

Course Information	Course Title	Embedded System Capstone Design		Course ID	EEE3109		
	(Course Type)			Major Elective			
	(Credit/ hours per week)		3/3	Version (date)	2021		
Instructor	Prof. Lee, Young Sam						
Course Learning Objective							
	Course Objectives					Relation with Program Outcomes	
	1	an ability to apply latest information, research-based knowledge, and appropriate tools to the solution of engineering problems					PO 4
	2	an ability to design systems, components and processes within realistic constraints					PO 5
	3	an ability to communicate effectively under diverse situations					PO 7
	4	an ability to understanding the influence of engineering solutions on healthcare/safety/economics/environment/sustainability					PO 8
Course Description	The fundamentals of embedded system hardware and software design will be explored. Topics such as custom hardware design, VHDL, micro-controller, real time control, sensor, interrupts will be considered and several term projects will be given to students.						
Course Outcomes	NO	Details					
	1	an ability to understand and communicate in English for related engineering program					
	2	an ability to design embedded control systems, components and processes within realistic constraints					
	3	an ability to make programming for micro-controller					
	4	an ability to communicate effectively under diverse situations for design practice					
(Prerequisites)	Control System Capstone Design						
(Recommended Courses after This Course)	N/A						
Course Software or Tool	MatLab						
Textbook	Title	Authors		Publisher	Place	Year	ISBN
	Lecture Handouts	N/A		N/A	N/A	N/A	N/A
references	N/A						

Lecture type	Theory & Lab Practice for given Problems in Embedded System							
(Notes)	basic C-Language Programming skill needed							
(Evaluation Criteria)	(Attendance)	0%	(Quiz)	0%	(Lab Assignment)	50%	(Etc.)	50%
	(Mid-term Exam)	0%	(Final Exam)	0%	(Total)		100 %	
(Methods of Evaluation)	Weekly Project Study 50% + Team Project 50%							

Weekly Topical Outline of Course		
(1st Week)	Topic	Introduction
	Contents	
	Assignment	
(2nd Week)	Topic	Introduction to micro controllers
	Contents	
	Assignment	
(3rd Week)	Topic	Arduino Mega, Peripheral board
	Contents	
	Assignment	
(4th Week)	Topic	Library-based Arduino Programming
	Contents	
	Assignment	
(5th Week)	Topic	ATMega programming by means of Register Modification
	Contents	
	Assignment	
(6th Week)	Topic	Serial Plotter Practice; Principle of Sound
	Contents	
	Assignment	
(7th Week)	Topic	Timer and counter, PWM
	Contents	

	Assignment	
(8th Week)	Topic	Mid-term Project
	Contents	
	Assignment	

(9th Week)	Topic	Interrupt
	Contents	
	Assignment	
(10th Week)	Topic	SD Library, WAV Player Project
	Contents	
	Assignment	
(11th Week)	Topic	Team Project (1)
	Contents	
	Assignment	
(12th Week)	Topic	Step motor, DDA algorithm
	Contents	
	Assignment	
(13th Week)	Topic	Line scan camera & Line tracer project
	Contents	
	Assignment	
(14th Week)	Topic	Team Project (2)
	Contents	
	Assignment	
(15th Week)	Topic	Team Project Presentation & Estimation
	Contents	

	Assignment	
(16th Week)	Topic	Supplementary Lecture
	Contents	
	Assignment	