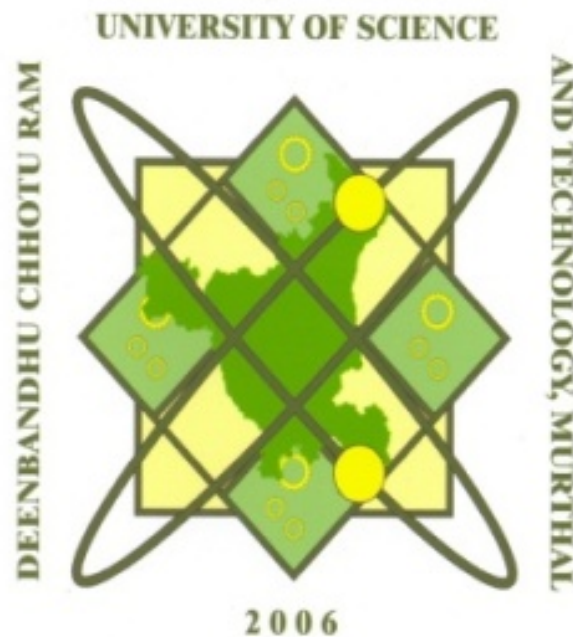# SCHEME OF STUDIES & EXAMINATION SYLLABUS
('B' Scheme)

BACHELOR OF TECHNOLOGY

(4 Year Degree Programme)

COMPUTER SCIENCE AND ENGINEERING

(w.e.f. Session 2012-13)

FACULTY OF INFORMATION TECHNOLOGY AND COMPUTER SCIENCE

DEENBANDHU CHHOTU RAM UNIVERSITY OF SCIENCE AND TECHNOLOGY

MURTHAL -131039 (SONIPAT) HARYANA

Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)

SCHEME OF STUDIES & EXAMINATIONS
B.Tech. 1st YEAR (SEMESTER – I) (Common for all branches)
Credit Based Scheme w.e.f. 2012-13

S. No.	Course No.	Course Title	Teaching Schedule L	T	P	Marks of Class work	Examination Marks Theory	Practical	Total	Credit	Duration of Exam
1	HUM101B	COMMUNICATIVE ENGLISH	3	1		25	75	-	100	4	3
2	MATH101B	MATHEMATICS-I	3	1		25	75	-	100	4	3
3	PHY101B	ENGINEERING PHYSICS-I	3	1		25	75	-	100	4	3
4	ME101B	MANUFACTURING PROCESSES (Gr-A)	3	1		25	75	-	100	4	3
	CH101 B	OR ENGINEERING CHEMISTRY (Gr-B)	3	1		25	75				
5	EE101B	PRINCIPLES OF ELECTRICAL ENGINEERING (Gr-A)	3	1		25	75	-	100	4	3
	CSE101B	OR INTRODUCTION TO COMPUTERS & PROGRAMMING (Gr-B)	3	1		25	75	-	100		
6	ME103B	ENGINEERING GRAPHICS & DRAWING (Gr-A)	1	-	4	40	-	60	100	3	3
	ME105B	OR ELEMENTS OF MECHANICAL ENGINEERING (Gr-B)	3	1	-	25	75		100	4	
7	PHY103B	PHYSICS LAB-I	-	-	2	20		30	50	1	3
8	ME 107B	WORKSHOP PRACTICE(Gr-A)	-	-	4	40		60	100	2	3
	CH103B	OR CHEMISTRY LAB (Gr-B)	-	-	2	20		30	50	1	
9	EE103B	PRINCIPLES OF ELECTRICAL ENGINEERING LAB (Gr-A)	-	-	2	20		30	50	1	3
	CSE103B	OR COMPUTER PROGRAMMING LAB (Gr-B)	-	-	2	20		30	50	1	
10	ME109B	ELEMENTS OF MECHANICAL ENGINEERINGLAB (Gr-B)	-	-	2	20		30	50	1	3
	Total Gr-A Gr-B		16 18	5 6	12 8	245 230	375 450	180 120	800 800	27 28	

Note:

1 Every student has to participate in the sports activities. Minimum one hour is fixed for sports activities either in the morning or evening. Weightage of sports is given in General Proficiency and Ethics Syllabus.

2 The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.

3 Electronics gadgets including Cellular phones are not allowed in the examination.

4 All the branches are to be divided in to Group-A and Group-B as per the suitability of the Institute/College so that there is equitable distribution of teaching load in odd and even semesters.

Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)
SCHEME OF STUDIES & EXAMINATIONS
B.Tech. 1st YEAR (SEMESTER – II) (Common for all branches)
Credit Based Scheme w.e.f. 2012-13

S. No.	Course No.	Course Title	Teach-ing Schedule L	T	P	Marks of Class work	Examination Marks Theory	Practical	Total	Credit	Duration of Exam
1.	MATH102B	MATHEMATICS-II	3	1		25	75	-	100	4	3
2	PHY102B	ENGINEERING PHYSICS-II	3	1		25	75	-	100	4	3
3	ME101 B	MANUFACTURING PROCESSES (Gr-B)	3	1		25	75	-	100	4	3
	CH101 B	OR ENGINEERING CHEMISTRY (Gr-A)	3	1		25	75				
4	EE101B	PRINCIPLES OF ELECTRICAL ENGINEERING (Gr-B)	3	1		25	75	-	100	4	3
	CSE101B	OR INTRODUCTION TO COMPUTERS & PROGRAMMING (Gr-A)	3	1		25	75	-			
5	ECE102B BT102B HUM102 B CE102 B	BASICS OF ELECTRONICS ENGINEERING OR BASICS OF BIO TECHNOLOGY OR ORAL COMMUNICATION SKILLS OR BASICS OF CIVIL ENGINEERING	3	1		25	75	-	100	4	3
6	ME103B	ENGINEERING GRAPHICS & DRAWING (Gr-B)	1	-	4	40	-	60	100	3	3
	ME105B	OR ELEMENTS OF MECHANICAL ENGINEERING (Gr-A)	3	1	-	25	75	-	100	4	
7	PHY104B	PHYSICS LAB-II	-	-	2	20		30	50	1	3
8	ME 107B	WORKSHOP PRACTICE (Gr-B)	-	-	4	40		60	100	2	3
	CH103B	OR CHEMISTRY LAB(Gr-A)	-	-	2	20		30	50	1	
9	EE103B	PRINCIPLES OF ELECTRICAL ENGINEERING LAB (Gr-B)	-	-	2	20		30	50		
	CSE103B	OR COMPUTER PROGRAMMING LAB (Gr-A)	-	-	2	20		30	50	1	3
10	ME109B	ELEMENTS OF MECHANICAL ENGINEERING LAB (Gr-A)	-	-	2	20		30	50	1	3
11	GP 102B	GENERAL PROFICIENCY AND ETHICS	1	-	-	-	-	50	50	2	3
Total Gr-B Gr-A			17 19	5 6	12 8	245 230	375 450	230 170	850 850	29 30	

Note:

1. Every student has to participate in the sports activities. Minimum one hour is fixed for sports activities either in the morning or evening. Weightage of Sports is given in General Proficiency and Ethics Syllabus.
2. Each student has to undergo a workshop at least 4 weeks (80-100 hours) at the end of II semester during summer vacations. Out of four weeks, two weeks would be dedicated to general skills and two weeks training for specialized discipline/department. The evaluation of this training shall be carried out in the III semester.
3. The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.
4. Electronics gadgets including Cellular phones are not allowed in the examination.
5. All the branches are to be divided into Group-A and Group-B as per the suitability of the Institute/College so that there is equitable distribution of teaching load in odd and even semesters.
6. The elective course HUM102B ORAL COMMUNICATION SKILLS is deleted with effect from the session 2013-14.

Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)
SCHEME OF STUDIES & EXAMINATIONS
B.Tech. 2nd YEAR (SEMESTER –III) COMPUTER SCIENCE AND ENGINEERING
Credit Based Scheme w.e.f. 2013-14

Sr. No	Course No.	Course Title	Teaching Schedule			Marks of class work	Examination Marks		Total	Credit	Duration of Exam
			L	T	P		Theory	practical			
1	MGT 201B	ENGINEERING ECONOMICS **(Common for all branches Except BT & BME) (Gr –A)** OR	4	-	-	25	75	-	100	4	3
	GES 201B	ENVIRONMENTAL STUDIES **(Common for all branches) (Gr-B)**	3	-	-	75*	-	-	75*	-	3
2	CSE201B	DATA STRUCTURES (common with ECE , IT & AEI)	3	1	-	25	75	-	100	4	3
3	CSE 203B	DISCRETE STRUCTURE	3	1	-	25	75	-	100	4	**3**
4	ECE 201B	DIGITAL ELECTRONICS (common with EE,ECE)	3	1	-	25	75	-	100	4	3
5	ECE 210B	COMMUNICATION SYSTEMS (Common with IT, ECE IVth sem & AEI VIth sem)	3	1	-	25	75	-	100	4	3
6	CSE 205 B	COMPUTER BASED NUMERICAL AND STATISTICAL TECHNIQUES (Common with IT)	3	1	-	25	75	-	100	4	3
7	CSE 221B	DATA STRUCTURES LAB (common with ECE , IT & AEI)	-	-	2	20	-	30	50	1	3
8	ECE 221B	DIGITAL ELECTRONICS LAB (common with EE,ECE)	-	-	2	20	-	30	50	1	3
9.	GES-203B	ENVIRONMENTAL STUDIES FIELD WORK **(Common for all branches) (Gr – B)**	--	--	--	-	-	25*	25*	-	-
10	CSE 225 B	COMPUTER BASED NUMERICAL AND STATISTICAL TECHNIQUES LAB (Common with IT)	-	-	2	20	-	30	50	1	3
11	ME 217B	WORKSHOP **(Common for all branches Except BT & AE)**	-	-	2	50	-	-	50	2	3
	Total Gr-A		19	5	8	260	450	90	800	29	
	Gr-B		18	5	8	310	375	115	800	25	

Note:

1. **Every student has to participate in the sports activities. Minimum one hour is fixed for sports activities either in the morning or evening. Weightage of Sports is given in General Proficiency and Ethics Syllabus.**
2. ***The Environmental studies (GES-201B) & Environment Studies Field work (GES-203B) are compulsory & qualifying courses only.**
3. **The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.**
4. **Electronics gadgets including Cellular phones are not allowed in the examination.**
5. **All the branches are to be divided into Group-A and Group-B as per the suitability of the Institute/College so that there is equitable distribution of teaching load in odd and even semesters.**

Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)
SCHEME OF STUDIES & EXAMINATIONS
B.Tech. 2nd YEAR (SEMESTER –IV) COMPUTER SCIENCE AND ENGINEERING
Credit Based Scheme w.e.f. 2013-14

Sr. No	Course No.	Course Title	Teaching Schedule L	T	P	Marks of class work	Examination Marks Theory	practical	Total	Credit	Duration of Exam
1.	MGT 201B	ENGINEERING ECONOMICS **(Common for all branches Except BT & BME) (Gr-B)** OR	4	-	-	25	75	-	100	4	3
	GES201B	ENVIRONMENTAL STUDIES **(Common for all branches) (Gr –A)**	3	-	-	-	75*	-	75*	-	3
2.	CSE202B	DATABASE MANAGEMENT SYSTEMS (Common with IT)	3	1	-	25	75	-	100	4	3
3.	CSE 204B	OBJECT ORIENTED PROGRAMMING (common with ECE, IT, IC, EEE & AEI in Vth Sem)	3	1	-	25	75	-	100	4	3
4.	CSE 206B	SYSTEM PROGRAMMING	3	1	-	25	75	-	100	4	3
5.	CSE208B	INFORMATION SYSTEM ANALYSIS AND DESIGN (Common with IT)	3	1	-	25	75	-	100	4	3
6.	CSE210B	COMPUTER ORGANIZATION AND ARCHITECTURE (common with ECE Vth Sem)	3	1	-	25	75		100	4	3
7.	CSE 222B	DATABASE MANAGEMENT SYSTEMS LAB (Common with IT)	-	-	2	20	-	30	50	1	3
8.	CSE 224B	OBJECT ORIENTED PROGRAMMING LAB (common with ECE,IT, IC, EEE & AEI in Vth Sem)	-	-	2	20	-	30	50	1	3
9.	CSE 226B	SYSTEM PROGRAMMING LAB	-	-	2	20	-	30	50	1	3
10.	GES 203B	ENVIRONMENTAL STUDIES FIELD WORK **(Common for all branches) (Gr- A)**	--	--	--	-		25*	25*	-	-
11.	GPCSE 202B	GENERAL PROFICIENCY AND ETHICS	1	-	-	-	-	75	75	2	3
Total		**Gr- B**	20	5	6	210	450	165	825	29	
		Gr-A	19	5	6	185	450	190	825	25	

Note:

1 **Every student has to participate in the sports activities. Minimum one hour is fixed for sports activities either in the morning or evening. Weightage of Sports is given in General Proficiency and Ethics Syllabus.**

2 ***The Environmental studies (GES-201B) & Environment Studies Field work (GES-203B) are compulsory & qualifying courses only.**

3 **The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.**

4 **Electronics gadgets including Cellular phones are not allowed in the examination.**

5 **Each students has to undergo Professional Training of at least 4 weeks from the industry, institute, research lab, training center etc. during summer vacation and its evaluation shall be carried out in the V semester.**

6 **All the branches are to be divided into Group-A and Group-B as per the suitability of the Institute/College so that there is equitable distribution of teaching load in odd and even semesters.**

Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)
SCHEME OF STUDIES & EXAMINATIONS
B.Tech. 3rd YEAR (SEMESTER –V) COMPUTER SCIENCE AND ENGINEERING
Credit Based Scheme w.e.f. 2014-15

Sr. No	Course No.	Course Title	Teaching Schedule			Marks of class work	Examination Marks		Total	Credit	Duration of
			L	T	P		Theory	practical			Exam
1.	CSE 301B	OPERATING SYSTEMS	3	1	-	25	75	-	100	4	3
2.	CSE 303B	COMPUTER GRAPHICS (Common with IT VI th sem)	3	1	-	25	75	-	100	4	3
3.	CSE 305B	COMPUTER NETWORKS (Common with IT)	3	1	-	25	75	-	100	4	3
4.	CSE 307B	ANALYSIS AND DESIGN OF ALGORITHMS (Common with IT)	3	1	-	25	75	-	100	4	3
5.	CSE 309B	THEORY OF AUTOMATA & COMPUTATION (Common with IT VIth sem)	3	1	-	25	75	-	100	4	3
6.	ECE 309B	MICROPROCESSOR AND INTERFACING (Common with BME, AEI & ECE)	3	1	-	25	75	-	100	4	3
7.	CSE 321B	OPERATING SYSTEMS LAB	-	-	2	20	-	30	50	1	3
8.	CSE 323B	COMPUTER GRAPHICS LAB (Common with IT VI th sem)	-	-	2	20	-	30	50	1	3
9.	CSE 325B	COMPUTER NETWORKS LAB (Common with IT)	--	--	2	20		30	50	1	3
10.	ECE 329B	MICROPROCESSOR AND INTERFACING LAB (Common with BME, AEI & ECE)	-	-	2	20	-	30	50	1	3
11.	CSE 327 B	PROFESSIONAL TRAINING -I	-	--	2	50			50	2	-
Total			18	6	10	280	450	120	850	30	

Note:

1   Every student has to participate in the sports activities. Minimum one hour is fixed for sports activities either in the morning or evening. Weightage of Sports is given in General Proficiency and Ethics Syllabus.
2   The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.
3   Electronics gadgets including Cellular phones are not allowed in the examination.
4   Assessment of Professional Training-I, undergone at the end of IV semester, will be based on seminar, viva-voce, report and certificate of Professional Training obtained by the student from the industry , institute, research lab, training center etc

Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)
SCHEME OF STUDIES & EXAMINATIONS
B.Tech. 3rd YEAR (SEMESTER –VI) COMPUTER SCIENCE AND ENGINEERING
Credit Based Scheme w.e.f. 2014-15

Sr. No	Course No.	Course Title	Teaching Schedule			Marks of class work	Examination Marks		Total	Credit	Duration of Exam
			L	T	P		Theory	practical			
1	HUM 302B	REPORT WRITING SKILLS (Common to all branches)	1	-	-	25	50	-	75	1	2
2	IT 302B	WEB TECHNOLOGIES (Common with IT)	3	1	-	25	75	-	100	4	3
3	CSE 304B	COMPILER DESIGN	3	1	-	25	75	-	100	4	3
4	CSE 306B	ADVANCED JAVA PROGRAMMING	3	1	-	25	75	-	100	4	3
5	CSE 308B	ARTIFICIAL INTELLIGENCE	3	1	-	25	75	-	100	4	3
6	CSE 310B	SOFTWARE ENGINEERING	3	1	-	25	75	-	100	4	3
7	CSE 312B	PROGRAMMING LANGUAGES	3	1	-	25	75	-	100	4	3
8	HUM 304B	ORAL PRESENTATION SKILLS	-	-	2	20	-	30	50	1	2
9	IT 322B	WEB TECHNOLOGIES LAB (Common with IT)	-	-	2	20	-	30	50	1	3
10	CSE 324B	COMPILER DESIGN LAB	-	-	2	20	-	30	50	1	3
11	CSE 326B	ADVANCED JAVA PROGRAMMING LAB	-	-	2	20	-	30	50	1	3
12	CSE 328B	ARTIFICIAL INTELLIGENCE LAB	-	-	2	20	-	30	50	1	3
13	GPCSE 302B	GENERAL PROFICIENCY AND ETHICS	1	-	-	-	-	75	75	2	3
Total			20	6	10	275	500	225	1000	32	

Note:

1   Every student has to participate in the sports activities. Minimum one hour is fixed for sports activities either in the morning or evening. Weightage of Sports is given in General Proficiency Syllabus.

2   The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.

3   Electronics gadgets including Cellular phones are not allowed in the examination.

4   Each students has to undergo Professional Training of at least 4 weeks from the industry, institute, research lab, training center etc during summer vacation and its evaluation shall be carried out in the VII semester

Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)
SCHEME OF STUDIES & EXAMINATIONS
B.Tech. 4th YEAR (SEMESTER –VII) COMPUTER SCIENCE AND ENGINEERING
Credit Based Scheme w.e.f. 2015-16

Sr. No	Course No.	Course Title	Teaching Schedule			Marks of class work	Examination Marks		Total	Credit	Duration of Exam
			L	T	P		Theory	practical			
1	CSE 401B	MOBILE APPLICATIONS DEVELOPMENT (Common with IT)	3	1	-	25	75	-	100	4	3
2	CSE 403 B	CLOUD COMPUTNIG	3	1	-	25	75	-	100	4	3
3		OPEN ELECTIVE	4	-	-	25	75	-	100	4	3
4		ELECTIVE – I	4	-	-	25	75	-	100	4	3
5		ELECTIVE –II	4	-	-	25	75	-	100	4	3
6	CSE 421 B	MOBILE APPLICATIONS DEVELOPMENT LAB (common with IT)	-		2	20	-	30	50	1	3
7	CSE 423B	CLOUD COMPUTING LAB	-		2	20	-	30	50	1	3
8	CSE 425B	PROJECT	-	-	4	100	-	-	100	4	-
9	CSE 427B	PROFESSIONAL TRAINING -II	-	-	2	50	-		50	2	-
Total			18	2	10	315	375	60	750	28	

* List of Open Electives

1	MEI 623B	ENTREPRENEURSHIP	6	BT401B	BIO-INFORMATICS
2	BME451B	MEDICAL INSTRUMENTATION	7	AE417B	MODERN VEHICLE TECHNOLOGY
3	ECE305B	CONSUMER ELECTRONICS	8	CE451B	POLLUTION & CONTROL
4	EE451B	ENERGY AUDIT	9	CSE-411B	MANAGEMENT INFORMATION SYSTEM
5	EEE457B	ENERGY RESOURCES & TECHNOLOGY	10	IT-413B	CYBER SECURITY

ELECTIVES – I		ELECTIVES - II	
IT 304 B	SOFTWARE TESTING	CSE 457 B	NETWORK SECURITY & CRYPTOGRAPHY
IT 405 B	ADVANCED COMPUTER NETWORKS	CSE 459 B	MULTIMEDIA TECHNOLOGY
CSE 451 B	DATA WAREHOUSING & DATA MINING	CSE 461 B	DISTRIBUTED OPERATING SYSTEMS
CSE 453 B	DISTRIBUTED COMPUTING	CSE 463 B	SOFTWARE AGENTS
CSE 455 B	ADVANCED COMPUTER ARCHITECTURE	CSE 465 B	INFORMATION SECURITY & DATA HIDING

Note:
1 **Every student has to participate in the sports activities. Minimum one hour is fixed for sports activities either in the morning or evening. Weightage of Moral Values & Ethics and Sports are given in General Proficiency Syllabus.**
2 **Students will be permitted to opt for any one elective run by the other department (i.e. open electives) and for any two electives, one from Elective–I and one from Elective-II run by the department. However, the department shall offer those elective for which they have expertise. The choice of the students for any elective shall not be binding for the**

department to offer, if the department does not have expertise. **The minimum strength of the students should be 20 to run an elective course.**

3   Assessment of Professional Training-II, undergone at the end of VI semester, will be based on seminar, viva-voce, report and certificate of Professional Training obtained by the student from the industry, institute, research lab, training center etc

4   The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.

5   Electronics gadgets including Cellular phones are not allowed in the examination

6   Project coordinator will be assigned the project load of maximum of 2 hrs. per week including his own guiding load of one hr. However, the guiding teacher will be assigned maximum of one period of teaching load irrespective of number of students/groups under him/her.

Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)
SCHEME OF STUDIES & EXAMINATIONS
B.Tech. 4th YEAR (SEMESTER –VIII) COMPUTER SCIENCE AND ENGINEERING
Credit Based Scheme w.e.f. 2015-16

Sr. No	Course No.	Course Title	Teaching Schedule			Marks of class work	Examination Marks		Total	Credit	Duration of Exam
			L	T	P		Theory	practical			
1	CSE 402B	DATABASE ADMINISTRATION	3	1	-	25	75	-	100	4	3
2	CSE 404B	SOFTWARE PROJECT MANAGEMENT	3	1	-	25	75	-	100	4	3
3		ELECTIVE -III	4	-	-	25	75	-	100	4	3
4		ELECTIVE -IV	4	-	-	25	75	-	100	4	3
5	CSE 422B	DATABASE ADMINISTRATION LAB	-	-	2	20	-	30	50	1	3
6	CSE 412 B	SEMINAR	-	-	2	50			50	2	-
7	CSE 414 B	PROJECT	-	-	8	75	-	125	200	8	3
8	GPCSE 402B	GENERAL FITNESS FOR THE PROFESSION	1	-	-	-	-	100	100	4	3
Total			15	2	12	245	300	255	800	31	

ELECTIVES - III		ELECTIVES - IV	
IT 402B	DATA ANALYTICS AND APPLICATIONS	CSE 458 B	NATURAL LANGUAGE COMPUTING
IT 404B	LINUX ADMINISTRATION	CSE 460 B	GREEN COMPUTING
CSE 452B	SOFT COMPUTING	CSE 462 B	HIGH PERFORMANCE COMPUTING
CSE 454 B	DIGITAL IMAGE PROCESSING	CSE 464 B	SOFTWARE STANDARDS & QUALITY
CSE 456 B	WIRELESS COMMUNICATION	CSE 466 B	EMBEDDED SYSTEMS

Note:-
1. Every student has to participate in the sports activities. Minimum one hour is fixed for sports activities either in the morning or evening. Weightage of Sports is given in General Proficiency Syllabus.
2. Students will be permitted to opt for any two electives, one from Elective–III and one from Elective-IV. However, the department shall offer those elective for which they have expertise. The choice of the students for any elective shall not be binding for the department to offer, if the department does not have expertise. **The minimum strength of the students should be 20 to run an elective course.**
3. The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.
4. Electronics gadgets including Cellular phones are not allowed in the examination

HUM 101B   COMMUNICATIVE ENGLISH

B. Tech. Semester - I (Common for all Branches)

L	T	P	Credits			
				Class Work	:	25 Marks
3	1	--	4	Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Objective

The course aims at developing the desired language (English) skills of students of engineering and technology so that they become proficient in communication to excel in their professional lives. The course has been designed so as to enhance their linguistic and communicative competence.

Course Content

UNIT I

Communicative Grammar:

> A) Spotting the errors pertaining to tenses, conditional sentences, Concord – grammatical concord, notional concord and the principle of proximity b/w subject and verb

> B) Voice, Reported Speech.

UNIT II

Langauge through Literature:

> Linguistic Reading of the following texts

> > A) 'Kabuliwallah' by Rabindranath Tagore*

> > B) 'Am I Blue?' by Alice Walker*

> > C) 'If You are Wrong, Admit It' by Dale Carnegie*

> > D) 'Engine Trouble' by R.K. Narayan*

The prescribed texts will be used as case studies for various components of the syllabus. * the Source is given in the list of Texts Books given below.

UNIT III

Group Communication:

> A) Communication: concept, Process and Barriers
> B) Communicating using Standard Pronunciation with the help of IPA
> C) Formal Speaking with peers (e.g. discussion, talks on current issues in a class)

B) Writing official letters on issues concerning students and social life

C) Writing small reports on scientific issues, IT issues, University fests/programmes

C) E-mail writing and writing for web

UNIT IV

Communicative Creativity:

A) Comprehension: Extracting, interpreting, summarizing, reviewing and analyzing the prescribed texts.

B) Composition: Developing themes and situations through role play activities or dialogue writing.

TEXT BOOKS

1. Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik. *A Comprehensive Grammar of the English Language*. London: Longman, 1989
2. Communicative English for Engineers and Professionals by Nitin Bhatnagar & Mamta Bhatnagar New Delhi: Pearson / Longman
3. Crystal, David. Rediscover Grammar. London: Longman/Pearson, 1988.
4. *Tagore, Rabinder. "Kabuliwallah" , *Famous Indian Stories*. Ed. M.G.Narsimha Murthy .Mumbai: Orient Blackswan, 2009. (Web source: www.angelfire.com)
5. * Walker, Alice. "Am I Blue" , *An Anthology of Short Stories* . Ed. Usha Bande .New Delhi: OUP , 2004. (Web source- www.old.li.scru.edu)
6. *Narayanan .K.R. "Engine Trouble", *Contemporary English Prose* .Ed. K.P.K.Menon. New York: OUP,1976. (Web Source- www.scribd.com)
7. *Carnegie, Dale. "If you are wrong admit it", *An Anthology of Modern Prose*. Ed Manmohan K.Bhatnagar.Delhi :Macmillan India Ltd,2006.

SUGGESTED READING

1. Pink, M.A. and S.E. Thomas. *English Grammar, Composition and Correspondence.* Delhi: S. Chand and Sons
2. McRae, John and Roy Boardman. *Reading Between the Lines.* Delh: Foundation Books (Cambridge University Press)
3. Sharma, Sangeeta and Binod Mishra. *Communication Skills for Engineers and scientists*. Delhi: PHI, 2009
4. Fitikides, T.J. *Common Mistakes in English*. Essex: Pearson Education, 1936, 6th edition 2000.

SCHEME OF END SEMESTER EXAMINATION (MAJOR TEST)

Theory

1. The duration of the exam will be 3 hours.

2. The Question Paper for this theory course shall have seven questions in all covering all the units of the syllabus..

3. The student is required to attempt all the seven questions.

4. Questions No. 1 based on Unit I is of **15** marks. It may be in the form of 'Do as directed: trace the error, choose the correct alternative, supply the correct alternative/s, change the voice, convert the speech from direct to indirect or vice-versa'.

5. Question no 2 and 3 based on prescribed texts in Unit II. Question no 2 of **10 m**arks is to evaluate the comprehension of the text through short answer questions or a long answer question to assess the students' reading comprehension, interpretative and analytical abilities. Question no 3 of **15** marks will judge the linguistic aspect of the text such as using a particular word in its various syntactic forms like noun, adjective, verb etc.; matching the lists of words and their explanation; providing opposite/similar meanings and other grammar components prescribed in Unit I of the syllabus.

6. Question no 4 based on Unit III is of **10** marks. It may be in the form of transcription of words given, describe an event, classmate, discuss an issue etc.

7. Question no 5 based on Unit III is of **10** marks. It requires the student to frame either a small report on a topic given or write the given official letter, or e-mail a message.

8. Question no 6 based on unit IV is of **10** marks. It evaluates the Comprehension and Interpretation of the texts prescribed in Unit II. The vocabulary, general understanding and interpretation of the content may be evaluated in the form of question answer exercise, culling out important points, suggesting a suitable topic/title, summarising and interpreting.

9. Question No. 7 based on unit IV is of **5** marks. It requires the student to develop a hypothetical situation in a dialogue form, or to develop an outline, key expression, for role play activity.

MATH 101B   MATHEMATICS - I
B. Tech. Semester - I (Common for all Branches)

L	**T**	**P**	**Credits**			
3	1	--	4			

Class Work	:	25 Marks
Examination	:	75 Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

UNIT-I

Infinite series : Convergence and divergence, Comparison, D' Alembert's ratio, Integral, Raabe's, Logrithmic and Cauchy root tests, Alternating series, Absolute and conditional convergence.

Applications of Differentiation : Taylor's and Maclaurin's series, Asymptotes, Curvature Asymptotes.

UNIT-II

Partial Differentiation & its Applications : Functions of two or more variables; partial derivatives, Total differential and differentiability, Derivatives of composite and implicit functions, Jacobians, Higher order partial derivatives.

Homogeneous functions, Euler's theorem, Taylor's series for functions of two variables (without proof), maxima-minima of function of two variables, Lagrange's method of undetermined multipliers, Differentiation under integral sign.

UNIT-III

Applications of Single & Multiple Integration : Applications of single integration to find volume of solids and surface area of solids of revolution. Double integral, change of order of integration, Double integral in polar coordinates, Applications of double integral to find area enclosed by plane curves and volume of solids of revolution.

Triple integral, volume of solids, change of variables, Beta and gamma functions and relationship between them.

UNIT-IV

Vector Calculus : Differentiation of vectors, scalar and vector point functions Gradient of a scalar field and directional derivative, divergence and curl of a vector field and their physical interpretations.

Integration of vectors, line integral, surface integral, volume integral, Green, Stoke's and Gauss theorems (without proof) and their simple applications.

TEXT BOOKS :

1. Advanced Engineering Mathematics : F. Kreyszig.
2. Higher Engineering Mathematics : B.S. Grewal.

REFERENCE BOOKS :
1. Engineering Mathematics Part-I : S.S. Sastry.
2. Differential and Integral Calculus : Piskunov.
3. Advanced Engineering Mathematics : R.K. Jain and S.R.K.Iyengar

4. Advanced Engg. Mathematics : Michael D. Greenberg

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed

PHY 101B   ENGINEERING PHYSICS - I

B. Tech. Semester - I (Common for all Branches)

L	T	P	Credits			
				Class Work	:	25 Marks
3	1	--	4	**Examination**	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT-I

PHYSICAL OPTICS:

Interference: Division of wave front-Fresnel's Biprism, Division of amplitude – Newton's rings, Michelson interferometer, applications.

Diffraction : Difference between Fraunhofer and Fresnel diffraction, Fraunhofer diffraction through a slit, Plane transmission diffraction grating and its spectra, dispersive and resolving powers.

Polarization : Polarised and unpolarized light, double refraction, Nicol prism, quarter and half wave plates, Plane, Elliptically & circularly polarised light, Polarimetry: Biquartz and Laurent's half-shade polarimeters.

UNIT-II

LASER & FIBRE OPTICS: Introduction, Spontaneous and stimulated emissions, Laser action, characteristics of laser beam, Ruby laser, He-Ne, Nd-Yag and semiconductor lasers, applications of laser.

Introduction, Propagation of light in fibres, Types of fiber (pulse & continuous), numerical aperture, Modes of propagation in optical fibre, application of optical fibre.

ACOUSTIC OF BUILDINGS: Introduction, Reverberation, Sabine's formula for reverberation time, Absorption coefficient and its measurements, factors affecting the architectural acoustics and their remedy, Sound absorbing materials.

UNIT-III

TRANSMISSION OF HEAT AND THERMAL RADIATION

Modes of transmission of heat, Thermal conductivity, Rectilinear flow of heat through a rod, Radial flow of heat through a spherical shell, determination of Thermal conductivity of good and bad conductors.

Black body, Emissive and Absorptive Powers, Wein's Displacement Law, Kirchhoff's Law, Stefan's Law, Determination of Stefan's Constant.

UNIT-IV

NUCLEAR & ELEMENTARY IDEA OF PARTICLE PHYSICS

Outline of interaction of charged particles and of Gamma-rays with matter. Counters: Gas filled counters (Ionization Chamber, Proportional Counter and G M Counter). Detector: Scintillation detector, Semiconductor detectors (p-n junction detector), Biological effects of nuclear radiation.

Introduction to elementary particles, Interaction in particle physics: strong, electromagnetic,

weak and gravitational. .

TEXT BOOKS :
1. A text book of Optics – Brij Lal and Subramanyam
2. Perspectives of Modern Physics - Arthur Beiser (TMH)
3. Modern Engineering Physics – A.S. Vasudeva (S. Chand)
4. Engineering Physics by R.K. Gaur and S.L. Gupta
5. Engineering Physics by H.K Malik and A.K. Singh (Tata McGraw Hill).
7. Engineering Physics by S.P. Taneja (Chand Pub.)

REFERENCE BOOKS:

1.. Physics Vol-I & II – Resnick & Halliday (Wiley Eastern)
2. Heat and Thermodynamics – M.N. Saha & B.N. Srivastava
3. Nuclear Physics Principles and Applications by John Lilley(Wiley-India).

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed

ME 101B   MANUFACTURING PROCESSES

B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
				Class Work	:	25 Marks
3	1	--	4	Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT-I

Introduction: Introduction to Manufacturing Processes and their Classification , automation in manufacturing**,** Industrial Safety; Introduction, Types of Accidents, Causes and Common Sources of Accidents, Methods of Safety, Electric Safety Measures, First Aid.

Plant Layout, Principles of Plant Layout, Objectives of Layout, Types of Plant and shop layouts and their Advantages.

UNIT-II

Engineering Materials: General Properties and Applications of Engineering Materials, Mild Steel, Medium Carbon Steel, High Carbon Steel, High Speed Steel and Cast Iron, Non-Ferrous Materials, Shop's Tools Materials, Super Alloys or High Temperature Materials

Foundry: Introduction to Casting Processes, Basic Steps in Casting Process, Pattern, Types of Patterns, Pattern allowances, Risers, Runners, Gates, Molding Sand and its composition, Sand Preparation, Molding Methods, Core Sands and Core Making, Core Assembly, Mold Assembly, Melting (Cupola) and Pouring, Fettling, Casting Defects and Remedies. Testing of Castings

UNIT-III

Cold Working (Sheet Metal Work): Sheet Metal Operations, Measuring, Layout Marking, Shearing, Punching, Blanking, Piercing, Forming, Bending and Joining - Advantages and Limitations. Hot Working Processes: Introduction to Hot Working, Principles of Hot Working Processes, Forging, Rolling, Extrusion, Wire Drawing.

 Introduction to Machine Tools: Specifications and Uses of commonly used Machine Tools in a Workshop such as Lathe, Shaper, Planer, Milling, Drilling, Slotter, Introduction to Metal Cutting. Nomenclature of a Single Points Cutting Tool and Tool Wear, Mechanics of Chips Formation, Type of Chips, Use of Coolants in machining.

UNIT-IV

Welding: Introduction to Welding, Classification of Welding Processes, Gas Welding: Oxy-Acetylene Welding, Resistance Welding; Spot and Seam Welding, Arc Welding: Metal Arc, TIG & MIG Welding, Welding Defects and Remedies, Soldering & Brazing, Comparisons

among Welding, Brazing and Soldering

Surface Finishing Processes, Introduction to Heat Treatment Processes, Estimating o
Manufacturing Cost

Text Books:

1. Workshop Technology Vol. I & II   - Hazra & Chaudhary, Asian Book Comp., New Delhi.
2. Process and Materials of Manufacture -- Lindberg, R.A. Prentice Hall of India,New Delhi.
3. Principles of Manufacturing Materials and Processes - Campbell, J.S.- McGraw- Hill.

Reference Books:

1. Manufacturing Science - Amitabha Ghosh & Ashok Kumar Malik, - East-West Press.
2. Manufacturing Process and Systems - Ostwald, Munoz , John Wiley.
3. Workshop Technology, Vol. 1, 2 & 3 – Chapman, WAJ, Edward Arnold.

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed

CH 101B   ENGINEERING CHEMISTRY
B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits				
				Class Work	:	25 Marks	
3	1	--	4	**Examination**	:	75 Marks	
				Total	:	100 Marks	
				Duration of Examination	:	3 Hours	

UNIT-I

Thermodynamics – Second law, concept of entropy ,entropy change for ideal gas, free energy and work functions, free energy change ,chemical potential, Gibb's Helmholtz equation, Clausius – Clapeyron equation. Related numerical problems with above topics.

Phase-rule- Terminology, Derivation of Gibb's Phase Rule equation ,One   component system(water system), Two components systems, system with Eutectic point (Pb-Ag), system with congruent melting point (Zn-Mg), system with incongruent melting point (Na-K), Applications of above systems. Elementary idea of Zone refining and Zone levelling

UNIT-II

Water and its treatment- Hardness of water and its determination, units of hardness, alkalinity of water and its determination, related numerical problems ,water softening, Ion-exchange process, mixed bed demineralisation, desalination of water by using different methods.

Corrosion and its prevention: Galvanic & concentration cell, dry and wet corrosion, Electrochemical theory of corrosion, Galvanic corrosion, Pitting corrosion , differential aeration corrosion, water line corrosion, stress corrosion, factor effecting corrosion, Preventing measures, electroless Plating of Ni and Cu.

UNIT-III

Polymers and Polymerization: Organic polymers, polymerisation, various types of polymerisation, effect of structure on properties of polymers, preparation properties and technical applications of thermoplastics (PE, PVC, PVA, Teflon), thermosets (PF, UF & MF) and elastomers (Synthetic Rubber including SBR, Buna-S, Buna-N, Thiokol & Polyurethanes) , Inorganic polymers (general properties) , Glass transition temperature, silicones

Composite Materials & their application: optical fibres, Fullerenes ,organic electronic material ,composite materials & their classification, constituents of composites, role of interface in composite performance and durability, fiber –Reinforced composite, advantage and applications of composites.

UNIT-IV

Lubricants and fuels: Friction, mechanism of lubrication, classification and properties of lubricants and selection of Lubricants, Definition and classification of fuel, Calorific value and

methods of its determination.

Analytical methods: Thermal methods; Principle, method and application of TGA,DTA & DSC, interaction of E.M radiation with a molecule and origin of spectrum, Vibrational & electronic spectra (Experimental details are excluded), spectrophotometry, , conductometeric titrations, elementary discussion on Flame-photometery.

TEXT/ REFERENCE BOOKS:

1. Physical Chemistry, P.W. Atkins (ELBS, Oxford Press).

2. Physical Chemistry, W.J. Moore (Orient-Longman).

3. Instrumental methods of Chemical Analysis, MERITT & WILLARD (East-West Press).

4. Chemistry in Engineering & Tech., Vol.I& II, Rajaram, Kuriacose (TMH)

5.Engineering Chemistry ,ShashiChawla (DhanpatRai and co.)

6. Engineering Chemistry, P.C. Jain, Monica Jain (DhanpatRai& Co.).

7.Engeenring chemistry ,S.S Dara (S.chand&co.)

Note:

  In the semester examination, the Examiners will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

EE 101B   PRINCIPLES OF ELECTRICAL ENGINEERING
B. Tech. Semester – I/II (Common for all Branches)

L	**T**	**P**	**Credits**					
3	1	--	4					

Class Work	:	25 Marks
Examination	:	75 Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

UNIT-1

D.C. Circuit Analysis: Basic concepts of electric circuits, Ohm's Law, Independent energy sources, Dependent energy sources, passive elements, circuit properties, Kirchoff's laws, applications of Kirchoff's laws, Nodal and Loop methods of Analysis, , Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Reciprocity Theorem, Maximum Power Transfer Theorem, Millman's Theorem, Star-Delta or delta-star transformation, Applications of network theorems P-spice for DC circuit analysis.

UNIT-2

A.C. Circuits: Sinusoidal signal, Phasors, polar & rectangular, exponential & trigonometric representations, Resistance, Inductance & Capacitance components, behavior of these components in A.C. circuits, Phasor relationship for circuit elements, Impedance & Admittance, instantaneous & peak values, average and RMS values, active power, reactive power, apparent power, power factor, complex power, behavior of AC series , parallel circuits, RL, RC & RLC A.C. circuits (series and parallel), Resonance-series and parallel R-L-C Circuits, Q-factor, cut-off frequencies & bandwidth.

UNIT-3

Three Phase Circuits: Phase and line voltages and currents, balanced star and delta circuits, power equation, measurement of power by two wattmeter method.

Measuring Instruments: Principle, Construction & working of moving coil type voltmeter & ammeter, moving iron type voltmeter & ammeter, Electrodynamic type wattmeter, single-phase induction type energy meter.

UNIT-4

Transformers: Ampere's law, Mutual Inductance, Construction, Working principle and phasor diagrams of Single-phase Transformer, Emf equation, Equivalent circuit, testing, efficiency and regulation of single-phase transformer, Auto transformer.

Rotating Machines: Construction and working principle of dc motor and generator and its characteristics. Construction and working principle of 3-phase Induction machines & 3-phase synchronous machines, torque-speed characteristics.

TEXT BOOKS:

1. Basic Electrical Engg (2nd Edition) : Kothari & Nagarath, TMH

2. Electrical Technology (Vol-I): B.L Theraja & A K Theraja, S.Chand

3. Fundamental of electrical Engineering, Rajendra Prasad, PHI, Edition 2005.

4. Basic Electrical Engineering, V.N Mittle & Arvind Mittal, TMH, Second Edition

5. Basic Electrical Engineering, S.N. Singh, PHI

REFERENCE BOOKS:

1. Electrical Engineering Fundamentals: Deltoro, PHI

2. Basic Electrical Engineering (TMH WBUT Series), Abhijit Chakrabarti & Sudipta Nath, TMH

3. Basic Electrical Engineering, T.K. Nagsarkar & M.S. Sukhija, Oxford

4. Introduction to Electrical Engineering, M.S. Naidu & S, Kamakshaiah, TMH

5. Basic Electrical Engineering, J.J. Cathey & S.A Nasar, TMH, Second Edition.

Note: In the semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

CSE 101B   INTRODUCTION TO COMPUTERS AND PROGRAMMING

B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits		
3	1	--	4	Class Work	: 25 Marks
				Examination	: 75 Marks
				Total	: 100 Marks
				Duration of Examination	: 3 Hours

UNIT-I

An introduction of Computer System: Anatomy of a digital Computer, Different Units of Computer System, Classification of Computer Systems, Radix Number systems. Binary codes: BCD, Gray, EBCDIC, ASCII

Operating System: Operating System Concepts, Operating System services, Types of Operating Systems.

Introduction to PC Operating Systems: Unix/Linux, DOS, Windows.

UNIT-II

Programming Languages and algorithms: Machine, Assembly and High Level Language; Assembler, Linker, Loader, Compiler, Interpreter, debuggers, Programming fundamentals: problem definition, algorithms, flowcharts and their symbols

Computer Networks: Basic concepts of Computer Networks, Working of Internet and its Major features. Network Topologies: Bus, Star, Ring, Hybrid, Tree, Complete, Irregular; Types of Networks: LAN, MAN and WAN.

Electronic Mail: advantages and disadvantages, e-mail addresses, message components, message composition, mailer features, E-mail inner workings, E-mail management, Newsgroups, mailing lists, chat rooms.

UNIT-III

Basics of 'C' Language

C Fundamentals, Basic data types, local and external variables and scope, formatted input/ output, expressions, selection statements, loops and their applications; arrays, functions, recursive functions, pointers and arrays. Strings literals, arrays of strings; applications, Structures, Unions and Enumerations.

UNIT-IV

Advanced Features of 'C' Language

preprocessor directives, macro definition, conditional compilation, storage classes, type's qualifiers, Low level programming (Bitwise operators, Bit fields in structures, other low level techniques), error handling, file operations(low level/high level).

BOOKS

1. The C Programming Language by Dennis M Ritchie, Brian W. Kernigham, 1988, PHI.
2. Fundamentals of Computing and C Programming, R. B. Patel, Khanna Publications, 2010, New Delhi.
3. Computer Fundamentals and Programming in C, Reema Theraja, Oxford
4. Information technology, Dennis P. Curtin, Kim Foley, Kunal Sen, Cathleen Morin, 1998, TMH
5. Theory and problem of programming with C, Byron C Gottfried, TMH

6. Using Computers and Information by Jack B. Rochester, 1996, Que Education & Training.
7. C Programming – A modern approach by K.N. King, 1996, WW Norton & Co.

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed

ME 103 B   ENGINEERING GRAPHICS   AND   DRAWING
B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits				
1	--	4	3	Class Work	:	40 Marks	

Examination   :   60Marks

Total   :   100 Marks

Duration   of :   3 Hours
Examination

<div align="center">UNIT I</div>

Basics of Engineering Graphics and Drawing – Drawing Papers, Minidrafter, Pencils. Drawing Paper Layout, Title Block, Types of Lines, Lettering, Dimensioning, types of   Projections; First and Third Angle systems of Orthographic Projections. Projection of   Points in different Quadrants.

Projections of Straight Lines – Contained by both Reference Planes, Contained by one and inclined to other Reference Plane, Contained by one and Parallel to other Reference Plane, Parallel to both Reference Plane, Perpendicular to one of   the Reference Planes, Inclined   to one Plane but Parallel   to the other Reference Planes, Inclined to both the Reference Planes, True Length of a Line and   its Inclination with Reference Planes, Traces of a Line.

<div align="center">UNIT II</div>

Projections of   Planes – Parallel   to one   Reference Plane, Inclined   to one   Plane but Perpendicular to the other, Inclined to both Reference Planes.

Projections of Polyhedral Solids and Solids of Revolution- in simple positions with axis perpendicular to a Reference Plane, with axis parallel to both Reference Planes, with axis parallel to one Reference Plane and inclined to the other Reference Plane, Projections of sections of Prisms, Pyramids, Cylinders and Cones. True Shape of Sections of Solids.

<div align="center">UNIT III</div>

Development - Development of Surfaces of various Solids objects.

Free Hand Sketching - Orthographic Views   from   Isometric, Views of Simple Machine Components such as Brackets,   Bearing Blocks, Guiding Blocks and Simple Couplings and Pipe Joints.

<div align="center">UNIT IV</div>

Isometric Projections - Introduction, Isometric Scale, Isometric Views and Drawing of   various Plane and Solids objects. Perspective drawing and oblique view.

graphic Drawings - Screw Threads, Bolts, Nuts and Washers, Bolted, Riveted and Welded Joints

Text Books:

1. Engineering Drawing: MB Shah and BC Rana, Pearsons
2. Engineering Graphics and Drafting: P.S. Gill, S.K. Kataria and Sons.

Reference Books:

1. A Text Book of Engineering Drawing: RK Dhawan, S Chand & Company
2. Engineering Drawing Plane and Solid Geometry : N.D. Bhatt, Charotar Publishing House.

Note:

1. For class work, the students shall be assigned to prepare at least ten drawing sheets covering all units and each topic of the syllabus.

2. For practical examination, the examiner will set a question paper containing total eight questions, two questions from each unit covering each topic of the syllabus; students are required to attempt five questions at least one from each unit.

ME 105 B   ELEMENTS OF MECHANICAL ENGINEERING
B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits		Class Work	:	25 Marks
3	1	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

UNIT-I

Thermodynamics- Elementary definitions in thermodynamics, fundamentals of first and 2nd law of   thermodynamic- concept of internal energy, enthalpy and entropy, heat pump and refrigerator, elementary numerical problems.

Properties of Steam & Boilers: properties of steam, use of steam tables and mollier diagram, measurement of dryness fraction of steam, Carnot and Rankin cycle, elementary numerical problems. Classification of boilers, Comparison of water and fire tube boilers mounting and accessories with their functions, Constructional and operational details of Cochran and Babcock and Wilcox boilers, elementary numerical problems.

Steam Turbines and Condensers: Classification of turbines and their working principles, Types of condensers and their uses.

UNIT-II

I.C. Engines and Gas Turbines: Introduction, Classification, Constructional details and working of two-stroke and four-stroke diesel and petrol engines, Efficiency of Otto & Diesel cycles , Working principle of gas turbine, elementary numerical problems.

Refrigeration and air conditioning- rating of refrigeration machine, coefficient of performance, simple vapor compression cycle, fundamentals of air conditioning, use of Psychrometric charts.

UNIT-III

Water Turbines and Pumps : Introduction, Classification, Construction details and working principle of Pelton, Francis and Kaplan turbines, Classification of water pumps and construction detail & working principle of centrifugal pump.

Simple Lifting Machines: Definition of machine, Velocity ratio, Mechanical advantage, Efficiency, Laws of machines, Reversibility of machine, Wheel and axle, Differential pulley block, Single, double and triple start worm and worm wheel, Single and double purchase winch crabs, Simple and compound screw jacks, elementary numerical problems.

UNIT-IV

Introduction to Power transmission and Devices: Belt drive, Rope drive, Chain drive, Types of gear and Gear train, Types and function of clutches, Types and function of brakes.

Stresses and Strains: Introduction, Concept & types of Stresses and strains, Poison's ratio, stresses and strains in simple and compound bars under axial loading, Stress-strain diagrams, Hooks law, Elastic constants & their relationships. Concept of shear force and bending moments in beams, elementary numerical problems.

TEXT BOOKS:

1. Hydraulic and Fluid Mechanics – Modi and Seth, Pub. – Standard Book House, New Delhi
2. Engineering Thermodynamics – C.P. Arora, Pub. - TMH, New Delhi
3. Thermal Engineering – A.S. Sarad, Pub. - Satya Prakashan, New Delhi.
4. Engineering Mechanics – K.L. Kumar, Pub. - TMH, New Delhi.
5. Theory of Machines – S.S. Rattan, Pub. – TMH, New Delhi.

REFERENCE BOOKS:

1. Strength of Materials – Popov, Pub. - PHI, New Delhi.
2. Hydraulic Machines – Jagdish Lal, Pub.- Metropolitan, Allahbad.
3. Thermal Science and Engineering – D.S. Kumar, Pub. – Kateria & Sons, New Delhi.

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed

B. Tech. Semester - I (Common for all Branches)

L	T	P	Credits			
--	--	2	1	Class Work	:	20Marks
				Examination	:	30Marks
				Total	:	50 Marks
				Duration of Examination	:	3 Hours

Note: Students will be required to perform 10 experiments in a semester.

LIST OF EXPERIMENTS

1. To find the wavelength of sodium light by using Newton's rings experimental setup.
2. To find the wavelength of sodium light by Fresnel's biprism experimental setup
3. To find the wavelength of various colours of white light with the help of a plane
   transmission diffraction grating.
4. To find the refractive index and Cauchy's constants of a prism by using spectrometer.
5. To find the wavelength of sodium light by using Michelson interferometer.
6. To find the resolving power of a telescope.
7. To find the pitch of a screw using He-Ne laser.
8. To find the specific rotation of sugar solution by using a polarimeter.
9. To compare the capacitances of two capacitors by De'sauty bridge.
10. To find the flashing and quenching potentials of Argon and also to find the
    capacitance of unknown capacitor.
11. To study the photo conducting cell and hence to verify the inverse square law.
12. To find the temperature co-efficient of resistance by using platinum resistance
    thermometer and Callender and Griffith bridge.
13. To find the frequency of A.C. mains by using sonometer.
14. To find the velocity of ultrasonic waves in non-conducting medium by piezo-electric
    method.
15. To determine the value of Stefan's constant.
16. To find the coefficient of thermal conductivity of a good conductor by Searle's method.
17. To determine the coefficient of thermal conductivity of a bad conductor by Lee and
    Charlton method.

RECOMMENDED BOOKS :
1. Advanced Practical Physics – B.L. Worshnop and H.T. Flint (KPH)
2. Practical Physics – S.L.Gupta & V.Kumar (Pragati Prakashan).
3. Advanced Practical Physics Vol.I & II – Chauhan & Singh (Pragati Prakashan).

ME 107B   WORKSHOP PRACTICE
B. Tech. Semester – I/II (Common for all Branches)

L	**T**	**P**	**Credits**			**Class Work**	**:**	**40 Marks**
--	--	4	2			Examination	:	60Marks
						Total	:	100 Marks
						Duration of Examination	:	3 Hours

LIST OF EXPERIMENTS / JOBS

1. To study different types of measuring tools/instruments used in metrology and determine least counts of vernier calipers, micrometers and vernier height gauges.

2. To study different types of machine tools (lathe, shaper, planer, slotter, milling, drilling machines).

3. To prepare a job on a lathe involving facing, outside turning, taper turning, step turning, radius making and parting-off.

4. To study different types of fitting tools and marking tools used in fitting practice.

5. To prepare lay out on a metal sheet by making and prepare rectangular tray, pipe shaped components e.g. funnel.

6. To prepare joints for welding suitable for butt welding and lap welding.

7. To study various types of carpentry tools and prepare simple types of at least two wooden joints.

8. To prepare simple engineering components/ shapes by forging.

9. To prepare mold and core assembly, to put metal in the mold and fettle the casting.

10. To prepare horizontal surface/ vertical surface/ curved surface/ slots or V-grooves on a shaper/ planner.

11. To prepare a job involving side and face milling on a milling machine.

12. To study of CNC lathe, CNC Milling and EDM Machines.

Note: 1.   At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

2.   At least 8 experiments/ jobs should be performed / prepared from the above list, remaining two may either be performed/ prepared from the above list or designed and set as per the scope of the syllabus of Manufacturing Processes.

CH 103B   CHEMISTRY LAB.

B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
				Class Work	:	20 Marks
--	-	2	1	Examination	:	30Marks
		-		Total	:	50 Marks
				Duration of Examination	:	3 Hours

LIST OF EXPERIMENTS

1. Determination of Ca++ and Mg++ hardness of water sample using EDTA solution.

2. Determination of alkalinity of water sample.

3. Determination of dissolved oxygen (DO) in the given water sample.

4. To find the melting and eutectic point for a two component system by using method of

   cooling curve.

5. Determination of viscosity of lubricant by red wood viscometer(No. 1 & No. 2).

6. To determine Flash point & Fire point of an oil by Pensky-Marten's flash point apparatus and

   by Abel's closed cup apparatus..

7. To prepare Phenol-formaldehyde and urea- formaldehyde resin.
8. To find out saponification No. of an oil..
9. Determination of concentration of KMnO4 solution spectrophotometerically.
10. Determination of strength of HCl solution by titrating it against NaOH solution conductometrically.
11. To determine amount of sodium and potassium in a given water sample by flame photometer
12. Estimation of total iron in an iron alloy.

Suggested Books:

1. A Text book on Experiments and Calculation –Engineering Chemistry by S.S.Dara, S.Chand & Company Ltd.
2. Essential of Experimental Engineering chemistry, Shashi Chawla, Dhanpat Rai Publishing Co.
3. Theory & Practice Applied Chemistry – O.P.Virmani, A.K. Narula(New Age).

Note:

1. The student will be required to perform 10 experiments/exercises from the above list and any other two experiments designed by the department based on the theory course (course code101B Course Name Chemistry)
2. The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator are prohibited in the examination.
3. Electronic gadgets including Cellular phones are not allowed in the examination.

EE 103B   PRINCIPLES OF ELECTRICAL ENGINEERING LAB
B. Tech. Semester – I/II (Common for all Branches)

L	**T**	**P**	**Credits**		**Class Work**	**:**	**20 Marks**
--	--	2	1		Examination	:	30Marks
					Total	:	50 Marks
					Duration of Examination	:	3 Hours

LIST OF EXPERIMENTS

1.   To verify KCL and KVL.

2.   To verify Thevenin's & Norton's Theorems.

3.   To verify maximum power transfer theorem in D.C. Circuit.

4.   To verify reciprocity theorem.

5.   To verify Superposition theorem.

6.   To study frequency response of a series R-L-C circuit and determine resonant frequency & Q-factor for various Values of R, L, C.

7.   To study frequency response of a parallel R-L-C circuit and determine resonant frequency & Q - Factor for various values of R, L, C.

8.   To perform direct load test of a transformer and plot efficiency Vs load characteristic.

9.   To perform direct load test of a D.C. shunt generator and plot load voltage Vs load current curve.

10.   To study various type of meters.

11.   .Measurement of power by three voltmeters / three ammeters method.

12.   Measurement of power in a three phase system by two watt meter method.

Note:
   1.   At least 10 experiments are to be performed by students in the semester.
   2.   **At least 8 experiments should be performed from the above list; remaining two experiments may either be performed from the above list or designed and set by the Dept. as per the scope of the syllabus of EE101B.**

CSE 103B   COMPUTER PROGRAMMING LAB

B. Tech. Semester – I/II (Common for all Branches)

L	**T**	**P**	**Credits**		**Class Work**	:	**20 Marks**
--	--	2	1		**Examination**	:	**30Marks**
					Total	:	**50 Marks**
					Duration of Examination	:	**3 Hours**

LIST OF PRACTICAL PROBLEMS

1. Write a program to find the largest of three numbers. (if-then-else)

2. Write a program to find the largest number out of ten numbers (for-statement)

3. Write a program to find the average mail height & average female heights in the class (input is in form of sex code, height).

4. Write a program to find roots of quadratic equation using functions and switch statements.

5. Write a program using arrays to find the largest and second largest no. out of given 50 nos.

6. Write a program to multiply two matrices.

7.   Write a program to sort numbers using the Quicksort Algorithm.

8.   Represent a deck of playing cards using arrays.

9. Write a program to check that the input string is a palindrome or not.

10. Write a program to read a string and write it in reverse order.

11. Write a program to concatenate two strings.

12. Write a program which manipulates structures (write, read, and update records).

13. Write a program which creates a file and writes into it supplied input.

14. Write a program which manipulates structures into files (write, read, and update records).

Note: At least 5 to 10 more exercises to be given by the teacher concerned

ME 109 B   ELEMENTS OF MECHANICAL ENGINEERING LAB.
B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
--	--	2	1	Class Work	:	20 Marks
				Examination	:	30Marks
				Total	:	50 Marks
				Duration of Examination	:	3 Hours

<u>**LIST OF EXPERIMENTS**</u>

1. To study Cochran & Babcock & Wilcox boilers.

2. To study the working & function of mountings & accessories in boilers.

3. To study 2-Stroke & 4-Stroke diesel engines.

4. To study 2-Stroke & 4-Stroke petrol engines.

5. To calculate the V.R., M.A. & efficiency of single, double & triple start worm & worm wheel.

6. To calculate the V.R., M.A. & efficiency of single & double purchase winch crabs.

7. To draw the SF & BM diagrams of a simply supported beam with concentrated loads.

8. To study the simple & compound screw jacks and find their MA, VR & efficiency.

9. To study the constructional features & working of Pelton Turbine.

10. To prepare stress-strain diagram for mild steel & cast iron specimens under tension and compression respectively on a Universal testing machine.

Note: 1. Total ten experiments are to be performed in the Semester.

3. At least eight experiments should be performed from the above list. Remaining three experiments should be performed as designed & set as per the scope of the syllabus of ME – 101: Elements of Mechanical Engineering.

4.

MATH 102B   MATHEMATICS - II
B. Tech. Semester - II (Common for all Branches)

L	T	P	Credits
3	1	--	4

Class Work : 75 Marks
Examination : 75 Marks
Total : 100 Marks
Duration of Examination : 3 Hours

UNIT – I

ORDINARY DIFFERENTIAL EQUATIONS & ITS APPLICATIONS : Exact differential equations. Equations

reducible to exact differential equations. Applications of Differential equations of first order & first degree to simple electric circuits, Newton's law of cooling, heat flow and orthogonal trajectories.

LINEAR DIFFERENTIAL EQUATIONS OF SECOND AND HIGHER ORDER. Complete solution, complementary function and particular integral, method of variation of parameters to find particular Integral, Cauchy's and Legender's linear equations, simultaneous linear equations with constant co-efficients.

UNIT-II

LAPLACE TRANSFORMS AND ITS APPLICATIONS : Laplace transforms of elementary functions, properties of Laplace transforms, existence conditions, transforms of derivaties, transforms of integrals, multiplication by tn, division by t. Evaluation of integrals by Laplace transforms. Laplace transform of Unit step function, unit impulse function and periodic function. Inverse transforms, convolution theorem, application to linear differential equations and simultaneous linear differential equations with constant coefficients.

UNIT-III

FUNCTIONS OF COMPLEX VARIABLE : Definition, Exponential function, Trignometric and Hyperbolic functions, Logrithmic functions. Limit and Continuity of a function, Differnetiability and Analyticity.

Cauchy-Riemann equations, necessary and sufficient conditions for a function to be analytic, polar form of the Cauchy-Riemann equations. Harmonic functions, application to flow problems. Integration of complex functions. Cauchy-Integral theorem and formula.

Power series, radius and circle of convergence, Taylor's Maclaurin's and Laurent's series. Zeroes and singularities of complex functions, Residues

UNIT-IV

FOURIER SERIES AND FOURIER TRANSFORMS : Euler's formulae, conditions for a Fourier expansion, change of interval, Fourier expansion of odd and even functions, Fourier expansion of square wave, rectangular wave, sawtoothed wave, half and full rectified wave, half range sine and consine series.

Fourier integrals, Fourier transforms, Shifting theorem (both on time and frequency axes), Fourier transforms of derivatives, Fourier transforms of integrals, Convolution theorem, Fourier transform of Dirac-delta function.

TEXT BOOKS :
1. Advanced Engg. Mathematics F Kreyszig
2. Higher Engg. Mathematics B.S. Grewal
REFERENCE BOOKS:
1. Differential Equations – H.T.H. Piaggio.
2. Elements of Partial Differential Equations – I.N. Sneddon.
3. Advanced Engineering Mathematics – R.K. Jain, S.R.K.Iyengar.

4. Advanced Engg. Mathematics – Michael D. Greenberg.

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed

ECE 102B   BASICS OF ELECTRONICS ENGINEERING
B. Tech. Semester – II (OPTIONAL- Common for all Branches)

L	T	P	Credits			
				Class Work	:	25 Marks
3	1	--	4	Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT I

Semiconductor Physics, Diodes and Applications: Basic concepts, intrinsic and extrinsic semiconductors, diffusion and drift currents ,Hall effect and its applications-pn junction under open circuit, reverse bias and forward bias conditions, p-n junction in the breakdown region, ideal diode, types of diodes –zener diode, varactor diode, LED and photodiode. Rectifier (half wave and full wave).

Amplifiers: Introduction of different types of BJT amplifiers & their characteristics.

UNIT II

Operational Amplifiers: OP-amps, its characteristics, inverting, non-inverting, summing, averaging, scaling ,difference, integrator and differentiator amplifiers.

Power Supplies: Introduction and working of switched mode power supply (SMPS), voltage regulator.

UNIT III

Digital Electronics: Binary, Octal and Hexadecimal number system and conversion, Boolean algebra, truth tables of logic gates AND, OR,NOT,EX-OR,EX-NOR, NAND, NOR AND their implementation using diodes transistors, switches and lamps, Universal gates.

Electronic Instruments: Transducers, Role, importance and applications of general purpose test instruments viz. multi meter (digital and analog), cathode ray oscilloscope (CRO), function/ signal generator.

UNIT IV

Communication System: Modulation, need of modulation, Block diagram of basic communication system, overview of AM, FM and PM.

Microprocessor: Basics of 8085 & its architecture. Instruction set, Interrupts, Addressing modes.

Refrence Books:

1. Sedra A S and Smith K C. "Microelectronic Circuits" New York.Oxford University Press, New York
2. Tocci R J and widner N S "Digital Systems" – Principles and Applications", Pearson Education India , new Delhi .
3. Cooper and Helfric, "Modern Electronic Instrumentation and Measuring Techniques". Prentice Hall of India, New Delhi.
4. Boylestad and Nashelesky, "Electronic Devices and Circuit Theory", Pearson Education India, New Delhi
5. Millman and Grabel, "Microelectronics", Tata McGraw Hill
6. Millman and Halkias, "Electronics Devices and Circuits". Tata McGraw Hill
7. Kennedy and Davis, "Electronic Communication Systems", Tata McGraw Hill
8. Ramesh S. Gaonkar, "Microprocessor Architecture,Programming,and Applications with the 8085",Penram International Publishing.

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed

BT 102B   BASICS OF BIOTECHNOLOGY
B. Tech. Semester – II (OPTIONAL- Common for all Branches)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT – I

Introduction: Nature and scope of Biotechnology.
Cell Structure and Function: Prokaryotes and Eukaryotes- cell wall, cell membrane, nucleus, mitochondria, chloroplast, ribosome, vacuoles, bacteria and viruses: brief descriptions.
Biomolecules: A brief account of structure and functions of carbohydrates, lipids, proteins.

UNIT– II

Cell Division: Mitosis and meiosis
Genes and chromosomes: Classical- Mendel's laws and chromosomes, nature of genetic material, DNA and RNA as genetic material, concept of organization of genetic material into chromosomes.
DNA replication: DNA polymerases, replication mechanism.

UNIT-III

Gene Expression: Central dogma, genetic code, gene expression-a brief account of transcription and translation, housekeeping genes, mutations and their molecular basis.
Genetic Engineering: An introduction to genetic engineering: cloning (vectors, enzymes), DNA and genomic libraries, transgenics, DNA fingerprinting, genomics.

UNIT – IV

Applications of Biotechnology : Bioprocess and fermentation technology, cell culture, enzyme technology, biological fuel generation, single cell protein, sewage treatment, environmental biotechnology, biotechnology and medicine, biotechnology in agriculture & forestry industry, food and beverage technology, production of biological inventions, safety in biotechnology.

TEXT/ REFERENCE BOOKS:

- Biotechnology, Smith, Cambridge Press.
- Modern Concepts of Biotechnology, H. D. Kumar, Vikas Publishing House (P) Ltd.
- Elements of Biotechnology, P. K. Gupta, Rastogi Publications.

Note:

1.   In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2.   The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed

HUM 102B   ORAL COMMUNICATION SKILLS
B. Tech. Semester – II (OPTIONAL- Common for all Branches)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

OBJECTIVE

To train students to have proficiency in oral communication through interpersonal communicative situations.

COURSE CONTENT

UNIT I

Essentials of Speaking Skills:

Familiarity with phonetic sound symbols; Transcription of simple words using International Phonetic Alphabet; Use of dictionary to cultivate standard pronunciation and develop phonetic discrimination

UNIT II

Speaking Skills:

Need and Significance of Effective Oral Communication; Practice of Conversation – Interpersonal and Telephonic Conversation; Formal Group Discussion

UNIT III

Non-Verbal Elements in Oral Communication Skills:

Reading Face, eyes, gesture and body posture, time, space and culture in communicative situations; practicing verbal and non-verbal communication (Body Language) to acquire effective Oral communication;

UNIT IV

Listening Skills:

Essentials of Good Listening, Types of Listening, Barriers in Effective listening, Exercises in Listening to Talk Shows, Speech Reviews; Practice in English Sounds and Speech using RP/MRP

RECOMMENDED READING

1. Buck, Gary. *Assessing Listening.* Delhi: Foundation Books (Cambridge University Press), 200.
2. Balasubramanian, T. *A Textbook of English Phonetics for Indian Students.* Chennai: MacMillan,1981 (rpt 2007).
3. Gangal, J.K. *A Practical Course in Spoken English*. New Delhi: PHI, 2011
4. Raman, Meenakshi and Sangeeta Sharma. Communication Skills. Delhi: OUP, 2011
5. Ribbens, Geoff and Richard Thompson. *Body Language*. New York: Hodder & Stoughton, 2007.

B. Tech. Semester – II (OPTIONAL- Common for all Branches)

L	T	P	Credits		
3	1	--	4		

Class Work	:	25 Marks
Examination	:	75Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

UNIT - I

Materials for Construction: Stones, Sands, Lime, Bricks, Timber, Steel their Classification and Properties. Different Types of Cement and their Properties, manufacturing of Cement, Concrete, and properties of Concrete, Ingredient of Concrete and Their Functions

Component parts of a Building, Foundation, Masonry Works, Doors and Windows, Floors, Roofs, DPC, Building Services

UNIT - II

Surveying , Introduction to Surveying: Definition, importance, classification of surveys, Principle, Leveling: definitions of terms used in leveling, different types of levels, Contours, Definition, representation of reliefs, horizontal equivalent, contour interval, characteristics of contours, methods of contouring, contour gradient, uses of contour maps, Introduction to GIS, GPS and Remote sensing.

UNIT - III

Transportation: Various modes and means of transportation, Different types of transport systems, Importance of road transport, History of Road Development, Indian Road Congress. Main features of 20 years road development plans in India, PMGSY

Sources of power, estimation of water power, water budget equation, necessity and importance of harnessing small hydro power plants, Dams, Types of Dams, Location and Impact assessment of a Dam project.

UNIT - IV

Geotechnical Engineering: History and its applications, Soil Properties, Classification of Soil, Geotechnical and Geophysical investigation of Soil.

Irrigation Engineering: Necessity, advantages, disadvantages, impact of irrigation on human environment, need and development of irrigation in India.

Text Books:

1. Basic Civil Engineering, Satheesh Gopi, Pearson.
2. Basic Civil Engineering, Dr. B.C. Punmia, Ashok Kumar Jain, Arun Kr. Jain, Firewall Medi

Reference Books:

1. Surveying by Prof. N. Singh, Tata McGraw Hill, New Delhi
2. Basic Civil Engineering, Rakesh Beohar, Firewall Media
3. Highway Engg. by S. K. Khanna & C.e.G.Justo, Nem Chand & Bros,Roorkee
4. Water Resources Engineering by Linseley and Franzini
5. Basic Civil Engineering, L.G. Kulkarni A. D. Pawar S. P. Nitsure, Technical Publications.

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

L	T	P	Credits			
--	--	2	1			

Class Work   : 20 Marks

Examination   : 30Marks

Total   : 50 Marks

Duration of Examination   : 3 Hours

Note: Students will be required to perform 10 experiments in a semester.

LIST OF EXPERIMENTS

 1. To find the low resistance by Carey - Foster's bridge.
 2. To find the resistance of a galvanometer by Thomson's constant deflection method using a post office box.
 3. To find the value of high resistances by Substitution method.
 4. To find the value of high resistances by Leakage method.
 5. To study the characteristics of a solar cell and to find the fill factor.
 6. To find the value of e/m for electrons by Helical method.
 7. To find the ionisation potential of Argon/Mercury using a thyratron tube.
 8. To study the variation of magnetic field with distance and to find the radius of coil by Stewart and Gee's apparatus.
 9. To study the characteristics of (Cu-Fe, Cu-Constantan) thermo couple.
 10. To find the value of Planck's constant by using a photoelectric cell.
 11. To find the value of co-efficient of self-inductance by using a Rayleigh bridge.
 12. To find the value of Hall Co-efficient of semi-conductor.
 13. To study the V-I characteristics of a p-n diode.
 14. To find the band gap of intrinsic semi-conductor using four probe method.
 15. To calculate the hysteresis loss by tracing a B-H curve.
 16. To verify the Truth Table of various Logic Gates.

RECOMMENDED BOOKS :

1. Advanced Practical Physics – B.L. Worshnop and H.T. Flint (KPH)
2. Practical Physics – S.L.Gupta & V.Kumar (Pragati Prakashan).
3. Advanced Practical Physics Vol.I & II – Chauhan & Singh (Pragati Prakashan).

GP 102B GENERAL PROFICIENCY AND ETHICS
B. Tech. Semester – II (Common for all Branches)

L	T	P	Credits	Examination	:	50Marks
1	--	--	2	Total	:	50 Marks

The purpose of this course is to inculcate a sense of professionalism in a student along with personality development in terms of quality such as receiving, responding, temperament, attitude and outlook. The student efforts will be evaluated on the basis of his/ her performance / achievements in different walks of life.

A Faculty Counselor will be attached to a group of students which will remain associated with him /her during the entire period of the degree program in the University. Each faculty member will serve as a faculty counselor. They will act like a local guardian for the students associated with him / her and will help them in terms of career guidance, personal difficulties.

A.   The student will present a written report before the committee with following in view:

The student will present before the committee his/her achievements during the current academic session in the form of a written report highlighting followings:

I.	Academic Performance	--------	
II.	Extra Curricular Activities / Community Service, Hostel Activities	**(8 Marks)**	
III	Technical Activities / Industrial, Educational tour	**(8 Marks)**	
IV	Sports/games	**(4 Marks)**	
V	Moral values & Ethics	**(10 Marks)**	

   NOTE: Report submitted by the students should be typed on both sides of the paper.

B.   A student will support his/her achievement and verbal & communicative skill through presentation before the committee.   **(20   Marks)**

C.   Moral values & Ethics

Syllabus - Introduction to Value Education. Understanding ethics, value system, happiness, prosperity

A minor test / Quiz will be conducted and It will be the duty of the concerned teacher assigned to teach Moral values & Ethics to submit the awards to respective chairman   of the department / Director/Principal.

The evaluation of this course will be made by the following Committee.

University Departments:

1	Chairperson of the Department	Chairman
2	Senior Most Faculty Counselor	Member
3	Vice- Chancellor's Nominee	Member

Affiliated Colleges:

1	Director/Principal	Chairman
2	Head of the Department/Sr. Faculty	Member
3	External Examiner to be appointed by the University	Member

Note: Remuneration will be paid to the external examiner only (at par with the other practical examinations).

MGT 201B   ENGINEERING ECONOMICS
B. Tech. Semester – III (Common for all Branches Except BT& BME)

L	T	P	Credits		
4	-	--	4	Class Work	: 25 Marks
				Examination	: 75Marks
				Total	: 100 Marks
				Duration of Examination	: 3 Hours

COURSE OBJECTIVE: The aims of this course are to:
1. Acquaint the student with the basic economic concepts and their operational significance
2. Stimulate him to think systematically and objectively about cotemporary economic problems.

UNIT-I

Definition of economics- various definitions, nature of Economic problem, Micro and macro economics- their feature and scope, production possibility curve, Economic laws and their nature. Relation between Science, Engineering Technology and Economics. Concept and measurement of utility, Law of Diminishing Marginal Utility, Law of equi-marginal utility – its practical application and importance**.**

UNIT-II

Meaning of Demand, Individual and Market demand schedule, Law of demand, shape of demand curve. Elasticity of demand, measurement of elasticity of demand, factors effecting elasticity of demand, practical importance & application of the concept of elasticity of demand. Various concepts of cost-Fixed cost, variable cost, average cost, marginal cost, money cost, real cost, opportunity cost. Shape of average cost, marginal cost, total cost etc. in short run and long run.

UNIT III

Meaning of production and factors of production; Law of variable proportions, Law of Return to Scale, Internet and External economics and diseconomies of scale. Meaning of Market, Type of Marker– perfect Competition, Monopoly, Oligopoly, Monopolistic competition (Main features of these markers).

UNIT-IV

Supply and Law of Supply, Role of Demand & Supply in Price Determination and effect of changes in demand and supply on prices . Nature and characteristics of Indian economy, privatization – meaning, merits and demerits. Globalisation of India economy – merits and demerits. Elementary Concept of WTO & TRIPS agreement, Monitory Policy & Fiscal Policy

TEXT BOOKS:
1. Ahuja H.L"Micro Ecomomic Theory" S. Chand Publication, New Delhi
2. Dewett K.K "Modern Ecomomic Theory" S. Chand Publication, New Delhi
3. Jain T.R, Grover M.L, Ohri V.K Khanna O.P,"Economics for engineers" V.K .Publication ,New Delhi

SUGGESTED BOOKS:
1. Jhingan M.L"Micro Ecomomic Theory" S.Chand Publication ,New Delhi
2. Chopra P.N "Principle of Economics" Kalyani Publishers, Delhi
3. Mishra S.K "Modern Micro Economics" Pragati Publication Mumbai.
4. Dwivedi D.N "Micro Economics " Pearson Education, New Delhi.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 201 B DATA STRUCTURES
B. Tech. Semester – III (Common for ECE, IT & AEI)

L	T	P	Credits			
3	1	--	4			

Class Work	:	25 Marks
Examination	:	75Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

Unit 1
Basic Terminology: Elementary Data Organization, Data Structure Operations
Arrays: Array Definition and Analysis, Representation of Linear Arrays in Memory, Traversing of Linear Arrays, Insertion and Deletion, Single Dimensional Arrays, Two Dimensional Arrays, Multidimensional Arrays, Sparse Matrix.
Stacks and Queues: Operations on Stacks- Push, Pop, Peep, Representation of stacks. Application of stacks - polish expression and their compilation conversion of infix expression to prefix and postfix expression, Tower of Hanoi problem, Representation of Queues, Operations on queues: Create, Add, Delete, Priority Queues, Dequeues, Circular Queue.

Unit 2
Linked Lists: Singly linked lists: Representation of linked lists in memory, Traversing, Searching, Insertion into, Deletion from linked list, Polynomial Addition, Header Linked List, Doubly linked list, generalized list.

Unit 3
Trees: Basic Terminology, Binary Trees and their representation, expression evaluation, Complete Binary trees, Extended binary trees, Traversing binary trees, Searching, Insertion and Deletion in binary search trees(with and without recursion), AVL trees, Threaded trees, B trees.
 Graphs: Terminology and Representations, Graphs & Multigraphs, Directed Graphs, Sequential representation of graphs, Adjacency matrices, Transversal Connected Component and Spanning trees, Shortest path

Unit 4
Searching, Sorting methodologies: Array- Bubble sort, Selection Sort, Insertion Sort, Linear Search, Binary Search. Stack -Quick Sort, Merge Sort. Two way Merge Sort. Queue- Radix Sort.Tree – Heap Sort.

Books
1. An introduction to data structures and application by Jean Paul Tremblay & Pal G. Sorenson (McGraw Hill)
2. R.L. Kruse, B.P. Leary, C.L. Tondo, Data structure and program design in C , PHI
3. R. B. Patel, Expert Data Structures With C, Khanna Publications, Delhi, India, 3rd Edition 2008.
4. Data Structures using C by A. M. Tenenbaum, Langsam, Moshe J. Augentem, PHI Pub.
5. Data Structures and Algorithms by A. V. Aho, J. E. Hopcroft and T. D. Ullman, Original edition, Addison-Wesley, 1999, Low Price Edition.
6. Fundamentals of Data Structure by Ellis Horowitz &SartajSahni, Pub, 1983. AW
7. Data Structure and Program design in C by Robert Kruse, PHI
8. Theory and Problems of Data Structures by Jr. SymourLipschetz, Schaum's outline by TMH.
9. Introduction to Computer Science- An algorithms approach, Jean Paul Tremblay, Richard B. Bunt, 2002, TMH.
10. Data Structure and Standard Template Library- Willam J. Collins, 2003, T.M.H

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 203 B DISCRETE STRUCTURE
B. Tech. Semester – III (Computer Science and Engg.)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Unit-1
Set Theory: Introduction to set theory, Set operations, Algebra of sets, Duality, Finite and Infinite sets, Cartesian Product, Relations, Representation of relations, Types of relation, Equivalence relations and partitions , Partial ordering relations and lattices, Function and its types, Composition of function and relations

Unit-2
Graphs And Trees: Introduction to graphs, Directed and Undirected graphs, Homomorphic and Isomorphic graphs, Subgraphs, Cut points and Bridges, Multigraph and Weighted graph, Paths and circuits, Shortest path in weighted graphs, Eurelian path and circuits, Hamilton paths and circuits, Planar graphs, Euler's formula, Trees, Spanning trees, Binary trees and its traversals.

Unit-3
Propositional logic: Basic operations: AND(^), OR(v), NOT(~), Truth value of a compound statement, propositions, tautologies, contradictions, Validity of Arguments
Group theory: Definition and examples of a monoid, Semigroup, Groups and rings, Homomorphism, Isomorphism and Automorphism, Subgroups and Normal subgroups, Cyclic groups, Cosets, Lagrange's theorem.

Unit-4
Recursion And Recurrence Relation : linear recurrence relation with constant coefficients, Homogeneous solutions, Particular solutions, Total solution of a recurrence relation using generating functions.
Techniques Of Counting: Permutations with and without repetition, Combination.

Text Book:
•Elements of Discrete Mathematics C.L Liu, 1985, McGraw Hill

Reference Books:
•Discrete Mathematics by Johnson Bough R., 5th Edition, PEA, 2001..
•Concrete Mathematics: A Foundation for Computer Science, Ronald Graham, Donald Knuth and Oren Patashik, 1989, Addison-Wesley.
•Mathematical Structures for Computer Science, Judith L. Gersting, 1993, Computer Science Press.
•Applied Discrete Structures for Computer Science, Doerr and Levasseur, (Chicago: 1985,SRA
•Discrete Mathematics by A. Chtewynd and P. Diggle (Modular Mathematics series), 1995, Edward Arnold, London,
•Schaums Outline series: Theory and problems of Probability by S. Lipshutz, 1982, McGraw-Hill Singapore
•Discrete Mathematical Structures, B. Kolman and R.C. Busby, 1996, PHI
•Discrete Mathematical Structures with Applications to Computers by Trambley & Manohar, 1995, Mc Graw Hill.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

ECE201B DIGITAL ELECTRONICS
B. Tech. Semester – III (EE, EL, CSE, IT,IC, EL, common with BME, AEI in 4th Sem.)

L	T	P	Credits			
3	1	--	4			

Class Work	:	25 Marks
Examination	:	75Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

UNIT I

FUNDAMENTALS OF DIGITAL TECHNIQUES :
Digital signal, logic gates: AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR, Boolean algebra. Review of Number systems. Binary codes: BCD, Excess-3, Gray, EBCDIC, ASCII, Error detection and correction codes.
COMBINATIONAL DESIGN USING GATES:
Design using gates, Simplifications of SOP and POS Boolean Expressions, Karnaugh map up to four variables.

UNIT II

COMBINATIONAL DESIGN USING MSI DEVICES :
Multiplexers and Demultiplexers and their use as logic elements, Decoders, Adders / Subtractors, BCD arithmetic circuits, Encoders, Code Converters, Decoders / Drivers for display devices.
SEQUENTIAL CIRCUITS:
Flip Flops : S-R, J-K, T, D, master-slave, edge triggered, shift registers, sequence generators, Counters, Asynchronous and Synchronous Ring counters and Johnson Counter, Design of Synchronous and Asynchronous sequential circuits.

UNIT III

Unit 5: DIGITAL LOGIC FAMILIES:
Switching mode operation of p-n junction, bipolar and MOS. devices. Bipolar logic families:RTL, DTL, DCTL, HTL, TTL, ECL, MOS, and CMOS logic families. Tristate logic, Interfacing of CMOS and TTL families.
Unit 6: SEMICONDUCTERS MEMORY DEVICES:
Memory organizations, Characteristics of memory devices, Classifications of semiconductors memories.

UNIT IV

A/D AND D/A CONVERTERS:
Sample and hold circuit, weighted resistor and R -2 R ladder D/A Converters, specifications for D/A converters.
A/D converters : Quantization, parallel -comparator, successive approximation, counting type, dual-slope ADC, specifications of ADCs.
PROGRAMMABLE LOGIC DEVICES:
PLA, PAL, FPGA and CPLDs.

Text Books :
1. Modern Digital Electronics(Edition III) : R. P. Jain; TMH
2. Digital Electronics :Green; Pearson

Reference Books:
1. Digital Integrated Electronics : Taub & Schilling; MGH
2. Digital Principles and Applications : Malvino & Leach; McGraw Hill.
3. Digital Design : Morris Mano; PHI.

NOTE:
In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, atleast one from each unit. All questions carry equal marks.

ECE210B COMMUNICATION SYSTEMS

B. Tech. Semester –III (IT) (common with IT, 4TH Sem ECE and 6th Sem. AEI)

L	T	P	Credits		Class Work	:	25 Marks
3	1	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

UNIT I

INTRODUCTION TO COMMUNICATION SYSTEM:

Modulation, Demodulation, Radio Frequency Spectrum, Signals & their classification, Limitations & Advantages of a Communication System, Comparison of Analog & Digital Communication Systems, Historical Perspective, Modes & Medias of Communication.

NOISE:

Sources of Noise, External & Internal Noise, Noise Calculations, Noise Figure, Noise Figure Calculation, Noise Temperature, Noise in Communication Systems, Band Pass Noise Model, Cascaded States & its Noise Figure Calculation, Signal in presence of Noise, Pre-Emphasis & De-Emphasis, Noise Quieting Effect, Capture Effect, Noise in Modulation Systems.

UNIT II

LINEAR MODULATION:

(AM) Basic definition & derivation for Modulation & Modulation Index, Modulation & Demodulation of AM, Suppressed Carrier Modulation, Quadrature Amplitude Modulation, SSB-SC, DSB-SC, VSB Modulation & Demodulation, Comparison of various AM Systems, Generation of AM waves.

ANGLE MODULATION:

Basic definition & derivation for Modulation & Modulation Index, Generation of FM waves, Comparison between PM & FM, Frequency Spectrum of FM, B.W. & required spectra, Types of FM, vector representation of FM, Universal Curve, Multiple FM, Demodulation of FM waves, Demodulation of PM waves, Comparison between AM & FM.

UNIT III

TRANSMITTERS & RECEIVERS:

Classification of Radio Transmitters, Basic Block Diagram of Radio Transmitter, Effect of Feedback on operation of Transmitter, Radio Telephone Transmitters, Privacy Device in Radio Telephony, FM Transmitter using Reactance Modulator, Armstrong FM Transmitter, Radio Receivers, Classification, TRF Receiver, Super Heterodyne Receiver, Image Rejection & Double Spotting, Choice of IF, Tracking & Alignment of Receivers, AGC.

PROBABILITY THEORY & RANDOM PROCESSES:

Probability, Properties, Conditional Probability, Random Variables, CDF, PDF, Uniform Distribution, Random or Stochastic Process, Ergodic Process, PSD, Properties of PSD, Correlation Function.

UNIT IV

PULSE ANALOG MODULATION:

Sampling theory, TDM, FDM, PAM, PWM, PPM, Modulation & Demodulation techniques of above all.

PULSE DIGITAL MODULATION:

Elements of Pulse Code Modulation, Noise in PCM Systems, Bandwidth of PCM Systems, Measure of Information, Channel Capacity, Channel Capacity of PCM System, Differential Pulse Code Modulation (DPCM). Delta Modulation (DM)

Reference Books:

1. Communication Systems   By Manoj Duhan – I. K. International
2. Electronic Communication Systems   By Kennedy – TMH
3. Communication Systems   By Singh & Sapre – TMH
4. Electronic Communication,   By Roody Coolen – Pearson
5. Analog Communication   By P. Chakarbarti – DR & Co.
6. Communication Systems   By Simon Haykins – Wiley

NOTE:

In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, atleast one from each unit. All questions carry equal marks.

CSE 205 B COMPUTER BASED NUMERICAL & STATISTICAL TECHNIQUES
B. Tech. Semester – III (Computer Science and Engg.) (Common with IT)

L	T	P	Credits		Class Work	:	25 Marks
3	1	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

Unit I

Numerical errors: Round-off error, Truncation error, Absolute & relative errors, error propagation.
Nonlinear Equations: Bisection method, fixed point iteration, Newton's method, Newton's method for nonlinear system of equations.

Unit II

Finite differences and Interpolation: Forward, backward & central differences, Factorial notation, averaging operator, shift operator and relationship between various type of operators, Newton's forward & backward interpolation, central difference interpolation formulas, Interpolation with unequal interval, Lagrange interpolation formula, Hermite interpolation.

Unit III

Numerical Differentiation & Integration: Numerical Differentiation using forward, backward & central difference formulas, Newton's Cotes formula, Trapezoidal and Simpson's rules. Romberg integration.

Unit IV

Probability distributions &Hypothesis Testing: Conditional probability, Bayes theorem and its applications, expected value of a random variable. Properties and application of Binomial, Poisson and Normal distributions.
Test of significance for large samples, Student's t-distribution (application only), chi-square test of goodness of fit.

BOOKS:

1. Advanced Engg. Mathematics : F Kreyszig.
2. Higher Engg. Mathematics : B.S. Grewal.
3. Numerical Methods: E Balagurusamy, TMH
4. Mathematical Statistics: S C Gupta & V K Kapoor.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

L	T	P	Credits		**Class Work**	:	**20 Marks**
	2	1			**Examination**	:	**30Marks**
					Total	:	**50 Marks**
					Duration of Examination	:	**3 Hours**

List of Programs:

1. Write a program to perform binary search in an array.

2. Write a program to perform binary search using recursion.

3. Write a program to perform linear search in 2D array.

4. Write a program to perform various operations on matrices.

5. Write a program to swap two nos. using calls by value and reference.

6. Write a program to implement bubble sort.

7. Write a program to implement insertion sort.

8. Write a program to implement selection sort.

9. Write a program of link list implementation of a stack.

10. Write a program of link list implementation of a queue.

11. Write a program of array implementation of a stack.

12. Write a program of array implementation of a queue.

13. Write a program to search an element in a link list.

14. Write a program to maintain a link list.

15. Write a program to implement BST

Note: Teacher may give 5 to 10 more exercises based on course CSE 201B

ECE221B DIGITAL ELECTRONICS LAB
B. Tech. Semester –III (EE, EL, CSE, IC, EEE, common with BME, AEI in 4th Sem.)

L	T	P	Credits			
				Class Work	:	20 Marks
	2	1		Examination	:	30Marks
				Total	:	50 Marks
				Duration of Examination	:	3 Hours

LIST OF EXPERIMENTS:

1   Study of TTL gates –AND,OR,NOT,NAND,NOR,EX-OR,EX-NOR

2   To realize the universal property of NAND gate

3   To realize the universal property of NOR gate

4   Design & realize a given function using K-maps and verify its performance.

5   To verify the operation of Multiplexer & De-multiplexer.

6   To verify the operation of Comparators.

7   To perform Half adder and Full adder

8   To perform Half Substractor and Full substractor.

9   To verify the truth table of S-R,J-K,T & D Type flip flop .

10   To verify the operation of bi-directional shift register.

11   To study analog to digital and digital to analog converter

12   To design & verify the operation of 3 bit synchronous counter.

13   To design & verify the operation of synchronous UP/DOWN decade counter using JK flip flop & derive a seven segment display using the same.

14   To design & verify the operation of asynchronous UP/DOWN decade counter using JK flip flop & derive a seven segmen ment display using the same.

15   Design a 4- bit shift register ,verify its operation and verify the operation of a ring counter and a Johnson counter.

Note:-
1   Total ten experiments are to be performed in the semester.
2   At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed and set by the concerned institution as per the scope of the syllabus.

CSE 225B COMPUTER BASED NUMERICAL AND STATISTICAL TECHNIQUES LAB
B. Tech. Semester – III(Computer Science and Engg) (Common for IT)

L	T	P	Credits		Class Work	:	20 Marks
	2	1			**Examination**	:	**30Marks**
					Total	:	**50 Marks**
					Duration of Examination	:	**3 Hours**

Write Programs in 'C' Language:

1. To deduce error involved in polynomial equation.

2. To Find out the root of the Algebraic and Transcendental equations using Bisection, Regula-falsi, Newton Raphson and Iterative Methods.

3. To implement Newton's Forward and Backward Interpolation formula.

4. To implement Gauss Forward and Backward, Bessel's, Sterling's and Evertt's Interpolation formula

5. To implement Newton's Divided Difference and Langranges Interpolation formula.

6. To implement Numerical Differentiations.

7. To implement Numerical Integration using Trapezoidal, Simpson 1/3 and Simpson 3/8 rule.

8. To implement Least Square Method for curve fitting.

9. To draw frequency chart like histogram, frequency curve and pie-chart etc.

10. To estimate regression equation from sampled data and evaluate values of standard deviation, t-statistics, regression coefficient, value of R2 for atleast two independent variables.

B. Tech. Semester – III (Common for all branches)

L	T	P	Credits		Class Work	:	50 Marks
-	-	2	2				

Each student has to undergo a workshop atleast 4 weeks (80-100 hours) at the end of II semester during summer vacations. **Out of the four weeks, two weeks would be dedicated to general skills and two weeks training for specialized discipline/ department**. The evaluation of this training shall be carried out in the III semester

LIST OF JOBS TO BE CARRIED OUT DURING THIS PERIOD

1. To study and prepare different types of jobs on machine tools (lathe, shaper, planer, slotter, milling, drilling machines).

2. To prepare lay out on a metal sheet by making and prepare rectangular tray, pipe shaped components e.g. funnel.

3. To prepare joints for welding suitable for butt welding and lap welding.

4. To study various types of carpentry tools and prepare simple types of wooden joints.

5. To prepare simple engineering components/ shapes by forging.

6. To prepare mold and core assembly, to put metal in the mold and fettle the casting.

7. To study of CNC lathe, CNC Milling and EDM Machines.

8. Any work assigned in electrical workshop, computer hardware/language lab, electronics workshop, biomedical hardware, automobile workshop etc.

This student will prepare job(s)/project as an individual or in a group using workshop in house infrastructure.

The student shall submit a typed report.

Training will be evaluated on the spot out of 20 marks.

The report will be evaluated in the III Semester by a Committee consisting of two teachers.

The student will interact with the committee through presentation to demonstrate his/her learning. The basis of evaluation will primarily be the knowledge and exposure of students on different kinds of Machines/instruments/tools/ skills etc. The committee will evaluate out of 30 marks.

The committee shall submit the awards out of 50 marks.

GES 201B   ENVIRONMENTAL STUDIES
B. Tech. Semester – III/IV (Common for all Branches)

L	T	P	Credit		
3	--	--	0		

Examination : 75Marks
Total : 75 Marks
Duration of Examination : 3 Hours

UNIT – I   The Multidisciplinary nature of environmental studies, Definition, scope and importance.

Need for Public awareness

UNIT – II   **NATURAL RESOURCES:**

Renewable and non-renewable resources:

Natural resources and associated problems.

a) Forest resources: Use and over-exploitation: deforestation, case studies, Timber exploitation, mining, dams and their effects and forests tribal people.
b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
d) Food resources: World food problems, changes, caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources; case studies.
f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.
   • Role of an individual in conservation of natural resources.
   • Equitable use of resources for sustainable lifestyles.

UNIT- III   **ECOSYSTEMS:**

• Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids.
• Introduction, types, characteristic features, structure and function of the following eco-system:
   a) Forest ecosystem, Grassland ecosystem, Desert ecosystem.
   b) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).

UNIT- IV   **BIODIVERSITY AND ITS CONSERVATIONS**:

• Introduction – Definition: Genetic, species and ecosystem diversity.
• Biogeographically classification of India.
• Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.
• Biodiversity at global, National and local levels.
• India as a mega-diversity nation.
• Hot-spots of biodiversity.
• Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
• Endangered and endemic species of India.

UNIT – V   **ENVIRONMENTAL POLLUTION:**

Definition, causes, effects and control, measures of:

Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal Pollution, Nuclear hazards

- Solid waste management: Causes effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- Disaster management: Floods, earthquake, cyclone and landslides.

UNIT – VI   SOCIAL ISSUES AND THE ENVIRONMENT:

a) From unsustainable to sustainable development
b) Urban problems related to energy
c) Water conservation, rain water harvesting, watershed management
d) Resettlement and rehabilitation of people; its problems and concerns, case studies
e) Environmental ethics: Issues and possible solutions
f) Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, Case studies
g) Wasteland reclamation, Consumerism and waste products
h) Environment Protection Act, Air (Prevention and Control of Pollution) Act, Water (Prevention and Control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act
i) Issues involved in enforcement of environmental legislation, Public awareness

UNIT – VII   Human population and the Environment., Population growth, variation among nations.

Population explosion – Familily Welfare Programme, Environment and human health, Human Rights,   Value Education, HIV/ AIDS, Woman and Child Welfare.
Role of Information Technology in Environment and human health.
Case Studies.

REFERENCES:

1. Agarwal, K.C. 2001, Environmental Biology, Nidi Pub. Ltd. Bikaner.
2. Bharucha, Franch, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380013, India .
3. Brunner R.C. 1989, Hazardous Waste Incineration, Mc. Graw Hill Inc. 480p.
4. Clark R.S., Marine Pllution, Slanderson Press Oxford (TB).
5. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Pub. House, Mumbai. 1195p.
6. De A.K., Environmenal Chemistry, Wiley Eastern Ltd.
7. Down to Earth, Centre for Science and Environment ®.
8. Gleick, H.P., 1993. Water in Crisis, Pacific Institute for Studies in Dev., Environment & Security, Stockholm Env. Institute, Oxford Univ., Press 473p.
9. Hawkins R.E. Encyclopedia of Indian Natural History, Bomaby Natural History Society, Bombay (R).
10. Heywood, V.H. & Watson, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.
11. Jadhav, H & Bhosale, V.M. 1995, Environmental Protection and Laws, Himalaya Pub. House, Delhi 284p.
12. Mckinney, M.L. & Schoch, RM 1996, Environmental Sciences Systems & Solutions, Web enhanced Edition 639p.
13. Mhaskar A.K., Mater Hazardous, Tekchno-Sciences Publications (TB).
14. Miller T.G. Jr. Environmental Science, Wadsoworth Publishing Co. (TB).
15. Odum, E.P. 1971, Fundamentals of Ecology, W.B. Saunders Co. USA, 574p.
16. Rao M.N. & Dutta, A.K. 1987, Waste Water Treatment. Oxford & IBH Publ. Co. Pvt. Ltd., 345p
17. Sharma, B.K., 2001, Environmental Chemistry, Goel Publ. House, Meerut.
18. Survey of the Environment, The Hindu (M).

19. Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Sciences (TB).
20. Trivedi, R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol. I and II Enviro Mdiea (R).
21. Trividi R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol I and II Enviro Media (R).
22. Trividi R.K. and P.K. Goel, Introduction to air pollution, Techno Sciences Pub. (TB).
23. Wagner K.D., 1998, Environmental Management, W.B. Saunders Co. Philadelphia, USA 499p.
24. A text bok environmental education G.V.S. Publishers by Dr. J.P. Yadav.

(M) **Magazine** **(R)** **Reference** **(TB)** **Textbook**

Note:
1. Examiner will set eight questions. Students will be required to attempt five Questions.
2. The awards of this paper shall not be counted in the award of the Degree/DMC.

CSE 202B DATABASE MANAGEMENT SYSTEMS
B. Tech. Semester – IV (Computer Science and Engg.) (Common with IT)

L	T	P	Credits		Class Work	:	25 Marks
3	1	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

UNIT I

DBMS an overview, Advantages of DBMS, Network, Hierarchical and Relational Model, Levels of abstraction, Data Independence, Data Models, Instances and schemes, Data independence Structures of a DBMS, Application Programmers & Data Base administrators – their function, Transaction Management

Entity Relationship Model: Entities, Attributes and Entity Sets, Relation and Relationships sets, mapping and participation constraints, Aggregation, Specialization and Generalization, Features of E-R Model.

UNIT-II

Relational Model: Introduction to relational model, Integrity constraints over relations, Enforcing Data Integrity, Integrity Constraints, Relational Data, Logical Data Base Design, Reduction of E-R Diagrams to relations, Introduction to views, Querying Relational Algebra and Relational Calculus, Operations on Relational Algebra, Operations on Relational Calculus, Tuple Relational Calculus, Domain Relational Calculus

UNIT-III

Database Design, Data Redundancy, Introduction to Schema Refinement, Functional Dependencies, Normal Forms-First , Second, Third, Boyce code, Fourth and Multivalued Dependencies

Structured Query Language:Basic SQL Queries, Nested Queries, Aggregate operator, Null Values, implementation of Various Relational Algebra operations,   Embedded SQL

UNIT-IV

Transaction management: ACID Properties, Transaction states,
Concurrency control: Concurrency Control –Overview, Concurrency control problems, Locks, Locking Protocols, Deadlocks, Serializability,
 Recovery System: Types of Failures, Recovery Techniques, ARIES

Text Books

1. Korth, Silberschatz, Database System Concepts , 4th Ed., TMH, 2000.
2. Date C. J., An Introduction to Database Systems , 7th Ed., Narosa Publishing, 2004

Reference Books

1 Elmasri Navathe, Fundamentals of Database Systems, 5th Edition Pearson Education

2 Vipin.C.Desai , An introduction to Database System , West Pub. Co

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 204B OBJECT ORIENTED PROGRAMMING
B. Tech. Semester – IV(Computer Science and Engg.) (Common with ECE, IT,IC,EEE &AEI in Vth sem)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Unit-I

C++ Standard Library, Preprocessor Directives, illustrative Simple C++ Programs. Header Files and Namespaces, library files.Concept of objects, Object Oriented Analysis & Object Modeling techniques. Object Oriented Concepts: Introduction to Objects and Object Oriented Programming, Encapsulation (Information Hiding), Access Modifiers: Controlling access to a class, method, or variable (public, protected, private, package), Other Modifiers, Polymorphism: Overloading, Inheritance, Overriding, Abstract Classes, Reusability

Classes and Data Abstraction: Introduction, Structure Definitions, Accessing Members of Structures, Class Scope and Accessing Class Members, Controlling Access Function And Utility Functions, Initializing Class Objects: Constructors.

Unit-II

Using Destructors, Classes: Const(Constant) Object And Const Member Functions, Object as Member of Classes, Friend Function and Friend Classes, Using This Pointer, Dynamic Memory Allocation with New and Delete, Static Class Members, Container Classes and Iiterators, Function overloading.

Operator Overloading: Introduction, Fundamentals of Operator Overloading, Restrictions On Operators Overloading, Operator Functions as Class Members vs. as Friend Functions, Overloading, «, »

Unit-III

Inheritance: Introduction, Inheritance: Base Classes And Derived Classes, Protected Members, Casting Base Class Pointers to Derived- Class Pointers, Using Member Functions, Overriding Base - Class Members in a Derived Class, Public, Protected and Private Inheritance, Using Constructors and Destructors in derived Classes, Implicit Derived -Class Object To Base- Class Object Conversion, Composition Vs. Inheritance.

Introduction to Virtual Functions, Abstract ,Base Classes And Concrete Classes, Polymorphism, New Classes And Dynamic Binding, Virtual Destructors, Polymorphism, Dynamic Binding.

Unit-IV

Files and I/O Streams and various operation on files. Stream Input/Output Classes and Objects, Stream Output, Stream Input, Unformatted I/O (with read and write), Stream Manipulators, StreamFormatStates, StreamErrorStates.

Templates & Exception Handling: Function Templates, Overloading Template Functions, Class Template, Class Templates and Non-Type Parameters, Templates and Inheritance, Templates and Friends.

Templates and Static Members: Introduction, Basics of C++ Exception Handling: Try Throw, Catch, Throwing an Exception;- Catching an Exception, Re-throwing an Exception, Exception specifications, Processing Unexpected Exceptions, Constructors, Destructors and Exception Handling, Exceptions and Inheritance.

TEXT BOOKS

1. Object Oriented Programming in Turbo C++ by Robert Lafore ,1994, The WAITE Group Press.
2. Programming with C++ By D Ravichandran, 2003, T.M.H

3. Object oriented Programming with C++ by E Balagurusamy, 2001, Tata McGraw-Hill

REFERENCE BOOKS
1. C++ How to Program by H M Deitel and P J Deitel, 1998, Prentice Hall
2. Computing Concepts with C++ Essentials by Horstmann, 2003, John Wiley,
3. The Complete Reference in C++ By Herbert Schildt, 2002, TMH.
4. C++ Programming Fundamentals by Chuck Easttom, Firewall Media.

Note: In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 206B   SYSTEM PROGRAMMING
B. Tech. Semester – IV (Computer Science and Engg.)

L	T	P	Credits			
				Class Work	:	25 Marks
3	1	--	4	**Examination**	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Unit 1

Introduction: Evolution of Components Systems Programming, Assemblers, Loaders, Linkers, Macros,Compilers. Software tools, Text editors, Interpreters and program generators, Debug Monitors, Programming environment.

Unit 2

Assembler and Compilers: Description of single pass and two pass assemblers, use of data structures like OPTAB and SYMTAB, etc.
Various phases of compiler lexical, syntax and semantic analysis, intermediate code generation, code optimization techniques, code generation, Case study : LEX and YACC

Unit 3

Macroprocessors: Macro language and macro-processor, macro instructions, features of macro facility, macro instruction arguments, conditional macro expansion, macro calls with macro instruction defining macros. **Linkers and Loaders:** Concept of linking, different linking schemes, concept of loading and various loading schemes.

Unit 4

Editors: Line editor, full screen editor and multi window editor, Case study MS-Word, DOS Editor and vi editor.
Debuggers: Description of various debugging techniques.

Text Book:
1.Donovan J.J., Systems Programming, New York, Mc-Graw Hill, 1972.
2. Dhamdhere, D.M., Introduction to Systems Software, Tata Mc-Graw Hill, 1996.

Reference Book:
1. Aho A.V. and J.D. Ullman Principles of compiler Design Addison Wesley/ Narosa

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 208B   INFORMATION SYSTEM ANALYSIS AND DESIGN
B. Tech. Semester – IV(Computer Science and Engg) (Common with IT)

L	T	P	Credits			
3	1	--	4			

Class Work	:	25 Marks
Examination	:	75Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

UNIT - I

Introduction to System Development: Categories of Information Systems, Structured analysis method, System prototype method, succeeding as system analyst.
Analysis: Feasibility study, Feasibility considerations, Steps in feasibility analysis, Cost and Benefit analysis, Procedure for cost and benefit determination.

UNIT-II

Requirement Analysis: Problem definition, Identification and Investigation of system, Fact finding techniques, Tools for documenting procedures and decisions, Data Flow Diagrams, Data Dictionaries, Decision Tables, and Decision Trees.

UNIT-III

Design: System design considerations, Process and stages of system design: Logical and Physical, Selection of best alternate design strategy.
Design of Input and Output: Capturing data for input, Input validation design of output: Output objectives, Types of output, Presentation format of output, Design of software: Top Down Structure, Coupling, Cohesion, Span of control, Module size, Shared modules. Training, Conversion Methods

UNIT-IV

Object Oriented Design and Modeling: Introduction to object oriented design, Designing Object responsibilities, and Object reusability.
Case Study of Some Common Systems: Inventory control, Laboratory management systems, Hotel reception system, Hospital management system etc./ Seminar on State-of the-art technology.

Text Books
1. Senn, J. A., Analysis and Design of Information Systems, Tata McGraw Hill (1989) 2nd ed.
2. Whitten, J. and Bentley, L., Introduction to Systems Analysis and Design, Tata McGraw Hill (2006).

Reference Books
1. Hoffer and Hoffer, Modren System Analysis and Design, Pearson Education.

Note:- In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 210 B COMPUTER ORGANIZATION AND ARCHITECTURE
B. Tech. Semester – IV (Computer Science and Engg.) (Common with ECE Vth Sem)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Unit-1:
General System Architecture: Classification of computers (Based on Computation methodology(Analog, digital, hybrid), based on generations, based on size & capability, based on Flynn's criteria); Multilevel viewpoint of a machine: digital logic, micro architecture, ISA, operating systems, high level language ; Register Transfer language; Computer Buses (basic design using multiplexers), Bus width, Bus clocking(synchronous , asynchronous), bus arbitration, Bus examples(ISA bus, PCI bus, Universal serial bus) ; Computer Arithmetic ,Addition , subtraction (signed magnitude , signed 2's complement , Multiplication (Booth's algorithm)

Unit-2:
CPU Organization: CPU Architecture types (accumulator, register, stack, memory/ register) Instruction cycle (Fetch-Decode-Execute);
        Instruction set based classification of processors (RISC, CISC, and their comparison); Addressing modes(register, immediate, direct, indirect, indexed); Operations in the instruction set; Arithmetic and Logical, Data Transfer, Control Flow; Instruction set formats (fixed, variable, hybrid)

Unit-3:
Input /Output & Control Unit: Input Output Interface **,** Asynchronous data transfer (Strobe control, handshaking , serial transfer); Serial Vs parallel data transmission;Modes of data transfer
(Programmed I/O, Interrupt driven, Direct Memory access (DMA)).
Control Unit design:- Control unit design methods (hardwired & microprogrammed) Control Memory, Address Sequencing, Micro instructions.

Unit-4:
Memory Organization: Memory device characteristics(access/ cycle time, cost per bit, volatility , storage density) ;Memory hierarchy ;Main memory Design   (Semiconductor RAM & ROM organization, memory expansion,Static & dynamic memory types , their comparison); Associative memory Design ,Match logic ,Locality of reference principle(Temporal & Spatial)
 Cache mapping(Direct , associative , set associative); Cache writing policies (Copy-Back , Write-through); Virtual Memory(Address space , memory space , Address mapping using pages , Page replacement)

TEXT BOOKS:

1. Computer System Architecture by M. Mano, Prentice-Hall.

2. Structured Computer Organisation by A.S. Tanenbaum, 6th edition, Prentice-Hall of India, Eastern Economic Edition

REFERENCE BOOKS:

1. Computer Organization, 5th Edi, by Carl Hamacher, Zvonko Vranesic,2002, SafwatZaky.
2 Computer Organization and Design, 2nd Ed., by David A. Patterson and John L. Hennessy, Morgan 1997, Kauffmann.
3. Computer Architecture and Organization, 3rd Edi, by John P. Hayes, 1998, TMH

4   Computer Organisation& Architecture: Designing for performance by W. Stallings, 4th edition, 1996, Prentice-Hall International edition.

Note:
1.   In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 222B   DATABASE MANAGEMENT SYSTEMS LAB
B. Tech. Semester – IV(Computer Science and Engg) (Common with IT)

L	T	P	Credits		Class Work	:	20 Marks
	2	1			Examination	:	30Marks
					Total	:	50 Marks
					Duration of Examination	:	3 Hours

Experimental work will be based upon the course CSE 202B

1. Introduction to SQL.
2. To study Basic SQL commands (create database, create table, use , drop, insert)
   and execute the following queries using these commands:
   - Create a database named ' Employee'.
   - Use the database 'Employee' and create a table 'Emp' with attributes 'ename','ecity','salary','enumber','eaddress','depttname'.
   - Create another table 'Company' with attributes 'cname',' ccity','numberofemp','empnumber' in the database 'Employee'.
   -
3. To study the viewing commands (select , update) and execute the following queries using these commands:
   - Find the names of all employees who live in Delhi.
   - Increase the salary of all employees by Rs. 5,000.
   - Find the company names where the number of employees is greater than 10,000.
   - Change the Company City to Gurgaon where the Company name is 'TCS'.

4. To study the commands to modify the structure of table (alter, delete) and execute the following queries using these commands:
   - Add an attribute named ' Designation' to the table 'Emp'.
   - Modify the table 'Emp', Change the datatype of 'salary' attribute to float.
   - Drop the attribute 'depttname' from the table 'emp'.
   - Delete the entries from the table ' Company' where the number of employees are less than 500.

5. To study the commands that involve compound conditions (and, or, in , not in, between , not between , like , not like) and execute the following queries using these commands:
   - Find the names of all employees who live in ' Gurgaon' and whose salary is between Rs. 20,000 and Rs. 30,000.
   - Find the names of all employees whose names begin with either letter 'A' or 'B'.
   - Find the company names where the company city is 'Delhi' and the number of employees is not between 5000 and 10,000.
   - Find the names of all companies that do not end with letter 'A'.

6. To study the aggregate functions (sum, count, max, min, average) and execute the following queries using these commands:
   - Find the sum and average of salaries of all employees in computer science department.
   - Find the number of all employees in company 'TCS'.
   - Find the maximum and the minimum salary in the HR department.

7. To study the grouping commands (group by, order by) and execute the following queries using these commands:
   - List all employee names in descending order.
   - Find number of employees in each department where number of employees is greater than 5.

- List all the department names where average salary of a department is Rs.10,000.

8. To study the commands involving data constraints and execute the following queries using these commands:
- Alter table 'Emp' and make 'enumber' as the primary key.
- Alter table 'Company' and add the foreign key constraint.
- Add a check constraint in the table 'Emp' such that salary has the value between 0 and Rs.1,00,000.

9. To study the commands for aliasing and renaming and execute the following queries using these commands:
- Rename the name of database to 'Employee1'.
- Rename the name of table 'Emp' to 'Emp1'.
- Change the name of the attribute 'ename' to 'empname'.

10. To study the commands for joins (cross join, inner join, outer join) and execute the following queries using these commands:
- Retrieve the complete record of an employee and its company from both the table using joins.
- List all the employees working in the company 'TCS'.

11. To study the various set operations and execute the following queries using these commands:
- List the enumber of all employees who live in Delhi and whose company is in Gurgaon or if both conditions are true.
- List the enumber of all employees who live in Delhi but whose company is not in Gurgaon.

12. To study the various scalar functions and string functions (power, square, substring, reverse, upper, lower, concatenation) and execute the following queries using these commands:
- Reverse the names of all employees.
- Change the names of company cities to uppercase.
- Concatenate name and city of the employee.

13. To study the commands for views and execute the following queries using these commands:
- Create a view having ename and ecity.
- In the above view change the ecity to 'Delhi' where ename is 'John'.
- Create a view having attributes from both the tables.
- Update the above view and increase the salary of all employees of IT department by Rs.1000.
14. Study of Integrity Constraints in SQl.
15. Study of Use of Group By and Having Clause.
16. Study of various types of Views.
17. Study of Indexes in SQL.
18. Study of Aggregate Functions in SQL.
Teacher can give queries based on SQL Commands.

CSE 224B   OBJECT ORIENTED PROGRAMMING LAB
B. Tech. Semester – IV (Computer Science and Engg.) (Common with ECE, IT, IC, EEE & AEI in Vth Sem)

L	T	P	Credits			
		2	1	Class Work	:	20 Marks
				Examination	:	30Marks
				Total	:	50 Marks
				Duration of Examination	:	3 Hours

1. Raising a number n to a power p is the same as multiplying n by itself p times. Write a function called power ( ) that takes a double value for n and an int value for p, and returns the result as double value Use a default argument of 2 for p. so that if this argument is omitted, the number will be squared. Write a main ( ) function that gets values from the user to test this function.

2. A point on the two dimensional plane can be represented by two numbers: an X coordinate and a Y coordinate. For example, (4,5) represents a point 4 units to the right of the origin along the X axis and 5 units up the Y axis. The sum of two points can be defined as a new point whose X coordinate is the sum of the X coordinates of the points and whose Y coordinate is the sum of their Y coordinates .
Write a program that uses a structure called point to model a point Define three points, and have the user input values to two of them Then set the third point equal to the sum of the other two. and display the value of the new point Interaction with the program might look like this:
Enter coordinates for PI :   3   4
Enter coordinates for P2:   5   7
Coordinates of PI + P2 are: 8   11

3. Create the equivalent of a four function calculator. The program should request the user to enter a number, an operator, and another number. It should then carry out the specified arithmetical operation: adding. subtracting, multiplying, or dividing the two numbers. (It should use a switch statement to select the operation). Finally it should display the result.
When it finishes the calculation, the program should ask if the user wants to do another calculation. The response can be 'Y' or 'N'. Some sample interaction with the program might look like this.
Enter first number. Operator, second number: 10/3
Answer = 3.333333
Do another (YI N)? Y
Enter first number. Operator, second number 12 + 100
Answer = 112
Do another (Y I N)? N

4. Create two classes DM and DB which store the value of distances. DM stores distances in metres and centimeters and DB in feet and inches. Write a program that can read values for the class objects and add one object of DM with another object of DB.
Use a friend function to carry out the addition operation. The object that stores the results maybe DM object or DB object. depending on the units in which the results are required. The display should be in the format of feet and inches or metres and centimetres depending on object on display.

5. Create a class rational which represents a numerical value by two double values- NUMERATOR & DENOMINATOR Include the following public member Functions:
   - constructor with no arguments (default).
   - constructor with two arguments.
   - void reduce( ) that reduces the rational number by eliminating the highest common

factor between the numerator and denominator.

- Overload + operator to add two rational number
- Overload » operator to enable input through cin
- Overload « operator to enable output through cou1.
- Write a main ( ) to test all the functions in the class.

6. Write a program that creates a binary file by reading the data for the students from the terminal. The data of each student consist of roll no., name (a string of 30 or lesser no. of characters) and marks.

7. A hospital wants to create a database regarding its indoor patients. The information to store include

- Name of the patient
- Date of admission
- Disease
- Date of discharge

Create a structure to store the date (year, month and date as its members). Create a base class to store the above information. The member function should include functions to enter information and display a list of all the patients in the database. Create a derived class to store the age or the patients List the information about all the to store the age of the patients. List the information about an the pediatric patients (less than twelve years in age).

8. Make a class Employee with a name and salary. Make a class Manager inherit from Employee. Add an instance variable, named department, of type string. Supply a method to toString that prints the manager's name, department and salary. Make a class Executive inherit from Manager Supply a method to String that prints the string Executive followed by the information stored in the Manager superclass object. Supply a test program that tests these classes and methods.

9. Imagine a tollbooth with a class called toll Booth. The two data items of a type unsigned int to hold the total number of cars, and a type double to hold the total amount of money collected. A constructor initializes both these to 0. A member function called payingCar ( ) increments the car total and adds 0.50 to the cash total. Another function, called nopayCar ( ). increments the car total but adds nothing to the cash total. Finally, a member function called displays the two totals.

CSE 226B   **SYSTEM PROGRAMMING LAB**

B. Tech. Semester – IV(Computer Science and Engg)

L	T	P	Credits		Class Work	:	20 Marks
		2	1		Examination	:	30Marks
					Total	:	50 Marks
					Duration of Examination	:	3 Hours

Programming problems using MASM.

1. 3 - 4 Simple output only programs

2. Simple programs using Assembly directives

3. Simple programs using Loops

4. programs using procedures

5. Numeric input/output procedures

6. Program using Macros and Recursion

7. Programming with date files

8. Programming with System Interrupts

The assignment will be based on CSE 206B code.

GES 203B ENVIRONMENTAL STUDIES FIELD WORK
B. Tech. Semester –III/IV (Common for all Branches)

L	T	P	Credit	Field Work	:	25Marks
--	--	--	0	Total	:	25 Marks

FIELD WORK:

- Visit to a local area to document environmental assets – river/ forest/ grassland/ hill/ mountain.

- Visit to a local polluted site-Urban/ Rural/ Industrial/ Agricultural.

- Study of common plants, insects, birds.

- Study of simple ecosystems – pond, river, hill slopes, etc. (Field work equal to 5 lectures hours).

Note: The awards of this paper shall not be counted in the award of the Degree/DMC.

GPCSE 202B   GENERAL PROFICIENCY AND ETHICS
B. Tech. Semester – IV (Computer Science and Engg.)

L	T	P	Credits		Examination	:	75Marks
1	--	--	2		Total	:	75 Marks

The purpose of this course is to inculcate a sense of professio The purpose of this course is to inculcate a sense of professionalism in a student along with personality development in terms of quality such as receiving, responding, temperament, attitude and outlook. The student efforts will be evaluated on the basis of his/ her performance / achievements in different walks of life.

A Faculty Counselor will be attached to a group of students which will remain associated with him /her during the entire period of the degree program in the University. Each faculty member will serve as a faculty counselor. They will act like a local guardian for the students associated with him / her and will help them in terms of career guidance, personal difficulties.

A. **The student will present a written report before the committee with following in view:**

The student will present before the committee his/her achievements during the current academic session in the form of a written report highlighting followings:

I.	Academic Performance	--------
II.	Extra Curricular Activities / Community Service, Hostel Activities	**(8 Marks)**
III	Technical Activities / Industrial, Educational tour	**(8 Marks)**
IV	Sports/games	**(14 Marks)**
V	Moral values & Ethics	**(15 Marks)**

NOTE: Report submitted by the students should be typed on both sides of the paper.

B. A student will support his/her achievement and verbal & communicative skill through presentation before the committee.
(30 Marks)

C. **Moral values & Ethics**

Syllabus - Process for Value Education, self-evaluation concept and process.
A minor test will be conducted during the semester and It will be the duty of the concerned teacher assigned to teach Moral values & Ethics to submit the awards to respective chairman of the department / Director/Principal.
The evaluation of this course will be made by the following Committee.

University Departments:
1	Chairperson of the Department	Chairman
2	Senior Most Faculty Counselor	Member
3	Vice- Chancellor's Nominee	Member

Affiliated Colleges:
1	Director/Principal	Chairman
2	Head of the Department/Sr. Faculty	Member
3	External Examiner to be appointed by the University	Member

Note: Remuneration will be paid to the external examiner only (at par with the other practical examinations).

CSE 301B OPERATING SYSTEMS
B. Tech. Semester – V (Computer Science and Engg.)

L	T	P	Credits				
3	1	--	4				

Class Work	:	25 Marks
Examination	:	75Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

Unit-I
Introduction: Introduction to Operating System Concepts (including Multitasking, multiprogramming, multi user, Multithreading etc)., Types of Operating Systems: Batch operating system, Time-sharing systems, Distributed OS, Network OS, Real Time OS; Various Operating system services, architecture, System programs and calls.

Unit–II
Process Management: Process concept, process scheduling, operation on processes; CPU scheduling, scheduling criteria, scheduling algorithms -First Come First Serve (FCFS), Shortest-Job-First (SJF), Priority Scheduling, Round Robin(RR), Multilevel Queue Scheduling.

Unit–III
Memory Management: Logical & Physical Address Space, swapping, contiguous memory allocation, non-contiguous memory allocation paging and segmentation techniques, segmentation with paging; virtual memory management - Demand Paging & Page-Replacement Algorithms; Demand Segmentation.
File System: Different types of files and their access methods, directory structures, various allocation methods, disk scheduling and management and its associated algorithms, Introduction to distributed file system.

Unit–IV
Process-Synchronization & Deadlocks: Critical Section Problems, semaphores; methods for handling deadlocks-deadlock prevention, avoidance & detection; deadlock recovery.
I/O Systems: I/O Hardware, Application I/O Interface, Kernel, Transforming I/O requests, Performance Issues.
Unix System And Windows NT Overview:
Unix system call for processes and file system management, Shell interpreter, Windows NT architecture overview, Windows NT file system.

Text Books:
1. Operating System Concepts by Silberchatz et al, 5th edition, 1998, Addison-Wesley.
2. Modern Operating Systems by A. Tanenbaum, 1992, Prentice-Hall.
3. Operating Systems Internals and Design Principles by William Stallings,4thedition, 2001, Prentice-Hall

Reference Books:
1. Operating System by Peterson, 1985, AW.
2. Operating System by Milankovic, 1990, TMH.
3. Operating System Incorporating With Unix& Windows By Colin Ritche, 1974, TMH.
4. Operating Systems by Mandrik& Donovan, TMH
5. Operating Systems – Advanced Concepts By MukeshSinghal , N.G. Shivaratri, 2003, T.M.H

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 303B   COMPUTER GRAPHICS
B. Tech. Semester – V (Computer Science and Engg.) (Common with IT VIth sem)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Unit-I

Introduction to Computer Graphics: What is Computer Graphics, Computer Graphics Applications, Computer Graphics Hardware and software, Two dimensional Graphics Primitives: Points and Lines, Line drawing algorithms: DDA, Bresenham's; Circle drawing algorithms: Using polar coordinates, Bresenham's circle drawing, mid point circle drawing algorithm; Filled area algorithms: Scanline: Polygon filling algorithm, boundary filled algorithm.

Unit-II

Two/Three Dimensional Viewing: The 2-D viewing pipeline, windows, viewports, window to view port mapping; Clipping: point, clipping line (algorithms):- 4 bit code algorithm, Sutherland-cohen algorithm, parametric line clipping algorithm (Cyrus Beck).

Polygon clipping algorithm: Sutherland-Hodgeman polygon clipping algorithm.   Two dimensional transformations: transformations, translation, scaling, rotation, reflection, composite transformation.

Three dimensional transformations: Three dimensional graphics concept, Matrix representation of 3-D Transformations, Composition of 3-D transformation.

Unit-III

Viewing in 3D: Projections, types of projections, the mathematics of planner geometric projections, coordinate systems.

Hidden surface removal: Introduction to hidden surface removal .Z- buffer algorithm , scanline algorithm, area sub-division algorithm.

Unit-IV

Representing Curves and Surfaces: Parametric representation of curves: Bezier curves, B-Spline curves. Parametric representation of surfaces; Interpolation method.

Illumination, shading, image manipulation: Illumination models, shading models for polygons, shadows, transparency. What is an image? Filtering, image processing, geometric transformation of images.

TEXT BOOKS:
1. Computer Graphics Principles and Practices second edition by James D. Foley, Andeies van Dam, Stevan K. Feiner and Johb F. Hughes, 2000, Addision Wesley.
2. Computer Graphics by Donald Hearn and M.Pauline Baker, 2nd Edition, 1999, PHI

REFERENCE BOOKS:
1. Procedural Elements for Computer Graphics – David F. Rogers, 2001, T.M.H Second Edition
2. Fundamentals of 3Dimensional Computer Graphics by Alan Watt, 1999, Addision Wesley.
3. Computer Graphics: Secrets and Solutions by Corrign John, BPB
4. Graphics, GUI, Games & Multimedia Projects in C by Pilania & Mahendra, Standard Publ.

5. Computer Graphics Secrets and solutions by Corrign John, 1994, BPV
6. Introduction to Computer Graphics By N. Krishanmurthy T.M.H 2002

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 305B COMPUTER NETWORKS
B. Tech. Semester – V (Computer Science and Engg.) (Common with IT)

L	T	P	Credits			
				Class Work	:	25 Marks
3	1	--	4	Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Unit-I:
OSI Reference Model and Network Architecture: Introduction to Computer Networks, Example networks ARPANET, Internet, Private Networks, Network Topologies: Bus, Star, Ring, Hybrid, Tree, Complete, Irregular –Topology; Types of Networks : Local Area Networks, Metropolitan Area Networks, Wide Area Networks; Layering architecture of networks, OSI model, Functions of each layer, Services and Protocols of each layer.

Unit–II:
TCP/IP: Introduction, History of TCP/IP, Layers of TCP/IP, Protocols, Internet Protocol, Transmission Control Protocol , User Datagram Protocol, IP Addressing, IP address classes, Subnet Addressing, Internet Control Protocols, ARP, RARP, ICMP, Application Layer, Domain Name System, Email – SMTP, POP,IMAP; FTP, NNTP, HTTP, Overview of IP version 6.

Unit-III:
Local Area Networks: Introduction to LANs, Features of LANs, Components of LANs, Usage of LANs, LAN Standards, IEEE 802 standards, Channel Access Methods, Aloha, CSMA, CSMA/CD, Token Passing, Ethernet, Layer 2 & 3 switching, Fast Ethernet and Gigabit Ethernet, Token Ring, LAN interconnecting devices: Hubs, Switches, Bridges, Routers, Gateways.

Unit–IV:
 Wide Area Networks: Introduction of WANs, Routing, Congestion Control, WAN Technologies, Distributed Queue Dual Bus (DQDB), Synchronous Digital Hierarchy (SDH)/ Synchronous Optical Network (SONET), Asynchronous Transfer Mode (ATM), Frame Relay, Wireless Links.
Introduction to Network Management: Remote Monitoring Techniques: Polling, Traps, Performance Management, Class of Service, Quality of Service, Security management, Digital signatures, SSL, Firewalls, VLANs, Proxy Servers.

Text Book:
1. Computer Networks (3rd edition), Tanenbaum Andrew S., International edition, 1996.
Reference Books:
1. Data Communications, Computer Networks and Open Systems (4th edition), Halsall Fred, 2000, Addison Wesley, Low Price Edition.
2. Business Data Communications, Fitzgerald Jerry,. Computer Networks – A System Approach, Larry L. Peterson & Bruce S. Davie, 2nd Edition

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 307B ANALYSIS AND DESIGN OF ALGORITHMS
B. Tech. Semester – V (Computer Science and Engg.) (Common with IT)

L	T	P	Credits			
				Class Work	:	25 Marks
3	1	--	4	Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Unit-I

 Brief Review of Graphs, Sets and disjoint sets, union, sorting and searching algorithms and their analysis in terms of space and time complexity.
 Divide and Conquer: General method, binary search, merge sort, qick sort, selection sort, Strassen's matrix multiplication algorithms and analysis of algorithms for these problems.

Unit-II

 Greedy Method: General method, knapsack problem, job sequencing with dead lines, minimum spanning trees, single souce paths and analysis of these problems.
Dynamic Programming: General method, optimal binary search trees, O/I knapsack, the traveling salesperson problem.

Unit-III

 Back Tracking: General method, 8 queen's problem, graph colouring, Hamiltonian cycles, analysis of these problems. **Branch and Bound:** Method, O/I knapsack and traveling salesperson problem, efficiency considerations. Techniques for algebraic problems, some lower bounds on parallel computations.

Unit-IV:-

NP Hard and NP Complete Problems: Basic concepts, Cook's theorem, NP hard graph and NP scheduling problems some simplified NP hard problems.

TEXT BOOKS:
1.   Fundamental of Computer algorithms, Ellis Horowitz and Sartaj Sahni, 1978, Galgotia Publ.,
2.   Introduction To Algorithms, Thomas H Cormen, Charles E Leiserson And Ronald L Rivest: 1990, TMH

REFERENCE BOOKS:
1.   The Design and Analysis of Computer Algorithm, Aho A.V. Hopcroft J.E., 1974, Addison Wesley.
2.   Algorithms-The Construction, Proof and Analysis of Programs, Berlion, P.Bizard, P., 1986. Johan Wiley & Sons,
3.   Introduction to Design and Analysis of Algorithm, Goodman, S.E. & Hedetnieni, 1997, MGH.
4.   Introduction to Computers Science- An algorithms approach , Jean Paul Trembley, Richard B.Bunt, 2002, T.M.H. .

Note:

1.   In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 309B THEORY OF AUTOMATA & COMPUTATION
B. Tech. Semester – V (Computer Science and Engg.) (Common with IT VIth Sem)

L	T	P	Credits		Class Work	:	25 Marks
3	1	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

Unit-I

Basic Computational Constructs : Finite State Systems, Basic Definitions Non-Deterministic finite automata (NDFA), Deterministic finite automata (DFA), Equivalence of DFA and NDFA Finite automata with E-moves, Regular Expressions, Equivalence of finite automata and Regular Expressions, Regular expression conversion and vice versa.Conversion of NFA to DFA by Arden's Method

Concept of basic Machine, Properties and limitations of FSM, Moore and Mealy Machines, Equivalence of Moore and Mealy machines,.

Unit-II

 Regular Sets& Grammars : The Pumping Lemma for Regular Sets, Applications of the pumping lemma, Closure properties of regular sets, Myhill-Nerode Theorem and minimization of finite Automata, Minimization Algorithm.

Definition, Context free and Context sensitive grammar, Ambiguity regular grammar, Reduced forms, Removal of useless Symbols and unit production, Chomsky Normal Form (CNF), Griebach Normal Form (GNF).

Unit-III

 Pushdown Automata &Turing Machines : Introduction to Pushdown Machines, Applications of Pushdown Machines

Deterministic and Non-Deterministic Turing Machines, Design of T.M, Halting problem of T.M., Post's Correspondence Problem.

Unit-IV

 Chomsky Hierarchies & Computability: Chomsky hierarchies of grammars, Unrestricted grammars, Context sensitive languages, Relation between languages of classes.

 Primitive Recursive Functions.

TEXT BOOK:

1. Introduction to automata theory, language & computations- Hopcroaft & O.D.Ullman, R Mothwani, Addison Wesley Publishers

REFERENCE BOOKS:

1. Theory of Computer Sc.(Automata, Languages and computation):K.L.P.Mishra& N.Chandrasekaran, 2000, PHI.
2. Introduction to formal Languages & Automata-Peter Linz, 2001, NarosaPubl..
3. Fundamentals of the Theory of Computation- Principles and Practice by RamondGreenlaw and H. James Hoover, 1998, Harcourt India Pvt. Ltd..

4. Elements of theory of Computation by H.R. Lewis & C.H. Papaditriou, 1998, PHI.
5. Introduction to languages and the Theory of Computation by John C. Martin 2012, T.M.H.

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

ECE 309B MICROPROCESSOR AND INTERFACING
B. Tech. Semester – V (Common to BME, CSE, EL, AEI)

L	T	P	Credits			
3	1	--	4			

Class Work	:	25 Marks
Examination	:	75Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

UNIT I

THE 8086 MICROPROCESSOR ARCHITECTURE:
Architecture, block diagram of 8086, details of sub-blocks such as EU, BIU; memory segmentation and physical address computations, program relocation, addressing modes, instruction formats, pin diagram and description of various signals.

INSTRUCTION SET OF 8086 & PROGRAMING:
Instruction execution timing, assembler instruction format, data transfer instructions, arithmetic instructions, branch instructions, looping instructions, NOP and HLT instructions, flag manipulation instructions, logical instructions, shift and rotate instructions, directives and operators, programming examples.

UNIT II

THE X86 FAMILY (80186, 80286, 80386, 80486) MICROPROCESSOR ARCHITECTURE AND PRGRAMMING:
Architecture, block diagram, details of sub-blocks, hardware features and description of various signals, interrupts, multitasking, addressing modes, instruction set and programming example.

THE PENTIUM PROCESSOR AND OTHER ADVANCED PROCESSORS:
Enhanced features of Pentium, Pentium Pro, Pentium-II, Pentium-III, Pentium-IV, Multi-core Technology, Mobile Processor.

UNIT III

INTERFACING DEVICE:
The 8255 PPI chip: Architecture, control words, modes and examples..

PERIHHERAL DEVICES:
Introduction to DMA process, 8237 DMA controller, 8259 Programmable interrupt controller, Programmable interval timer chips.

UNIT IV

COMMUNICATION INTERFACE: Parallel interface, serial interface, PCI interface, PCMCIA, USB interface.

PERSONNAL COMPUTER: Modern PC, motherboard, chipset, expansion buses, memory-SIMM and DIMM.

Reference Books:
1. "The Intel Microprocessors 8086- Pentium Processor", Brey, 4th Edition, 2005.
2. "Microprocessors and interfacing", D. V. Hall, Tata McGraw-Hill, 2nd Edition, 2006.
3. "Microcomputer Systems: The 8086/8088 Family: Architecture, Programming and Design", Liu Yu-Chang and Gibson Glenn A., Prentice Hall of India, 2003.
4. "Advanced Microprocessors and Peripherals Architectures, Programming and Interfacing", Ray A. K. and Burchandi, Tata McGraw Hill, 2002.

5. "Microprocessor based System Design UBS", Rafiquzzman, Wiley-Interscience, 5th Edition, 2005.
6. "The X86 PC: Assembly Language, Design and interfacing", M. A. Mazidi, J. P. Maizidi and Danny Causey, Pearson, 5th Edition, 2011.
7. "The X86 Microprocessor (Architecture, Programming and Interfacing)", L. B. Das, Pearson, 2010.
8. "Advanced Microprocessor", Daniel Tabak, Tata McGraw-Hill, 2nd Edition, 2012.
9. "Fundamentals of Microprocessor and Microcomputers", B. Ram, Dhanpat Rai Publications, 5th edition, 2008.
10. "Microprocessor & Interfacing", Singh & Singh, Satya Parakashan.

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 321B OPERATING SYSTEMS LAB
B. Tech. Semester – V (Computer Science and Engg)

L	T	P	Credits			
	2	1				

Class Work	:	**20 Marks**
Examination	:	**30Marks**
Total	:	**50 Marks**
Duration of Examination	:	**3 Hours**

1) Study of WINDOWS 2000 Operating System.

2) Administration of WINDOWS 2000 (including DNS,LDAP, Directory Services).

3) Study of LINUX Operating System (Linux kernel, shell, basic commands pipe & filter commands).

4) Administration of LINUX Operating System.

5) Writing of Shell Scripts (Shell programming).

6) AWK programming.

CSE 323B COMPUTER GRAPHICS LAB
B. Tech. Semester – V (Computer Science and Engg.) (Common with IT VIth Sem)

L	T	P	Credits				
	2	1		Class Work	:	20 Marks
				Examination	:	30Marks
				Total	:	50 Marks
				Duration of Examination	:	3 Hours

LIST OF PRACTICALS

1.   Write a program for 2D line drawing as Raster Graphics Display.

2.   Write a program for circle drawing as Raster Graphics Display.

3.   Write a program for polygon filling as Raster Graphics Display

4.   Write a program for line clipping.

5.   Write a program for polygon clipping.

6.   Write a program for displaying 3D objects as 2D display using perspective transformation.

7.   Write a program for rotation of a 3D object about arbitrary axis.

8.   Write a program for Hidden surface removal from a 3D object.

NOTE: At least 5 more exercises to be given by the concerned teacher.

CSE 325B   COMPUTER NETWORKS LAB
B. Tech. Semester – V (Computer Science and Engg.) (Common with IT)

L	T	P	Credits				
		2	1	**Class Work**	:	**20 Marks**	
				Examination	:	**30 Marks**	
				Total	:	**50 Marks**	
				Duration of Examination	:	**3 Hours**	

1. Write specifications of latest desktops and laptops.
2. Familiarization with Networking Components and devices: LAN Adapters, Hubs, Switches, Routers etc.
3. Familiarization with Transmission media and Tools: Co-axial cable, UTP Cable, Crimping Tool, Connectors etc.
4. Preparing straight and cross cables.
5. Study of various LAN topologies and their creation using network devices, cables and computers.
6. Configuration of TCP/IP Protocols in Windows/Linux.
7. Implementation of file and printer sharing.
8. Designing and implementing Class A, B, C Networks
9. Subnet planning and its implementation
10. Installation of ftp server and client.

ECE329B   MICROPROCESSOR AND INTERFACING LAB
B. Tech Semester –V (BME, CSE, EL, AEI)

L	T	P	Credits		Class Work	:	20 Marks
	2	1			Examination	:	30Marks
					Total	:	50 Marks
					Duration of Examination	:	3 Hours

LIST OF EXPERIMENTS:

1. To study the architecture of 8086 microprocessor and 8086 microprocessor kit

2. Write a program to add the contents of the memory location 3000:0400 H to the content of 4000:0700 H and store the result in 6000:0900 H

3. Write a program to add 16 bit number using 8086 instruction set.

4. Write a multiplication of two 16 bit number using 8086 instruction set.

5. Write a program for division of two 16 bit numbers using 8086 instruction set.

6. Write a program factorial of a number.

7. Write a Program to transfer a block of data without overlap.

8. Write a Program to transfer a block of data with overlap.

9. Write a program to find the average of two numbers.

10. Write a Program to check whether data byte is odd or even

11. Write a program to find maximum number in the array of 10 numbers.

12. Write a program to find the sum of the first 'n' integers.

13. Write a program to generate a square wave.

14. Write a program to generate a rectangular wave.

15. Write a program to generate a triangular wave.

CSE 327B PROFESSIONAL TRAINING I
B. Tech. Semester – V (Information Technology)

L	T	P	Credits		Class Work	:	50 Marks
--	--	2	2		Total	:	50 Marks

At the end of 4th semester each student would undergo four weeks Professional Training in an Industry/ Institute/ Professional Organization/ Research Laboratory etc. with the prior approval of the Training and Placement Officer of the University and submit in the department a typed report along with a certificate from the organization.

The typed report should be in a prescribed format.

The report will be evaluated in the V Semester by a Committee consisting of three teachers from different specialization to be constituted by the Chairperson of the department. The basis of evaluation will primarily be the knowledge and exposure of the student towards different processes and the functioning of the organization.

The student will interact with the committee through presentation to demonstrate his/her learning.

Teachers associated with evaluation work will be assigned 2 periods per week load.

HUM- 302 B REPORT WRITING SKILLS
B. Tech. Semester – VI (Common for all branches)

L	T	P	Credit		Class Work	:	25 Marks
1	-	--	1		Examination	:	50 Marks
					Total	:	75 Marks
					Duration of Examination	:	2 Hours

OBJECTIVE

The course aims at developing competence for report writing with a focus on its complex writing techniques and procedures.

COURSE CONTENT

UNIT I
Report Writing
Reports: meaning, their importance and types, Structure of reports, Formats of reports, Use of illustrations

UNIT II
Writing of Business and Technical Reports:
Preliminary steps and procedure of writing report, writing various types of reports on technical, business related topics

RECOMMENDED READING

1. Borowick, Jerome. N. *Technical Communication and its Applications.* New Delhi: PHI, 2000
2. Guffey, Mary Ellen. *Business Communication: Process & Product.* USA: South western College Publishing, 2000.
3. Kumar, Sanjay and Pushp Lata. *Communication Skills.* Delhi: OUP, 2011

SCHEME OF END SEMESTER EXAMINATION (MAJOR TEST) AND INSTRUCTIONS FOR THE EXAMINER

1. The duration of the exam will be 2 hours.

2. The Question Paper for this theory course shall have three questions in all covering both the units. All will be compulsory with internal choice.

3. Question no. 1 will be of 10 marks. The question may have two/three parts with enough internal choice, covering various components of both the Units.

4. Question no 2 with internal choice will be of 10 marks covering contents of the Unit I. It will be theoretical in nature.

5. Question no 3 will have two parts of 15 marks each. The student will be asked to write reports on business and technical subject/ issue covering contents of Unit II. The emphasis would be on testing the actual report writing on a given business and technical situation/ subject in letter format.

IT 302B   WEB TECHNOLOGIES
B. Tech. Semester – VI (Computer Science and Engg.)(Common with IT)

L	T	P	Credits			
				Class Work	:	25 Marks
3	1	--	4	Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Unit-1:

 Introduction to the Internet, The world wide web: The idea of hypertext and hyper media; How the web works-HTTP, HTML and URLs; How the browser works-MIME types, plugins and helper applications; The standards-HTML, XML, XHTML and the W3C.

Hypertext markup language: The anatomy of an HTML document; Marking up for structure and style: basic page markup, absolute and relative links, ordered and unordered lists, embedding images and controlling appearance, table creation and use, frames, nesting and targeting.

Descriptive markup: Meta tags for common tasks, semantic tags for aiding search, the doubling code and RDF.

Unit-2:

Separating style from structure with style sheets: Internal style specifications within HTML, External linked style specification using CSS, page and site design considerations.

Client side programming: Introduction to the JavaScript syntax, the JavaScript object model, Event handling, Output in JavaScript, Forms handling, miscellaneous topics such as cookies, hidden fields, and images; Applications.

Unit-3:

Server side programming: Introduction to Server Side Technologies CGI/ASP/JSP., Programming languages for server Side Scripting, Configuring the server to support CGI, applications; Input/ output operations on the WWW, Forms processing, (using PERL/VBSCRIPT/JavaSCIPT)

Unit-4:

Other dynamic content technologies: introduction to ASP & JSP, Delivering multimedia over web pages, The VRML idea, The Java phenomenon-applets and servelets, issues and web development.

Introduction to Microsoft .NET Technology and its comparison with the competing Technologies.

TEXT BOOKS:-
1. Beginning XHTML by Frank Boumpery, Cassandra Greer, Dave Raggett, Jenny Raggett, Sebastian Schnitzenbaumer& ted Wugofski, 2000, WROX press (Indian Shroff Publ. SPD) 1st edition
2. Web Technologies By Achyut S Godbole ,AtulKahate, 2003, T.M.H

REFERENCE BOOKS:-
3. HTML &XHTML:The Definitive Guide by Chuck Musciano, Bill Kennedy, 2000, 4th Edi.
4. XHTML Black Book by Steven Holzner, 2000
5. CGI Programming on the World Wide Web. O'Reilly Associates.
6. Scott Guelich, ShishirGundararam, Gunther Birzniek; CGI Programing with Perl 2/e O'Reilly.
7. Doug Tidwell, James Snell, PavelKulchenko; Programming Web services, O'Reilly.
8. Intranets by James D.Cimino, 1997, Jaico Publ.
9. Internet and Web Technologies – Raj Kamal, 2002, T.M.H

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE-304-B COMPILER DESIGN
B.TECH. VI SEMESTER (COMPUTER SCIENECE & ENGINEERING)

L T P Credits

3 1   4

Class Work : 25 Marks

Exam.   : 75 Marks

Total   : 100 Marks

Duration of Exam : 3 hrs.

Unit–1: Introduction: Compilers and translators, need of translators, structure of compiler: its different phases, Compiler construction tools.

Lexical Analysis: Role of lexical analyzer; Design of lexical analyzer; Regular expressions ;Specification and recognition of tokens; Input buffering; Finite automata; Conversion from regular expression to finite automata, and vice versa; Minimizing the number of states of DFA, Implementation of lexical analyzer.

Unit–2: Syntactic Techniques & Parsing: Context free Grammars; Derivations & parse trees; Capabilities of CFGs;

Role of parsers, Shift- Reduce Parsing ; Operator precedence parsing; top down parsing; predictive parsing, LR parsers; LR(0) items SLR, LALR and Canonical LR parser.

Unit–3: Syntax Directed Translation , Symbol Table & Error Handling : Syntax directed definition, construction of syntax trees, syntax directed translation scheme, implementation of syntax directed translation, Intermediate Code ;Parse trees & Syntax trees; Three address code, quadruples and triples; Translation of Boolean Expressions.

Symbol tables, its contents and data structure for symbol tables; trees, arrays, linked lists, hash tables ;Operations on symbol table;

Errors(lexical phase error, syntactic phase error, semantic error).

Unit–4:- Code Optimization & Code Generation: Sources of code optimization; Loop optimization (Denominators, Reducible flow graphs, depth first search, loop invariant computation, Induction variable elimination) ; Directed acyclic representation of basic blocks

Code generation, forms of objects code, machine dependent code, register allocation for temporary and user defined variables; Problems in code generation; Peephole optimization

TEXT BOOKS:

1. Compilers Principle, Techniques & Tools - Alfread V. AHO, Ravi Sethi& J.D. Ullman; - 1998Addison Wesley.

REFERENCE BOOKS:

1. Theory and practice of compiler writing, Tremblay & Sorenson, 1985, Mc. Graw Hill.
2. System Software by Dhamdhare, 1986, MGH.
3. Principles of Compiler Design, Alfred V Aho , Jeffery D. Ullman , Narosa Publication

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 306B ADVANCED JAVA PROGRAMMING
B. Tech. Semester – VI (Computer Science and Engg.)

L	T	P	Credits			
4	1	--	4	Class Work	:	25 Marks
				Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT-I
Introduction: Concepts of Classes and Objects, Constructors, Inheritance, Function Overloading, Polymorphism, Packages and Interfaces, exception handling, file streams and their manipulation.
 AWT & Applet Programming
Design of User Interfaces: Swing, Japplet, Icons and Labels, Text Fields, Buttons, Jbutton Class, Check Box, Radio Buttons, The Container, Panel, Windows, and Frame Classes, Combo Box, Tabbed Panes, Scroll Panes, Trees, Tables, Custom Rendering of Jlist Cells.

UNIT-II
JDBC: JDBC Fundamentals, Establishing Connectivity and working with connection interface, working with statements, Creating and Executing SQL statements, working with Result Set Object & Result Set Meta Data.
Java Beans: Java Bean, Installing, Starting Bean Development Kit, Use of JAR files and the use of Java Beans API.

UNIT-III
Servlets: Introduction to Servlets, Life cycle of Servlets, Creating, Compiling and running servlet, Reading the servlet Parameters, Reading Initialization parameter, Packages- javax.servletPackage, Handling HTTP Request and Response (GET / POST Request), Cookies and Session Tracking.

UNIT-IV
JSP: JSP Architecture, JSP Access Mode, JSP Syntax Basic (Directions, Declarations, Expression, Scriplets and Comments, JSP Implicit Object, Object Scope, Synchronization Issue, Session Management.

Text Books:
1. Gary Cornell and Horstmann Cay S., Core Java, Vol I and Vol II, Sun Microsystems Press.
2. Herbert Schildt, Java: The Complete Reference, McGraw-Hill.

Reference Books:
1. Philip Hanna, JSP: The Complete Reference, McGraw-Hill.
2. Deital and Deital, Java How to Program, Prentice Hall (2007).

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 308B ARTIFICIAL INTELLIGENCE
B. Tech. Semester – VI (Computer Science and Engg.)

L	T	P	Credits			
				Class Work	:	25 Marks
3	1	--	4	Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Unit-I
Basic of AI :- Foundation and history of AI, Ai problems and techniques – AI programming languages, introduction to LISP and PROLOG- problem spaces and searches, blind search strategies, Breadth first- Depth first- heuristic search techniques Hill climbing: best first- A * algorithm AO* algorithm- game tree, Min max algorithms, game playing- alpha beta pruning.

Unit-II:-
Knowledge representation issues, predicate logic- logic programming, semantic nets- frames and inheritance, constraint propagation, representing knowledge using rules, rules based deduction systems.

Unit-III
Reasoning under uncertainty, review of probability, Baye's probabilistic interferences and Dempster shafer theory, Heuristic methods, symbolic reasoning under uncertainty, Statistical reasoning, Fuzzy reasoning, Temporal reasoning, Non monotonic reasoning.

Unit-IV
Principles of Natural language processing, rule based systems architecture, Expert systems, knowledge acquisition concepts, AI application to robotics, and current trends in intelligent systems.

TEXT BOOK:
1. Artificial Intelligence: A Modern Approach,. Russell & Norvig. 1995, Prentice Hall.

REFERENCE BOOKS:
1. Artificial Intelligence, Elain Rich and Kevin Knight, 1991, TMH.
2. Artificial Intelligence-A modern approach, Staurt Russel and peter norvig, 1998, PHI.
3. Artificial intelligence, Patrick Henry Winston:, 1992, Addition Wesley 3rd Ed.,

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 310B   SOFTWARE ENGINEERING
B. Tech. Semester – VI (Computer Science and Engg.)

L	T	P	Credits		Class Work	:	25 Marks
3	1	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

UNIT-I

Introduction: Introduction to Software Engineering, importance of Software, The Software Evolution, Software Characteristics, Software Applications, Software Crisis: Problem and Causes.
Software Development Life Cycle: Waterfall model, Incremental and Evolutionary process models, Personal Software process (PSP) and Team Software process (TSP), Overview of agile process and aspect oriented programming
Software Requirement Specification: Problem Analysis, Requirement elicitation and Validation, Requirements modeling: Scenarios, Information and analysis classes, flow and behavioral modeling, documenting Software Requirement Specification (SRS).

UNIT-II

System Design: Design Concepts, design models for architecture, component, data and user interfaces; Problem Partitioning, Abstraction, Cohesiveness, Coupling, Top Down and Bottom Up design approaches; Functional Versus Object Oriented Approach, Design Specification, 4GL.
Coding: TOP-DOWN and BOTTOM-UP structure programming, Information Hiding, Programming Style, and Internal Documentation, Verification.

UNIT-III

Software Testing: Levels of Testing, Functional Testing, Structural Testing, Test Plan, Test Case Specification, Software Testing Strategies, Verification & Validation, Unit, Integration Testing, Top Down and Bottom Up Integration Testing, Alpha & Beta Testing, White box and black box testing techniques, System Testing and Debugging.
Software Quality Assurance: Software Configuration Management, Overview of Software Quality Control and Quality Assurance, ISO 9000 Certification for Software Industry, SEI Capability Maturity Model (CMM) and Comparison between ISO & SEI CMM.

UNIT-IV

Technical Metrics for Software: A Framework for Technical Software Metrics, Metrics for the Analysis Model, Metrics for Design Model, Metrics for Source Code, Metrics for Testing, Metrics for Maintenance.
CASE (Computer Aided Software Engineering): CASE and its Scope, CASE support in Software Life Cycle, Documentation Support, Architecture of CASE Environment. Exposure to CASE tools like Rational Software suit, Turbo Analyst, SilkSuite etc.

Text Books:
1. Roger S. Pressman, Software Engineering, A Practitioner's Approach, McGraw HillInternational Edition (2009) 7th edition.
2. Ian Sommerville, Software Engineering, Addison-Wesley Publishing Company, (2006) 8th ed.
3. KK Aggarwal, Yogesh Singh, Software Engineering,(2012), 3rd Edition, New Age International.

Reference books:
1. James F. Peter, Software Engineering - An Engineering Approach, John Wiley (2004).
2. Pankaj Jalote, An integrated Approach to Software Engineering, Narosa (2005).

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 312B PROGRAMMING LANGUAGES
B. Tech. Semester – VI (Computer Science and Engg.)

L	T	P	Credits		Class Work	:	25 Marks
3	1	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

Unit-I
Introduction: Syntactic and semantic rules of a Programming language, Characteristics of a good programming language, Programming language translators compiler & interpreters , Virtual Computers & Binding times; Introduction to procedural, non-procedural ,structured, functional and object oriented programming language, Comparison of C & C++ programming languages.

Unit-II
Elementary & Structured Data Types : Elementary data types – data objects, variable & constants, data types, Specification & implementation of elementary data types, Declarations ,type checking & type conversions , Assignment & initialization, Numeric data types, enumerations, Booleans & characters

Structured data types& data Objects , specification & implementation of structured data types, Declaration & type checking of data structure ,vector & arrays, records Character strings, variable size data structures , Union, pointer & programmer defined data objects, sets, files.

Unit–III
Sequence Control& Data Control: Implicit & explicit sequence control ,sequence control within expressions, sequence control within statement, Subprogram sequence control: simple call return ,recursive subprograms, Exception & exception handlers, co routines,   sequence control .

Data Control:-Names & referencing environment, static & dynamic scope, block structure, Local data & local referencing environment, Shared data (dynamic & static scope) ; Parameters& parameter transmission schemes.

Unit-IV
Storage Management& other features: Major run time elements requiring storage ,programmer and system controlled storage management & phases , Static storage management , Stack based storage management, Heap storage management ,variable & fixed size elements.

Evolution of data type concept, abstraction, encapsulation & information hiding , Subprograms ,type definitions, abstract data types

TEXT BOOKS:

1. **P**rogramming languages Design & implementation by T.W. .Pratt, 1996, Prentice Hall Pub.
2. Programming Languages – Principles and Paradigms by Allen Tucker & Robert Noonan, 2002, TMH.

REFERENCE BOOKS:
1. Fundamentals of Programming languages by Ellis Horowitz, 1984, Galgotia publications (Springer Verlag),
2. Programming languages concepts by C. Ghezzi, 1989, Wiley Publications.
3. Programming Languages – Principles and Pradigms, Allen Tucker, Robert Noonan 2002, T.M.H.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

HUM- 304 B ORAL PRESENTATION SKILLS
B. Tech. Semester – VI (Common for all branches)

L	T	P	Credits		Class Work	:	20 Marks
--	--	2	1		Examination	:	30 Marks
					Total	:	50 Marks
					Duration of Examination	:	2 Hours

OBJECTIVE

To enable students to develop their speaking skills with professional proficiency

COURSE CONTENT

Oral Presentations:

Group Discussion; Mock interviews

Note for the Teacher:

The teacher concerned, by devising her/his method, must preview and review the student's spoken proficiency at the beginning and end of the semester respectively to find the efficacy of the course and degree of improvement in the student.

RECOMMENDED READING

1. Konar, Nira. *English Language Laboratories: A Comprehensive Manual.* Delhi: PHI, 2011
2. Kumar, Sanjay and Pushp Lata. *Communication Skills.* Delhi: OUP, 2011

SCHEME OF END SEMESTER EXAMINATION (Practical)

An external Practical exam of 30 marks of 2 hour duration for the course will be conducted by an external examiner appointed by the competent authority of the University's.

NOTE: **Students will be tested for their oral communication competence making them participate in Group discussion, mock situations for interview. Students may also be evaluated through a viva conducted by an external examiner.**

IT **322B WEB TECHNOLOGIES LAB**
B. Tech. Semester – VI (Computer Science and Engg. (Common with IT)

L	T	P	Credits			
		2	1	Class Work	:	20 Marks
				Examination	:	30Marks
				Total	:	50 Marks
				Duration of Examination	:	3 Hours

1   A Simple HTML home page provide links to move to other pages like hobbies, educational info, personal info etc.

2   A HTML program to illustrate the use of frame and frameset tags of HTML.

3   A HTML Program which use a HTML controls to create a student information form to collect student's information like name, address, phone, email, sex, birth date, hobbies etc.
  Download

4   A HTML Program which demonstrates loops like for loop, do while, while in java script.

5   A HTML Program which demonstrates the use of functions in java script.

6   A HTML Program which demonstrates various events like onclick, ondbclick, onfocus, onblur, onchange, onmouseover, onmouseover, window event, onload, onunload event.

7   A HTML Program to create various functions and sub routines to validate the data entered by user in form.   Download

8   Create a program to illustrate the concept of associative array in PHP.

9   Create PHP program to implement the concept of Session management.

10   Create a PHP program to display student information in webpage. Student's data is stored in My SQL database.

11   Create a PHP program to insert student information from HTML form. Student's data is stored in My SQL database.

Note: More exercises based on IT 302B may be given by the teacher

CSE 324B COMPILER DESIGN LAB
B. Tech Semester – VI (Computer Sc. & Engg.)

L	T	P	Credits		Class Work	:	20 Marks
	2	1			Examination	:	30Marks
					Total	:	50 Marks
					Duration of Examination	:	3 Hours

1. Practice of LEX/YACC of compiler writing.
2. Write a program to check whether a string belong to the grammar or not.
3. Write a program to generate a parse tree.
4. Write a program to find leading terminals.
5. Write a program to find trailing terminals.
6. Write a program to compute FIRST of non-terminal.
7. Write a program to compute FOLLOW of non-terminal.
8. Write a program to check whether a grammar is left Recursion and remove left Recursion.
9. Write a program to remove left factoring.
10. Write a program to check whether a grammar is operator precedent.
11. To show all the operations of a stack.
12. To show various operations i.e. red, write and modify in a text file.
Note : At least 10 programs are required to be developed in the semester.

CSE 326B ADVANCED JAVA PROGRAMMING LAB
B. Tech Semester – VI (Computer Sc. & Engg.)

L	T	P	Credits		Class Work	:	20 Marks
	2	1			Examination	:	30Marks
					Total	:	50 Marks
					Duration of Examination	:	3 Hours

1. Write a program in Java for illustrating overloading, over riding and various forms of inheritance.

2. Write programs to create packages and multiple threads in Java.

3. Write programs in Java for event handling Mouse and Keyboard events.

4. Using Layout Manger create different applications.

5. Write programs in Java to create and manipulate Text Area, Canvas, Scroll Bars, Frames, and menus using swing/AWT.

6. Using Java create Applets.

7. Using Java language for Client Server Interaction with stream socket connections.

8. Write a program in Java to read data from disk file.

CSE 328B ARTIFICIAL INTELLIGENCE LAB

B. Tech Semester – VI (Computer Sc. & Engg.)

L	T	P	Credits			
		2	1			

Class Work	:	**20 Marks**
Examination	:	**30Marks**
Total	:	**50 Marks**
Duration of Examination	:	**3 Hours**

1. Study of PROLOG.

Write the following programs using PROLOG:

2. Write a program to solve 8 queens problem.

3. Solve any problem using depth first search.

4. Solve any problem using best first search.

5. Solve 8-puzzle problem using best first search

6. Solve Robot (traversal) problem using means End Analysis.

7. Solve traveling salesman problem.

Note: At least 5 more exercises to be given based on CSE 308B.

GPCSE 302B   GENERAL PROFICIENCY AND ETHICS

B. Tech. Semester – VI (Computer Science and Engg.)

L	T	P	Credits	Examination	:	75Marks
1	--	--	2	Total	:	75 Marks

The purpose of this course is to inculcate a sense of professionalism in a student along with personality development in terms of quality such as receiving, responding, temperament, attitude and outlook. The student efforts will be evaluated on the basis of his/ her performance / achievements in different walks of life.

A Faculty Counselor will be attached to a group of students which will remain associated with him /her during the entire period of the degree program in the University. Each faculty member will serve as a faculty counselor. They will act like a local guardian for the students associated with him / her and will help them in terms of career guidance, personal difficulties.

A.   The student will present a written report before the committee with following in view:

The student will present before the committee his/her achievements during the current academic session in the form of a written report highlighting followings:

I.	Academic Performance	--------
II.	Extra Curricular Activities / Community Service, Hostel Activities	**(8 Marks)**
III	Technical Activities / Industrial, Educational tour	**(8 Marks)**
IV	Sports/games	**(14 Marks)**
V	Moral values & Ethics	**(15 Marks)**

NOTE: Report submitted by the students should be typed on both sides of the paper.

B.   A student will support his/her achievement and verbal & communicative skill through presentation before the committee.   **(30 Marks)**

C.   Moral values & Ethics

Syllabus - A few topics from the below mentioned books
1. R.R.Gaur, R. Sangal and G.P. Bagaria, " Bagaria, " A foundation course in Human Values and Professional Ethics", Pub: Excel Books, New Delhi-110028.
2. M. Govindrajan, S Natrajan & V.S. Senthil Kumar, " Engineering Ethics (including Human Values)" Eastern Economy Edition, Prentics Hall of India Ltd.

A minor test/Quiz will be conducted during the semesterand It will be the duty of the concerned teacher assigned to teach Moral values & Ethics to submit the awards to respective chairman of the department / Director/Principal.
The evaluation of this course will be made by the following Committee.

University Departments:
1	Chairperson of the Department	Chairman
2	Senior Most Faculty Counselor	Member
3	Vice- Chancellor's Nominee	Member

Affiliated Colleges:
1	Director/Principal	Chairman
2	Head of the Department/Sr. Faculty	Member
3	External Examiner to be appointed by the University	Member

Note: Remuneration will be paid to the external examiner only (at par with the other practical examinations).

CSE 401B MOBILE APPLICATIONS DEVELOPMENT

B. Tech. Semester – VII (Computer Science and Engg.) (Common with IT)

L	T	P	Credits			
3	1	--	4			

Class Work	:	25 Marks
Examination	:	75 Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

Unit 1:
Introduction to Mobile Application Development
Definition of mobile computing, various types of mobile computing devices (mobile computers, smart phones and dedicated devices). Web based applications, Native applications and Compare and contrast web-based mobile applications against native applications, history of mobile platforms (PDA's, Notebooks, smartphones. Internet protocols for mobile applications .i.e. WAP), evolution of browsers and Internet languages such as HTML and JavaScript.

Unit 2:
 Infrastructure
Describe mobile and cell phone technologies (CDMA, GSM, 3G, 4G), Compare and contrast 3G and 4G, Internet terms: IP address, subnet mask, gateway, DNS, static vs Dynamic IP, transport including HTTP , routing, secure connections, proxies and reverse proxies.
Need for storage, local Storage, storage on Web

Unit 3:
HTML/CSS/DOM and Scripting.
Basic HTML: validation, rendering and web browser,   Cascading Style Sheets (CSS) and how to use them, document object model (DOM) : document, objects, model, DOM tree and DOM's utilization in web design, basic JavaScript code and constructs of the JavaScript language.

Unit 4:
Designing mobile user interfaces and Mobile Platforms
Design mobile interfaces, usability, ways to test user interfaces, various types of user interfaces for mobile apps : Interactive voice response (IVR), SMS/MMS, Mobile web, Native applications, Hybrids, mobile application development design considerations: Text entry, screen size, user interface and user context.
Mobile Platforms: URIs for mobile apps, Compare and contrast native mobile platforms such as tightly controlled (IPhone), open (Android), and licensed (Windows Mobile), web as a mobile application platform.

Text Book:

1. Lauren Darcey and Shane Conder, "Android Wireless Application Development", Pearson Education, 2nd ed. (2011)

Reference Books:
 1. Reto Meier, "Professional Android 2 Application Development", Wiley India Pvt Ltd (2011)
2. Mark L Murphy, "Beginning Android", Wiley India Pvt Ltd(2009)
3. Sayed Y Hashimi and Satya Komatineni, "Pro Android", Wiley India Pvt Ltd(2009)
4. Brian Fling, "Mobile Design and Development: Practical concepts and
    techniques for creating mobile sites and web

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 403B CLOUD COMPUTING
B. Tech. Semester – VII (Computer Science and Engg.)

L	T	P	Credits			
				Class Work	:	**25 Marks**
3	1	--	4	**Examination**	:	**75Marks**
				Total	:	**100 Marks**
				Duration of Examination	:	**3 Hours**

Unit 1:
Introduction: Cloud computing history, architecture and essential characteristics, cloud service models, Cloud Deployment models, advantages of cloud computing, cloud v/s grid computing.

Unit 2:
Virtualization:Virtualization techniques, Benefits and drawbacks of virtualization, VM migration with its types, hypervisors, types of hypervisors, distributed management of virtual infrastructures, scheduling techniques for advance reservation of capacity, Service-oriented architectures, SOA implementation,SOAP v/s REST, web 2.0.

Unit 3:
PaaS: Introduction, advantages and disadvantages of PaaS, introduction to google app engine, GAE cost structure, Apache hadoop: MapReduce, HDFS, Hive, Mapreduce programming model,Hadoop as a service.

Unit 4:
Migrating into the cloud: Introduction, challenges in the cloud, legal issues in cloud computing, Cloud Economics and Capacity Management:Restricted Choices, Capacity Planning, Queuing andResponse Time, Evidence Based Decision Making, Instrumentation (Measuring Resource Consumption),Bottlenecks, Key Volume Indicators.

Text Books:
Cloud Computing Principles and Paradigms, RajkumarBuyya, Wiley & Sons pub.

Reference Books:
Cloud Computing Web-Based dynamic IT services: Christian Baun, Springer.
Implementing and Developing Cloud Computing Applications: David E.Y Sarna, CRC Press.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

MEI 623B ENTREPRENEURSHIP
B. Tech. Semester – VII (Computer Science and Engg.) Open Elective

L	T	P	Credits			
4	-	--	4	Class Work	:	25 Marks
				Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT-I
ENTREPRENEURIAL DEVELOPMENT PERSPECTIVE: Concepts of Entrepreneurship Development, Evolution of the concept of Entrepreneur, Entrepreneur Vs. Intrapreneur, Entrepreneur Vs. Entrepreneurship, Entrepreneur Vs.Manager, Attributes and Characteristics of a successful Entrepreneur, Role of Entrepreneur in Indian economy and developing economies with reference to Self-Employment Development, Entrepreneurial Culture

UNIT II
CREATING ENTREPRENEURIAL VENTURE: Business Planning Process, Environmental Analysis - Search and Scanning, Identifying problems and opportunities, Defining Business Idea, Basic Government Procedures to becomplied with.

UNIT III
ENTREPRENEURSHIP DEVELOPMENT AND GOVERNMENT: Role of Central Government and State Government in promoting Entrepreneurship - Introduction to various incentives, subsidies and grants - Export Oriented Units - Fiscal and Tax concessions available; Role of Central/State agencies in the Entrepreneurship Development - District Industries Centers (DIC), Small Industries Service Institute (SISI), Entrepreneurship Development Institute of India (EDII), National Institute of Entrepreneurship & Small Business Development (NIESBUD), National Entrepreneurship Development Board (NEDB).

UNIT IV
PROJECT MANAGEMENT AND CASE STUDIES
Technical, Financial, Marketing, Personnel and Management Feasibility, Estimating and Financing funds requirement - Schemes offered by various commercial banks and financial institutions like IDBI, ICICI, SIDBI, SFCs, Venture Capital Funding, Why do Entrepreneurs fail - The Four Entrepreneurial Pitfalls (Peter Drucker), Case studies of Successful Entrepreneurial Ventures, Failed Entrepreneurial Ventures and Turnaround Ventures.

Texts and References:
1. Entrepreneurship: New Venture Creation - David H. Holt.
2. Entrepreneurship - Hisrich Peters.
3. The Culture of Entrepreneurship - Brigitte Berger.
4. Project Management - K. Nagarajan.
5. Dynamics of Entrepreneurship Development - Vasant Desai.
6. Entrepreneurship Development - Dr. P.C.Shejwalkar.
7. Thought Leaders - Shrinivas Pandit.
8. Entrepreneurship, 3rd Ed. - Steven Brandt.
9. Business Gurus Speak - S.N.Char.
10. The Entrepreneurial Connection - Gurmit Narula.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

BME 451B   MEDICAL INSTRUMENTATION
B. Tech. Semester – VII–(Computer Science and Engg.) Open Elective

L	T	P	Credits			
4	-	--	4	Class Work	:	25 Marks
				Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT-I

PHYSIOLOGY AND TRANSDUCERS: Cell and its structure – Action and resting – Potential propagation of action potential – Sodium pump – Nervous system – CNS – PNS – Nerve cell – Synapse – Cardio pulmonary system – Physiology of heart and lungs – Circulation and respiration – Transducers – Different types – Piezo-electric, ultrasonic, resistive, capacitive, inductive transducers – Selection criteria.

UNIT-II

ELECTRO – PHYSIOLOGICAL AND NON-ELECTRICAL PARAMETER MEASUREMENTS: Basic components of a biomedical system – Electrodes – Micro, needle and surface electrodes – Amplifiers – Preamplifiers, differential amplifiers, chopper amplifiers – Isolation amplifier. ECG – EEG – EMG – ERG – Lead systems and recording methods – Typical waveforms. Measurement of blood pressure – Cardiac output – Cardiac rate – Heart sound – Respiratory rate – Gas volume – Flow rate of CO_2, O_2 in exhaust air - PH of blood, ESR, GSR measurements – Plethysmography.

UNIT-III

MEDICAL IMAGING AND PATIENT MONITORING SYSTEMS: X-ray machine - Radio graphic and fluoroscopic techniques – Computer tomography – MRI – Ultrasonography – Endoscopy – Thermography – Different types of biotelemetry systems and patient monitoring – Electrical safety. Biological effects of X-rays and precautions.

UNIT-IV

ASSISTING AND THERAPEUTIC EQUIPMENTS: Pacemakers – Defibrillators – Ventilators – Nerve and muscle stimulators – Diathermy – Heart – Lung machine – Audio meters – Dialyzers. Respiratory Instrumentation - Mechanism of respiration, Spirometry, Pnemuotachograph Ventilators.

TEXT BOOKS

1.   Biomedical Instrumentation and Measurements – Leslie Cromwell and F.J. Weibell, E.A. Pfeiffer, PHI, 2nd Ed, 1980.
2.   Medical Instrumentation, Application and Design – John G.Webster, John Wiley 3rd Ed., 1998

REFERENCE BOOKS

1.   Principles of Applied Biomedical Instrumentation – L.A.Geoddes and L.E. Baker, John Wiley, 1975.
2.   Hand-book of Biomedical Instrumentation – R.S. Khandpur, TMH, 2nd Ed., 2003.
3.   Biomedical Telemetry – Mackay, Stuart R., John Wiley, 1

Note:
1.   In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2.   The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

ECE 305B   CONSUMER ELECTRONICS
B. Tech. Semester – VII (Computer Science and Engg.) – Open Elective

L	T	P	Credits		
4	-	--	4	Class Work	: 25 Marks
				Examination	: 75 Marks
				Total	: 100 Marks
				Duration of Examination	: 3 Hours

UNIT I

MONOCHROME TV (INTRODUCTION): Elements of a TV System,Picture transmission,Sound transmission,Picture reception,Sound reception,Synchronization,Receiver control,Image continuity, Scanning Process, Aspect Ratio, Flicker, Composite Video Signal, Picture Elements,Kell factor, Vertical Resolution,Horizontal Resolution,Video bandwidth,Interlacing, 625 Line System,Bandwidths for TV Transmission,Vertical and horizontal synch detail,Vestigial Side Band transmission(Advantages and Disadvantages)

MONOCHROME TV (PICTURE AND CAMERA TUBES): Monochrome picture tube,beam reflection,Beam focussing,Screen Phosphor,Face plate,Picture tube characteristics,picture tube circuit controls,Monochrome Camera Tubes:Basic principle,Image Orthicon, Vidicon,Plumbicon

UNIT II

COLOUR TV ESSENTIALS: Compatibility , Colour perception,Three Colour theory,Luminance,Hue and Saturation, Dispersion and Recombination of light,Primary and secondary colours,luminance signal,Chrominance Signal, Colour picture tube,colour TV Camera,Colout TV display Tubes,colour Signal Transmission,Bandwidth for colour signal transmission,Colour TV controls. Cable TV,Block Diagram and principle of working of cable TV.

PLASMA AND LCD: Introduction,liquid crystals,types of LCD's,TN,STN,TFT,Power requirements,LCD working,Principle of operation of TN display,Construction of TN display,Behaviour of TN liquid crystals,Viewing angle,colour balance,   colour TN display, limitatons, advantages, disadvantages, applications.

UNIT III

LED AND DMD : Introduction to LED Television , comparison with LCD and Plasma TV's, schematic of DMD, introduction to Digital MicroMirror device, Diagram of DMD, principle of working, emerging applications of DMD.

MICROWAVE OVENS AND AIR CONDITIONERS: Microwaves, Transit Time, Magnetron, Waveguides, Microwave Oven, Microwave Cooking. Air conditioning,Components of air conditioning systems,all water Air conditioning systems,all air air conditioning Systems,Split air conditioner.

UNIT IV

MICROPHONES: Introduction, characteristics of microphones,types of microphone:carbon,moving coil,wireless,crystal,introduction to tape recorder.

LOUDSPEAKER: Introduction to ideal and basic loudspeaker,loudspeaker construction types of loudspeaker: Dynamic and permanent magnet,woofers,tweeters,brief introduction to baffles,equalisers.

Text Books :

1.Consumer Electronics by S. P. Bali(Pearson Education)

2.Complete Satellite and Cable T.V by R.R Gulati(New Age International Publishers)

Reference Books:

1. Monochrome and Colour Television by R. R. Gulati

Note: 1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

2   The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

EE 451B ENERGY AUDIT
B. Tech. Semester – VII (Computer Science and Engg.) – Open Elective

L	T	P	Credits	Class Work	:	25 Marks
4	-	--	4	Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT I

INTRODUCTION TO THE POWER DISTRIBUTION SYSTEM: Description of the power distribution system- voltage levels, Components of the distribution system- Substation, Transformer, feeders, distribution system planning, operation & maintenance objectives, activities involved in O&M, grid management, load scheduling & dispatch, load balancing, 66-33/11 KV substation equipment, 11/0.4 KV substation equipment, Distribution transformers- reasons for DT failures.

UNIT II

ENERGY ACCOUNTING & ENERGY AUDIT: Need for energy accounting, objectives & functions of energy accounting, Energy flow diagram in power distribution system, energy accounting procedure- Energy measurement, and problemsin energy accounting & overcoming these problems in energy accounting, Definition, need and types of energy audit, energy audit instruments,procedure for conducting an energy audit.

UNIT III

AT&C LOSS REDUCTION & EFFICIENCY IMPROVEMENT: Concepts and principles of distribution losses- transmission & distribution losses, AT&C losses in power distribution network, factors contributing to high technical & commercial losses. Technical loss reduction- Short term measures for technical loss reduction, long term plans for technical loss reduction, Commercial loss reduction- reasons for commercial losses, measures for commercial loss reduction.

UNIT IV

DEMAND SIDE MANAGEMENT: An introduction, Why DSM?, Benefits of DSM, DSM in power systems: load management, DSM techniques and emerging trends, EC Act 2001, DSM on consumer side – the industrial sector, the agricultural sector, the domestic & commercial sectors, ESCO-a route for DSM.

TEXT BOOKS:
1. Handbook of Energy Engineering, The Fairmont Press, INC.-Albert Thumann& Paul Mehta.
2. Energy Management Supply & Conservation, Butterworth Heinemann, 2002-dr. Clive Beggs.

REFERENCE BOOKS:
1. Hand book on energy audit & environment management by ISBN 81-1993.0920 TERI

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

EEE457B ENERGY RESOURCES & TECHNOLOGY
B. Tech. Semester – VII (Computer Science and Engg.) – Open Elective

L	T	P	Credits			
4	-	--	4	Class Work	:	25 Marks
				Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT-I

ENERGY SOURCES & AVAILABILITY: World energy situation. Indian energy scenario. Comparative study of thermal, hydro, nuclear and gas power plants. Impact of thermal, gas, hydro and nuclear power stations on environment, air and water pollution, green house effect (global warning), Plasma confinement - magnetic confinement and inertial confinement, geothermal, hydrogen energy, fuel cells, Alkaline fuel cells (AFC), Solid oxide fuel cell (SOFC), Molten carbonate fuel cells (MCFC), thermo-electric power, MHD power generation OTEC & tidal waves.

UNIT-II

SOLAR ENERGY: Solar constant, solar radiation geometry, local solar time, day length, solar radiation measurement, radiation on inclined surface, solar radiation data & solar charts. Flat plate collectors , liquid and air type. Theory of flat plate collectors, advanced collectors, optical design of concentrators, selective coatings, solar water heating, solar dryers, solar stills, solar cooling and refrigeration. Thermal storage. Conversion of heat into mechanical energy. Active and passive heating of buildings. Solar cells.

UNIT-III

WIND ENERGY: Wind as a Source of Energy, Characteristics of wind, wind data. Horizontal & Vertical axis wind Mills, Wind Energy: Wind energy potential measurement, general theories of wind machines, basic laws and concepts of aerodynamics, wind mill and wind electric generator. Basic electric generation schemes- constant speed constant frequency, variable speed constant frequency and variable speed variable frequency schemes. Applications of wind energy.

UNIT-IV

BIOMASS ENERGY: Introduction to biomass, biofuels & their heat content, biomass conversion technologies. Aerobic & anaerobic digester, Factors affection biogestion, biogas plants - types & description. Utilisation of biogas - Gasifiers, direct thermal application of Gasifiers. Advantages & problems in development of Gasifiers, use in I.C. engines , Energy plantation. Pyrolysis scheme. Alternative liquid fuels –ethanol and methanol. Ethanol production.

TEXT BOOKS:
1. Electric Power Generation, B.R.Gupta
2. Power Generation, Operation and Control, Wood and Wollenberg, John Wiley & Sons,1984.
3. Power Plant Engg: G.D. Rai

REFERENCE BOOKS:
1. Renewable Energy Resources: John Twidell and Tony Weir
2. Renewable Energy Resources Conventional & Non- Conventional: M.V.R Koteswara Rao
3. Science & Technology of Photovoltaics: Jayarama Reddy P.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

BT401B BIO-INFORMATICS
B. Tech. Semester – VII (Computer Science and Engg.) – Open Elective

L	T	P	Credits			
4	-	--	4	Class Work	:	25 Marks
				Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT-I

INTRODUCTION: Internet, intranet and extranet, networking, protocols, genomic data, organization, representation, data base management systems.

SEQUENCING DATA BANK: Introduction, collecting and storing sequence in laboratory, nucleic acid data bank – Gen Bank, EMBL, AIDS and RNA, protein data bank (PDB), cambridge structural database CSD, genome data bank, hybridoma data bank structure and others.

UNIT-II

SEQUENCE ANALYSIS: Analysis tools for sequence data banks, pair wise alignment: NEEDLEMAN and WUNSCH algorithms, Smith Waterman, multiple alignment – CLUSTAL-W, BLAST, FASTA, sequence patterns and motifs and profiles.

PREDICTIONS: Secondary and tertiary structure: algorithms Chao-Fasman algorithm, hidden Markov model, neural networking, protein classification, fold libraries, fold recognition (threading), homology detection, SRS-access to biological data banks.

UNIT-III

PHYLOGENETIC ANALYSIS– Basic concepts in systematics, taxonomy and phylogeny, phylogenetic trees-various types and their construction, tree building methods, distance methods, multiple alignment character based method, phylogenetic software.

MANAGING SCIENTIFIC DATA: Introduction, challenges faced in integration of biological information, SRS, Kleisli Query System TAMBIS, P/FDM mediator for a bioinformatics database, federation, discovery link and data management.

UNIT-IV

GENOMICS & PROTEOMICS: Genome mapping, assembly and comparison, functional genomics: sequence based approaches & microarray based approaches, proteomics: technology of protein expression analylsis & posttranslational modifications, protein sorting, protein-protein interaction.

TEXT / REFERENCE BOOKS:
- Developing Bioinformatics Computer Skill, ed. Gibes & Jombeck, Shroff Publication
- Bioinformatics, ed. David W. Mount

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

AE 417B MODERN VEHICLE TECHNOLOGY
B. Tech. Semester – VII) (Computer Science and Engg.) – Open Elective

L	T	P	Credits	Class Work	:	25 Marks
4	-	--	4	Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT I

TRENDS IN POWER PLANTS: Hybrid vehicles – stratified charged / lean burn engines – Hydrogen engines – battery vehicles – Electric propulsion with cables – magnetic track vehicles.

UNIT II

SUSPENSION BRAKES AND SAFETY: Air suspension – Closed loop suspension – antiskid braking system, Retarders, Regenerative braking safety cage – air bags – crash resistance – passenger comfort

UNIT III

NOISE & POLLUTION: Reduction of noise – Internal & external pollution control through alternate fuels / power plants – Catalytic converters and filters for particulate emission.

UNIT IV

VEHICLE OPERATION AND CONTROL: Computer control for pollution and noise control and for fuel economy – Transducers and actuators – Information technology for receiving proper information and operation of the vehicle like optimum speed and direction.

VEHICLE AUTOMATED TRACKS: Preparation and maintenance of proper road network – National highway network with automated roads and vehicles – Satellite control of vehicle operation for safe and fast travel.

TEXT BOOKS
1. Heinz Heisler, "Advanced Vehicle Technology" - Arnold Publication.

REFERENCES
1. Beranek.L.L., Noise reduction, McGraw Hill Book Co., Inc., Newyork, 1993.
2. Bosch Hand Book, 3rd Edition, SAE, 1993.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

B. Tech. Semester – VII (Computer Science and Engg.) – Open Elective

L	T	P	Credits				
4	-	--	4				

Class Work	:	25 Marks
Examination	:	75 Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

UNIT – I

WATER POLLUTION – Classification of water pollutants, water characteristics, effluent standards, primary treatment, secondary treatment – aerobic (activated sludge, aerated lagoons, trickling filter, roughing filter, rotating biological contactor) anaerobic (contact process, UASB).

UNIT – II

AIR POLLUTION: Classification of air pollutants, Particulates: Physical characteristics, mode of formation, setting properties, Control measures.

HYDROCARBONS: Nature; sources, control, Carbon Monoxide: Source, harmful effects on human health, control measures. Oxides of Sulphur and Nitrogen Sources, effects on human health and plants. Control measure.

UNIT – III

SOLID WASTE: Types, sources and properties of solid waste, methods of solid waste treatment and disposal

SOLID WASTE MANAGEMENT – Generation, Collection and techniques for ultimate disposal, Elementary discussion on resource and energy recovery.

UNIT – IV

Elementary treatment of nuclear pollution, metal pollution, noise pollution their effects & control.

Trace element: Mechanism of distribution, essential and non essential elements, trace of element in marin environment, its ecological effects and biological effects.

Suggested Books:
1. Environmental Engg.: by Howard s. Peavy & Others, MGH International.
2. Metacaf – EDDY – Waste-water engineering revised by George Teholonobus (TMH)
3. Environmental Chemistry by B.K. Sharma, Goel Publishing, Meerut.
4. Environmental Chemistry, A.K.DE, Wiley Eastern.
5. Air Pollution: H.C. Perking – Mc Graw Hill.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 411B MANAGEMENT INFORMATION SYSTEM
B. Tech. Semester – VII (Computer Science and Engg.) – Open Elective

L	T	P	Credits			
4	-	--	4			

Class Work : 25 Marks
Examination : 75 Marks
Total : 100 Marks
Duration of Examination : 3 Hours

UNIT I

INFORMATION SYSTEM FOUNDATIONS: Introduction to Information System and MIS, Decision support and decision making systems, systems approach, the systems view of business, Managing the digital firm, Electronic Commerce and Electronic business, DBMS, RDBMS , introduction to Telecommunication and Networks

I.T.INFRASTRUCTURE:- Managing Hardware Assets, Managing Software Assets, Managing Data Resources. Internet And New It Infrastructure .

UNIT II

CONCEPTUAL SYSTEM DESIGN: Define the problems, set systems objective, establish system constraints, determine information needs determine information sources, develop alternative conceptual design and select one document the system concept, and prepare the conceptual design report. Information Systems Security and Control, Ethical and Social Impact of Information Systems.

UNIT III

DETAILED SYSTEM DESIGN: Inform and involve the organization, aim of detailed design, project management of MIS detailed design , identify dominant and trade of criteria, define the sub systems, sketch the detailed operating sub systems and information flow, determine the degree of automation of each operation, inform and involve the organization again, inputs outputs and processing, early system testing, software, hardware and tools propose an organization to operate the system, documentation of detailed design

UNIT IV

IMPLEMENTATION, EVALUATION AND MAINTENANCE OF THE MIS: Plan the implementation, acquire floor space and plan space layouts, organize for implementation, develop procedures for implementation, train the operating personnel, computer related acquisitions, develop forms for data collection and information dissemination, develop the files test the system, cut-over, document the system, evaluate the MIS control and maintain the system. Pitfalls in MIS development, Redesigning the organization with Information systems, Managing Knowledge Work.

TEXT BOOKS:
1.Management Information System by W. S. Jawadekar, 2002, Tata McGraw Hill.
2.Management Information System by K.C. Laudon & J.P. Laudon 7th Edition 2003 Pearson Education Publishers Indian Reprint.
3.Information System for Modern Management (3rd edition)- Robert G. Murdick, Loel E. Ross & James R. Claggett. PHI
REFERENCE BOOKS:
1.Management Information System; O Brian; TMH
2.Management Information System by Davis Olson Mac Graw Hill
3.Management Information System by Stallings,(Maxwell Mc Millman Publishers)

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

IT413B   CYBER SECURITY
B. Tech. Semester – VII (Computer Science and Engg.) – Open Elective

L	T	P	Credits			
4	-	--	4	Class Work	:	25 Marks
				Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT I

INTRODUCTION TO CYBERCRIME: Cybercrime and Information Security, Classifications of Cybercrimes, The need for Cyberlaws, The Indian IT Act Challenges to Indian Law and Cybercrime Scenario in India, Weakness in Information Technology Act and it consequences, Digital Signatures and the Indian IT Act, Cybercrime and Punishment; Technology, Students and Cyberlaw; Survival tactics for the Netizens, Cyber-offenses: Cyberstalking, Cybercafe and Cybercrimes, Botnets, Attack Vector, Cloud Computing;

UNIT II

TOOLS AND METHODS USED IN CYBERCRIME: Proxy Servers and Anonymizers, Phishing and identity theft, Password Cracking, Keyloggers and Spywares, Virus and Worms, Trojan Horses and Backdoors, Steganography, DoS and DDoS Attacks, SQL Injection, Buffer Overflow; Cybercrime: Mobile and Wireless Devices: Trends in Mobility, Attacks on Wireless Networks, Credit Card Frauds in Mobile and Wireless Computing Era, Security Challenges, Registry Settings for Mobile Devices, Authentication Service Security, Attacks on Mobile/Cell Phones.

UNIT III

UNDERSTANDING COMPUTER FORENSICS: The Need for Computer Forensics, Cyberforensics and Digital Evidence, Forensics Analysis of E-Mail, Digital Forensics Life Cycle, Chain of Custody Concept, Network Forensics, Computer Forensics and Steganography, Relevance of the OSI 7 Layer Model to Computer Forensics, Forensics and Social Networking Sites: The Security/Privacy Threats, Challenges in Computer Forensics, Forensics Auditing, Antiforensics.

UNIT IV

CYBERSECURITY: ORGANIZATIONAL IMPLICATIONS: Cost of Cybercrimes and IPR Issues, Web Threats for Organizations, Security and Privacy Implications from Cloud Computing, Social Media Marketing, Social Computing and the Associated Challenges for Organizations, Protecting People's Privacy in the Organization, Organizational Guidelines for Internet Usage, Safe Computing Guidelines and Computer Usage Policy, Incident Handling, Forensics Best Practices, Media and Asset Protection, Importance of Endpoint Security in Organizations.

TEXT BOOKS:

• "Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives", Nina Godbole, Sunit Belapur, Wiley India Publications, April, 2011

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

2. The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed.

IT 304B   SOFTWARE TESTING
B. Tech. Semester – VII (Information Technology) Elective-I (Common with IT)

L	T	P	Credits			
3	1	--	4			

Class Work   : 25 Marks
Examination   : 75Marks
Total   : 100 Marks
Duration of Examination   : 3 Hours

Unit-I
Introduction: What is software testing and why it is so hard?, Error, Fault, Failure, Incident, Test Cases, Testing Process, Limitations of Testing, No absolute proof of correctness, Overview of Graph Theory.
Functional Testing: Boundary Value Analysis, Equivalence Class Testing, Decision Table Based Testing, Cause Effect Graphing Technique.

Unit-II
Structural Testing: Path testing, DD-Paths, Cyclomatic Complexity, Graph Metrics, Data Flow Testing, Mutation testing.
Testing Activities: Unit Testing, Levels of Testing, Integration Testing, System Testing, Debugging, Domain Testing.

Unit-III
Reducing the number of test cases: Prioritization guidelines, Priority category, Scheme, Risk Analysis, Regression Testing, and Slice based testing
Object Oriented Testing: Issues in Object Oriented Testing, Class Testing, GUI Testing, Object Oriented Integration and System Testing.

Unit-IV
Testing Tools: Static Testing Tools, Dynamic Testing Tools, and Characteristics of Modern Tools and Implementation with example.Advanced topics in software testing: web based testing, Client server testing, Automated test cases generation, Regular expression and FSM based testing.

Text Books
1. William Perry, Effective Methods for Software Testing , John Wiley & Sons, New York, 1995.
2. Cem Kaner, Jack Falk, Nguyen Quoc, Testing Computer Software , Second Edition, Van Nostrand Reinhold, New York, 1993.
3. Boris Beizer, Software Testing Techniques , Second Volume, Second Edition, Van Nostrand Reinhold, New York, 1990.
4. Louise Tamres, Software Testing , Pearson Education Asia, 2002

Reference Books
1. Roger S. Pressman, Software Engineering – A Practitioner's Approach , Fifth Edition, McGraw-Hill International Edition, New Delhi, 2001.
2. Boris Beizer, Black-Box Testing – Techniques for Functional Testing of Software and Systems , John Wiley & Sons Inc., New York, 1995.
3. K.K. Aggarwal & Yogesh Singh, Software Engineering , New Age International Publishers, New Delhi, 2003.
4. Marc Roper, Software Testing , McGraw-Hill Book Co., London, 1994.
5. Gordon Schulmeyer, Zero Defect Software , McGraw-Hill, New York, 1990.
6. Watts Humphrey, Managing the Software Process , Addison Wesley Pub. Co. Inc., Massachusetts, 1989.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

IT 4O5B ADVANCED COMPUTER NETWORKS
B. Tech. Semester – VII (Computer Science and Engg.) Elective-I (Common with IT)

L	T	P	Credits
4	--	--	4

Class Work   : 25 Marks
Examination   : 75Marks
Total   : 100 Marks
Duration of Examination   : 3 Hours

Unit I:
Binding Protocol Address- Address Resolution Protocol & RARP, ARP & RARP, packet format, Encapsulation. Internet protocol: Introduction, Ipv4 header, Ipv4Datagrams, Encapsulation, Fragmentation and Reassembly, IP routing, Subnet addressing, Subnet mask, Supernetting- special case of IP addresses IPv6-Motivation, frame format and addressing, comparison of IPv4 and IPv6.

Unit II
Socket Programming: Creating sockets, Posix data type, Socket addresses, Assigning address to a socket, Java socket programming, Thread programming, Berkeley Sockets: Overview, socket address structures, byte manipulation & address conversion functions, elementary socket system calls –socket, connect, bind, listen, accept, fork, exec, close, TCP ports (ephemeral, reserved), Berkeley Sockets: I/O asynchronous & multiplexing models, select & poll functions, signal & fcntl functions, socket implementation (client & server programs), UNIX domain protocols.

Unit III
GSM Overview, GSM Network signaling, GSM Mobility Management, GSM Short Message Service, Mobile Number portability
General Packet Radio Service: Functional Groups, Architecture, GPRS Network nodes and Interfaces, Introductory ideas about WAP

Unit IV
Network Security Practice: Authentication Applications- Kerberos, X.509 Authentication Service; Electronic Mail Security- Pretty Good Privacy, S/MIME; IP Security- IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations; Web Security- Web Security Considerations, Secure Sockets Layer and Transport Layer Security, Secure Electronic Transaction.

REFERENCES
1. Jawin, "Networks Protocols Handbook", Jawin Technologies Inc., 2005.
2. Bruce Potter and Bob Fleck, "802.11 Security", O'Reilly Publications, 2002.
3. Ralph Oppliger "SSL and TSL: Theory and Practice", Arttech House, 2009.
4. Forouzen, Data Communication and Networking, TMH
5. Behrouz A.Forouzan, TCP/IP Protocol Suite
6. William Stalling, Network Security Essentials, 2nd Edition. PHI New Delhi

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 451 B DATAWAREHOUSING AND DATAMINING
B. Tech. Semester – VII (Computer Science and Engg.) Elective-I

L	T	P	Credits
4	--	--	4

Class Work	:	25 Marks
Examination	:	75Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

Unit 1
Data Warehousing: Introduction to Data Warehousing: Evolution of Data Warehousing, Data Warehousing concepts, Benefits of Data Warehousing, Comparison of OLTP and Data Warehousing, Problems of Data Warehousing.

Data Warehousing Architecture: Architecture: Operational Data and Data store, Load Manager, Warehouse Manager, Query Manager, Detailed Data, Lightly and highly summarized Data, Archive/Backup Data, Meta-Data, architecture model, 2-tier, 3-tier and 4-tier data warehouse, end user Access tools.

Unit 2
Data Warehousing Tools and Technology: Tools and Technologies: Extraction, cleaning and Transformation tools, Data Warehouse DBMS, Data Warehouse Meta-Data, Administration and management tolls, operational vs. information systems.
OLAP & DSS support in data warehouse.

Distributed Data Warehouse: Types of Distributed Data Warehouses, Nature of development Efforts, Distributed Data Warehouse Development, Building the Warehouse on multiple levels.

Unit 3
Types of Data Warehouses & Data Warehouse Design: Host based, single stage, LAN based, Multistage, stationary distributed & virtual data-warehouses. Data warehousing Design: Designing Data warehouse Database, Database Design Methodology for Data Warehouses, Data Warehousing design Using Oracle.

Unit 4
OLAP and data mining: Online Analytical processing, Data mining.
Knowledge discovery: Knowledge discovery through statistical techniques, Knowledge discovery through neural networks, Fuzzy technology & genetic algorithms.

Reference Books
1. Building the Data Warehouse , W.H.Inmon, 3rd Edition, John Wiley & Sons.
2. Developing the Data Warehouse , W.H.Inmon, C.Kelly, John Wiley & Sons.
3. Thomas Connoly, Carolyn Begg- Database Systems-A practical approach to Design, Implementation and management 3rd Edition Pearson Education
4. W.H.Inmon, C.L.Gassey, Managing the Data Warehouse , John Wiley & Sons.
5. Fayyad, Usama M. et. al., Advances in knowledge discovery & Data mining , MIT Press.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 453B DISTRIBUTED COMPUTING
B. Tech. Semester – VII (Computer Science and Engg.) Elective-I

L	T	P	Credits		Class Work	:	25 Marks
4	--	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

Unit 1

Fundamentals of Distributed Computing: Architectural models for distributed and mobile computing systems. Basic concepts in distributed computing such as clocks, message ordering, consistent global states, and consensus.
Basic Algorithms in Message: Passing Systems, Leader Election in Rings, and Mutual Exclusion in Shared Memory, Fault-Tolerant Consensus, Causality and Time. Message Passing: PVM and MPI.

Unit 2

Distributed Operating Systems and network operating systems, Distributed File systems. Client/server model for computing, common layer application protocols (RPC, RMI, streams), distributed processes, network naming, distributed synchronization and distributed object-based systems.
Simulation: A Formal Model for Simulations, Broadcast and Multicast, Distributed Shared Memory, Fault-Tolerant Simulations of Read/Write Objects Simulating Synchrony, Improving the Fault Tolerance of Algorithms, Fault-Tolerant Clock Synchronization.

Unit 3

Advanced Topics: Randomization, Wait-Free Simulations of Arbitrary Objects, and Problems Solvable in Asynchronous Systems, Solving Consensus in Eventually Stable Systems, High Performance Computing-HPF, Distributed and mobile multimedia systems. Adaptability in Mobile Computing, Grid Computing and applications.

Unit 4

Distributed Environments: Current systems and developments (DCE, CORBA, JAVA).
Case study- Distributed information searching on the network- Mobile Agent Approach.

Reference Books
1. Hagit Attiya, Jennifer Welch, Distributed Computing: Fundamentals, Simulations, and Advanced Topics, 2nd Edition, March 2004.
2. R. B. Patel, Mobile Computing-A Practical Approach, 1st edition, Khanna Publishing House Delhi
3. Mullendar S. Distributed Systems, 2nd Ed. Addison, Wesley 1994.
4. Tannenbaum, A. Distributed Operating Systems, Prentice Hall 1995.
5. Helal, Abdelsalam A. et al. Anytime, Anywhere Computing: Mobile Computing Concepts and Technology, Kluwer Academic Publishers 1999.
6. George Coulouris, Jean Dollimore and Tim Kindberg, Distributed Systems: Concepts and Design Third Edition Addison-Wesley, Pearson Education, 2001.
7. Cay S Horstmann and Gary Cornell, Java 2 Vol I and II-Sun Micro Systems-2001

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 455 B ADVANCED COMPUTER ARCHITECTURE
B. Tech. Semester – VII (Computer Science and Engg.) Elective-II

L	T	P	Credits			
4	--	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Unit–1:
 Introduction: Elements of modern computers (computing problems, algorithms, hardware, OS, system software); Evolution of computer architecture; Factors affecting system performance ; architectural development tracks (Multiple-processor tracks , Multivector & SIMD tracks, Multithread & Dataflow tracks)
Conditions of parallelism (Data dependence, Resource dependence , control dependence , Bernstein's Conditions); Hardware & Software parallelism; Program partitioning & Scheduling; Program flow machines (Control flow , Data flow , Demand driven); Parallel processor applications; Speedup performance laws (Amdahl's law, Gustafson's law); Scalability (Goals, Metrics, evolution of scalable architectures , open issues)

Unit–2:
Advanced processor Technology :- Design space ; Instruction pipelines ; Instruction set architecture (RISC, CISC, RISC scalar processors, CISC scalar processors) ; Superscalar Processors , VLIW architecture; Vector & Symbolic processors;
Pipelining: Linear pipeline processors, Nonlinear pipeline processors, Instruction pipeline(pipelined instruction processing, mechanisms for instruction pipelining, dynamic instruction scheduling , branch handling techniques)
Parallel & Scalable Architectures :- Hierarchical bus system, Crossbar switch & multiport memory , multistage & combining networks; Cache coherence & synchronization mechanisms (cache coherence problem, Snoopy bus protocols , directory based protocols .

Unit-3:
 Advanced Memory Technology:- Bus system (Backplane bus specification, addressing & timing protocols, Arbitration , Transaction and Interrupt , IEEE futurebus) Cache organizations (Cache addressing models , cache performance issues); Shared memory organizations(Interleaved memory organization, Bandwidth and fault tolerance , memory allocation schemes , Sequential & weak consistency models . Latency hiding techniques .

Unit–4:
 Parallel Models and Languages :- Parallel Programming Models(Shared-Variable, Message passing, Data-Parallel, Object-Oriented);Parallel languages & Compilers (language features for parallelism, parallel language constructs, optimizing compilers for parallelism);Code optimization & partitioning (Scalar optimization , Local & Global optimization, Vectorization , code generation & scheduling , Trace scheduling compilation); Parallel programming environments (S/W Tools , Y-MP, Paragon, CM-5 Environments , Visualization & Performance tuning)

TEXT BOOK:

1. Advance Computer Architecture : Parallelism , Scalability, Programmability ; 2nd Edition by Kai Hwang &NareshJotwani, 2012, TMH.

REFERENCE BOOKS:

1. Pipelined and Parallel processor design by Michael J. Fiynn – 1995, Narosa.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 457 B NETWORK SECURITY AND CRPTOGRAPHY
B. Tech. Semester – VII (Computer Science and Engg.) Elective-II

L	T	P	Credits		Class Work	:	25 Marks
4	--	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

Unit-I
Introduction: Plain text and cipher text, substitution techniques, transposition techniques, encryption and decryption, symmetric and asymmetric key cryptography.

Unit-II
Symmetric key algorithms: introduction, algorithms types and modes, DES, AES.

Asymmetric key algorithms: introduction, history of asymmetric key cryptography, RSA symmetric and asymmetric key cryptography together, Digital signature.

Unit-III
Internet security protocols: basic concepts, Secure Socket Layer (SSL), Transport Layer Security (TLS), Secure Hyper Text Transfer protocol (SHTTP), Time Stamping Protocol (TSP), Secure Electronic Transaction (SET), SSL versus SET, Electronic Money, Email Security.

Unit-IV
User Authentication and Kerberos: Introduction, Authentication basics, Passwords, authentication tokens, certificate based authentication, biometric based authentication, Kerberos, key distribution center(KDC), Security handshake pitfalls, single Sign on(SSO) approach.

Text Books:
1. Cryprotography and Network Security, 2nd Edition by Atul Kahate, TMH
2. Network Management Principles & Practices by Subramanian, Mani (AWL)
3. SNMP, Stalling, Willian (AWL)

Reference Books:
1. SNMP: A Guide to Network Management (MGH)
2. Telecom Network Management by H.H. Wang (MGH)
3. Network Management by U. Dlack (MGH)

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 459B MULTIMEDIA TECHNOLOGIES
B. Tech. Semester – VII (Computer Science and Engg.) Elective-II

L	T	P	Credits		Class Work	:	25 Marks
4	--	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

Unit-1:
Basics of Multimedia Technology: Computers, communication and entertainment; multimedia an introduction; framework for multimedia systems; multimedia devices; CD- Audio, CD-ROM, CD-I, presentation devices and the user interface; multimedia presentation and authoring; professional development tools; LANs and multimedia; internet, World Wide Web & multimedia distribution network-ATM & ADSL; multimedia servers & databases; vector graphics; 3D graphics programs; animation techniques; shading; anti aliasing; morphing; video on demand.

Unit-2:
Image Compression & Standards: Making still images; editing and capturing images; scanning images; computer color models; color palettes; vector drawing; 3D drawing and rendering; JPEG-objectives and architecture; JPEG-DCT encoding and quantization, JPEG statistical coding, JPEG predictive lossless coding; JPEG performance; overview of other image file formats as GIF, TIFF, BMP, PNG etc.

Unit-3:
 Audio & Video: Digital representation of sound; time domain sampled representation; method of encoding the analog signals; subband coding; fourier method; transmission of digital sound; digital audio signal processing; stereophonic & quadraphonic signal processing; editing sampled sound; MPEG Audio; audio compression & decompression; brief survey of speech recognition and generation; audio synthesis; musical instrument digital interface; digital video and image compression; MPEG motion video compression standard; DVI technology; time base media representation and delivery.

Unit-4:
 Virtual Reality: Applications of multimedia, intelligent multimedia system, desktop virtual reality, VR operating system, virtual environment displays and orientation making; visually coupled system requirements; intelligent VR software systems.
Applications of environment in various fields.

Text Books:
1. An introduction, Villamil & Molina, Multimedia Mc Milan, 1997
2. multimedia: Sound & Video, Lozano, 1997, PHI, (Que)

Reference Books:
1. Multimedia: Production, planning and delivery, Villamil & Molina,Que, 1997
2. Multimedia on the PC, Sinclair,BPB
3. Multimedia: Making it work, Tay Vaughan, fifth edition, 1994, TMH.
4. Multimedia in Action by James E Shuman, 1997, Wadsworth Publ.,
5. Multimedia in Practice by Jeff coate Judith, 1995,PHI.
6. Multimedia Systems by Koegel, AWL
7. Multimedia Making it Work by Vaughar, etl.
8. Multimedia Systems by John .F. Koegel, 2001, Buford.
9. Multimedia Communications by Halsall & Fred, 2001,AW.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 461B DISTRIBUTED OPERATING SYSTEM
B. Tech. Semester – VII (Computer Science and Engg.) Elective-II

L	T	P	Credits		Class Work	:	25 Marks
4	--	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

Unit I
Introduction to Distributed System, Characteristics of Distributed system, Network vs. centralized systems, Design issues. Resource sharing and the Web – Challenges – System models – Architectural and fundamental models – Networking and internetworking Communication in distributed system: Layered protocols, ATM networks, Client – Server model ,Remote Procedure Calls and Group Communication.

UNIT II

Clock synchronization, Mutual Exclusion, Election algorithm, the Bully algorithm, a Ring algorithm, Transactions – Nested transactions – Locks – Optimistic concurrency control – Timestamp ordering – Comparison – Flat and nested distributed transactions – Atomic commit protocols – Concurrency control in distributed transactions, Deadlock in Distributed Systems, Distributed Deadlock Prevention, Distributed Deadlock Detection .
 Threads, System models, Processors Allocation, Scheduling in Distributed System, Real Time Distributed Systems.

Unit III
Distributed file systems: Distributed file system Design, Distributed file system Implementation, Trends in Distributed file systems.
Distributed Shared Memory: What is shared memory, Consistency models, Page based distributed shared memory, shared variables distributed shared memory.

Unit IV
Overview of security techniques, Cryptographic algorithms ,Digital signatures , Cryptography pragmatics, Replication , System model and group communications, Fault tolerant services, Highly available services , Transactions with replicated data

TEXT BOOKS
1. Andrew S. Tanenbaum, Maartenvan Steen, Distibuted Systems, ―Principles and Pardigms‖, Pearson Education, 2002.
2. George Coulouris, Jean Dollimore and Tim Kindberg, ―Distributed Systems Concepts and Design‖, 3rd Edition, Pearson Education, 2002.

REFERENCES
1. Tanenbaum and Steen, ―Distributed Systems‖, PHI, 2002.
2. Sape Mullender, ―Distributed Systems‖, 2nd Edition, Addison Wesley, 1993.
3. Albert Fleishman, ―Distributed Systems: Software Design and Implementation‖, Springer Verlag, 1994.
4. M. L. Liu, ―Distributed Computing Principles and Applications‖, Pearson Education, 2004.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

L T P Credits   Class Work : 25 Marks
4   4   Exam.   : 75 Marks
                                                        Total   : 100 Marks
                                                        Duration of Exam : 3 hrs

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UNIT I
Agents Introduction
Agent Definition - **Autonomy vs. Agency,** Agent vs Object - Mobile Agents - Agent Programming Paradigms - Frameworks - Agent Reasoning-Mobile Agent Context-Description-Components-Features-Life Cycle

UNIT II
Agent Communication, Collaboration, and Mobility
Agent Communication Languages-Interaction between agents- Reactive Agents- Cognitive Agents – Rational Agents-Interaction protocols - Agent coordination - Agent negotiation - Agent Cooperation - Agent Organization

UNIT III
Mobile Agents Models and Framework: Standardization and Evolution,
 Generating Useable Metrics-Evaluating Semantic Alignment -Evaluating System Agility- Evaluating Loose Coupling- Survey of Mobile Agent System: JADE, SPRINGS, Voyager, Jini, Aglets, Choosing a Mobile Agent Framework

UNIT IV
Agent Security Issues – Threats in Mobile Agents Security – Mobile Agent Threat Models- Protecting Agents against Malicious Hosts - Untrusted Agent -Black Box Security - Authentication for agents - Security issues for aglets.

TEXT BOOKS:
1. Bigus & Bigus, " Constructing Intelligent agents with Java ", Wiley, 1997.
2. Bradshaw, " Software Agents ", MIT Press, 2000.
References:
1. Russel & Norvig, " Artificial Intelligence: a modern approach ", Prentice Hall, 1994.
2. Danny Lange & Mitsuru Oshima, Programming and Deploying Java Mobile Agents with Aglets, Addison-Wesley, 1998,
3. Richard Murch, Tony Johnson, " Intelligent Software Agents ", Prentice Hall, 2000.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 465B INFORMATION SECURITY AND DATA HIDING
B. Tech. Semester – VII (Computer Science and Engg.) Elective-I

L	T	P	Credits		Class Work	:	25 Marks
4	--	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

UNIT-I
Introduction: the need for security, security approach, principles of security, types of attack, denial of service, IP spoofing, Phishing. Digital signature, Firewall.

UNIT-II
Hacking: Basics, Email hacking, computer hacking, types of hacking, practice against hacking, Access Authorization, Compression, LZW Compression and Decompression Method.

UNIT-III
Data hiding: terms related to data hiding, Differences between cryptography, stenography & watermarking, history of stenography. Applications of data hiding.

UNIT-IV
Advance data hiding techniques: transform domain, difference between special domains and transform domain, wavelets, advantages of wavelet, and wavelet based techniques for data hidings.

Text books:
1. Cryptography and Network Security by Atul Khate, Mc Graw Hill Publisher
2. E-mail Hacking by Ankit Fadia, Vikash Publishers

Reference Books
2. Data communication and Networking , Behrouz A. Forouzan .

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 421B   MOBILE APPLICATIONS DEVELOPMENT LAB
B. Tech. Semester – VII (Computer Science and Engg.)

L	T	P	Credits			
		2	1			

Class Work	:	20 Marks
Examination	:	30Marks
Total	:	50 Marks
Duration of Examination	:	3 Hours

Learn Android

Lesson 1: Getting Started with Android Development

Lesson 2: Activities and Views: Android Manifest.xml, Activity Class ,Basic View Components: Layouts and Buttons

Lesson 3: Navigation with Data: Working with Intent, Sharing Data Between Activities, Application Class

Lesson 4: Android Resources: String Resources, Loading Strings in XML, Loading Strings in Code, The Resource Values Folder

Lesson 5: Drawables - Image Basics, Drawable Folders and Qualifiers, Dimensions, Image Padding, The ImageButton Widget

Lesson 6: Lists: Implementing an Android List, ListView, ListActivity, Empty Lists , ListAdapter, Sorting the Adapter, Overriding ArrayAdapter, List Interaction

Lesson 7: Dialogs, New and Old : AlertDialog, Custom Dialog, Support Library, Fragments, DialogFragment

Lesson 8: Menus: Options Menu, Modifying an Options Menu, Context Menu

Lesson 9: Saving Data with Shared Preferences: Shared Preferences, Getting Started with SharedPreferences, PreferenceActivity

Lesson 10: Saving Data with a Database: Setting Up SQLite, Creating a Helper , using the Helper, Cursor and CursorAdapater

Lesson 11: Threading with AsyncTasks: Threading in Android, AsyncTask, Tracking Progress

Lesson 12: Styles and Themes: Introduction to Styling: Defining Styles, Defining Themes, Style Inheritance, Direct Theme References

Develop an Android based Project

CSE 423B   CLOUD COMPUTING LAB
B. Tech. Semester – VII (Computer Science and Engg.)

L	T	P	Credits		Class Work	:	20 Marks
	2	1			Examination	:	30Marks
					Total	:	50 Marks
					Duration of Examination	:	3 Hours

1. Development of applications on Google app engine.

2. Case study of private Cloud setup through OpenStack

3. Case study of private Cloud setup through CloudStack

4. Case study of XEN/VMware/KVM hypervisor

5. Case study of Amazon ec2.

B. Tech. Semester – VII (Computer Science and Engg.)

L	T	P	Credits		Class Work	:	50Marks
--	--	4	4		Total	:	50 Marks

The primary objective of this course is to develop in students the professional quality of synthesis employing technical knowledge obtained in the field of Engineering & Technology through a project work involving design, analysis augmented with creativity, innovation and ingenuity.

Project involving design/ fabrication/ testing/ computer simulation/ case studies etc. which commences in the VII Semester will be completed in VIII Semester and will be evaluated through a panel of examiners consisting of the following:

Chairman of Department   : Chairperson

Project coordinator   : Member Secretary

Respective project supervisor   : Member

The student will be required to submit two copies of his/her project report to the department for record (one copy each for the department and participating teacher).

Project coordinator will be assigned the project load of maximum of 2 hrs. per week including his own guiding load of one hr. However, the guiding teacher will be assigned maximum of one period of teaching load irrespective of number of students/groups under him/her.

The format of the cover page and the organization of the body of the report for all the B.Tech. will be finalized and circulated by the Dean, Faculty of Engineering and Technology.

CSE 427B PROFESSIONAL TRAINING II
B. Tech. Semester – VII (Computer Science and Engg.)

L	T	P	Credits		Class Work	:	50 Marks
--	--	2	2		Total	:	50 Marks

- At the end of 6th semester each student would undergo four weeks Professional Training in an Industry/ Institute/ Professional / Organization/ Research Laboratory etc. with the prior approval of the Training and Placement Officer of the University and submit in the department a typed report along with a certificate from the organization.

- The typed report should be in a prescribed format.

- The report will be evaluated in the VII Semester by a Committee consisting of three teachers from different specialization to be constituted by the Chairperson of the department. The basis of evaluation will primarily be the knowledge and exposure of the student towards different processes and the functioning of the organization.

- The student will interact with the committee through presentation to demonstrate his/her learning.

- Teachers associated with evaluation work will be assigned 2 periods per week load.

B. Tech. Semester – VIII (Computer Science and Engg.)

L	T	P	Credits		Class Work	:	25 Marks
3	1	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

Unit 1

Oracle overview and Architecture, Installing and managing oracle, creating a database and data dictionary, control and redo log files, Managing Table spaces and data files, Managing tables, indexes, and constraints, Managing users and security.

Unit 2

Basic Oracle net architecture - basic net server side configuration, basic net client-side configuration, usage and configuration of Oracle shared server architecture. Backup and Recovery, Transporting data between databases - export and import utility, Loading data into database-SQL*loader, database performance tuning.

Unit 3

Basic constructs of PL/SQL , Cursors: need, types and implementation, Stored Procedures, functions

Unit 4

Active Database, ECA Rules, implementing ECA rules in PL/SQL. CUBE technology , Data ware house, creating a Data ware House in oracle.

Text Books:
1. Kevin loney, Bob Baryla Oracle database 10g: DBA handbook, Tata McgrawHills.
2. Biju Thomas, Bob Baryla, Oracle DBA Fundamental-I, BPB publications

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 404B SOFTWARE PROJECT MANAGEMENT
B. Tech. Semester – VIII (Computer Science and Engg.)

L	T	P	Credits			
3	1	--	4			

Class Work	:	25 Marks
Examination	:	75Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

Unit-1
Introduction to Software Project Management (SPM): Definition of a Software Project (SP), SP Vs. other types of projects activities covered by SPM, Fundamentals of Software Project Management (SPM), Need Identification, Vision and Scope document, Project Management Cycle, SPM Objectives,project as a system, management control, requirement specification, information and control in organization, Project management and CMM

Stepwise Project planning: Introduction, selecting a project, identifying project scope and objectives, identifying project infrastructure, analyzing project characteristics, identifying project products and activities, estimate efforts each activity, identifying activity risk, allocate resources, review/ publicize plan.

Unit-2
Project Evaluation & Estimation: Cost benefit analysis, cost benefit evaluation techniques, risk evaluation. Selection of an appropriate project approacht;, structured methods, rapid application development, water fall-, V-process-, spiral- models. Prototyping, delivery. Albrecht function point analysis.

Project Scheduling: Objectives of activity planning, project schedule, projects and activities, Identifying activities, sequencing and scheduling activities, network planning model, Network Diagrams, CPM, representation of lagged activities, backward and forward pass, identifying critical path, activity throat, shortening project , precedence networks.

Risk Management: Introduction, the nature of risk, managing risk, risk identification, risk analysis, reducing the risks, evaluating risks to the schedule, calculating the z values.

Unit-3
Project Monitoring & control: identifying resource requirements, scheduling resources, PERT, Gantt Charts, Earned Value Analysis, Earned Value Indicators: Budgeted Cost for Work Scheduled (BCWS), Cost Variance (CV), Schedule Variance (SV), Cost Performance Index (CPI), Error Tracking, Software Reviews, Types of Review: Inspections, Deskchecks, Walkthroughs, Code Reviews, Pair Programming.

Managing contracts and people: Introduction, types of contract, stages in contract, placement, typical terms of a contract, contract management, acceptance, Managing people and organizing terms: Introduction, understanding behavior, organizational behavior: a back ground, selecting the right person for the job, instruction in the best methods, motivation, working in groups, becoming a team, decision making, leadership, organizational structures, conclusion, further exercises.

Unit-4
Software quality Assurance and Testing: Testing Objectives, Testing Principles, Test Plans, Test Cases, Types of Testing, Levels of Testing, Test Strategies, Program Correctness, Program Verification & validation, Concept of Software Quality, Software Quality Attributes, Software Quality Metrics and

Indicators, The SEI Capability Maturity Model CMM), SQA Activities, Formal SQA Approaches: Proof of correctness, Statistical quality assurance, Cleanroom process.

Software Project Management Tools: CASE Tools, Planning and Scheduling Tools, MS-Project

Text Book:
1. Software Project Management (2nd Edition), by Bob Hughes and Mike Cotterell, 1999, TMH

Reference Books:
1. Software Engineering – A Practitioner's approach, Roger S. Pressman (5th edi), 2001, MGH
2. Software Project Management, Walker Royce, 1998, Addison Wesley.
3. Project Management 2/c. Maylor
4. Managing Global software Projects, Ramesh, 2001, TMH.
5. S. A. Kelkar, Software Project Management, PHI Publication.

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

IT 402 B DATA ANALYTICS AND APPLICATIONS
B. Tech. Semester – VIII (Computer Science and Engg.) Elective-III (Common with IT)

L	T	P	Credits			
4	--	--	4	**Class Work**	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Unit-I

Statistical Analysis of Data, Individual Differences, Descriptive Statistics, Frequency Distributions, Histograms, Histograms, Shapes of Distributions, Measures of Central Tendency Computing the Mean, Measuring Variability, Measures of Relationship, Regression, Reliability Indices, Standard Scores (Z-scores),Inferential Statistics, Populations and Samples

Unit-II

The Null Hypothesis, Chi-Square and T-Test, Statistical Decisions, Statistical Decision Process, Testing for Mean Differences, Power of a Statistical Test, Statistical versus Practical Significance, Effect Size, Meta-Analysis.

Unit-III

Data Visualization: Meaning and significance, Traits of Meaning full Data, Brief History of Information Visualization, Power of visual perception, Making abstract data Visible, Building Blocks of information Visualization. Analytical Techniques.

Unit-IV

Big Data, In-Memory Processing, limitations of In Memory Processing. Big Data Privacy, Big data Visualization, Map Reduce algorithm, OLAP and its applications, Data Mining Process, Knowledge Discovery, Decision Support Systems

Text Books
1. **"**Now You See It: Simple Visualization Techniques for Quantitative Analysis**"** by Stephen Few Publisher: Jonathan G Koomey
2. Big Data Analytics: Turning Big Data into Big Money by **Frank J. Ohlhorst Publisher : Wiley**

References Books
1 Gelman, Andrew, and Jennifer Hill. *Data Analysis Using Regression and Multilevel/Hierarchical Models.* 1st ed. Cambridge, UK: Cambridge University Press, 2006. ISBN: 9780521867061.
2 Gelman, Andrew, John B. Carlin, Hal S. Stern, and Donald B. Rubin. *Bayesian Data Analysis.* 2nd ed. New York, NY: Chapman & Hall, 2003. ISBN: 9781584883883

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

IT 404B LINUX ADMINISTRATION
B. Tech. Semester – VIII (Computer Science and Engg.) Elective-IV

L	T	P	Credits		Class Work	:	25 Marks
4	--	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

Unit-I

Introduction: History of Unix and Linux, Architecture of Linux, Advantages of Linux.
Installation and Hardware configuration: Creating an Installation Diskette, Booting Linux Installation Program, Partitioning Hard Drive(s), Setting up Swap Space Choosing Partitions to Format Booting with LILO, Multi-boot with Other Operating Systems

Unit-II
Introduction to Kernel, Introduction to Linux Shell: Types of Shell, Feature and benefits of Shell. I/O redirection and Piping, pipes, filters, Introduction to various text editor, various Vi editing modes, scrolling, yank and paste, put and delete, set commands, Comparison of EmacsEditor, vi Editor, Pico Editor.

Unit-III
Introduction to Linux Files: Rules for creating files, Linux Files system, File printing, searching files using grep, change permission to set files and change owner of the files. Process,Listening with ps, killing with kill, PID, UID, GID, Signals, nice, renice.

Unit-IV
General Administration issues: root account, Creating user in Linux, Changing password, deleting user, disabling user account, Linux Password & Shadow File Formats System Shutdown and Restart creating groups, Custom Configuration and Administration Issues, Simple commands
Introduction to devices: IDE, SCSI, USB and its interface, pin configuration of various devices, Disk Geometry, Configuration of web server, FTP and Telnet. Shell programming, network configuration.

Text Books:
1. Ellen Siever, Robert Love and Arnold Robbins, Linux in Nutshell, Fifth Edition,Oreilly Media.
2. Kurt Wall, Mark Watson, Mark Whitis, Linux Programming, Third Edition, SAMS Techmedia.
3. Mark Sobell, Practical Guide to Linux Programming, Pearson Education.

Reference Books:
1. Machtelt Garrels, Introduction to Linux-A Hands on Guide, Addison Wisley.
2. J.Purcell, Linux Complete Command Reference, Red Hat Software, Mcgrawhill.

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 452B SOFT COMPUTING
B. Tech. Semester – VIII (Computer Science and Engg.) Elective-III

L	T	P	Credits			
4	--	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT 1:

Fuzzy Logic: Crisp set and Fuzzy set, Basic concepts of fuzzy sets, membership functions. Basic operations on fuzzy sets, Properties of fuzzy sets, Fuzzy relations. Propositional logic and Predicate logic, fuzzy If – Then rules, fuzzy mapping rules and fuzzy implication functions, Applications.

UNIT 2:

Neural Networks: Basic concepts of neural networks, Neural network architectures, Learning methods, Architecture of a back propagation network, Applications. Genetic Algorithms: Basic concepts of genetic algorithms, encoding, genetic modeling.

UNIT 3:

Hybrid Systems: Integration of neural networks, fuzzy logic and genetic algorithms. Adaptive Neuro-Fuzzy Inference Systems, Architecture, Hybrid Learning Algorithm, Learning Methods that Cross-fertilize ANFIS and RBFN, Coactive Neuro Fuzzy Modeling, Neuro Fuzzy Spectrum.

UNIT 4:

OPTIMIZATION: Derivative-based Optimization – Descent Methods – The Method of Steepest Descent – Classical Newton's Method – Step Size Determination – Derivative-free Optimization – Simulated Annealing – Random Search – Downhill Simplex Search. Applications of computational intelligence: Printed Character Recognition, Soft Computing for Color Recipe Prediction.

Text Books:
1. S. Rajasekaran and G.A.Vijaylakshmi Pai.. Neural Networks Fuzzy Logic, and Genetic Algorithms, Prentice Hall of India.

Reference Books:
1. J.S.R.Jang, C.T.Sun and E.Mizutani, "Neuro-Fuzzy and Soft Computing", PHI, 2004, Pearson Education 2004.
2. K.H.Lee.. First Course on Fuzzy Theory and Applications, Springer-Verlag.
3. J. Yen and R. Langari.. Fuzzy Logic, Intelligence, Control and Information, Pearson Education.
1. Davis E.Goldberg, "Genetic Algorithms: Search, Optimization and Machine Learning", Addison Wesley, N.Y., 1989.

Note:
1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 454B DIGITAL IMAGE PROCESSING

B. Tech. Semester – VIII (Computer Science and Engg.) Elective-III

L	**T**	**P**	**Credits**		**Class Work**	:	**25 Marks**
4	--	--	4		**Examination**	:	**75Marks**
					Total	:	**100 Marks**
					Duration of Examination	:	**3 Hours**

Unit-1:
Digital Image Processing concepts and Image enhancement: Components of Digital Image Processing System, Image sensing and acquisition, Image sampling, quantization and representation, Basic relationship between pixels.
Image Enhancement in the Spatial Domain & Frequency domain: Background, Basic gray level transformation, Histogram processing, Basics of spatial filtering, Smoothing and Sharpening Spatial filters, Introduction to Fourier Transform and the Frequency Domain, Discrete Fourier Transform. Smoothing and Sharpening Frequency-Domain filters.

Unit-2:
Image Restoration: Image Degradation/Restoration Process, Noise models, Restoration in presence of noise, Inverse Filtering, Minimum Mean Square Filtering, Geometric mean filter, Geometric transformations.
Color Fundamentals, Color models, Basis of full color image processing, Color transformations.

Unit-3:
Image Compression: Fundamentals, Image compression models, Error free compression, Lossy compression.
Detection of Discontinuities, Edge linking and boundary detection, Thresholding, Region oriented segmentation.

Unit-4:
Representation, Description and Recognition: Representation-chain codes, polygonal approximation and skeletons, Boundary descriptors-simple descriptors, shape numbers, Regional descriptors- simple, topological descriptors, Pattern and Pattern classes-Recognition based on matching techniques.

Text Book:

1.   Digital Image Processing by Rafael C.Gonzalez& Richard E. Woods –2002, Pearson Education

Reference Book:

1.   Digital Image Processing by A.K. Jain, 1995,-PHI

Note:

1.   In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 456 B WIRELESS COMMUNICATION
B. Tech. Semester – VIII (Computer Science and Engg.) Elective-III

L	T	P	Credits		
4	--	--	4	Class Work	: 25 Marks
				Examination	: 75Marks
				Total	: 100 Marks
				Duration of Examination	: 3 Hours

UNIT 1:

INTRODUCTION TO WIRELESS COMMUNICATION SYSTEMS: Evolution of mobile radio communications, examples of wireless comm. systems, paging systems, Cordless telephone systems, comparison of various wireless systems.

MODERN WIRELESS COMMUNICATION SYSTEMS: Second generation cellular networks, third generation wireless networks, wireless in local loop, wireless local area networks, Blue tooth and Personal Area networks.

UNIT 2:

INTRODUCTION TO CELLULAR MOBILE SYSTEMS: Spectrum Allocation, basic Cellular Systems, performance Criteria, Operation of cellular systems, analog cellular systems, digital Cellular Systems.

CELLULAR SYSTEM DESIGN FUNDAMENTALS: Frequency Reuse, channel assignment strategies, handoff Strategies, Interference and system capacity, tracking and trade off service, improving coverage and capacity.

UNIT 3:

MULTIPLE ACCESS TECHNIQUES FOR WIRELESS COMMUNICATION: Introduction to Multiple Access, FDMA, TDMA, Spread Spectrum multiple Access, space division multiple access, packet ratio, capacity of a cellular systems.

UNIT 4:

WIRELESS NETWORKING: Difference between wireless and fixed telephone networks, development of wireless networks, fixed network transmission hierarchy, traffic routing in wireless networks, wireless data services, common channel signaling, ISDN (Integrated Services digital Networks), advanced intelligent network.

INTELLIGENT CELL CONCEPT AND APPLICATION: Intelligent cell concept, applications of intelligent micro-cell Systems, in-Building Communication, CDMA cellular Radio Networks.

TEXT BOOKS:
1. Wireless Communications: Theodore S. Rappaport; Pearsons.
2. Mobile Cellular Telecommunication: W.C.Y.Lee; McGraw Hill

REFERENCE BOOK:
1. Mobile Communications: Jochen Schiller; Pearson

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 458B NATURAL LANGUAGE COMPUTING
B. Tech. Semester – VIII (Computer Science and Engg.) Elective-III

L	T	P	Credits		
4	--	--	4		

Class Work	:	25 Marks
Examination	:	75Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

Unit-1:

Components of natural language processing: Linguistic Essentials: lexicography, parts of speech and morphology, syntax, semantics, pragmatics: word level representation of natural languages prosody & natural languages.

Unit-2:

Grammar formalisms and treebanks: chomsky hierarchy, Left-Associative grammars, ambiguous grammars, resolution of ambiguities, Efficient parsing for context-free grammars (CFGs), Statistical parsing and probabilistic CFGs (PCFGs), Lexicalized PCFGs.
Computation linguistics: recognition and parsing of natural language structures: ATN & RTN,General techniques of parsing: CKY, Earley & Tomitas algorithm.

Unit-3:

Semantics-knowledge representation semantic networks logic and inference pragmatics, graph models and optimization, prolog for natural language semantic.

Unit-4:

Application of NLP: intelligent work processors: Machine translation and learning, user interfaces, Man-Machine interfaces, natural language querying, tutoring and authoring systems, speech recognition, commercial use of NLP, Natural Language Generation.
Text Book:

1. "Natural Language Understanding" James Allen ,Benjamin-1995, cummings Pub. Comp. Ltd.,
Reference Books

1 "Speech And Language Processing: An Introduction to Natural Language Processing " Dan Jurafsky, James H. Martin, Prentice Hall, 2009.
2 "Foundations of Statistical Natural Language Processing" Christopher D. Manning, Hinrich Schütze, MIT press 1999.
3 Radford, Andrew et. al., Linguistics, An Introduction, Cambridge University Press, 1999.

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 460B GREEN COMPUTING
B. Tech. Semester – VIII (Computer Science and Engg.) Elective-IV

L	T	P	Credits			
4	--	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Unit-I

Definition of the term, Origins, Fundamentals, Regulations and industry initiatives- Government, Industry. Approaches to green computing- Middleware Support, Compiler Optimization, Product longevity.

Unit-II

Algorithmic efficiency, High performance computing, Sustainable computing, Resource allocation, Virtualization, Server Consolidation.

Unit III

Terminal servers, Power management, Operating system support, Power supply, Storage, Video card, Display, Tools for monitoring.

Unit IV

Green mobile, optimizing for minimizing battery consumption, Web, Temporal and Spatial Data Mining Materials recycling, Telecommuting, metrics for green computing.

Text Book:

1.   Green Computing and Green IT Best Practices on Regulations and Industry Initiatives, Virtualization, Power Management, Materials Recycling and Telecommuting by Jason Harris, Emereo Publishing

Reference Books:

1. Green Data Center: The steps for the journey by A. Galea, M. Schafer, M. Ebbers, IBM Press
2. The Greening of IT: How companies can make a difference for the environment by John Lamb, IBM Press
3. Green Computing: Large-Scale Energy Efficiency by Wu-chun Feng, Virginia Polytechnic Institute and State University, Blacksburg, USA (Eds.), CRC Press
4. Green Computing with Emerging Memory: Low-Power Computation for Social Innovation by Kawahara, Takayuki; Mizuno, Hiroyuki (Eds.), Springer Press
5. Sustainable ICTs and Management Systems for Green Computing by Wen-Chen Hu (University of North Dakota, USA) and Naima Kaabouch (University of North Dakota, USA), IGI Global Press
6. Green IT for Sustainable Business Practice: A Foundation Guide by Mark O'Neill, British Informatics Society Limited.

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 462B HIGH PERFORMANCE COMPUTING
B. Tech. Semester – VIII (Computer Science and Engg.) Elective-IV

L	T	P	Credits			
4	--	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Unit-1:
Parallel Computer Models: The state of computing, Flynn's classification of various computer architectures, system attributes to performance, multiprocessors (shared memory and distributed memory) multicomputers, multivector and SIMD computers.
 Programs and Network Properties: Parallelism: Conditions of parallelism, data dependence, resource dependence and control dependence, hardware and software parallelism, program partitioning and scheduling
Program flow mechanisms: control flow, data flow and demand driven.
System Interconnect Architectures: Network properties and routing, static interconnection networks and dynamic interconnection networks.

Unit-2:
Processors and Memory Hierarchy: Advanced processor technology: CISC, RISC, Superscalar, VLIW, Vector, and symbolic processors.
Memory hierarchy technology: memory hierarchy, inclusion, coherence and locality, write policies.
Virtual memory organization, mapping and management techniques (TLB, paging and segmentation), memory replacement policies

Unit-3:
Cache and Shared Memory: Cache memory organization: Direct, fully associative, set associative and sector caches, cache performance issues.
Shared memory organization: Interleaved memory organization.
 Instruction Pipelining processing: Principals of pipelining, linear Pipeline Processors (synchronous and asynchronous), Nonlinear Pipeline processors
Instruction Pipeline Design: pipelined instruction processing, prefetch buffers,Internal data forwarding, hazard avoidance, branch handling techniques, Arithmetic Pipeline Design

Unit-4:
Parallel and Scalable Architecture: Multiprocessors System Interconnects, Cache Coherence and Synchronization Mechanisms, Vector Processing Principles, Multivector Multiprocessors and Data Flow Architecture.

Tex Book:
1.   Kai Hwang "Advanced Computer Architecture", McGraw Hill.

Reference Books:
1.   J.P.Hayes "Computer Architecture and Organization", McGraw Hill.
2.   Harvey G. Cragon, "Memory Systems and Pipelined Processors", Narosa Publication.
3.   V. Rajaranam & C.S.R. Murthy, "Parallel Computers", PHI.
4.   R. K. Ghose, Rajan Moona & Phalguni Gupta, "Foundation of Parallel Processing", Narosa Publications.
5.   Kai Hwang and Zu, "Scalable Parallel Computers Architecture", McGraw Hill.

6. Stalling W., "Computer Organization & Architecture", PHI.

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 464B SOFTWARE STANDARDS AND QUALITY
B. Tech. Semester – VIII (Computer Science and Engg.) Elective-IV

L	T	P	Credits		
4	--	--	4		

Class Work	:	25 Marks
Examination	:	75Marks
Total	:	100 Marks
Duration of Examination	:	3 Hours

Unit-I

Concepts and Overview: Concepts of software quality, quality attributes, software quality control and software quality assurance, evolution of SQA, major SQA activities, major SQA issues, zero defect software.

Software Quality Assurance: The philosophy of assurance, the meaning of quality, the relationship of assurance to the software life cycle, SQA techniques. Tailoring the Software Quality Assurance Program: Management review process, technical review process, walkthrough, software inspection process, configuration audits, document verification.

Unit-II

Evaluation: Software requirements, preliminary design, detailed design, coding and unit test, integration and testing, system testing, types of evaluations.

Error Reporting: Identification of defect, analysis of defect, correction of defect, implementation of correction, regression testing; Categorization of defect, relationship of development phases.

Unit-III

Trend Analysis: Error quantity, error frequency, program unit complexity, compilation frequency. **Corrective action as to Cause**: Identifying the requirement for corrective action, determining the action to be taken, implementing the corrective action, documenting the corrective action, periodic review of actions taken.

Unit-IV

CASE tools and their effect on Software Quality, Software Quality Metrics, Standards, certification and assessment, Quality management standards, Quality standards with emphasis on ISO approach, Capability Maturity Models-CMM and CMMI, TQM Models, Bootstrap methodology, The SPICE project, ISO/IEC 15504, Six Sigma Concept for Software Quality.

Text Books

1. Mordechai Ben-Manachem, Garry S. Marliss, Software Quality: Producing Practical, Consistent Software, International Thomson Computer Press (1991).
2. Daniel Galin, Software Quality Assurance from Theory to Implementation, Pearson Education (2003).
3. Robert Dunn, Software Quality: Concepts and Plans, Prentice Hall (1990).

Reference Books

1. Watts Humphery, A discipline for Software Engineering, Addison Wesley, Massachusetts (1995)

2. Kamna Malik, Praveen Choudhary, Software Quality - A Practitioner's Approach, Tata McGraw Hill (1999).

Note:

1. In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 466 B EMBEDDED SYSTEMS
B. Tech. Semester – VIII (Computer Science and Engg.) Elective-IV

L	T	P	Credits		Class Work	:	25 Marks
4	--	--	4		Examination	:	75Marks
					Total	:	100 Marks
					Duration of Examination	:	3 Hours

Unit 1:

INTRODUCTION OF EMBEDDED SYSTEMS: Definition, ingredients of embedded system, requirements & challenges of embedded system design, different types of microcontrollers: Embedded microcontrollers, external memory microcontrollers etc., processor architectures: Harvard V/S Princeton, CISC V/S RISC, microcontrollers memory types, microcontrollers features: clocking, i/o pins, interrupts, timers, and peripherals.

SOFTWARE FOR EMBEDDED SYSTEM DESIGN: Development tools/ environments, Assembly language programming style, Interpreters, High level languages, Intel hex format object files, Debugging.

Unit 2:

8051 MICROCONTROLLER: pin diagram explanation, internal diagram 8051, Instruction Set, Addressing mode, data transfer instruction, logical, arithmetic instruction, bit instruction, branching instruction.

TIMERS, SERIAL INTERFACE & INTERRUPTS OF 8051 MICROCONTROLLER: Timer: Control Word, mode of timers, simple programming, generation of square wave, Serial interface: Introduction, Control Word, mode of serial interface, simple programming, Interrupts:Introduction, Control word Simple Programming, generation of waveforms using interrupt, serial interface using interrupt.

Unit 3:

PIC MICROCONTROLLER: Introduction to PIC microcontrollers, features of PIC family microcontrollers, architecture and pipelining, program memory considerations, addressing modes, CPU registers, Instruction set, and simple operations.

FEATURES OF PIC MICROCONTROLLER: Timer: Control Word, mode of timers, simple programming, generation of square wave, Watch-dog timer, Serial interface: Introduction, Control Word, mode of serial interface, simple programming, Interrupts:Introduction, Control word Simple Programming, generation of waveforms using interrupt, serial interface using interrupt.

Unit 4:

APPLICATIONS BASED ON 8051 MICROCONTROLLER: Interfacing of memory, intelligent LCD, 8255, ADC, DAC, LED display, Memory Card, Bio-metric system.

APPLICATION BASED ON PIC MICROCONTROLLERS: Interfacing of Graphical Display, Memory Card, Bio-metric system Music box, Applications like Mouse wheel turning, PWM motor control, ultra sonic distance measuring, Temperature Sensor, Pressure Sensor, Magnetic Field Sensor.

BOOKS:
1.   8051, Scott Mackenizie, PHI, Englewood Cliffs, New Jersey.
2.   Programnming& Customizing the 8051 Microcontroller, MykePredko, Tata McGraw-Hill Pub. Co. Ltd., New Delhi.

3. 8051 Architecture Programming & Applications, K. J. Ayala, Penram International Publishers, India.
4. Programnming& Customizing the PIC Microcontroller, MykePredko, Tata McGraw-Hill Pub. Co. Ltd., New Delhi.

Note:

1.   In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

CSE 422B DATABASE ADMINISTRATION LAB
B. Tech. Semester – VIII (Computer Science and Engg.)

L	T	P	Credits			
	2	1		Class Work	:	20 Marks
				Examination	:	30 Marks
				Total	:	50 Marks
				Duration of Examination	:	3 Hours

1. To Study architecture of the oracle DBMS.
2. To study the installation of the Oracle and MySQL DBMS.(standalone mode and Client Server Mode) in windows environment
3. To study the installation of the Oracle and MySQL DBMS.(standalone mode and Client Server Mode) in windows environment

4. To study different types of users and create users in Oracle (using command prompt as well as GUI)
5. Study of various types of privileges to the users in Oracle.
6. Granting and Revoking of privileges to users.
7. To study Use of Import/Export utilities in Oracle
8. Study of Commit/Rollback of Transactions in Oracle
9. Study of concurrency control mechanism of Oracle.
10. Study of Recovery technique used by Oracle.

Note: at least 5 more exercise related to the contents of the subject be given to students

CSE 412B SEMINAR
B. Tech. Semester – VIII (Computer Science and Engg.)

L	T	P	Credits	Class Work	:	50 Marks
--	--	2	2			

The objectives of the course remains

- To learn how to carry out literature search
- To learn the art of technical report writing
- To learn the art of verbal communication with the help of modern presentation techniques

A student will select a topic in emerging areas of Engineering & Technology and will carry out   the task under the observation of a teacher assigned by the department.

He/ She will give a seminar talk on the same before a committee constituted by the chairperson of the department. The committee should comprise of three faculty members from different specializations. The teacher associated in the committee will be assigned 2 hours teaching load per week.

However, guiding students' seminar will not be considered towards teaching load.

The format of the cover page and the organization of the body of the seminar report for all the undergraduate programs will be finalized and circulated by the Dean, Faculty of Engineering and Technology.

CSE 414B PROJECT
B. Tech. Semester – VIII (Computer Science and Engg.)

L	T	P	Credits		Class Work	:	75 Marks
--	--	8	8		Examination	:	125Marks
					Total	:	200 Marks
					Duration of Examination	:	3 Hours

The project started in VII Semester will be completed in VIII Semester and will be evaluated through a panel of examiners consisting of the following:

Chairperson of Department	: Chairperson
Project coordinator	: Member
External expert	: To be appointed by the University

The student will be required to submit two copies of his/her project report to the department for record (one copy each for the department and participating teacher).

Project coordinator will be assigned the project load of, maximum of 2 hrs. per week including his own guiding load of one hr. However, the guiding teacher will be assigned maximum of one period of teaching load irrespective of number of students/groups under him/her.

The format of the cover page and the organization of the body of the report for all the B. Tech. will be finalized and circulated by the Dean, Faculty of Engineering and Technology.

GPCSE 402B   GENERAL FITNESS FOR THE PROFESSION

B. Tech. Semester – VIII (Computer Science and Engg.)

L	T	P	Credits		Examination	:	100 Marks
1	--	--	4		Total	:	100 Marks

The purpose of this course is to inculcate a sense of professionalism in a student along with personality development in terms of quality such as receiving, responding, temperament, attitude and outlook. The student efforts will be evaluated on the basis of his/ her performance / achievements in different walks of life.

The evaluation will be made by the committee of examiners constituted as under:

1. Dean, Faculty of Engineering & Technology/ Director

   /Principal of affiliated college   :   Chairperson

2. Chairperson of the department   :   Member

3. External expert   :   Appointed by the university

A.   The student will present a written report before the committee with following in view:

The student will present before the committee his/her achievements during the current academic session in the form of a written report highlighting followings:

I.   Academic Performance   --------

II.   Extra Curricular Activities / Community Service, Hostel Activities   **(12 Marks)**

III   Technical Activities / Industrial, Educational tour   **(12 Marks)**

IV   Sports/games   **(16Marks)**

 Note: Report submitted by the students should be typed on both sides of the paper.

B.   A student will support his/her achievement and verbal & communicative skill through presentation before the examiners.   **(40   Marks)**

C.   Faculty Counselor Assignment   **(20   Marks)**

It will be the duty of the student to get evaluated by respective faculty counselor and to submit the counselor assessment marks in a sealed envelope to the committee.

A counselor will assess the student which reflects his/her learning graph including followings:

1. Discipline throughout the year

2. Sincerity towards study

3. How quickly the student assimilates professional value system etc.

4. Moral values & Ethics- Syllabus (one lecture/week on the topics of Human values/Ethics is to be delivered)