the SCAMPER principle with problem solving and how to design a presentation	V-D B 98
7th week		Telephone game	Learn how to Manage and communicate within the team	V-D B 97
		Holiday	01/02/2024	V-D B 97
		Midterm Examination	No Exam	V-D B 97
8th week		SWOT Analysis (1)	Understand the concept of SWOT Analysis and how to use in problem analysis	V-D B 98
9th week		SWOT Analysis (2)	Understand the concept of SWOT Analysis and how to use in problem analysis	V-D B 98
10th week		SWOT Analysis (3) Gallery walk	Understand the concept of SWOT Analysis and how to use in problem analysis and how to design a presentation	V-D B 98
11th week		SMART Goals (1)	Understand the concept of SMART Goals and how to apply into real-world problems	V-D B 98
12th week		SMART Goals (2)	Understand the concept of SMART Goals and how to apply into real-world problems	V-D B 98
13th week		SMART Goals (3)	Understand the concept of SMART Goals and how to apply into real-world problems and how to design the presentation	V-D B 98
14th week		PDCA cycle	Understand the concept of PDCA cycle and how to apply into real-world improvement	V-D B 98
15th week		Final Examination Preparation	Final Examination Preparation	V-D B 98
		Final Examination	No exam	V-D B 98

	Examination	Presentation	Behavior	Recruit	Pertube	Other
Design Ability	0	20	0			
Technical Ability	0	0	0			
Interdisciplinary Ability	0	0	0			

Do not