GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

Course File

Subject: DSP Based Electrical Lab

Subject Code: GR15A4027

Academic Year: 2018-19

Regulation: GR15

Year: IV **Semester:** I

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

Course Title: DSP Based Electrical Lab

Following documents are available in Course File.

S.No.	Points	Yes	No
1	Institute and Department Vision and Mission Statements	✓	
2	PEO & PO Mapping	✓	
3	Academic Calendar	✓	
4	Subject Allocation Sheet	✓	
5	Class Time Table, Individual Timetable (Single Sheet)	✓	
6	Syllabus Copy	✓	
7	Course Handout	✓	
8	CO-PO Mapping	✓	
9	CO-Cognitive Level Mapping	✓	
10	Lecture Notes		✓
11	Tutorial Sheets With Solution		✓
12	Soft Copy of Notes/Ppt/Slides		✓
13	Sessional Question Paper and Scheme of Evaluation		✓
14	Best, Average and Weak Answer Scripts for Each Sessional Exam. (Photocopies)		✓
15	Assignment Questions and Solutions	✓	
16	Previous University Question Papers		✓
17	Result Analysis	✓	
18	Feedback From Students	✓	
19	Course Exit Survey		✓
20	CO Attainment for All Mids.		✓
21	Remedial Action.		✓

Course Instructor / Course Coordinator **Course Instructor / Course Coordinator**

Karunakumar Davala **D Karunakumar**

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

Vision of the Institute

To be among the best of the institutions for engineers and technologists with attitudes, skills and knowledge and to become an epicenter of creative solutions.

Mission of the Institute

To achieve and impart quality education with an emphasis on practical skills and social relevance.

Vision of the Department

To impart technical knowledge and skills required to succeed in life, career and help society to achieve self sufficiency.

Mission of the Department

- To become an internationally leading department for higher learning.
- To build upon the culture and values of universal science and contemporary education.
- To be a center of research and education generating knowledge and technologies which lay groundwork in shaping the future in the fields of electrical and electronics engineering.
- To develop partnership with industrial, R&D and government agencies and actively participate in conferences, technical and community activities.

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INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

Programme Educational Objectives (B.Tech. – EEE)

This programme is meant to prepare our students to professionally thrive and to lead.
During their progression:

Graduates will be able to

PEO 1: Have a successful technical or professional careers, including supportive and leadership roles on multidisciplinary teams.
PEO 2: Acquire, use and develop skills as required for effective professional practices.
PEO 3: Able to attain holistic education that is an essential prerequisite for being a responsible member of society.
PEO 4: Engage in life-long learning, to remain abreast in their profession and be leaders in our technologically vibrant society.

Programme Outcomes (B.Tech. – EEE)

At the end of the Programme, a graduate will have the ability to

PO 1: Apply knowledge of mathematics, science, and engineering.
PO 2: Design and conduct experiments, as well as to analyze and interpret data.
PO 3: Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
PO 4: Function on multi-disciplinary teams.
PO 5: Identify, formulates, and solves engineering problems.
PO 6: Understanding of professional and ethical responsibility.
PO 7: Communicate effectively.
PO 8: Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
PO 9: Recognition of the need for, and an ability to engage in life-long learning.
PO 10: Knowledge of contemporary issues.
PO 11: Utilize experimental, statistical and computational methods and tools necessary for engineering practice.
PO 12: Demonstrate an ability to design electrical and electronic circuits, power electronics, power systems; electrical machines analyze and interpret data and also an ability to design digital and analog systems and programming them.

PEOs & POs Mapping

Programme Educational Objectives (PEOs)	Programme Outcomes (POs)											
	1	2	3	4	5	6	7	8	9	10	11	12
1	M	M	-	-	H	-	-	H	H	-	H	H
2	-	-	M	M	H	H	H	-	-	-	-	H
3	-	-	-	-	H	H	M	M	M	M	H	H
4	-	-	-	M	M	H	M	H	H	-	M	H

* H: Strongly Correlating (3); M: Moderately Correlating (2)& L: Weakly Correlating (1)

HOD-EEE

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

GRIET/DAA/1H/G/18-19 05 May 2018

ACADEMIC CALENDAR
Academic Year 2018-19

III & IV B.TECH – FIRST SEMESTER

S. No.	EVENT	PERIOD	DURATION
1	1st Spell of Instructions	02-07-2018 to 01-09-2018	9 Weeks
2	1st Mid-term Examinations	03-09-2018 to 05-09-2018	3 Days
3	2nd Spell of Instructions	06-09-2018 to 24-10-2018	7 Weeks
4	2nd Mid-term Examinations	25-10-2018 to 27-10-2018	3 Days
5	Preparation	29-10-2018 to 06-11-2018	1 Week3 Days
6	**End Semester Examinations (Theory/ Practicals) Regular/Supplementary**	**08-11-2018 to 08-12-2018**	**4 Weeks 3 Days**
7	Commencement of Second Semester, A.Y 2018-19	10-12-2018	

III & IV B.TECH – SECOND SEMESTER

S. No.	EVENT	PERIOD	DURATION
1	1st Spell of Instruction	10-12-2018 to 02-02-2019	8 Weeks
2	1st Mid-term Examinations	04-02-2019 to 06-02-2019	3 Days
3	2nd Spell of Instruction	07-02-2019 to 06-04-2019	**8 Weeks 3 Days**
4	2nd Mid-term Examinations	08-04-2019to 10-04-2019	3 Days
5	Preparation	11-04-2019 to 17-04-2019	1 Week
6	**End Semester Examinations(Theory/ Practicals) Regular**	18-04-2019 to 08-05-2019	3 Weeks
7	**Supplementary and Summer Vacation**	**09-05-2019 to 22-06-2019**	**6 Weeks 3 Days**
8	Commencement of First Semester, A.Y 2019-20	24-06-2019	

Copy to Director, Principal, Vice Principal, DOA, DOE, Balaji Kumar, DCGC, All HODs

(Dr. K. Anuradha)
Dean of Academic Affairs

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

2018-19 I sem Subject allocation sheet

II YEAR(GR17)	Section-A	Section-B
Special Functions and Complex Variable	Dr GS	Dr GS
Electromagnetic Fields	SN	SN
Network Theory	MS	MS
DC Machines and Transformers	Dr BPB	Dr BPB
Computer Organization	PRK	PRK
DC Machines Lab	MP/DSR	PRK/DSR
Electrical Networks Lab	YSV/GBR	YSV/GBR
Electrical Simulation Lab	GSR/PS	GSR/PS
Environmental Science		
III YEAR (GR15)	Section-A	Section-B
Power Transmission System	VVRR/MP	VVRR/MP
Microcontrollers	PK	PK
Power Electronics	Dr TSK	DKK
Electrical Measurements& Instrumentation (PE-1)	UVL	UVL
Solar & Wind Energy Systems (OE-1)	PSVD/Dr JP	PSVD/Dr JP
Sensors/Measurements& Instrumentation Lab	PSVD/PS	UVL/PS
Power Electronics Lab	PPK/MRE	SN/MRE
Microcontrollers Lab	RAK/DKK	PK/DKK
IV YEAR(GR15)	Section-A	Section-B
Power Semiconductor Drives	YSV	Dr DGP
Power System Operation & Control	Dr JSD	Dr JSD
High Voltage DC Transmission Systems	MRE	Dr SVJK
Electrical Distribution Systems (PE-3)	VVSM	
High Voltage Engineering (PE-3)	VUR	

Department of Electrical & Electronics Engineering

Soft Computing Techniques (OE-3)	RAK	RAK
DSP based Electrical Lab	**AVK/DKK**	**AVK/DKK**
Power Systems Simulation Lab	VVSM / GSR	VVSM / GSR
Power Electronic Drives Lab	MP/GBR	MP/GBR
I/I BEE(AICTE)	A/B	C/D/E
BEE	ML	
BEE	KS	
BEE	MK	
BEE	MVK	
BEE	MNSR	
Civil II/I (GR15)	A	B
ET	PPK	PPK
M.Tech (PE)(AICTE)	A	
Electric Drives System	Dr DGP	
Power Electronic Converters	Dr TSK	
Power Quality	AVK	
Electric and Hybrid Vehicles	Dr BPB	
Electrical Drives Laboratory	AVK/GBR	
Power Electronics Lab	SN/MS	
M.Tech (PS)(AICTE)	A	
Power System Analysis	Dr JSD	
Power System Dynamics	Dr SVJK	
Power Quality	AVK	
Electric and Hybrid Vehicles	Dr BPB	
Power System Steady State Analysis Lab	VVSM/VVRR	
Power System Dynamics Lab	Dr SVJK/YSV	

HoD-EEE

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Department of Electrical & Electronics Engineering

GRIET/PRIN/06/G/01/18-19 wef: 02 July 2018

B.Tech - EEE - A IV Year - I Semester

Day/Hour	10:00-10:50	10:50-11:40	11:40-12:30	12:30-1:00	1:00-1:45	1:45-2:30	2:30-3:15	3:15-4:00
MONDAY	HVDCT	PSD	PSD	BREAK	**PSS Lab / DSP Lab A1 /A2**			
TUESDAY	SCT	SCT	EDS/HVE		PED Lab / PSS Lab A1 /A2			
WEDNESDAY	EDS/HVE	SCT	SCT		**DSP Lab / PED Lab A1 /A2**			
THURSDAY	EDS/HVE	PSOC	PSOC		PSD	PSD	HVDCT	HVDCT
FRIDAY	HVDCT	HVDCT	EDS/HVE		PSOC	PSOC	SCT	SCT
SATURDAY	HVDCT	EDS/HVE	EDS/HVE		PSOC	PSOC	PSD	PSD

Room No.	
Theory	4502
Lab	**DSP Lab-4508** PSS Lab-4504 PED Lab-4407

Class Incharge:	P Praveen Kumar

Subject Code	Subject Name	Faculty Code	Faculty name	Almanac	
GR15A4022	Power Semiconductor Drives	YSV	Y Satya Vani	1st Spell of Instructions	02-07-2018 to 01-09-2018
GR15A4023	Power System Operation & Control	Dr JSD	Dr J Sridevi	1st Mid-term Examinations	03-09-2018 to 05-09-2018
GR15A4024	High Voltage DC Transmission Systems	MRE	M Rekha	2nd Spell of Instructions	06-09-2018 to 24-10-2018
GR15A4026	Electrical Distribution Systems	VVSM	VVS Madhuri	2nd Mid-term Examinations	25-10-2018 to 27-10-2018
GR15A4147	High Voltage Engineering	VUR	V Usharani	Preparation	29-10-2018 to 06-11-2018
GR15A4148	Soft Computing Techniques (OE-3)	RAK	R Anil Kumar	End Semester Examinations (Theory/ Practicals) Regular / Supplementary	08-11-2018 to 08-12-2018
GR15A4027	**DSP based Electrical Lab**	**AVK/DKK**	**A Vinay Kumar / D Karuna Kumar**	Commencement of Second Semester, A.Y	10-12-2018
GR15A4028	Power Systems Simulation Lab	GSR/VVSM	G Sandhya Rani/ VVS Madhuri		

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Department of Electrical & Electronics Engineering

GR15A4029	Power Electronic Drives Lab	MP/GBR	M Prashanth/ G Bhaskar Rao		

GRIET/PRIN/06/G/01/18-19 wef: 02 July 2018

B.Tech - EEE - B IV Year - I Semester

Day/Hour	10:00-10:50	10:50-11:40	11:40-12:30	12:30-1:00	1:00-1:45	1:45-2:30	2:30-3:15	3:15-4:00
MONDAY	SCT	SCT	PSOC	BREAK	HVDCT	HVDCT	PSD	PSD
TUESDAY	PSD	PSD	EDS/HVE		SCT	SCT	PSD	PSD
WEDNESDAY	EDS/HVE	HVDCT	HVDCT		PSOC	PSOC	SCT	SCT
THURSDAY	EDS/HVE	HVDCT	HVDCT		**PSS Lab / DSP Lab B1 /B2**			
FRIDAY	PSOC	PSOC	EDS/HVE		**DSP Lab / PED Lab B1 /B2**			
SATURDAY	PSOC	EDS/HVE	EDS/HVE		PED Lab / PSS Lab B1 /B2			

Room No.	
Theory	4512
Lab	DSP Lab-4508 PSS Lab-4504 PED Lab-4407
Class Incharge:	P Praveen Kumar

Subject Code	Subject Name	Faculty Code	Faculty name	Almanac	
GR15A4022	Power Semiconductor Drives	Dr DGP	Dr D G Padhan	1st Spell of Instructions	02-07-2018 to 01-09-2018
GR15A4023	Power System Operation & Control	Dr JSD	Dr J Sridevi	1st Mid-term Examinations	03-09-2018 to 05-09-2018
GR15A4024	High Voltage DC Transmission Systems	Dr SVJK	Dr S V Jayaram Kumar	2nd Spell of Instructions	06-09-2018 to 24-10-2018
GR15A4026	Electrical Distribution Systems (PE)	VVSM	VVS Madhuri	2nd Mid-term Examinations	25-10-2018 to 27-10-2018
GR15A4147	High Voltage Engineering (PE)	VUR	V Usharani	Preparation	29-10-2018 to 06-11-2018
GR15A4148	Soft Computing Techniques (OE-3)	RAK	R Anil Kumar	End Semester Examinations (Theory/ Practicals) Regular / Supplementary	08-11-2018 to 08-12-2018
GR15A4027	**DSP based Electrical Lab**	**AVK/DKK**	**A Vinay Kumar / D Karuna Kumar**		

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GR15A4028	Power Systems Simulation Lab	GSR/VVSM	G Sandhya Rani/ VVS Madhuri	Commencement of Second Semester, A.Y	10-12-2018
GR15A4029	Power Electronic Drives Lab	MP/GBR	M Prashanth/ G Bhaskar Rao		

HOD **Co-ordinator** **DAA**

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Department of Electrical & Electronics Engineering

Syllabus - DSP Based Electrical Lab

Course Code: GR15A4027
B.Tech IV Year I Sem

List of Programs:

Task1: Blinking on-board LED

Task2: Watchdog with CPU Timer interrupts

Task3: Implementing a For Loop

Task4: Generation of a Square wave

Task5: Generation of a Triangular wave

Task6: Interfacing an external LED

Task7: Acquisition of signal from ADC

Task8: Initializing the GPIO

Task9: Generation of 1 kHz PWM pulses at 75% & 50% Duty cycles

Task10: Generation of 5 kHz PWM pulses at 25% Duty cycle

Task11: Generation of ePWM pulses with a dead-band

Task12: Programing in FLASH

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Sessional Question Paper & Soft Copy of Notes/Ppt/Slides & Tutorial Sheets With Solution & Lecture Notes

Sl.No	Program
1.	a) Draw the block diagram of C28x. b) Write a program to find factorial of 25 and show the result with TMS320F28027 DSP processor.
2.	a) Draw the block diagram ofC28x. b) Write a program to find square of 36 and show the result with TMS320F28027 DSP processor.
3.	a) Draw the block diagram of eZDSP F2812. b) Write a program to generate a Square waveform using TMS320F2812 DSP processor.
4.	a) What is meant by JTAG and draw its pin diagram. b) Write a program to generate a Triangular waveform using TMS320F28027 processor.
5.	a) Describe the architecture of C2000 processors. b) Draw the block diagram ofC28x. c) Perform the following program with the TMS320F28027 processor. i) Blinking of on-board LEDs (H-L-H-L)
6.	a) Define duty cycle of a PWM pulses. Describe PWM pins available with the Piccolo MCU. b) Write a program to generate a PWM pulses of 50% duty cycle and 5 kHz frequency using TMS320F28027 MCU.
7.	a) Define duty cycle of a PWM pulses. Describe PWM pins available with the Piccolo MCU. b) Write a program to generate a PWM pulses of 25% duty cycle and 3 kHz frequency using TMS320F28027 MCU.
8.	a) Describe various applications of DSP processors in detail. b) Draw the block diagram ofC28x. c) Perform the following program with the TMS320F28027 processor. i) Room temperature measurement using watchdog.

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B.Tech EEE IV YEAR- I SEM RESULT ANALYSIS OF 2015-2019 BATCH

ACADEMIC YEAR 2018-2019 TOTAL. NO. OF STUDENTS REGISTERED = 140

Subject	Total No. of students appeared	No. of students passed	No. of students failed	Grade Points							
				<5	5	6	7	8	9	10	Pass percentage
PSD	140	132	08	02	01	04	06	30	40	49	94.28%
PSOC	140	131	09	01	09	08	18	25	48	22	93.57%
HVDC TT	140	132	08	16	18	16	17	38	22	05	94.28%
EDS	140	137	03	01	05	05	10	29	19	22	97.85%
DSPBEL	**140**	**139**	**01**	**29**	**05**	**03**	**05**	**10**	**25**	**62**	**99.28%**
PSSL	140	140	00	09	03	03	09	23	30	63	100%
PEADL	140	139	01	00	02	12	27	21	17	60	99.28%
HVE	140	139	01	01	01	02	04	08	18	11	99.28%
SCT	140	132	08	01	01	06	09	21	29	65	94.28%

Overall pass (passed in all subjects) = 128/ 140(91%)

Faculty

Power Semiconductor Drives	Dr.D G Padhan /Y Satyavani
Power System Operation And Control	Dr. J. Sridevi
HVDC Transmission	Dr Jayaram Kumar / Mrekha
Electrical Distribution Systems	VVS Madhuiri
DSP Based Electrical Lab	A Vinay Kumar/D Karunakumar
Power System Simulation Lab	G Sandhya Rani / V V S Madhuri

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Power Electronics And Drives Lab	M Prashanth /G Bhaskar Rao
High Voltage Engineering	V Usha Rani
Soft Computing Techniques	R Anil Kumar

ARREARS POSITION – CURRENT YEAR

Description	All pass	One Arrear	Two Arrear	Three Arrears	More than Three Arrears	% of pass
140	128	03	02	01	06	91%

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Department of Electrical & Electronics Engineering

Feedback From Students

Name of the Instructor	D Karuna Kumar
Faculty ID	760
Branch	EEE
Class and Semester/Section	IV / I / B
Academic Year	2018 19
Subject Title	DSPBE LAB
Total No. of Responses/class strength	28/71

Average rating on a scale of 4 for tl

S. No	Questions of Feedback	Average
1	How do the teacher e:	3.3611111111111112
2	The teacher pays a	3.3055555555555554
3	The Language and communication skil	3.3333333333333335
4	Is the session Inter	3.2222222222222223
5	Rate your teacher's explanation in (	3.3055555555555554
6	Rate your teachers commitment in comp	3.2777777777777777
7	Rate your teachers	3.25
8	Rate your teachers u:	3.3611111111111112
9	Rate your teacher's guidance in (NPTEL, Moodle, Swayam, Proje	3.2777777777777777
10	What is your overall opinion	3.2777777777777777

Net Feedback on a scale of 1 to

Remarks by HOD:

Remarks by Principal:

Remarks by Director:

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Department of Electrical & Electronics Engineering

COURSE OBJECTIVES

Academic **Y**ear : 2018-2019

Semester : I

Name of the Program: EEE…… B.Tech …IV/I…..… Section: A & B

Course/Subject: DSP Based Electrical Lab……Code: …GR15A4027

Name of the Faculty: D.Karunakumar Dept: ……..EEE……
Designation: Assistant professor

On completion of this Subject/Course the student shall be able to:

S.No	Course Objectives
1.	Describe the TMS320f2812 DSP Core working and its components used.
2.	Demonstrate different application of C2xx in Power Electronics.
3.	Examine the PWM Generation by using C2xx.
4.	Examine the ADC Generation by using C2xx.
5.	Examine the Initializing the GPIO
6.	Demonstrate Interfacing an external LED.
7.	Examine the Programing in FLASH

Signature of HOD Signature of faculty

Date: Date:

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COURSE OUTCOMES

Academic Year : 2018-2019

Semester : I

Name of the Program: EEE…… B.Tech …IV/I…..… Section: A & B

Course/Subject: DSP Based Electrical Lab…… Code:GR15A4027

Name of the Faculty: D.Karunakumar Dept: ……..EEE……

Designation: Assistant professor

The expected outcomes of the Course/Subject are:

S.No	Course Outcomes
1.	Execute programs in Code Composer Studio.
2.	Understand TMS320F2812 EzDSP architecture.
3.	Program and analyse the functions of ADC and Event manager.
4.	Explain how Digital Signal Processors are used in engineering applications.
5.	Program and generate PWMs of desired frequency
6.	Develop DSP based applications on DSP processors.
7.	Apply programing knowledge in developing projects related to Lab experiments

Signature of HOD Signature of faculty

Date:

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Department of Electrical & Electronics Engineering

GUIDELINES TO STUDY THE COURSE / SUBJECT

Academic **Y**ear : 2018-2019

Semester : I

Name of the Program: B.Tech Year: IV/I Section: A & B
Course/Subject: DSP Based Electrical Lab Course Code: GR15A4027

Name of the Faculty: D Karunakumar

Designation: ASST.PROFESSOR.

Guidelines to study the Course/ Subject: DSP Based Electrical Lab

CourseDesignandDeliverySystem(CDD):

- The Course syllabus is written into number of learning objectives and outcomes.
- These learning objectives and outcomes will be achieved through lectures, assessments, assignments, experiments in the laboratory, projects, seminars, presentations, etc.
- Every student will be given an assessment plan, criteria for assessment, scheme of evaluation and grading method.
- The Learning Process will be carried out through assessments of Knowledge, Skills and Attitude by various methods and the students will be given guidance to refer to the text books, reference books, journals, etc.

The faculty be able to –

Understand the principles of Learning

Understand the psychology of students

Develop instructional objectives for a given topic

Prepare course, unit and lesson plans

Understand different methods of teaching and learning

Use appropriate teaching and learning aids

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Plan and deliver lectures effectively Provide feedback to students using various methods of Assessments and tools of Evaluation

Act as a guide, adviser, counselor, facilitator, and motivator and not just as a teacher alone

Signature of HOD Signature of faculty

Date: Date:

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Department of Electrical & Electronics Engineering

COURSE SCHEDULE

Academic Year : 2018-2019
Semester : I
Name of the Program: EEE…… B.Tech …IV/I…..… Section: A & B

Course/Subject: DSP Based Electrical Lab…… Code: GR15A4027

Name of the Faculty: D.Karunakumar Dept: ……..EEE……

Designation: Assistant professor
The Schedule for the whole Course / Subject is:

Exp. No.	Description	Duration(Date)	Total No. of Periods
1.	Task1: Blinking on-board LED	06-Jul	4
2.	Task2: Watchdog with CPU Timer interrupts	13-Jul	4
3.	Task3: Implementing a For Loop	20-Jul	4
4.	Task4: Generation of a Square wave	27-Jul	4
5.	Task5: Generation of a Triangular wave	03-Aug	4
6.	Task6: Interfacing an external LED	10-Aug	4
7	Task7: Acquisition of signal from ADC	24-Aug	4
8.	Task8: Initializing the GPIO	31-Aug	4
9.	Task9: Generation of 1 kHz PWM pulses at 75% & 50% Duty cycles	07-Sep	4
10	Task10: Generation of 5 kHz PWM pulses at 25% Duty cycle	14-Sep	4
11.	Task11: Generation of ePWM pulses with a dead-band	21-Sep	4
12.	Task12: Programing in FLASH	28-Sep	4
13.	Revision & Projects	05-Oct	4
14.	Internal Examination	12-Oct	4

Total No. of Instructional periods available for the course: …. …….Hours / Periods

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Department of Electrical & Electronics Engineering

SCHEDULE OF INSTRUCTIONSCOURSEPLAN

Academic Year : 2018-2019

Semester : I

Name of the Program: EEE…… B.Tech …IV/I…..… Section: A & B

Course/Subject: DSP Based Electrical Lab…… Code:GR15A4027

Name of the Faculty: D.Karunakumar Dept: ……..EEE……
Designation: Assistant professor

Exp. No	Topics	Objectives & Outcomes	References(TextBook,Journal …)
1.	Task1: Blinking on-board LED	1,2,3 & 1,2	DSP based Electro Mechanical Motion Control by Hamid A TOLIYAT, STEVEN CAMPBELL2004 CRC Press,llc
2.	Task2: Watchdog with CPU Timer interrupts	1,2,3 & 1,2	DSP based Electro Mechanical Motion Control by Hamid A TOLIYAT
3	Task3: Implementing a For Loop	1,2,3& 1,2	DSP based Electro Mechanical Motion Control by Hamid A TOLIYAT
4	Task4: Generation of a Square wave	1,2,3,6& 1,2	DSP based Electro Mechanical Motion Control by Hamid A TOLIYAT
5	Task5: Generation of a Triangular wave	1,2,3& 1,2	DSP based Electro Mechanical Motion Control by Hamid A TOLIYAT
6	Task6: Interfacing an external LED	1,2,3 & 1,2	DSP based Electro Mechanical Motion Control by Hamid A TOLIYAT
7	Task7: Acquisition of signal from ADC	1,2,3,4& 1,2	DSP based Electro Mechanical Motion Control by Hamid A TOLIYAT

8	Task8: Initializing the GPIO	1,2,3 & 2	DSP based Electro Mechanical Motion Control by Hamid A TOLIYAT
9	Task9: Generation of 1 kHz PWM pulses at 75% & 50% Duty cycles	1,2,3 & 2	DSP based Electro Mechanical Motion Control by Hamid A TOLIYAT
10	Task10: Generation of 5 kHz PWM pulses at 25% Duty cycle	1,2,3& 2	DSP based Electro Mechanical Motion Control by Hamid A TOLIYAT
11	Task11: Generation of ePWM pulses with a dead-band	1,2,3,& 2	DSP based Electro Mechanical Motion Control by Hamid A TOLIYAT
12	Task12: Programing in FLASH	1,2,3,4 ,5,6 & 2	DSP based Electro Mechanical Motion Control by Hamid A TOLIYAT

Signature of HOD

Date:

Signature of faculty

Date:

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

COURSE OUTCOME AND PROGRAM OUTCOME MAPPING

PO's / CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H	H	H	M		H		M	H	H	H	H
CO2		H	H	M		H			M	H	H	H
CO3	H	M		H		M	H		M			M
CO4	H		H	M		M	H	M	M		H	M
CO5	H	H	M	M		H	H	H			H	M
CO6		H	H	M		H	H	M	H	M	H	H
CO7	H	H	H	M		H		M	H		H	H

Assessment methods:

1. Operation skill and familiarization ofsoftware.
2. Experimental procedure, simulation results, internal observation, labrecord.
3. Internal examinations.
4. External examinations.
5. Viva-voce.

1. **Course Objectives-Program Outcomes (POs) Relationship Matrix** (Indicate the relationships by mark "X")

P-Outcomes / C-Objectives	A	B	c	d	e	F	g	h	i	j	k	l
1	X	X	X	X	X				X	X	X	X
2	X				X		X	X		X	X	
3	X	X	X			X	X	X	X		X	X
4				X	X	X		X	X	X	X	
5		X	X	X					X	X		
6				X	X	X		X		X	X	
7	X	X	X	X	X	X	X		X	X	X	

2. **Course Outcomes-Program Outcomes (POs) Relationship Matrix** (Indicate the relationships by mark"X")

P-Outcomes / C-Outcomes	a	b	c	d	e	f	g	h	i	J	K	l
1	X	X	X	X	X			X	X	X	X	X
2	X	X	X	X	X	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X	X	X	X	X	X
4	X	X	X							X	X	X
5	X	X	X							X	X	X
6	X	X	X							X	X	X
7	X	X	X							X	X	X

3. **Courses (with title & code)-Program Outcomes (POs) Relationship Matrix** (Indicate the relationships by mark "X"

P-Outcomes / Courses	a	b	c	d	e	f	g	h	i	j	K	l

DSP Based Electrical Lab	X	X	X	X	X	X	X	X	X	X	X	X

4. **Program Educational Objectives (PEOs) –Vision/Mission Matrix** (Indicate therelationships by mark "X")

PEOs	**Mission of department**			
	Higher Learning	Contemporary Education	Technical knowledge	Research
Graduates will have a successful technical or professional careers, including supportive and leadership roles on multidisciplinary teams	X	X	X	X
Graduates will be able to acquire, use and develop skills as required for effective professional practices		X	X	
Graduates will be able to attain holistic education that is an essential prerequisite for being a responsible member of society	X		X	
Graduates will be engaged in life-long learning, to remain abreast in their profession and be leaders in our technologically vibrant society.	X		X	X

5. **Program Educational Objectives(PEOs)-Program Outcomes(POs) Relationship Matrix** (Indicate the relationships by m

P-Outcomes PEOs	a	b	c	d	e	f
1	X	X	X	X	X	
2	X	X	X	X	X	
3		X	X	X		X
4				X		

6.**Course Objectives-Course Outcomes Relationship Matrix** (Indicate the relationships by mark "X")

Course-Outcomes / Course-Objectives	1	2	3	4	5	6	7
1	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X
3	X	X					
4				X	X		
5			X	X	X	X	X
6			X	X	X	X	X
7	X		X	X	X	X	

Program Educational Objectives (PEOs)-Course Outcomes Relationship Matrix (Indicate the relationships by mark

P-Objectives(PEO) / Course-Outcomes	1	2	3	4
1	X	X		X
2	X	X		X
3	X	X		X
4	X	X		X
5	X	X		X
6	X	X		X
7	X	X		X

8. **Assignments & Assessments-Program Outcomes (POs) Relationship Matrix** (Indicate the relationships by mark "X"

P-Outcomes / Assessments	A	b	c	d	e	f
1	X	x		x		x
2	X	x	x			x
3	X	x	x			x
4	X	x	x			x

9. Assignments & Assessments-Program Educational Objectives (PEOs) Relationship Matrix (Indicate the relationships by

P-Objectives (PEOs) Assessments	1	2	3	4
1	X	X		
2		X		
3		X	X	X
4		X		
5		X		

Assessment process and Relevant Surveys conducted:

1. Constituencies -Program Outcomes (POs) Relationship Matrix (Indicate the relationships by mark "X").

Constituencies

1. **Alumni**
2. **Governmentemployers**
3. **Students**

P-Outcomes / Constituencies	a	b	c	d	e	f	G	h	i	j	k	l
1	X	X	X	X	X	X	X		X	X		X
2	X	X	X	X	X	X	X		X			X
3	X	X			X	X	X	X		X	X	X

9	CO-Cognitive Level Mapping

Subject :DSP Based Electrical Lab

CO	Cognitive Learning Level					
	1	2	3	4	5	6
1		X				
2			X			
3						X
4				X		
5		X				
6			X			

7		X				

Cognitive Learning Levels:

CLL1: Remembering

CLL2: Understanding

CLL3: Applying

CLL4: Analyzing

CLL5: Evaluating

CLL6: Creating

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INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

EVALUATION STRATEGY

Academic Year : 2018-2019

Semester : I

Name of the Program: EEE…… B.Tech …IV/I…..… Section: A & B

Course/Subject: DSP Based Electrical Lab…… Code: GR15A4027

Name of the Faculty: D.Karunakumar Dept: ……..EEE……

Designation: Assistant professor

1. TARGET:

A) Percentage for pass: 100%

2. COURSE PLAN & CONTENT DELIVERY

- PPT presentation of the Lectures
- Solving exercise problems
- Model questions

3. METHOD OF EVALUATION

3.1 ☐ Daily Attendance

3.2 ☐ Lab records and observation

3.3 ☐ Mini Projects

3.4 ☐ Viva Voce

3.5 ☐ Internal Examination

3.6 ☐ Semester/End Examination

4. List out any new topic(s) or any innovation you would like to introduce in teaching the subjects in this Semester.

Signature of HOD Signature of faculty

Date: Date:

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RUBRIC

OBJECTIVE: **Work effectively with others**

STUDENT OUTCOME: **Ability to function in a multi-disciplinary team**

S.No.	Student Name	Performance Criteria	Unsatisfactory	Developing	Satisfactory	Exemplary	Score
			1	2	3	4	
1.	Anem Joseph Raju	**Research & Gather Information**	Does not collect any information that relates to the topic.	Collects very little information some relates to the topic	Collects some basic Information most relates to the topic.	Collects a great deal of Information all relates to the topic.	
		Fulfill team role's	Does not perform any duties of assigned team role.	Performs very little duties.	Performs nearly all duties.	Performs all duties ofassigned team role.	
		Share Equally	Always relies on others to do the work.	Rarely does the assigned work--often needs reminding.	Usually does the assigned work--rarely needs reminding.	Always does the assigned work without having to be reminded	

		Listen to other team mates	Is always talking--never allows anyone else to speak.	Usually doing most of the talking--rarely allows others to speak.	Listens, but sometimes talks too much.	Listens and speaks a fair amount.	
						Average score	
2.	M Aishwarya	**Research & Gather Information**	Does not collect any information that relates to the topic.	Collects very little information --some relates to the topic	Collects some basic informatio n--most relates to the topic.	Collects a great deal of informati on--all relates to the topic.	
		Fulfill team role's	Does not perform any duties of assigned team role.	Performs very little duties.	Performs nearly all duties.	Performs all duties of assigned team role.	
		Share Equally	Always relies on others to do the work.	Rarely does the assigned work--often needs reminding.	Usually does the assigned work--rarely needs	Always does the assigned work without having to	

					reminding.	be reminded .	
		Listen to other team mates	Is always talking--never allows anyone else to speak.	Usually doing most of the talking--rarely allows others to speak.	Listens, but sometimes talks too much.	Listens and speaks a fair amount.	
						Average score	
3	BUDDULA MADHURI	**Research & Gather Information**	Does not collect any information that relates to the topic.	Collects very little information --some relates to the topic	Collects some basic informatio n--most relates to the topic.	Collects a great deal of informati on--all relates to the topic.	
		Fulfill team role's	Does not perform any duties of assigned team role.	Performs very little duties.	Performs nearly all duties.	Performs all duties of assigned team role.	
		Share Equally	Always relies on others to do the work.	Rarely does the assigned work--	Usually does the assigned work--	Always does the assigned work	

					often needs reminding.	rarely needs reminding.	without having to be reminded	
		Listen to other team mates	Is always talking--never allows anyone else to speak.		Usually doing most of the talking--rarely allows others to speak.	Listens, but sometimes talks too much.	Listens and speaks a fair amount.	
							Average score	

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

COURSE COMPLETION STATUS

Academic Year : 2018-2019

Semester : I

Name of the Program: EEE…… B.Tech …IV/I…… Section: A & B

Course/Subject: DSP Based Electrical Lab…… Code: GR15A4027

Name of the Faculty: D.Karunakumar Dept: ……..EEE……

Designation: Assistant professor

Program	Remarks	No. of Objectives Achieved	No. of Outcomes Achieved
1	1 & 2 programs completed by 18/07/18	2,3, 4	2,4
2			
3	3 & 4 programs completed by 22/07/18	1,3	2,4
4			
5	5 program completed by 26/07/18	1,3	2,4
6	6 program completed by 29/07/18	1,3	2,4
7	7 program completed by 02/08/18	1,3	2,4
8	8 program completed by 16/08/18	1,3	2,4
9	9 program completed by 23/08/18	1,3	2,4
10	10 program completed by 30/08/18	1,3	2,4
11	11 & 12 program completed by 06/09/18	1,2	2,3
12		1,3	2,1,5
13	13 program completed by 13/09/18	1,3	2,1,5
14	14 programs completed by 27/09/18	1,3	2,1,5
15	15 programs completed by 11/10/18	2,3	1,2,3,6 ,7

Signature of HOD Signature of faculty

Date: Date:

Note: After the completion of each unit mention the number of Objectives & Outcomes Achieved.

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GUIDELINES TO STUDY THE COURSE/SUBJECT

Academic Year : 2018-2019

Semester : I-

Name of the Program: EEE…… B.Tech …IV/I…..… Section: A & B

Course/Subject: DSP Based Electrical Lab…… Code: GR15A4027

Name of the Faculty: D.Karunakumar Dept: ……..EEE……

Designation: Assistant professor

Course Design and Delivery System (CDD):

- The Course syllabus is written into number of learning objectives and outcomes.
- These learning objectives and outcomes will be achieved through lectures, assessments, assignments, experiments in the laboratory, projects, seminars, presentations, etc.
- Every student will be given an assessment plan, criteria for assessment, scheme of evaluation and grading method.
- The Learning Process will be carried out through assessments of Knowledge, Skills and Attitude by various methods and the students will be given guidance to refer to the text books, reference books, journals, etc.

The faculty be able to –

- Understand the principles of Learning
- Understand the psychology of students
- Develop instructional objectives for a given topic
- Prepare course, unit and lesson plans
- Understand different methods of teaching and learning
- Use appropriate teaching and learning aids
- Plan and deliver lectures effectively
- Provide feedback to students using various methods of Assessments and tools of Evaluation
- Act as a guide, advisor, counselor, facilitator, motivator and not just as a teacher alone

Signature of HOD
Date:

Signature of faculty
Date: