

Lab Work 8 for Embedded System Development

Basic Course Information			
Course Number	2105128	Subject Category	Consciousness IM
Class Format	Lecture	Credit Type and Number of Credits	2
Department	Mechatronics	Student Category	Year 4
Period of Study	Semester 2	Classes per Week	4
Required Materials			
Instructor	Somood Worapheehad	Takekita Shiro	Yamamoto Takahisa

Course Objective
 The course provides students with lab-work relating to electrical components and mechanical components. At the end of this course, students integrate these components to build their own designed embedded systems.

Evaluation/Rubric	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Following and Done Procedure	Demonstrate very good knowledge of the lab procedures and principles	Demonstrate good knowledge of the lab procedures and principles	Lacks the appropriate knowledge of the lab procedures and principles
Data Collection	Measurements are both accurate and precise	Measurements are mostly accurate and precise	Measurements are inaccurate, imprecise and incomplete
Report writing	Content is comprehensive, and accurate. Important points are stated clearly with supported data.	Some contents are not comprehensive or incomplete. Important points are addressed.	Most of the content is incomplete. Important points are addressed and/or inconsistent.
Safety	Proper safety precautions and awareness are consistently used	Proper safety precautions and awareness are generally used	Proper safety precautions and awareness are missed

Relationship with Learning Outcomes
M(2) Ability to design, process and develop electrical and electronic systems for robotics/ mechatronic systems
M(3) Ability to design, process and develop mechanical solutions/ systems for robotics/ mechatronic systems
M(4) Ability to design and develop the software for control robots/ mechatronic systems.

Teaching Method

Outline:	The course provides students with lab-work that covered the topic of: Matlab, Beam design numerical, Experiment for the strength of Material, Electrical transformers, DC Motor operation.
Class Format:	Group work
Please Note:	Complying with safety rules. Lab work topics are subject to be changed due to

Course Plan	Semester 2	Contents and Method of Course	Goals	Related MCC
1st week		Guidance of course and Safety instruction	Explaining Guidance of and Safety instruction	
2nd week		MatLab (1)	Explaining Learn the MatLab	V-D 1 7
3rd week		MatLab (2)	Explaining Learn the MatLab	V-D 1 7
4th week		Electrical transformer / DC motor (1)	Understanding a characteristics of DC motor and electrical transformer	V-C 5 66
5th week		Electrical transformer / DC motor (2)	Understanding a characteristics of DC motor and electrical transformer	V-C 5 66
6th week		MatLab (3)	Explaining Learn the MatLab	V-D 1 7
7th week		MatLab (4)	Explaining Learn the MatLab	V-D 1 7
8th week		Strength of Material (1)	Understanding for the theory and experiment of strength of material	V-D 2 25
9th week		Report day		
10th week		Midterm Exam week		
11th week		Strength of Material (2)	Understanding for the theory and experiment of strength of material	V-D 2 25
12th week		Beam design (1) Numerical	Understanding for the theory and experiment of Beam design	V-D 1 11
13th week		Beam design (2) Experiment	Understanding for the theory and experiment of Beam design	V-D 1 11
14th week		Beam design (3) Optimized and designed	Understanding for the theory and experiment of Beam design	V-D 1 11
15th week		Fluid mechanics (1)	Understanding for the theory and experiment of Fluid mechanics	V-A 4 86
16th week		Fluid mechanics (2)	Understanding for the theory and experiment of Fluid mechanics	V-A 4 87
17th week		Thermo dynamics (1)	Understanding for the theory and experiment of Thermo dynamics	V-A 4 89
18th week		Thermo dynamics (2)	Understanding for the theory and experiment of Thermo dynamics	V-A 4 89
19th week		Report day		
20th week		Final Exam week		

Do not

Basic Ability	Examination	Quiz	Midst Evaluations between students	Report	Paper	Other
Technical Ability						
Communication Ability						