

Introduction to Engineering Design

Basic Course Information			
Course Number	2205973	Subject Category	Consultancy (E)
Class Format	Lecture	Credit Type and Number of Credits	1
Department	Electrical and Electronics	Student Category	Year 1
Period of Study	Semester 1	Classes per Week	1
Required Materials			
Instructor	Hiroshi Nishizawa	Wasehal Pattanasuboon	

Course Objective
 The course provides students with an introduction of Engineering design. The concept of Engineering design is very important to solve problems and develop products. Student study mechatronics technology from the viewpoint of Engineering design. The students will also study the Project life-cycle process, Reliability, and Risk management. This subject is correlated with "Reverse Engineering" and Introduction to Engineering Approach".

Evaluation/Rubric	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fair)
Understanding Engineering Design Concept	Demonstrates very good knowledge and understanding of Engineering Design concept	Demonstrates good knowledge and understanding of Engineering Design concept	Lacks the appropriate knowledge and understanding of Engineering Design concept
Understanding Project life-cycle process, Reliability, and Risk management	Demonstrates very good knowledge and understanding of Project life-cycle process, Reliability, and Risk management	Demonstrates good knowledge and understanding of Project life-cycle process, Reliability, and Risk management	Lacks the appropriate knowledge and understanding of Project life-cycle process, Reliability, and Risk management
Application of Engineering Design concept	Apply Engineering Design to products/systems process to analyze for improvement	Apply Engineering Design to products/systems to analyze for improvement	Incorporate application of Engineering Design to products/systems

Relationship with Learning Outcomes
E(1) Ability to design, propose and develop electrical and electronic systems to solve specific problems.
G(2) As an engineer, attitude to act with awareness of social roles and responsibility to make a better society.
 Please change

Teaching Method	
Outline:	Students will study the concept and methodology of Engineering Design
Class Format:	Lecture and group work
Please Note:	

Course Plan	Semester 1	Contents and Method of Course	Goals	Related MCC
				V-D-4
	1st week	Introduction to Engineering Design *	Understand the concept of Engineering Design and theory	
	2nd week	Basic Concept of Engineering Design *	Understand the concept of Engineering Design and theory	
	3rd week	Project life-cycle phases and reliability *	Understanding the project life-cycle and reliability	
	4th week	Case study practice1 (1) *	Apply knowledge and concept of Engineering design	
	5th week	National holiday *		
	6th week	Case study practice1 (2) *	Apply knowledge and concept of Engineering design	
	7th week	Presentation of the case study *	Apply knowledge and concept of Engineering design	
	8th week	Risk management *	Understanding the importance of risk management	
	9th week	Midterm exam week *		
	10th week	Midterm exam week *		
	11th week	Risk management Workshop *	Understanding the importance of risk management	
	12th week	Reliability and safety *	Understanding the importance of product liability and safety	
	13th week	Intellectual properties: patent and others *	Understanding the importance of IP in the industry	
	14th week	Patent search *	Learn how to search and read patents (practical)	
	15th week	National holiday *		
	16th week	Development of specification and cost aspect of system engineering *	Understanding the importance of cost aspect of system engineering	
	17th week	Needs analysis and develop specification *	Learn how to apply the concept of needs analysis to develop specification	
	18th week	Value proposition *	Learn how to apply the concept of value proposition	
	19th week	Quality Control *	Understand the importance of quality control	
	20th week	Final exam week *		

Do not

	Evaluation	Quiz	Midst Evaluation between systems	Report	Portfolio	Other
Basic Ability				30		
Technical Ability				30		30
Interdisciplinary Ability				30		30