ANNEXURE – 1

MANDATORY DISCLOSURE

"The information has been provided by the concerned institution on the onus of authenticity lies with the institution and not on AICTE."

I. **NAME OF THE INSTITUTION**

GEETHANJALI COLLEGE OF ENGINEERING & TECHNOLOGY
Cheeryal (V), Keesara (M), Medchal Dist.,
Pin: 501301. Telangana

II. NAME & ADDRESS OF THE PRINCIPAL

Dr. S. Udaya Kumar
Geethanjali College of Engineering and Technology
Cheeryal (V), Keesara (M), Medchal Dist
Pin: 501301. Telangana state

III. NAME OF THE AFFILIATING UNIVERSITY

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
Kukatpally, HYDERABAD-500 085

IV. GOVERNANCE

4.1. Constitution of Governing Body – The Governing Body of our college is hereby constituted as follows:

Sl. No.	Name	Designation	Status	Category
1	Mr. G.R.Ravinder Reddy	Secretary, GCET	Chairman	Management
2	Dr. G. Sridevi0	Members Teja Educational Society	Member	
3	Mr.N.Sanjeeva Reddy		Member	
4	Ms. N.Ramana Devi		Member	
5	Ms. G. Madhumitha		Member	
6	Dr. S. T. Rajmohan	Dean – Admin. & Prof. – MBA	Member	Faculty nominated by Principal
7	Prof. K. Somasekhara Rao	Dean – Student Affairs & Prof.ECE	Member	
8	Dr.P.Vijai Bhaskar	Dean – Academics & Prof. – ECE	Member	
9	Dr. B. Yagnanarayana	Former Dy.Director IIT, Madras	Member	
10	Mr. Vishwanath Ekbote	Director, Link well Tele Systems	Member	
11	Mr.A.Sreenivasa Murthy	Expert Industry (Formerly Chief Technology Officer, Tech	Member	

		Mahindra & Formerly CEO, Satyam Computers)		
12	Dr. P. G. Sastry	Expert-Education & Industry (Advisor – Ramky)	Member	
13	Prof. Shyam Sundar Patnaik	Director,NITTTR (MHRD, Govt. of India) Formerly Vice Chancellor, Biju Patnaik Un iversity of Technology, Odisha	Member	UGC Nominee
14	Telangana State Government Nominee	-	-	-
15	Dr. B.N.Bhandari	Professor, ECE & Director, Academic & Planning, JNTUH	Member	JNTUH Nominee
16	Dr. S. Udaya Kumar	Principal, GCET	Member Secretary	Ex-officio

4.2. <u>Members of College Academic Council:-</u>

The following are the College Academic Council members.

Sl. No	Name	Designation	Status	Remarks
1	Dr. S. Udaya Kumar	Principal	Chairman	
2	Prof. B. Hari Kumar	HOD – ECE	Member	
3	Dr. D. S. R. Murthy	HOD – CSE, Controller of Exams (JNTUH)	"	
4	Dr. D Radhika	HOD – EEE	"	
5	Dr. T. Siva Prasad	HOD – ME	"	
6	Dr. R. Prasanna Kumar	HOD – CE	"	
7	Dr. G. Neeraja Rani	HOD – S &H	"	
8	Dr. A. Sita Madhavi	HOD – MBA	"	
9	Dr. S. T. Raj Mohan	Registrar, GCET & Prof. MBA	"	
10	Dr. N. Ravi Shankar	Controller of Exams (Autonomous) & Prof. CSE	"	
11	Dr. R. Suryanarayana Raju	Dean R & D & Professor, ECE	"	
12	Prof. K. Somasekhara Rao	Dean – Student Affairs & Professor - ECE	"	
13	Dr. M. Devaiah	Professor – ME	"	
14	Mr. S. Hari Kiran	Assoc. Prof. - CE	"	Special Invitee
15	Mr. G. R. Ravinder Reddy	Expert – Engineering (Invited Member)	"	Experts nominated by Governing Body
16	Mr. Pratap Reddy	Expert - Legal	"	
17	Dr. G. Sridevi	Expert – Medicine	"	
18	Mr. Y. Srinivas	Expert - Industry	"	
19	Dr. P. G. Sastry	Expert – Education & Industry	"	

20	Dr. K. Ramamohan Reddy	Director, UAAC I/C, JNTUH	"	Nominees of JNTUH
21	Dr. Ch. Venkata Ramana Reddy	Professor of Chemistry & DUIIC, JNTUH	"	
22	Dr. E. Saibaba Reddy	Professor of Civil Engg. & Principal, JNTUH CEH	"	
23	Dr. P. Vijai Bhaskar	Dean - Academics & Professor, ECE	Member – Secretary	Nominated by Principal

4.3 Members of College Academic Committee:-

The following are the College Academic Committee members.

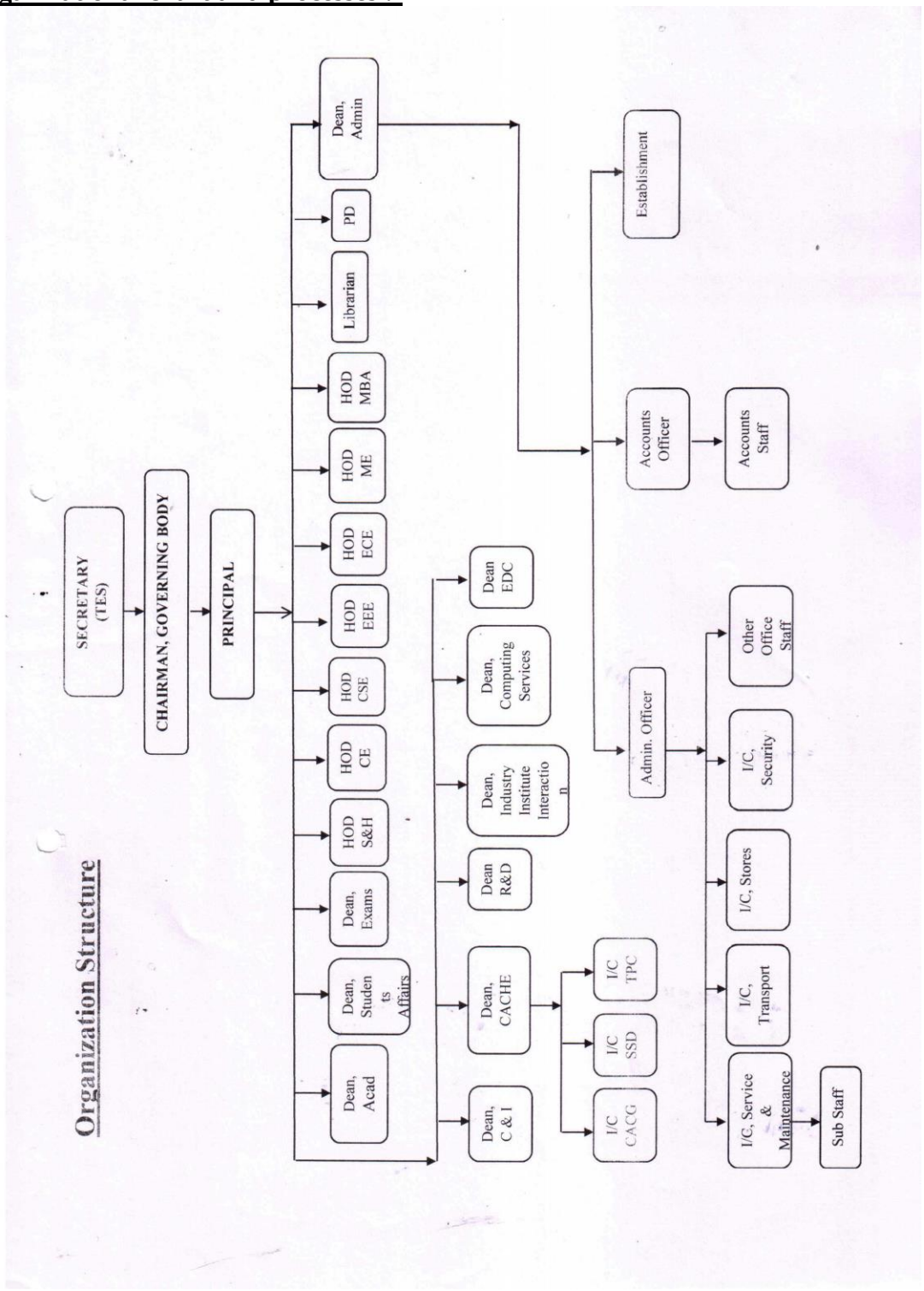
S.No	Name of the staff	Designation
1	Dr. S. Udaya Kumar	Principal
2	Prof. K. Somasekhara Rao	Dean- Student Affairs
3	Dr. S. T. Rajmohan	Dean – Admin.
4	Dr. P. Vijai Bhaskar	Dean- Academics
5	Dr. R. Suryanarayana Raju	Dean – R & D
6	Dr. N. Ravi Shankar	Cont. of Exams- Autonomous
7	Dr. D.S.R. Murthy	HOD-CSE & CoE - JNTUH
8	Prof. B. Hari Kumar	HOD-ECE
9	Dr. D. Radhika	HOD-EEE
10	Dr. T. Siva Prasad	HOD-ME
11	Dr. R. Prasanna Kumar	HOD-Civil
12	Dr. G. Neeraja Rani	HOD-S&H
13	Dr. A. Sita Madhavi	HOD-MBA
14	Dr. C. V. Narasimhulu	Professor
15	Dr. S. Suryanarayana	Professor
16	Dr. B. Leelaram Prakash	Professor
17	Prof. O.V.P.R. Siva Kumar	Professor
18	Dr. G. Somasekhar	Assoc. Head-CSE
19	Dr. B. V. Swathi	Professor
20	Dr. K. Srinivas	Professor
21	Dr. Ch. Ramesh Babu	Professor
22	Prof. K. Raghava Rao	Professor
23	Prof. Ashok Sharma	Professor
24	Dr. M. Aruna Bharathi	Professor
25	Dr. P. Anil Kumar	Professor
26	Dr. M. Devaiah	Professor
27	Dr. Subhash Kamal	Professor
28	Dr. S. Sapthagiri	Professor
29	Dr. S. Shyam Kumar	Professor
30	Dr. K R. C Reddy	Professor
31	Prof. S. Tirupati Rao	Professor
32	Dr. J. Anjaiah	Professor

33	Dr. V. S. Triveni	Professor
34	Dr. J. Shankar	Professor
35	Dr. A. Uma Devi	Professor
36	Dr. R. Sanjeev	Professor
37	Prof. G. Karuna Kumari	Professor
38	Dr. J. Pardha Saradhi	Professor

4.4 Frequency of the Meetings:-

a. Governing Body meeting – once in 6 months.
b. College Academic Council meeting - once in 6 months.
c. College Academic Committee meeting - once in a week (Every Wednesday)

4.5 Organizational chart and processes :-



4.6 Nature and Extent of involvement of faculty and students in academic affairs/improvements :-

1) **College Academic Committee:-** This Committee consists of Heads of the Departments and Professors. All the Academic activities are planned and

implemented by the members of this Committee. The opinions and ideas of the faculty are taken into consideration before policy matters are decided.

2) **Class Review Committee:-** It consists of 5 students and the entire faculty handling the courses for that class with the HOD as the coordinator. The members are actively involved in the academic affairs including the coverage of syllabus, expert lectures, technical activities of the students, technical visits, paper presentation etc.

3) **Student counseling:-** Each faculty member is allotted 10 students. He/She is responsible for academic guidance of the students allotted to him. The faculty member redresses the problems faced by the student in academic and administrative matters.

4.7 **Mechanism/Norms & Procedure for democratic/good Governance :-** The Institution believes in a democratic set up. Each department with its head and members decide upon the requirements with consensus. The staff, lab equipments, library books required are projected to the Principal by the HOD. For all procurements, quotations are obtained, technical specifications studied, rates are compared by the department and the proposals are forwarded to the management through Principal.

4.8 **Student Feedback on Institutional Governance / faculty performance :-** Students are given feedback forms within two weeks of the commencement of the class work to evaluate the effectiveness of teaching. The criteria taken are

a).Punctuality & Regularity of the teacher
b).Teacher's control and conduct of the class
c). Understandability
d). Discussion of class tests/tutorials / assignments
e). Coverage of syllabus
f). Overall rating of the teacher of the subject

The feedback is analyzed and is utilized to counsel the teachers whose performance is not upto mark. The students are also asked to comment about the facilities such as Library, Canteen, Sports transport etc., so that corrective measures can be taken.

4.9 **Grievance Redressal mechanism for faculty, staff and students :-** The students can express their grievances through suggestions box and also through feedback forms. The management & Principal also attend special sessions to know the problems of the students. So, also faculty & staff meetings are held to know their problems and their grievances are attended to. A grievance redressal cell with the Secretary, Principal and HODs is formed where the problems are discussed & solutions arrived at.

V. PROGRAMMES

5.1 **Name of the Programmes approved by the AICTE :-**

Undergraduate : B.Tech.
Computer Science & Engineering
Electronics & Communication Engineering
Electrical & Electronics Engineering
Mechanical Engineering
Civil Engineering

Information Technology

Post-Graduate:
M. Tech. (Computer Science & Engineering)
MBA (Master of Business Administration)

5.2 **Name of the Programmes accredited by the AICTE (NBA) :-**

Sl. No.	Name of the Programme	Accreditation status
1	B.Tech. - ECE	Accredited for 3 years Up to 30.06.2021
2	B.Tech. – CSE	
3	B.Tech. – EEE	
4	B.Tech - ME	

5.3 **The Details of the approved programmes are as follows :-**

Name		CSE	ECE	EEE	CE	ME	IT	MBA	M. Tech. (CSE)
Number of seats		240	240	120	120	120	60	60	30
Duration in Years		4	4	4	4	4	4	2	2
Cut off rank for admission during the last three years	2017-18 M	15696	19062	26016	29326	26413	-	-	-
	F	15442	19533	27231	29510	37729		8487	2301
	2018-19 M	15472	19084	38360	30699	61061	-	10490	2282
	F	17796	22369	31149	48428	79262			1641
	2019-20 M	19781	20711	34929	40034	96831	21020	10785	nil
	F	15327	21666	49322	38614	56434	19823	13892	
Fee (2017-18 A. Y)			**B.Tech- 1,02,000/-, M.Tech-65,000/-, MBA-42,000/-**						
Placement Facilities			**A Placement Officer is appointed who is in-charge of campus placements.**						
Campus placement in last three years with salary.		•	• **343** students placed in different companies for the Academic year 2019-20 Median salaryRs**.2.80lakhs** per annum as on 14-11-2019 • **547** students placed in different companies for the Academic year 2018-19 Median salaryRs**.2.20lakhs** per annum. • **539** students placed in different companies for the Academic year 2017-18 Median salaryRs**.2.40lakhs** per annum.						

VI. Faculty: Faculty & Student Ratio = 1:20 (UG and PG Program of MBA)
1:12 (PG –M.Tech.(CSE))

6.1. Department of Electronics & Communication Engineeringt (ECE) -UG & PG

Sl. No.	Name of the Staff Member	Cat.	Designation	Qualification			Experience			Date of Joining	Faculty Registration ID
				UG	PG	Ph.D	T	I	R		
Dept : B.Tech.(Electronics and Communication Engineering) -UG											
1	Prof. B. Hari Kumar	UG	Professor & HOD	BE	ME (ECE)	-	33	-	-	16.06.2017	1393-170913-143343
2	Dr. R. Suryanarayana Raju	UG	Professor & Dean - R & D	B.Tech.	ME (M&R)	Ph.D	9.6	29	-	17.11.2016	7657-161207-110654
3	Dr. C. Venkata Narasimhulu	UG	Professor	B.Tech.	M.Tech (ICS)	Ph.D (Signal Ima. Proc.)	24	-	-	15.11.2012	591504 01-102004
4	Dr. S. Suryanarayana	UG	Professor	B.Tech.	ME (DSE)	Ph.D	24	3	-	06.07.2016	821504 02-165457
5	Dr. P. Vijay Bhaskar	UG	Professor & Dean Acad. I/C	B.Tech.	M.Tech. (DS&CE)	Ph.D	21	-	-	18.06.2018	5328-150411-185917
6	Dr. B. Leelaram Prakash	UG	Professor	B.Tech.	ME (Ele. Int.)	Ph.D	30	-	-	06.09.2018	5806-180914-144231
7	Prof. K Somasekhara Rao	UG	Professor & Dean-Student Affairs	BE	M.Tech. (AE)	-	11	32	-	28.06.2008	161504 02-153852
8	Prof. O. V. P.R. Siva Kumar	UG	Professor	BE	ME (ECE)	-	3	22	-	24/02/2016	9667-160224-131757
9	Prof. S. Bhujanga Rao	UG	Professor		M.Tech (Advanced Electronics)		19.5	25.5	10	03.09.2019	0674-150414-120737
10	Dr. V. Satya Srinivas	UG	Assoc. Prof.	B.E	ME (ECE)	Ph.D (Global Nav. & Sat.Sys.)	4	-	8	01.11.2014	211504 07-111354
11	Dr. S. Saritha	UG	Assoc. Prof.	B.Tech.	M.Tech. (ECE)	Ph.D (Hybrid Algorithms)	5	-	-	30.05.2019	3643-190604-120802
12	Dr. P.Sudhakar	UG	Assoc. Prof	B.Tech	M.Tech (DE&CS)	Ph.D	18	-	-	28.05.2007	141504 07-112853
13	Dr. S. Spandana	UG	Assoc. Prof	B.Tech.	M.Tech. (DSCE)	Ph.D	F	-	6	01.06.2019	7535-190607-104129

14	S.Jyothirmayee	UG	Assoc. Prof.	B.E	M.Tech. (ES)	-	15.6	-	-	16.12.2008	581504 02-103822
15	A. Shanker	UG	Assoc. Prof.	B.Tech.	M.Tech. (SSP)	-	15	-	-	04.06.2011	111504 01-105051
16	D. Venkata Rami Reddy	UG	Assoc. Prof.	B.Tech.	M.E (DS)	-	20.6	-	-	23.06.2011	5493-150408-101138
17	B. Sreelatha	UG	Assoc. Prof.	B.Tech.	M.Tech. (VLSI-SD)	-	13	-	-	22.06.2013	971504 02-151254
18	U. Appalaraju	UG	Assoc.Prof.	AMIE	M.Tech (DSCE)	-	13.6	-	-	02.06.2014	5441-150409-115721
19	R. Odaiah	UG	Assoc.Prof.	B.E.	M.E. (SSP)	-	15	-	-	02.06.2014	881504 02-171414
20	G. Sreelakshmi	UG	Assoc.Prof.	B.Tech	M.E. (DS)	-	15.6	2.5	-	02.06.2014	851504 02-165321
21	M. Laxmi	UG	Assoc.Prof.	B.Tech	M.Tech. (ECE)	-	12	-	-	05.06.2014	711504 02-172334
22	S. Krishna Priya	UG	Assoc.Prof.	B.Tech	M.E. (CS)	-	13.6	-	-	16.06.2014	761504 02-173646
23	M. Sowjanya	UG	Assoc. Prof.	B.Tech.	M.Tech. (DSCE)	-	14	-	-	01.06.2016	301504 02-133904
24	J. Mrudula	UG	Assoc. Prof.	B.Tech.	M.E (Ind.Ele.)	-	14	-	-	25.06.2018	091504 02-163847
25	M. Uma Rani	UG	Asst Prof.	B.Tech.	M.Tech. (DECS)	-	13	3	-	24.06.2013	131504 02-114425
26	V.Venkata Lakshmi	UG	Asst. Prof.	B.Tech.	M.Tech. (DECS)	-	8	-	-	27.06.2013	9963-150410-142014
27	B. Mamatha	UG	Asst. Prof.	B.Tech.	M.Tech. (ES)	-	10	-	-	02.06.2014	691504 02-123035
28	M. Chathar Singh	UG	Asst. Prof.	B.Tech	M.Tech. (VLSI-SD)	-	7	-	-	19.06.2012	871504 02-110129
29	M. Krishna Chaitanya	UG	Asst. Prof.	B.Tech.	M.Tech. (VLSI& ES)	-	11.6	-	-	16.06.2014	501504 02-125047
30	B. Jugal Kishore	UG	Asst. Prof.	B.Tech.	M.Tech. (VLSI)	-	5	2	-	08.04.2015	4910-150409-152526
31	Y. Naga Lakshmi	UG	Asst. Prof.	B.Tech.	M.Tech. (ES)	-	11	1	-	09.04.2015	8184-150409-123727
32	M. Krishna	UG	Asst. Prof.	B.Tech.	M.Tech. (VLSI-SD)	-	8	-	-	10.04.2015	1450-150411-114458

Signature of Authorized Signatory with date

33	L. Kavya	UG	Asst. Prof.	B.Tech.	M.Tech. (DSCE)	-	5 .6	-	-	10.04.2015	5743-150413-151805
34	Y. Siva Rama Krishna	UG	Asst. Prof.	B.Tech.	M.Tech. (WBC)	-	6	2		11.04.2015	0975-150411-123355
35	K. Victor	UG	Asst. Prof.	B.Tech.	M.Tech. (DC)	-	8	1.5		11.04.2015	8264-150412-125826
36	A. Subramanyam	UG	Asst. Prof.	B.Tech.	M.Tech. (VLSI& ES)	-	8.5	1.5	-	17.04.2015	66150405-224408
37	B. Ramu	UG	Asst. Prof.	B.Tech.	M.Tech. (S&SP)	-	7	-	-	05.05.2015	0595-150423-150444
38	P. Chandra Prakash Reddy	UG	Asst. Prof.	B.Tech.	M.Tech. (ES)		6	-	-	01.12.2015	3589-150424-144507
39	Ch Sandeep	UG	Asst. Prof.	B.Tech.	M.Tech. (VLSI &ESE)	-	5.6	-	-	01.12.2015	6805-150410-133226
40	B. Suneetha	UG	Asst. Prof.	B.Tech.	M.Tech.		6.6	-	-	02.12.2015	77150402-111320
41	A. Sowjanya	UG	Asst. Prof.	B.Tech.	M.Tech.		4	-	-	01.03.2016	3606-160302-115259
42	V. Sirisha	UG	Asst. Prof.	B.Tech.	M.Tech.		4	-	-	01.03.2016	8222-160302-113442
43	M. Deepa	UG	JRF/ Asst.Prof.	B.Tech.	M.Tech. (ES)	-	F	-	-	06.02.2019	2560-190830-134926
44	A. Geetha Rani	UG	JRF/ Asst.Prof.	B.Tech.	M.Tech. (VLSISD)	-	F	-	-	13.05.2019	9113-190830-104838
Department: Electronics and Communicaion Engineering- B.Tech. (Others)											
1	S. Yagnasree	UG Others	Asst. Prof.	B.Tech.	M.Tech. (ES)		9	3.5	-	06.06.2016	5263-150506-163712
2	A R L padmaja	UG Others	Asst. Prof.	B.Tech.	M.Tech. (ES)		14	20	-	13.12.2016	0705-161217-110613
3	Ch. Suresh Kumar	UG Others	|Asst. Prof.	B.Tech.	M.Tech. (CS)		9.6	-	-	07.11.2016	4534-150426-155753
4	R V N R Suneel Krishna	UG Others	Asst. Prof.	B.Tech.	M.Tech. (ES)		4.6	-	-	10.11.2016	67150405-094135
5	M. Anand	UG Others	Asst. Prof.	B.Tech.	M.Tech. (ES)		4.6	-	-	30.12.2016	40150327-151926

Signature of Authorized Signatory with date

6	V. Savithri Padmapriya	UG Others	Asst. Prof.	B.Tech.	M.Tech. (ECE)		2.6	-	-	31.12.2016	8642-161231-104901
7	P. Naresh kumar	UG Others	Asst. Prof.	B.Tech.	M.Tech. (DSCE)		15	-	-	14.06.2017	1871-170913-123359

6.2. Department of Computer Science & Engineering (CSE) -UG & PG.

Dept :B.Tech. (Computer Science and Engineering)-UG

1	Dr. S. Udaya Kumar	UG	Principal & Professor	BE (ECE)	ME (ECE), M.Tech. (Hons.) Info.Eng.	Ph.D (CSE, Cryptography)	34.6	-	-	02.01.2013	07150330-103619
2	Dr. B. V. Swathi	UG	Professor	B.Sc (MPC)	M.Sc, & M.Tech. (CS)	Ph.D (A Hybrid approach to Web page Categorization)	17.6	-	-	18.01.2018	2892-160320-155417
3	Dr. Ch. Ramesh Babu	UG	Professor	B.Tech. (CSE)	M.Tech. (CS)	Ph.D (An effective Checkpointing and Replication Techniques for Computational Grid)	17.6	-	-	04.11.2016	9928-150413-161333
4	Dr. N. Ravi Shankar	UG	Professor & COE - Autonomous	B.Tech. (CE)	M.Tech. (CSE)	Ph.D	23	6	-	08.11.2017	5456-171113-110854
5	Prof. Ashok Sharma	UG	Professor	B.Sc	M.Sc (Maths) M.E(SE)		19	12	-	02.07.2018	5370-180804-121011
6	Dr. G. Soma Sekhar	UG	Assoc. Prof.	BCA	M.Tech. (IT) M.Sc (IS)	Ph.D	12	-	-	24.08.2018	73150402-134234
7	Dr. A. Hari Prasad Reddy	UG	Assoc.Prof.	B.Tech. (CSE)	M.Tech (IT)	Ph.D	11	-	-	25.06.2018	0540-150425-145853
8	M. Ashwini	UG	Assoc.Prof.	B.Tech. (CSE)	M.Tech. (CSE)	-	14	-	-	18.09.2006	12150331-122716
9	A. Sri Lakshmi	UG	Assoc. Prof.	B.Tech. (CSE)	M.Tech. (CSE)		18	-	-	13.06.2013	67150407-110820
10	V. Shivanarayana Reddy	UG	Assoc.Prof.	B.Tech (CS&IT)	M.Tech (CS)	-	12.6		-	07.06.2013	15150407-124108

11	G. Lokeshwari	UG	Assoc. Prof.	B.E (CS)	M.Tech. (CS), MBA	-	18.6	2	-	28.11.2013	72150331-132356
12	D. Venkateswarlu	UG	Assoc.Prof.	B.Tech. (CSE)	M.Tech. (CS)	-	18	-	-	02.06.2014	86150407-105752
13	M. Srinivas	UG	Assoc. Prof.	B.Tech. (CSE)	M.Tech. (CSE)	-	15	-	-	02.06.2014	53150407-102813
14	M. Raja Krishna Kumar	UG	Assoc. Prof.	AMICTE (IT)	M.Tech. (IP)	-	10			17.06.2019	4731-150408-123831
15	K. Vijaya Bhaskar	UG	Asst Prof	B.Tech. (CSE)	M.Tech. (SE)	-	13.5	-	-	29.09.2008	34150407-121537
16	K. Naresh Babu	UG	Asst.Prof.	B.Tech. (IT)	M.Tech. (CS)	-	11	-	-	12.12.2011	1179-150409-143256
17	K. Gnana Mayuri	UG	Asst.Prof.	B.Tech. (CSE)	M.Tech. (CSE)	-	7	-	-	06.02.2012	04150401-143157
18	Prasada. Preethi	UG	Asst. Prof.	B.Tech. (IT)	M.Tech. (Comp. Eng.)	-	11	1.7	-	27.06.2012	5393-150409-112851
19	M. Bhavana	UG	Asst.Prof.	B.Tech (CSE)	M.Tech (CS)	-	8	-	-	03.06.2013	51150407-102756
20	P. Haritha	UG	Asst. Prof.	B.Tech. (CSE)	M.Tech. (CSE)	-	10	1		13.06.2013	76150406-153615
21	Y. Siva	UG	Asst.Prof.	B.Tech. (CSE)	M.Tech. (CST)	-	6	-	-	01.06.2013	63150401-152131
22	N. Radhika Amareswari	UG	Asst.Prof.	B.E. (IT)	M.Tech. (IP)	-	9.6	-	-	04.12.2013	71150406-142643
23	A. Harini Krishna	UG	Asst.Prof.	B.Tech. (CSE)	M.Tech. (CSE)	-	4.6	-	-	19.06.2014	29150407-145103
24	G. Niveditha	UG	Asst. Prof.	B.Tech. (CSE)	M.Tech. (CS)	-	4.6	-	-	09.12.2014	20150401-151009
25	K. Srinivas	UG	Asst. Porf.	B.Tech. (CSE)	M.Tech. (CSE)	-	3	-	-	08.04.2015	1855-150409-122257
26	M. Vijay Bhasker Reddy	UG	Asst. Prof.	B.Tech. (CSIT)	M.E. (CSE)	-	12	-	-	08.04.2015	8451-150409-123144
27	Ch. Vikas	UG	Asst. Prof.	B.Tech. (CSE)	M.Tech. (CSE)	-	8	-	-	09.04.2015	0886-150411-100824
28	M. Sujitha	UG	Asst. Prof.	B.Tech. (CSE)	M.Tech. (SE)	-	3.6	-	-	12.11.2015	1038-151216-125322
29	Chittipothula C Y Rao	UG	Asst. Prof.	B.Tech. (CSE)	M.Tech. (CSE)	-	5.6	-	-	18.11.2015	3313-150410-162347
30	B. Mamatha	UG	Asst. Prof.	B.Tech. (CSE)	M.Tech. (CSE)	-	3.6	-	-	02.12.2015	9861-160201-114744

31	J. Meena Sravanthi	UG	Asst. Prof.	B.Tech. (CSE)	M.Tech. (CSE)	-	3.6	-	-	08.12.2015	7879-150426-152712
32	U. Sadhana	UG	Asst. Prof.	B.Tech. (CSE)	M.Tech. (SE)	-	8.6	-		06.01.2016	0286-160107-105345
33	Lochan Rampal	UG	Asst.Prof.	B.Tech. (CSE)	M.Tech. (CSE)		3	-	-	26.02.2016	2025-160229-143510
34	E. Mahender	UG	Asst. Prof.	B.Tech. (CSE)	M.Tech. (SE)		12	-	-	26.02.2016	3552-150420-092246
35	K. Shiva Kumar	UG	Asst.prof.	BE (CSE)	M.Tech. (CSE)		3	-	-	09.03.2016	3043-160312-172058
36	K. Anusha	UG	Asst. Prof.	B.Tech. (CSE)	M.Tech. (CSE)	-	5	-	-	22.06.2015	5041-150408-142957
37	B. Veera Rajesh	UG	Asst.Prof.	B.Tech. (IT)	M.Tech. (SE)	-	11	-	-	17.06.2019	8961-150411-021849
38	G. Praveen Kumr	UG	Asst.Prof.	B.Sc (MPCS)	M.Tech. (CSE) M.SC(CS)	-	13	-	-	24.06.2019	1400-150407-222024
39	M. Ajay Kumar	UG	Asst.Prof.	B.Tech. (CSE)	M.Tech. (CSE)		8	-	-	24.06.2019	16150404-121734
Department: M.Tech. (Computer Science and Engineering)											
1	Dr. D. Sree Rama Chandra Murthy	PG-CSE	Professor & COE - JNTUH & HoD	BE	M.Tech. (CSE)	Ph.D (Cryptography)	33	-	-	12.06.2014	13150406-152951
2	Dr. K. Kamakshaiah	PG-CSE	Associate Professor	B.Sc	M.Sc, M.Tech	Ph.D	11	-	-	01.05.2019	9458-190129-155649
3	S. Ramanjaneyulu	PG-CSE	Asst.Prof.	B.Tech. (IT)	M.Tech. (SE)	-	10.6	-		12.10.2010	96150407-105619
4	J. Uma Mahesh	PG-CSE	Asst. Professor	B.Tech. (CSE)	M.Tech. (CSE)	-	7.8	-	1	08.07.2016	1215-150409-110314
5	S. Radha	PG-CSE	Assst. Professor	B.Tech. (CSE)	M.Tech. (CSE)	-	12	-	1	01.06.2016	61150406-134316
6	G. Swapna	UG	Asst. Prof.	B.Tech. (CSE)	M.Tech. (CSE)	-	8	-	-	04.07.2011	93150406-152733

Dept.:-CSE (Others)

1	Prof. K. Ragjhava Rao	UG-Others	Professor	BE (ECE)	M.Tech. (C.S)	-	9.6	22	-	29.11.2017	8260-171222-162240
2	C. Esther Varma	UG-Others	Assoc. Prof.	B.Tech. (IT)	M.Tech. (SE)	-	12	-	-	16.11.2013	4275-150408-123339
3	Harekrishna Allu	UG-Others	Assoc. Prof.	B.Tech. (CSE)	M.Tech. (CSE)	-	8	1	-	23.06.2016	5771-150410-131102
4	Y.V. N. Phani Kishore	UG-Others	Asst. Prof.	B.Tech. (CSE)	M.Tech .(CNIS)	-	4.6	-	-	08.12.2014	11150331-124613
5	M. Ravinder	UG-Others	Asst. Pof.	B.Tech. (CSE)	M.Tech. (CSE)	-	11.8	-	-	15.07.2015	8445-150409-111831
6	K. Preethi	UG-Others	Asst.Prof.	B.Tech. (CSE)	M.Tech. (CSE)	-	4	-	-	05.02.2016	6403-150410-153708
7	Ch. Sneha	UG-Others	Asst. Professor	B.Tech. (CSE)	M.Tech. (CSE)	-	3	-	-	01.06.2016	8983-160527-124101
8	P. Lalitha	UG-Others	Asst. Professor	B.Sc	M.CA & M.Tech.	-	21	-	-	20.06.2018	9147-150415-100455
9	Sudha Singaraju	UG-Others	Asst. Professor	B.Sc	M.CA & M.Tech. (CSE)	-	15.6	2	-	12.11.2018	9503-181114-110156

6.3 Department of Electrical & Electronics Engineering (EEE) - UG & PG

1	Dr. D.Radhika	UG	Professor & HoD.	B.Tech	M.Tech. (EPE)	Ph.D (EEE)	19	-	-	09.06.2014	71150402-122058
2	Dr. P. Anil Kumar	UG	Professor	B E	M.S (EE)	Ph.D (EE)	8	-	4	02.08.2018	2411-150408-134853
3	Dr. M. Aruna Bharathi	UG	Professor	B.Tech.	M.Tech.	Ph.D	13.5	-	-	13.12.2017	2741-170520-103020
4	Dr. P. Harish	UG	Assoc. Prof.	B.Tech.	M.Tech. (EPS)	Ph.D	2			10.07.2017	6247-170912-140539
5	Dr. B. Madhuri	UG	Assoc. Prof.	B.E	ME (PE&D)	Ph.D	8.5	-	-	10.09.2018	4323-180827-115910
6	N.Venkata Bharadwaj	UG	Assoc. Prof	B.E.,	M.E (EEIDC)	-	10	9	-	29.06.2009	43150331-153219
7	G.Srikanth	UG	Assoc. Prof.	B.Tech	M.Tech (PEID)	-	14	2	-	01.07.2009	43150402-141645

8	K.Mahender	UG	Assoc. Prof.	B.Tech	M.Tech (PSE)	-	12	-	-	20.04.2007	29150331-154942
9	Voleti Padmaja	UG	Asst. Prof.	B.Tech	M.Tech. (PE)	-	11	-	-	23.06.2008	83150331-160330
10	Azra Zaineb	UG	Asst. Prof.	B.Tech	M.Tech. (EPS)	-	9.5	5.5		11.06.2013	58150331-150657
11	S.Poornachander Rao	UG	Asst.Prof.	B.Tech.	M.Tech. (EPS)	-	10	-	-	06.06.2014	71150402-142931
12	T. Pooja Rani	UG	Asst. Prof.	B.Tech.	M.Tech. (EPS)	-	10	-	-	09.06.2014	50150402-120740
13	V. Rakesh	UG	Asst. Prof	B.Tech.	M.Tech. (PE)	-	4.6	-	-	06.12.2014	60150402-144549
14	Manjul Khare	UG	Asst. Prof.	B.E	M.E (EPS)	-	9	-	-	13.04.2015	0887-150416-101452
15	E. Hima Bindu	UG	Asst. Prof.	B.Tech.	M.Tech. (PE&ID)	-	11	-	-	06.06.2016	1649-150407-221854
16	K. Nagaraju	UG	Asst.Prof.	B.Tech.	M.Tech. (EPS)	-	5.6	-	-	10.11.2016	4688-160309-112402
17	Mulla Gouse Basha	UG	Asst. Prof.	B.Tech.	M.Tech. (EPS)	-	2.6	-	-	29.12.2016	4778-161229-132527
18	M. Prashanth Kumar	UG	Asst. Prof.	B.Tech.	M.Tech. (PE)	-	2.6	-	-	31.12.2016	2340-161231-110147
19	A. Raghu Ramachandra	UG	Asst. Prof.	B.Tech.	M.Tech. (EPE)	-	7	2		13.06.2019	0530-190708-115516
20	K Murali	UG	Asst. Prof.	B.Tech.	M.Tech. (PE)	-	7	-	-	20.06.2019	69150404-123157
Dept : (Electrical and Electronics Engineering)- OTHERS-UG											
21	B. Soujanya	UG Others	Asst. Prof.	B.Tech.	M.Tech. (PE)	-	4.5	-	-	02.07.2018	7898-180803-114715

6.4. Department of Mechanical Engineering (ME) - UG

1	Dr. T. Siva Prasad	UG	Professor & HOD	B.Tech	M.Tech. (D&PE)	Ph.D (Analysis of Bus. Proc.)	35	3		11.06.2014	12150402-111935
2	Dr. M. Devaiah	UG	Professor	B.E	M. Tech. (Ind. Meta.)	Ph.D (ME)	18.6	-	-	01.10.2005	41150402-133226
3	Dr. Subhash Kamal	UG	Professor	B.Tech.	M.Tech (Thermal Power Engg.)	Ph.D (Thermal Spray Coating)	17	-	12	07.08.2018	5422-180808-112307

4	Dr. S. Sapthagiri	UG	Professor	B.E	M.E (Prod. Engg.)	Ph.D	19	-	-	05.12.2018	5615040 4-131739
5	Dr. S. Shyam Kumar	UG	Professor	B.Tech.	M.E (Eng. Design.)	Ph.D	28	-	-	17.12.2018	9115040 3-203812
6	K. Jithendar Reddy	UG	Assoc. Prof.	B.Tech	M.Tech. (Ind. Metal.)	-	17.6	7	1	04.12.2013	9815040 7-144909
7	P. Sudheer Rao	UG	Assoc. Prof.	BE	M.Tech. (Thermal Eng.)	-	15.6	5	-	11.06.2015	1115040-7154923
8	R. Sudarshan	UG	Assoc. Prof.	B.Tech.	M.Tech. (Prod. Eng.)	-	14	1	4	15.06.2015	5980-150416-122448
9	B. Subba Rao	UG	Assoc. Prof.	B.Tech.	M.Tech. (Machine Design)	-	16.6		1	21.11.2015	1511-150409-114132
10	B. Anitha	UG	Asst. Prof.	B.E	M.Tech. (CAD/ CAM)	-	12.9	-	-	24.09.2007	5215040 6-154818
11	K. Raju	UG	Asst.Prof.	B.Tech	M.Tech. (MD)	-	10	-	-	04.06.2013	2015040 7-125625
12	M. Ravindra Gandhi	UG	Asst. Prof.	B.Tech.	M.Tech. (Adv. Man. Sys.)	-	10	-	-	11.06.2013	8215040 7-154556
13	V. Sandeepa	UG	Asst. Prof.	B.Tech.	M.Tech. (Machine Design)	-	8.5	-	-	23.06.2012	7215040 2-145914
14	V. Rajasekhar	UG	Asst. Prof.	B.Tech.	M.E. (AD& M)	-	9.6	-	-	01.11.2013	9115040 2-153907
15	P. Laxmi Reddy	UG	Asst.Prof.	B.E.	M.Tech (Thermal Eng.)	-	11	-	-	02.06.2014	8315040 2-160738
16	N. Rajendar	UG	Asst. Prof.	BE	M.Tech. (CAD/ CAM)	-	9.6	-	-	11.12.2014	6415040 6-152621
17	B. Venkat sravan Kumar	UG	Asst. Prof.	B.Tech.	M.Tech. (Eng. Design)	-	4	-	-	09.04.2015	0542-150410-115746
18	U. Sreekanth	UG	Asst. Prof.	B.Tech.	M.Tech. (R&AC)	-	9	-	-	10.04.2015	5821-150411-113708
19	B. Bhasker	UG	Asst. Prof.	B.Tech	M.Tech. (The. Eng.)	-	12	1	-	13.07.2015	4515040 4-121256
20	J. Nithin Kumar	UG	Asst. Prof.	B.Tech.	M.Tech. (AMS)	-	6	1. 7	-	26.08.2015	1772-150415-150036
21	K. Niranjan Kumar	UG	Asst. Prof.	B.Tech.	M.E (CAD/ CAM)	-	3.6	1	-	05.11.2015	6583-151217-153726

22	N. Suresh	UG	Asst. Prof.	B.Tech.	M.Tech. (CAD/ CAM)	-	4.6	2	-	23.11.2015	1115040 7-181850
23	A. Santhosh	UG	Asst. Prof.	B.Tech.	M.Tech. (Machine Design)	-	3.6	-	-	01.12.2015	5641-151222-103908
24	K. Venkatesh	UG	Asst. Prof.	B.Tech.	M.Tech. (CAD/ CAM)	-	7	-	-	02.06.2016	2262-161208-155725
25	B. Srinivasa Reddy	UG	Asst. Prof.	B.Tech.	M.Tech. (The. Eng.)	-	5	-	-	02.06.2016	5242-150409-150654

Dept:Mech (Others)

1	P.V. R. Girish Kumar	UG-Others	Asst. Prof.	B.Tech.	M.Tech. (CAD/ CAM)	-	8	-	-	06.09.2014	78150402-151212
2	R. Satya Mahipal Reddy	UG-Others	Asst. Prof.	B.Tech.	M.Tech. (AMS)	-	5	1	-	01.07.2016	6099-161207-160657
3	K Praveen	UG-Others	Asst. Prof.	B.Tech.	M.Tech.	-	4.6	-	-	02.04.2018	4474-180804-105643
4	P. Sandeep Kumar	UG-Others	Asst. Prof.	B.Tech.	M.Tech. (CIDM)	-	8	-	-	30.12.2016	6642-160306-225836
5	P. Satyanarayana	UG-Others	Asst.Prof.	B.Tech.	M.Tech. (CAD/ CAM)	-	4	-	-	31.12.2016	1501-150516-153603
6	M. Ravi Kumar	UG-Others	Asst. Prof.	B.Tech.	M.Tech. (Thermal Eng.)	-	11	-	-	12.06.2017	7657-150409-130630
7	N S Raghavendra	UG-Others	Asst. Prof.	B.Tech.	M.Tech. (Product Design & Manufactoring)	-	2.6	1	-	15.12.2017	5363-161206-141304
8	J Sumalatha	UG-Others	Asst.Prof.	B.Tech.	M.Tech. (Thermal Engg.)	-	1	-	-	09.08.2018	4686-180809-103824

6.5. Department of Civil Engineering(CS)-UG

Dept : B.Tech. (Civil Engineering)-UG

1	Dr. R. Prasanna Kumar	UG	Professor & HoD	B. Tech.	ME (CE)	Ph.D	23	-	-	20.12.2018	4623-161126-131853
2	Dr. K Ramachandra Reddy	UG	Professor	B.Tech. (CE)	M.Tech. (AM)	Ph.D (SE)	29.6	-	4	06.11.2017	4974-150408-150749

3	S.Tirupati Rao	UG	Professor	BE	M.E (TE)	-	18	1.6	-	04.06.2008	421504 06-160745
4	S. Hari Kiran	UG	Assoc. Prof.	B.E	M.S in Envi. Engg.	-	6	7	-	27.06.2016	7509-150409 - 093307
5	V. Abdul Raffi	UG	Assoc. Prof.	B.Tech.	M.E (Geo-Tech. Engg.)	-	22	3	-	03.12.2018	321504 07-101416
6	KSSRCV Prasad	UG	Assoc. Prof.	B.Tech.	M.S	-	10	18	-	21.12.2018	3928-171214 - 114355
7	P. Harsha Praneeth	UG	Assoc.Prof.	B.Tech.	M.Tech. (SE)		2	2	4.5	13.06.2019	0996-190615 - 104457
8	Dr. N. Mahendra	UG	Asst. Prof.	B.Sc	M.Sc	Ph.D (Geology)	4		3	01.11.2018	4316-150410 - 112951
9	G. Vani Sri	UG	Asst. Prof.	B.Tech.	M.Tech. (Structural Eng.)	-	6.6	-		01.10.2015	111504 06-141301
10	V. Goutham	UG	Asst. Prof.	B.Tech.	M.Tech. (Geomatics)	-	6.6	3.3		04.11.2015	2955-160111 - 105027
11	D. Kishorebabu	UG	Asst. Prof.	B.Tech.	M.Tech. (Structural Eng.)	-	3.6	1	-	10.11.2015	7283-150420 - 153354
12	B. Kowshik Reddy	UG	Asst. Prof.	B.Tech.	M.Tech. (Structural Eng.)	-	3.6	-	-	30.11.2015	5604-151217 - 133006
13	P. Supriya	UG	Asst. Prof.	B.Tech.	M.Tech. (Structural Eng.)	-	5.6			01.12.2015	361504 05-104651
14	D. Ramachander	UG	Asst. Prof.	B.Tech.	M.Tech. (Structural Eng.)	-	5.9	-	-	23.05.2016	6003-150419 - 120701
15	G. Raju	UG	Asst. Prof.	B.Tech.	M.Tech. (Transport Eng.)	-	5.5	-	-	26.05.2016	8061-150408 - 143108
16	G. Sampath Kumar	UG	Asst. Prof.	B.Tech.	M.Tech. (Structural Eng.)	-	5	-	-	30.05.2016	6677-150413 - 124546
17	D. Varun Kumar	UG	Asst. Prof.	B.Tech.	M.Tech. (SE)	-	2.6	-	-	22.11.2016	6856-161213 - 115333
18	V. Navaneetha	UG	Asst. Prof.	B.Tech.	M.Tech. (SE)	-	6	-	-	21.06.2017	761504 07-152104

19	D. Divya Vani	UG	Asst. Prof.	B.Tech.	M.E (SE)	-	3.6	-	-	23.06.2017	7806-150411-153341
20	K. Priyanka	UG	Asst. Prof.	B.Tech.	M.Tech. (SM&FE)	-	3.6	-	-	05.07.2017	9867-170912-144851
21	K. Divya	UG	Asst. Prof.	B.Tech.	ME(WR)	-	1	-	-	18.06.2018	6439-180804-141955
22	M. Srujan Kumar	UG	Asst. Prof.	B.Tech.	ME (TE)	-	3	-	-	15.11.2019	4145-160105-102008
Dept : B.Tech. (Civil Engineering -OTHERS)-UG											
23	G. R. Ravinder Reddy	UG	Professor	BE	ME	-	13	20	-	15.04.2015	3935-150414-144910

6.6. Department of Freshmen Engineering (FE)

Dept: FRESHMEN ENGINEERING - PHYSICS:-											
1	Dr. G Neeraja Rani	UG	Professor & HOD	B.Sc	M.Sc	Ph.D	24	-	6	11.06.2014	79150401-094455
2	Dr. J. Anjaiah	UG	Professor	B.Sc	M.Sc	Ph.D	20	-	-	01.10.2005	1666-150408-110342
3	Dr. J. Shankar	UG	Professor	B.Sc	M.Sc (Tech.)	Ph.D (Ferro electric glass ceramics)	17		4	01.06.2016	2164-160107-105632
4	Dr. B. Mamatha	UG	Assoc. Prof.	B.Sc	M.Sc	Ph.D	9	-	5	29.04.2016	9895-150426-153551
5	Dr. SK Mahammad Ali	UG	Assoc. Prof.	B.Sc	M.Sc	|Ph.D	20	-	4	01.08.2013	50150401-104829
6	Dr. P. Raju	UG	Assoc. Prof.	B. Sc	M.Sc	Ph.D	1	-	-	09.09.2017	7878-170912-145949
7	S. Rajesham	UG	Asst.Prof.	B.SC	M.Sc	-	13	-	-	12.08.2011	68150401-110844
8	Ch. Kalyani	UG	Asst. Prof.	B.Sc	M.Sc	-	11	-	-	01.08.2013	86150401-115402
9	V. Manjula	UG	Asst. Prof.	B.SC, B.Ed.	M.SC	-	11.6	-	-	26.09.2013	59150401-113548
10	T. V. Prashanthi	UG	Asst. Prof.	B.Sc, B.Ed	M.Sc	-	7.6	-	-	08.12.2014	83150401-112328

11	A. Shiva Kumar	UG	Asst. Prof.	B.Ed.	M.Sc	-	13	-	-	23.02.2016	9330-150414-163730
MATHEMATICS:-											
1	Dr. Vemula. Suseela Triveni	UG	Professor	B.Sc	M.Sc, M.Phil	Ph.D	22	-		30.06.2014	01150401-134903
2	Dr. K Venkateswarlu	UG	Assoc.Prof.	B.Sc	M.Sc	Ph.D	3	-	5	25.02.2016	1694-160225-153313
3	Dr. SK Nuslin Bibi	UG	Assoc.Prof.	B.Sc	M.Sc	Ph.D	13	-	-	01.07.2016	8206-161208-120958
4	Dr. Subhadra Nemani	UG	Assoc.Prof.	B.Sc, B.Ed	M.Sc, M.Ed. M.Phil	Ph.D	19	-	-	09.07.2007	98150401-144356
5	Dr. G.Mahesh	UG	Assoc.Prof.	B.Sc	M.Sc, M.Phil	Ph.D	12.6	8	-	01.08.2015	7876-151218-124012
6	N. Nagi Reddy	UG	Asst. Prof.	B.Sc	M.Sc	-	16.6	-	-	01.10.2005	91150401-145402
7	A. Ramesh	UG	Asst. Prof.	B.Sc, B.Ed	M.Sc	M.Phil	13	-	-	29.06.2012	07150401-141908
8	P Sailaja	UG	Asst. Prof.	B.Sc	M.Sc	-	11	-	-	20.06.2013	35150401-150239
9	K. Nagaraju	UG	Asst. Prof.	B.Sc	M.Sc	M.Phil	14	-	-	27.02.2016	5753-150414-173025
OTHERS : B. Tech. (UG)											
10	M. P. Molimol	UG Others	Asst. Prof.	B.Sc	M.Sc	-	7.4	-	-	02.02.2015	5725-150409-111134
11	S. Lalitha	UG Others	Asst. Prof.	B.Sc	M.Sc	M. Phil	25.6	-	-	14.12.2016	3750-150410-131655
12	G. Padma	UG	Asst. Prof.	B.Sc	M.Sc	-	14	-	-	29.08.2018	6639-180816-135013
ENGLISH:-											
1	Dr. A Uma Devi	UG	Professor	BA	MA, M.Phil	Ph.D	41	-	-	27.06.2016	9708-161209-103047
2	Prof.G. Karuna Kumari	UG	Professor	B.Sc, B.Ed	MA, M.Ed, PGDTE	NET qualified	37.6	-	-	15.09.2014	97150401-130043
3	Dr. B. Nagamani	UG	Assoc. Prof.	BA	MA	Ph.D	16.6	-	-	04.12.2013	58150401-124911
4	Dr. K. Madhumathi	UG	Assoc.Prof.	B.Sc.,	M.A. M.Phil	Ph.D	32	-	-	19.06.2014	46150401-123623
5	Dr. Swagata Ray	UG	Assoc.Prof.	BA	MA, M.Phil	Ph.D	2	-	4	01.06.2017	4682-170912-112956
6	P. Mercy Kavitha	UG	Assoc.Prof.	B.Com B.Ed	M.A	-	23.5	-	-	06.08.2007	76150401-121349

7	G. Latha Suhasini	UG	Asst Prof.	BA, B.Ed	MA	-	21	-	-	31.07.2015	90150331-131344
8	Sharmila Deshmukh	UG	Asst. Prof.	BA	MA, M.Phil	-	19	-	-	03.07.2017	3033-150422-151809
9	B. Vanaja Rani	UG	Asst.Prof.	B.SC	MA	-	13	-	-	01.07.2019	8095-150409-101718
10	Y Anil	UG	Asst.Prof.	B.Com, B.Ed	M.A	-	7	-	-	19.08.2019	1983-160127-115615
OTHERS : B. Tech. (UG)											
11	G. Sunil	UG Others	Asst. Prof.	BA, B.Ed	MA	-	7.6	-		19.10.2012	9157-150408-114007
CHEMISTRY:-											
1	Dr. R. Sanjeev	UG	Professor	B.Sc	M.Sc	Ph.D	15	6m	3	06.07.2016	6663-160226-123708
2	Dr. J. V. Madhuri	UG	Assoc. Professor	B.Sc	M.Sc	Ph.D	13	-	-	09.04.2015	6552-150408-173730
3	Dr. K.Shasikala	UG	Associate Professor	B.Sc	M.Sc	Ph.D	18	-	-	13.06.2012	54150402-101940
4	P. Sreedhar	UG	Asst.Prof	B.Ed	M.Sc.	-	16	-	-	29.07.2009	84150402-105725
5	M. Raju	UG	Asst. Prof.	B.Sc	M.Sc	-	7			20.10.2012	24150402-102903
6	K. Sudhakar	UG	Asst. Prof.	B.Sc	M.Sc (Chemistry)	-	9.6	-	-	04.09.2014	75150402-173219
7	M. Murali	UG	Asst. Prof.	B.Sc	M.Sc		6.6	-	-	28.11.2014	3623-150409-120904
8	K. Swarupa	UG	Asst. Prof.	B.Sc, B.Ed	M.Sc. (Che.)	-	10	-	-	08.12.2014	15150402-172252
9	ENVS Kishore	UG	Assoc. Director		M.Sc		-	-	-	11.06.2018	nil

6.7. Department of Master of Business Administration (MBA)-PG.

Dept:Master of Business Administration											
1	Dr. S T Raj Mohan	PG	Professor, Dean-Admin	BE	MA (Eng.), MBA	Ph.D (Busi. Man.)	7.6	36	-	02.09.2011	26150402-142054
2	Dr. A. Sita Madhavi	PG	Professor & HoD	B.Sc	MBA	Ph.D (Busi. Man)	18	-	-	28.05.2016	9270-151221-162216
3	Dr. J. Pardha Saradhi	PG	Professor	B.Com	MBA	Ph.D (Busi. Man.)	12.6	-	7	26.11.2015	78150405-203601
4	A.I.Prasanth	PG	Assoc.Prof	B.B.M	MBA	-	12	6	-	19.02.2007	62150402-172853

5	V. Sai Kishore	PG	Assoc. Prof.	BA	MBA (F&M)	-	12.5	9	1	07.06.2019	4101-180709-144822
6	APS Jyothi	PG	Asst.Prof.	B.Com	MBA	-	9.9	-	-	18.05.2011	50150402-135250
7	K. Naupal Reddy	PG	Asst. Prof.	B.Com	MBA	-	10		-	05.07.2012	15150402-124128
8	T. Abhilash	PG	Asst. Prof.	B.Tech.	MBA	-	5	-	-	13.04.2015	1130-150415-113155
9	R. N. Vardhini	PG	Asst. Prof.	B.SC	MBA	-	7.6	-	-	01.12.2017	37150404-223407
10	V. Naga Suhasini	PG	Asst. Prof.	B.Com	MBA	-	8	-	-	13.11.2019	7801-150427-092837
11	Shainaz Begum	PG	Asst.Prof.	BA	MBA	-	6	-	-	14.11.2019	71150403-122120
13	K. Shashanka	PG	Asst. Prof.	B.Tech.	MBA (Marketing)	-	7	-	-	18.11.2019	2503-191118-141559
Dept:MBA (Others)											
14	Ravi. Sampangi	UG	Asst. Prof.	B.Sc	MBA (HR)	-	7.6	1		01.12.2016	8334-161207-101607
15	G. Aruna	UG	Asst. Prof.	B.Sc	MBA (HR)	-	7.6	-	-	30.12.2016	5889-150413-113923
16	K. Vijaya lakshmi`	UG	Asst. Prof.	B.Sc	MBA (HR)	-	3.6	-	-	03.01.2017	15150402-153024
17	K. Lavanya	UG	Asst. Prof.	B.Com	MBA	-	9	-	-	10.03.2017	1547-150424-154558

VII. PROFILE OF DIRECTOR/PRINCIPAL WITH QUALIFICATIONS, TOTAL EXPERIENCE, AGE AND DURATION OF EMPLOYMENT AT THE INSTITUTE CONCERNED

Dr. Udaya Kumar Susarla

Principal, Geethanjali College of Engineering and Technology,
Formerly Principal, MVSR Engineering College, Nadergul, Hyderabad;
Formerly Deputy Director, SNIST;
Formerly Principal, Aurora's Engineering College, Bhongir**.**

Experience: Professional teaching experience of more than 34 years in New Zealand, Morocco, Ethiopia, and in India.

Qualifications:

- Doctor Philosophy (Computer Science and Engineering)**, Jawaharlal Nehru Technological University, Hyderabad.**

- Master of Technology (Hons.), Information Engineering, **Massey University, Palmerston North, New Zealand.**
- Master of Engineering (Electronics & Communication Engineering) **with specialization in** "Digital Systems"**, University College of Engineering, Osmania University, Hyderabad.**
- Bachelor of Engineering (Electronics & Communication Engineering), **University College of Engineering, Osmania University, Hyderabad.**
- Published **Fifty one** research papers in **International Refereed Journals**.

- ***Reviewer for the following International journals:***

  - "Journal of Information Privacy and Security", USA
  - *"International Journal of Network Security", Taiwan.*
  - *"IAENG International Journal of Computer Science", Hong Kong.*
  - *Indian Journal of Science and Technology, India.*
- Research interests include "Cryptography, Image Processing, Genetic Algorithms, and Digital Testing".
- Two Research Scholars submitted their Doctoral Thesis.
- Two Research Scholars are actively working towards their Doctoral Program
- Adjudged as the Best Teacher in SNIST on more than five occasions.
- Teaching interests include "Data Communications, Computer Networks, Cryptography, Network Security, Switching Theory, Digital System Design, Computer Architecture, Operating Systems, and Electronic Circuits".
- Master Trainer for NBA on the new Outcome Based Accreditation.

VIII. FEE

Fee approved by AFRC:-

- B.Tech. programme Rs. 1,02,000/-
- M.Tech. Programme Rs. 65,000/-
- MBA Programme Rs. 42,000/-

Time schedule for payment of fee for the entire programme.:- At the time of admission.

No. of Fee waivers granted with amount and name of students.:- NIL

Number of scholarship offered by the institute, duration and amount:-
Academic year 2018-19 merit scholarship of an amount Rs.10,000/- each is awarded for ___ students from B.Tech. (ECE, CSE, EEE, ME & CE) of I, II, III, IV Year and MBA students.

Criteria for fee waivers/scholarship : Not Applicable
Estimated cost of Boarding and Lodging in Hostels : No hostel facility

IX. ADMISSION

9.1 Number of seats sanctioned with the year of approval.

Sanctioned for the Academic year	Under Graduate (B.Tech.)						Post Graduate		
	CSE	ECE	EEE	IT	MECH	CIVIL	MCA	MBA	M.Tech
2005-06	60	60	60	60	-	-	-	-	-
2006-07	60	60	60	60	-	-		60	-
2007-08	120	120	60	60	-	-	60	60	-
2008-09	120	120	60	120	-	-	60	60	-
2009-10	120	120	60	120	-	-	60	60	-
2010-11	120	120	60	120	60	-	60	60	36
2011-12	120	120	60	120	60	-	60	60	54
2012-13	180	180	60	120	60	-	-	60	90
2013-14	240	240	60	120	120	-	-	60	150
2014-15	240	240	60	-	180	120	-	60	168
2015-16	240	240	60	-	120	120	-	60	96
2016-17	240	240	120	-	120	120	-	60	96
2017-18	240	240	120	-	120	120	-	60	30
2018-19	240	240	120	-	120	120	-	60	30
2019-20	240	240	120	-	120	120	-	60	30

9.2 Number of students admitted under various categories each year in B.Tech., MBA & MC A

COLLEGE IS ESTABLISHED DURING THE ACADEMIC YEAR 2005-06.

Year of Admission	CSE		ECE		EEE		IT		MECH.		CIVIL		MCA		MBA	
	CQ	MQ	CQ	MQ	CQ	MQ	CQ	MQ	CQ	MQ	CQ	MQ	CQ	MQ	CQ	MQ
2005-06	51	9	51	9	NIL		40	9					-	-	-	-
2006-07	48	12	48	12	47	12	48	12						12	47	12
2007-08	93	27	93	27	44	12	47	13					46	14	45	15
2008-09	90	30	90	30	45	15	90	30					44	16	45	15
2009-10	84	36	83	36	42	18	80	33					41	03	42	18
2010-11	84	36	84	36	42	18	83	36					34	02	41	18
2011-12	84	36	84	36	42	18	78	36	39	18			6	1	38	15
2012-13	122	52	126	54	42	13	82	34	41	17			-	-	38	7
2013-14	157	67	162	41	39	5	44	10	81	29			-	-	37	7
2014-15	161	71	163	71	33	07	-	-	64	30	59	17	-	-	35	18
2015-16	168	72	168	72	38	18	-	-	79	35	74	16	-	-	38	13
2016 -17	166	71	168	70	75	36	-	-	76	36	74	36	-	-	31	18
2017-18	168	71	166	72	73	35	-	-	81	36	83	36	-	-	42	18
2018-19	168	72	168	72	75	31	-	-	81	34	84	34	-	-	40	17
2019-20	168	72	168	72	73	13	42	18	66	14	69	22	-	-	42	18

9.3 Number of students admitted under various categories each year in M.Tech.

Year of Admission	ECE		ES		VLSI		CSE		CS		SE		MD		PE	
	CQ	MQ	CQ	MQ	CQ	MQ	CQ	MQ	CQ	MQ	CQ	MQ	CQ	MQ	CQ	MQ
2010-11	5	6	10	5	-	-	-	-	-	-	-	-	-	-	-	-
2011-12	7	-	11	5	-	-	12	6	-	-	-	-	-	-	-	-
2012-13	12	1	12	5	12	-	12	6	-	-	12	6	-	-	-	-
2013-14	13	3	19	8	13	5	21	2	13	-	11	-	12	1	-	-
2014-15	13	1	21	7	10	5	20	4	9	1	6	3	6	-	12	2
2015-16	-	-	8	1	5	-	12	3	-	-	-	-	-	-	8	1
2016-17	-	-	7	3	4	-	12	4	-	-	-	-	-	-	6	-
2017-18	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	-
2018-19	-	-	-	-	-	-	5	1	-	-	-	-	-	-	-	-
2019-20	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-

9.4 Number of applications received during last five years for admission under Management Quota and number admitted :–

Details	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
No. of applications received	342	350	405	215	225	265	270	259	223
No. of Admissions made	171	195	178	196	213	251	250	243	211

X. Admission Procedure

10.1 Name and address of the Test Agency and its URL (website) :-

Type of Test : EAMCET, ECET & ICET.
Test Agency : TELANGANA STATE COUNCIL OF HIGHER EDUCATION. URL : www.tsche.org

10.2 Number of seats allotted to different Test Qualified candidates separately [AIEEE/CET (State conducted test/University tests)/Association conducted test]

Details in section 9.2

10.3 Calendar for admission against management/vacant seats :-

70% Seats are allotted through the entrance exams conducted by the State Government i.e., EAMCET, ICET & ECET and the remaining 30% seats are allotted by Management base on the merit of the students applied for management quota seats.

TSCHE on behalf of state Government of Telangana decides the schedule for conducting entrance exam for convener quota seats and announces the calendar for management quota seats. The seats allotted by the Management are scrutinized and approved by TSCHE and JNTU.

XI. CRITERIA AND WEIGHTAGES FOR ADMISSION

As per the rank obtained in the EAMCET / ECET / ICET.

11.1 Minimum level of acceptance :

40 out of 160 marks in EAMCET conducted by State Government
60 out of 200 marks in ECET conducted by State Government
40 out of 160 marks in ICET conducted by State Government
This is amended time to time by the State Government.

In case of Management seats, the Government specified that the candidates shall qualify the EAMCET exam or obtain 50% marks in qualifying exam.

XII. APPLICATION FORM :- **Available in Website**

X.III. INFORMATION ON INFRASTRUCTURE AND OTHER RESOURCES AVAILABLE

13.1 LIBRARY :-

Number of Library books/Titles/Journals available (Programme-wise) for the AY 2019-20

Courses	No. of Titles	No of Volumes	Journals	
			National	International
CSE	1383	9163	26	--
ECE	1195	7691	27	---
EEE	859	3387	20	--
MECH	569	3226	17	3
CIVIL	298	2504	20	--
IT	780	3278	10	--
MBA	663	3987	19	6
M.Tech.-CSE	637	3441	6	6
Total	6370	36677	145	15

List of online National/International Journals subscribed. : -IEEE, Delnet, K.Hub, NLIST, Inventi & MAT, British Library Membership

E-Library facilities : Available

13.2 LABORATORY

For each Laboratory

List of Major Equipment / Facilities : ANNEXURE 1
List of Experimental Setup : ANNEXURE 2

13.4 COMPUTING FACILITIES :

Computer Facilities for the existing programme:

Particulars	Available	Specifications
No. of Computer terminals	1600	Computer Systems with i5/i3/Dual Core/Core2duo, 2GB/4GB/8GB/16GB RAM, 160GB/320GB/500GB/MB HDD
No. of terminals of LAN/WAN	95	Dlink/ Cisco/ Netgear
Relevant Legal Software	57	System Software - 17, Application Software-37
Peripheral(s) / Printers	84	Samsung/HP/Canon – Laserjet /Dot Matrix
Internet Accessibility (in mbps & hrs)	210 Mbps / 24hrs	D-Ios- 110 Act 100
Wi Fi connectivity to the campus	Yes	Reliance Jio

Major software packages available **:** Microsoft Academic Alliance Kit (Including all major OS), TURBO C++, MS-OFFICE TOOL KIT, RED HAT LINUX, JAVA, WIN 2007, 2010 MS VISUAL STUDIO

Special purpose facilities available **:** YES (E-CLASS ROOM)

13.5 WORKSHOP :

- Carpentry shop
- Fitting Shop
- House Wiring shop
- Metal forming shop

13.6 List of facilities available :-

Games and Sports Facilities :- Cricket, Volley Ball, Basket Ball, Carroms, Chess, Table Tennis etc.

Extra Curriculum Activities :- In addition to the academic activities such as mini projects, paper presentations, student seminars, number of other recreational activities are conducted through Fine Arts Club, Literary Club, Debating Club and Music Groups etc.,

Soft Skill Development Facilities: - **Soft Skills Centre**

About the centre:

The Centre for Soft Skills Development conducts activities to enhance leadership skills among the budding engineers. The activities are planned diligently to impart the much needed life skills. Students play and participate enthusiastically. The Centre plays a pivotal role in upskilling and reskilling. **'Enchanting Minds' a students' club was started under the aegis of the centre, which indeed is a notable achievement of the year 2018-2019.** Students conducted various activities both face to face and using technology.

ALFABETICA**2K19** as the name suggests is a conglomeration of various literary events that tests the creativity and oratory skills of the participants in addition to their knowledge in grammar and vocabulary. Five events were conducted in ELCS Lab, Block-II. All the events had three rounds. The five events conducted in succession are **Mind Crusadors, Alphagram, Know the Ropes, Puzzle Nintendo and Neogram.**

The event were planned and executed by the students with minimum guidance if required by the faculty coordinators allotted for each event. Prof. G. Karuna Kumari and Dr.J.V. Madhuri judged the events and finalized the winners. Every event was allotted 60 minutes and more than 50 students participated in every event. The events were interactive, enjoyable, and creative.

Dr. S. Mohnaraj, Retd. Professor, English and Foreign Languages University, Hyderabad explained the connection between numbers and alphabet with every day examples, with subtle humour. Dr. S. Mohanraj and Dr. G. Neeraja Rani, Convener, Head- Freshman Engineering Department congratulated all the participants and distributed prizes for the winners.

Skill Development Course-BEC:-

What is BEC?

BEC Course is a leading English language training course with a major footprint in imparting training of effective English Language Communication Skills on par with Cambridge University, U.K. We initiated this prestigious course in the year 2016. As a certified Examiner and Trainer from Cambridge University, U.K, the undersigned was entrusted with the responsibility of coordinator.

To state briefly, our college has tied-up with University of Cambridge ESOL Examinations as an authorized Examination center for the conduct of the BEC Exams. We make use of state-of-the-art training methodologies using concept based quality content teaching. We provide the training systematically. Students receive certificates, from University of Cambridge ESOL Examinations.

This Certificate Course has 3 levels of pass grades, Preliminary, Vantage and Higher Levels. All the levels are equal to IELTS bands.

Need for starting BEC:
We aim to bridge the gap that exists between the skill-set required by the corporate world and the skills acquired by the students through the regular course of study, thereby facilitating substantial improvement in the employability of the students.
We make use of state-of-the-art training methodologies using concept based quality content teaching. After rigorous training of 6 months, a final Examination in all the four Skills, (LSRW) is conducted by the Cambridge University Examiners. The evaluation is also done by the Cambridge University. Students would receive certificates from the University of Cambridge ESOL Examinations, a lifelong valid Certificate. The Centre for the Exam is our College. Our college was awarded the **"Cambridge English Exam Center of the year"** in the year 2016. This is an achievement by itself.

Name of the Coordinator: Ms. G.Karuna Kumari, Professor of English.

Incubation Center:

Geethanjali college of Engineering is a member of Ministry of human Resource Development's (MHRD), Govt. of India's Institution Innovation council (IIC) and takes part in Atal Ranking of Institutions on Innovation Achievements (ARIIA). It is proud to have achieved a star grading of three out of five stars competing with NITs and IITs in the rankings awarded by the council, by doing activities prescribed by IIC to promote Innovation and start-up ecosystem in campus.

The incubation center has organized workshops on 'Design Thinking' by resource person identified by Telangana Academy for Skill Development, government of Telangana on 9th July 2019 for students of freshman engineering and repeated the same again on 3rd Oct 2019 for students of second and third years.

Another workshop on 'enhancing all career paths with entrepreneurship abilities" was held for students on 6th Sept 2019 by industry expert.

A workshop on 'Humanoid robotics' dated 8-10th Sept by Edux Labs from Haryana gave insights to students of GCET on design aspects of Humanoid Robots.

A national level 36 hour Hackathon was held in association with JNTUH'S J-Hub on 5-6th Jan 2019, where 99 teams had registered online, which included registrations from Tamil Nadu -1, Karnataka – 1, Andhra Pradesh – 3 and 27 from other nearby colleges. However, there were 56 teams that actually turned up to the event, of which there were 22 teams from other colleges of the state which also included one college from out of the state - Tamil Nadu. A two day bootcamp workshops on Artificial Intelligence and Machine learning (AI-ML) and Internet of Things (IOTs) had helped students gain a competitive edge. Mr. Srinivas Pothapragada, serial entrepreneur and Venture Capitalist based in USA, graced the occasion as chief guest and opined that it is the person who has "identified a problem and proposes a solution" is the most important person in a society. Mentors and Judges from Engineering Staff College of India, Microsoft India, Wipro and Infosys motivated the students to take up Project based learning approach and distributed prizes to the winning teams.

13.8 Central Examination Facility, Number of rooms and capacity of each.

- 02 Drawing Hall of 60 capacity
- 59 Lecture halls with 60 capacity
- 05 Tutorials with 30 capacity.
- 04 Seminar halls.
- 04 Additional Workshops
- 02 Workshops
- 63 Laboratory
- 02 Language Laboratory
- 02 Research Laboratory

Number of Classrooms/Laboratory/Workshop and size of each:

S. No	Name of the Course	No. of Classroom/ laboratory / workshop	Total Area of lab/workshop Sq.m
1	ECE	Classrooms : 13	947
		Laboratory : 12	972
2	CSE	Classrooms : 13	951
		Laboratory : 13	906
3	EEE	Classrooms : 6	440
		Laboratory : 7	556
4	ME	Classrooms : 7	480
		Laboratory : 8	589
		Workshops : 2	469
5	CE	Classrooms : 7	476
		Laboratory : 8	739
6	IT	Classrooms :	
		Laboratory : 3	213
6	S & H	Classrooms : 16	1182
		Laboratory : 14	1097
7	MBA	Classrooms : 2	132
		Laboratory : 1	71

13.9 Teaching Learning process : The teacher learning process is effective as student centric methodology is being adopted. All the classrooms are provided with overhead projector facilities. Teachers are encouraged to use Audio Visual Aids so that the learning process is effective.

13.10 Curricula and syllabi for each of the programmes as approved by the University. : : being followed

13.11 Academic Calendar of the University **:** (ANNEXURE -3)
13.12 Academic Time Table **:** As suggested by JNTU
13.13 Teaching Load of each Faculty **:** The faculty is given the teaching load as per the norms prescribed by JNTU.
13.14 Students' assessment of Faculty, System in place. **:** Continuous Feed back is taken from the students periodically and faculty is advised to improve their performance to make the teaching – learning more effective

13.15 POST GRADUATE PROGRAMMES

Title of the programme : MBA & M.Tech.

List of typical research projects. **:**

Industry Linkage **:** SQL STAR, OSI-TECHNOLOGIES, Cordys, Sunmicrosystems.
Publications (if any) out of research in last three years out of masters projects **: NIL**

Admission procedure **:** Through convener, ICET/GATE
Fee Structure **:** will be updated soon for Convenor Quota & Management quota.
Title of the Programme **:** M.Tech
Curricula & Syllabi **:** Annexure
Faculty Profile **:** As in section **6.1** of this report
Hostel Facilities **:** not available.
Laboratory facilities exclusive

to the M.Tech Programme: Annexure

Contact address of co-ordinator of the PG programme

Name : Mr. V. Shivanarayana Reddy
Address : Associate Professor, GCET
Telephone : 9182058179
E-mail : info@gcet.edu.in

13.16. Placement Details: Annexure-4

ANNEXURE 1

ECE List of Major Equipment / Facilities :

ECE List of Major Equipment/Facilities :

S. No.	Dept	Name of the Laboratory	Total Area of Lab (Sq.m)	Name of the Equipment	Number Available
1.	ECE	MPMC Lab	66	Computer Systems	30

		(Room No. 101)		8086 Microprocessor Kits	18
				8051 Microcontroller Kits	18
				Interfacing Kits	16
				Keil Software	18
				CROs (0-20 MHz)	2
2.	ECE	Project Oriented Lab (Room No.102)	66	Computer Systems	15
				8051 Microcontroller kits	15
				ARM7 kits	3
				Arduino Kits	3
				Raspberry Pi Kits	3
				Node MCU Kits	3
				8086 Microprocessor Kits	15
				Interfacing Kits	16
				Keil Software	15
				CROs (0-20 MHz)	2
3.	ECE	Electronic Circuit Analysis and Design Lab/Analog Circuits Lab (Room No.105)	104	DC Regulated Power supply (0-30V)	12
				CROs (0-20 MHz)	12
				Function Generators (0-1 MHz)	12
				Power output meters	4
4.	ECE	Digital Design Lab (Duplicate) (Room No.113)	81.84	Digital IC Trainer Kits	12
				Function Generators (0-1 MHz)	5
				DC Regulated Power Supplies (0-5 V/0-12V/0-30V)	5
				CROs (0-20 MHz) dual channel / DSOs (0-50 MHz)	5
5.	ECE	Linear Integrated Circuits Lab (Room No.114)	105	IC Trainer Kits	12
				Function Generators (0-1 MHz)	12
				DC Regulated Power Supplies (0-5 V/0-12V/0-30V)	12
				CROs (0-20 MHz)	12
6.	ECE	Digital Design Lab (Room No.117)	80	Digital IC Trainer Kits	12
				Function Generators (0-1 MHz)	5
				DC Regulated Power Supplies (0-5 V/0-12V/0-30V)	5
				CROs (0-20 MHz) dual channel / DSOs (0-50 MHz)	5

7.	ECE	Analog Communications Lab/Digital Communications Lab (Room No.214)	104	RF Signal Generator (9KHz to 3 GHz)	1
				Spectrum Analyzer (9 KHz to 3 GHz)	1
				Digital Storage Oscilloscopes (0 to 50 MHZ)/(0-200 MHz)	13
				Function Generators(0-1 MHz)	12
				DC Regulated Power supply (0 - 30V)	2
				Communication Trainer kits	46
8.	ECE	Microwave & Digital Communications Lab (Room No.315)	104	Klystron/Gun Diode based Microwave Bench Setup	6
				DC Regulated Power supply (0 - 30V)	8
				Function Generators (0-1 MHz)/(0-10 MHz)	9
				CROs (0-20 MHz)/ DSOs (0-50 MHz)	6
				Digital Communication Trainer kits	20
9.	ECE	Embedded Systems Lab (Room No.316)	70	Computer Systems	30
				Keil µvision	30
				LPC 2148 Trainer Kits (along with sensors and actuators)	12
				Arduino Kits	3
				Raspberry Pi Kits	3
				Servo motors	3
				DC motors	3
10.	ECE	Signals and Systems Lab/Simulation Lab (Room No.317)	67	Computer Systems	30
				MATLAB/SCILAB/OCTAVE or Equivalent Software	30
11.	ECE	Digital Signal Processing Lab (Room No.318)	73	Computer systems	27
				MATLAB/SCILAB/OCTAVE or Equivalent Software	18
				CROs (0 - 20 MHz)/ DSOs (0-50MHz)	9
				Function Generators (0 - 1 MHz)	9
				TMS320C6713 DSP Processor Kits or equivalent with CC Studio	9
12.	ECE	Embedded Systems Lab	66	Computer Systems	30
				Keil µvision	30
				LPC 2148 Trainer Kits (along with sensors and actuators)	12

		(Duplicate) **(Room No.R305)**		**Arduino Kits**	**3**
				Raspberry Pi Kits	**3**
				Servo motors	**3**
				DC motors	**3**

CSE List of Major Equipment / Facilities :

Physical Lab Equipment Details 2020-21 UNDER CSE

Sl. No.	Department	Name of the Laboratory	Name of the Equipment Machinery	Room No.	Total Area of Lab (in Sq Mtrs)	Number Available
1	CSE	ADS Lab(AR18) / DAA Lab(AR18)	Computer Systems with gcc© compiler installed	201	68	30
2	CSE	OOPJ Lab(AR18) / DBMS Lab(AR18)	Computer Systems with Java Jdk , Eclipse IDE, MySql Installed	202	67	30
3	CSE	OS Lab(AR18) / COALP Lab(AR18)	Computer Systems with gcc© compiler, MASM Software installed	203	68	30
4	CSE	AI Lab(AR18) / WT Lab(AR18)	Computer Systems with Python, Prolog, Eclipse IDE and LAMP installed	204	68	30
5	CSE	IT Workshop(AR18) / SE Lab(AR18)	Computer Systems with Libre Office, Scilab and Star UML Installed	205	67	30
6	CSE	CN Lab (AR18)	Computer Systems with gcc© compiler, Packet Tracer and Network Simulator installed	301	68	30
7	CSE	CN Lab (AR18) - D	Computer Systems with gcc© compiler, Packet Tracer and Network Simulator installed	302	67	30
8	CSE	CN and CC Lab(AR16)	Computer Systems with gcc© compiler, Packet Tracer and Network Simulator, Open stack installed	303	68	30

9	CSE	CN and CC Lab(AR16)-D	Computer Systems with gcc© compiler, Packet Tracer and Network Simulator, Open stack installed	304	68	30
10	CSE	MAD and CD Lab(AR16)	Computer Systems with Android Studio and gcc© compiler installed	305 & 306	67	30
12	CSE	Advanced English Communications Skills Lab	Computer Systems with ACS Lab Software- V1.0 installed	115	68	30
13	CSE	Advanced English Communications Skills Lab	Computer Systems with ACS Lab Software- V1.0 installed	116	68	30
14	CSE	M.Tech Labs (AR18)	Computer Systems with gcc© compiler, Python IDLE, Wire Shark, JCrypt Tool, Arduino Studio, Raspberry Pi and Node MCU, R Studio, OpenMP and Pthread installed	N204A & 205	66	20
11	ECE	Android Lab(ECE)(AR16) / CN Lab (for ECE)(AR18)	Computer Systems with Android Studio, gcc© compiler, Packet Tracer and Network Simulator installed	R206	92	60
14	IT	ADS Lab(AR18) / DAA Lab(AR18)	Computer Systems with gcc© compiler installed	215, 216	68	30
15	IT	OOPJ Lab(AR18) / DBMS Lab(AR18)	Computer Systems with Java Jdk , Eclipse IDE, MySql Installed	217, 218	68	30
16	IT	Computing Lab(AR18) / OS and ALP Lab(AR18)	Computer Systems with Scilab and R Tool, gcc© compiler, MASM Software installed	219	77	30

EEE List of Major Equipment / Facilities :

S. No	Dept.	Name of the Laboratory	Name of the Equipment	Total Area of Lab/Workshop in Sq.mtrs	Number Available
1		Electrical Ciruits Lab / Network Theory Lab	RPS 0-30V/2A	66	6
2			Resistors-1k,1.5k,2.2kΩ		100
3			Single Phase Variac 230/0-270/10A		2
4			Single Phase		1

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			Transformer - 1kVA		
5			CRO (30MHz)		2
6			Loading Indcutor-50/100/150mH/5A		1
7			Capacitive Load 230V/10A		1
8			Function Generator - 1MHz		1
9			Computers		4
10			PSPICE Software		4 Users

11		Signals, Systems and Transform Techniques Lab	Computer Systems	66	24
12			Octave Software		24 Users
13		Electrical Machines – I Lab	DC Shunt Motor-Generator set	243	3
14			DC Shunt Motor		1
15			DC Shunt Motor with brake drum		1
16			DC Series motor coupled with DC Series Generator		1
17			DC Shunt Motor coupled with DC Compound Generator		1
18			DC Shunt Motor coupled with DC Series Generator		1
19			1 phase Transformer 3KVA		3
20			1 phase Transformer 1KVA		2
21			1 phase Transformer 2KVA		2
22			1-Ø Auto Transformer (0-270)V		4

23		Power Systems - II Lab	Equivalent circuit of a 3 Winding Transformer Set up	77	1

24			Sequence Impedances of a Cylindrical Rotor Synchronous Machine set up		1
25			Fault analysis of 3 phase Alternator set up		2
26			3 phase Transformer using sequence current excitation set up		1
27			COMPUTERS		6
28			MATLAB/SCILAB/ Equivalent Software		6USERS
29		Electrical Machines – II Lab	3-phase slipring induction motor with mechanical arrangement	243	2
30			3-phase SQIM motor with mechanical loading arrangement		1
31			Single phase induction motor with mechanical brake drum arrangement		2
32			DC Shunt motor coupled with three phase alternator		4
33			Three phase synchronous motor with mechanical loading arrangement		1
34			3 phase variac		3
35			3-phase Inductive Load		1

36		Control Systems Lab	Time response of Second order System - Study Unit	66	1
37			Study of Synchro transmitter and receiver Pair Kit		1
38			Transfer function of		1

			DC shunt motor kit		
39			Effect of P,PD,PI,PID controller on a second order system kit		1
40			Lead-LagCompensating networks Kit		1
41			Function Generator (1 MHz)		1
42			Digital Oscilloscope (50MHz)		2
43			Transfer function Study Module of DC generator		1
44			Temperature control using P,I,D ControllerKit		1
45			AC Servo motor Speed-Torque Study Unit		1
46			Computers		6
47			Software (MATLAB/SCILAB/ Equivalent software)		6

48		Power Electronics Lab	SCR, MOSFET & IGBT Characteristics Study Unit	101	1
49			Gate Firing Unit Kits for SCR's		1
50			Single Phase AC VoltageController		1
51			Single Phase Fully Controlled Bridge Converter Power and Firing Unit		1
52			DC Chopper Kit		1
53			Single Phase Inverter Kit		1
54			Single Phase Cyclo Converter Power and Firing Unit		1

55			Regulated Power Supply (0-30V/2A)		2
56			Cathode Ray Oscilloscope		4
57			Digital Storage Oscilloscope		2
58			Isolation transformer 1KVA		2
59			Computers		6
60			PSPICE/MATLAB/SCILAB/Equivalent Software		6 USERS

61		Power Systems Simulation and Drives lab	PMDC Motor	101	1
62			1 HP DC Motor		1
63			Three phase isolation transformers		2
64			Rheostat 100ohm/2A		1
65			Rheostat 150ohm/5A		1
66			Inductive load 150mH/5A		1
67			Tachometer		1
68			CRO(0-30MHz)		1
69			Single phase Isolation transformer		1
70			Regulated Power Supply(0-30V/2A)		1
71			3HP DC motor		1
72			0.5HP DCmotor		1
73			3-Phase slip ring induction motor		1
74			0.5HP Induction motor		1
75			IGBT 4-quadrant chopper drive for PMDC motor with closed loop control		1
76			Thyristorised drive for 1HP DC motor with closed loop control		1
77			Thyristorised drive for 3HP DC motor		1

			with closed loop control		
78			Three phase input IGBT based 4-quadrant chopper drive for DC motor with closed loop control-220V/0.5Hp		1
79			Speed control of 3-phase slip ring induction motor by static rotor resistance controller		1
80			Three Phase Variac (0-470V/8A)		2
81			Cyclo converter kit		1
82			Computers		6
83			MATLAB		6 Users
84		Basic Electrical Engineering Lab 1 and Lab 2	Verification of ohms law Trainer kit	102 & 78	1
85			KCL and KVL Trainer kit		1
86			Transient response of Series RL, RC Circuits using DC Excitation Trainer kit		1
87			Transient response of Series RLC Circuit using DC Excitation Trainer kit		1
88			Resonance in Series RLC circuit Trainer kit		1
89			CRO(30MHz)		2
90			Regulated Power Supply (0-30V/2A)		4
91			Function generators(1MHz)		2
92			DC Shunt motor set with brake drum arrangement		1
93			1-Ø transformers (2KVA)		2

94			1 ph. Variac(0-230V/0-270V), 10A		3
95			Resistive load bank		1
96			C-Load 230V/5A		1
97			Three Phase Transformer(600VA)		1
98			3-Phase Variac 0-470V/4A		1
99			Three Phase Induction Motor with BDA		1
100			Shunt Motor Coupled with Alternator		1

ME List of Major Equipment / Facilities :

Sl. No.	Department	Name of the Laboratory	Name of the Equipment/ Machinery	Total Area of lab/workshop (sq. m)	Number Available
1	ME	Engineering Workshop	Oil Fired Open Hearth Furnace	(260+209) 469	1
			Coal Fired Open Hearth Furnace		1
			Arc Welding M/C		2
			TIG Welding M/C		1
			Lathe M/C With All Accessories		2
			Power hack saw		1
			Drilling M/C		1
			Water Plasma Cutting M/C		1
1	ME	MMS Lab	Muffle Furnace	69	1
			Jominey End Quench Test		1
			Specimen Cutting Machine		1
			Specimen Mounting Press		1
			Belt Grinder		1
			Dual Disc polishing Machine		1
			Optical Microscopes		4
2	ME	MOS Lab	Hardness Testing Machine	116	1
			Universal Testing Machine		1
			Torsion Testing Machine		1
			Spring Testing Machine		1
			Izod and Charpy Impact Testing Machine		1
			Beams (Cantilever and Simply Supported)		2
3	ME	Fluid Mechanics and Hydraulic Machinery lab	Venturi Meter	208	1
			Orifice Meter		1
			Pipe Friction Apparatus		1
			Bernoulli's Apparatus		1
			Sudden Contraction in Pipe		1
			Impact of Jet on Vanes		1

			Pelton Turbine		1
			Francis Turbine		1
			Kaplan Turbine		1
			Single Stage Centrifugal Pump		1
			Multi Stage Centrifugal Pump		1
			Reciprocating Pump		1
4	ME	Thermal Engineering -Lab	Single Cylinder 4 Stroke Water Cooled Diesel Engine Cut Section Model (Valve Timing Diagram)	105	1
			Single Cylinder 2 Stroke Air Cooled Petrol Engine Cut Section Model (Port Timing Diagram)		1
			Multi Cylinder 4 Stroke Water Cooled Petrol Engine Test Rig		1
			Single Cylinder 2 Stroke Air Cooled Petrol Engine Test Rig with Motoring Test Setup		1
			Twin Cylinder 4 Stroke Water Cooled Diesel Engine Test Rig		1
			Single Cylinder 4 Stroke Air Cooled Petrol Engine Test Rig with Motoring Test Setup		1
			Variable Compression Ratio Test Rig		1
			Two Stage Reciprocating Intercooled Air Compressor Test Rig		1
			Old Engines for Assembly and Dis-assembly		3
			Boiler Models		2
5	ME	Production Technology -I Lab	Moulding Setup	200	1
			Sand Siever		1
			Universal Strength Machine		1
			Permeability Meter		1
			Arc Welding Machine		1
			Spot Welding Machine		1
			MIG Welding Machine		1
			TIG Welding Machine		1
			Water Plasma Welding Machine		1
			Brazing Setup		1
			Fly Press (with Press Tools)		1
			Hydraulic Press		1
			Injection Moulding Machine		1
			Blow Moulding Machine		1
			Open Hearth Furnace		1
			Wood Turning Lathe Machine		1
6	ME	Production Technology -II Lab.	Gear Tooth Vernier	200	1
			Lathe Machines		3
			Tool Maker's Microscope		1
			Bevel Protractor		1
			Sine Bar		1

			Slip Gauge set		1
			Spirit Level		1
			Surface Plate		1
			Tally-Surf (for surface finish)		1
			2-Wire and 3-Wire Test		1
			Drilling Machine		1
			Milling Machine		1
			Shaper		1
			Planing Machine		1
			Slotting Machine		1
			Cylindrical Grinder		1
			Surface Grinder		1
			Optical flat		1
			Dial gauge		4
			Tool and Cutter Grinder		1
7	ME	Kinematics and Dynamics Lab	**Demonstration Models**	77	
			Links-Binary Ternary and Quaternary link Different Kinematic pairs Drives- Belts, Ropes and Chains Slider crank mechanism model Reciprocating Engine Mechanism Oscillating cylinder Mechanism Whitworth Quick Return Mechanism Four bar link mechanism Scotch Yoke mechanism Crank and Slotted Lever Apparatus Belt Drive-Single Stage, Two Stage Belt Drive- Lose and Fast pulleys Plate cam with flat faced reciprocating follower Tangent cam with roller oscillating follower Cylindrical cam with translating follower Translating cam with reciprocating knife edge follower End Cam with translating follower Spur Gears-Single stage, Two stage Single stage bevel gear Single stage helical gear Single stage spiral gear Worm gear setup Gear Trains-Simple gear train, Compound gear train, Epicyclic gear train Cone or step pulley system		1 Each
			Universal vibration apparatus		1
			Static & Dynamics balancing apparatus		1
			Vibration measuring system		1
			Motorized gyroscope		1
			Field balancing of the thin rotors using		1

			vibration pickups.		
8	ME	Finite Element Analysis Lab	Computer Systems	69	24
			ANSYS (software)		24
9	ME	CAD/CAM Lab	Computer Systems	69	15
			AUTOCAD Software Education Version		15
			CNC Machines (XL-TURN & XL-MILL)		2
			Metrology Instruments for Quality and Inspection		3
10	ME	Facility design Lab	Production Route Sheets	69	2
			Flow Process Charts		2
			From-To Charts		2
			Computer Systems		24
			AUTOCAD Software Education Version		24
11	ME	Work Study Lab	Two Hand Process Charts	139	2
			Multiple Activity Charts		2
			Flow Process Charts		2
			Man-Machine Charts		2
			Stop Watches		10
			Drawing Tables		36
			Light Intensity Measuring Instrument		1
			Sound Measuring Instrument		1
			Motorised Treadmill		1
			Ambient Temperature Measuring Instrument		1
12	ME	Heat Transfer Lab	Composite Wall Apparatus	70	1
			Lagged Pipe Apparatus		1
			Concentric Spheres Apparatus		1
			Thermal Conductivity of Metal Rod		1
			Pin-Fin Apparatus		1
			Transient Heat Conduction Apparatus		1
			Forced Convection Apparatus		1
			Natural Convection Apparatus		1
			Parallel And Counter Flow Heat Exchanger		1
			Emissivity Apparatus		1
			Stefan Boltzmann Apparatus		1
			Critical Heat Flux Apparatus		1
			Heat Pipe Apparatus		1
			Film - Drop Wise Condensation Apparatus		1
13	ME	Digital Fabrication and Instrumentation Lab	Computer Systems	69	24
			CREO 3.0 (Software)		24
			3D PRINTER		1
			3D SCANNER		1
			Pressure Gauge Setup		1
			Transducer Module for Temperature Measurement		1

			LVDT Transducer		1
			Strain Gauge Module		1
			Thermocouple Module for Temperature Measurement		1
			Angle Measurement Module		1
			Photo and Magnetic Speed Pickup Module		1
			Resistance Temperature Detector Module		1
			Rota-meter Apparatus		1
			Seismic Pickup Apparatus		1
			McLeod Gauge Apparatus		1

CE List of Major Equipment / Facilities :

S.No of Lab	Dept.	Name of the laboratory	S.No of equip ment	Name of the Equipment / Machinery	Number Available	Total area of lab in (m^2)
1	Civil Engineering	Strength of Materials	1	Universal Testing Machine	1	117.3
			2	Hardness Testing Machine	1	
			3	Spring Testing Machine	1	
			4	Torsion Testing Machine	1	
			5	Impact Testing Machine	1	
			6	Electrical Resistance Strain Gauge	1	
			7	Simply supported beam setup	1	
			8	Maxwell Reciprocal Theorem - Beam Setup	1	
			9	Cantilever Beam Setup	1	
			10	Continuous beam setup	1	
			11	Compression Testing Machine	1	
2	Civil Engineering	Surveying	1	Chains	13	66.34
			2	Arrows	43	
			3	Tapes	10	
			4	Ranging rods	40	
			5	Cross staffs	5	
			6	Dumpy level	8	
			7	Levelling staff	8	
			8	Auto-level	3	
			9	Theodolite	7	
			10	Total station	5	
			11	GPS	4	
3	Civil	Hydraulics	1	Venturi meter & orifice	1	208.1

	Engineering	and Hydraulic Machinery		meter		
			2	Mouth piece and orifice plate	1	
			3	Triangular and rectangular notch set up	1	
			4	Friction factor apparatus	1	
			5	Sudden contraction app	1	
			6	Bernoulli's apparatus	1	
			7	Impact of jet app	1	
			8	Hydraulic jump setup	1	
			9	Pelton wheel turbine	1	
			10	Francis turbine	1	
			11	Kaplan turbine	1	
			12	Single stage centrifugal pump	1	
			13	Multi stage centrifugal pump	1	
			14	Reciprocating pump	1	
4	Civil Engineering	Engineering Geology	1	Mineral samples	50	
			2	Rock samples	45	
			3	Streak plate	20	
			4	Magnifying lens	20	
			5	Structural geological models	1	
			6	Pocket knife	15	71.1
			7	Clinometer compass	1	
			8	Electrical resistivity meter	1	
			9	Polarized petrological microscope	1	
			10	Geological maps	3	
			11	Topographical maps	3	
5	Civil Engineering	Geotechnical Engineering	1	Casagrande's liquid limit apparatus	1	
			2	Core cutter mould, measuring cylinder, receiver	1	
			3	Pyconometer	1	
			4	IS sieve set	1	
			5	Permeability mould	1	72.76
			6	Standard proctor mould with rammer	1	
			7	CBR Testing machine with 3 moulds	1	
			8	Consolidation test with single gang	1	
			9	Consolidation test with	1	

				three gang		
			10	Unconfined compression testing machine	1	
			11	Direct shear testing machine	1	
			12	Vane shear test apparatus	1	
			13	Tri-axial testing machine	1	
6	Civil Engineering	Concrete Technology	1	Vicat apparatus	5	121.59
			2	90 micron sieve	5	
			3	Specific gravity bottle and kerosene	10	
			4	Le chatlier apparatus and autoclave	1	
			5	Sieve set	1	
			6	Gradation chart	1	
			7	Length gauge and thickness gauge	1	
			8	Pyconometer bottle	10	
			9	Slump cone apparatus	3	
			10	Compaction test apparatus	1	
			11	Vee - bee consistometer	1	
			12	Flow table apparatus with slump cone	1	
			13	V funnel test apparatus	1	
			14	L Box test apparatus	1	
			15	Compressive testing machine	1	
			16	Cube moulds	25	
			17	Cylinder moulds	25	
			18	Flexure testing machine	1	
			19	Brazilian test apparatus	1	
			20	Strain gauges for CTM	1	
			21	Rebound hammer	1	
			22	Ultrasound concrete tester	1	
			23	Curing tank	1	
7	Civil Engineering	Transportation Engineering	1	Aggregate Impact Test setup	1	88.2
			2	Abrasion Test setup	1	
			3	Length Gauge	2	
			4	Thickness Gauge	2	
			5	Oven	1	
			6	Penetrometer	1	
			7	Ductility Test setup	1	
			8	Softening Point Test setup	1	
			9	Flash and Fire point test setup	1	

			10	Marshal Stability Testing Machine	1	
			11	Aggregate Crushing Value test setup	1	
			12	Specific gravity test setup	1	
			13	Aggregate sieve set	1	
			14	Compression Testing Machine	1	
8	Civil Engineering	Environmental Engineering	1	BOD Incubator	1	66.33
			2	COD Digestor	1	
			3	Micro balancer	1	
			4	Refrigerator	1	
			5	Hot air oven	1	
			6	Muffle Furnace	1	
			7	Titration equipment & Setup	20	
			8	pH meter	2	
			9	Turbidity meter	2	
			10	Electrical Conductivity meter	2	
			11	Dissolved Oxygen Analyser	2	
			12	Spectrophotometer	1	
			13	Jar Test Apparatus	1	
			14	Distilled Water Still	1	
9	Civil Engineering	Computer lab	1	Computer systems	72	70.32
			2	Software's (STAAD PRO, MX ROAD, AUTO CAD, GIS)	-	

FRESHMAN ENGINEERING List of Major Equipment / Facilities :

Signature of Authorized Signatory with date

Physics Lab-I

List of Major Equipment / Facilities : (ANNEXURE 1)

Sl. No.	Dept.	Name of the Laboratory	Name of the Equipment Machinery	Total Area of lab/workshop	Number Available
1	FE	Physics Lab-I	CRO'S	112sqm (R111)	2
2			Electromagnet setup, Digital power supply for electromagnets (0-60A, 60V), Digital Gauss meter, Constant Power supply, Hall crystals.		2
3			Photo sensitive device - Vacuum photo tube, Light source - 110 LED's with remote sensor, DC regulated power supply with 31/2 digit digital display, Digital ammeter(0-20μA)		2
4			Spectrometer		4
5			Travelling Microscope		4
6			Dual mode Regulated Power Supply(0-30v/2A)		4
7			LCR Board with Function Generator		4
8			Fiber optical kit		4
9			LASER Diode encapsulated 2mW, 650nm wavelength		4
10			LED &LASER Characteristics with Meters		2
11			Solar Cell Characteristics with Digital Meters and Power supply		2
12			Stewart and Gee's Method Kit		4

Physics Lab-II

List of Major Equipment / Facilities : (ANNEXURE 1)

Sl. No.	Dept.	Name of the Laboratory	Name of the Equipment Machinery	Total Area of lab/workshop	Number Available
1	FE	Physics Lab-II	CRO'S	113sqm (R213)	2
2			Electromagnet setup, Digital power supply for electromagnets (0-60A, 60V), Digital Gauss meter, Constant Power supply, Hall crystals.		2
3			Photo sensitive device - Vacuum photo tube, Light source - 110 LED's with remote sensor, DC regulated power supply with 31/2 digit digital display, Digital ammeter(0-20μA)		2
4			Spectrometer		4
5			Travelling Microscope		4
6			Dual mode Regulated Power Supply(0-30v/2A)		4
7			LCR Board with Function Generator		4
8			Fiber optical kit		4
9			LASER Diode encapsulated 2mW, 650nm wavelength		4
10			LED &LASER Characteristics with Meters		2
11			Solar Cell Characteristics with Digital Meters and Power supply		2
12			Stewart and Gee's Method Kit		3

Physics Lab-III

List of Major Equipment / Facilities : (ANNEXURE 1)

Sl. No.	Dept.	Name of the Laboratory	Name of the Equipment Machinery	Total Area of lab/workshop	Number Available
1			CRO'S		2

2	FE	Physics Lab-III	Electromagnet setup, Digital power supply for electromagnets (0-60A, 60V), Digital Gauss meter, Constant Power supply, Hall crystals.	74sqm (RG07)	2
3			Photo sensitive device - Vacuum photo tube, Light source - 110 LED's with remote sensor, DC regulated power supply with 31/2 digit digital display, Digital ammeter(0-20μA)		2
4			Dual mode Regulated Power Supply(0-30v/2A)		4
5			LCR Board with Function Generator		3
6			LASER Diode encapsulated 2mW, 650nm wavelength		3
7			LED &LASER Characteristics with Meters		2
8			Solar Cell Characteristics with Digital Meters and Power supply		2
9			Stewart and Gee's Method Kit		3
10			RC Circuit kit		3

Engineering Chemistry lab

1	Freshman Engineering	Engineering Chemistry lab I	Digital Balance	117 Sq. m	04
			Digital Conductometer		05
			Digital Potentiometer		05
			Hot Air Oven		01
			Water Distillation Set		01
2	Freshman Engineering	Engineering Chemistry lab II	Digital Balance	75 Sq. m	04
			Digital Conductometer		05
			Digital Potentiometer		05
			Hot Air Oven		01
			Water Distillation Set		01

ENGLISH LANGUAGE AND COMMUNICATION SKILLS LAB

B.Tech. I Year – I Sem (CSE, ECE, EEE & IT) Code: 18EN11L1
B.Tech. I Year – II Sem (CE & ME) Code: 18EN12LI

LIST OF MAJOR EQUIPMENT

S.no	Dept	Name of the laboratory	Name of the equipment	Total area of lab	Number available

1	Freshman Engineering	English Language and Communication Skills Laboratory	Camcorder	66 Sqm	1
2	Freshman Engineering	English Language and Communication Skills Laboratory	Master Console	66 Sqm	1
3	Freshman Engineering	English Language and Communication Skills Laboratory	Student Console - Learning Software (Soft X Technologies - ICS & CALL LAB)	66 Sqm	30
4	Freshman Engineering	English Language and Communication Skills Laboratory	Computers	66 Sqm	32
5	Freshman Engineering	English Language and Communication Skills Laboratory	Public Address System	66 Sqm	1
6	Freshman Engineering	English Language and Communication Skills Laboratory	Television	66 Sqm	1
7	Freshman Engineering	English Language and Communication Skills Laboratory	Projector	66 Sqm	1

Two more Labs (Lab 2 and Lab 3) are available with the same Major Equipment in both.

Computational Mathematics Lab

FE List of Major Equipment / Facilities:

S. No.	Dept.	Name of the Laboratory	Name of the Equipment Machinery	Total Area of lab/workshop (in sqmtrs)	Number Available
1	Freshman Engineering	Computational Mathematics Lab (R 304-A)	Computer Systems(HP, Assembled) with Ubuntu	66 Sqm	30
2	Freshman Engineering	Computational Mathematics Lab (R 304-B)	Computer Systems(HP, Assembled) with Ubuntu	66 Sqm	30
3	Freshman Engineering	Computer Programming Lab (R104)	Computer Systems with Ubuntu, GCC 4.1.X, Raptor 4.0.6	66 Sqm	30

4	Freshman Engineering	Computer Programming Lab (R105)	Computer Systems with Ubuntu, GCC 4.1.X, Raptor 4.0.6	66 Sqm	30
5	Freshman Engineering	Computer Programming Lab /ELCS Lab(R206)	Computer Systems	92 Sq m	63
			Platform Software windows		63
			Head Phones		61
			Student Console - Learning Software (K-Van Technologies -ICS & CALL LAB)		60

List of equipment required for Advanced English Communication Skills Lab
Course Code: 18EN31L1 (ECE/ME III-I) / 18EN32L1 (CSE/EEE/CE III-II)

S. No.	Department	Name of the Laboratory	Name of the Equipment	Total area of the Lab	Number Available
1.	Freshman Engineering	Advanced English Communication Skills Lab -I	Advanced Communication Skills Lab Software- V1.0	68 Sq.m.	30
			Computers		30
			Head Phones		30
			Television		1
2.	Freshman Engineering	Advanced English Communication Skills Lab -II	Advanced Communication Skills Lab Software- V1.0	68 Sq.m.	30
			Computers		30
			Head Phones		30
			Television		1
3.	Freshman Engineering	Advanced English Communication Skills Lab –I (Discussion Room)	Round Tables	122 sq.m.	15
			Digital camera		1
			LCD Projector		1
			Public Address System (Amplifire-1, Speakers-2, Microphone-1)		1
4.	Freshman Engineering	Advanced English Communication Skills Lab - II(Discussion Room)	Round Tables	122 sq.m.	15
			Digital camera		1
			LCD Projector		1
			Public Address System (Amplifire-1, Speakers-2, Microphone-1)		1

Signature of Authorized Signatory with date

MBA List of Major Equipment / Facilities :

Sl. No.	Dept.	Name of the Laboratory	Name of the Equipment Machinery	Total Area of lab/workshop	Number Available
1	MBA	Business Data analysis / Business Communication	PC	71 sq.m	36

Signature of Authorized Signatory with date

ANNEXURE 2

LIST OF EXPERIMENTAL SETUP:

B.Tech, ECE II Year, I Sem.

18EC21L1– Digital Design Lab

List of Experiments:

PART A: To Verify the Functionality of the following using digital IC trainer kits

1. Study the operation of the logic gates using ICs.
2. 4-bit Binary Adder (74283).
3. 8x1 Multiplexer (74151).
4. 3-8 Decoders (74138).
5. 4- Bit Comparator (7485)
6. 8 – 3 line Priority Encoder (74148)
7. Study the operation of Flip-Flops (D, JK) using ICs.
8. Binary Counter (7493).
9. Universal Shift Register (74194/195).

PART B: To design and implement the following logic circuits using ICs on the trainer kit.

1. 4 bit Adder cum Subtractor using Full Adders (74283)
2. BCD Adder using Full Adders (74283)
3. Full Adder and Full Subtractor using:
   a) 3 to 8 Decoder (74138), b) 4 to 1 Multiplexer(74153).
4. 4 Bit Binary to Gray and Gray to Binary code converters using XOR gates.
5. Decade Counter using a Binary counter (7493).
6. Digital Clock using Counters for Seconds/Minutes/Hours.
7. Design a 4 bit Ring Counter / Twisted Ring Counter using 4 bit Shift Registers (74194/74195) and using D-flip flops (7474).

Additional Experiments:

1. BCD to Excess-3 code converter using AOI logic.
2. 2 Bit comparator using gates.
3. BCD to 7-segment driver circuit.
4. Two bit carry lookahead adder using Full Adders.

Equipment required: 1. Digital IC trainer Kits 2. Components: 74XX ICs

18EC21L2- Electronic Circuit Analysis and Design Lab

LIST OF EXPERIMENTS: (A Minimum of **TEN** Experiments are to be conducted using hardware)

1. Design of single stage RC coupled BJT amplifier
2. Frequency response of two-stage RC coupled FET amplifier
3. Design of Voltage Series Feedback Amplifier
4. Frequency response of Current Series Feedback Amplifier
5. Design of Current Shunt Feedback Amplifier
6. Frequency response of Voltage Shunt Feedback Amplifier
7. Design of RC Phase Shift Oscillator using BJT

8. Design of Hartley Oscillator
9. Design of Colpitts Oscillator
10. Determining efficiency of Class A Power Amplifier
11. Determining efficiency of Class B Complementary- Symmetry Power Amplifier
12. Design of Single tuned amplifier.

Equipment required:

1. Regulated Power Supply (0-30V)
2. CROs (0-20 MHz / 40 MHz / 60 MHz)
3. Functions Generators (0 – 1MHz)
4. Multimeters/Voltmeters
5. Components (Resistors, Capacitors, Diodes, BJTs, FETs, UJTs)
6. Trainer kits/Bread Boards.
7. Power output meter.

18EC21L3 - Signals and Systems Lab

List of Experiments: (A minimum of 12 experiments are to be conducted**)**

1. Generation of Various Signals and Sequences (Periodic and Aperiodic), such as Unit Impulse, Unit Step, Square, Saw tooth, Triangular, Sinusoidal, Ramp and Sine.
2. Operations on Signals and Sequences such as Addition, Multiplication, Scaling, Shifting, Folding, Computation of Energy and Average Power.
3. Finding the Even and Odd parts of Signal/Sequence and Real and Imaginary parts of a complex Signal.
4. Verification of Gibbs Phenomenon.
5. Finding the Fourier Transform of a given signal and plotting its magnitude and phase spectrum.
6. Verification of Sampling theorem
7. Verification of Linearity and Time Invariance Properties of a given Continuous/Discrete System.
8. Convolution between a) Signals b) Sequences.
9. Auto and Cross Correlation of (i) Signals (ii) Sequences
10. Waveform Synthesis using Laplace Transform.
11. For the given LTI system, Computation of Unit sample, Unit step and Sinusoidal responses.
12. For an LTI System Locate the poles and zeros in s-plane and z-plane for a given Transfer Function.
13. Removal of noise by Autocorrelation/cross correlation.
14. Verification of physical Realizability and stability for the given LTI System.

Equipment required: 1. Computer Systems
2. SCILAB/OCTAVE or equivalent software.

B.Tech. ECE II Year, II Sem

18EC22L1- Analog Communications Lab

List of Experiments: (A minimum of 10 experiments are to be performed)

1. Amplitude Modulation and Demodulation
2. DSB-SC Modulation and Detector
3. SSB-SC Modulator and Detector
4. Frequency Modulation and Demodulation
5. Pre-emphasis and De-emphasis
6. Verification of Sampling Theorem
7. Time Division Multiplexing and De-multiplexing
8. Frequency Division Multiplexing and De-multiplexing
9. Pulse Amplitude Modulation and Demodulation
10. Pulse Width Modulation and Demodulation
11. Pulse Position Modulation and Demodulation
12. AGC Characteristics

Equipment required:

1. RPS (Regulated Power Supply) : 0-30V
2. CROs : 20MHz
3. DSOs : 50MHz
4. Function Generator : 0-1 MHz
5. Lab Trainer Kits(Minimum one of each type) for
   a. Amplitude Modulation and Demodulation
   b. Balance Modulator and Synchronous detector
   c. Single Side Band system
   d. Frequency Modulation and Demodulation
   e. Pre-emphasis and de-emphasis trainer
   f. Analog/digital Time Division Multiplexing and De multiplexing
   g. Frequency Division Multiplexing and De multiplexing
   h. Verification of Sampling Theorem
   i. Pulse Amplitude Modulation and demodulation
   j. Pulse Width Modulation and demodulation
   k. Pulse Position Modulation and demodulation
   l. AGC Characteristics

18EC22L2 – Linear Integrated Circuits Lab

List of Experiments: (**Minimum 10 experiments are to be conducted)**

Design and Verify the functionality of the following:

1. Summing and Difference Amplifier using OPAMP IC 741.
2. Integrator Circuit and Differentiator circuit using OPAMP IC 741.
3. Zero Crossing Detector and Schmitt Trigger Circuits – using IC 741.
4. Active Filters–1st order Butterworth Low Pass and High Pass Filters using OPAMP IC 741.
5. Waveform Generators using IC 741 – Sine and Square.
6. Monostable Multivibrator and Astable Multivibrator using IC 555.
7. Frequency Multiplier using PLL IC 565
8. Low and High Voltage Regulator using IC 723
9. R-2R ladder 3-bit DAC using IC 741
10. Positive and Negative Clipper Circuits using IC 741 and diodes
11. Half Wave and Full Wave Rectifier using IC 741 and diodes

12. Positive and Negative Clamper Circuits using IC 741 and diodes

Equipment required:

1. Regulated Power Supply (0-30V)
2. Cathode Ray Oscilloscope (20MHz)
3. Function Generators(1 MHz)
4. Multimeters/Voltmeters
5. Components
   a. ICs - 741, 555, 723, 565.
   b. Resistors, Capacitors, Diodes
   c. Breadboards

18EC22L3 - Simulation Lab

List of Experiments:

1. Find and plot the cumulative distribution and probability density functions of a random variable.
2. Finding the moments of a random variable.
3. Verification of central limit theorem
4. Checking the given random process for stationary.
5. Gaussian Random Process
6. Estimation of signal in the presence of noise
7. Verification of Weiner – Khinchine relation
8. Amplitude modulation (AM-DSBFC) and demodulation-study of magnitude spectrum
9. Amplitude modulation (AM-DSBSC) and demodulation-study of magnitude spectrum
10. Frequency modulation and demodulation-study of magnitude spectrum
11. Time division multiplexing and de-multiplexing
12. Pulse Amplitude Modulation
13. Pulse Width Modulation
14. Pulse Position Modulation

Equipment / Software required:

1. PCs
2. SCILAB / OCTAVE or equivalent software.

B.Tech, III Year, ECE, I Sem

18EC31L1 – Microprocessors and Microcontrollers Lab

List of Experiments:

Part A: 8086: Kit and/or MASM Programming (Minimum 4 experiments to be conducted)

1. Programs for 16 bit arithmetic operations (using various addressing modes)
2. Program for sorting an array
3. Program for searching for a number or character in a string
4. Program for String manipulations

5. Program to generate Fibonacci Series

Interfacing with 8086 Microprocessor: (Minimum 3 experiments to be conducted)

6. Interfacing ADC and DAC to8086.
7. Parallel communication between two microprocessors using8255.
8. Serial communication between two microprocessor kits using8251.
9. Verification of various modes of operation of8255.

Part B: (Minimum 5 experiments to be conducted)

8051: Kit and/or Keil Programming

10. Programming using arithmetic, logical and bit manipulation instructions of8051
11. Program and verify Timer/Counter in8051.
12. Program and verify interrupt handling in8051.
13. Verification of UART operation in8051.

Interfacing with 8051 Microcontroller

14. Communication between 8051 kit andPC.
15. Interfacing Keyboard/Display to8051.

Additional Experiments:

1. Interfacing LCD to8051.
2. Wave form generation using Keil.
3. Programs using DOS/BIOS interrupts.

Equipment Required:

1. 8086 Trainer Kits.
2. 8051 Trainer Kits.
3. Interface cards :
   a) 8 bit ADC &DAC,
   b) Experimental card for 8051,
   c) 8251/8253 study cards,
   d) Keyboard/Display,
   e) LCD Display,
   f) 8255 Study card

Software Required:

1. MASM
2. KeilµVision5

18EC31L2 - Digital Communications Lab

List of Experiments:

(At least 10 experiments are to be conducted. Experiments 11 and 12 are compulsory)

1. Pulse Code Modulation (PCM) - Generation and Detection
2. Differential Pulse Code Modulation (DPCM)- Generation and Detection
3. Delta Modulation and demodulation
4. Amplitude Shift Keying: Generation and Detection
5. Frequency shift keying-Generation and Detection
6. Phase Shift Keying-Generation and Detection
7. QAM : Generation and Detection
8. DPSK: Generation and Detection
9. QPSK: Generation and Detection

10. Study of the spectral characteristics of QPSK.
11. Study of Hamming Code – (7,4) bit Generation
12. OFDM Generation and Detection

Equipment required:

1. DSO (0-20 MHz minimum)
2. Function Generators (0.1Hz -1 MHz minimum)
3. Experimental Kits/Modules

18EC32L1 - Digital Signal Processing Lab

List of Experiments (Minimum 12 Experiments are to be conducted)

The programs shall be implemented employing MATLAB/SCILAB/OCTAVE/CC-Studio or Equivalent in software and DSP processor kits in hardware.

1. Generation of Sinusoidal waveform / signal based on recursive difference equations.
2. To find DFT / IDFT of given DT signal.
3. To find frequency response of a given system given in (Transfer Function/ Differential equation form).
4. Implementation of FFT of given sequence.
5. Determination of Power Spectrum of a given signal(s).
6. To obtain Linear Convolution of two finite length sequences.
7. Design and Implementation of LP FIR filters for given specifications.
8. Design and Implementation of HP FIR filters for given specifications.
9. Design and Implementation of LP IIR filters for given specifications.
10. Design and Implementation of HP IIR filters for given specification.
11. Implementation of Decimation Process.
12. Implementation of Interpolation Process.
13. Implementation of I/D sampling rate converters.
14. Impulse response of first order and second order systems.

Additional Experiments:

1. Generation of DTMF signals
2. Noise removal: Add white noise to a signal and study their spectral characteristics and then remove the noise.

Equipment/Software required:

1. PCs with MATLAB/SCILAB/OCTAVE/CC-Studio or Equivalent
2. DSP Processor kits.

18EC32L2 - Project Oriented Lab

List of Experiments: (At least 10 experiments are to be conducted)
(Two experiments from each category)

Using 8051

1. Efficient power saver for street lights using LDR with Solar Power.
2. Intelligent traffic signaling priority system for Ambulances and VIP vehicles.

Using ARM7

3. Voice controlled Robot.
4. Automatic Railway gate control system.

Using Arduino

5. Home appliances control using Bluetooth.
6. Automatic vehicle accident alert system using GSM.
7. Gas leakage detection and automatic control system.

Using Raspberry Pi

8. Image capturing using eye blink detection.
9. Alcohol detection and accident avoidance system.
10. Switching on lights based on human movement detection.

Using NodeMCU

11. Patient health monitoring using IoT.
12. Weather monitoring using IoT.

Equipment Required:

Computers: 15 Nos.
8051, ARM7, Arduino, Raspberry Pi and NodeMCU : 3 Kits each

IV Year B.Tech. ECE- I Semester

16EC41L1 - MICROWAVE ENGINEERING AND DIGITAL COMMUNICATIONS LAB

List of Experiments:

(At least 12 experiments are to be conducted in total. A minimum of SIX experiments have to be conducted from each part)

Part – A: Microwave Engineering Lab

1. Reflex Klystron Characteristics
2. Gunn Diode Characteristics
3. Directional Coupler Characteristics
4. VSWR Measurement
5. Measurement of Waveguide Parameters
6. Measurement of Impedance of a given Load
7. Measurement of Scattering parameters of a Magic Tee
8. Measurement of Scattering parameters of a Circulator
9. Attenuation Measurement
10. Microwave Frequency Measurement

Part – B: Digital Communication Lab

1. PCM Generation and Detection
2. Differential Pulse Code Modulation
3. Delta Modulation
4. Frequency shift keying: Generation and Detection
5. Phase Shift Keying: Generation and Detection
6. Amplitude Shift Keying: Generation and Detection
7. QAM : Generation and Detection

8. DPSK: Generation and Detection
9. QPSK: Generation and Detection
10. Study of the spectral characteristics of QPSK.

Equipments required

Part A: Microwave Engineering Lab:

1. Microwave Bench set up with Klystron Power Supply
2. Microwave Bench set up with Gunn Power Supply
3. Micro Ammeter
4. VSWR meter
5. Microwave components

Part B: Digital Communication Lab:

1. DSO(0-20 MHz)
2. Function Generators: 0-1 MHz
3. Experimental Kits/Modules

16EC41L2- EMBEDDED SYSTEMS LAB
(Soft Core Lab - II)

List of Experiments: (A minimum of 10 experiments are to be conducted and Experiments 11 and 12 are mandatory)

1. Programs for arithmetic and logical operations for LPC2148
2. Program for finding largest number in an array for LPC2148.
3. Program for finding LCM of two numbers for LPC2148.
4. Program to generate Fibonacci Series using LPC2148.
5. Program to generate Multiplication Table of a number using LPC2148.
6. LED Blinking using LPC2148.
7. Buzzer Interfacing with LPC2148.
8. LCD interfacing with LPC2148.
9. Interfacing ADC/DAC to LPC2148.
10. Interfacing of temperature sensor with LPC2148.
11. Servo motor interfacing with Arduino.
12. DC motor interfacing with Raspberry Pi.

Software Required:

1. Keil µvision-3
2. Flash Magic

Hardware required:

1. Computer Systems
2. LPC 2148 trainer kits (along with sensors and actuators)
3. Arduino Kits
4. Raspberry Pi kits
5. Servo motor

6. DC motor

➢ DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

18CS21L1-ADVANCED DATA STRUCTURES LAB

II Year. B.Tech. (CSE) – I Sem

L	T	P/D	C
-	-	2/-	1

Prerequisite(s): 18CS11L1 - PROGRAMMING FOR PROBLEM SOLVING LAB
18CS12L1 - DATA STRUCTURES LAB

Course Objectives:
Develop ability to

1. Understand the basic concepts of Abstract Data Types, Linear and Non Linear Data structures.
2. Identify the notations used to represent the Performance of algorithms.
3. Understand the behavior of data structures such as stacks, queues, trees, hash tables, search trees, Graphs and their representations.
4. Familiarize with various data structures for various applications.
5. Understand various searching and sorting algorithms.
6. Write programs in C to solve problems using data structures such as arrays, linked lists, stacks, queues, trees, graphs, hash tables and search trees.

Course Outcomes (COs):
After completion of the course, student would be able to

CO1. Explain the basic concepts of Abstract Data Types, Linear and Non Linear Data structures.
CO2. Calculate the performance of the different algorithms in terms of time and space.
CO3. Write programs in C for different data structures like stacks, queues, linked lists (singly and doubly).
CO4. Select appropriate data structure for a given problem.
CO5. Write C programs for various searching algorithms, sorting algorithms and non-linear data structures such as trees and graphs.

S.No.	Name of the Program
1	Write a C program for polynomial addition using linked lists
2	Write a C program that uses functions to perform the following: a) Create circularly linked lists b) Delete a given integer from the above linked list. c) Display the contents of the above list after deletion.
3	Write a C program that uses functions to perform the following: a) Create a doubly linked list of integers. b) Delete a given integer from the above doubly linked list. c) Display the contents of the above list after deletion
4	Write C programs to implement a Stack and Queue ADT using singly linked list.
5	Write a C program to implement the following by using stack a) Towers of Hanoi. b) Parenthesis Checker
6	Write a C program to implement Circular Queue
7	Write C programs to implement a double ended queue ADT using linked list.
8	Write a C program that uses functions to perform the following:

	i) Create a binary search tree of integers. ii) Traverse the above Binary search tree in in-order, pre-order, post-order.
9	Write C programs for implementing the following sorting methods to arrange a list of integers in ascending order: a) Quick sort b) Merge Sort
10	Write C programs for implementing the following sorting methods to arrange a list of integers in ascending order: a) Heap Sort b) Radix Sort
11	Write a C program to perform the following operation: a) Insertion into a B-tree. b) Searching a B-Tree
12	Write C programs for implementing the following graph traversal algorithms: a) Depth first traversal b) Breadth first traversal
13	Write a C program to implement all the functions of a dictionary (ADT) using hashing
14	Write a C program for pattern matching algorithm (KMP).

18CS21L2-INFORMATION TECHNOLOGY WORKSHOP

II Year. B.Tech. (CSE) – I Sem

L	T	P/D	C
-	-	2/-	1

Prerequisite(s): None

Course Objectives:
Develop ability to

1. Understand evolution of computers, storage devices, networking devices, transmission media and peripherals of a computer along with assembling and disassembling processes of various components of a computer
2. Understand various features of Windows and Linux operating systems along with hardware and software trouble shooting processes.
3. Understand the terminology, features and usage of internet, hyper textmarkup language, word processor, spread sheet, presentation and data storage tools.
4. Understand terminology and operations of propositional calculus.
5. Understand terminology, properties and operations of sets, relations and functions.

Course Outcomes(COs):
After completion of the course, student would be able to

CO1. Describe evolution of computers, storage devices, networking devices, transmission media and peripherals of a computer perform assembling and disassembling of various components of a computer.
CO2. Describe and perform installation and un-installation of Windows and Linux operating systems and also perform troubleshooting of various hardware and software components.
CO3. Use word processor, spread sheet, presentation and data storage tools.
CO4. Compute truth value of propositions and demonstrate logical connectives of propositional calculus using Scilab tool.
CO5. Use Scilab tool to define and demonstrate operations on sets, relations.

PART-A

Task 1: Different generations of computers, computing environments, Identify the peripherals of a computer, components in CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral.

Task 2: Identification of the peripherals of a computer. To prepare a report containing the block diagram of the CPU along with the configuration of each peripheral and its functions. Description of various I/O Devices.

Task 3: A practice on disassembling the components of a PC and assembling them to back to working condition

Task 4: Identification of the various similarities and dissimilarities in the features of Windows and Linux Operating Systems.

Task 5: Introduction to Memory and Storage Devices , I/O Port, Device Drivers, Assemblers, Compilers, Interpreters , Linkers, Loaders.

Task 6: Hardware Troubleshooting (Demonstration): Identification of a problem and fixing a defective PC(improper assembly or defective peripherals).

Task 7: Software Troubleshooting (Demonstration):. Identification of a problem and fixing the PC for any software issues Internet & Networking Infrastructure

Task 8: Identification of various Networking Devices and Transmission Media highlighting their importance.

Task 9: Configuring the network settings to connect to the Internet. Use various web browser settings. Creating Basic, Static Web Pages using HTML.

Task 10: Use Word Processor Software Tool, Spread Sheet Software Tool, Presentation Tool, Data Storage Tool(All are from Libre Office suite)

PART-B

Discrete Mathematics Exercises using Scilab:

1. Write a program to find the truth value of propositions.
2. Write a program to demonstrate the logical connectives.
3. Write a program to check whether the given compound proposition is the tautology.
4. Write a program to demonstrate the power set.
5. Write a program to demonstrate the properties of relations.
6. Write a program to demonstrate the sum rule principle and product rule principle.

18CS21L3-OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB

II Year. B.Tech. (CSE) – I Sem

L	T	P/D	C
-	-	2/-	1

Prerequisite(s): 18CS11L1 - PROGRAMMING FOR PROBLEM SOLVING LAB
18CS12L1 - DATA STRUCTURES LAB

Course Objectives:
Develop ability to

1. Understand basic concepts of object oriented programming.
2. Understand the primitive data types built into the Java language and features of strongly typed language.
3. Learn scope, lifetime, and the initialization mechanism of variables and parameter passing mechanisms.
4. Write simple graphics programs involving drawing of basic shapes.
5. Create Graphical User Interfaces by means of Java Programming Language.

Course Outcomes (COs):
After completion of the course, student would be able to

CO1. Use concepts of OOPs such as data abstraction, inheritance, polymorphism, encapsulation and method overloading principles in structuring computer applications for solving problems.
CO2. Identify classes, objects, members of a class and relationships among them needed for a specific problem.
CO3. Use Java Collection of Application Programming Interface (API) as well as the Java standard class library with necessary exception handling mechanisms in constructing computer applications.
CO4. Develop java programs using multi-threading, files and database concepts and their connectivity.
CO5. Design and develop Graphical User Interface applications using Abstract Window Toolkit (AWT), Swings and Applets.

Week 1 :(Basic programs to get used to java syntax) Write a Java program to

a. print the Fibonacci series upto the given number.
b. write a Java program to print the reverse of the given number
c. write a Java program to find factorial of the given number at command line.
d. write a Java program that prompts the user for an integer and then prints out all prime numbers up to that integer

Week 2:Write a Java program to

a. check whether a given string is a palindrome or not. Ex: MADAM is a palindrome.
b. sort a given list of names in ascending order.
c. find frequency count of words in a given text.

Week 3:Write a java program to

a. illustrate creation of classes and objects

b. illustrate constructor and method overloading
c. create a stack ADT

Week 4

a. implement diiferent types of inheritance
b. illustrate method overriding and Dynamic method dispatch
c. illustrate static keyword with variables and methods

Week 5

a. Create an interface for stack of integers with abstract methods push, pop and display. Write an implementation of the above mentioned abstract methods for a fixed size stack and a dynamic size stack.
b. illustrate inner classes
c. illustrate creation and importing the packages

Week 6 Write a java program to

a. illustrate usage of try, catch, finally with multiple exceptions
b. create user defined exceptions.

Week 7

a. Write a java program that implements a multi-thread applications that has three threads. First thread generates random integer every 1 second and if the value is even, second thread computes the square of the number and prints. If the value is odd, the thread will print the value of the number.
b. create a thread by implementing Runnable interface.
c. implement producer consumer problem using the concept of inter thread communication.

Week 8

a. Develop an applet that displays a simple message.
b. Develop an applet that receives an integer in one text field, and computes its factorial Value and returns it in another text field, when the button named “Compute” is clicked.
c. c)Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the+, -,*, % operations. Add a text field to display the result.

Week 9

a. Write a java program that handles all mouse events and shows the event name at the center of the window when a mouse event is fired .
b. Applet handle a keyboard event for a name textbox to accept only alphabets (skip off any other characters)

Week 10

a. Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the text fields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result field when the Divide button is clicked. If Num1 or Num2 were not an integer, the program would throw a NumberFormatException. If Num2 were Zero, the program would throw an ArithmeticException Display the exception in a message dialog box.

b. Applet that depicts a login page.

Week 11

a. Write a java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow,or green. When a radio button is selected, the light is turned on, and only one light can be on at a time No light is on when the program starts.
b. Write a Java program that allows the user to draw lines, rectangles and ovals.
c. Applet which displays current date and time every second using Thread and Calendar class

Week 12

a. Write a java program to create an abstract class named Shape that contains an empty method named numberOfSides( ).Provide three classes named Trapezoid, Triangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method numberOfSides( ) that shows the number of sides in the given geometrical figures.
b. Suppose that a table named Table.txt is stored in a text file. The first line in the file is the header, and the remaining lines correspond to rows in the table. The elements are separated by commas. Write a java program to display the table using Jtable component.

Week 13

a. Write a java Program that loads names and phone numbers from a text file where the data is organized as one line per record and each filed in a record are separated by a tab (\t). It takes a name or phone number as input and prints the corresponding other value from the hash table (hint: use hash tables).
b. Implement the above program with database instead of a text file.

Week 14

a. Write a java Program that takes tab separated data (one record per line) from a text file and inserts them into a database.
b. Write a java program that prints the meta-data of a given table.

Week 15

a. Write a java program that connects to a database using JDBC and does add,delete, modify and retrieve operations.
b. An applet to check for a valid user id and password using the data in table users(user_id, password)

18CS22L1 - DESIGN AND ANALYSIS OF ALGORITHMS LAB

II Year. B.Tech. (CSE) – II Sem

L	T	P/D	C
-	-	2/-	1

Prerequisite(s):

- 18CS11L1 - PROGRAMMING FOR PROBLEM SOLVING LAB
- 18CS12L1 - DATA STRUCTURES LAB
- 18CS21L1 - ADVANCED DATA STRUCTURES LAB

Course Objectives:

Develop ability to

1. Realize the asymptotic performance of algorithms.
2. Understand the behavior of Greedy strategy, Divide and Conquer approach, Dynamic Programming and branch and bound theory for several problem solving techniques.
3. Understand how the choice of data structures and algorithm design methods impact the performance of programs.
4. Distinguish deterministic and non-deterministic algorithms and their computational complexities.

Course Outcomes(COs):

After completion of the course, student would be able to

CO1. Analyze algorithms and estimate their best-case, worst-case and average-case behavior in terms of time and space and execute the same through programming.

CO2. Identify suitable problem solving technique for a given problem and design algorithms using greedy strategy, divide and conquer approach, dynamic programming, and branch and bound theory accordingly and execute the same through programming.

CO3. Implement algorithm using appropriate data structures using programming.

CO4. Design deterministic and non-deterministic algorithms for tractable and intractable problems

CO5. Categorize the given problems as P Class/ NP Class/ NP-Hard/NP-complete problems accordingly.

List of Experiments

1. Sort a given set of elements using the Quick sort method and determine the time required to sort the elements. Repeat the experiment for different values of n, the number of elements in the list to be sorted and plot a graph of the time taken versus n. The elements can be read from a file or can be generated using the random number generator.

2. Using Open MPI, implement a parallelized Merge Sort algorithm to sort a given set of elements and determine the time required to sort the elements. Repeat the experiment for different values of n, the number of elements in the list to be sorted and plot a graph of the time taken versus n. The elements can be read from a file or can be generated using the random number generator.

3. Implement Binary tree traversal techniques using recursion and without recursion. Identify the best method, Justify your answer.

4. a. Print all the nodes reachable from a given starting node in a digraph using BFS method.

b. Check whether a given graph is connected or not using DFS method.

5. Write and implement an algorithm determining articulation points and the biconnected components in the given graph.

6. Implement an algorithm to find the minimum cost spanning tree using
i) Prims algorithm ii) Kruskals Algorithm

7. From a given vertex in a weighted connected graph, find shortest paths to other vertices using Dijikstra‟s algorithm.

8. Implement Job Sequencing with Deadlines algorithm and Fast Job Sequencing with Deadlines.

9. Implement Marix Chain multiplication algorithm. Parallelize this algorithm, implement it using Open and determine the speed-up achieved.

10. Implement 0/1 Knapsack problem using Dynamic Programming.

11. Implement an algorithm to find the optimal binary search tree for the given list of identifiers.

12. Find a subset of a given set S = {sl,s2,.....,sn} of n positive integers whose sum is equal to a given positive integer d. For example, if S= {1, 2, 5, 6, 8} and d = 9 there are two solutions{1,2,6}and{1,8}.A suitable message is to be displayed if the given problem instance doesn't have a solution.

13. Implement N Queen's problem using Back Tracking.

14. Write a program for Hamiltonian Cycle Problem

15. Implement the solution for TSP problem using Branch & Bound technique

18CS22L2 - COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING LAB

L	T	P/D	C
-	-	2/-	1

II Year. B.Tech. (CSE) – II Sem

Prerequisite(s): None

Course Objectives:

Develop ability to

1. Understand computer components in general and in particular Von Neumann Architecture and their functionalities.
2. Understand the data representation (2's complement, floating point) inside the processor, and perform arithmetic operations on them.
3. Understand the rationale behind memory organization, storage, I/O, and know how cache operates.
4. Understand 8086 processor architecture and its organization: pin diagram, different types of registers, addressing modes and data transfer.
5. Illustrate computer organization concepts by Assembly Language programming, structure of assembly language program and function call mechanisms.

Course Outcomes(COs):

After completion of the course, student would be able to

CO1. Explain various computer abstract levels and functions of computer hardware components and concept of stored program organization.

CO2. Identify different hardware components associated with the memory organization of a computer.

CO3. Recommend instruction formats, addressing modes, interrupts, I/O and Memory buses, Isolated and Memory mapped I/O.

CO4. Recommend mode of asynchronous serial data transfer using an interface (UART).

CO5. Design and implement simple systems using 8086 processor with the knowledge of pin diagram, registers and instruction formats of 8086 processor by writing assembly language programs.

List of Experiments

1. Write a program to display string "Computer Science and Engineering" for 8086.
2. Write an ALP to find the maximum of three numbers for 8086.
3. Write an ALP to find the minimum of three numbers for 8086.
4. Write an ALP to find the average of four numbers for 8086.
5. Write an ALP to find the factorial of a number for 8086.
6. Write an ALP to take n values from user and calculate their sum for 8086.
7. Write an ALP to take n values from user and calculate maximum & minimum values for 8086.
8. Write 8086 ALP to transfer a block of data from one location to another.
9. Write an ALP to reverse the given string for 8086.
10. Write an ALP to take n values from user and sort them in ascending order for 8086.

18CS22L3 - DATABASE MANAGEMENT SYSTEMS LAB

II Year. B.Tech. (CSE) – II Sem

L	T	P/D	C
-	-	2/-	1

Prerequisite(s): None

Course Objectives:
Develop ability to

1. Learn and practice data modeling using entity-relationship and develop database design.
2. Understand the features of database management systems and Relational database.
3. Understand Structured Query Language (SQL) and learn SQL syntax.
4. Understand normalization process of a logical data model and correct any anomalies.
5. Understand needs of database processing and learn techniques for controlling the consequences of concurrent data access.

Course Outcomes(COs):
After completion of the course, student would be able to

CO1. Differentiate DBMS from traditional data storage mechanisms.
CO2. Design and describe data models and schemas in DBMS.
CO3. Use SQL- the standard language of relational databases, for database processing.
CO4. Design a normalized database resolving various problems like redundant and functional dependencies.
CO5. Implement Transaction and Query processing techniques for data storage and retrieval.

List of Experiments

1. E-R Model: Analyze the problem with the entities which identify data persisted in the database which contains entities, attributes.

2. Concept design with E-R Model: Apply cardinalities for each relationship, identify strong entities and weak entities for relationships like generalization, aggregation, specialization.

3. Relation Model: Represent attributes as columns in tables and different types of attributes like Composite, Multi-valued, and Derived. Apply Normalization.

4. Installation of Mysql and Queries using DATA DEFINITION LANGUAGE (DDL) COMMANDS - Create, Alter, Drop, Truncate

5. Data Manipulation Language (DML) COMMANDS:- SELECT, INSERT, UPDATE, DELETE

6. Data Control Language (DCL):- GRANT, REVOKE
   Transaction Control Language (TCL) COMMANDS :- COMMIT , ROLL BACK SAVE POINT

7. In Built Functions: - DATE FUNCTION, NUMERICAL FUNCTIONS , CHARACTER FUNCTIONS, CONVERSION FUNCTION

8. Querying: Queries using ANY, ALL, IN, INTERSECT, UNION

9. Querying: Using aggregate functions COUNT, SUM using GROUPBY and HAVING
    a. Using aggregate functions AVERAGE using GROUPBY and HAVING

10. Querying: NESTED QUERIES AND JOIN QUERIES: Nested Queries , Correlated sub queries , Simple Join, a) Equi-join b) Non Equi-join , Self join , Outer Join

11. Set Operators: Union , Union all , Intersect , Minus

12. Views: Creating and dropping view

13. Triggers: Creation of INSERT TRIGGER, DELETE TRIGGER, UPDATE TRIGGER

14. Procedures: Creation, Execution and Modification of stored Procedure

15. Database Design and Implementation: MINI DATABASE PROJECT

18CS31L1 – OPERATING SYSTEMS LAB

III Year. B.Tech. (CSE) – I Sem

L	T	P/D	C
-	-	2/-	1

Prerequisite(s):

- 18CS11L1 - Programming for Problem Solving Lab

Course Objectives:

Develop ability to

1. Analyze the main components of Operating System (OS) and their working.
2. Introduce the different scheduling policies of OS.
3. State and compare the different memory management techniques.
4. Understand the concepts of input/output, storage and file management.
5. Understand the concepts of Deadlocks and access control methods.

Course Outcomes (COs):

At the end of the course, student would be able to

CO1: Compare synchronous and asynchronous communication mechanisms in their respective Operating Systems.
CO2: Implement CPU Scheduling algorithms and explain turnaround time, waiting time, response time, and throughput for a given set of processes.
CO3: Apply optimization techniques in memory management techniques and analyze them.
CO4: Explain the concepts of input/output, storage and file management
CO5: Demonstrate the concepts of Deadlocks and access control methods.

List of Programs:

Week 1. Practice various Vi Editor Commands under UNIX environment.

Week 2.

a. Write a shell script that accepts a file name, starting and ending line numbers as arguments and displays all the lines between the given line numbers.
b. Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.

Week 3.

a. Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.

b. Write a shell script that receives any number of file names as arguments checks if every argument supplied is a file or a directory and reports accordingly. Whenever the argument is a file, the number of lines on it is also reported.

Week 4&5. Simulate the following CPU scheduling algorithms

a. First Come First Serve (FCFS)
b. Shortest Job First (SJF)
c. Priority
d. Round Robin

Week 6.

a. Simulate Multiprogramming with Variable number of Tasks (MVT)
b. Simulate Multiprogramming with Fixed number of Tasks (MFT)

Week 7&8. Simulate all page replacement algorithms

a. First In First Out (FIFO)
b. OPTIMAL
c. Least Recently Used (LRU)

Week 9. Simulate all File Organization Techniques

a. Single level directory
b. Two level
c. Hierarchical

Week 10&11. Simulate all File allocation strategies

a. Sequential
b. Indexed
c. Linked

Week 12. Simulate Bankers Algorithm for Dead Lock Avoidance

18CS31L2 – COMPUTER NETWORKS LAB

III Year. B.Tech. (CSE) – I Sem

L	T	P/D	C
-	-	2/-	1

Prerequisite(s):

- 18CS11L1 - Programming for Problem Solving Lab
- 18CS21L3 - Object Oriented Programming through JAVA Lab

Course Objectives:

Develop ability to

1. Develop an understanding of modern network architectures from a design and performance perspective.
2. Understand the protocols of data link layer and MAC sub layer and apply different techniques of error detection and error correction.
3. Distinguish and explain different network layer protocols and routing algorithms.
4. Describe the functions of TCP and UDP protocols.
5. Illustrate the application layer protocols such as HTTP, FTP, SMTP, DNS and TELNET.

Course Outcomes (COs):

After completion of the course, student would be able to

CO1: Identify the different types of network topologies, protocols and explain the layers of the OSI and TCP/IP model.

CO2: Design a wide area networks (WANs), local area networks (LANs) and wireless LANs (WLANs) for a given requirement (small scale) based on the market available components and describe the protocols of data link layer and MAC Sub layer.

CO3: Classify and compare the major routing protocols and congestion control algorithms.

CO4: Develop a program for a given problem related to TCP/IP and UDP protocols using network programming.

CO5: Analyze the application layer protocols using open source available software and tools.

List of Exercises:

Week 1. Study of different types of Network cables and practically implement the cross-wired cableand straight through cable using Crimping tool.

Week 2. Study of different Network devices, IP in details.

Week 3. Connect the computers in LAN, Study of basic network commands and network configuration commands.

Week 4. Study of Network simulator tool and implement IP Address configuration in Network simulator tool.

Week 5. Configure different network topologies using packet tracer/Network Simulator tool.

Week 6.

a. Write a program toimplement the Data link layer framing methods such as character stuffing and bit stuffing.
b. Write a program to simulate Stop and wait protocol and Sliding Window Protocols.

Week 7. Write a program to implement on a data set of characters using the three Cyclic Redundancy Check Polynomials – CRC 12, CRC 16 and CRC-CCIP.

Week 8. Write a program to simulate Carrier Sense Multiple Access/Collision Detection (CSMA/CD) and Carrier Sense Multiple Access/Collision Avoidance (CSMA/CA).

Week 9. Configure a network using Distance Vector Routing protocol and Link State Routing protocol using packet tracer tool.

Week 10. Implement Dijkstra's algorithm to compute the shortest path through a graph.

Week 11.

a. Write a program to implement Client - Server communication for chat using Transmission Control Protocol (TCP).
b. Using TCP/IP sockets, write a client - server program to make client sending the file name and the server to send back the contents of the requested file if present.

Week 12. Configure FTP Server on a Linux/Windows machine using a FTP client/SFTP client. characterize file transfer rate for a cluster of small files 100k each and a video file of 700mb.Use a TFTP client and repeat the experiment.

Week 13. Install Telnet on one of the systems connected by a switch and telnet to it from the other system. Using Wireshark tool, capture the packets and analyze the TCP 3-way Handshake for connection establishment and tear down.

Week 14. Using RSA Algorithm Encrypt a Text data and Decrypt the same.

Week 15. Develop a program to implement Ceasar/ Substitution/ Hill cipher techniques.

Software's used:

- C/ Java/ Equivalent compiler
- Network Simulator like NS2/NS3/CISCO Packet tracer tool/Wireshark tool

18CS31L3 – ARTIFICIAL INTELLIGENCE LAB

III Year. B.Tech. (CSE) – I Sem

L	T	P/D	C
-	-	2/-	1

Prerequisite(s):

- The Student has basic knowledge about Artificial Intelligence and Python programming.
- He/she should be aware about basic terminologies used in AI along with some useful python packages like nltk, OpenCV, pandas, OpenAI Gym, etc.

Course Objectives:

Develop ability to

1. Learn the difference between optimal reasoning and human like reasoning.
2. Know about basic concepts of state space representation, exhaustive search, and heuristic search together with the time and space complexities.
3. Obtain a thorough knowledge of various knowledge representation techniques.
4. Study about various reasoning techniques.
5. Know about various applications of AI, namely game playing, theorem proving, expert systems, machine learning and natural language processing

Course Outcomes (COs):

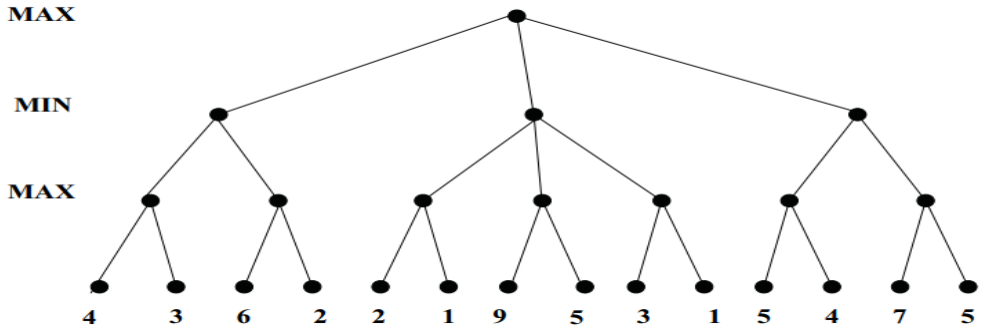
At the end of the course, student would be able to

CO1: Formulate an efficient problem space for a given problem.
CO2: Identify a suitable search algorithm to search the solution of a problem in view of its characteristics namely time and space complexities.
CO3: Represent the knowledge of the given problem domain using rules and appropriate knowledge representation technique.
CO4: Exploring AI techniques for solving problems with Reasoning and Uncertain models.
CO5: Possess the skill to apply AI techniques to solve problems of Game playing, Expert systems, Machine learning and natural language processing.

List of experiments:

Week 1: Introduction about Python?
Week 2:
(a). Write a python program to print the multiplication table for the given number?
(b). Write a python program to check whether the given number is prime or not?
(c). Write a python program to find factorial of the given number?
Week 3: Write a python program to implement Breadth First Search Traversal
Week 4: Write a program to implement Tic-Tac-Toe game using python?
Week 5: Write a Python code to implement Water Jug Problem?
Week 6: Solve 8-puzzle problem using best first search?
Week 7: Write a python program to implement depth first search?
Week 8: Solve travelling salesman problem?
Week 9: introduction about Prolog?

Week10: Write a prolog code for min max algorithm using alpha-beta pruning by considering the following example?



Week11: Write a prolog code to find a shortest path using A* algorithm?

REFERENCES BOOK(S)

1. Artificial Intelligence, Elian Rich and Kevin Knight,1991,TMH
2. Open a Web browser and go to https://www.python.org/downloads/.

18CS32L1-WEB TECHNOLOGIES LAB

L	T	P/D	C
-	-	2/-	1

III Year. B.Tech. (CSE) – II Sem

Prerequisite(s):

- 18CS1101: Programming for Problem Solving
- 18CS2102: Object Oriented Programmingusing Java
- 18CS2203: Database Management Systems

Course objectives:

Develop ability to

1. Understand the basic web concepts and Internet protocols
2. Acquire knowledge in XML and processing of XML data
3. Introduce client side scripting with JavaScript and DHTML
4. Understand server side programming with Java Servlets and JSP
5. Implement server side programming with PHP

Course outcomes (COs):

At the end of the course, student would be able to

CO1: Create dynamic and interactive web sites
CO2: Write and execute client side scripts using JavaScript and DHTML.
CO3: Write, parse and execute XML schemas.
CO4: Implement, deploy and execute server side programs and components using Java Servlets and JSP.
CO5: Implement, deploy and execute server side programs and components using PHP.

List of Lab Exercises

S.no.	Name of the program
Week 1	Write a HTML page including any required java script that takes a number from one text field in the range of 0 to 999 and shows it in another text field in words. if the number is out of range, it should show "out of range" and if it is not a number, it should show "not a number" message in the result box.
Week 2	Write a HTML page that has one input, which can take multi-line text and a submit button. Once the user clicks the submit button, it should show the number of characters, words and lines in the text entered using an alert message. Words are separated with white space and lines are separated with new line character.
Week 3	Write a HTML page that contains a selection box with a list of 5 countries. When user selects a country, its capital should be printed next to the list. Add CSS to customize the properties of the font of capital (color, bold, and font size).
Week 4	Write a XML file which will display the Book information which includes the following: Title of the book, Author Name, ISBN number, Publisher name, Edition, Price i. Write a Document Type Definition (DTD) to validate the above XML file.

	ii. Write a XSD to validate the above XML file.
Week 5	Create a XML document that contains 10 users information. Write a java Program, which takes User Id as input and returns the user details by taking the user information from XML document using (a) DOM Parser and (b) SAX parser.
Week 6	a. Write a Servlet for User validation web application, where the user submits a login name and password to the server. The name and password are checked against the data already available in Database and if the data matches, a successful login page is returned. Otherwise a failure message is shown to the user. b. Modify the above Program to an xml file instead of database.
Week 7	a. Write a Servlet for a simple calculator web application that takes two numbers and an operator (+,-,/,*,%) from an HTML page and returns the result page with the operation performed on the operands. b. Write a Servlet for web application that lists all cookies stored in the browser on clicking "List Cookies" button. Ass cookies if necessary.
Week 8	a. Write JSP for User validation web application, where the user submits a login name and password to the server. The name and password are checked against the data already available in Database and if the data matches, a successful login page is returned. Otherwise a failure message is shown to the user. b. Write JSP for a simple calculator web application that takes two numbers and an operator (+,-,/,*,%) from an HTML page and returns the result page with the operation performed on the operands.
Week 9	a. Write JSP for a web application that lists all cookies stored in the browser on clicking "List Cookies" button. Ass cookies if necessary. b. Write JSP for a web application that takes name and age from an HTML page. If the age is less than 18, it should be send a page with "Hello <name >, you are not authorized to visit this site" message, where < name> should be replaced with the entered name. Otherwise it should send "Welcome <name> to this site" message.
Week 10	a. Write PHP code for user validation web application, where the user submits a login name and password to the server. The name and password are checked against the data already available in Database and if the data matches, a successful login page is returned. Otherwise a failure message is shown to the user. b. Write PHP code for a simple calculator web application that takes two numbers and an operator (+,-,/,*,%) from an HTML page and returns the result page with the operation performed on the operands.
Week 11	Write PHP Code Validate the following fields of registration page. i. Name (it should contains alphabets and length at least 6 characters) ii. Password(it should not be less than 6 characters) iii. Email id (it should not contains any invalid character must follow the standard pattern name@domain.com) iv. Phone number (it should contain 10 digits only)

Week 12	A web application for implementation using PHP. The user is first served login page which takes user's name and password. After submitting the details the server checks these values against the data from a database and takes the following decisions If name and password match serves a welcome page with user's full name If name matches and password doesn't match, then server 'password mismatch' page If name is not found in the full name, it stores, the login name, password and full name in the database.(hint: Use session for storing the submitted login name and password)

18CS32L2 - SOFTWARE ENGINEERING LAB

III Year. B.Tech. (CSE) – II Sem

L	T	P/D	C
-	-	2/-	1

Prerequisites: None

Course Objectives:
Develop ability to
1. Understand the basis of software development process.
2. Design the requirements of the customer.
3. Elaborate the design process of software development.
4. Identify various project and process metrics.
5. Apply software testing and its importance in assuring quality.

Course Outcomes (COs):
At the end of this course, student would be able to
CO1: Identify various software process models and its techniques.
CO2: Analyze the requirements and specifications of the project.
CO3: Design software architecture & its process.
CO4: Evaluate the project using process and project metrics.
CO5: Confirm the quality of the software through testing.

1. Given a problem statement,analyze it using any one of the software process models of your choice for the ATM system project using waterfall process model.

ATM SYSTEM CASE STUDY
The ATM System is the project which is used to access their bank accounts in order to make cash withdrawals. Whenever the user need to make cash withdraws, they can enter their PIN number (personal identification number) and it will display the amount to be withdrawn in the form of 100's 500's and 1000's. Once their withdrawn was successful, the amount will be debited in their account. The ATM System project will be developing in VB.Net and back-end database as Microsoft-Access. VB.Net is the one of the powerful version of Framework and object oriented programming. Hence we use this software in our project.

The ATM will service one customer at a time. A customer will be required to enter ATM Card number, personal identification number (PIN) – both of which will be sent to the database for validation as part of each transaction. The customer will then be able to perform one or more transactions. Also customer must be able to make a balance inquiry of any account linked to the card. The ATM will communicate each transaction to the database and obtain verification that it was allowed by the database. In the case of a cash withdrawal, a second message will be sent after the transaction has been physically completed (cash dispensed or envelope accepted). If the database determines that the customer's PIN is invalid, the customer will be required to re-enter the PIN before a transaction can proceed.
If a transaction fails for any reason other than an invalid PIN, the ATM will display an explanation of the problem, and will then ask the customer whether he/she wants to do another transaction.
The ATM will provide the customer with a printed receipt for each successful transaction, showing the date, time, machine location, type of transaction, account(s), amount, and ending and available balance(s) of the affected account ("to" account for transfers).
Adopt the following software development strategy

    - Water fall model
- Iterative model
- Rapid-prototyping model
- Spiral model
- Unified Process

Software documentation Standard to follow:

- IEEE standard or DOD-2167A

Milestones in the project:

1. Problem Analysis and Project Planning
Thorough study of the problem – Identify project scope, Objectives, infrastructure, and plan for the project; Document it

2. Software Requirement Analysis
Describe the individual Phases/ modules of the project, Identify deliverables; Document it

3. Data Modeling
Use work products – use case diagram, data flow diagram, Flow chart

4. Software Development and Debugging
Choose programming language of your choice

5. Software Testing
Prepare test plan, perform validation testing, coverage analysis, test case prioritization.

NOTE:

- Eachstudent can adopt different software development life cycle (such as Water fall model, iterative model, spiral model, RAD, prototyping model etc…) and programming language combination so that each student work in unique but still conform to over all deliverable.
- Teams to be formed containing 5 in each to make the software engineering activities effectively with good coordination.
- Any other systems like(Library Management system,hospital management system,course registration system, railway reservation system) can also be done.
- If the problem statement is not mentioned explicitly, first the problem statement can be written, then follow the same flow.

18MB32L1 – ADVANCED ENGLISH COMMUNICATION SKILLS LAB

III Year. B.Tech. (CSE) – II Sem

L	T	P/D	C
-	-	2/-	1

Prerequisites: None

Course Objectives: Develop ability to

1. Improve students‘ fluency in spoken English.
2. Enable them to acquire behavioral skills required for their personal and professional life.
3. Help students develop their vocabulary.
4. Read and comprehend texts and respond appropriately in different socio-cultural contexts.
5. Communicate their ideas.

Course Outcomes: At the end of the course, the students would be able to

CO1. Acquire vocabulary and use it contextually
CO2. Demonstrate effective Listening and Speaking Skills
CO3. Develop proficiency in academic reading and writing
CO4. Establish employability skills thereby increasing Job prospects
CO5. Communicate confidently in formal and informal contexts

The following Course Content with activities/tasks is proposed for the Advanced English communication Skills (AECS) Lab sessions:

1. **Activities on Fundamentals of Inter-Personal Communication and Vocabulary Building:** Responding appropriately and relevantly using the right body language, Discourse skills, Word Roots, One Word Substitutes, Business Vocabulary, Analogy, Collocations and uses of vocabulary, Resilience and Personal Management, Managing stress, time, anger and other emotions, Assertiveness and Culture shock.
2. **Reading Skills:** Reading for facts, specific information, Reading between the lines, Negativefacts, Inferential Reading, Critical Reading.
3. **Activities on Writing:** Writing Process, Gathering Information, Analyzing the content,Formatting, Editing, Resume Writing and C.V preparation, Writing SOP, Letter Writing, email Writing.
4. **Activities on Presentation Skills:** Oral Presentations (Individual and Group), Seminars, PPTsand Written Presentations through posters, Projects, Portfolio Writing, Brochures and Reports.
5. **Activities on Group Discussion and Interview Skills:** Dynamics of Group Discussions,intervention, summarizing, body language, relevance and organization of ideas and rubrics for evaluation, Pre-Interview Planning, opening strategies, answering strategies, Interview through Tele-Conference and Video Conference and Mock Interviews, Videos of Mock Interviews.

16CS41L1 – MOBILE APPLICATION DEVELOPMENT AND COMPILER DESIGN LAB

L	T	P/D	C
-	-	3/-	1

IV Year. B.Tech. CSE – I SEM

Mobile Application Development Lab

Course Objectives

Develop ability to

1. Understand the architecture of mobile software applications and mobile development frameworks and tools.
2. Use XML and UML for mobile computing
3. Understand various technologies related to generic user interface development, mobile GUIs, VUIs and their applications
4. Explain the process of modelling multichannel and multimodal user interfaces using UML
5. Understand mobile application development hurdles with proper selection of architecture, design and technology in mobile application development process.

Course Outcomes (COs)

After completion of the course, student would be able to

CO1. Describe the architecture of mobile software applications and mobile development frameworks and tools.

CO2. Use XML and UML for mobile computing

CO3. Identify various technologies related to generic user interface development, mobile GUIs, VUIs and their applications

CO4. State the process of modelling multichannel and multimodal user interfaces using UML

CO5. Identify and overcome mobile application development hurdles with proper selection of architecture, design and technology in mobile application development process.

List of exercises

1. Create an android application to display a message on the screen.
2. Create android applications using following layouts
    a. Linear layout
    b. Absolute layout
    c. Table layout
    d. Relative layout
    e. Frame layout
3. Create android applications using following views
    a. Basic views
    b. Picker views
    c. List views
    d. Image views
4. Send an SMS message in android programmatically
5. Display a locations marker on a map in android programmatically
6. Design a mobile web application with all HTML5 form elements.
7. Write a mobile web application to demonstrate HTML5 offline storage

Compiler Design Lab

Course Objectives

Develop ability to

1. Understand and list the different stages in the process of compilation.
2. Identify different methods of lexical analysis
3. Design top-down and bottom-up parsers

4. Identify synthesized and inherited attributes
5. Develop syntax directed translation schemes
6. Develop algorithms to generate code for a target machine

Course Outcomes (COs)

After successful completion of this course, student would be able to

CO1. Describe different stages in the process of compilation, different methods of lexical analysis and synthesized and inherited attributes

CO2. Develop lexical analyser for a given grammar specification

CO3. Design top-down and bottom-up parsers for a given parser specification

CO4. Develop syntax directed translation schemes

CO5. Develop algorithms to generate code for a target machine

List of exercises

1. Design a lexical analyzer for given language and the lexical analyzer should ignore redundant spaces, tabs and new lines. It should also ignore comments. Although the syntax specification states that identifiers can be arbitrarily long, you may restrict the length to some reasonable value. Simulate the same in C language.
2. Write a C program to identify whether a given line is a comment or not.
3. Write a C program to recognize strings under 'a', 'a*b+', 'abb'.
4. Write a C program to test whether a given identifier is valid or not.
5. Write a C program to simulate lexical analyzer for validating operators.
6. Implement the lexical analyzer using JLex, flex or other lexical analyzer generating tools.
7. Write a C program for implementing the functionalities of predictive parser for the mini language specified in Note 1.
8. a) Write a C program for constructing of LL (1) parsing.

b) Write a C program for constructing recursive descent parsing.

9. Write a C program to implement LALR parsing.
10. a) Write a C program to implement operator precedence parsing.

b) Write a C program to implement Program semantic rules to calculate the expression that takes an expression with digits, + and * and computes the value.

11. Convert the BNF rules into Yacc form and write code to generate abstract syntax tree for the mini language specified in Note 1.
12. Write a C program to generate machine code from abstract syntax tree generated by the parser. The instruction set specified in Note 2 may be considered as the target code.

16CS41L2 – COMPUTER NETWORKS AND CLOUD COMPUTING LAB

IV Year. B.Tech. CSE – I SEM

L	T	P/D	C
-	-	3/-	1

Prerequisites: None

Computer Networks Lab:

Course Objectives

Develop ability to

1. To develop an understanding of modern network architectures from a design and performance perspective.

2. To introduce the student to the major concepts involved in wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs).

3. To provide an opportunity to do network programming

4. To provide a WLAN measurement ideas.

Course Outcomes

After completion of the course, student would be able to

CO1. Explain the functions of the different layers of the OSI Protocol.

CO2. Draw the functional block diagram of wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs) and describe the functions of each block.

CO3. Design a wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs) for a given requirement (small scale) based on the market available components

CO4. Develop a program for a given problem related to TCP/IP protocol using network programming.

CO5. Configure DNS DDNS, TELNET, EMAIL, File Transfer Protocol (FTP), WWW, HTTP, SNMP, Bluetooth, Firewalls using open source available software and tools.

List of exercises

1. Study of different types of Network cables and practically implement the cross-wired cable and straight through cable using clamping tool.

2. Study of Network devices, IP in details.

3. Connect the computers in LAN, Study of basic network command and network configuration commands

4. Configure a network topology using packet tracer software.

5. Configure a network using Distance Vector Routing protocol and Link State routing protocol.

Cloud Computing Lab:

Course Objectives

Develop ability to

1. Understand different computing models.

2. Introduce various types of virtualizations and hypervisors

3. Use and adopt Cloud Computing services and tools in their real life scenarios.

4. Explore some important cloud computing driven commercial systems such as Amazon Web Services, Google cloud services, Microsoft Azure etc.

5. Describe the security aspects in cloud

Course Outcomes (COs)

Upon successful completion of this course, students will be able to

CO1. Distinguish different types of Distributed Computing models and Identify different cloud computing models and services provided by cloud providers

CO2. Illustrate Cloud Applications and Paradigms

CO3. Demonstrate virtualization of clusters and data centers

CO4. Apply and design Cloud Resource Management and scheduling algorithms

CO5. Explain Storage models and security aspects of Cloud

List of exercises

1. Create Virtual machines using Open source software : VM Ware/ Oracle Virtual Box
2. Use Amazon EC2 to create a virtual machine
3. Use Amazon S3 in Java
4. Install the Simple Notification Service on Ubuntu
5. Other Amazon services available in free tier.
6. Case Study2: Microsoft Azure
7. Case Study 3: Google App Engine
8. Study and Implement IaaS using OpenStack
9. Implement Identity Management feature using OpenStack
10. Security Rules for Application and Transport Layer Protocols in EC2

➢ DEPARTMENT OF INFORMATION TECHNOLOGY

18CS21L1-ADVANCED DATA STRUCTURES LAB

B.Tech.IT - II Year, I Sem.

Pre-requisite(s):

- **18CS11L1 - PROGRAMMING FOR PROBLEM SOLVING LAB**
- **18CS12L1 - DATA STRUCTURES LAB**

Course Objectives:

Develop ability to

1. Understand the basic concepts of Abstract Data Types, Linear and Non Linear Data structures.
2. Identify the notations used to represent the Performance of algorithms.
3. Understand the behavior of data structures such as stacks, queues, trees, hash tables, search trees, Graphs and their representations.
4. Familiarize with various data structures for various applications.
5. Understand various searching and sorting algorithms.
6. Write programs in C to solve problems using data structures such as arrays, linked lists, stacks, queues, trees, graphs, hash tables and search trees.

Course Outcomes (COs):

After completion of the course, student would be able to

CO1. Explain the basic concepts of Abstract Data Types, Linear and Non Linear Data structures.

CO2. Calculate the performance of the different algorithms in terms of time and space.

CO3. Write programs in C for different data structures like stacks, queues, linked lists (singly and doubly).

CO4. Select appropriate data structure for a given problem.

CO5. Write C programs for various searching algorithms, sorting algorithms and non-linear data structures such as trees and graphs.

S.No.	Name of the Program
1	Write a C program for polynomial addition using linked lists

2 Write a C program that uses functions to perform the following:
a) Create circularly linked lists
b) Delete a given integer from the above linked list.
c) Display the contents of the above list after deletion.

3 Write a C program that uses functions to perform the following:
a) Create a doubly linked list of integers.
b) Delete a given integer from the above doubly linked list. c) Display the contents of the above list after deletion

4 Write C programs to implement a Stack and Queue ADT using singly linked list.

5 Write a C program to implement the following by using stack a) Towers of Hanoi.
b) Parenthesis Checker

6 Write a C program to implement Circular Queue

7 Write C programs to implement a double ended queue ADT using linked list.

8 Write a C program that uses functions to perform the following:
i) Create a binary search tree of integers.
ii) Traverse the above Binary search tree in in-order, pre-order, post-order.

9 Write C programs for implementing the following sorting methods to arrange a list of integers in ascending order:
a) Quick sort b) Merge Sort

10 Write C programs for implementing the following sorting methods to arrange a list of integers in ascending order:
a) Heap Sort b) Radix Sort

11 Write a C program to perform the following operation:
a) Insertion into a B-tree. b) Searching a B-Tree

12 Write C programs for implementing the following graph traversal algorithms:
a) Depth first traversal b) Breadth first traversal

13 Write a C program to implement all the functions of a dictionary (ADT) using hashing

14 Write a C program for pattern matching algorithm (KMP).

18IT21L1-COMPUTING LAB

L	T	P/D	C
-	-	2/-	1

B.Tech.IT - II Year, I Sem.
Pre-requisite(s): None

Course Objectives:

Develop ability to

1. Understand the terminology and operations of propositional calculus.
2. Understand the process of checking the truth value of compound propositions.
3. Understand terminology, properties and operations of sets, relations and functions.
4. Understand importing, reviewing, manipulating and summarizing various types of data using R tool.
5. Understand the process of analyzing data sets using R tool to gain insights.

Course Outcomes (COs):

After completion of the course, student would be able to

CO1. Compute truth value of propositions and demonstrate logical connectives of propositional calculus using Scilab tool.

CO2. Use Scilab tool to check the truth value of the compound propositions.

CO3. Use Scilab tool to define and demonstrate operations on sets, relations.

CO4. Import, review, manipulate and summarize various types data using R tool.

CO5. Gain insights by analyzing data sets using R tool.

PART-A

Discrete Mathematics Exercises using Scilab:

1. Write a program to find the truth value of propositions.
2. Write a program to demonstrate the logical connectives.
3. Write a program to check whether the given compound proposition is the tautology.
4. Write a program to demonstrate the power set.
5. Write a program to demonstrate the properties of relations.
6. Write a program to demonstrate the sum rule principle and product rule principle.

PART-B

Statistics Exercises using R Tool:

1. Create a vector called x that contains the numbers 1 to 50.
2. Create a logical vector y that takes the value TRUE if x is smaller than 25
3. Create a character vector "my_name" - that contains the words: My name is [yourname]
4. How do you display all variable names for the in-built data-set cars?
5. Create a data frame with a sequence from 1 to 12 of 3 by 4. Name the rows as follows: Conservative; Labour; LibDem Name columns as follows: Party; Leader Name; Leader Resigned; Voteshare; Number of MP
6. Using the data frame oddbooks, use graphs to investigate the relationships between:

(a) weight and volume; (b) density and volume; (c) density and page area

7. Create a for loop that, given a numeric vector, prints out one number per line, with its square and cube alongside

18CS21L3-OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB

B.Tech.IT II Year, I Sem.
Pre-requisite(s):

L	T	P/D	C
-	-	2/-	1

- **18CS11L1 - PROGRAMMING FOR PROBLEM SOLVING LAB**
- **18CS12L1 - DATA STRUCTURES LAB**

Course Objectives:
Develop ability to
1. Understand basic concepts of object oriented programming.
2. Understand the primitive data types built into the Java language and features of strongly typed language.
3. Learn scope, lifetime, and the initialization mechanism of variables and parameter passing mechanisms.
4. Write simple graphics programs involving drawing of basic shapes.
5. Create Graphical User Interfaces by means of Java Programming Language.

Course Outcomes (COs):
After completion of the course, student would be able to

CO1. Use concepts of OOPs such as data abstraction, inheritance, polymorphism, encapsulation and method overloading principles in structuring computer applications for solving problems.
CO2. Identify classes, objects, members of a class and relationships among them needed for a specific problem.
CO3. Use Java Collection of Application Programming Interface (API) as well as the Java standard class library with necessary exception handling mechanisms in constructing computer applications.
CO4. Develop java programs using multi-threading, files and database concepts and their connectivity.
CO5. Design and develop Graphical User Interface applications using Abstract Window Toolkit (AWT), Swings and Applets.

Week 1: (Basic programs to get used to java syntax) Write a Java program to
a. print the Fibonacci series upto the given number.
b. write a Java program to print the reverse of the given number
c. write a Java program to find factorial of the given number at command line.
d. write a Java program that prompts the user for an integer and then prints out all prime numbers up to that integer
Week 2:Write a Java program to
a. check whether a given string is a palindrome or not. Ex: MADAM is a palindrome.
b. sort a given list of names in ascending order.
c. find frequency count of words in a given text.
Week 3:Write a java program to
a. illustrate creation of classes and objects
b. illustrate constructor and method overloading c. create a stack ADT
Week 4
a. implement diiferent types of inheritance
b. illustrate method overriding and Dynamic method dispatch c. illustrate static keyword with variables and methods
Week 5
a. Create an interface for stack of integers with abstract methods push, pop and display. Write an implementation of the above mentioned abstract methods for a fixed size stack and a dynamic size stack.
b. illustrate inner classes

c. illustrate creation and importing the packages

Week 6 Write a java program to

a. illustrate usage of try, catch, finally with multiple exceptions b. create user defined exceptions.

Week 7

a. Write a java program that implements a multi-thread applications that has three threads.

First thread generates random integer every 1 second and if the value is even, second thread computes the square of the number and prints. If the value is odd, the thread will print the value of the number.

b. create a thread by implementing Runnable interface.

c. implement producer consumer problem using the concept of inter thread communication.

Week 8

a. Develop an applet that displays a simple message.

b. Develop an applet that receives an integer in one text field, and computes its factorial Value

and returns it in another text field, when the button named “Compute” is clicked.

c. c)Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the+, -,*, % operations. Add a text field to display the result.

Week 9

a. Write a java program that handles all mouse events and shows the event name at the center of the window when a mouse event is fired .

b. Applet handle a keyboard event for a name textbox to accept only alphabets (skip off any other characters)

Week 10

a. Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the text fields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result field when the Divide button is clicked. If Num1 or Num2 were not an integer, the program would throw a NumberFormatException. If Num2 were Zero, the program would throw an ArithmeticException Display the exception in a message dialog box.

b. Applet that depicts a login page.

Week 11

a. Write a java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow,or green. When a radio button is selected, the light is turned on, and only one light can be on at a time No light is on when the program starts.

b. Write a Java program that allows the user to draw lines, rectangles and ovals.

c. Applet which displays current date and time every second using Thread and Calendar class

Week 12

a. Write a java program to create an abstract class named Shape that contains an empty method named numberOfSides( ).Provide three classes named Trapezoid, Triangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method numberOfSides( ) that shows the number of sides in the given geometrical figures.

b. Suppose that a table named Table.txt is stored in a text file. The first line in the file is the header, and the remaining lines correspond to rows in the table. The elements are separated by commas. Write a java program to display the table using Jtable component.

Week 13

a. Write a java Program that loads names and phone numbers from a text file where the data is organized as one line per record and each filed in a record are separated by a tab (\t). It takes a name or phone number as input and prints the corresponding other value from the hash table (hint: use hash tables).

b. Implement the above program with database instead of a text file.

Week 14

a. Write a java Program that takes tab separated data (one record per line) from a text file and inserts them into a database.

b. Write a java program that prints the meta-data of a given table.

Week 15

a. Write a java program that connects to a database using JDBC and does add,delete, modify and retrieve operations.

b. An applet to check for a valid user id and password using the data in table users(user_id, password)

18CS22L1 - DESIGN AND ANALYSIS OF ALGORITHMS LAB

B.Tech.IT II Year, II Sem.

L	T	P/D	C
-	-	2/-	1

Prerequisite(s):

- **18CS11L1 - PROGRAMMING FOR PROBLEM SOLVING LAB**
- **18CS12L1 - DATA STRUCTURES LAB**
- **18CS21L1 - ADVANCED DATA STRUCTURES LAB**

Course Objectives:

Develop ability to

1. Realize the asymptotic performance of algorithms.
2. Understand the behavior of Greedy strategy, Divide and Conquer approach, Dynamic
3. Programming and branch and bound theory for several problem solving techniques.
4. Understand how the choice of data structures and algorithm design methods impact the performance of programs.
5. Distinguish deterministic and non-deterministic algorithms and their computational complexities.

Course Outcomes (COs):

After completion of the course, student would be able to

CO1. Analyze algorithms and estimate their best-case, worst-case and average-case behavior in terms of time and space and execute the same through programming.

CO2. Identify suitable problem solving technique for a given problem and design algorithms using greedy strategy, divide and conquer approach, dynamic programming, and branch and bound theory accordingly and execute the same through programming.

CO3. Implement algorithm using appropriate data structures using programming.

CO4. Design deterministic and non-deterministic algorithms for tractable and intractable problems

CO5. Categorize the given problems as P Class/ NP Class/ NP-Hard/ NP-complete problems accordingly.

List of Experiments

1. Sort a given set of elements using the Quick sort method and determine the time required to sort the elements. Repeat the experiment for different values of n, the number of elements in the list to be sorted and plot a graph of the time taken versus n. The elements can be read from a file or can be generated using the random number generator.

2. Using Open MPI, implement a parallelized Merge Sort algorithm to sort a given set of elements and determine the time required to sort the elements. Repeat the experiment for different values of n, the number of elements in the list to be sorted and plot a graph of the time taken versus n. The elements can be read from a file or can be generated using the random number generator.

3. Implement Binary tree traversal techniques using recursion and without recursion. Identify the best method, Justify your answer.

4. a. Print all the nodes reachable from a given starting node in a digraph using BFS method.
b. Check whether a given graph is connected or not using DFS method.
5. Write and implement an algorithm determining articulation points and the biconnected components in the given graph.

6. Implement an algorithm to find the minimum cost spanning tree using
i) Prims algorithm ii) Kruskals Algorithm
7. From a given vertex in a weighted connected graph, find shortest paths to other vertices using Dijikstra"s algorithm.

8. Implement Job Sequencing with Deadlines algorithm and Fast Job Sequencing with Deadlines.

9. Implement Marix Chain multiplication algorithm. Parallelize this algorithm, implement it using
10. Open and determine the speed-up achieved.

11. Implement 0/1 Knapsack problem using Dynamic Programming.

12. Implement an algorithm to find the optimal binary search tree for the given list of identifiers.

13. Find a subset of a given set S = {sl,s2,.....,sn} of n positive integers whose sum is equal to a given positive integer d. For example, if S= {1, 2, 5, 6, 8} and d = 9 there are two solutions{1,2,6}and{1,8}.A suitable message is to be displayed if the given problem instance doesn't have a solution.

14. Implement N Queen's problem using Back Tracking.

15. Write a program for Hamiltonian Cycle Problem

16. Implement the solution for TSP problem using Branch & Bound technique

18IT22L1 - OPERATING SYSTEMS AND ASSEMBLY LANGUAGE PROGRAMMING LAB

B.Tech.IT II Year, II Sem.

L	T	P/D	C
-	-	2/-	1

Prerequisite(s): None
Operating Systems Lab

Course Objectives:

Develop ability to

1. Analyze the main components of Operating System (OS) and their working.
2. Introduce the different scheduling policies of OS.
3. State and compare the different memory management techniques.
4. Understand the concepts of input/output, storage and file management.
5. Understand the concepts of Deadlocks and access control methods.

Course Outcomes (COs):

At the end of the course, student would be able to

CO1. Compare synchronous and asynchronous communication mechanisms in their respective Operating Systems.

CO2. Implement CPU Scheduling algorithms and explain turnaround time, waiting time, response time, and throughput for a given set of processes.

CO3. Apply optimization techniques in memory management techniques and analyze them.

CO4. Explain the concepts of input/output, storage and file management

CO5. Demonstrate the concepts of Deadlocks and access control methods.

List of Programs:

Week 1. Simulate the following CPU scheduling algorithms

a. First Come First Serve (FCFS)
b. Shortest Job First (SJF)
c. Priority
d. Round Robin

Week 2.

a. Simulate Multiprogramming with Variable number of Tasks (MVT)
b. Simulate Multiprogramming with Fixed number of Tasks (MFT)

Week 3. Simulate all page replacement algorithms

a. First In First Out (FIFO)
b. Optimal
c. Least Recently Used (LRU)

Week 4. Simulate all File Organization Techniques

a. Single level directory
b. Two level directory
c. Hierarchical directory

Week 5. Simulate all File allocation strategies

a. Sequential
b. Indexed
c. Linked

Week 6. Simulate Bankers Algorithm for Dead Lock Avoidance

Assembly Language Programming Lab
Course Objectives:
Develop ability to
1. Introduce principles of computer organization and the basic architectural concepts.
2. Recommend instruction formats, addressing modes, micro instructions for design of control unit
3. Write assembly level programs using 8086 microprocessor.
4. Understand the I/O and memory organizations of a Computer system
5. Recognize different parallel processing architectures

Course Outcomes (COs):
At the end of the course, the students would be able to
CO1. Demonstrate an understanding of the design of the functional units of a digital computer system.
CO2. Design micro instructions for different kinds of CPU organizations with proper understanding of instruction formats and addressing modes
CO3. Write assembly language programs using 8086 microprocessor with the knowledge of pin diagram, registers and instruction formats of 8086 microprocessor.
CO4. Identify different hardware components associated with the memory and I/O organization of a computer
CO5. Differentiate different parallel processing architectures

List of Experiments
Week 1:
1. Architecture of 8086 microprocessor
2. Instruction Set of 8086 microprocessor

Week 2:
1. Write a program to display string "Computer Science and Engineering".
2. Write an Assembly Language Program (ALP) to display multiple strings line by line.
3. Write an Assembly Language Program (ALP) to find the maximum of three numbers.

Week 3:
1. Write an Assembly Language Program (ALP) to print numbers from 0 to 9
2. Write an Assembly Language Program (ALP) to check whether a given number is even or odd.

Week 4:
1. Write an Assembly Language Program (ALP) to find the factorial of a number.
2. Write an Assembly Language Program (ALP) to print fibo series up to 5 numbers.

Week 5:
1. Write an Assembly Language Program (ALP) to take n values from user and calculate their sum.(BL contains the result)

2. Write an Assembly Language Program (ALP) to take n values from user and calculate maximum and minimum values.

Week 6:

1. Write 8086 Assembly Language Program (ALP) to transfer a block of data from one location to another.

2. Write an Assembly Language Program (ALP) to reverse the given string.

3. Write an Assembly Language Program (ALP) to perform addition of two 2X2 matrices.

Week 7:

1. Write an Assembly Language Program (ALP) for linear search.

2. Write an Assembly Language Program (ALP) to take n values from user and sort them in ascending order.

18CS22L3 - DATABASE MANAGEMENT SYSTEMS LAB

B.Tech.IT II Year, II Sem.
Prerequisite(s): None

L	T	P/D	C
-	-	2/-	1

Course Objectives:

Develop ability to

1. Learn and practice data modeling using entity-relationship and develop database design.
2. Understand the features of database management systems and Relational database.
3. Understand Structured Query Language (SQL) and learn SQL syntax.
4. Understand normalization process of a logical data model and correct any anomalies.
5. Understand needs of database processing and learn techniques for controlling the consequences of concurrent data access.

Course Outcomes (COs):

After completion of the course, student would be able to

CO1. Differentiate DBMS from traditional data storage mechanisms.

CO2. Design and describe data models and schemas in DBMS.

CO3. Use SQL- the standard language of relational databases, for database processing.

CO4. Design a normalized database resolving various problems like redundant and functional dependencies.

CO5. Implement Transaction and Query processing techniques for data storage and retrieval.

List of Experiments

1. E-R Model: Analyze the problem with the entities which identify data persisted in the database which contains entities, attributes.
2. Concept design with E-R Model: Apply cardinalities for each relationship, identify strong entities and weak entities for relationships like generalization, aggregation, specialization.
3. Relation Model: Represent attributes as columns in tables and different types of attributes like Composite, Multi-valued, and Derived. Apply Normalization.
4. Installation of Mysql and Queries using DATA DEFINITION LANGUAGE (DDL) COMMANDS - Create, Alter, Drop, Truncate
5. Data Manipulation Language (DML) COMMANDS:- SELECT, INSERT, UPDATE, DELETE
6. Data Control Language (DCL):- GRANT, REVOKE

Transaction Control Language (TCL) COMMANDS :- COMMIT , ROLL BACK SAVE POINT

7. In Built Functions: - DATE FUNCTION, NUMERICAL FUNCTIONS , CHARACTER FUNCTIONS, CONVERSION FUNCTION
8. Querying: Queries using ANY, ALL, IN, INTERSECT, UNION
9. Querying: Using aggregate functions COUNT, SUM using GROUPBY and HAVING

a. Using aggregate functions AVERAGE using GROUPBY and HAVING

10. Querying: NESTED QUERIES AND JOIN QUERIES: Nested Queries , Correlated sub queries , Simple Join, a) Equi-join b) Non Equi-join , Self join , Outer Join
11. Set Operators: Union , Union all , Intersect , Minus
12. Views: Creating and dropping view
13. Triggers: Creation of INSERT TRIGGER, DELETE TRIGGER, UPDATE TRIGGER

14. Procedures: Creation, Execution and Modification of stored Procedure
15. Database Design and Implementation: MINI DATABASE PROJECT

PG PROGRAMME
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

18MCS1L1 – ADVANCED DATA STRUCTURES LAB

I Year. M.Tech. (CSE) – I Sem

L	T	P/D	C
-	-	4/-	2

Prerequisite(s): A course on "Computer Programming & Data Structures"

Course Objectives:
Develop ability to

1. Introduces the basic concepts of Abstract Data Types.
2. Reviews basic data structures such as stacks and queues.
3. Introduces a variety of data structures such as hash tables, search trees, tries, heaps, graphs, and B-trees.
4. Introduces sorting
5. Introduces pattern matching algorithms

Course Outcomes (COs):
At the end of the course, student would be able to

CO1. Select the data structures that efficiently model the information in a problem.
CO2. Assess efficiency trade-offs among different data structure implementationsor combinations.
CO3. Implement and know the application of algorithms for sorting
CO4. Implement pattern matching Algorithms.
CO5. Design programs using a variety of data structures, including hash tables, binary and general tree structures, search trees, tries, heaps, graphs, and B-trees.

List of Experiments

1. Write a program to perform the following operations:
   a) Insert an element into a binary search tree.
   b) Delete an element from a binary search tree.
   c) Search for a key element in a binary search tree.
2. Write a program for implementing the following sorting methods:
   a) Merge sort b) Heap sort c) Quick sort
3. Write a program to perform the following operations:
   a) Insert an element into a B- tree.
   b) Delete an element from a B- tree.
   c) Search for a key element in a B- tree.
4. Write a program to perform the following operations:
   a) Insert an element into a Min-Max heap
   b) Delete an element from a Min-Max heap
   c) Search for a key element in a Min-Max heap
5. Write a program to perform the following operations:
   a) Insert an element into a Lefiist tree
   b) Delete an element from a Leftist tree
   c) Search for a key element in a Leftist tree
6. Write a program to perform the following operations:
   a) Insert an element into a binomial heap
   b) Delete an element from a binomial heap.

c) Search for a key element in a binomial heap

7. Write a program to perform the following operations:
   a) Insert an element into a AVL tree.
   b) Delete an element from a AVL search tree.
   c) Search for a key element in a AVL search tree.
8. Write a program to perform the following operations:
   a) Insert an element into a Red-Black tree.
   b) Delete an element from a Red-Black tree.
   c) Search for a key element in a Red-Black tree.
9. Write a program to implement all the functions of a dictionary using hashing.
10. Write a program for implementing Knuth-Morris-Pratt pattern matching algorithm.
11. Write a program for implementing Brute Force pattern matching algorithm.
12. Write a program for implementing Boyer pattern matching algorithm.

18MCS1L2 – MACHINE LEARNING LAB
(BASED ON PROGRAM SPECIFIC ELECTIVE-I)

I Year. M.Tech. (CSE) – I Sem

L	T	P/D	C
-	-	4/-	2

Prerequisite(s): None

Course Objectives:
Develop ability to

1. Understand the Concept Learning algorithms.
2. Ability to Understand the Concept Learning algorithms.
3. Students should be able to design and implement machine learning solutions to classification, regression, and clustering problems.
4. The objective of this lab is to get an overview of the various machine learning techniques and can able to demonstrate them using python.
5. Able to evaluate and interpret the results of the algorithms.

Course Outcomes (COs):
At the end of the course, student would be able to

CO 1: Understand complexity of Machine Learning algorithms and their limitations;
CO 2: Understand modern notions in data analysis oriented computing;
CO 3: Be capable of confidently applying common Machine Learning algorithms in practice and implementing their own;
CO 4; Be capable of performing experiments in Machine Learning using real-world data.
CO 5: Be capable of performing distributed computations

List of Experiments

1. The probability that it is Friday and that a student is absent is 3 %. Since there are 5 school days in a week, the probability that it is Friday is 20 %. What is theprobability that a student is absent given that today is Friday? Apply Baye's rule in python to get the result. (Ans: 15%)

2. Extract the data from database using python

3. Implement k-nearest neighbours classification using python

4. Given the following data, which specify classifications for nine combinations of VAR1 and VAR2 predict a classification for a case where VAR1=0.906 and VAR2=0.606, using the result of k-means clustering with 3 means (i.e., 3 centroids)

VAR1	VAR2	CLASS
1.713	1.586	0
0.180	1.786	1
0.353	1.240	1
0.940	1.566	0
1.486	0.759	1
1.266	1.106	0
1.540	0.419	1
0.459	1.799	1
0.773	0.186	1

5. The following training examples map descriptions of individuals onto high, medium and low credit-worthiness.

   medium skiing design single twenties no ->highRisk
   high golf trading married forties yes ->lowRisk
   low speedway transport married thirties yes ->medRisk
   medium football banking single thirties yes ->lowRisk
   high flying media married fifties yes ->highRisk
   low football security single twenties no ->medRisk
   medium golf media single thirties yes ->medRisk
   medium golf transport married forties yes ->lowRisk
   high skiing banking single thirties yes ->highRisk
   low golf unemployed married forties yes ->highRisk

Input attributes are (from left to right) income, recreation, job, status, age-group, home-owner. Find the unconditional probability of `golf' and the conditional probability of `single' given `medRisk' in the dataset?

6. Implement linear regression using python.

7. Implement Naïve Bayes theorem to classify the English text

8. Implement an algorithm to demonstrate the significance of genetic algorithm

9. Implement the finite words classification system using Back-propagation algorithm

18MCS1L3 – CRYPTOGRAPHY & NETWORK SECURITY LAB
(BASED ON PROGRAM SPECIFIC ELECTIVE-I)

I Year. M.Tech. (CSE) – I Sem

L	T	P/D	C
-	-	4/-	2

Prerequisite(s): None

Course Objectives:
Develop ability to
1. To understand basics of Cryptography and Network Security.
2. To be able to secure a message over insecure channel by various means.
3. To learn about how to maintain the Confidentiality, Integrity and Availability of a data.
4. To understand various protocols for network security to protect against the threat in the networks.
5. Students have to understand the tools in cryptography to develop the realtime applications.

Course Outcomes (COs):
At the end of the course, student would be able to
CO1: Provide security of the data over the network.
CO2: Do research in the emerging areas of cryptography and network security.
CO3: Implement various networking protocols.
CO4: Protect any network from the threats in the world
CO5: Identify computer and network security threats, classify the threats and develop a security model to prevent, detect and recover from the attacks.

List of Experiments
1. Write a client-server program where client sends a text message to server and server sends the text message to client by changing the case(uppercase and lowercase) of each character in the message.
2. Write a client-server program to implement following classical encrytion techniques:
ceaser cipher
transposition cipher
row substitution cipher
hill cipher
3. Install JCrypt tool (or any other equivalent) and demonstrate Asymmetric, Symmetric crypto algorithm, Hash and Digital/PKI signatures studied in theory Network Security and Management

Tools:
1. PERFORM AN EXPERIMENT TO DEMONSTRATE HOW TO SNIFF FOR ROUTER TRAFFIC BY USING THE TOOL WIRESHARK

2. USING NMAP

A. FIND OPEN PORTS ON A SYSTEM
B.FIND THE MACHINES WHICH ARE ACTIVE
C.FIND THE VERSION OF REMOTE OS ON OTHER SYSTEMS
D.FIND THE VERSION OF S/W INSTALLED ON OTHER SYSTEM

Ethical Hacking:

1. Setup a honey pot and monitor the honey pot on network
2. Write a script or code to demonstrate SQL injection attacks
3. Create a social networking website login page using phishing techniques
4. Write a code to demonstrate DoS attacks
5. INSTALL ROOTKITS AND STUDY VARIETY OF OPTIONS

18MCS1L4 –INTERNET OF THINGS LAB
(BASED ON PROGRAM SPECIFIC ELECTIVE-I)

I Year. M.Tech. (CSE) – I Sem

L	T	P/D	C
-	-	4/-	2

Prerequisite(s): None

Course Objectives:
Develop ability to

1. To introduce the raspberry PI platform, that is widely used in IoT applications
2. To introduce the implementation of distance sensor on IoT devices
3. Support multidisciplinary experiments.
4. Bring the researcher and the end-user together, with closer interactions between the experiments and the society
5. Pursuing, supporting and taking part in research and development activities

Course Outcomes (COs):
At the end of the course, student would be able to

CO 1: Introduce the concept of M2M (machine to machine) with necessary protocols and get awareness in implementation of distance sensor
CO 2: Program using python scripting language which is used in many IoT devices
CO 3: Apply IOT to different applications.
CO 4: Analyze and evaluate protocols used in IOT
CO 5: Analyze and evaluate the data received through sensors in IOT.

List of Experiments

1. Using raspberry pi
    a. Calculate the distance using distance sensor.
    b. Basic LED functionality.
2. Using Arduino
    a. Calculate the distance using distance sensor.
    b. Basic LED functionality.
    c. Calculate temperature using temperature sensor.
3. Using Node MCU
    a. Calculate the distance using distance sensor.
    b. Basic LED functionality.

    Calculate temperature using temperature sensor.

18MCS2L1 – ADVANCED ALGORITHMS LAB

I Year. M.Tech. (CSE) – II Sem

L	T	P/D	C
-	-	4	2

Prerequisite(s): None

Course Objectives:

Develop ability to

1. Introduces tha implement KMP algorithm and Harspool algorithm.
2. Describes the various assignment problem using Brute Force method.
3. Multiplication of long integers using divide and conquer method and solution for knapsack problem using Greedy method.
4. Implement solution for knapsack problem using Greedy method.
5. Implement Gaussian elimination method.

Course Outcomes (COs):

At the end of the course, student would be able to

CO1: Analyze the performance of algorithms using various methods.

CO2: Analyze the algorithms techniques and mathematical analysis of recursive algorithms.

CO3: Design algorithm for a specified application.

CO4: Explain how the choice of data structures and the algorithm design methods impact the performance of programs.

CO5: Describe linear programming and string matching algorithms.

List of Experiments

1. Implement assignment problem using Brute Force method
2. Perform multiplication of long integers using divide and conquer method.
3. Implement solution for knapsack problem using Greedy method.
4. Implement Gaussian elimination method.
5. Implement LU decomposition
6. Implement Warshall algorithm
7. Implement Rabin Karp algorithm.
8. Implement KMP algorithm.
9. Implement Harspool algorithm
10. Implement max-flow problem.

Signature of Authorized Signatory with date

18MCS2L2 – DIGITAL FORENSICS LAB
(BASED ON PROGRAM SPECIFIC ELECTIVE-III)

I Year. M.Tech. (CSE) – II Sem

L	T	P/D	C
-	-	4	2

Prerequisite(s): None

Course Objectives:

Develop ability to

1. To provide students with a comprehensive overview of collecting, investigating, preserving, and presenting evidence of cyber crime left in digital storage devices, emails, browsers, mobile devices using different Forensics tools
2. To Understand file system basics and where hidden files may lie on the disk, as well as how to extract the data and preserve it for analysis.
3. Understand some of the tools of e-discovery.
4. To understand the network analysis ,Registry analysis and analyse attacks using different forensics tools

Course Outcomes (COs):

At the end of the course, student would be able to

CO 1: Explain the importance of a systematic procedure for investigation of data found ondigital storage media that might provide evidence of wrong-doing

CO 2: Describe the file system storage mechanisms and retrieve files in hidden format

CO 3: Use computer forensics tools used in data analysis.

CO 4: Find data that may be clear or hidden on a computer disk, find our the open ports for the attackers through network analysis, Registry analysis.

List of Experiments

1. **Perform email analysis** using the tools like Exchange EDB viewer , MBOX viewer and View user mailboxes and public folders , Filter the mailbox data based on various criteria, Search for particular items in user mailboxes and public folders
2. **Perform Browser history analysis** and get the downloaded content , history ,saved logins,searches ,websites visited etc using Foxton Forensics tool,Dumpzilla .
3. **Perform mobile analysis** in the form of retrieving call logs ,SMS log ,all contacts list using the forensics tool like SAFT
4. **Perfrom Registry analysis** and get boottime logging using process monitor tool
5. **Perform Disk imaging and cloning the** using the X-way Forensics tools
6. **Perform Data Analysis i.e**History about open file and folder, and view folder actionsusing Lastview activity tool
7. **Perform Network analysis** using theNetwork Miner tool **.**
8. **Perform information for incident response** using the crowd Response tool
9. **Perform File type detection using** Autospy tool
10. **Perform Memory capture and analysis** using the Live RAM capture or any forensic tool

18MCS2L3 – DATA ANALYTICS LAB
(BASED ON PROGRAM SPECIFIC ELECTIVE-III)

I Year. M.Tech. (CSE) – II Sem

L	T	P/D	C
-	-	4	2

Prerequisite(s): None

Course Objectives:

Develop ability to

1. To provide an overview of a new language R used for data Analytics.
2. To present the basic techniques for extracting information from large datasets
3. To familiarize students with how various statistics like mean median etc. can be collected for data exploration.
4. Predict outcomes with supervised learning techniques and Unearth the patterns with unsupervised techniques
5. Understand visualization tools.

Course Outcomes (COs):

At the end of the course, student would be able to

CO 1: Describe different files formats like .csv and .txt and learn how access these files.
CO 2: Work on Data preprocessing methods
CO 3: Explain various Data Sources
CO 4: Carry out statistical analysis
CO 5: Use various techniques to visualize results of data.

List of Experiments

1. Demonstrate data cleaning – missing values
2. Implement data normalization (min-max, z-score)
3. Implement attribute subset selection for data reduction
4. Demonstrate outlier detection
5. Perform analytics on any standard data set
6. Implement linear regression
7. Implement logistic regression
8. Construct decision tree for weather data set
9. Analyze time-series data
10. Work on any data visualization tool

18MCS2L4 – PARALLEL COMPUTING LAB
(BASED ON PROGRAM SPECIFIC ELECTIVE-III)

I Year. M.Tech. (CSE) – II Sem

L	T	P/D	C
-	-	4	2

Prerequisite(s): 1.Computer Organization & Architecture
2.Operating Systems
3.Programming for problem solving

Course Objectives:
Develop ability to

1. To introduce the foundations of parallel Computing
2. To learn various parallel computing architectures and programming models
3. To gain knowledge of writing efficient parallel programs
4. To gain knowledge on sorting algorithms.
5. Students will demonstrate an understanding of concepts, algorithms, and design principles underlying parallel computing, develop algorithm design and implementation skills, and gain practical experience in programming large scale parallel machines.

Course Outcomes (COs):
At the end of the course, student would be able to

CO 1: Describe the concepts of parallel architectures
CO 2: Select the data structures that efficiently model the information in a problem.
CO 3: Develop an efficient parallel algorithm to solve it.
CO 4: Implement an efficient and correct code to solve it, analyze its performance
CO 5: Design and write a parallel program to solve specific problems.

List of Experiments

1. Design a parallel program to implement Matrix-Vector and Matrix-Matrix Multiplication using MPI library.
2. Design a parallel program to implement Bubble Sort using OpenMP and Pthread Programming Constructs.
3. Design a parallel program to implement Quick Sort using OpenMP and Pthread Programming Constructs.
4. Design a parallel program to implement Bucket Sort using OpenMP and Pthread Programming Constructs.
5. Design a parallel program to implement Prim's Algorithm using OpenMP and Pthread Programming Constructs.
6. Design a parallel program to implement DFS Algorithm using OpenMP and Pthread Programming Constructs.
7. Design a parallel program to implement BFS Algorithm using OpenMP and Pthread Programming Constructs.
8. Design a parallel program to implement Dijkstra'sAlgorithm using MPI library.

➢ **DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

18ME21L2 - FLUID MECHANICS AND HYDRAULIC MACHINERY LAB

1. Impact of jet on vanes.
2. Calibration of venturi meter.
3. Calibration of orifice meter.
4. Determination of friction factor for a given pipe.
5. Determination of loss of head due to sudden contraction.
6. Verification of Bernoulli's theorems.
7. Performance test on Pelton wheel.
8. Performance test on Francis turbine.
9. Performance test on Kaplan turbine.
10. Performance test on single stage centrifugal pump.
11. Performance test on multi stage centrifugal pump.
12. Performance test on reciprocating pump.

18EC21L1– DIGITAL DESIGN LAB

PART A: To Verify the Functionality of the following using Bread-boards / IC kits

1. 4-bit binary Adder (7483).
2. 8x1 Multiplexer (74151).
3. 3-8 Decoders (74138).
4. Decade Counter (7490).
5. Universal Shift Register (74194/195).
6. 4- Bit Comparator (7485)
7. Priority Encoder (74148)

PART B: To design and implement the following logic circuits using basic gates and other ICs

8. Full Adder and Full Subtractor using a) 3 to 8 Decoder, b) 4 to 1 Multiplexer.
9. 4 bit adder/Subtractor using Full Adders.
10. BCD adder using Full Adders
11. Two bit carry lookahead adder using Full Adders.
12. 4 Bit Binary to Gray code converter.
13. BCD to Excess-3 code converter
14. Digital clock using counters for Seconds.
15. Decade counter using a Binary counter.
16. 2 Bit comparator using gates.
17. BCD to 7 segment driver circuit.
18. Design a 4 bit Twisted Ring counter / Johnson counter using 4 bit shift registers.

18EE21L2 – ELECTRICAL CIRCUITS LAB

PART-A:

1. Verification of Kirchhoff's Laws (KVL and KCL).
2. Verification of Superposition and Reciprocity Theorems
3. Verification of Thevenin's and Norton's Theorems.
4. Verification of Maximum Power Transfer Theorem
5. Verification of Millman's and Compensation Theorems.
6. Determination of Average value and RMS value of complex wave.
7. Locus diagrams of R-L and R-C series circuits.
8. Series and Parallel resonance of RLC circuits.

PART-B: Simulation of (Any two of the following must be conducted)

1. Maximum Power Transfer Theorem
2. Thevinin's and Norton's Theorem
3. Mesh analysis
4. Nodal analysis

18EE22L1 – SIGNALS, SYSTEMS AND TRANSFORM TECHNIQUES LAB

Note: All the experiments are to be simulated using SCILAB / OCTAVE or equivalent software

1. Generation of Various Signals and Sequences (Periodic and Aperiodic), such as Unit Impulse, Unit Step, Square, Saw tooth, Triangular, Sinusoidal, Ramp, Sine.
2. Operations on Signals and Sequences such as Addition, Multiplication, Scaling, Shifting, Folding, Computation of Energy and Average Power.
3. Finding the Even and Odd parts of Signal/Sequence and Real and Imaginary parts of a Complex Signal.
4. Convolution between (i) signals and (ii) sequences.
5. (a) Auto Correlation of(i) signals and (ii) sequences.
   (b) Cross Correlation between (i) signals and (ii) sequences.
6. Verification of Linearity and Time Invariance Properties of a given Continuous/ Discrete System.
7. For the given LTI system, compute Unit sample, Unit step and Sinusoidal responses.
   a) Verify the physical realizability and stability properties.
   b) Locating the poles and zeros in s-plane and z-plane.
8. Verification of Gibbs Phenomenon.
9. Finding the Fourier Transform of a given signal and plotting its magnitude and phase spectrum.
10. Waveform Synthesis using Laplace Transform.

18EE22L2–NETWORK THEORY LAB

PART-A:

1. Determination of self and mutual inductances and co efficient of coupling.
2. Determination of Z and Y parameters.
3. Determination of Transmission Line and Hybrid Parameters.
4. Measurement of Active Power for Star and Delta connected balanced loads
5. Measurement of Reactive power for Star and Delta connected balanced loads
6. Measurement of 3-phase power by two watt meter method for unbalanced loads.
7. Time response of first order RC / RL networks.
8. Transient Response of RLC networks

PART-B: Simulation of (Any two of the following must be conducted)

1. AC circuits
2. DC Transient response
3. AC Transient response
4. Mesh analysis
5. Nodal analysis

Note: Simulation will be done using any freeware like octave/PSIM etc.

18EE22L3–ELECTRICAL MACHINES-I LAB

1. Magnetization characteristics DC shunt generator. Determination of critical field Resistance critical speed.
2. Load test on DC shunt generator. Determination of characteristics.
3. Brake test on DC shunt motor. Determination of performance curves.
4. Load test on DC compound generator. Determination of characteristics.
5. Hopkinson's test on DC shunt machines. Predetermination of efficiency.
6. Fields test on DC series machines. Determination of efficiency.
7. Swinburne's test and speed control of DC shunt motor. Predetermination of efficiencies.
8. Load test on DC Series generator. Determination of characteristics.
9. OC and SC Test on single phase Transformer.
10. Sumpner's Test on single phase Transformer's.
11. Parallel operation of two single phase Transformers.
12. Three phase to two phase conversion.

18EE31L1 – POWER SYSTEMS - II LAB

PART-A

1. Determination of Equivalent circuit parameters of 3-winding transformer.
2. Determination of Sequence impedance of salient pole synchronous machine
3. Fault analysis-I
   i. Single line to ground fault (L-G)
   ii. Line to Line fault (L-L)
4. Fault analysis-II
   i. Double line to Ground fault (L-L-G)
5. Determination of Sequence Impedance of Three Phase Transformer.

PART-B

Simulation studies of the following

6. Solution of power flow using Gauss Siedel method.
7. ABCD constants for long lines and voltage profile observation for open circuit line with and
   without shunt reactor compensation.
8. The performance of power system stabilizer
9. Steady state stability for small disturbances with and without change in power Input.
10. Voltage stability problems in transmission lines

18EE31L2 – ELECTRICAL MACHINES – II LAB

1. Brake test on three-phase induction motor.
2. No-load and blocked rotor tests on three-phase induction motor.
3. Equivalent circuit parameters of a single-phase induction motor.
4. Equivalent circuit parameters of a three-phase induction motor
5. Brake test on single phase induction motor.
6. Regulation of a three-phase alternator by synchronous impedance & **MMF** methods.
7. Regulation of a three-phase alternator by **ZPF** & **ASA** methods.
8. Determination of $\mathbf{X_d}$ and $\mathbf{X_q}$ of a salient pole synchronous machine.
9. **'V'** and **'Inverted V'** curves of a three-phase synchronous motor.
10. Efficiency of three-phase alternator.

18EE31L3–CONTROL SYSTEMSLAB

1. Time response of second order system
2. Characteristics of synchros
3. Transfer function of DC shunt motor
4. Effect of P, PI, PD, PID controller on a second order system (DC servomotor)
5. Lag and Lead Compensation-magnitude and phase plot
6. Transfer function of DC Generator
7. Temperature controller using P, I, D controllers
8. Characteristics of AC servomotor.
9. Simulation of root locus, bode plot and Nyqusit plot for a Linear Time Invariant System and perform stability analysis.
10. Simulation of State space model for a classical transfer function.

Note:
All simulation experiments will be simulated using suitable software.

18EN32L1- ADVANCED ENGLISH COMMUNICATION SKILLS (AECS) LAB

The following course content with activities/tasks is proposed for the Advanced English Communication Skills (AECS) Lab sessions:

1) **Activities on Fundamentals of Inter- Personal Communication and Vocabulary Building:** Responding appropriately and relevantly using the right body language-discourse skills-word roots, one-words substitutions, business vocabulary, analogy, collocations and uses of vocabulary- Resilience and Personal Management- Managing stress, time, anger and other emotions, assertiveness and culture shock.
2) **Reading Skills**- Reading for facts, specific information, Reading between the lines, negative facts – inferential reading- critical reading
3) **Activities on Writing:** Writing process, gather information, Analysing the content, formatting, editing, Resume writing and CV preparation, writing SOP, letter writing and email writing.
4) **Activities on Presentation Skills:** Oral Presentations (individual & group), seminars, ppts and written presentations through posters/ projects/ portfolio writing, brochures and reports.
5) **Activities on Group Discussion and Interview Skills:** Dynamics of Group Discussion–intervention – summarizing - body language, relevance and organization of ideas and rubrics for evaluation. Pre- interview planning, opening strategies, answering strategies, interview through Tele – Conference &Video – Conference and Mock Interviews, Videos of Mock Interviews.

18EE32L1 – POWER ELECTRONICS LAB

1. Characteristics of SCR, MOSFET and IGBT.
2. Firing circuits of SCR
3. Single phase thyristor based controlled rectifier with R and RL load
4. Control of DC voltage by IGBT based DC chopper
5. Control of AC voltage by thyristor based AC voltage controller
6. Frequency conversion by single phase cycloconverter
7. Single phase IGBT based inverter with R and RL load.
8. Simulation of three phase fully controlled rectifier with R and RL load
9. Simulation of IGBT based step-up and step-down DC chopper.
10. Simulation of single phase inverter with R and RL load.
11. Simulation of application of power electronic converter

Note: All simulation experiments will be simulated using suitable software.

18EC32L3- ANALOG CIRCUITS LAB

(A Minimum of TEN Experiments are to be conducted using hardware)

13. Frequency response of single stage RC coupled BJT amplifier
14. Frequency response of single stage CS FET amplifier
15. Frequency response of two-stage RC coupled FET amplifier
16. Frequency response of Voltage Series Feedback Amplifier
17. Frequency response of Current Series Feedback Amplifier
18. Frequency response of Current Shunt Feedback Amplifier
19. Frequency response of Voltage Shunt Feedback Amplifier
20. Design of RC Phase Shift Oscillator using BJT
21. Design of Hartley Oscillator
22. Design of Colpitts Oscillator
23. Determining efficiency of Class A Power Amplifier
24. Determining efficiency of Class B Complementary- Symmetry Power Amplifier

16EC41L2 – EMBEDDED SYSTEMS LAB
(Soft Core – I Lab)

13. Programs for arithmetic and logical operations for LPC2148
14. Program for finding largest number in an array for LPC2148.
15. Program for finding LCM of two numbers for LPC2148.
16. Program to generate Fibonacci Series using LPC2148.
17. Program to generate Multiplication Table of a number using LPC2148.
18. LED Blinking using LPC2148.
19. Buzzer Interfacing with LPC2148.
20. LCD interfacing with LPC2148.
21. Interfacing ADC/DAC to LPC2148.
22. Interfacing of temperature sensor with LPC2148.
23. Servo motor interfacing with Arduino.
24. DC motor interfacing with Raspberry Pi.

16EC41L3 – DIGITAL SIGNAL PROCESSING LAB
(Soft Core – I Lab)

The programs shall be implemented employing MATLAB/SCILAB/OCTAVE/CC-Studio or Equivalent in software and DSP processors kits in hardware.

1. Generation of Sinusoidal waveform / signal based on recursive difference equations.
2. To find DFT / IDFT of given DT signal.
3. To find frequency response of a given system given in (Transfer Function/ Differential equation form).
4. Implementation of FFT of given sequence.
5. Determination of Power Spectrum of a given signal(s).
6. Design and Implementation of LP FIR filters for given specifications.
7. Design and Implementation of HP FIR filters for given specifications.
8. Design and Implementation of LP IIR filters for given specifications.
9. Design and Implementation of HP IIR filters for given specifications.
10. Time frequency analysis of a given non-stationary signal.
11. Design a FIR Filter using the following windows and compare their finite word length effects.

a. Rectangular window
b. Hamming window
c. Hanning window
d. Kaiser window

12. Implementation of Decimation Process.
13. Implementation of Interpolation Process.
14. Implementation of I/D sampling rate converters.
15. Noise removal: Add white noise to a signal and study their spectral characteristics and then remove the noise.
16. Impulse response of first order and second order systems.

16EE41L2 – POWER SYSTEMS SIMULATION AND DRIVES LAB

Part A: Power Systems Simulation Experiments (Any five from the following to be conducted)

1. Solution of power flow using gauss siedel method
2. ABCD constants for long lines and voltage profile observation for open circuit line with and without shunt reactor compensation
3. To study the operation of definite time over current relay
4. To study the performance of typical dc distribution system
5. Simulation of automatic voltage regulator using both stabilizer and pid controller
6. Simulation of steady state stability for small disturbances with & without change in power input

Part B: Electric Drives Experiments (Any five from the following to be conducted)

1. IGBT used single 4 quadrant chopper drive for PMDC motor with speed measurement and closed loop control measurement.
2. Thyristorised drive for 1Hp DC motor with closed loop control
3. 3-Phase input, thyristorised drive, 3 Hp DC motor with closed loop control

4. 3-Phase input IGBT, 4 quadrant chopper drive for DC motor with closed loop control
5. Speed control of 3 phase wound rotor Induction motor.
6. Cyclo-converter based single phase AC Induction motor control equipment.

➢ Department of Mechanical Engineering

16WS11L1 - ENGINEERING WORKSHOP and IT WORKSHOP

Part A) ENGINEERING WORKSHOP

I. Trades for Exercises:

1. **Carpentry:** T-Lap Joint, L-Lap Joint, Cross Lap joint, Dove Tail Joint
2. **Fitting:** L-Fitting, V-Fitting, Dove tail Fitting.
3. **Tin-Smithy:** Open Scoop, Rectangular Tray, Funnel and development of jobs and soldering.
4. **House-Wiring:** Series Wiring, Staircase Wiring, Connecting one lamp with one switch, connecting two lamps with one switch.
5. **Black Smithy:** Preparation of S-Hook, C –Hook and Flat Chisel.
6. **Foundry:** Dumbell Pattern, Stepped Pulley Pattern and Gear pattern

II. Trades for Demonstration and Exposure:

1. **Welding:** V-Butt Joint, Corner Butt Joint, Lap Joints.
2. **Power tools** used in construction, wood working, Electrical Engineering and Mechanical Engineering
3. **Plumbing:** Thread Cutting, Pipe Joining –1 and Pipe Joining -2.

Part B) IT WORKSHOP

Week 1

Task 1: Different generations of computers, computing environments, Identify the peripherals of a computer, components in CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral.

Task 2: The students need to go through the video which shows the process of assembling a PC. The student should disassemble and assemble the PC back to its working condition.

Week 2

Task 1: Every student should learn installing Windows-7 in the personal computer.

Task 2: Hardware & software Troubleshooting: Students have to be given a PC which does not boot due to improper assembly or defective peripherals. Students have to be given a malfunctioning CPU due to system software problems. They should identify the problem and fix it to get the computer back to working condition.

Week 3

Task: Every student should learn the process of installing Linux in the computer along with configuring as dual boot with both windows and Linux.

Week 4

Task 1: Features of Word Processor Tool: Formatting Styles, Inserting table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check, Track changes.

Task 2: Creating a Newsletter: Features: Table of Content, Newspaper columns, Images from files and clipart, Drawing toolbar and Word Art, Formatting Images, Textboxes, Paragraphs and Mail Merge.

Week 5

Task 1: Features of Spreadsheet Tool: Creating a Scheduler - Features:- Gridlines, Format Cells, Summation, auto fill, Formatting Text

Task 2: Calculating GPA : Cell Referencing, Formulae in spreadsheet – average, std.

Week 6

Task: Features of Presentation tool: Students will work on basic power point utilities and tools which help them to create power point presentation. Presentation Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Hyperlinks, Inserting – Images, Clip Art, Audio, Video, Objects, Tables and Charts Lines and Arrows

Week 7

Task: Document preparation using LaTex

Week 8

Task: Document, Spreadsheet and Presentation using Libre Office

18ME11L1 - ENGINEERING WORKSHOP

A) Trades for Exercises:

a. **Carpentry**: T-lap joint, cross lap joint, mortise and tenon joint, Bridle joint, Corner lap joint.

b. **Fitting**: Square joint, V joint, half round joint, dovetail joint, L-Fitting.

c. **Tin-Smithy**: Tray, cylinder, hopper, funnel, Open scoop.

d. **Black Smithy**: Simple exercises such as upsetting, drawing down, punching, bending, swaging and fullering.

e. **House-wiring**: Wiring for two lamps (bulbs) with independent switch controls with or without looping, wiring for stair case lamp, wiring for a water pump with single phase starter.

f. **Foundry**: Preparation of sand mould using Single Piece pattern, Preparation of sand mould using Split pattern.

g. **Welding Practice**- Single butt joint, Corner Joint, T-filled Joint, Lap Joint.

B) Trades for Demonstration:

a. Plumbing
b. Machine Shop

16ME12L1 - MACHINE DRAWING

1. Drawing of Machine Elements and Simple Parts.

Selection of views, additional views for the following machine elements and parts with every drawing proportion

a) Popular forms of Screw threads, bolts, nuts, stud bolts, tap bolts, set screws.
b) Keys, cotter joints and knuckle joint.
c) Riveted joints for plates
d) Shaft coupling, spigot and socket pipe joint.
e) Journal, pivot and collar and foot step bearings

2. Assembly Drawings with Sectional Views:

Cutting planes and section, hatching lines, half sections, aligned sections, offset sections revolved, removed sections, local sections, successive sections, and thin Sections drawings of assembled views for the part drawings of the following using conventions and easy drawing proportions.

a) Engine parts – stuffing boxes, cross heads, Eccentrics, Petrol Engine connecting rod, piston assembly.
b) Other machine parts - Screw jacks, Machine Vices, Plummer block, Tailstock, Square Tool Post, Revolving Center.
c) Valves- Feed Check Valve, Gate Valve, Non Return Valve, Air Cock.

3. Disassembling of Machine Parts from Assembled Views and Introduction to Part Drawings:

Knuckle joint, coupling, (any one coupling) bearing (any one bearing), Internal Combustion Engine parts, Tool post, Revolving center, Drawing of parts from assembly drawings with indications of size, tolerances, roughness, form and position errors etc.

16ME21L1 – METALLURGY AND MECHANICS OF SOLIDS LAB

(A) Metallurgy lab: (All of the following must be conducted)

1. Preparation and study of the micro structure of pure material like iron Cu and Al.
2. Preparation and study of the Microstructure of mild steels, low carbon steels, high – C Steels.
3. Study of the Micro Structure of Stainless Steels.
4. Study of the Micro Structure of Cast Irons.
5. Study of the Micro Structure of Non – Ferrous alloys.
6. Hardenability of steel by Jominey End Quench Test.

(B) Mechanics of Solids Lab (Any Six of the following must be conducted)

1. Direct tension test on metal rods.
2. Shear Test.
3. Rockwell and Brinell's hardness test.
4. Compression test.
5. Impact test.
6. Test on a helical spring to determine the Modulus of Rigidity.

7. Torsion test to determine the rigidity modulus of a shaft.

18ME21L1 – MMS AND MOS LAB

(A) Metallurgy Lab:

1. Preparation and study of the micro structure of pure material like iron Cu and Al.
2. Preparation and study of the Microstructure of mild steels, high Carbon
3. Steels.
4. Study of the Micro Structure of Stainless Steels.
5. Study of the Micro Structure of Cast Irons.
6. Study of the Micro Structure of Non – Ferrous Alloys.
7. Hardenability of Steel by Jominey End Quench Test.

(B) Mechanics of Solids Lab (Any six of the following must be conducted)

1. Tension test on Universal Testing Machine (UTM).
2. Double Shear Test on Universal Testing Machine (UTM).
3. Compression Test on Universal Testing Machine (UTM).
4. Rockwell and Brinell's Hardness Test.
5. Izod and Charpy Impact Test.
6. Torsion Test
8. Spring Test

(C) Additional Experiments:

1. Bending Test on Beams
2. Simply Supported Beam
2. Cantilever Beam

16ME21L2 - ENGINEERING DRAWING WITH AUTOCAD

Study of capabilities of software for Drafting and Modeling – Coordinate systems (absolute, relative, polar, etc.) – Creation of simple figures like polygon and general multi-line figures.

1. Drawing of a Title Block with necessary text and projection symbol.
2. Drawing of curves like conical curves, spiral, cycloids, involutes using B spline or cubic spline.
3. Drawing of front view and top view of simple solids like prism, pyramid, cylinder, cone, etc, and dimensioning.
4. Drawing front view, top view and side view of objects from the given pictorial views (eg. Objects with hole and curves)
5. Drawing sectional views of prism, pyramid, cylinder, cone, etc,
6. Drawing Development of surfaces of different solids with different positions.
7. Drawing isometric projection of simple objects.
8. Creation of 3-D models of simple objects and obtaining 2-D multi-view drawings from 3D- model.
9. Assembly drawings: connecting rod, piston, screw jack, universal joint etc.,

Note: Plotting of drawings with dimensioning must be made for each exercise and attached to
the records written by students.

18ME22L2 - MACHINE DRAWING WITH AUTOCAD LAB

Study of capabilities of software for Drafting and Modeling – Coordinate systems (absolute, relative, polar, etc.) – Creation of simple figures like polygon and general multi-line figures

1. Drawing of a Title Block with necessary text and projection symbol.

2. Drawing front view, top view and side view of objects from the given pictorial views (eg. Objects with hole and curves)
3. Creation of 3-D models of simple objects and obtaining 2-D multi-view drawings from 3D- model.
4. Drawing of screw threaded fasteners & screw threads.
5. Drawing of of keys, cotters and pins in temporary joints
6. Assembly drawings: connecting rod, piston, screw jack, universal joint etc.

Note: Plotting of drawings with dimensioning must be made for each exercise and attached to the records written by students.

16ME22L1 - MECHANICS OF FLUIDS AND HYDRAULICMACHINERY LAB / 18ME21L2 - FLUID MECHANICS AND HYDRAULIC MACHINERY LAB

1. Impact of jet on vanes.
2. Calibration of venture-meter.
3. Calibration of orifice meter.
4. Determination of friction factor for a given pipe.
5. Determination of loss of head due to sudden contraction.
6. Verification of Bernoulli's theorems.
7. Performance test on Pelton wheel.
8. Performance test on Francis turbine.
9. Performance test on Kaplan turbine.
10. Performance test on single stage centrifugal pump.
11. Performance test on multi stage centrifugal pump.
12. Performance test on reciprocating pump.

16ME22L2 - PRODUCTION TECHNOLOGY- I LAB

I. METAL CASTING

1. Pattern design and making - for casting drawing.
2. Sand properties testing-exercise-for strength.
3. Moulding, Melting and Casting-1 Exercise.

II.WELDING

1. ARC Welding Lap & Butt Joint-2 Exercises.
2. Spot Welding-1 Exercise
3. TIG Welding-1 Exercise
4. MIG Welding-1 Exercise
5. Plasma Welding and Brazing-2 Exercises (Water Plasma Device)

III.MECHANICAL PRESS WORKING

1. Blanking & Piercing operation and study of simple, compound and progressive press tool.
2. Hydraulic Press: Deep drawing and extrusion operation.
3. Bending and other operations.

IV. PROCESSING OF PLASTICS

1. Injection Moulding
2. Blow Moulding

18ME22L3 - PRODUCTION TECHNOLOGY - I LAB

I. Metal Casting

1. Finding Grain Fineness Number of moulding sand.
2. Finding Permeability Number of moulding sand.
3. Finding of compressive and shear strength for Green sand and dry sand.
4. Pattern design and making.
5. Preparation of sand mould, Melting & Casting.

II. Metal Joining

1. Manual Metal Arc Welding (MMAW) - Preparation of Lap & Butt Joint.
2. Gas Metal Arc Welding - practice.
3. Gas Tungsten Arc Welding (GTAW) - practice.
4. Resistance Welding - Spot welding.
5. Gas Welding.
6. Plasma Welding & Cutting.
7. Brazing.

III. Metal Forming

1. Study of simple, compound and progressive dies
2. Blanking & piercing using fly press.
3. Bending using Hydraulic press.
4. Deep drawing using Hydraulic press.
5. Making of bottle cap using Injection moulding.
6. Making of bottle using blow moulding.

Note: Any four experiments from each group to be conduct.

16ME22L3 - KINEMATICS OF MACHINERY LAB

1. To study various types of Links, Pairs, Chain and Mechanism
2. To study various kinds of belts drives.
3. To study various types of Cam and Follower arrangement.
4. To study Different types of Gears.
5. To study Different types of Gear Trains.
6. Determination of damped natural frequency of vibration of the vibrating system with different viscous oils.
7. Determination of steady state amplitude of a forced vibrating system.
8. Static balancing using steel balls.
9. Determination of the magnitude and orientation of the balancing mass in dynamic balancing.
10. Field balancing of the thin rotors using vibration pickups.
11. Determination of the magnitude of gyroscopic couple, angular velocity of precession and representation of vectors.
12. To study and find coefficient of friction between belt and pulley.

18ME31L3 - KINEMATICS AND DYNAMICS LAB

1. To study various types of kinematic links, pairs, chains and mechanisms
2. To study various kinds of belts drives
3. To study various types of Cams and Followers
4. To study different types of Gears
5. To study Different types of Gear Trains

6. Determination of damped natural frequency of a vibrating system with different viscous oils
7. Determination of steady state amplitude of a forced vibrating system.
8. Static balancing using steel balls
9. Determination of the magnitude and orientation of the balancing mass in dynamic balancing
10. Field balancing of the thin rotors using vibration pickups
11. Determination of the magnitude of gyroscopic couple, angular velocity of precession and representation of vectors
12. To determine coefficient of friction between a belt and pulley

Additional Experiments

13. Measurement of vibration characteristics using vibration pickups

16ME31L1- THERMAL ENGINEERING LAB
18ME22L1- THERMAL ENGINEERING-I LAB

1. I.C. Engines Valve / Port Timing Diagrams
2. I.C. Engines Performance Test for 4 Stroke SI engines
3. I.C. Engines Performance Test for 2 Stroke SI engines
4. I.C. Engines Morse, Retardation, Motoring Tests
5. I.C. Engines Heat Balance – CI/SI Engines
6. I.C. Engines Economical speed Test on a SI engine
7. I.C. Engines effect of A/F Ratio in a SI engine
8. Performance Test on Variable Compression Ratio Engine
9. IC engine Performance Test on a 4S CI Engine
10. Performance Test on Reciprocating Air – Compressor Unit
11. Dis-assembly / Assembly of Engines
12. Study of Boilers

Additional Experiments

1. Mechanical efficiency of 2-stage reciprocating compressor.
2. Performance test on three cylinder four stroke petrol engine.

16ME31L2- PRODUCTION TECHNOLOGY-II LAB/ 18ME31L1- PRODUCTION TECHNOLOGY-II LAB

1. Introduction of machine tools - Lathe, Drilling machine, Milling machine, Shaper, Planing machine, slotting machine, Cylindrical Grinder, surface grinder and tool and cutter grinder.
2. Step turning and taper turning on lathe machine.
3. Thread cutting and knurling on -lathe machine.
4. Drilling and Taping.
5. Shaping and Slotting
6. Planing
7. Milling
8. Cylindrical and Surface Grinding

Additional Experiments

1. Grinding of tool angles.
2. Slotting using Indexing.

Section - B: Metrology

1. Use of gear teeth vernier calipers for checking the chordal addendum and chordal height of the spur gear.
2. Tool maker's microscope and its application
3. Angle and taper measurements by bevel protractor and sine bars.
4. Use of spirit level and optical flats in finding the flatness of surface plate.
5. Thread measurement by 2-wire and 3-wire methods.

Additional Experiments

1 .Surface finish measurement.

2. Machine tool alignment - test on the lathe.

16ME32L1 – Digital Fabrication and Instrumentation Lab

DIGITAL FABRICATON LAB:

1. Introduction to Basic 3D modeling techniques.
2. To perform free style modeling using 3D modeling software.
3. To understand and implement parametric design concepts.
4. To perform 3D Printing of the designed model.
5. To perform the 3D Scanning using laser scanners.
6. To understand and implement 3D Printing concepts for conversion of CAD model into real Part: slicing, effect of part orientation.

Additional Experiments

1. Project involving ideation, design and final fabrication using 3D printing.

INSTRUMENTATION:

1. Calibration of pressure gauges.
2. Calibration of resistance temperature detector for temperature measurement
3. Calibration of thermocouple for temperature measurement
4. Calibration of transducer for temperature measurement (thermistor).
5. Study and calibration of LVDT transducer for displacement measurement
6. Calibration of capacitive transducer for angular displacement
7. Study and calibration of a rotometer for flow measurement
8. Study and calibration of photo and magnetic speed pickups for the measurement of speed.

Additional Experiments

1. Calibration of strain gauge for temperature measurement
2. Study and use of a seismic pickup for the measurement of vibration amplitude of an engine bed at various loads.
3. Study and calibration of McLeod gauge for low pressure.

16ME32L2 – CAM/CAE Lab

Computer Aided Engineering (CAE):

1. Observe how to apply distributed loads and use element tables to extract data.
2. Observe the deflection caused by the weight of the beam itself.
3. Understand and perform the steps required to perform Harmonic analysis of the cantilever beam.
4. To solve a simple 2D Truss problem.
5. To perform a simple nonlinear analysis on a truss or beam.
6. To solve a simple steady state and transient conduction problem.
7. To outline and perform a simple coupled thermal/structural analysis.

Additional Experiments

1. To solve a buckling load.

2. Outline the steps required to create an axi-symmetric model.

Computer Aided Manufacturing (CAM)

1. Development of computer numerical control part program for step turning and machining of a component.
2. Development of computer numerical control part program for taper turning and machining of a component.
3. Development of computer numerical control part program for slot milling and machining of a component.
4. Development of computer numerical control part program for profile milling and machining of a component.

Additional Experiments

1. Selecting and planning the process of manufacture.

16ME32L3 - DESIGN FOR MANUFACTURING Lab (Soft Core Elective–I)

1. Study and report on design principles for manufacturability
2. Study and report on influencing factors on Design
3. Design for Casting - develop alternate design for simple solid castings
4. Design for Casting - develop alternate design for hollow castings
5. Design for Casting - develop alternate design for complex shape castings
6. Design for welding - develop alternate design for simple structures
7. Design for welding - develop alternate design for complex structures
8. Design for Bulk deformation processes - develop alternate design for simple structural shapes
9. Design for Sheet metal working - develop alternate design for simple sheet metal shapes
10. Design for Powder metallurgical parts - develop alternate design for simple shapes produced by powder metallurgy
11. Design for Machining - develop alternate design for simple machined parts
12. Design for Machining - develop alternate design for hollow parts machining

Additional Experiments:

1. Design for Machining - develop alternate design for complex shapes requiring more number of operations
2. Design for Assembly - develop alternate design for simple assemblies

16ME41L1-Work Study Lab (Soft Core Elective -II)

1. Preparation of two handed process chart.
2. Preparation of Multiple Activity chart.
3. Preparation of flow process charts on activities in Workshop/ Laboratory/Office.
4. To conduct time study of the bulb holder assembly operation for the existing method.
5. Determination of time standard for a given job using stopwatch time study.
6. Preparation of man-machine charts for an existing setup and development of an improved process.
7. Determination of time by Method Time Measurement (MTM).
8. Even distribution of workers.
9. To study and to find the load per worker in a factory.
10. Compare the performance of one another.
11. Carryout the study of Members of your Group on Jogging Machine.
12. Determine Mental Work Load (MWL) doing different tasks.

Additional experiments:

1. Determine standard time by work sampling.

2. Determine physiological work for doing different tasks.
3. Determine stress and fatigue for doing different tasks.
4. To study the operator's performance under different working conditions (light, temp, sound, atmosphere etc.)

16ME41L2 - Facility Design Lab
(Soft Core Elective –II)

1. Preparation of Production Routing sheet for each 'makes' part.
2. Preparation of Flow Process chart for each 'makes' part.
3. Computation of Plant services space requirement.
4. Computation of Total space requirement.
5. Preparation of from To chart for the departments.
6. Preparation of activity relationship charts.
7. Development of Initial departmental layouts.
8. Development of Final departmental layout.
9. Development of Initial layouts of production facilities.
10. Development of Final layout of production facilities.
11. Preparation of the Initial layouts for Storage space.
12. Preparation of the Final layout for Storage space.

16ME41L3 – HEAT TRANSFER LAB
18ME32L3–HEAT TRANSFER LAB

1. Composite Slab Apparatus – Overall heat transfer coefficient.
2. Heat transfer through lagged pipe.
3. Heat Transfer through a Concentric Sphere.
4. Thermal Conductivity of given metal rod.
5. Heat transfer in Pin-Fin.
6. Experiment on Transient Heat Conduction.
7. Heat transfer in forced convection apparatus.
8. Heat transfer in natural convection.
9. Parallel and counter flow heat exchanger.
10. Emissivity apparatus.
11. Stefan Boltzmann Apparatus
12. Study of heat pipe and its demonstration.
13. Critical Heat flux apparatus.
14. Heat transfer in film and drop wise condensation.

Additional Experiments

1) Heat transfer in Pin-Fin (Natural convection)
2) Heat transfer in natural convection (Vertical type)

18ME32L1 – FINITE ELEMENT ANALYSIS LAB

1. Displacement and stress analysis of one dimensional problems. (Rod or bar)
2. Displacement and stress analysis of beam problem.
3. Displacement and stress analysis of Truss
4. Stress and deflection analysis in beams with different support conditions.
5. Stress analysis of flat plates and simple shells.
6. Stress analysis of axi-symmetric components.
7. Thermal stress and heat transfer analysis of plate.
8. Thermal stress analysis of cylindrical shells.
9. Thermal stress analysis of composite wall problems.
10. Modal analysis of beams.

11. Harmonic, transient and spectrum analysis of simple systems
12. Vibration analysis of spring-mass systems

18ME32L2 – CAD/CAM LAB

Section A: Part Modeling:

1. Generation of various 3D Models through Protrusion (four models)
2. Generation of various 3D Models through Revolve (four models)
3. Generation of various 3D Models through Sweep (four models)

Section B: Modeling, Assembly and kinematics (with part detailing)

1. Generation of individual components of Connecting Rod and its Assembly.
2. Generation of individual components of Screw Jack and its Assembly.
3. Generation of IC engine mechanism and kinematic interference checking.

Section C: Computer Aided Manufacturing (CAM)

1. Development of computer numerical control part program for step turning and machining of a component.
2. Development of computer numerical control part program for taper turning and machining of a component.
3. Development of computer numerical control part program for slot milling and machining of a component.
4. Development of computer numerical control part program for profile milling and machining of a component.

18ME41L1 – DIGITAL FABRICATION LAB

1. Basic 3D modeling techniques
2. Free style modeling using 3D modeling software
3. 3D modeling of machine components using parametric design concepts (2 experiments)
4. Creating geometric model of physical component using 3D modeling software (2 Experiments)
5. 3D Printing of the modeled components (2 Experiments)
6. 3D Scanning using laser scanners(2 Experiments)
7. 3D Printing concepts for conversion of CAD model into real part: slicing, effect of part orientation(2 Experiments)

Additional Experiments

1. Project involving ideation, design and final fabrication using 3D printing

18ME41L2 - PRODUCTION DRAWING PRACTICE WITH AUTOCAD LAB

1. Creation of a Production Drawing Process sheets with Title box using AutoCAD.
2. Dimensioning in AutoCAD and components of Dimensioning Panel.
3. Creation of Standard Mechanical components with specifications using AutoCAD.
4. Production Drawing of Bevel Gear with process sheet using AutoCAD.
5. Production Drawing of Helical Gear with process sheet using AutoCAD.
6. Production Drawings of Mating Components : Tappet in Guide, Flange on shaft using AutoCAD
7. Production Drawings of Mating Components : Tappet in Guide, Flange on Bush Bearing etc using AutoCAD
8. Production Drawings of Assemblies: Footstep bearing using AutoCAD.
9. Production Drawing of Forging using AutoCAD
10. Creation of Jigs for drilling machine using AutoCAD
11. Creation of Jigs for shaper using AutoCAD
12. Creation of Fixture for drilling machine using AutoCAD

Note: Plotting of drawings with dimensioning must be made for each exercise and attached to the records written by students.

18ME41L3- OPERATIONS RESEARCH LAB

1. Write a program to solve a given graphical linear programming problems using Excel solver/C
2. Write a program to solve a given simplex problems using Excel solver/C
3. Write a program to solve a given transportation problems using Excel solver/C
4. Write a program to solve a given assignment problems using Excel solver/C
5. Write a program to solve a given n job 2 machine Sequencing problem
6. Write a program to solve a given n job 3 machine Sequencing problem
7. Write a program to solve a given n job m machine Sequencing problem
8. Write a program to solve a given replacement problem when money value change with time.
9. Write a program to solve a given group replacement problem.
10. Write a program to solve a given Two-Person Zero-Sum pure and mixed strategy game
11. Write a program to solve a given theory of game problems without saddle point
12. To determine the performance measures for M/M/1 queuing model.
13. To determine the performance measures for M/M/1/N queuing model.
14. To determine the performance measures for M/M/C/∞ queuing model.
15. To determine the performance measures for M/M/C/N queuing model.
16. Write a program to solve a given dynamic programming problem

- DEPARTMENT OF CIVIL ENGINEERING

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II Year B.Tech I Semester

18CE21L1 – Surveying Lab

List of Experiments

1. Chain Surveying:
    a. Determination of area and plotting.
    b. Chaining across obstacles.
2. Fly Levelling (differential levelling).
3. Longitudinal and Cross Sectioning and plotting using Auto Level.
4. Theodolite:
    a. Measurement of horizontal and vertical angles.
    b. Trigonometric levelling (Base is inaccessible).
5. Heights and distances using the principles of Tacheometric surveying.
6. Total Station:
    a. Area determination.
    b. Traversing.
    c. Contouring.
    d. Remote height determination.
    e. Distance, gradient and difference in height between two inaccessible points.
    f. Stake-out.
    g. Setting out works for buildings and pipe lines.
7. Finding position of stations using G.P.S.

18CE21L2 – Strength of Materials Lab

List of Experiments

1. Conduct tensile test on metal rods to determine Yield stress, ultimate stress, breaking stress, percentage elongation and percentage reduction in area.
2. Determination of Young's modulus, support reactions, shear force and bending moments by conducting deflection test on cantilever beam.
3. Determination of Young's modulus ,support reactions, support reactions, shear force and bending moment by conducting deflection test on simply supported beam.
4. Determination of modulus of rigidity of a given specimen by conducting torsion test.
5. Determination of hardness for metal specimen namely Mild steel, High carbon steel, Stainless steel, Brass, Copper and Aluminum using Brinnels and Rockwell Hardness test.
6. Determination of modulus of rigidity using spring test for a given spring specimen.
7. Determination of compressive strength of a given brick/ wood by conducting compression test.
8. Determination of impact toughness of a given specimen using Izod Impact test and Charpy impact test.
9. Determine the shear strength of the given specimen by conducting shear test using Universal Testing Machine (UTM).
10. Verification of Maxwell's Reciprocal theorem on beams.
11. Determination of Strains on a cantilever beam using Electrical Resistance Strain Gauges.
12. Determination of Young's modulus for the given specimen by conducting deflection test on continuous beam.

18EE21L1 – Basic Electrical Engineering Lab

List of Experiments

1. Verification of Ohms Law
2. Verification of KVL and KCL
3. Transient Response of Series RL and RC circuits using DC excitation
4. Transient Response of RLC Series circuit using DC excitation
5. Resonance in series RLC circuit
6. Calculations and Verification of Impedance and Current of RL, RC and RLC series circuits
7. Measurement of Voltage, Current and Real Power in primary and Secondary Circuits of a Single Phase Transformer
8. Load Test on Single Phase Transformer (Calculate Efficiency and Regulation)
9. Three Phase Transformer: Verification of Relationship between Voltages and Currents (Star-Delta, Delta-Delta, Delta-star, Star-Star)
10. Measurement of Active and Reactive Power in a balanced Three-phase circuit
11. Performance Characteristics of a Separately/Self Excited DC Shunt/Compound Motor
12. Torque-Speed Characteristics of a Separately/Self Excited DC Shunt/Compound Motor
13. Performance Characteristics of a Three-phase Induction Motor
14. Torque-Speed Characteristics of a Three-phase Induction Motor
15. No-Load Characteristics of a Three-phase Alternator

Note: Any 10 experiments from the above are to be conducted

II Year B.Tech II Semester

18MA22L1 – Computational Mathematics Lab

List of Experiments

1. Program to determine y for a given x, if two arrays of x and y of same size are given (using Newton's forward interpolation method).
2. Program to determine y for a given x, if two arrays of x and y of same size are given (using Lagrange's interpolation).
3. Program to evaluate definite integral using trapezoidal rule, Simpson's 1/3rd rule and 3/8th rule.
4. Program to find the solution of given system of linear equations using L-U decomposition method.
5. Program to find the solution of given system of equations using Gauss-seidel iteration method.
6. Program to find the root of algebraic / transcendental equations by using Bisection method.
7. Program to solve a given differential equation using modified Euler's method.
8. Program to solve a given differential equation using Runge-Kutta fourth order method.

18CE22L1 – Engineering Geology Lab

List of Experiments

1. Physical properties for identification of rock-forming minerals.
2. Megascopic description and identification of rocks.
3. Microscopic study of rocks.
4. Interpretation and drawing of sections for geological maps showing tilted beds, faults, unconformities, etc.
5. Measurement of strike and dip of joints in granites using clinometer compass.
6. Study of Structural Geological problems.
7. Study of Structural Geological models.
8. Study of geological and geotechnical maps of Telangana, Andhra Pradesh and India.
9. Measurement of Electrical resistivity of rocks, soils and groundwater using Electrical resistivity meter.

18CE22L2 – Hydraulics and Hydraulic Machinery Lab

List of Experiments

1. Calibration of Venturimeter and Orificemeter.
2. Determination of Coefficient of discharge for a small orifice/mouthpiece by constant head method.
3. Calibration of contracted Rectangular Notch and / Triangular Notch.
4. Determination of friction factor of a pipe.
5. Determination of Coefficient for minor losses.
6. Verification of Bernoulli's theorem.
7. Impact of jet on vanes.
8. Study of Hydraulic jump.
9. Performance test on Pelton wheel.
10. Performance test on Francis turbine.
11. Performance test on Kaplan turbine.
12. Performance characteristics of a single stage/ multi-stage centrifugal pump.
13. Performance characteristics of a reciprocating pump.

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III Year B.Tech I Semester

16CE31L1 -TRANSPORTATION ENGINEERING LAB.

LIST OF EXPERIMENTS:

I. ROAD AGGREGATES:

1. Aggregate Crushing Value Test
2. Aggregate Impact Test.
3. Specific Gravity and Water Absorption
4. Abrasion Test
5. Flakiness and Elongation Indices of Coarse Aggregates.

II. BITUMINOUS MATERIALS:

1. Penetration Test.
2. Ductility Test.
3. Softening Point Test.
4. Marshal stability Test

III. TRAFFIC STUDIES

1. Traffic volume studies
2. Speed studies
3. Parking studies

16CE31L2 – GEOTECHNICAL ENGINEERING LAB

LIST OF EXPERIMENTS

1. Atterberg Limits (Liquid Limit, Plastic Limit)
2. Field density by core cutter method and sand replacement method
3. Determination of Specific gravity of soil
4. Grain size distribution by sieve analysis
5. Permeability of soil by constant and variable head test methods
6. Standard Proctor's Compaction Test
7. California Bearing Ratio Test (CBR Test)
8. Determination of Coefficient of consolidation
9. Unconfined compression test
10. Direct shear test
11. Vane shear test
12. Triaxial shear test

16EN31L1 – ADVANCED ENGLISH COMMUNICATION SKILLS LAB

LIST OF EXERCISES:

S.NO		NAME OF THE EXERCISE
1.	Activities on Vocabulary Building.	Synonyms and antonyms, word roots, one-word substitutes, prefixes and suffixes, study of word origin, business vocabulary, analogy, idioms and phrases, collocations and usage of vocabulary.
2.	Activities on Fundamentals of Inter-personal Communication	Strategies for good communication and focus on body language-Starting a Conversation-responding appropriately and relevantly- formal & informal conversation, Communication in different situations.
3.	Resilience and Personal Management	Managing stress, time, anger and other emotions, assertiveness and culture shock
4.	Activities on Group Discussion	Dynamics of Group Discussion, intervention, summarizing, modulation of voice, body language, relevance, fluency and organization of ideas and rubrics of evaluation.
5.	Activities on Writing	Writing process, gather information, formatting, editing, types of essays, SOP. Portfolio writing-planning for writing- improving one's writing, brochures and newsletters.
6.	Activities on Interview Skills	Concept and process, Pre-interview planning, opening strategies, answering strategies, interview through Tele-conference & video-conference and Mock interviews, Videos of Mock Interviews.
ADDITIONAL EXERCISES		
1	Cross-Cultural Communication – Accepting and understanding various cultures.	
2	Attitude towards work, what is a profession?, who is a professional?, what is professionalism? and positive thinking.	

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III Year B.Tech II Semester

16CE32L1 – ENVIRONMENTAL ENGINEERING LAB

LIST OF EXPERIMENTS

Determination of:

1. pH
2. Turbidity.
3. Conductivity and Total Dissolved Solids.
4. Total Solids, Organic and Inorganic Solids.
5. Alkalinity
6. Acidity.
7. Chlorides.
8. Iron.
9. Dissolved Oxygen.

10. Nitrates.
11. Optimum Coagulant dosage.
12. Chlorine demand.
13. Total Phosphorous.
14. Biological Oxygen Demand (BOD).
15. Chemical Oxygen Demand (COD).

16CE32L2 – GEOGRAPHIC INFORMATION SYSTEM LAB
SOFT CORE – I LAB

LIST OF EXERCISES:

1) Identification of best locations of ground control points and mosaicing the different sources of maps of information like topographic sheets and satellite data and other drawings.
2) Mosaicing the different sources of maps of information like topographic sheets and satellite data and other drawings.
3) Geo-referencing of map either from Topo sheet and Raster Image.
4) Digitization of points features and assigning attributes to it.
5) Digitization of line features and assigning attributes to it.
6) Digitization of polygons features and assigning attributes to it.
7) Generation of topology for the vector layers generated.
8) Case study for any Civil Engineering Application of choice.

16CE32L3–ADVANCED STRUCTURAL DESIGN LAB
SOFT CORE – I LAB

LIST OF EXERCISES:

Analyse:
1. Continuous beam – Calculate SFD, BMD and Elastic curve.
2. 2D and 3D frame-Calculating SFD and BMD.
3. Multi-storey buildings for live and dead loads.
4. Multi-storey buildings by considering different load combinations (gravity and lateral loads)

Analyse and Design:
5. Multi storied Building.
6. Commercial complex.
7. Water tank.
8. Slab bridges.
9. Plate girders.
10. Roof Trusses.

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IV Year B.Tech I Semester

16CE41L1–COMPUTER AIDED STRUCTURAL DRAFTING LABORATORY

LIST OF EXERCISES

1) Introduction to computer aided drafting.
2) Commands in CAD.
3) Basic practice exercises on CAD.
4) Drawing of plans & elevations of (a) Single storey building. (b) Multi-storey building.
5) Reinforcing detailing of RCC singly reinforced, doubly reinforced beams.
6) Structural detailing of one way slab, two way slab.
7) RCC detailing of square, rectangular columns.
8) Drawing of STEEL-bolted, welded connections.
9) Detailing of compression members i.e., column (laced & battened).
10) Detailing of plate girder.

16CE41L2– FEM FOR CIVIL ENGINEERING LAB

LIST OF EXERCISES

Analysis of:

1. Bars of constant cross-section area.
2. Bars of tapered cross-section area.
3. Stepped bar.
4. Trusses.
5. Simply supported beam with point load.
6. Simply supported beam with UDL.
7. Simply supported beam with UVL.
8. Beam with moment and overhang
9. Cantilever beam with point load.
10. Cantilever beam with UDL
11. Beam with inclined loads, one end hinged and at other end roller support.
12. Rectangular plate with a circular hole.
13. Continuous beam.
14. Fixed beam.

16CE41L3 - PAVEMENT ANALYSIS AND DESIGN LAB

1. Introduction to MX Roads-String Modeling
2. Survey data input and import
3. String names and drawing styles, point selection methods
4. Surface checker and editing data- surface analysis
5. String creation and editing
6. Earth work calculation
7. Alignment creation a. Horizontal alignment b. Vertical alignment
8. Design of rule based super elevation
9. Junction design
10. Pavement design -final drawings.

18PH11L1-EINGINEERING PHYSICS

Pre-requisite(s): Engineering Physics

Course Objectives:

Develop ability to

1. Determine the frequency of a given tuning fork and a.c source.
2. Determine the moduli of elasticity and coupling constant.
3. Determine radius of curvature of a plano convex lens, dispersive power of given prism and number of lines drawn on grating per inch.
4. Determine the resonant frequency and quality factor of LCR circuit.
5. Determine the wavelength of a given laser source, numerical aperture and attenuation of optical fiber.

Course Outcomes:

At the end of the course, student would be able to

1. Compute the frequency of tuning fork and a.c. source.
2. Infer the moduli of elasticity of given material, explain the concept of conservation of energy and resonance.
3. Demonstrate the optical phenomena like interference and diffraction.
4. Compute the resonance frequency and quality factor of a LCR circuit.
5. Calculate the wavelength of given laser source and numerical aperture, bending losses in optical fiber.

List of Experiments: (Note: Any 8 experiments are to be performed)

1. **Melde's experiment:**
   To determine the frequency of a vibrating bar or tuning fork using Melde's arrangement.
2. **Torsional Pendulum:**
   To determine the rigidity modulus of the material of the given wire using torsional pendulum.
3. **Sonometer:**
   To determine the frequency of a.c. source using sonometer and electromagnet
4. **Newton's rings:**
   To determine the radius of curvature of the plano convex lens by forming Newton's rings.
5. **Diffraction grating:**
   To determine the number of lines per inch of the grating.
6. **Dispersive power:**
   To determine the dispersive power of prism by using spectrometer.
7. **Coupled Oscillator:**
   To determine the coupling constant by single coupled oscillator.
8. **LCR Circuit:**
   To determine resonant frequency and quality factor of LCR circuit.
9. **LASER:**
   To study the characteristics of LASER sources.
10. **Optical fiber:**
    To determine the bending losses of Optical fibers.
11. **Optical fiber:**
    To determine the Numerical aperture of a given fiber.

18PH12L1 - SEMICONDUCTOR DEVICES LABORATORY

I Year B. Tech. II Semester - Common to CSE, ECE, EEE and IT

Pre-requisite(s): 18PH1102 - Applied Physics

Course Objectives: Develop ability to

L	T	P	C
-	-	3	1.5

1. Determine magnetic induction at several points on the axis of coil carrying current and the wavelength of LASER.
2. Determine time constant of a RC circuit, energy gap of a given semiconductor, Hall coefficient, work function of a given material and resonant frequency of LCR circuit.
3. Plot V-I characteristics of LED, p-n junction and Zener diode, understand rectification process and working of rectifier, understand the conversion of light into electrical energy.
4. Plot the characteristics of transistor in different configurations.
5. Plot drain and transfer characteristics of a Field Effect Transistor (FET).

Course Outcomes: After completion of the course, student would be able to

CO1. Summarize working principle of electromagnetic induction and compute the wavelength of a laser.

CO2. Compute time constant of RC circuit, energy gap of semiconductor, identify type of semiconductor, compute work function of a given material and resonant frequency of LCR circuit.

CO3. Demonstrate the V-I characteristics of LED, p-n junction diode, the application of Zener diode as voltage regulator and conversion of ac to dc with and without filters, exhibits knowledge in developing various applications of solar cells.

CO4. Evaluate current gain of a given n-p-n transistor.

CO5. Analyze the drain and transfer characteristics of FET in common source configuration.

Any ten of the following fourteen experiments are mandatory to perform by each student

1. Draw the V-I characteristics of LED.
2. Determination of the wavelength of a given source of LASER-Diffraction grating.
3. Determination of time constant of a given RC combination.
4. Determination of energy gap of a given semiconductor.
5. V-I Characteristics of p - n junction diode and Zener diode.
6. Input and Output characteristics of n-p-n transistor - CE and CB configurations.
7. Conversion of ac to dc by using half wave rectifier with and without filters.
8. Conversion of ac to dc by using full wave rectifier with and without filters.
9. FET characteristics.
10. V-I characteristics of a Solar cell.
11. Determination of resonant frequency and quality factor of series LCR circuit.
12. Hall Effect: To determine Hall coefficient of a given semiconductor.
13. Photo electric effect: To determine work function of a given material.
14. Stewart-Gee's experiment. Determination of magnetic field along the axis of a current carrying coil.

ENGINEERING CHEMISTRY LAB
List of Experiments

I. Titrimetry

1. Determination of total hardness of water by complexometric method using EDTA
2. Determination of acid value of coconut oil.

II Instrumental Methods

A. Potentiometry

3. Estimation of HCl by Potentiometric titrations
4. Estimation of Fe^{2+} by Potentiometry using $KMnO_4$

B. Conductometry

5. Estimation of an HCl by Conductometric titrations
6. Estimation of Acetic acid by Conductometric titrations

III. Physical Constants

7. Determination of viscosity of a given liquid by using Ostwald's viscometer.
8. Determination of surface tension of a given liquid using stalagmometer.

IV. Synthesis

9. Synthesis of Aspirin and Paracetemol.

V. Kinetics

10. Determination of rate constant of acid catalysed hydrolysis of methyl acetate

VI. Additional Experiments

11. Verification of Freundlich adsorption isotherm-adsorption of acetic acid on charcoal
12. Determination of partition coefficient of acetic acid between n-butanol and water.

ENGLISH LANGUAGE AND COMMUNICATION SKILLS LAB

B.Tech. I Year – I Sem (CSE, ECE, EEE & IT) Code: 18EN11L1
B.Tech. I Year – II Sem (CE & ME) Code: 18EN12LI

FRESHMAN ENGINEERING DEPARTMENT- LIST OF EXPERIMENTS

S.NO	LIST OF EXPERIMENTS
1	**Module-I Computer Assisted Language Learning (CALL) Lab:** ***Understand:*** **Listening Skill-Its importance– Purpose-Process-Types-Barriers to Listening** ***Practice*****: Introduction to Phonetics–Speech Sounds –Vowels and Consonants.** **Interactive Communication Skills (ICS) Lab:**

	Understand: **Communication at Work Place-Spoken vs. Written language.**
	Practice: **Ice-Breaking Activity and JAM Session- Situational Dialogues Greetings– Taking Leave– making request and seeking permission. Introducing one self and others**
2	**Module-II Computer Assisted Language Learning (CALL) Lab:** ***Understand:*** **Structure of Syllables–Word Stress and Rhythm Weak Forms and Strong Forms in Context.** ***Practice:*** **Basic Rules of Word Accent-Stress Shift- Weak Forms and Strong forms in Context.** **Interactive Communication Skills (ICS) Lab:** ***Understand:*** **Features of Good Conversation–Non-verbal Communication.** ***Practice*****–Telephone** **Etiquette Descriptions- Places, Objects, Events and Process**
3	**Module-III Computer Assisted Language Learning (CALL) Lab:** ***Understand:*** **Intonation-Errors in Pronunciation-the Influence of Mother Tongue (MTI) - Examples from different parts of the country.** ***Practice:*** **Common Indian Variants in Pronunciation–Differences in British and American Pronunciation.** **Interactive Communication Skills (ICS) Lab:** ***Understand:*** **How to make Formal Presentations.** ***Practice:*** **Formal Presentations**
4	**Module-IV Computer Assisted Language Learning (CALL) Lab:**
	Understand: **Listening for General Details. (2 practice exercises)**

	Practice: **Listening Comprehension Tests. (2 practice exercises)** **Interactive Communication Skills (ICS) Lab:** ***Understand:*** **Public Speaking-Debate– Exposure to Structured Talks (2 practice exercises)** ***Practice:*** **Making a Short Speech– Extempore (2 practice exercises)**
5	**Module-V Computer Assisted Language Learning (CALL) Lab:** ***Understand:*** **Listening for Specific Details (2 practice exercises)** ***Practice:*** **Listening Comprehension Tests (2 practice exercises)** **Interactive Communication Skills (ICS) Lab:** ***Understand:*** **General Interview Skills.** ***Practice:*** **Mock Interview Skills**

Computational Mathematics Lab

List of Programmes:

1. Program to determine y for a given x, if two arrays of x and y of same size are given (using Newton's forward interpolation method).
2. Program to determine y for a given x, if two arrays of x and y of same size are given (using Lagrange's interpolation).
3. Program to evaluate definite integral using trapezoidal rule, Simpson's $1/3^{rd}$ rule and $3/8^{th}$ rule.
4. Program to find the solution of given system of linear equations using L-U decomposition method.
5. Program to find the solution of given system of equations using Gauss-Seidel iteration method.
6. Program to find the root of algebraic / transcendental equations by using Bisection method.
7. Program to solve a given differential equation using Modified Euler's method.
8. Program to solve a given differential equation using Runge-Kutta fourth order method.

Additional Programmes:

1. Program to find the root of algebraic / transcendental equations by using Newton Raphson method.
2. Program to find the solution of given system of equations using Gauss Jordan elimination method.

List of Experimental Setup

List of Experiments PPS Lab-I Semester

S.No	**Name of the program**
1	**WEEK-1** Introduction to RAPTOR Tool Draw Flow chart using RAPTOR to, 1. Read a number and Display the same number 2. Read and Display the student details 3. Read two numbers from user and calculate addition and subtraction of those numbers 4. Read two numbers from user at the time of execution and calculate multiplication and division of those numbers 5. Find the square of a given number (take the number from the user) 6. Calculate the value of Y from the equation $y = x^2 + 2x + 3$ (read the value of X from user)
2	**WEEK-2** Draw Flow chart using RAPTOR to, 1. Calculate the area of a Circle 2. Calculate the area of a Square 3. Calculate the area of a Rectangle 4. Interchange two numbers 5. Find the sum of square of two numbers 6. Convert Centigrade to Fahrenheit 7. Convert Radius to Degrees 8. Display the roots of Quadratic Equation
3	**WEEK-3** Draw Flow chart using RAPTOR to, 1. Check whether the given number is Positive or Negative 2. Check whether the given number is even or odd 3. Display whether a person is eligible for vote or not 4. Calculate the Largest of two numbers 5. Check the given year is leap year or not 6. Check whether two numbers are equal or not 7. Find the largest value among three given numbers
4	**WEEK-4** Draw Flow chart using RAPTOR to, 1. Calculate and display the grade of a student a. < 30 % - Fail b. Between 31 and 50 – C grade c. Between 51 to 60 – B grade d. Between 61 to 75 – A grade

	e. Greater than 75 – distinction 2. Find the quadratic roots of an equation (real or imaginary) Check the given number is multiple of 2,4and 8
5	**WEEK-5** Draw Flow chart using RAPTOR for, 1. Displaying n numbers using looping 2. Calculating the sum of n natural numbers 3. Displaying the even numbers below n 4. Calculating sum of even numbers and odd numbers from 1 to n (n value supplied by the user)
6	**WEEK-6** 1. Write a C program to display student details 2. Write a C program to perform arithmetic operations 3. Write a C program to implement increment and decrement operators 4. Write a C program to implement conditional operator 5. Write a C program to implement bit wise operator
7	**WEEK-7** 1. Write a C program to calculate the biggest of given two numbers 2. Write a C Program to print the result depending on the following 1. < 30 % - Fail 2. Between 31 and 50 – C grade 3. Between 51 to 60 – B grade 4. Between 61 to 75 – A grade 3. Write a C Program to implement arithmetic calculator using switch case
8	**WEEK-8** 1. Write a C program to find sum of n natural numbers 2. Write a C program to find sum of individual digits of the given number 3. Write a C program to find factorial of a given number
9	**WEEK-9** 1. Write a C program to display the prime numbers below n (where n value is given by user) 2. Write a C program to generate the first n terms of the Fibonacci sequence. 3. Write a C program to find the quadratic roots of an equations 4. Write a c program to calculate sum of the following geometric equation Sum=$1+x+x^2+x^3+\ldots.+x^n$
10	**WEEK-10** 1. Write a C program to find the given number is palindrome or not 2. Write a C program to find GCD and LCM of two given numbers using functions 3. Write a C program to find the factorial of a given number using recursive function 4. Write a C program to generate the Fibonacci series using recursive function
11	**WEEK-11** 1. Write a c program to find largest and smallest numbers in a list of array elements using functions 2. Write a C program to sort the given list of elements in ascending order using functions.

	3. Write a c program to search for a given element in the list of array and display the "location" if the number is found else print "the number is not found". Using fixed length and variable length array
12	**WEEK-12** 1. Find the duplicate elements in the list of sorted array 2. Write a C program that uses functions to perform the Addition of Two Matrices 3. Write a C program that uses functions to perform the Multiplication of Two Matrices
13	**WEEK-13** 1. Write a C program to find weather a given string is palindrome or not. 2. Write a C program to insert characters at a given location in a given string. 3. Write a C program to delete characters from a given string and position 4. Write a C program to print the number of vowels and consonants using Strings
14	**WEEK-14** 1. Write a C program to convert Roman number to Decimal Number. 2. Write a C program to find the 2's Compliment of a given string 3. Write a C program to Reverse a String by Passing it to function 4. C Program to Input a String with at least one Number, Print the Square of all the Numbers in a String
15	**WEEK-15** 1. Write a C program to swap two integers using following methods a. call by value b. call by reference 2. Write a C program to find sum of even and odd numbers using functions and pointers
16	**WEEK-16** 1. Write a C program to find Largest Number Using Dynamic Memory Allocation. 2. Write a C program to return multiples values from a function using pointers

ENGINEERING WORKSHOP

S. No.	LIST OF EXPERIMENTS (TRADES)
1.	CARPENTRY
2.	FITTING
3.	TINSMITHY
4.	HOUSEWIRING
5.	BLACK SMITHY
6.	FOUNDRY
7.	WELDING
8.	DEMONSTRATION (POWER TOOLS)
9.	DEMONSTRATION(PLUMBING & MACHINE SHOP)
10.	ADDITIONAL EXPERIMENTS a) Metal Cutting (Water Plasma) b)Hand-Held circular saws

ADVANCED ENGLISH COMMUNICATION SKILLS LAB
FRESHMAN ENGINEERING DEPARTMENT - LIST OF EXPERIMENTS

B.Tech. III Year – I Sem ECE, ME) Code: 18EN31L1
B.Tech. III Year – II Sem (CSE, CE) Code: 18EN32LI

S.NO	NAME OF THE ACTIVITIES / EXPERIMENTS
1.	**Activities on Fundamentals of Inter- Personal Communication and Vocabulary Building:** Responding appropriately and relevantly using the right body language-discourse skills-word roots, one-words substitutions, business vocabulary, analogy, collocations and uses of vocabulary- Resilience and Personal Management-Managing stress, time, anger and other emotions, assertiveness and culture shock.
2.	**Reading Skills :** Reading for facts, specific information, Reading between the lines, negative facts – inferential reading- critical reading
3.	**Activities on Writing:** Writing process, gather information, Analysing the content, formatting, editing, Resume writing and CV preparation, writing SOP, letter writing and email writing.
4.	**Activities on Presentation Skills:** Oral Presentations (individual & group), seminars, ppts and written presentations through posters/ projects/ portfolio writing, brochures and reports.
5.	**Activities on Group Discussion and Interview Skills:** Dynamics of Group Discussion–intervention, summarizing, body language, relevance and organization of ideas and rubrics for evaluation. Pre- interview planning, opening strategies, answering strategies, interview through Tele- Conference &Video Conference and Mock Interviews, Videos of Mock Interviews.

- **DEPARTMENT OF MANAGEMENT STUDIES**

18EN01L1: **Business Communication- Lab**

S. No.	List of Experiments
1.	Certificate
2.	Performance Indicator
3.	Vision & Mission (Institute & Program), PEOs , POs & PSOs
4.	Course Description: Course Overview, Objectives, Outcomes & Prerequisites
5.	List of Experiments/ Syllabus
6.	Evaluation Pattern
7.	Index
8.	General Instructions for Students and Teachers
9.	**Module I: Introduction** Activity: Ice-breaking, JAM, Introducing oneself
11.	**Module II: Developing Business writing Skills** Activity: Letter Writing, e-mail Writing
12.	**Module III: Business Reports and Proposals** Activity: Corporate Report, Business Proposals
13.	**Module IV: Oral and Employment Communication** Activity: Power Point Presentation, Mock Interviews
14.	**Module V: Contemporary Aspects in Communication** Activity: Debate, Group Discussion

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18MB02L1: Business Data Analysis- Lab

S.No.	LIST OF THE LAB EXERCISES
1	Introduction: OS, Language, Package, Internet, Applications, Browser. Introduction to MS Office: Word, Excel, Power point.
2	MS Word: Fundamentals (creation of documents, types of documents, templates).
3	Formatting (Text Editing and Saving). Organizing information with tables in MS-Word.
4	Mail merge.
5	MS power point: Animation.
6	Presentation using Power point.
7	Introduction to MS-EXCEL: Formulae in Excel, Macros.
8	Charts, Formatting charts.
9	Macros.
10	t Test, Z test.
11	ANOVA one way and two ways.
12	Correlation, Pearson's correlation.
13	Spearman correlation.
14	Linear and Multiple Regression.
15	**ADDITIONAL APPLICATIONS:** F-test, Chi test, H-lookup, V-lookup, Hyper linking.

ANNEXURE -3

Academic Calendar of the College

Geethanjali College of Engineering and Technology
AUTONOMOUS
(Accredited by NBA, Approved by AICTE, New Delhi)
Sy No.33 &34, Cheeryal(V), Keesara (M), Medchal District – 501 301

Academic Calendar for I B. Tech. (Autonomous) of the Academic year 2019-2020.

I Semester:

Description	Period	Duration
Orientation and Induction program	02-08-2019 to 15-08-2019	(2 weeks)
First Spell of Instruction	16-08-2019 to 17-10-2019	(8weeks)
Fresher's day	31-08-2019	
First Parent – Teacher Meeting	08-09-2019	
*Dussehra Holidays	05-10-2019 to 12-10-2019	(8 days)
First Mid-Term Examination	18-10-2019 to 21-10-2019	(3 days)
Submission of First Mid-Term Examinations Marks to Exam Branch on or before	28-10-2019	
Second Spell of instruction	22-10-2019 to 13-12-2019	(8 weeks)
Second Parent – Teacher Meeting	24-11-2019	
Second Mid-Term Examinations	16-12-2019 to 18-12-2019	(3days)
Submission of Second Mid-Term Examinations Marks to Exam Branch on or before	24-12-2019	
Preparation Holidays and Practical Examinations	19-12-2019 to 01-01-2020	(2 weeks)
End Semester	02-01-2020 to 10-01-2020	(9 days)
Semester break	13-01-2020 to 15-01-2020	(3 days)

*Dussehra Holidays are likely to be rescheduled according to the announcement made by the Telangana Government.

II Semester:

Description	Period	Duration
First Spell of Instruction	16-01-2020 to 11-03-2020	(8weeks)
First Parent – Teacher Meeting	16-02-2020	
First Mid-Term Examination	12-03-2020 to 16-03-2020	(3days)
Submission of First Mid-Term Examinations Marks to Exam Branch on or before	23-03-2020	
Second Spell of instruction	17-03-2020 to 11-05-2020	(8weeks)
Second Parent – Teacher Meeting	19-04-2020	
Second Mid-Term Examinations	12-05-2020 to 14-05-2020	(3 days)
Submission of Second Mid-Term Examinations Marks to Exam Branch on or before	20-05-2020	
Practical Examinations and Preparation Holidays	15-05-2020 to 05-06-2020	(3 weeks)
End Semester	06-06-2020 to 15-06-2020	(10 days)
Supplementary Examinations	16-06-2020 to 20-06-2020	(5 days)
Summer Vacation	22-06-2020 to 27-06-2020	(1 week)
Commencement of Class work for the next academic year 2020 to 2021	29-06-2020	

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Geethanjali College of Engg. and Tech.
Cheeryal (V), Keesara (M), Medchal Dist.(T.S.)-501 301.

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Geethanjali College of Engineering and Technology (Autonomous)

(Accredited by NBA, Approved by AICTE, New Delhi)
Sy. No.33 &34, Cheeryal(V), Keesara (M), Medchal District – 501 301

Revised Academic Calendar for II/III/IV B. Tech. (Autonomous) of the Academic Year 2019-20.

I Semester:

Description	Period	Duration
First Spell of Instruction	24-06-2019 to 16-08-2019	(8 weeks)
First Parent – Teacher Meeting	21-07-2019	-----
First Mid-Term Examination	17-08-2019 to 22-08-2019	(5 days)
Submission of First Mid-Term Examinations Marks to Exam Branch on or before	28-08-2019	-------
Second Spell of Instruction	23-08-2019 to 26-10-2019	(8 weeks)
*Dussehra Holidays	07-10-2019 to 19-10-2019	(2 weeks)
Second Parent – Teacher Meeting	08-09-2019	------
Second Mid-Term Examinations	28-10-2019 to 30-10-2019	(3 days)
Submission of Second Mid-Term Examinations Marks to Exam Branch on or before	06-11-2019	-----
Semester Break	31-10-2019 to 03-11-2019	(4 days)
End Semester Theory Examinations	04-11-2019 to 19-11-2019	(12 days)
End Semester Practical Examinations / Supplementary Examinations/ Semester break	20-11-2019 to 30-11-2019	(11 days)

*Dussehra Holidays rescheduled according to the announcement made by the TS Govt.

II Semester:

Description	Period	Duration
First Spell of Instruction	02-12-2019 to 25-01-2020	(8 weeks)
First Parent – Teacher Meeting	29-12-2019	-----
First Mid-Term Examination	27-01-2020 to 31-01-2020	(5 days)
Submission of First Mid-Term Examinations Marks to Exam Branch on or before	06-02-2020	-------
Second Spell of instruction	01-02-2020 to 28-03-2020	(8 weeks)
Second Parent – Teacher Meeting	23-02-2020	------
Second Mid-Term Examinations	30-03-2020 to 04-04-2020	(5 days)
Submission of Second Mid-Term Examinations Marks to Exam Branch on or before	09-04-2020	-----
Preparation Holidays and Practical Examinations	06-04-2020 to 18-04-2020	(2 weeks)
End Semester Examinations/ Supplementary Examinations	20-04-2020 to 02-05-2020	(2 weeks)
Summer Vacation	04-05-2020 to 15-06-2020	(6 weeks)
Commencement of Class work for the next academic year 2020 -21	22-06-2020	----------

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Geethanjali College of Engineering and Technology (Autonomous)
Cheeryal (V), Keesara (M) Medchal Dist.

Revised Academic Calender for I Year M.Tech (Autonomous) of the A.Y 2019-20

I Semester

Description	Period	Duration
First Spell of Instruction	26.08.2019 to 26.10.2019	(8 weeks)
First Mid Examinations	28.10.2019 to 30.10.2019	(3 days)
Submission of First Mid-Term Examinations Marks to Exam Branch on or before	03.10.2019	
Parent teacher meeting	04.10.2019	
Dussera holidays	05.10.2019 to 19.10.2019	(2 weeks)
Second Spell of Instruction	31.10.2019 to 25.12.2019	(8 weeks)
Second Mid Examinations	26.12.2019 to 28.12.2019	(3 days)
Submission of Second Mid-Term Examinations Marks to Exam Branch on or before	03.01.2019	
Preparation of practical Examinations	30.12.2019 to 04.01.2020	(1 week)
End Semester Examinations/Supplementary Examinations	06.01.2020 to 25.01.2020	(3 weeks)
Semester Break	27.01.2020 to 01.02.2020	(1 week)

*Dussehra Holidays are rescheduled according to the announcement made by the Telangana Government

II Semester

Description	Period	Duration
First Spell of Instruction	03.02.2020 to 28.03.2020	(8 weeks)
First Mid Examinations	30.03.2020 to 01.04.2020	(3 days)
Submission of First Mid-Term Examinations Marks to Exam Branch on or before	07.04.2020	
Parent teacher meeting	04.04.2020	
Second Spell of Instruction	02.04.2020 to 27.05.2020	(8 weeks)
Second Mid Examinations	28.05.2020 to 30.05.2020	(3 days)
Submission of Second Mid-Term Examinations Marks to Exam Branch on or before	05.06.2020	
Preparation of practical Examinations	01.06.2020 to 06.06.2020	(1 week)
End Semester Examinations/Supplementary Examinations	08.06.2020 to 27.06.2020	(3 weeks)
Summer vacation	29.06.2020 to 25.07.2020	4 weeks
Commencement of class work for II year I-sem.	27.7.2020	

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Geethanjali College of Engineering and Technology (Autonomous)
Cheeryal (V), Keesara (M) Medchal Dist.
Revised Academic Calendar for II year MTech.,(Autonomous) for Academic Year 2019-20

II - I Semester :

Description	Period	Duration
Commencement of Semester	15-07-2019	
First spell of instruction	08-07-2019 to 07-09-2019	(8W)
PRC I	02-09-2019 to 07-09-2019	
First Mid Examinations	09-09-2019 to 10-09-2019	2 days
Second Spell Instruction	11-09-2019 to 20-11-2019	(8W)
PRC II	30-10-2019 to 05-11-2019	
*Dussehra Holidays	05-10-2019 to 19-10-2019	(2 W)
Second Mid Examinations	21-11-2019 to 22-11-2019	2 days
Preparation	23-11-2019 to 30-12-2019	(9 days)
End Semester Examinations	02-12-2019 to 04-12-2019	3 days

*Dussehra Holidays rescheduled according to the announcement made by the Telangana Government.

II – II Semester :

Description	Period	Duration
Commencement of Semester	05-12-2019	
Project Work (Thesis submission and viva-voce)	05-12-2019 to 21-05-2020	(24 W)
PRC III	13-01-2020 to 18-01-2020	
PRC IV	16-03-2020 to 21-03-2020	

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Geethanjali College of Engineering and Technology
AUTONOMOUS
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Sy No.33&34, Cheeryal (V), Keesara (M) Medchal Dist-501301.

Revised Academic Calendar for MBA (Autonomous) I year for the Academic Year 2019-20

I Semester

Description	Period	Duration
First Spell Of Instruction	05/09/2019 to 14/11/2019	8 weeks
First Mid-Term Examinations	11/11/2019 to 14/11/2019	3 days
Submission of First Mid-Term Examination Marks to Exam Branch on or before	23/11/2019	-----
Parent-Teacher Meeting	30/11/2019	------
Second Spell of Instruction	15/11/2019 to 10/01/2020	8 weeks
*Dussehra Holidays	5/10/2019 to 19/10/2019	15 days
Second Mid-Term Examinations	08/01/2020 to 10/01/2020	3 days
Preparation and Practical Examinations	11/01/2020 to 18/01/2020	1 week
Submission of Second Mid-term Examination Marks to Exam Branch on or before	18/01/2020	-----
End Semester/Supplementary Examinations	20/01/2020 to 02/02/2020	2 weeks
Commencement of II Semester	03/02/2020	

*Dussehra Holidays are rescheduled according to the announcement made by the Telangana Government

II Semester

Description	Period	Duration
First Spell Of Instruction	03/02/2020 to 30/03/2020	8 weeks
First Mid-Term Examinations	27/03/2020 to 30/03/2020	3 days
Submission of First Mid-Term Examination Marks to Exam Branch on or before	11/04/2020	-----
Parent-Teacher Meeting	18/04/2020	
Second Spell of Instruction	31/03/2020 to 26/05/2020	8 weeks
Second Mid-Term Examinations	23/05/2020 to 26/05/2020	3 days
Preparation and Practical Examinations	27/05/2020 to 02/06/2020	1 week
Submission of Second Mid-term Examination Marks to Exam Branch on or before	06/06/2020	-----
End Semester/Supplementary Examinations	03/06/2020 to 17/06/2020	3 weeks
Summer Vacation	18/06/2020 to 16/07/2020	4 weeks

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AUTONOMOUS
(Accredited by NBA Approved by AICTE, New Delhi)
Sy No.33&34, Cheeryal (V), Keesara (M) Medchal Dist-501301.

Revised Academic Calendar for MBA (Autonomous) II year for the Academic Year 2019-20

I Semester

Description	Period	Duration
First Spell Of Instruction	15/07/2019 to 06/09/2019	8 weeks
First Mid-Term Examinations	07/09/2019 to 11/09/2019	3 days
Submission of First Mid-Term Examination Marks to Exam Branch on or before	12/09/2019	-----
Parent-Teacher Meeting	28/09/2019	------
Second Spell of Instruction	12/09/2019 to 21/11/2019	8 weeks
*Dussehra Holidays	05/10/2019 to 19/10/ 2019	15 days
Second Mid-Term Examinations	19/11/2019 to 21/11/2019	3 days
Preparation and Practical Examinations	22/11/2019 to 28/11/2019	1 week
Submission of Second Mid-term Examination Marks to Exam Branch on or before	30/11/2019	_____
End Semester/Supplementary Examinations	29/11/2019 to 13/12/2019	2 weeks
Commencement of II Semester	16/12/2019	____

* Dussehra Holidays rescheduled according to the announcement made by Telangana Government.

II Semester

Description	Period	Duration
First Spell Of Instruction	16/12/2019 to 10/02/2020	8 weeks
First Mid-Term Examinations	06/02/2020 to10/02/2020	3 days
Submission of First Mid-Term Examination Marks to Exam Branch on or before	18/02/2020	-----
Second Spell of Instruction	11/02/2020 to 07/04/2020	8 weeks
Second Mid-Term Examinations	04/04/2020 to 07/04/2020	3 days
Preparation and Practical Examinations	08/04/2020 to14/04/2020	1 week
Submission of Second Mid-term Examination Marks to Exam Branch on or before	18/04/2020	-----
End Semester/Supplementary Examinations	15/04/2020 to 29/04/2020	2 weeks

PRINCIPAL

Signature of Authorized Signatory with date

Annexure-4

2019-2020 Placed students details as on 14-11-2019

Sl. No	NAME OF THE COMPANY	DATE	Candidates Selected	ECE	CSE	ME	EEE	CE
1	VALUE LABS	09.07.2019	5	-	5	-	-	-
2	TECHNOVERT	20.07.2019	1	-	1	-	-	-
3	MPHASIS	23.07.2019	45	13	32	-	-	-
4	EPAM	24.07.2019	2	-	2	-	-	-
5	SOFT SAUVE	14.08.2019	3	-	3	-	-	-
6	PROLIFICS	15.08.2019	8	-	8	-	-	-
7	EIDIKO	06.09.2019	15	7	8	-	-	-
8	TCS	11.09.2019	64	28	34	1	-	1
9	ZENSAR	16.09.2019	6	-	6	-	-	-
10	APPS ASSOCIATES	23.09.2019	3	-	3	-	-	-
11	MODAKANALYSTICS	23.09.2019	3	2	1	-	-	-
12	INFOSYS	25.09.2019	2	2		-	-	-
13	ACENTURE	25.09.2019	3	-	3	-	-	-
14	NETELIXIR	26.09.2019	7	1	2	1	3	-
15	RVM COSTRUCTIONS	27.09.2019	10	-	-	-	-	10
16	INTEL (MACFEE)	28.09.2019	8	-	8	-	-	-
17	ROBO GROUP	01.10.2019	18	-	-	-	-	18
18	SAVANTIS	04.10.2019	21	6	6	3	6	-
19	NTT DATA	12.10.2019	9	4	5	-	-	-
20	FULL CREATIVE	15.10.2019	11	1	9	-	1	-
21	CntrlS	15.10.2019	2	2	-	-	-	-
22	HASHEDIN TECHNOLOGIES	21.10.2019	3	1	2	-	-	-
23	BYJUS	05.11.2019	4	3	1	-	-	-
24	VALUE MOMENTUM	07.11.2019	2	-	2	-	-	-
25	COGNIZANT	11.11.2019	12	6	5	-	1	-
26	INFOSYS	13-11-2019	34	10	20	1	2	1
27	HCL	13-11-2019	40	11	27	-	2	-
	Total		**341**	**97**	**193**	**6**	**15**	**30**

Signature of Authorized Signatory with date