Department of Electrical & Electronics Engineering

Course Title: Control Systems Lab (GR20A2037)
Following documents are available in Course File.

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

Course Instructor / Course Coordinator

(D Karunakumar)
Assistant Professor
EEE Department

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 epicentre 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

1. To become an internationally leading department for higher learning.

2. To build upon the culture and values of universal science and contemporary education.

3. 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.

4. To develop partnership with industrial, R&D and government agencies and actively participate in conferences, technical and community activities.

Programme Educational Objectives (PEOs):

PEO1: Graduates will have a successful technical or professional careers , including supportive and leadership roles on multidisciplinary teams.

PEO2: Graduates will be able to acquire, use and develop skills as required for effective professional practices.

PEO3: Graduates will be able to attain holistic education that is an essential prerequisite for being a responsible member of society.

PEO4: Graduates will be engaged in life-long learning, to remain abreast in their profession and be leaders in our technologically vibrant society.

Programme Outcomes (POs):

PO1: Ability to apply knowledge of mathematics, science, and engineering.

PO2: Ability to identify, formulate, analyze engineering problems using engineering sciences.

PO3: Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety..

PO4: Ability to design and conduct experiments, as well as to analyze and interpret data with valid conclusions.

PO5: Ability to utilize experimental, statistical and computational methods and tools necessary for modelling engineering activities.

PO6: Ability to apply reasoning informed by the relative knowledge to evaluate societal, health, safety, legal and cultural issues and tasks applicable to the professional engineering practice.

PO7: Ability to adapt broad education necessary to understand the impact of engineering solutions and obtain sustainability in a global, economic, environmental, and societal context.

PO8: Ability to discover ethical principles and bind to professional and ethical responsibility.

PO9: Ability to function as an individual and in multi-disciplinary teams.

PO10: Ability to communicate effectively on complex activities in engineering community and society.

PO11: Ability to develop Project management principles and apply in various disciplinary environments.

PO12: Recognition of the need for, and an ability to engage in life-long learning

Program Specific Outcomes(PSOs):

PSO-1: Graduates will interpret data and able to analyze digital and analog systems related to electrical and programming them.

PSO-2: Graduates will able to demonstrate, design and model electrical, electronic circuits, power electronics, power systems and electrical machines.

Program Educational Objectives (PEOs) - Program Outcomes (POs)
Relationship   Matrix

(Indicate the relationships by MEDIUM - "M", HIGH – "H")

P-Outcomes / PEOs	1	2	3	4	5	6	7	8	9	10	11	12
1	M	M	H		H	M	M	H		H	M	H
2		H	M	M	H		H	M	M	H	H	M
3	M		H		M	M		H		M	H	H
4	M		H	M	M	M		H	M	M	H	H

Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Kukatpally, Hyderabad – 500 090, India

GRIET/DAA/1H/G/22-23   09 May 2022

Academic Year 2022-23

II B.Tech. – First Semester

S. No.	EVENT	PERIOD	DURATION
1	Commencement of First Semester class work	10-10-2022	
2	I Spell of Instructions	10-10-2022 to 07-12-2022	9 Weeks
3	I Mid-term Examinations	08-12-2022 to 12-12-2022	3 Days
4	II Spell of Instructions	13-12-2022 to 07-02-2023	8 Weeks
5	II Mid-term Examinations	08-02-2023 to 10-02-2023	3 Days
6	Preparation/Break	11-02-2023 to 17-02-2023	1 Week
7	End Semester Examinations (Theory/ Practical) Regular/ Supplementary	20-02-2023 to 11-03-2023	3 Weeks
8	Commencement of Second Semester, AY 2022-23	13-03-2023	

II B.Tech. – Second Semester

S. No.	EVENT	PERIOD	DURATION
1	Commencement of II Semester class work	13-03-2023	
2	I Spell of Instructions	13-03-2023 to 29-04-2023	7 Weeks
3	Summer Vacation	01-05-2023 to 13-05-2023	2 Weeks
4	I Spell of Instructions Contd	15-05-2023 to 27-05-2023	2 Weeks
5	I Mid-term Examinations	29-05-2023 to 31-05-2023	3 Days
6	II Spell of Instructions	01-06-2023 to 31-07-2023	8 Weeks
7	II Mid-term Examinations	01-08-2023 to 03-08-2023	3 Days
8	Preparation	04-08-2023 to 10-08-2023	1 Week
9	End Semester Examinations (Theory/ Practical) Regular / Supplementary	11-08-2023 to 31-08-2023	3 Weeks
10	Commencement of III B.Tech First Semester, AY 2023-24	01-09-2023	

J. Baveen

Dean Academic Affairs

Copy to Principal, All HoDs, CoE

Gokaraju Rangaraju Institute of Engineering and Technology

Department of Electrical and Electronics Engineering

2022 -23 II sem Subject Allocation Sheet

II YEAR(GR20)	Section-A	
Probability and Statistics	Mr. S Bhagat Kumar	
AC Machines	Dr Phaneendra Babu B / G Sandhya Rani	
Control Systems	V Usha Rani	
Principles of Digital Electronics	Dr T Suresh Kumar	
Power Distribution and Protection	Dr V Vijaya Rama Raju	
Environmental Science	Dr K Kalpana	
Data Base for Engineers	G Satish	
Principles of Digital Electronics Lab	R Anil Kumar/ MNSandhya Rani	
AC Machines Lab	Dr V Vijaya Rama Raju / M Rekha	
Control Systems Lab	**D Karuna Kumar /V Usha Rani**	
III YEAR (GR20)	Section-A	
Programmab le Logic Controllers	P Prashanth Kumar	
Sensors Measuremen ts and Instrumentat ion	Dr P Srividyadevi	
Economics and Accounting for Engineers	K Sunil Kumar	
Modern Power Electronics (EEE) (PE-II)	Dr Pakkiraiah	
HVDC Transmission Systems (EEE) (PE-II)	Dr J Sridevi	
NPTEL (OE-II)	D Srinivasa Rao	
Power System Analysis Lab	GSR/MNSR	
Sensors Measuremen ts and Instrumentat ion Lab	Dr P Srividyadevi/ Dr DG Padhan /U Vijaya Lakshmi	
Mini Project with Seminar	Dr Phaneendra Babu B / D Srinvasa Rao	
IV YEAR (GR18)	Section-A	Section-B
Programmable Logic Controllers	Dr Pakkiraiah B	Dr Pakkiraiah B
Power Quality and FACTS (PE-V)	DKK	DKK
Electric Smart Grid (PE-VI)	Dr J Sridevi	Dr J Sridevi
Open Elective III	Complete	
Project work (Phase- II)	AVK/MNSR/GSR	AVK/MNSR/GSR
M.Tech (POWER ELECTRONICS) I-II SEM		
Electric Drives System	Dr A Vinay Kumar	
Modern and Digital Controlof Power Electronic and Drive Systems	Dr.D G Padhan	
Advanced Power Electronic Converters (PE-III)	Dr T Suresh Kumar	

AI and Machine LearningTechniques for Power Electronic Applications (PE-IV)	Dr B Phaneendra Babu	
Electrical Drives Lab	Syed Sarfaraz Nawaz	
DSP and MicrocontrollerLab	Dr A Vinay Kumar	
Mini Project	G Sandhya Rani	
(Audit Course II) Indian Constitution	Syed Sarfaraz Nawaz	
M.Tech (POWER ELECTRONICS) II-II SEM		
Disseration Phase -II	Dr T Suresh Kumar	
2022-23 I Year II sem BEE		
Staff Name	Theory	Labs
K Sudha	2	1
P Praveen Kumar	2	1
Dr D S N M Rao	2	1
P Prashanth Kumar	_____	2
P Ravikanth	1	2
R Anil Kumar	1	_____
M Rekha	_____	3
U Vijaya Lakshmi	_____	4
M Prashanth	_____	3
Dr D G Padhan	1	_____
V Usha Rani	_____	1
CIVIL B.Tech II Year BEEE		
BEEE (CIVIL)	M Prashanth	

Dr Phaneendra Babu B
HOD,EEE

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY
Department of Electrical and Electronics Engineering

Subject Allocation Sheet- Academic Year 2022-23 / II SEM

S.No.	Faculty	Designation	Faculty ID	YEAR (UG/PG)	Subject Name	No.of Sections	No. of Hours	Total (in Hrs)
1	Dr B Phaneendra Babu	Prof. & HOD	1563	II B.Tech	ACM	1	3	12
				II M.Tech	Dph 1	1	3	
				II M.Tech	DLED	1	3	
				III B.Tech	Mini Proj.	1	3	
2	Dr.D G Padhan	Prof.	1283	I M.Tech	EHV	1	3	11
				I B.Tech	DT	1	2	
				I B.Tech	BEE Lab	1	3	
				III B.Tech	SMI Lab	1	3	
3	Dr. J. Sridevi	Prof.	516	III B.Tech	HVDCTS	1	5	10
				IV B.Tech	ESG	2	5	
4	Dr T Suresh Kumar	Prof.	1494	II B.Tech	PAE	1	5	11
				I Mtech	PE Lab	1	3	
				I Mtech	MSPEC	1	3	
5	V.Vijaya Rama Raju	Asso. Prof.	361	II B.Tech	PDP	1	5	11
				II B.Tech	ACM Lab	1	6	
6	P Ravikanth	Asso. Prof.	1178	II B.Tech	PDE Lab	1	3	11
				I B.Tech	BEE	1	5	
				I B.Tech	BEE Lab	1	3	
7	A Vinay Kumar	Asso. Prof.	881	I M.Tech	PQ Lab	1	3	12
				I M.Tech	PQ	1	3	

				IV B.Tech	PW Phase-II	2	6	
8	Syed Sarfaraz Nawaz	Asso. Prof.	695	Electrical Maintenance Officer				
9	Dr Pakkiraiah B	Asso. Prof.	1593	I M.Tech	IPR	1	2	12
				III B.Tech	MPE	1	5	
				IV B.Tech	PLC	2	5	
10	Dr D Naga Mallesara Rao	Asso. Prof.	1598	I B.Tech	BEE	2	10	10
11	Dr P Sri Vidya Devi	Asso. Prof.	931	III B.Tech	SMI	1	5	11
				III B.Tech	SMI Lab	1	6	
12	Dr D Raveendhra	Asso. Prof.	1604	Long Leave				
13	P.Praveen Kumar	Asst. Prof	609	I B.Tech	BEE	2	10	16
				I B.Tech	BEE Lab	2	6	
14	R. Anil Kumar	Asst. Prof	657	I B.Tech	BEE	1	5	11
				I B.Tech	BEE Lab	2	6	
15	U Vijaya Lakshmi	Asst. Prof	692	II B.Tech	PDE Lab	1	6	15
				I B.Tech	BEE Lab	2	6	
				III B.Tech	SMI Lab	1	3	
16	**D Karuna Kumar**	**Asst. Prof**	**760**	**II B.Tech**	**CS Lab**	**1**	**6**	**17**
				I B.Tech	BEE Lab	2	6	
				IV B.Tech	PQ&FACTS	2	10	
17	M Naga Sandhya Rani	Asst. Prof	882	II B.Tech	PDE Lab	1	3	12
				III B.Tech	PS Lab	1	6	
				IV B.Tech	PW Phase-II	2	3	
18	G Sandhya Rani	Asst. Prof	888	II B.Tech	ACM	1	3	12
				III	PS Lab	1	6	

					B.Tech				
				IV B.Tech	PW Phase-II	2	3		
19	M Rekha	Asst. Prof	933	II B.Tech	ACM Lab	1	6		15
				I B.Tech	BEE Lab	3	9		
20	V Usha Rani	Asst. Prof	1045	II B.Tech	CS	1	5		11
				II B.Tech	CS Lab		1	6	
21	P Prashanth Kumar	Asst. Prof	1055	I B.Tech	BEE	1	5		16
				I B.Tech	BEE Lab	2	6		
				III B.Tech	PLC	1	5		
22	K Sudha	Asst. Prof	1211	I B.Tech	BEE	2	10		13
				I B.Tech	BEE Lab	1	3		
23	M Prashanth	Asst. Prof	1279	II B.Tech	BEEE5	1	5		11
				I B.Tech	BEE Lab	2	6		
24	D Srinivasa Rao	Asst. Prof	1540	I M.Tech	MAEM	3	3		12
				II M.Tech	IS	1	3		
				III B.Tech	NPTEL	1	3		
				III B.Tech	Mini Proj.	1	3		

Gokaraju Rangaraju Institute of Engineering and Technology

Department of Electrical and Electronics Engineering

GRIET/PRIN/06/G/01/22-23　　　　　　　　　　　　　　　　　　　　**Wef : 13th Mar 2023**

BTech - EEE - A　　　　　　　　　　　　　　　　　　　　　　　　**II Year - II Semester**

DAY/ HOUR	08:50 - 09:40	09:40 - 10:30	10:30 - 11:20	11:20 - 12:00	12:00 - 12:55	12:55 - 01:50	01:50 - 02:45	ROOM NO	
MONDAY	ACM		PDE	BREAK	PDE Lab (A1)/ACM Lab (A2)			Theory/Tutorial	4401
TUESDAY	PDE	CS		BREAK	PDP		ES	Lab	PDE Lab - 4505 ACM Lab - 2106/07 CS Lab - 4507
WEDNESDAY	PDP		PDE	BREAK	CS		P&S		
THURSDAY	PDE		ACM	BREAK	ACM Lab (A1)/CS Lab (A2)			Class Incharge:	D. Karuna Kumar
FRIDAY	P&S	ACM		BREAK	CS Lab (A1)/PDE Lab (A2)				
SATURDAY	DBE	DBE	CS	BREAK	P&S		ES		

Course Code	Course Name	Faculty Code	Faculty Name (Emp ID)	Almanac	
GR20A2005	Probability and Statistics	Dr VNRD	Dr. V. N. Rama Devi (654)	1st Spell of Instructions	13-03-2023 to 29-04-2023
GR20A2031	AC Machines	Dr BPB/GSR	Dr Phaneendra Babu Booba (1563)/ G. Sandhya Rani (888)	Summer Vacation	01-05-2023 to 13-05-2023
GR20A2032	Control Systems	VUR	V. Usha Rani (1045)	1st Spell of Instructions Contd	15-05-2023 to 27-05-2023
GR20A2027	Principles of Digital Electronics	Dr. TSK	Dr. T. Suresh Kumar (1494)	1st Mid-term Examinations	29-05-2023 to 31-05-2023
GR20A2034	Power Distribution and Protection	Dr. VVRR	Dr. V. Vijayarama Raju (361)	2nd Spell of Instructions	01-06-2023 to 31-07-2023
GR20A2001	Environmental Science	Dr. KK	Dr. K. Kalpana (820)	2nd Mid-term Examinations	01-08-2023 to 03-08-2023
GR20A2006	Data Base for Engineers	GS	G. Sathish (1665)	Preparation	04-08-2023 to 10-08-2023
GR20A2035	Principles of Digital Electronics Lab	RAK/MNSR	R. Anil Kumar (657)/ M. N. Sandhya Rani (882)	End Semester Examinations (Theory/ Practicals) Regular / Supplementary	11-08-2023 to 31-08-2023
GR20A2036	AC Machines Lab	Dr. VVRR/MR	Dr. V. Vijayarama Raju (361)/ M. Rekha (933)	Commencement of III B.Tech First Semester, A.Y 2022-23	01/09/2023
GR20A2037	Control Systems Lab	DKK/VUR	D. Karuna Kumar (760)/ V. Usha Rani (1045)		

Time Table Coordinator　　　　　　　　　　　　　　**HOD**　　　　　　　　　　　　　　**DAA**

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY
Department of Electrical and Electronics Engineering

Faculty Name: D Karunakumar						
DAY/ HOUR	10.20-11.15	11.15-12.10	12.10-1.05	1.05-1.40	1.40-2.30	2.30 - 3.20	3:20 -4.10
MONDAY				LUNCH		
TUESDAY						
WEDNESDAY						
THURSDAY					CS Lab	
FRIDAY					CS Lab	
SATURDAY						

Control Systems Lab   L:3 T:0 P:0 C:3
Syllabus

Task-1: Transfer function from zeros and poles and vice versa

Task-2: Step response, Ramp response and Impulse response of a given transfer function.

Task-3: Root Locus from a Transfer function

Task-4: Bode Plot and Nyquist Plot from a Transfer function.

Task-5: State Model from a Transfer function

Task-6: Zeros and poles from state model.

Task-7: Transfer function of DC motor/Generator.

Task-8: Transfer function of Magnetic Levitation system.

Task-9: Time Response of second order system

Task-10: DC Servomotor.

Task-11: PID Controller.

Task-12: Characteristics of Synchros.

Task-13: Lag& Lead Compensator.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

COURSE OBJECTIVES

Academic **Y**ear   :   2022-23

Semester   : II

Name of the Program: B.Tech   Year: II

Course/Subject: Control Systems Lab   Course Code: GR20A2037

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	Objectives
1	Develop hands-on experience in analysing, designing and carrying out experiments in control systems.
2	Familiarize the stability analysis techniques and their applications in control systems.
3	Analyze and simulate different transfer functions with variety of inputs.
4	Describe the principle of PID controller.
5	Conduct experiments with dc servomotor and synchros

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

COURSE OUTCOMES

Academic Year   :   2022-23

Semester   :   II

Name of the Program: B.Tech   Year: II

Course/Subject: Control Systems Lab   Course Code: GR20A2037

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

Designation: Assistant Professor

The expected outcomes of the Course/Subject are:

S.No	Outcomes
1	Make use of simulation packages for simple control system programs.
2	Illustrate the characteristics of synchros.
3	Analyze the root locus and bode plots.
4	Determine the transfer function of DC motor/generator.
5	Design the lead and lag compensators and Discuss the performance of servomotor and PID controller.

Note: Please refer to Bloom's Taxonomy, to know the illustrative verbs that can be used to state the outcomes.

Department of Electrical & Electronics Engineering

COURSE SCHEDULE

Academic Year : 2022-23

Semester : II

Name of the Program: B.Tech   Year: II

Course/Subject: Control Systems Lab   Course Code:

GR20A2037

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

S.No	Date	Description	Total No.of Periods
1	17-03-2023	Introduction to control systems lab	3
2	24-03-2023	Transfer function from zeros and poles and vice versa	3
3	31-03-2023	Step response, Ramp response of a given transfer function.	3
4	21-04-2023	Impulse response of a given transfer function.	3
5	28-04-2023	Root Locus from a Transfer function	3
6	19-05-2023	Bode Plot and Nyquist Plot from a Transfer function.	3
7	26-05-2023	State Model from a Transfer function	3
8	02-06-2023	Zeros and poles from state model	3
9	09-06-2023	Transfer function of DC motor/Generator.	3
10	23-06-2023	Transfer function of Magnetic Levitation system.	3
11	30-06-2023	Time Response of second order system	3
12	07-07-2023	DC Servomotor.	3
13	14-07-2023	PID Controller.	3
14	21-07-2023	Characteristics of Synchros.	3
15	28-07-2023	Lag& Lead Compensator.	3

Department of Electrical & Electronics Engineering

EVALUATION STRATEGY

Academic Year   :   2022-23

Semester   :   II

Name of the Program: B.Tech   Year: II

Course/Subject: Control Systems Lab   Course Code: GR20A2037

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

Designation: Assistant Professor

1. TARGET:

 A) Percentage for pass:

 b) Percentage of class:

2. COURSE PLAN & CONTENT DELIVERY:

- OHP presentation of the Lectures

- Solving exercise problems

- Model questions

3. METHOD OF EVALUATION

   3.1 Continuous Assessment Examinations (CAE-I, CAE-II)

   3.2 Assignments

   3.3 Seminars

   3.4 Quiz

   3.5 Semester/End Examination

Course Outcomes-Program Outcomes (POs) Relationship Matrix (Relationships are indicated by mark HIGH as "H" and MEDIUM as "M")- PQ & FACTS

<table>
<tr><th rowspan="2"></th><th rowspan="2"></th><th colspan="12" align="center">P-Outcomes</th></tr>
<tr><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th><th>12</th></tr>
<tr><th rowspan="5">C-Outcomes</th><th>1</th><td>H</td><td>H</td><td></td><td>H</td><td>H</td><td></td><td>H</td><td>H</td><td></td><td>H</td><td>H</td><td>H</td></tr>
<tr><th>2</th><td></td><td></td><td>M</td><td></td><td></td><td>M</td><td></td><td>M</td><td>M</td><td></td><td>M</td><td></td></tr>
<tr><th>3</th><td>M</td><td>H</td><td>H</td><td>H</td><td>H</td><td>H</td><td>H</td><td></td><td>H</td><td>H</td><td></td><td>H</td></tr>
<tr><th>4</th><td></td><td>H</td><td></td><td>H</td><td>H</td><td></td><td>H</td><td>M</td><td></td><td>H</td><td>M</td><td>H</td></tr>
<tr><th>5</th><td>H</td><td></td><td>H</td><td>M</td><td></td><td>H</td><td>M</td><td>M</td><td>H</td><td>M</td><td>M</td><td></td></tr>
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Gokaraju Rangaraju Institute of Engineering and Technology
Department of Electrical and Electronics Engineering
Control Systems Lab (GR20A2037)
Important Questions

1. Compare open loop and closed loop control systems based on different aspects?

2. List out the time domain specifications and derive the expressions for Rise time, Peak time and Peak overshoot.

3. Define steady state error? Derive the static error components for Type 0, Type 1 & Type 2 systems?

4. Explain the procedure for constructing root locus.

5. Derive the expressions for resonant peak and resonant frequency and hence establish the correlation between time response and frequency response.

6. Obtain the transfer function of Lag Compensator, draw pole-zero plot and write the procedure for design of Lag Compensator using Bode plot.

7. Define steady state error? Derive the static error components for Type 0, Type 1 & Type 2 systems?

8. Explain the steps for the construction of Bode plot? What are the advantages of Bode Plot?

9. Write the necessary and sufficient conditions for complete state controllability and observability?

10. Derive expression for resonant peak and resonant frequency and hence establish correlation between time and frequency response.

Gokaraju Rangaraju Institute of Engineering and Technology

(Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090

Direct Internal CO Attainments

Academic Year	2022-23		Department	Electrical and Electronics Engineering	Name of the Programme	B.Tech
Year - Semester	II-II		Course Name :	Control Systems Lab	Course Code	GR20A2037

P-Outcomes / C-Outcomes	A	B	C	D	E	F	G	H	I	J	K	L	PSO1	PSO2
1	H	M	H		H			M			H	M	M	M
2	M	M						M			H			M
3	H	H			M		M	H	M	M	H	H	M	M
4	H	H			M		M	H	M	M	H	H	M	M
5	H	H	H	M	M	H		M	H	M	H	H	H	H

Enter H,M, L values of CO-PO Mapping Matrix in blue shaded rows 12 - 18 for seven CO s automatically PO Attainments are Calculated
←

Convert above mappings to scale 1-3

P-Outcomes / C-Outcomes	A	B	C	D	E	F	G	H	I	J	K	L	PSO1	PSO2
CO1	3	2	3		3			2			3	2	2	2
CO2	2	2						2			3			2
CO3	3	3			2		2	3	2	2	3	3	2	2
CO4	3	3			2		2	3	2	2	3	3	2	2
CO5	3	3	3	2	2	3		2	3	2	3	3	3	3
Expected Attainment	2.80	2.60	3.00	2.00	2.25	3.00	2.00	2.40	2.33	2.00	3.00	2.75	2.25	2.20

	CO1	CO2	CO3	CO4	CO5
Final Cos CoF	3.00	3.00	3.00	3.00	3.00

	Attained PO A	Attained PO B	Attained PO C	Attained PO D	Attained PO E	Attained PO F	Attained PO G	Attained PO H	Attained PO I	Attained PO J	Attained PO K	Attained PO L	PSO1	PSO2
CO1	3.00	2.00	3.00		3.00			2.00			3.00	2.00	2.00	2.00
CO2	2.00	2.00						2.00			3.00			2.00
CO3	3.00	3.00			2.00		2.00	3.00	2.00	2.00	3.00	3.00	2.00	2.00
CO4	3.00	3.00			2.00		2.00	3.00	2.00	2.00	3.00	3.00	2.00	2.00

	CO5	3.00	3.00	3.00	2.00	2.00	3.00		2.00	3.00	2.00	3.00	3.00	3.00	3.00
	Attained	2.80	2.60	3.00	2.00	2.25	3.00	2.00	2.40	2.33	2.00	3.00	2.75	2.25	2.20

	A	B	C	D	E	F	G	H	I	J	K	L	PSO1	PSO2
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12		
Expected	2.80	2.60	3.00	2.00	2.25	3.00	2.00	2.40	2.33	2.00	3.00	2.75	2.25	2.20
Attained	2.80	2.60	3.00	2.00	2.25	3.00	2.00	2.40	2.33	2.00	3.00	2.75	2.25	2.20
Percentage %	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Note : PO is Satisfied if attained PO > 70, U indicates PO Unsatisfied

Faculty Co-Ordinator   **HOD**

raju Rangaraju Institute of Engineering and Technology

(Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090

Direct Internal CO Attainments

Academic Year	2022-23	Department	Electrical and Electronics Engineering	Name of the Programme		B.Tech			
Year - Semester	II-II	Course Name :	Control Systems Lab	Course Code		GR20A2037		Section	A

		Lab Internal Examination													Record		Assessment
		Q.No 1	Q.No 2	Q.No 3	Q.No 4	Q.No 5	Q.No 6	Q.No 7	Q.No 8	Q.No 9	Q.No 10	Q.No 11	Q.No 12	Viva	Iteration 1	Iteration 2	Marks
Enter CO Number → 1,2,3,4,5		1	1	2	2	3	3	4	4	5	5	2	3	1,2,3,4,5	1,2	3,4,5	1,2,3,4,5
Marks →		10	10	10	10	10	10	10	10	10	10	10	10	5	5	5	10
S.No/Roll No.	Note : Enter Marks Between Two Green rows. Another Note : Additional Columns if Required should be inserted after column H and appropriately rename the Q. Nos.																
First / 1							8							4	5	5	9
2			8											5	5	5	10
3											8			4	5	5	9
4		AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	4	5	5	7
5												8		5	5	5	9
6										8				5	4	4	9
7													9	5	5	5	10
8						7								4	3	3	8
9		6												4	3	3	7
10				8										5	5	5	9
11						8								5	5	5	9
12									9					5	5	5	10
13					8									4	5	5	9
14			2											4	4	4	4
15										8				5	5	5	9
16													6	4	5	5	8
17												6		4	3	3	7
18									5					4	5	5	6
19								8						5	5	5	10
20						7								5	5	5	9
21											8			4	5	5	9
22									4					4	4	4	5
23													4	4	3	3	5
24												3		4	4	4	6
25									8					4	5	5	8
26						7								4	3	3	6
27			9											5	5	5	10
28					6									5	5	5	8

29	4												5	5	5	8
30											9		4	5	5	10
31								8					3	3	3	4
32												8	4	5	5	8
33										3			4	4	4	7
34			9										5	5	5	9
35		9											4	5	5	9
36	9			9									5	5	5	8
37								9					5	5	5	9
38												7	3	3	3	9
39									7				5	5	5	9
40											9		4	5	5	8
41						6							3	3	3	7
42				9									5	5	5	8
43										9			5	5	5	8
44												9	4	5	5	9
45							10						5	5	5	9
46									9				5	5	5	8
47	6												3	3	3	7
48				6									5	5	5	9
49					7								4	4	4	8
50						7							5	5	5	9
51			7										4	5	5	8
52											10		5	5	5	9
53									6				3	3	3	6
54										9			4	4	4	8
55			9										5	5	5	9
56	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	4	4	4	4
57							10						5	5	5	9
58	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	0	0	0	0
59										10			5	5	5	8
60	9												5	5	5	8
61			9										5	5	5	8
62						7							5	5	5	8
63							7						4	5	5	8
64		8											5	5	5	8
65				10									5	5	5	9
66						9							5	5	5	8
67								8					4	5	5	8
68			8										5	5	5	9
Last Record							8						5	5	5	9
if your class strength is > 60 then _insert rows above the green row Last record_ , Similarly _delete the empty rows above green row_ if the class strenght is < 60)																
Total number of students appeared for the examination (NST)	8	8	9	8	8	8	9	9	9	9	9	9	69	69	69	69
Total number of students attempted the question (NSA)	5	5	6	5	5	5	6	6	6	6	6	6	69	69	69	69

Attempt % (TAP) = (NSA/NST)*100	62.50	62.50	66.67	62.50	62.50	62.50	66.67	66.67	66.67	66.67	66.67	66.67	100.00		100.00	100.00	100.00
Total number of Students who got more than 60% marks (NSM)	4	4	6	5	5	5	6	4	6	5	5	5	68		68	68	63
Attainment % (TMP) = (NSM/NSA)*100	80.00	80.00	100.00	100.00	100.00	100.00	100.00	66.67	100.00	83.33	83.33	83.33	98.55		98.55	98.55	91.30
Score(S)	3	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3

Note : CO attainment is considered to be zero if the attempt % is less than 30%

CO Validation	1	1	2	2	3	3	4	4	5	5	2	3	1,2,3,4,5		1,2	3,4,5	1,2,3,4,5
Course Outcome	CO1	CO1	CO2	CO2	CO3	CO3	CO4	CO4	CO5	CO5	CO2	CO3	O1,CO2,CO3,CO4,CO		CO1,CO2	CO3,CO4,CO5	CO1,CO2,CO3,CO4,CO5
Marks (Y)	10	10	10	10	10	10	10	10	10	10	10	10	5		5	5	10
No. of COs Shared (Z)	1	1	1	1	1	1	1	1	1	1	1	1	5		2	3	5
Y/Z	10	10	10	10	10	10	10	10	10	10	10	10	1		2.5	1.66667	2
S*Y/Z	30	30	30	30	30	30	30	30	30	30	30	30	3		7.5	5	6
CO1	1	1	0	0	0	0	0	0	0	0	0	0	1		1	0	1
CO2	0	0	1	1	0	0	0	0	0	0	1	0	1		1	0	1
CO3	0	0	0	0	1	1	0	0	0	0	0	1	1		0	1	1
CO4	0	0	0	0	0	0	1	1	0	0	0	0	1		0	1	1
CO5	0	0	0	0	0	0	0	0	1	1	0	0	1		0	1	1

	CO1	CO2	CO3	CO4	CO5
Weighted Average for Attainment relevance (Internal CODn)	3.00	3.00	3.00	3.00	3.00

!! Caution !! For CO Values < 2.1 should be justified with Remidial Action Report.

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGGY
Approved By AICTE, Affiliated to JNTUH, Autonomous Under UGC
Nizampet Road, Bachupally, Kukatpally, Hyderabad - 500090, Telangana, India
Tel: 7207344440, Email:info@griet.ac.in, www.griet.ac.in

STUDENT FEEDBACK

Faculty	: DAVALA KARUNA KUMAR
Subject	: Control Systems Lab (B.Tech, II/IV B.Tech II Semester, EEE Sec-A)
Academic Year	: 2022 - 2023
Phase	: Phase-1

Sl.No	Question	Excellent	Good	Average	Poor	Q.Wise Total	Q.Wise %
1	Preparation and delivery of the lessons by the teacher	12	25	4	3	134	76.00
2	Subject Knowledge	16	21	5	2	139	79.00
3	Clarity in Communication	12	22	8	2	132	75.00
4	Using Modern Teaching Aids of ICT	12	23	7	2	133	76.00
5	Creating interest on the course in the class	13	23	6	2	135	77.00
6	Maintaining discipline in the class	14	23	4	3	136	77.00
7	Encouraging and clearing doubts in the class	13	24	5	2	136	77.00
8	Punctuality	11	26	4	3	133	76.00
9	Accessibility of the teacher	12	24	6	2	134	76.00
10	Overall grading of the teacher	14	22	6	2	136	77.00
	Total	129	233	55	23		
	Total Points	516	699	110	23	1348	77.00

No.Of Students Posted	44
Total Percentage Awarded to The Faculty	77.00
Grade of Faculty	Good

*Excellent (4) : >=90 %   ***Good (3) : >=75 & <90%**
*Average (2) : >=60 & <75 % *Poor (1) : Below 60 %

Formula: Total Obtained Points/(Max Points(i.Excellent-4) * No.Of.Students * NoOfQuestions)

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STUDENT FEEDBACK

Faculty	: DAVALA KARUNA KUMAR
Subject	: Control Systems Lab (B.Tech, II/IV B.Tech II Semester, EEE Sec-A)
Academic Year	: 2022 - 2023
Phase	: Phase-3

Sl.No	Question	Excellent	Good	Average	Poor	Q.Wise Total	Q.Wise %
1	Preparation and delivery of the lessons by the teacher	29	23	7	0	199	84.00
2	Subject Knowledge	30	23	5	1	200	85.00
3	Clarity in Communication	29	24	6	0	200	85.00
4	Using Modern Teaching Aids of ICT	28	25	6	0	199	84.00
5	Creating interest on the course in the class	30	22	6	1	199	84.00
6	Maintaining discipline in the class	29	23	7	0	199	84.00
7	Encouraging and clearing doubts in the class	31	22	6	0	202	86.00
8	Punctuality	30	22	6	1	199	84.00
9	Accessibility of the teacher	26	24	9	0	194	82.00
10	Overall grading of the teacher	28	23	7	1	196	83.00
	Total	290	231	65	4		
	Total Points	**1160**	**693**	**130**	**4**	**1987**	**84.00**

No.Of Students Posted	59
Total Percentage Awarded to The Faculty	84.00
Grade of Faculty	Good

*Excellent (4) : >=90 %   ***Good (3) : >=75 & <90%**
*Average (2) : >=60 & <75 % ***Poor (1) : Below 60 %**

Formula: Total Obtained Points/(Max Points(i.Excellent-4) * No.Of.Students * NoOfQuestions)

Gokaraju Rangaraju Institute of Engineering & Technology

II B.Tech II SEM (EEE) Result Analysis

Course	Total No. of Students appeared	Total No. of Students Passed	No. of Students Failed	Count of Students with Grade Point					
				GP (10)	GP (9)	GP (8)	GP (7)	GP (6)	GP (5)
ES	69	67	02	00	08	27	20	12	00
P&S	69	43	26	00	00	01	09	09	24
DBE	69	66	03	01	09	16	23	11	06
PDE	69	59	10	01	01	14	25	16	02
ACM	69	54	15	00	00	07	18	19	10
CS	69	53	16	01	03	17	20	10	02
PDP	69	64	05	00	025	11	30	15	06
PDE Lab	69	66	03	12	16	15	09	10	04
ACM Lab	69	62	07	06	11	07	11	10	17
CS Lab	69	67	02	17	28	09	06	07	00

Arrears Position – II year / II Semester

00No.of students	All Pass	One Arrear	Two Arrears	Three Arrears	More than three arrears	Overall % of pass
69	41	09	04	06	09	59%

Performance overall Class Three Toppers

ROLL NO.	NAME	SGPA
21241A0245	PALLETI SRI PADMA LATHA REDDY	8.80
21241A0257 21245A0205	SIRIPURAM MANISREE K SUPRIYA	8.45
21241A0259	SRIYA KANURI	8.30

Classcoordinator   HOD, EEE

II B.Tech - II Sem (EEE)

SECTION	Courses	Environmental Science	Probability and Statistics	Database for Engineers	Principles of Digital Electronics	AC Machines	Control Systems	Power Distribution and Protection	Principles of Digital Electronics Lab	AC Machines Lab	Control Systems Lab
	Course codes	GR20A2001	GR20A2005	GR20A2006	GR20A2027	GR20A2031	GR20A2032	GR20A2034	GR20A2035	GR20A2036	GR20A2037
	TOTAL	69	69	69	69	69	69	69	69	69	69
	PASS	67	43	66	59	54	53	64	66	62	67
	PASS(%)	97.10	62.31	95.65	85.50	78.26	76.81	92.75	95.65	89.85	.10
	FACULTY NAME	D Manasa	Dr V N Rama Devi	G. Sathish	Dr. T. Suresh Kumar	Dr B PhaneedraBabu B /G. Sandhya Rani	V. Usha Rani	Dr. V. Vijayarama Raju	R. Anil Kumar M. N. Sandhya Rani	Dr. V. Vijayarama Raju M. Rekha	D. Karuna Kumar/V. Usha Rani
	FACULTY ID	1767	654	1665	1494	1563/888	1045	361	657/882	361/933	760/1045

Class coordinator

HOD, EEE