

Reverse Engineering 2

Basic Course Information			
Course Number	0105079	Subject Category	Construction IM
Class Format	Experiment / Practical train	Credit Type and Number of Credits	1
Department	Mechatronics	Student Category	Year 2
Period of Study	Semester 1	Classes per Week	2
Required Materials			
Instructor	Sard Talebian		

Course Objective
 Reverse engineering 2 is the sustained and continued subject of Reverse Engineering 1. Reverse Engineering in the second year provides students with a fundamental base and knowledge of reverse engineering and trends on activities to examine real products. These activities are designed to help the student learn the principles and concept behind the product as well as the student's ability to design and/or improve the performance of the products. The course shall collaborate with the Lab work when the element measurement can be performed from the forward to the reverse side.

Evaluation/Rubric	Ideal Level of Achievement Very Good	Standard Level of Achievement Good	Unacceptable Level of Achievement Fail
	Ideal Level of Achievement Very Good	Standard Level of Achievement Good	Unacceptable Level of Achievement Fail
Understanding Reverse Engineering Concept	Demonstrates very good understanding of Reverse Engineering Concept with knowledge of related technology in details	Demonstrates good understanding of Reverse Engineering Concept with knowledge of related technology	Lacks the appropriate knowledge and understanding of Reverse Engineering Concept
Diagnostic Analysis and Procedure	Demonstrates very good analysis procedure to find principle, function and design of products. Application of obtained knowledge for improvement	Demonstrates very good analysis procedure to find principle, function and design of products	Lacks the appropriate knowledge or analysis procedure to find principle, function and design of products
Observation and Analysis	Observation and analysis are both accurate and precise. Logically organize the obtained information to find principle, function and design of products	Observation and analysis are enough to obtain information to find principle, function and design of products	Observation and analysis are incomplete, inaccurate and imprecise
Presentation	Presentation slides are well organized. Effectively presents ideas and information in logical order	Presentation slides are organized. Presents ideas and information in logical sequence which audience can follow	Presentation slides are not well organized. Presents ideas and information but the audience feel difficulty to follow the sequence
Group work	Almost always listens to and support others. Shares ideas with others positively and help the team to solve the problem	Usually or often to listen to others. Shares ideas with and positively supports others	Hardly listens to others. Do not share with and supports others. Often is not a good team player

Relationship with Learning Outcomes

M1) Ability to design, process and develop robotic/ mechatronic systems to solve specific problems

M2) Ability to design, process and develop electrical and electronic systems for robotic/ mechatronic systems

M3) Ability to design, process and develop mechanical actuators/ systems for robotic/ mechatronic systems

Teaching Method

Outline:	Students will study the concept and methodology of Reverse Engineering. Student will apply their skills, knowledge and learning through case study
Class Format:	On-line lecture and group work
Praxis Note 1:	Hands-on activities will be provided. Safety rules will be applied

Course Plan

Semester 1	Contents and Method of Course	Goals	Related MCC
Week 1	Introduction to Reverse engineering 2	Understanding the concept of Reverse Engineering 2 and examining the real products to ensure or to find how it is designed to work	W-E 5 10
Week 2	Disassembling and Analysis Hair Drier 1	Examining the real products to ensure or to find how it is designed to work	W-D 4 10 W-C 1 2 W-E 5 10
Week 3	Disassembling and Analysis Hair Drier 2	Examining the real products to ensure or to find how it is designed to work	W-D 4 10 W-C 1 2 W-E 5 10
Week 4	Gallery Walk Presentation	Discover the unique ideas among other groups to find and conclude based on your idea	W-C 3 10 W-D 4 10
Week 5	FI Remote Controller Analysis 1	Examining the real products to ensure or to find how it is designed to work	W-C 1 2 W-E 5 10
Week 6	FI Remote Controller Analysis 2	Record the information obtained. Explain the product from the view point of RE	W-C 3 10 W-D 4 10
Week 7	Gallery Walk Presentation	Discover the unique ideas among other groups to find and conclude based on your idea	W-C 3 10 W-D 4 10
Week 8	Research Project - 150 year of Discovery (1)	Review knowledge and methodology that already used in only life from the reverse side to reach how to develop or improve	W-D 4 10
Week 9	Research Project - 150 year of Discovery (2)	Review knowledge and methodology that already used in only life from the reverse side to reach how to develop or improve	W-D 4 10
Week 10	Midterm Examination		
Week 11	Group presentation 1	Discussion, brainstorm, design and transfer your knowledge through the presentation	W-C 3 10 W-D 4 10
Week 12	Motor and actuator(1)	Examining the real products to ensure or to find how it is designed to work	W-D 4 10
Week 13	Motor and actuator(2)	Examining the real products to ensure or to find how it is designed to work	W-D 4 10
Week 14	Motor and actuator(3)	Discussion, brainstorm, design and transfer your knowledge through the presentation	W-D 4 10
Week 15	Group presentation	Discussion, brainstorm, design and transfer your knowledge through the presentation	W-D 4 10
Week 16	Case Study Practice 1	Learn how to apply the concept of Reverse Engineering and Engineering Design	W-D 4 10 W-C 1 2 W-E 5 10
Week 17	Case Study Practice 2	Learn how to apply the concept of Reverse Engineering and Engineering Design	W-D 4 10
Week 18	Group presentation 3	Learn how to apply the concept of Reverse Engineering and Engineering Design	W-D 4 10
Week 19	Final Examination		
Week 20	Wrap-up of the semester (Review)	Reflection of the previous study	

Category	Emphasis	Quiz	Final Examinations	Final	Passing
Class Ability				25	20
Interpersonal Ability				25	20