GITAM UNIVERSITY

(Declared as Deemed to be University U/S 3 of UGC Act, 1956)

REGULATIONS & SYLLABUS
OF

B.Tech. (Information Technology)

(w.e.f 2008 -09 admitted batch)

Gandhi Nagar Campus, Rushikonda
VISAKHAPATNAM – 530 045
Website: www.gitam.edu

REGULATIONS

(w.e.f. 2008-09 admitted batch)

1.0 ADMISSIONS

1.1 Admissions into B.Tech (Information Technology) programme of GITAM University are governed by GITAM University admission regulations.

2.0 ELIGIBILTY CRITERIA

2.1 A pass in 10+2 or equivalent examination approved by GITAM University with Physics, Chemistry and Mathematics.

2.2 Admissions into B.Tech will be based on an All India Entrance Test (GAT) conducted by GITAM University and the rule of reservation, wherever applicable.

3.0 STRUCTURE OF THE B.Tech. PROGRAMME

3.1 The Programme of instruction consists of:

(i) A general core programme comprising Basic Sciences, Basic Engineering, Humanities & Social Sciences and Mathematics.
(ii) An engineering core programme imparting to the student the fundamentals of engineering in the branch concerned.
(iii) An elective programme enabling the students to take up a group of departmental / interdepartmental courses of interest to him/her.

In addition, a student has to

(i) carry out a technical project approved by the department and submit a report.
(ii) undergo summer training in an industry for a period prescribed by the department and submit a report.

3.2 Each academic year consists of two semesters. Every branch of the B.Tech programme has a curriculum and course content (syllabi) for the courses recommended by the Board of Studies concerned and approved by Academic Council.

4.0 CREDIT BASED SYSTEM

4.1 Each course is assigned certain number of credits which will depend upon the number of contact hours (lectures & tutorials) per week.

4.2 In general, credits are assigned to the courses based on the following contact hours per week per semester.

One credit for each Lecture / Tutorial hour.
One credit for two hours of Practicals.
Two credits for three (or more) hours of Practicals.

4.3 The curriculum of B.Tech programme is designed to have a total of 190 to 200 credits for the award of B.Tech degree.

4.4 Every course of the B Tech programme will be placed in one of the nine groups of courses with minimum credits as listed in the Table 1.

Table 1: Group of Courses

S.No,	Group of Courses	Code	Minimum credits
1	Humanities & Social Sciences	HS	12
2	Basic Sciences	BS	17
3	Mathematics	MT	10
4	Basic Engineering	BE	26
5	Core Engineering	CE	68
6	Departmental Elective	DE	9
7	Inter Departmental Elective	IE	8
8	Project Work	PW	8
9	Industrial Training	IT	2
	Total		160

5.0 MEDIUM OF INSTRUCTION

The medium of instruction (including examinations and project reports) shall be English.

6.0 REGISTRATION

Every student has to register himself/herself for each semester individually at the time specified by the Institute / University.

7.0 CONTINUOUS ASSESSMENT AND EXAMINATIONS

7.1 The assessment of the student's performance in each course will be based on continuous internal evaluation and semester-end examination. The marks for each of the component of assessment are fixed as shown in the Table 2.

Table 2: Assessment Procedure

S.No.	Component of assessment	Marks allotted	Type of Assessment	Scheme of Examination
1	Theory	40	Continuous evaluation	(i) Two mid semester examinations shall be conducted for 10 marks each. (ii) Two quizzes shall be conducted for 5 marks each. (iii) 5 marks are allotted for assignments. (iv) 5 marks are allotted for attendance
		60	Semester-end examination	The semester-end examination in theory courses will be for a maximum of 60 marks.
	Total	100		

2	Practicals	100	Continuous evaluation	(i) 40 marks are allotted for record work and regular performance of the student in the lab. (ii) One examination for a maximum of 20 marks shall be conducted by the teacher handling the lab course at the middle of the semester (iii) One examination for a maximum of 40 marks shall be conducted at the end of the semester (as scheduled by the Head of the Department concerned).
3	Project work (VII & VIII semester)	100	Project evaluation	(i) 50 marks are allotted for continuous evaluation of the project work throughout the semester by the guide. (ii) 50 marks are allotted for the presentation of the project work & viva-voce at the end of the semester.*
4	Industrial Training (VII semester)	100	Industrial training evaluation	(i) 50 marks are allotted for report submission and seminar presentations after completion of the training. (ii) 50 marks are allotted for the viva-voce at the end of the semester.*
5	Comprehensive Viva (VIII semester)	100	Viva-voce	100 marks are allotted for comprehensive viva to be conducted at the end of programme.*

* Head of the Department concerned shall appoint two examiners for conduct of the examination.

8.0 RETOTALLING, REVALUATION & REAPPEARANCE

8.1 Retotalling of the theory answer script of the end-semester examination is permitted on a request made by the student by paying the prescribed fee within ten days of the announcement of the result.

8.2 Revaluation of the theory answer script of the end-semester examination is also permitted on a request made by the student by paying the prescribed fee within fifteen days of the announcement of the result.

8.3 A Student who has secured ‘F’ Grade in any theory course / Practicals of any semester shall have to reappear for the semester end examination of that course / Practicals along with his / her juniors.

8.4 A student who has secured 'F' Grade in Project work / Industrial Training shall have to improve his report and reappear for viva – voce Examination of project work at the time of special examination to be conducted in the summer vacation after the last academic year.

9.0 SPECIAL EXAMINATION

9.1 A student who has completed the stipulated period of study for the degree programme concerned and still having failure grade ('F') in not more than 5 courses (Theory / Practicals), may be permitted to appear for the special examination, which shall be conducted in the summer vacation at the end of the last academic year.

9.2 A student having 'F' Grade in more than 5 courses (Theory/practicals) shall not be permitted to appear for the special examination.

10.0 ATTENDANCE REQUIREMENTS

10.1 A student whose attendance is less than 75% in all the courses put together in any semester will not be permitted to attend the end - semester examination and he/she will not be allowed to register for subsequent semester of study. He /She has to repeat the semester along with his / her juniors.

10.2 However, the Vice Chancellor on the recommendation of the Principal / Director of the University College / Institute may condone the shortage of attendance to the students whose attendance is between 66% and 74% on genuine medical grounds and on payment of prescribed fee.

11.0 GRADING SYSTEM

11.1 Based on the student performance during a given semester, a final letter grade will be awarded at the end of the semester in each course. The letter grades and the corresponding grade points are as given in Table 3.

Table 3: Grades & Grade Points

Grade	Grade points	Absolute Marks
O	10	90 and above
A+	9	80 – 89
A	8	70 – 79
B+	7	60 – 69
B	6	50 – 59
C	5	40 – 49
F	Failed, 0	Less than 40

11.2 A student who earns a minimum of 5 grade points (C grade) in a course is declared to have successfully completed the course, and is deemed to have earned the credits assigned to that course. However, a minimum of 24 marks is to be secured at the semester end examination of theory courses in order to pass in the theory course.

12.0 GRADE POINT AVERAGE

12.1 A Grade Point Average (GPA) for the semester will be calculated according to the formula:

$$GPA = \frac{\Sigma [C \times G]}{\Sigma C}$$

Where

C = number of credits for the course,
G = grade points obtained by the student in the course.

12.2 Semester Grade Point Average (SGPA) is awarded to those candidates who pass in all the courses of the semester.

12.3 To arrive at Cumulative Grade Point Average (CGPA), a similar formula is used considering the student's performance in all the courses taken in all the semesters completed up to the particular point of time.

12.4 The requirement of CGPA for a student to be declared to have passed on successful completion of the B.Tech programme and for the declaration of the class is as shown in Table 4.

Table 4: CGPA required for award of Degree

Distinction	**≥ 8.0***
First Class	**≥ 7.0**
Second Class	**≥ 6.0**
Pass	**≥ 5.0**

* In addition to the required CGPA of 8.0, the student must have necessarily passed all the courses of every semester in **first attempt**.

13.0 ELIGIBILITY FOR AWARD OF THE B.Tech. DEGREE

13.1 **Duration of the programme**:
A student is ordinarily expected to complete the B Tech. programme in eight semesters of four years. However a student may complete the programme in not more than six years including study period.

13.2 However the above regulation may be relaxed by the Vice Chancellor in individual cases for cogent and sufficient reasons.

13.3 A student shall be eligible for award of the B.Tech degree if he / she fulfils all the following conditions.

a) Registered and successfully completed all the courses and projects.
b) Successfully acquired the minimum required credits as specified in the curriculum corresponding to the branch of his/her study within the stipulated time.
c) Has no dues to the Institute, hostels, Libraries, NCC / NSS etc, and
d) No disciplinary action is pending against him / her.

13.4 The degree shall be awarded after approval by the Academic Council.

RULES

1. With regard to the conduct of the end-semester examination in any of the practical courses of the programme, the Head of the Department concerned shall appoint one examiner from the department not connected with the conduct of regular laboratory work, in addition to the teacher who handled the laboratory work during the semester.

2. In respect of all theory examinations, the paper setting shall be done by an external paper setter having a minimum of three years of teaching experience. The panel of paper setters for each course is to be prepared by the Board of Studies of the department concerned and approved by the Academic Council. The paper setters are to be appointed by the Vice Chancellor on the basis of recommendation of Director of Evaluation / Controller of Examinations.

3. The theory papers of end-semester examination will be evaluated by internal/external examiner

4. Panel of examiners of evaluation for each course is to be prepared by the Board of Studies of the department concerned and approved by the Academic Council.
5. The examiner for evaluation should possess post graduate qualification and a minimum of three years teaching experience.

6. The appointment of examiners for evaluation of theory papers will be done by the Vice Chancellor on the basis of recommendation of Director of Evaluation / Controller of Examinations from a panel of examiners approved by the Academic Council.

7. The attendance marks (maximum 5) shall be allotted as follows :

% of attendance	Marks
76% to 80%	1 Mark
81% to 85%	2 Marks
86% to 90%	3 Marks
91% to 95%	4 Marks
96% to 100%	5 Marks

SYLLABUS

B.Tech. (IT)

Programme Code: EURIT 200701

First Semester

Sl. No.	Course Code	Name of the Course	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
				Hours per week		Duration in Hrs.	Maximum Marks		
				L/T	D/P		Sem. End Exam	Con. Eval.	
1	EUREG 101	English Language skills	HS	3	---	3	60	40	3
2	EURMT 102	Engg. Mathematics - I	MT	4	---	3	60	40	4
3	EURPH 103	Engg. Physics - I	BS	4	---	3	60	40	4
4	EURCH 104	Engg. Chemistry – I	BS	4	---	3	60	40	4
5	EURCS 105	Programming with C	BE	3	---	3	60	40	3
DRAWING / PRACTICALS :									
	EURCS 113	Programming with C Lab	BE	---	3	3	--	100	2
	EURCH 114/214	Engg. Chemistry Lab	BS	---	3	3	--	100	2
	EUREE 118/218	Electrical & Electronic Workshop Lab	BE	---	3	3	--	100	2
		Total:		**18**	**09**	**---**	**420**	**380**	**24**

Second Semseter

Sl. No.	Course Code	Name of the Course	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
				Hours per week		Duration in Hrs.	Maximum Marks		
				L/T	D/P		Sem. End Exam	Con. Eval.	
1	EUREG 201	English writing skills	HS	3	---	3	60	40	3
2	EURMT 202	Engg. Mathematics - II	MT	3	---	3	60	40	3
3	EURMT 203	Engg. Mathematics - III	MT	3	---	3	60	40	3
4	EURPH 204	Engg. Physics - II	BS	3	---	3	60	40	3
5	EURCH 205	Engg. Chemistry – II	BS	3	---	3	60	40	3
6	EURCS 206	Object Oriented programming with C+ +	BE	3	---	3	60	40	3
DRAWING / PRACTICALS :									
	EURPH 212/112	Engg. Physics Lab	BS	---	3	3	--	100	2
	EURCS 213	Objected oriented programming with C++	BE	---	3	3	--	100	2
	EURME 215/115	Engineering Graphics Lab	BE	---	4	3	--	100	2
				18	**10**	**---**	**360**	**540**	**24**

B.Tech.(IT)
Third Semester

Course Code	Name of the Course	Category	Credits	Marks			Hours per week			
				Semester End Exam	Con. Eval.	Total	L	T	P	Total
EURIT 301	Basic Electronics	BE	3	60	40	100	3	-	-	3
EURIT 302	Environmental Studies	HS	4	60	40	100	3	1	-	4
EURIT 303	Discrete Mathematical Structures	CE	3	60	40	100	3	-	-	3
EURIT 304	Data Structures	CE	4	60	40	100	3	1	-	4
EURIT 305	Probability & Statistics	MT	3	60	40	100	3	-	-	3
EURIT 306	Fundamentals Of Digital Logic	CE	3	60	40	100	3	-	-	3
EURIT 311	Data Structures Lab	CE	2	-	100	100	-	-	3	3
EURIT 312	Electronics Lab	BE	2	-	100	100	-	-	3	3
EURIT 313	English Communications Skills Lab	HS	2	-	100	100			3	3
Total			26	360	540	900				

Fourth Semester

Course Code	Name of the Course	Category	Credits	Marks			Hours per week			
				Semester End Exam	Con. Eval.	Total	L	T	P	Total
EURIT401	Computer Organization	CE	3	60	40	100	3	-	-	3
EURIT402	Java Programming	BE	2	60	40	100	2	-	-	2
EURIT403	Microprocessors	CE	3	60	40	100	3	-	-	3
EURIT404	Operating Systems	CE	4	60	40	100	3	1	-	4
EURIT405	Principles of programming languages	CE	3	60	40	100	3	-	-	3
EURIT406	Electrical Circuits	BE	3	60	40	100	3	-	-	3
EURIT411	Microprocessors Lab	CE	2	-	100	100	-	-	3	3
EURIT412	UNIX & OS LAB	CE	2	-	100	100	-	-	3	3
EURIT413	Java Programming Lab	CE	2	-	100	100	-	-	3	3
EURIT414	Industrial tour	IT	Non Credit Audit Course							
Total			24	360	540	900				

B.Tech. (IT)
Fifth Semester

Course Code	Name of the Course	Category	Credits	Marks			Hours per week			
				Semester End Exam	Con. Eval.	Total	L	T	P	Total
EURIT 501	Data Communications	CE	3	60	40	100	3	-	-	3
EURIT 502	Computer Vision & Graphics	CE	3	60	40	100	3	-	-	3
EURIT 503	Systems programming	CE	3	60	40	100	3	-	-	3
EURIT 504	Data Base Management Systems	CE	4	60	40	100	3	1	-	4
EURIT 505	Formal Languages & Automata Theory	CE	4	60	40	100	3	1	-	4
EURIT 506	Computer Oriented Optimization techniques	BE	3	60	40	100	3	-	-	3
EURIT 511	Computer Graphics Lab	CE	2	-	100	100	-	-	3	3
EURIT 512	DBMS Laboratory	CE	2	-	100	100	-	-	3	3
Total			24	360	440	800				

B.Tech.(IT)
Sixth Semester

Course Code	Name of the Course	Category	Credits	Marks			Hours per week			
				Semester End Exam	Con. Eval.	Total	L	T	P	Total
EURIT 601	Computer Networks	CE	3	60	40	100	3	-	-	3
EURIT 602	Web Technologies	CE	3	60	40	100	3	-	-	3
EURIT 603	Software Engineering	CE	4	60	40	100	3	1	-	4
EURIT 604	Compiler Design	CE	4	60	40	100	3	1	-	4
EURIT 605	Design and Analysis of algorithms	CE	4	60	40	100	3	1	-	4
EURIT 606	Artificial Intelligence	CE	4	60	40	100	3	1	-	4
EURIT 611	Web Technologies Lab	CE	2	-	100	100	-	-	3	3
EURIT 612	Language Processors Lab	CE	2	-	100	100	-	-	3	3
EURIT 613	Personality Development	HS	Non-credit Audit Course							
Total			26	360	440	800				

Seventh Semester

Course Code	Name of the Course	Category	*Credits*	Marks			Hours per week			
				Semester End Exam	**Con. Eval.**	**Total**	**L**	**T**	**P**	**Total**
EURIT 701	Object Oriented Analysis & Design	CE	3	60	40	100	3	-	-	3
EURIT 702	Data Warehousing & Data Mining	CE	3	60	40	100	3	-	-	3
EURIT 703	Network Security	CE	2	60	40	100	2	-	-	2
EURIT 721-725	Departmental Elective I	DE	4	60	40	100	3	1	-	4
EURIT 731-736	Departmental Elective II	DE	4	60	40	100	3	1	-	4
EURIT 711	Net Work programming Lab & Security lab	CE	2	-	100	100	-	-	3	3
EURIT 712	UML Lab	CE	2	-	100	100	-	-	3	3
EURIT 713	Project phase-I	PW	3	50	50	100	-	-	5	5
EURIT 714	Training	IT	2	-	100	100	-	-	-	-
Total			**25**	**350**	**550**	**900**				

B.Tech. (IT)
Eighth Semester

Course Code	Name of the Course	Category	Credits	Marks			Hours per week			
				Semester End Exam	Con. Eval	Total	L	T	P	Total
EURIT 801	Management Information Systems	HS	3	60	40	100	3	-	-	3
EURIT 854 – 8515	Interdepartmental Elective I	IE*	4	60	40	100	3	1	-	4
EURIT 864– 8616	Interdepartmental Elective II	IE*	4	60	40	100	3	1	-	4
EURIT 841 – 844	Departmental Elective III	DE	4	60	40	100	3	1	-	4
EURIT 811	Project phase-II	PW	5	50	50	100	-	-	10	10
EURIT 812	Comprehensive Viva	CE	2	100	-	100	-	-	-	-
Total			**22**	**390**	**270**	**600**				

B.Tech. (IT)
ELECTIVES

Department Elective-I	
Course Code	**Name of the Course**
EURIT 721	Multimedia Systems
EURIT 722	Advanced Databases
EURIT 723	Embedded Systems
EURIT 724	Bio-Informatics
EURIT 725	Ecommerce

Department Elective-II	
Course Code	**Name of the Course**
EURIT 731	Image Processing
EURIT 732	Real time systems
EURIT 733	Neural Networks
EURIT 734	Knowledge and Data Engineering
EURIT 735	Verilog HDL
EURIT 736	Soft Computing

Department Elective – III	
Course Code	**Name of the Course**
EURIT 841	Mobile Computing
EURIT 842	Distributed Operating Systems
EURIT 843	Object oriented software Engineering
EURIT 844	Software Project Management

Interdepartmental Elective-I	
EURIT 854	System Modeling & Simulation
EURIT 858	Bio-Medical Instrumentation
EURIT 859	Power Electronics
EURIT 8510	Project Planning & Management
EURIT 8512	Introduction to Micro Electromechanical Systems (MEMS)
EURIT 8513	Entrepreneurship
EURIT 8514	Public Administration
EURIT 8515	Fundamentals of Communication Engineering

Interdepartmental Elective-II	
EURIT 864	Industrial Electronics
EURIT 865	Computer Aided Design
EURIT 866	Robotics & Automation
EURIT 867	Mechantronics
EURIT 8611	Thermodynamics
EURIT 8612	Digital Signal Processing
EURIT 8613	Electronic Measurement & Instrumentation
EURIT 8614	Very Large Scale Integrated System Design (VLSI)
EURIT 8615	Fundamentals of Civil Engineering
EURIT 8616	Engineering Materials

B.Tech. (IT)

Details of category wise minimum credits as per AICTE norms and actual credits allocated are as follows:

S.No.	Category	Code	Allocated Credits	Minimum Credits as per AICTE
01.	Humanities & Social Sciences	HS	15	12
02.	Basic Sciences	BS	18	17
03.	Maths	MT	13	10
04.	Basic Engg.	BE	27	26
05.	Core Engg.	CE	92	68
06.	Departmental Electives	DE	12	09
07.	Inter-Departmental Elective	IE	08	08
08.	Project Work	PW	08	08
09.	Industrial Training	IT	02	02
Total			195	160

B.Tech. (IT) First Semester

EUREG 101: English Language Skills

Course Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EUREG 101	HS	3	---	3	60	40	3

The fundamental aim of this course is to help the student to become a confident and competent communicator in written and spoken English. The methodology in teaching and evaluation shall be oriented towards this end, rather than rote memorization.

Prerequisite: Acquaintance with basic High School Grammar and Composition.

I. A TEXT WITH COMMUNICATIVE APPROACH.

The aim of the text is to provide interesting new approach to learning English by providing stimulating and motivating material and a wide range of activities that are meaningful, natural, authentic, and useful in day-to-day life. : **"Creative English for Communication" by N. Krishnaswamy & T. Sri Raman – Macmillan India Ltd. –(2005 version)**
(Section – I Communicate - units 1-6 only)

Unit-I Textual Lessons 1 & 2 (8 Hours)
Synonyms & Antonyms, One word substitutes,
Words often confused, Phrasal Verbs

Unit-II Textual Lesson – 3 (8 Hours)
Foreign Phrases, Tenses, Concord

Unit-III Textual Lesson – 4 (8 Hours)
Error Analysis, Single Sentence Definition, Paragraph Writing,

Unit-IV Textual Lesson – 5 (8 Hours)
Essay Writing, Dialogue writing, Reading Comprehension

Unit-V Textual Lesson – 6 (8 Hours)
Note Making, Précis Writing

Text Prescribed: Part – I (Communicate - Units 1 to 6 only) of

- ***Creative English for Communication,* N. Krishna Swamy & T. Sriraman. Macmillan India Ltd (2005 version)**

Supplementary Reading :

Current English for Colleges, N. Krishna Swamy & T. Sri Raman. Macmillan.
Examine Your English, Margaret Maison. Macmillan.

Note : Figures in parentheses indicate number of approximate expected hours of instruction

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B.Tech. (IT) First Semester

EURMT 102: ENGINEERING MATHEMATICS – I

Course Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be Awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURMT 102	MT	4	---	3	60	40	4

The objective of the course is to impart knowledge in Basic concepts of Mathematics relevant to Engineering applications.

Unit - I

Linear Differential Equations of Higher order (12 hours)

Definition, Complete solution, Operator D, Rules for finding complementary function, Inverse operator, Rules for finding particular integral, Method of variation of parameters.

Unit-II

Equations reducible to Linear Differential Equations and Applications (08 hours)

Cauchy's and Legendre's linear equations, Simultaneous linear equations with onstantcoefficients and applications of linear differential equations to Oscillatory Electrical circuits L-C, LCR – Circuits, Electromechanical Analogy.

Unit –III

Multiple Integrals and its Applications : (08 hours)

Double integrals, Change of order of integration, Double integrals in Polar coordinates, Areas enclosed by plane curves, Triple integrals, Volume of solids, Change of variables, Area of a curved surface.

Unit –IV

Special Functions and its Applications: (08 hours)

Beta function, Gamma function, Relation between beta and gamma functions, Dirichlet integrals of type I and type II.

Unit-V

Infinite Series (12 hours)

Definitions of convergence, divergence and oscillation of a series, General properties of series, Series of positive terms, Comparison tests, Integral test, D' Alembert's Ratio test, Raabe's test, Cauchy's root test, Alternating series, Leibnitz's rule, Power series, Convergence of exponential, Logarithmic and binomial series (without proofs).

Text Prescribed :

Higher Engineering Mathematics, Dr.B.S Grewal. Khanna Publishers.

References :

Advanced Engineering Mathematics, Erwin Kreyszig. Wiley Eastern Pvt. Ltd.
Textbook of Engineering Mathematics, N.P.Bali. Laxmi Publications (P) Ltd.
Higher Engineering Mathematics, Dr.M.K.Venkata Raman. National Pub. Co.

Note: The figures in parentheses indicate approximate number of expected hours of instruction.

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B.Tech. (IT) First Semester

EURPH 103: ENGINEERING PHYSICS – I

Code No.	Category	Scheme of instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURPH 103	BS	4	---	3	60	40	4

The aim of the course is to impart knowledge in Basic Concepts of Physics relevant to Engineering applications.

Unit – I (9 hours)

Thermodynamics: Heat and Work - First Law of Thermodynamics and Applications-Reversible and Irreversible Processes - Carnot's Cycle and Efficiency - Second Law of Thermodynamics - Carnot's Theorem - Entropy - Entropy in Reversible and Irreversible Processes - Entropy and Second Law - Entropy and Disorder - Entropy and Probability - Third Law of Thermodynamics.

Unit – II (9 hours)

Ultrasonics: Introduction - Production of Ultrasonics by Magnetostriction and Piezo-electric Effects – Detection and Applications of Ultrasonics.

Electric Field: Calculation of E – Line of Charge, Ring of Charge, Dipole - Dipole in an Electric Field -Concept of Electric Flux – Gauss's Law , Gauss's Law and Coulomb's Law , Gauss's Law-Applications, Capacitance- Parallel Plate Capacitor- Dielectrics and Gauss Law- RC Circuit.

Unit – III (11hours)

Electromagnetism: Magnetic Field - Magnetic Force on Current – Torque on a Current Loop – Hall Effect – Ampere's Law. Magnetic Induction for a Solenoid and a Toroid - Force between two Parallel Conductors – Biot & Savart's Law – Magnetic Induction Near a Long Wire - Magnetic Induction for a Circular Loop. Faraday's Law of Induction – Lenz's Law – Inductance – Calculation of Inductance – Inductance for a Solenoid & Toroid - LR Circuit – Induced Magnetic Fields – Displacement Current – Maxwell's Equations.

Unit-IV (8 hours)

Dielectric Properties: Introduction - Fundamental Definitions - Local Field - Claussius- Mossotti Relation, Different Types of Electric Polarizations (electronic - ionic and dipolar polarizations) - Frequency and Temperature Effects on Polarization - Dielectric Loss - Dielectric Breakdown - Determination of Dielectric Constant - Properties and Different Types of Insulating Materials - Ferroelectric Materials, Spontaneous Polarization in $BaTiO_3$, Electrets.

Unit-V (8 hours)

Magnetic Properties: Introduction - Fundamental Definitions - Different Types of Magnetic Materials - Weiss Theory of Ferromagnetism - Domain Theory of Ferromagnetism – Hysteresis - Hard and Soft Magnetic Materials - Ferrites – Microwave Applications - Magnetic Bubbles.

Prescribed Books :

Physics part I & II, Robert Resnick and David Halliday. Wiley- Eastern Limited.
Solid State Physics, P.K. Palanisamy. Scitech Publications (India) Pvt. Ltd, Chennai.

Reference Books:

Engineering Physics, R.K.Gaur and S.L.Gupta. Dhanpat Rai & Sons, Delhi.
Solid State physics, S. O. Pillai. New Age International (P) Limited, New Delhi.
Materials Science, Dr. M. Arumugam. Anuradha Agencies, Kumbhakonam.
The Feynman Lectures on Physics. Addison-Wesley.

Note: The figures in parentheses indicate approximate number of expected hours of instruction.

B.Tech. (IT) First Semester
EURCH 104: ENGINEERING CHEMISTRY-I

Course Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURCH 104	BS	4	---	3	60	40	4

Unit –I

Water Technology - Sources And Purification Of Water: (8 hours)

Sources of Water – Impurities in Water- Hardness of Water – Temporary and Permanent Hardness-Units. Municipal Water treatment- Sedimentation – Coagulation–Filtration-Sterilisation - Desalination of Brackish Water - Reverse Osmosis and Electrodialysis.

Unit – II

Water Technology-Softening Methods And Boiler Troubles: (8 hours)

Industrial Water treatment- Lime - Soda Ash Method - Chemical reactions –Problems - Zeolite and Ion exchange processes. Boiler Troubles –- Scale and Sludge formation - Caustic Embrittlement and Boiler corrosion - Internal conditioning methods – phosphate and carbonate conditionings- Priming and Foaming

Unit – III

Crystal Structure, Metals And Alloys: (9 hours)

Classification of solids – Amorphous and Crystalline solids. Types of Crystal Imperfections – point defects – line defects and surface defects. Liquid crystals – properties and applications. properties of Aluminium, Iron and Titanium Selective ferrous alloys: Composition and applications of cast iron, steels, heat resisting steels, stainless steel, Selective non- ferrous alloys: Brass, bronze, aluminium alloys and titanium alloys.

Unit – IV

Polymers: (9 hours)

Types of Polymerization– Mechanism of addition polymerization-Moulding constituents. Differences between Thermo Plastic and Thermosetting Resins. Preparation and Properties of Polyethylene, PVC, Polystyrene, Polyamides (Nylon-6:6), Polycarbonates and Bakelite - Engineering applications of Plastics. Examples of simple composite materials - metal matrix and polymer matrix.

Unit – V

Engineering Material Science : (11 hours)

Refractories:– Classification - criteria of a good refractory. Preparation and properties of silica, magnesite and silicon carbide refractories - clay bond, silica nitride bond and self bond in silicon carbide.

Glass: – Manufacture of glass – types of glasses: Soft glass, hard glass and pyrex glass.

Ceramics: – Structural clay products, white wares and chemical stone wares.

Cement : Chemical composition of Portland cement. Manufacture, Setting and Hardening of Cement.

Text Books Prescribed :

Engineering Chemistry,P.C. Jain and M. Jain. Dhanapat Rai & Sons, Delhi.

Engineering Chemistry, B.K.Sharma. Krishna Prakashan, Meerut.

A Textbook of Engineering Chemistry, Sashi Chawla. Dhanapath Rai & Sons, Delhi.

Reference Books :

A Textbook of Engineering Chemistry, S.S.Dara. S.Chand & Co. New Delhi.

Material Science and Engineering, V.Raghavan. Prentice-Hall India Ltd.

Note: The figures in parentheses indicate approximate number of hours of Instruction.

B.Tech. (IT) First Semester

EURCS 105: CS116: PROGRAMMING with C

Course Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURCS 105	BE	3	---	3	60	40	3

The Aim of the course is to acquaint the student with C and the applications of C.

UNIT – I (8 periods)

Variables, Expressions and Basic Input-Output:

Introduction to C, Historical Development of C, Features of C, Compilers, Linker, Preprocessor, Character Set, Constants, Variables, Data Types and Keywords, Typedef statement, Operators, Operator – Precedence and Associativity, Typecasting.

Basic Input-Output: Introduction, Single Character Input-Output, String Input-Output, Types of Character in format String, Search sets.

UNIT – II (8 periods) **Control Structures:** Introduction, the if statement, if-else statement, Multiway decision, Compound statements, Loops-for Loop, While Loop, do-while Loop, Break statement, Switch statement, Continue statement, Goto statement, simple examples algorithms and flowcharts.

UNIT – III (8 periods)

Functions: Introduction, Function main, where are functions useful, Functions accepting more than one parameter, User Defined and Library functions, Concepts Associated with Functions, Function Parameters, Call by Value and Call by Reference, Return Values, Recursion, Comparison of Iteration and Recursion, Variable Length Argument Lists.

Storage classes: Automatic, Register, Static and external storage classes.

UNIT – IV (8 periods)

Arrays And Strings: Introduction to Arrays, Initialization of Array, How arrays are useful, Multi dimensional Arrays.

Strings: What are Strings, Arrays of Strings and Standard Library String Functions.

Pointers: Introduction, Definition and use of pointers, Address operator, Pointer variables, Dereferencing Pointers, Void Pointers, Pointer Arithmetic, Pointers to Pointers, Pointers and Arrays, Passing arrays to Functions, Pointers and Functions.

UNIT – V (8 periods)

Structures, Unions And Files:

Introduction, Declaring and Using Structures, Structure initialization, Structure within a Structure, Operations on Structures, Array of Structures, Array within Structure, Pointers to Structures, Pointers Within Structures, Structures and Functions,

Unions:, Differences between Unions and Structures, Operations on Unions, Scope of a Unions, Bit fields.

Files: Introduction, File Structure, File handling functions, File Types, Unbuffered and Buffered Files, Error Handling.

Text Books:

MASTERING **C**, by K R Venugopal, S R Prasad published by Tata McGraw Hill.

Reference Books:

Programming with ANSI and Turbo C by Ashok N. Kamthane, published by PEARSON Education Let us C by Yashwant Kanetkar, published by BPB Publications.

Note: The figures in parentheses indicate approximate number of expected hours of Instruction.

B.Tech. (IT) First Semester

EURCS 113: PROGRAMMING LAB WITH C

Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURCS 113	BE	---	3	3	--	100	2

The aim of the Lab is to acquaint the students with C language. The illustrated list of experiments is as follows:

1. Write a Program to Read X, Y Coordinates of Three Points and then Calculate the Area of the Triangle formed by them and Print the Coordinates of the Three Points and the Area of the Triangle. What will be the Output from your Program if the Three Given Points are in a Straight Line?
2. Write a Program to Find the Roots of a Quadratic Equation using if else and Switch Statements.
3. Write a Program which Generates One Hundred Random Integers in the Range of 1 To 100, store them in an array and then prints the average. write three versions of the program using Different Loop Constructs (e.g for, while and do. while).
4. Write a Program for Multiplication of Square Matrices.
5. Write a Program to Find Max & Min Elements with their Positions in a Given Array and then Sort the Above Array.
6. Write a Program to Insert an Element into an Array.
7. Write a Function for Transposing a Square Matrix in Place. (In Place Means that You are Not Allowed To have Full Temporary Matrix).
8. Write a Program to Print Fibonacci Series Using Functions.
9. Write a Program to Find the Factorial of a Given Number using Recursion.
10. Write a Program to Find $^{n}c_{r}$" using Non Recursive Function while Finding the Factorial Value Using Recursive Function.
11. Write a Program to find whether the Given String is Palindrome or not without using string functions.
12. Given an Array of Strings Write a Program to Sort the String in Dictionary Order.
13. Develop a program to implement a structure to read and display the Name, Birth date and Salary of ten Employers.
14. Develop a program to display the Name, Marks in five subjects and total marks of ten students. (Using array of structures).
15. Develop a program to read and write to a file.
16. Develop a program to create and count number of characters in a file.

B.Tech. (IT) First Semester
EURCH114/214: ENGINEERING CHEMISTRY LAB

Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURCH 114/214	BS	---	3	3	--	100	2

The objective of the Laboratory Practicals is to make the student to acquire the basic concepts in Engineering Chemistry.

1. Calibration of Volumetric Apparatus.

2. Determination of sodium carbonate in soda ash.

3. Estimation of Iron as Ferrous Iron in an Ore Sample.

4. Estimation of Calcium in Portland cement.

5. Estimation of Volume Strength of Hydrogen Peroxide.

6 a) Estimation of Active Chlorine Content in Bleaching Powder.

b) Determination of Hardness of a Ground Water Sample.

7. Determination of Chromium (VI) in Potassium Dichromate.

8. Determination of Copper in a Copper Ore.

9. a) Determination of Viscosity of a Liquid

b) Determination of Surface Tension of a Liquid.

10. a) Determination of Mohr's Salt by Potentiometric Method.
b) Determination of Strength of an Acid by pH metric Method

B.Tech. (IT) First Semester
EUREE 218/118: Electrical & Electronic Workshop Lab

Category	L	T	P	Total hours	Marks			Credits
					Con. Eval.	End exam	Total	

EUREE 218/118	-	-	3	3	100	--	100	2

1.	Study of electrical components.
2.	Study of electronic components.
3.	Study of CRO, Signal Generator.
4.	Identification of components with symbols.
5.	One way & two way control.
6	Three way control.
7	Stair case wiring.
8	Godown wiring.
9	Fan connection.
10	Fluorescent tube connection.
11	Volt – Ammeter Method.
12	Half wave diode rectifier.
13	Study of computer components.
14	Soldering Bread-board precautions.
15	Soldering Techniques.
16	PCB Design.

B.Tech. (IT) Second Semester

EUREG 201: English Writing Skills

Course Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EUREG 201	HS	3	---	3	60	40	3

This course is specially designed to teach the elements of effective writing and communicative methods, while imparting the essential skills that help personality development.

A Text with communicative and contemplative approach "Creative English for communication" by N. Krishnaswamy & T. Sri Raman – Macmillan India Ltd-(2005 Version) (Section – II contemplate Units 7-13)

Unit – I Textual Lessons - 7 & 8
Preparation of Abstract/Synopsis (8 hours)
Technical Paper writing

Unit - II Textual Lesson – 9
Notices, Minutes of the meeting (8 hours)

Unit -III Textual Lesson - 10
Letter Writing---(Letters of enquiry, Permission, Regret, Reconciliation, Complaint, Breaking the ice.) (8 hours)

Unit -IV Textual Lessons - 11 & 12
Drafting Curriculum Vitae, Resume and Covering Letters.
Job Applications (8 hours)

Unit - V Textual Lesson -13
Memo, E-mail Etiquette, (8 hours)

References :

Technical Communication – Principles and Practice, Meenakshi Raman & Sangeeta Sharma. oxford University press.

Communication Skills for Engineers & Professionals, Prasad. S.K.Kataria & Sons.

Creative English for Communication, N.Krishna Swamy & T.Sriraman. Macmillan.

*Business Communication and Report Writing,*G.S.R.K. BabuRao. Himalaya Publishing House.

Effective English Communication For You, V.Shyamala. Emerald Publishers.

Communicative Skills for Technical Students, M.Faratullah. Orient Longman.

Practical English Grammar, Thompson & Martinet. Oxford University Press.

Note : Figures in parentheses indicate number of approximate expected hours of instruction.

B.Tech. (IT) Second Semester
EURMT202: ENGINEERING MATHEMATICS – II

Course Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURMT202	MT	3	---	3	60	40	3

The objective of the course is to impart knowledge in Basic concepts of Mathematics relevant to Engineering applications.

Unit – I

PARTIAL DIFFERENTIATION: (10 hours)

Introduction to Partial differentiation, Total derivative, Differentiation of implicit functions, Geometrical interpretation, Tangent plane and normal to a surface, Change of variables, Jacobians, Taylor's theorem for functions of two variables.

Unit –II

APPLICATIONS OF PARTIAL DIFFERENTIATION : (08 hours)

Total differential, Maxima and minima of functions of two variables, Lagrange's method of undetermined multipliers, Differentiation under the integral sign, Leibnitz's Rule.

Unit-III

PARTIAL DIFFERENTIAL EQUATIONS : (10 hours)

Introduction, Formation of partial differential equations, Solutions of a partial differential equation, Equations solvable by direct integration, Linear equations of the first order, Non-linear equations of the first order, Homogeneous linear equations with constant coefficients, Rules for finding the complementary function, Rules for finding the particular integral.

Unit-IV

LINEAR ALGEBRA-1: (08 hours)

Rank of Matrix, Elementary transformations, Elementary matrices, Inverse, Normal form, Consistency of linear system of equations, Linear transformations.

Unit-V

LINEAR ALGEBRA – 2: (10 hours)

Eigen value and eigen vectors of a matrix, Cayley-Hamilton theorem, Reduction to diagonal form, Quadratic forms and canonical forms, Hermitian and Skew Hermitian matrix, Unitary matrix.

Text Books Prescribed :

Higher Engineering Mathematics, Dr.B.S Grewal. Khanna Publishers. References **:**

Advanced Engineering Mathematics, **Erwin Kreyszig.** **Wiley Eastern Pvt. Ltd.**

Textbook of Engineering Mathematics, N.P.Bali. Laxmi Publications (P) Ltd.
Higher Engineering Mathematics, Dr.M.K.Venkata Raman. National Pub. Co.

Note: The figures in parentheses indicate approximate number of expected hours of Instruction.

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B.Tech. (IT) Second Semester

EURMT203: ENGINEERING MATHEMATICS – III

Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURMT203	MT	3	---	3	60	40	3

The objective of the course is to impart knowledge in Basic concepts of Mathematics relevant to Engineering applications.

Unit-I

FOURIER SERIES: (12 hours)

Euler's formulae, Conditions for a Fourier expansion, Functions having points of discontinuity, Change of interval, Odd and even functions, Expansions of odd or even periodic functions, Half range series and practical Harmonic Analysis.

Unit-II

LAPLACE TRANSFORMS: (8 hours)

Transforms of elementary functions, Properties of Laplace transforms, Existence conditions, Inverse transforms, Transforms of derivatives, Transforms of integrals, Multiplication by t^n, Division by t, Convolution theorem.

Unit-III

APPLICATIONS OF LAPLACE TRANSFORMS: (8 hours)

Applications to ordinary differential equations and simultaneous linear equations with constant coefficients, Unit step function, Unit impulse function, Periodic functions (without proofs).

Unit-IV

VECTOR CALCULUS (Differentiation) : (8 hours)

Scalar and vector fields, Gradient, Divergence, Curl, Directional derivative, Identities, Irrotational and Solenoidal fields.

Unit-V

VECTOR CALCULUS (**Integration**) : (12 hours)

Line integral, Surface integral, Volume integral, Green's theorem in the plane, Stoke's and Gauss divergence theorems with proofs, Introduction of orthogonal curvilinear co-ordinates, Cylindrical co-ordinates, Spherical polar co-ordinates (without proof)

Text Prescribed :

Higher Engineering Mathematics, Dr.B.S Grewal. Khanna Publishers.

References :

Advanced Engineering Mathematics, Erwin Kreyszig. Wiley Eastern Pvt. Ltd.

Textbook of Engineering Mathematics, N.P.Bali. Laxmi Publications (P) Ltd.

Higher Engineering Mathematics, Dr.M.K.Venkata Raman. National Pub. Co.

Note: The figures in parentheses indicate approximate number of expected hours of Instruction.

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B.Tech. (IT) Second Semester

EURPH 204: ENGINEERING PHYSICS – II

Code	Category	Scheme of instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURPH 204	BS	3	---	3	60	40	3

The aim of the course is to impart knowledge in basic concepts of physics relevant to Engineering applications.

Unit – I (9 hours)

Interference: Introduction – Interference in Thin Films – Wedge Shaped Film – Newton's Rings – Michelson's Interferometer and Applications.

DIFFRACTION : Introduction - Differences between Fresnel and Fraunhofer Diffractions - Single Slit Diffraction (Qualitative and Quantitative Treatment)– Differences between Interference and Diffraction. Gratings and Spectra-Multiple Slits; Diffraction Grating; X-ray Diffraction; Bragg's Law.

Unit – II (9 hours)

Polarisation: Introduction – Double Refraction –Negative Crystals and Positive Crystals - Nicol's Prism – Quarter Wave Plate and Half Wave Plate – Production and Detection of Circularly and Elliptically Polarised Lights.

LASERS : Introduction - Spontaneous and Stimulated Emissions – Population Inversion – Ruby Laser –He-Ne Laser – Semiconductor Laser – Applications

Unit – III (10 hours)

Modern Physics: Matter Waves–Heisenberg's Uncertainty Principle - Schrodinger's Time Independent Wave Equation – Physical Significance of Wave Function (ψ) – Application to a Particle in one Dimensional Box (Infinite Potential Well) –Free Electron Theory of Metals – Band Theory of Solids (qualitative) – Distinction between Metals, Insulators and Semiconductors – Elementary Concepts of Maxwell - Boltzmann, Bose - Einstein and Fermi – Dirac Statistics (No Derivation).

Unit – IV (8 hours)

Fibre Optics : Introduction – Optical Paths in Fibre - Optical Fibre and Total Internal Reflection – Acceptance Angle and Cone of a Fibre – Fibre Optics in Communications – Applications.

Superconductivity: Introduction–BCS Theory–Meissner Effect- Properties of Superconductors - Type-I and Type-II Superconductors – High T_c Superconductors - Applications.

Unit – V (9 hours)

Semiconductors: Introduction, Intrinsic and Extrinsic Semiconductors, Carrier Concentration in Intrinsic Semiconductors - Carrier Concentration in n-Type Semiconductors, Carrier Concentration in p-Type Semiconductors - Hall Effect and Applications -Variation of Carrier Concentration with Temperature -Conductivity of Extrinsic Semiconductor, P-N Junction – Forward Bias – Reverse Bias -V-I Characteristics of a p-n Junction.

Prescribed Books :

Physics Part I & II, Robert Resnick and David Halliday. Wiley- Eastern Limited.
Solid State Physics, P.K. Palanisamy. Scitech Publications (India) Pvt. Ltd, Chennai.

Reference Books:

Engineering Physics, R.K.Gaur and S.L.Gupta. Dhanpat Rai & Sons, Delhi.
Solid State Physics, S. O. Pillai. New age International (P) Limited, New Delhi.
Materials Science, Dr. M. Arumugam. Anuradha Agencies, Kumbhakonam.
Modern Physics, Arthur Beiser. Tata Mc Graw-Hill.
The Feynman Lectures on Physics. Addison-Wesley.

Note: The figures in parentheses indicate approximate number of expected hours of instruction.

B.Tech. (IT) Second Semester

EURCH205: ENGINEERING CHEMISTRY-II

Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURCH205	BS	3	---	3	60	40	3

The objective of the syllabus is to provide knowledge in the basic concepts of the Chemistry of Engineering materials.

Unit-I (9 hours)

Non-Conventional Energy Sources And Applications: Chemical: Electrode Potential – Determination of Single Electrode Potential-Reference Electrodes – Hydrogen and Calomel Electrodes. Electrochemical Series and its Applications. Primary Cell–Dry or Leclanche Cell. Secondary Cell – Lead acid storage cell - Fuel Cell:Hydrogen-Oxygen Fuel Cell.
Nuclear : Nuclear Fission and Nuclear Fusion – Applications of Nuclear Energy
Solar : Photoelectric cells –Applications of Solar Cells

Unit-II (11 hours)

Corrosion Engineering: Definition of Corrosion. Theories of Corrosion –Dry Corrosion and Electro Chemical Corrosion Factors Affecting Corrosion- Nature of the Metal and Nature of the Environment. Prevention of Corrosion: Cathodic Protection, Inhibitors, Metallic Coatings – Anodic and cathodic coatings - Galvanising and Tinning, Anodized Coatings. Organic Coatings-Paints –Characteristics, Constituents and their functions, Varnishes.

Unit-III (9 hours)

Fuel Technology : Calorific Value And Solid Fuels: Classifications of Fuels – Characterstics of Fuels- Calorific Value - Units. Determination – Bomb Calorimetric Method- Dulong's formula. Solid Fuels–Coal, Classification of Coal by Rank-Analysis of Coal –Proximate and Ultimate Analysis. Coke : Manufacture of Coke- Beehive oven and Otto Hoffmann's by product oven processes.

Unit-IV (8 hours)

Fuel Technology : Liquid Fuels: Refining of Petroleum - Petroleum products used as Fuels - Gasoline - Knocking and Octane Number of Gasoline. Diesel - Cetane Number High speed and low speed Diesel oil. Synthetic Petrol –Bergius and Fishcher - Tropsch methods. . Power Alcohol - Manufacture, Advantages and Disadvantages - LPG.

Unit-V (8 hours)

Lubricants : Classification- Properties- Viscosity ,Oiliness, Flash and Fire - Points, Cloud and Pour - Points. Aniline point, Saponification number ,Carbon residue, Emulsification number volatility, precipitation number, specific gravity and neutralization number.

Principles and Mechanism of Lubrication - Fluid Film, Boundary and Extreme - Pressure

Lubrications.

Text Books Prescribed :

Engineering Chemistry, P.C. Jain and M. Jain. Dhanapat Rai & Sons, Delhi.
Engineering Chemistry, B.K.Sharma.Krishna Prakashan,Meerut.
A Textbook of Engineering Chemistry, Sashi Chawla. Dhanapath Rai & Sons, Delhi.

Reference Books : *A Textbook of Engineering Chemistry*, S.S.Dara. S.Chand & Co. New Delhi.
Material Science and Engineering, V.Raghavan. Prentice-Hall India Ltd.

Note: The figures in parentheses indicate approximate number of hours of Instruction.

B.Tech. (IT) Second Semester

EURCS206: CS126: OBJECT ORIENTED PROGRAMMING WITH C++

Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURCS206	BE	3	---	3	60	40	3

The Aim of the course is to acquaint the student with C++ and the applications of C++

UNIT-I.

Basics, Tokens, Expressions: (8 hours)

Software Crisis, Software Evolution, Procedure Oriented Programming, Object Oriented Programming Paradigm, Basic Concepts of OOP, Benefits of OOP, Object Oriented Languages, Features of OOP. How OOP Differ from POP. Applications of OOP, A Simple C++ Program, Structure of C++ Program.

Tokens, Keywords, Identifiers and Constants, Basic Data Types, User Defined Data Types, Derived Data Types, Dynamic Initialization of Variables, Reference Variables, Operators in C++, Scope Resolution Operator, Member Dereferencing Operators, Memory Management Operators.

UNIT-II.

Functions, Classes and Objects: (8 hours)

Introduction of Classes, Specifying a Class, Defining a Member Functions, A C++ Program with Class Access Specifiers, Inline functions, Nesting of Member Functions, Memory Allocation for Objects, Static Data Members, Static Member Functions, Arrays of Objects, Objects as Function Arguments, Default Arguments, Const Arguments, Function Overloading, Friend Functions

UNIT-III

Constructors, Destructors, Inheritance: (8 hours)

Introduction, Constructors, Parameterized Constructors, Multiple Constructors in a Class, Constructors with Default Arguments, Dynamic initialization of Objects, Copy Constructors, Dynamic Constructors, Destructors.

Introduction to inheritance, Defining Derived Classes, Single Inheritance, Multiple Inheritance, Multi Level Inheritance, Hierarchical Inheritance, Hybrid Inheritance, Abstract Classes, Constructors in Derived Classes, Containership, Operator overloading, Rules for Operator overloading, overloading of binary and unary operators .

UNIT-IV

Pointers, Virtual Functions and Polymorphism: (8 hours)

Introduction, Memory Management, new Operator and delete Operator, Pointers to Objects, this Pointer, Pointers to Derived Classes, Polymorphism, compile time polymorphism, Run time polymorphism, Virtual Functions, Pure Virtual Functions, Virtual Base Classes, Virtual Destructors.

UNIT-V.

Templates and Exception handling: (8 hours)

Introduction, Class Templates, Class Templates with Multiple Parameters, Function Templates, Function Templates with Multiple Parameters, Member Function Templates.

Basics of Exception Handling, Types of exceptions, Exception Handing Mechanism, Throwing and Catching Mechanism, Rethrowing an Exception, Specifying Exceptions.

Text Book Prescribed :

Object Oriented Programming in C++ by E.Balagurusamy., published by Tata McGraw-Hill.

Reference Book :

1. Mastering C++ by K.R.Venugopal., published by Tata McGraw- Hill.
2. Computer Science A Structural Programming Approach Using C by Behrouz A Forouzan and Richard F. Gilberg, Thomson publishers

B.Tech. (IT) Second Semester

EURPH 112/212:ENGINEERING PHYSICS LAB

Course Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURPH 112/212	BS	---	3	3	--	100	2

The main aim of the course is to acquaint the students with basic concepts in Engineering Physics using the following illustrative list of experiments.

1. J – by Callender and Barne's Method.
2. Thermal Conductivity of a Bad Conductor – Lee's Method.
3. Magnetic Field Along the Axis of a Circular Coil Carrying Current – Stewart and Gee's Galvanometer.
4. Hall Effect- Measurement of Hall Coefficient.
5. Carey Foster's Bridge – Laws of Resistance and Specific Resistance.
6. Calibration of Low Range Voltmeter – Potentiometer Bridge Circuit.
7. Thickness of a Paper Strip- Wedge Method.
8. Newton's Rings – Radius of Curvature of a Plano Convex Lens.
9. Diffraction Grating – Normal Incidence.
10. Determination of Refractive Indices (o and e) of a Bi-Refringent Material (Prism).
11. Cauchy's Constants – Using a Spectrometer.
12. Dispersive Power of a Prism – Using a Spectrometer.
13. Determination of Rydberg Constant.
14. LASER – Diffraction.
15. Determination of Band Gap in a Semiconductor.
16. Optical Fibres – Numerical Aperture and Loss of Signal.

B.Tech. (IT) Second Semester

EURCS 213: OBJECTED ORIENTED PROGRAMMING LAB WITH C++

Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURCS 213	BE	---	3	3	--	100	2

The aim of the Lab is for students to get acquainted with C++ language. The illustrated list of experiments is as follows.

1. Write a program Illustrating Class Declarations, Definition, and Accessing Class Members.
2. Write a Program to Implement a Class STUDENT having Following Members:

Data members	**Member functions**
Name of the student	to Assign Initial Values
Marks of the student	to Compute Total, Average
	to Display the Data

3. Write a Program to Demonstrate the Operator Overloading.
4. Write a Program to Demonstrate the Function Overloading.
5. Write a Program to Demonstrate Friend Function and Friend Class.
6. Write a Program to Access Members of a STUDENT Class Using Pointer to Object Members.
7. Write a Program to Demonstrate Containership.
8. Write a Program to Generate Fibonacci Series by using Constructor to Initialize the Data Members.
9. Write a Program to Demonstrate Multiple Inheritance.
10. Write a Program to Invoking Derived Class Member Through Base Class Pointer.
11. Write a Template Based Program to Sort the Given List of Elements.
12. Write a Program to Demonstrate the Catching of All Exceptions.
13. Write a Program Containing a Possible Exception. Use a Try Block to Throw it and a Catch Block to Handle it Properly.
14. Write a Program to Demonstrate Dynamic Binding through Virtual Functions.

B.Tech. (IT) Second Semester

EURME115/215: ENGINEERING GRAPHICS LAB

Code	Category	Scheme of Instruction		Scheme of Examination			Credits to be awarded
		Hours per week		Sem. End Exam Duration in Hrs.	Maximum Marks (100)		
		L/T	D/P		Sem. End Exam	Con. Eval.	
EURME 115/215	BE	---	4	3	--	100	2

1. Introduction to AutoCAD, Beginning a new drawing, exploring and interacting with the drawing window, saving and opening a file, Coordinate systems (Cartesian ,polar and relative co-ordinate system) (1 hr practice)Introduction to draw commands – line, circle, rectangle, polygon etc. (1 hr practice)

2. Introduction to modify commands – extend, trim, chamfer, rotate, etc (1 hr practice)

3. Introduction to dimensioning and object properties. (1 hr practice)

4. Engineering Curves – Conics –general method, cycloid, epicycloids, hypocycloid, involutes. (1 hr practice)

5. Projection of planes (2 hr practice)

6. Sections and sectional views of solids – prism, pyramid, cylinder, cone (2 hr practice)

7. Developments of solids- prism, pyramid, cylinder, cone. (2 hr practice)

8. Intersection of solids- prism to prism, cylinder to cylinder (1 hr practice)

* * *

B.Tech. (IT) Third Semester

EURIT 301: BASIC ELECTRONICS

(Common with CSE)

Code	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT 301	Basic Electronics	BE	3	-	-	3	40	60	100	3

UNIT-I

Semiconductor diode: Classification of semiconductors- Conductivity of Semiconductors- characteristics of PN junction diode-half wave rectifier- full wave rectifier-bridge rectifier-ripple factor –efficiency –regulation-zener diode-LED-Varcator diode- photodiode .

UNIT-II

Transistors: The bipolar junction transistor- operation of PNP and NPN transistors. Transistors biasing –Types of biasing and analysis.

UNIT III

Transistor amplifiers : CB, CE, CC amplifiers – small signal analysis of single stage BJT amplifiers – RC couple amplifier and its frequency response

UNIT IV Field effect transistors: Junction field effect transistor-JFET characteristics biasing the FET– small signal model of FET- MOSFET- depletion and enhancement.

UNIT V

Feed back amplifier and oscillators (Elementary treatment only):

Basic concept of feedback- effects of negative feedback- feedback topologies – oscillator- RC Phase shift oscillator- Weinbridge oscillator- crystal oscillator.

Text Books:

Electronic devices and Circuits --- S.Salivahan, N Suresh Kumar, A.Vallavaraj

References:

Integrated Electronics ---- Milliman and Halkias
Electronics devices and Circuits --- Sanjeev Gupta
Electronic Devices and Circuits --- C.Dharmaraj & BT Krishna

B.Tech. (IT) Third Semester
EURIT 302 : ENVIRONMENTAL STUDIES

Code	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT302	Environmental Studies	HS	3	1	-	4	40	60	100	4

Unit –I

Multidisciplinary nature of environmental studies & Natural Resources: Multidisciplinary nature of environmental studies Definition, scope and importance . Need for public awareness .Natural Resources **: R**enewable and non-renewable resources **.** Natural resources and associated problems. Forest resources : Use and over-exploitation, deforestation, case studies.Timber extraction, mining, dams and their effects on forest and tribal people. Water resources : Use and over-utilization of surface and ground water,floods, drought, conflicts over water, dams-benefits and problems. Mineral resources : Use and exploitation, environmental effects of extractingand using mineral resources, case studies.Food resources : World food problems, changes caused by agriculture andovergrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.Energy resources : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.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 –II

Ecosystems and Biodiversity and its conservation :

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 thefollowing ecosystem :-. Forest ecosystem .Grassland ecosystem . Desert ecosyste. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) Biodiversity and its conservation Introduction – Definition : genetic, species and ecosystem diversity.Biogeographical 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-sports of biodiversity.Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity.

Unit –III

Environmental Pollution Definition Cause, 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.Diaster management : floods, earthquake, cyclone and landslides.

Unit-IV

Social Issues and the Environment : From Unsustainable to Sustainable development Urban problems related to energy**.**Water conservation, rain water harvesting, watershed management**.** Resettlement and rahabilitation of people; its problems and concerns. Case

Studies. Environmental ethics : Issues and possible solutions. Climate change, global warming,

acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies.
Wasteland reclamation..Consumerism and waste products.

Unit –V

Human Population and the Environment and Environment Protection Act and Field work:
Population growth, variation among nations. Population explosion – Family Welfare Programme.Environment and human health. Human Rights.Value Education.
HIV/AIDS.Women and Child Welfare.Role of Information Technology in Environment and human health. Case Studies. Environment Protection Act.Air (Prevention and Control of Pollution) Act. Water (Prevention and control of Pollution) Act Wildlife Protection Act Forest Conservation Act Issues involved in enforcement of environmental legislation. Public awareness.Field work.Visit to a local area to document environmental assets river/forest/grassland/hill/mountain. Visit to a local polluted siteUrban/Rural/Industrial/Agricultural.Study of common plants, insects, birds.Study of simple ecosystems-pond, river, hill slopes, etc.

Text Book:

1.Text book of environmental studies for undergraduates courses by Erach Bharucha,
Published by – University Grants Commission, Universities Press,India.
2.Text book of environmental studies for undergraduates courses by Benny Joseph.
Published by Tata Mc Graw Hill Publishing company limited.
3. Text book of environmental studies by Kaushik & Kaushik.

B.Tech. (IT) Third Semester

EURIT 303 : DISCRETE MATHEMATICAL STRUCTURES

(Common with CSE)

Code	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT 303	Discrete Structures	CE	3	0	-	3	40	60	100	3

Unit – I

Mathematical Logic & Predicates: Statements and notations, Connectives, Well formed formulas, Truth Tables, tautology, equivalence implication, Normal forms. Predicative logic, Free & Bound variables, Rules of inference, Consistency, proof of contradiction, Automatic Theorem Proving.

Unit – II

Set Theory : Properties of binary Relations, equivalence, compatibility and partial ordering relations, Hasse diagram. Functions: Inverse Function ,Composition of functions, recursive Functions, Lattice and its Properties, Pigeon hole principles and its application.

Unit – III

Algebraic structures : Algebraic systems Examples and general properties, Semi groups and monoids, groups ,sub groups, homomorphism, Isomorphism.

Unit – IV

Recurrence Relation : Generating Functions, Function of Sequences Calculating Coefficient of generating function, Recurrence relations, Solving recurrence relation by substitution and Generating functions. Characteristics roots solution of homogeneous Recurrence Relation.

Unit – V

Graph Theory and Applications: Basic Concepts Isomorphism and Sub graphs, Multi graphs and Euler circuits, Hamiltonian graphs, Chromatic Numbers

Representation of Graph, DFS, BFS, Spanning Trees, planar Graphs.

Text Books :

1.. Discrete Mathematical Structures with applications to computer science Trembly J.P. & Manohar .P, TMH

2. Discrete and Combinational Mathematics- An Applied Introduction-5th Edition – Ralph. P.Grimaldi. and B.V.Ramana Pearson Education

3.Discrete Mathematics and its Applications, Kenneth H. Rosen, Fifth Edition.TMH.

Reference books:

1. Discrete Mathematics with Applications, Thomas Koshy, Elsevier

2. Discrete Mathematical Structures, Bernand Kolman, Roberty C. Busby, Sharn Cutter Ross, Pearson Education/PHI.

3. Discrete Mathematical structures Theory and application-Malik & Sen

4. Discrete Mathematics for Computer science, Garry Haggard and others, Thomson.

5. Discrete Mathematics for Computer Scientists & Mathematicians, J.L. Mott, A. Kandel, T.P. Baker Prentice Hall.

6. Logic and Discrete Mathematics, Grass Man & Trembley, Person Education.
Mandel,Theodore P.Bater.

B.Tech. (IT) Third Semester

EURIT 304 : DATA STRUCTURES

(Common with CSE)

Code	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT 304	Data Structures	CE	3	1	-	4	40	60	100	4

UNIT – I

Data representation: introduction, linear lists, formula based representation, indirect addressing, simulating pointers, comparisons and applications. Arrays, matrices, special and sparse matrices,single linked list,double linked list,circular linked list.

UNIT – II

Stacks: definitions, operations and applications, array and linked representation of stacks. Queues: definitions and operations. Array and linked representation of queues. Applications.

UNIT –III

Trees: definitions and properties, representation of binary trees, operations. Binary tree traversal. AVL trees and operations on AVL trees, B+ trees, operations on B+ trees and applications.

UNIT – IV

Searching & Sorting: merge sort, quick sort, selection sort, heap sort. Complexity analysis. Sequential search, binary search. Various types of hashing.

UNIT – V

Graphs: definitions and representation of graphs. Graph search methods. Applications.

Text Books:

1. Data Structures. Algorithms and Applications in C++ **,** S.Sahani, Tata Mc-Graw Hill.
2. Date Strctures using C and C++, Yedidyah Langsam, MosheJ Augenstein Aaron M. Tenenbaum
   Publisher: Prentice Hall India

Reference:

1. Author Seymour Lipschutz (Schaum's Outline series)
   Publisher: McGraw-Hill
2. Author: Sartaz Sahani
   Publisher: McGraw – Hill.
3. Author: S.K. Srivatsava, Deepli Srivatsava.
   Publisher: BPB Publications.

B.Tech. (IT) Third Semester

EURIT 305 : PROBABILITY & STATISTICS
(Common with CSE)

Code	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT 305	Probability & Statistics	MT	3	-	-	3	40	60	100	3

Unit I

Probability : definitions of Probability, addition theorem, conditional Probability, Multiplication theorem, Baye's theorem of Probability and Geometric Probability. Random Variables and their properties, Discrete Random Variable, Continuous Random Variable, Probability Distribution, Transformation variables, Mathematical expectations , Probability generating functions, Probability distribution / Discrete distributions : Binomial , Poisson , negative binomial distributions and their properties.(Definition, mean, variance, moment generating function, additive properties , fitting of the distribution)

Unit II

Continuous distributions: Uniform, normal exponential distributions and their properties. rectangular distribution and its properties.Curve fitting – Principle of least squares, method of least squares, working procedure, Fitting of other curves.

Unit III

Multivariate Analysis : correlation, correlation coefficient, Rank correlation, Regression analysis, χ^2 – test for goodness of fit , test for independence. Estimation : Sample, populations, statistic, parameter, sampling distribution, standard error, unbiasedness, efficiency, maximum likelihood estimator, notion & interval estimation

Unit IV

Testing of Hypothesis : Formulation of Null Hypothesis, critical regions , level of significance, power of the test.

Unit V

Small sample Tests : Testing equality of means, testing equality of variances, test of correlation coefficients, test for regression coefficient.

Large sample Tests : Tests based on Normal distribution.

Text Book:

1. Fundamentals of Mathematical Statistics – S.C. Gupta & V.K.Kapoor S.Chand Publications.

Reference books:

1) Probability Statistics with Reliability, Queuing and Computer Science Application – Kishar . S, Trivedi, PHI Publicatioin.

2) Probability & Statistics – M.R. Spiegel, J.Schiller & R Alu Srinivasan – Schum Series – McGrahill Publications.

B.Tech. (IT) Third Semester

EURIT 306 :FUNDAMENTALS OF DIGITAL LOGIC

Code	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT 306	FUNDAMENTALS OF DIGITAL LOGIC	CE	3	-	-	3	40	60	100	3

UNIT – I

Number Representation: Positional representation of numbers, decimal, binary, octal, Hexadecimal number systems, general radix 'r' system, numbers, conversions, complements, binary codes, Fixed point representation, floating point representation, representation for numeric data , arithmetic with signed unsigned numbers, addition, subtraction. Introduction to error correction and error detection.

UNIT – II

Introduction to logic circuits-variables and functions, truth tables, logic gates and networks, Boolean algebra, synthesis using AND, OR and NOT gates, NAND and NOR logic networks, Introduction to CAD tools, introduction to Verilog.

UNIT – III

Optimized implementation of logic functions-karnaugh map, stragegy for minimization, minimization of product of sums forms, incompletely specified functions, multiple output circuits, multilevel synthesis, a tabular method for minimization, cubical technique for minimization, practical considerations, CAD tools.

UNIT – IV

Combinational logic-design procedures ,adders ,subtractors ,design of arithmetic circuits usig CAD tools, multiplexers, encoders, decoders, code converters, verilog for combinational circuits

UNIT – V

Flip flops, basic latch, gated SR latch, gated D latch, Master-slave and edge triggered D flip flop, T flip flop, JK flip flop, registers, counters, other types of counters, using storage elements with CAD tools, using registers and counters with CAD tools.

Text Books:

1. Fundamental of digital logic with Verilog Design by Stephen Brown & ZVONKO VRANESIC, Tata McGrawHill.

2. Digital Design by M. Morris Mano

Reference Books:

1. Switching Theory & Finite Automata – Z.V. Kohavi.

B.Tech. (IT) Third Semester
EURIT 311 : DATA STRUCTURES LAB (C++)
(Common with CSE)

Code	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT 311	Data Structures Lab	CE	-	-	3	3	100	-	100	2

Develop algorithms and write programs in C++ to implement the following :

1. Operation on arrays – insertion and deletion

2. Linked lists-creation, insertion, deletion of a single, double and circular lists.

3. Stack- operations using arrays and linked lists.

4. Infix to postfix conversion

5. Evaluation to postfix expression.

6. Queue- operations using arrays and linked lists.

7. Qequeue, circular-operations

8.Binary tree traversals- In order, pre order, post order using recursion

9.Binary tree traversals- In order, pre order, post order using non recursion

10.linear and binary search

11. Sorting – bubble, insertion, selection, quick sort.

12.Addition, multiplication of sparse matrices

13. Polynomial addition and multiplication

14.Depth first search of a graph

15.Breadth first search of a graph.

NOTE:
Detailed description of problems is to be given by the instructor before or at the time of instruction.

B.Tech. (IT) Third Semester

EURIT 312 : ELECTRONICS LAB

(Common with CSE)

Code	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT 312	Electronics Lab	BE	-		3	3	100	-	100	2

1. Characteristics of semiconductor and zener diodes.
2. Fullwave rectifier with and without filters.
3. CRO Application
4. Static characteristics of BJT and FET
5. RC coupled amplifier
6. Oscillators-RC phase shift and wiens bridge
7. LC oscillators
8. Operational amplifiers-applications
9. Schimitt trigger
10. Feedback amplifiers
11. Simulations of above circuits using PSPICE.

Note: * Detailed specification for each of the experiments with the above titles is to be formulated by the instructor and given to the learners before or at the time of commencement of instruction.

* Number of experiments under each title may not be limited to ONE.

B.Tech. (IT) Third Semester

EURIT 313: Communication Skills Laboratory

(Common with CSE)

Category	L	T	P	Total Hrs.	E	S	T	Credits
HS	-	-	3	3	100	-	100	2

Concept and importance of communication.
Developing Communicative abilities.
Paper Presentation – Planning, preparation and Presentation using Audio-Visual aids.
Proposals and Research Reports.
Oral Presentation:

a. Group Discussion.
b. Interviews
c. Conducting a meeting.
d. Telephone Etiquette.

Suggested Texts:

1. Himstreet, William C., Gerald w.Maxwell, Mary Jean Onorato. Business Communications. A Guide to effective writing, speaking and listening. Gelencoe publishing company. California 1982.

2. Murphy, Hurta A etal, Effective Business communications, The McGra-Hill companies Inc. 1997.

3. Thill, John V., Bove'e, Courland L. Excellence in Business Communication. McGraw Hill Inc. 1996.

4. Lesitar & Pettit. Report writing for Business. Irwin – McGraw Hill. 1995. Tenth Edition.

5. Paulery and Riordan. Technical report writing today. Houghton Mifflin company. 1999.5th edition. Reprint.

B.Tech. (IT) Fourth Semester
EURIT 401 : COMPUTER ORGANIZATION
(Common with CSE)

Code No	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT401	Computer Organization	CE	3	-	-	3	40	60	100	3

UNIT – I

Register Transfer and Micro operations : Register Transfer Language, Register Transfer, Bus and Memory Transfers, Arithmetic Micro-operations, Logic Micro-operations, Shift Micro-operations, Arithmetic Logic Shift Unit.

Basic Computer Organi-zation and Design: Instruction Codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycle, Memory-Reference Instructions, Input-Output and Interrupt, Complete Computer Description. Design of the Basic Computer, Design of Accumulator logic.

UNIT – II

Central Processing Unit: Introduction, General Register Organization, Stack Organization, Instruction Formats, Addressing Modes, Data Transfer and Manipulation, Program Control.

UNIT – III

Computer Arithmetic: Introduction, Addition and Subtraction, Decimal Arithmetic Unit, Booth Multiplication Algorithm.

Microprogrammed Control: Control Memory, Address Sequencing, Microprogram Example. Design of the Control Unit.

UNIT – IV

Input-Output Organization: Peripheral Devices, Input-Output Interface, Asynchronous Data Transfer, Modes of Transfer, Priority Interrupt, Direct Memory Access. Input Output Processor.

UNIT – V

Memory Organization: Memory Hierarchy, Main Memory, Auxiliary Memory, Associative Memory, Cache Memory, Virtual Memory.

Text Book:

1. Computer System Architecture (Third Edition) M.Morris Mono Prentice Hall

Reference Book:

1. Computer Architecture and Organization (Third Edition) John P. Hayes TMH
2. Computer Organization M.V.L.N.Raja Rao Scitech Publication.

B.Tech. (IT) Fourth Semester

EURIT 402 : JAVA PROGRAMMING

Code No	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	S	S	Tot	
EURIT402	JAVA Programming	BE	2	-	-	2	40	60	100	2

UNIT-I

Internet Concepts: Introduction ,the history of internet, Modem, ISDN, communication software, internet providers, online services, ISP, online services Vs ISP, internet account, internet networks, internet addresses, DNS, e-mail: basics, www, internet search engines, web browsers, internet chat, IRC services, FTP, GOPHER , TELNET, USENET: Basics and HTML.

UNIT-II

Java Evolution: Java History – Features of java: Compiled and interpreted, Platform independent and portable, Object oriented, Robust and Secure, Distributed simple small and familiar, multi threaded and interactive, high performance, dynamic and extensible, how java differ from C and C++, Java and World Wide Web, Web Browser. Java Environment: Java Development kit (JDK), Application Programming Interface (API) .

Overview Of Java Language: Introduction, Java Programming Structure, Java Tokens, Constants, Variables, Expressions, Decision Making Statements and Looping, Java Statements, Machine Neutral, Java Virtual Machine (JVM), Command Line Arguments.

UNIT-III

Classes, Objects And Methods: Introduction, defining a class, creating objects, accessing class members, constructors, methods overloading, static members. Inheritance: Defining a sub class, sub class constructor, multilevel variables, Final classes, and Finalize methods, Abstract methods and classes, visibility control .Overview of arrays and strings.

Interfaces (multiple inheritances): Introduction, Defining interfaces, Extending interfaces, implementing interfaces.

UNIT-IV

Multithreaded Programming: Introduction, Creating Threads, Extending the Thread Class, Implementing the 'runnable' interface, life cycle of a thread, priority of a thread, synchronization.

Applet Programming: Introduction , how applet differ from applications, building applet code, applet life cycle, designing a web page, passing parameters to applets**.**

UNIT-V

Graphic Programming: Introduction, the abstract window toolkit (AWT), frames, event-driven programming, layout managers, panels, canvasses, drawing geometric figures.

Creating User Interface: Introduction, Describe various user interface Components button, label, text field, text area, choice, list, check box check box group.

Text Books:

1. Programming with JAVA (2nd Edition) (1 to 5 Chapters)
   Author: E.BalagurusamyPublishers: Tata Mec-Hill.
2. Internet and Java Programming, R.Krishna Murthu and S.Prabhu, New Age Publishers

References:

1. An Introduction to JAVA Programming (Chapter 6)
   Author: Y.Daniel Liang , Publishers: Tata Mec-Hill.
2. The Complete Reference JAVA 2, Author: Herbert Schield , Publishers: Tata Mec-Hill

B.Tech. (IT) Fourth Semester
EURIT 403 : MICROPROCESSORS

Code No	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT403	Micro-processors	CE	3	-	-	3	40	60	100	3

UNIT - I

Micro processors, Micro Computers and Assembly Language:

Introduction to micro processors and micro computers, Introduction to 8085 Assembly language programming, 8085 programming model, Instruction formats, how to write Assemble and execute a simple programme.

UNIT - II

Intel 8085 microprocessor: Evaluation of microprocessors, Architecture of 8085, pin diagram, addressing modes of 8085, Data transfer operations, Arithmetic operations, Logic operations and Branch operations, Programming techniques: Looping, counting and indexing.

UNIT - III

Intel 8086 microprocessor: 8086 internal architecture, addressing modes, pin diagram, minimum mode and maximum mode of operation, timing diagrams.

UNIT - IV

8086 Programming : Instruction set of 8086, assembler directives, program development steps, constructing the machine codes for 8086 instructions, writing programs for use with an assembler, writing and using procedures and assembler macros.

UNIT – V

Programmable devices and Interfacing of I/O: Addressing memory and ports in microcomputer system, programmable peripheral interface 8255A, programmable timer/ counter 8253/ 8254, serial I/O 8251 USART, DMA controller 8237/ 8257, Interfacing of A/D and D/A converters to 8086 microprocessor. Interfacing a microprocessor to keyboards.

Text Books :

1. Ramesh S Goankar, “Microprocessor Architecture Programming and Applications with the 8085, Perman International Pvt. Ltd.
2. Douglas V Hall, “Microprocessors and Interfacing: Programming and Hardware”, 2nd edition, TMH.

Reference Books :

1. Micro computer systems, The 8086/8088 Family Architecture, Programming and Design – Y. Liu and G.A. Gibson, PHI, 2nd edition.
2. Barry B. Brey, “The Intel Microprocessors 8-86/8088, 80186/80188, 80286, 80386, 80486 and Pentium processors. Architecture, programming and interfacing”.
3. 8086 Micro Processor – Kenneth J. Ayala, Penram International / Thomson, 1995.

B.Tech. (IT) Fourth Semester
EURIT 404 : OPERATING SYSTEMS
(Common with CSE)

Code No	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT404	Operating Systems	CE	3	1	-	4	40	60	100	4

UNIT – I

Introduction: Computers and Software, Operating system strategies : Batch system, timesharing system, Personal computers and workstations, Operating system organization: Basic functions , general implementation considerations ,Contemporary OS kernels.Process Management – Process concepts ,Process scheduling, threads, scheduling-criteria , algorithms, their evaluation, case studies UNIX, Linux, Windows.

UNIT – II

Interprocess communication : Race condition, critical section, mutual exclusion, sleep & wakeup, Semaphores, Monitors, classic problems of synchronization, synchronization Hardware, Case studies UNIX, Linux, Windows.

UNIT – III

Memory Management : With out Swapping, swapping , paging, structure of the page table , segmentation, virtual memory, demand paging, page-Replacement, algorithms, allocation of frames , thrashing, case studies UNIX, Linux, Windows.

UNIT – IV

Deadlock, I/O systems & File system Interface – system model, deadlock characterization, deadlock prevention, detection and avoidance, recovery from deadlock, I/O systems, Hardware, application interface, kernel I/O subsystem, Transforming I/O to Hardware operation, performance. File system Interface File concept, Access Methods, Directory structure, protection.

UNIT – V

File system implementation & Mass-storage structure -.File System implementation- File system structure, allocation methods, free-space management ,directory implementation, , efficiency and performance, case studies. UNIX, Linux, Windows. Mass-storage structure Disk structure, disk scheduling,disk management. Protection **:** Goals of Protection, Domain of protection,Access Matrix.

Text books :

1. Operating System Concepts with java Abraham Silberchatz, Peter B. Galvin, Greg Gagne 6/e , John Wiley.(chapter 4,5,6,7,8,9,10,11,12,13,14,18)
2. Operating systems- A Concept based Approach-D.M.Dhamdhere, 2/e , TMH(chapter 4,6,7,9)
3.Operating systems 3/e Gary Nutt , Pearson education. (Chapter1,3)

Reference books:

1. Modern Operating Systems, Andrew S Tanenbaum 2nd edition Pearson/PHI.
2. Operating Systems' – Internal and Design Principles Stallings, Fifth Edition–2005, Pearson education/PHI
3. Operating System A Design Approach-Crowley, TMH.

B.Tech. (IT) Fourth Semester

EURIT 405 : PRINCIPLES OF PROGRAMMING LANGUAGES

(Common with CSE)

Code	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT405	**PRINCIPLES OF PROGRAMMING LANGUAGES**	CE	3	-	-	3	40	60	100	3

UNIT-I

Preliminary Concepts: Reasons for studying, concepts of programming languages, Programming domains, Language Evaluation Criteria, influences on Language design, Language categories, Programming Paradigms – Imperative, Object Oriented, functional Programming , Logic Programming. Programming Language Implementation – Compilation and Virtual Machines, programming environments .Syntax and Semantics: general Problem of describing Syntax and Semantics, formal methods of describing syntax - BNF, EBNF for common programming languages features, parse trees, ambiguous grammars, attribute grammars, denotational semantics and axiomatic semantics for common programming language features.

UNIT-II

Data types& Expressions and Statements: Introduction, primitive, character, user defined, array, associative, record, union, pointer and reference types, design and implementation uses related to these types. Names, Variable, concept of binding, type checking, strong typing, type compatibility, named constants, variable initialization .Expressions and Statements: Arithmetic relational and Boolean expressions, Short circuit evaluation mixed mode assignment, Assignment Statements, Control Structures – Statement Level, Compound Statements, Selection, Iteration, Unconditional Statements, guarded commands.

UNIT-III

Subprograms and Blocks: Fundamentals of sub-programs, Scope and lifetime of variable, static and dynamic scope, Design issues of subprograms and operations, local referencing environments, parameter passing methods, overloaded sub-programs, generic sub-programs, parameters that are sub-program names, design issues for functions user defined overloaded operators, co routines.

UNIT-IV

Abstract Data types: Abstractions and encapsulation, introductions to data abstraction, design issues, language examples, C++ parameterized ADT, object oriented programming in small talk, C++, Java, C#, Ada 95

Concurrency: Subprogram level concurrency, semaphores, monitors, massage passing, Java threads, C# threads.

UNIT-V

Exception handling & Logic Programming Language: Exceptions, exception Propagation, Exception handler in Ada, C++ and Java.Logic Programming Language **:** Introduction and overview of logic programming, basic elements of prolog, application of logic programming.

Text books :

1. Concepts of Programming Languages Robert .W. Sebesta 6/e, Pearson Education.
2..Fundamentals of programming languages Ellis Horowitz,Galgotia, second edition.

reference books :

1. Programming Languages –Louden, Second Edition, Thomson.
2. Programming languages –Ghezzi, 3/e, John Wiley
3. Programming Languages Design and Implementation – Pratt and Zelkowitz, Fourth Edition PHI/Pearson Education
4. Programming languages –Watt, Wiley Dreamtech
5. LISP Patric Henry Winston and Paul Horn Pearson Education.
6. Programming in PROLOG Clocksin, Springer

B.Tech. (IT) Fourth Semester
EURIT 406: ELECTRICAL CIRCUITS
(Common with CSE)

Code	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT406	**ELECTRICAL CIRCUITS**	BE	3	-	-	3	40	60	100	3

UNIT - I

Introduction of Electrical Engineering- ohms law, Kirchoff's laws, Analysis of circuits using loop current method and node voltage method.Power in DC circuits. Series and parallel combications of resistances. Thevenin's and norton's theorems and super position theorem.Faradays laws of electro magnetic induction.Types of induced emfs.

UNIT – II

DC machines- construction and working principles of a DC Machine. types of excitation, characteristics of series, shunt and compound generators, applications. Productions of torque in a DC motor. Construction and characteristics of DC servo motor. Speed control and applications of dc shunt motor. Losses and efficiency, three point starter.Principle and operatin of Stepper motor.

UNIT – III

AC circuits-sinusoidal sources, phasor representation of sinusoidal quantaties, average and RMS value. Form factor. Analysis of RLC circuits to sinusoidal inputs, power factor active power, reactive power.

UNIT – IV

Transformers-Single phase transformers- principles of operation and constructional details, principles of transformation of voltages and currents, equivalent circuit. Transformer tests, efficiency and regulation of transformer. Principles of autotransformer.

UNIT – V

AC Machines-Three phase induction motors-production of rotating magnetic field. Construction and principle of induction motors. Slip. Rotor current frequency –effect of slip on rotor current. Slip-torque characteristics. principles and operation of single phase induction motors,types of single phase induction motors, speed control by stator voltage and rotor resistance methods.

Text Books

1. Introduction to electrical engineering, M.S.Naidu and S.Kamakshaiah. Tata Mcgraw Hill
2. Principles of Electrical Engineering and Electronics, V.K.Mehta. S.chand & co

References :

1. Basic Electrical Engineering, T.K. Nagasarkar and M.S. Sukhija, Oxford University Press.
2. Theory and Problems of Basic Electrical Engineering, D.P. Kothari and I.J. Nagarath, PHI.
3. Essentials of Electrical and Computer Engineering,l David V. Kerns, Jr. J. David Irwin, Pearson Education.

B.Tech. (IT) Fourth Semester

EURIT 411 : MICROPROCESSORS LAB

Code No	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT411	Microprocessors Lab	CE	-	-	3	3	100	-	100	2

Hardware- Experiments to construct and test the operational characteristics of SSI & MSI Circuits.

1. TTL IC Gates
2. Flip-Flops
3. Counters & Shift Registers
4. Multiplexes
5. Binary Adders

Software : Experiments to solve typical problems by writing assembly language programs for 8085-A & 8086

Assembly Language Programming :

1) 8085 Assembly Language Programming according to theory course microprocessors-I using the following trainers :

Keyboard Monitor of 8085µP Trainer.
Serial Monitor of 8085µP Trainer with Terminal
8085 Line Assembler of 8085µP Trainer with PC as termial
8085 Cross Assembler using In-Circuit Emulator (ICE) with 8085µP Trainer and PC as Terminal

2) 8086 Assembly Language Programming according to theory course Microprocessor using the following :

PC Assembler using TASM or MASM, TD or SYMDEB or CVD(Code View debugger)

Note :

Graded Problems are to be used according to the syllabus of MICROPROCESSORS-I

Detailed specification for each of the experiments is to be prepared by the instructors before the instruction begins and given to the learners.

B.Tech. (IT) Fourth Semester

EURIT 412 : UNIX & OS LAB

Code No	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	
EURIT412	**UNIX & OS LAB**	CE	-	-	3	3	100	-	100	2

1. **HARDWARE DETAILS**
2. **NETWORK DETAILS**
3. **SOFTWARE DETAILS**
4. **UNIX COMMANDS**
5. **PROGRAMS**

(1) PROGRAM: WRITE A PROGRAM TO PRINT "n" TIMES THE MESSAGE "UNIX PROGRAMMING LAB" USING A USER DEFINED FUNCTION disp(n), ACCEPT n FROM KEY BOARD.

(2) PROGRAM : TO PRINT "UNIX PROGRAMMING LAB" 'n' TIMES READING INPUT FROM **infile.txt** and PRINT MESSAGE IN **outfile.txt** USING LIBRARY FUNCTIONS AND USER DEFINED FUNCTION disp().

(3) PROGRAM: TO DISPLAY CURRENT PROCESS ID, PARENT ID, AND GROUP ID USING getpid (), getppid (), and getgid () function calls.

(4) PROGRAM: TO PRINT THE LIMITS OF SYSTEM CONFIGURATION USING BUILTIN LIBRARY FUNCTION CALLS.

(5) PROGRAM: TO DISPLAY "UNIX PROGRAMMING LAB" 'n' TIMES USING SYSTEM CALLS AND USER DEFINED FUNCTION display (char*) n if value read from key board.

(6) PROGRAM : WRITE "UNIX PROGRAMMING LAB" 'n' TIMES IN FILE **outfile.txt** IN CURRENT DIRECTORY USING SYSTEM CALLS AND USER DEFINED FUNCTION write file (char*). N IS AN INTEGER GIVEN.
THROUGH A
FILE infile.txt

(7) PROGRAM: SCHEDULING ALGORITHMS, SIMULATION OF FIRST CUM FIRST SERVE CPU SCHEDULING ALGORITHM.

(8) PROGRAM: SIMULATION OF SHORTEST JOB FIRST CPU SCHEDULING ALGORITHM.

(9) PROGRAM: SIMULATION OF SHORTEST JOB FIRST PREEMPTIVE CPU SCHEDULING ALGORITHM.

(10) PROGRAM: BANKERS ALGORITHM FOR DEAD LOCK AVOIDANCE.

(11) PROGRAM: PAGE REPLACEMENT ALGORITHMS, IMPLEMENT FIRST IN FIRST OUT PAGE REPLACEMENT ALGORITHM.

(12) PROGRAM: PAGE REPLACEMENT ALGORITHMS, IMPLEMENT LEAST RECENTLY USED PAGE REPLACEMENT ALGORITHM.

(12) (a) PROGRAM : PAGE REPLACEMENT ALGORITHMS, IMPLEMENT OPTIMAL PAGE REPLACEMENT ALGORITHM.

B.Tech. (IT) Fourth Semester

EURIT 413 : JAVA PROGRAMMING LAB

Code No	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	E	Tot	
EURIT413	**JAVA Programming lab**	CE	-	-	3	3	100	-	100	2

1. Create a Web Page to display Your (student) profile using different HTML Tags.

2. Write a java Program of Quadratic equation.

3. Write a java Program to find the Fibonacci sequence both recursive & non-recursive.

4 Write a java Program for sorting a given list of names in ascending order.

5. Write a java Program to multiply 2 given matrices.

6. Write a java Program for creating multiple threads.

7 (a). Write a java Program to display the area & perimeter of rectangle using interfaces.

(b). Write a java Program that illustrates how run time polymorphism is achieved.

8. Write a java Program to accept data from keyboard & write it into a file.

9. Write a java Program to draw line & circle using mouse.

10. Write a java Program to implement stack & Queue operations using swings.
11. Write a java Program for drawing the bar chart.

12. Write a java Program to design a calculator for implementing basic functions like +,*,-, / using grid layout.

B.Tech. (IT) Fourth Semester

EURIT 414: INDUSTRIAL TOUR

(Common with CSE)

Code No	Name of Course	Cate-gory	Instruction Hours Per Week				Max Marks			Credits
			L	T	P	Tot	C	S	Tot	-
EURIT414	Industrial Tour	IT	Non Credit Course							

- The student will visit core industries like VLSI, Telecom, Signal Processing, Electronics Engineering, Software Engineering, Instrumentation, etc or related research establishments.
- The industries to be visited should be from the approved list by the Head of the Department.
- At least 4 industries are to be visited by the student
- The duration of the Industrial tour would be week to ten days.
- The tour will be organized by the department in the break between two semesters of their second year of study.
- Each student will have to submit an individual report on the tour for assessment within ten days of return from the tour.

B.Tech. (IT) Fifth Semester
DATA COMMUNICATIONS

Course Code: EUR**IT501** | Category: **CE**
Credits: **3** | No. of hours: **3 per week**
Department: **IT** | Sem. End exam: 60
Total Marks: 100 | Con. Eval : 40

UNIT I

Introduction : A communication model – data communication – data communication networking. *Protocol Architecture:* Need for protocol architecture – a simple protocol architecture – OSI – TCP/IP protocol architecture.

UNIT II

Data* transmission*: concepts and terminology – analog and digital data transmission – transmission impairments – Channel Capacity -- *Transmission Media:* Guided and Unguided.

UNIT III

Signal encoding techniques*:* Digital data digital signals – digital data analog signals – analog data digital signals– analog data analog signals.

UNIT IV

Digital Data Communication Techniques: Asynchronous and Synchronous transmission – types of errors -- error detection techniques –error correction techniques – interfacing.

UNIT V

Multiplexing *:* Frequency division multiplexing – characteristics. Synchronous time division multiplexing – characteristics, TDM Link Control. Statistical time division multiplexing -- characteristics. ADSL, xDSL.

Text Books: 1. Data and computer communications, William Stallings
Pearson Education 7th Edn.
2. Data Communications and Networking by Behrouz A Forouzan,
PHI, 4th Edn.

References :

1. Data Communications, Computer Networks and Open Systems by Fred Halsall, 4th Edition – Pearson Education.

B.Tech. (IT) Fifth Semester
Computer Vision & Graphics

Course Code: EURIT502
Credits : **3**
Department: **IT**
Total Marks: 100

Category: **CE**
No. of hours: **3 per week**
Sem. End exam: 60
Con. Eval : 40

UNIT-I
Introduction, advantages of interactive graphics, representative uses of computer graphics, raster and random scan, development of hardware and software for computer graphics, conceptual framework for interactive graphics.

UNIT-II
Scan converting of lines, line drawing algorithms: DDA algorithm, bresenhams line drawing algorithm, parallel line algorithms, circle generating algorithms, aliasing and antialiasing, polygons, an inside test, filling polygons, filling polygons with a patter.

UNIT-III
2 dimensional transformations: geometric transformations, coordinate transformations composite transformations, window, view port, window to view port transformations, point clipping, cohen Sutherland line clipping algorithm, polygon clipping.

UNIT-IV
3 dimensional transformations: Geometric transformations, Coordinate transformations composite transformations,3 dimesional clipping and viewing projections: parallel nd perspective projections.

UNIT-V
Segments:Introduction, segment table, Segement creation, closing a segment, deleting a segment, renaming a segment curves and fractals: Bezier curves, b-spline curves fractals.

Textbook
1.Computer Interactive Graphics by Hearn & baker.
2. Computer Graphics- A programming Approach by Steven Harrington, Second Edition.
Reference Books
Computer Graphics by Z. Xiang & R.Plastock- Schum Series – Mc GrawHill

Priciples of Interactive Computer Graphics – T.Wuilliam M .New Mann

B.Tech. (IT) Fifth Semester
Systems Programming

Course Code: **EURIT503**
Credits: **3**
Department: **IT**
Total Marks: 100

Category: **CE**
No. of hours: **3 per week**
Sem. End exam: 60
Con. Eval : 40

UNIT-I
Introduction to Systems Programming, Introduction to Assembly Language Programming - Introduction to Instruction Formats, Data formats - Role of Base Register, Index Register. Table processing

UNIT-II
Introduction to Assembler, databases used in assembler design, Design of Assembler - Single Pass & Double Pass.

UNIT-III
Introduction to Macros, various types of Macros, Design of Macro Processor - Single Pass & Double Pass.

UNIT-IV
Introduction to Loaders, functions of a loader, types of Loaders, databases used in Loaders, Design of Loaders - Absolute & DLL.

UNIT-V
Introduction to Software Tools, Text editors, Interpreters, Program Generators, Debug Monitors.

Textbooks: Systems Programming
Author: John J Donovan
Publisher: Tata McGraw Hill

Reference: System Programming
Author: Dhamdhere (IInd Revised Edition)
Publisher: Tata McGraw Hill

B.Tech. (IT) Fifth Semester
DATABASE MANAGEMENT SYSTEM

Course Code: EURIT504
Credits: **4**
Department: **IT**
Total Marks: 100

Category: **CE**
No. of hours: **4 per week**
Sem. End exam: 60
Con. Eval : 40

UNIT-I

Introduction to DBMS: Overview, File system vs DBMS, Advantages of DBMS, Storage data, queries, Transaction Management, DBMS structure

E-R model: Entities, Attributes and Entity sets, Relation ship and Relation ship sets, Features of ER model, Conceptual database design with ER model

UNIT-II

Relational model: Integrity constraints over relations and enforcement,Querying relation data, Logical database design, views, destroying/altering tables and views

Relational algebra and calculus: Relational algebra and calculus

UNIT-III

SQL: Basic SQL, Query, union, interest, except, Nested Queries, Aggregated Operation, Null values, Embedded SQL, cursors, ODBC and JDBC, Triggers and Active database, designing active databases

Overview of Storage and Indexing: Data on External Storage – File Organization and Indexing – Cluster Indexes, Primary and Secondary Indexes – Index data Structures – Hash Based Indexing – Tree base Indexing

UNIT-IV

Schema refinement and normal forms: Schema refinement, fds, fds reasoning normal forms, decomposition, normalization

UNIT-V

Transaction management, concurrency control & crash recovery

Transaction concept, transactions and schedules, concurrent execution of transactions ,lock – based concurrency control, crash recovery.

Concurrency control - lock management, specialized locking techniques, concurrency control without locking.

Crash Recovery- Aries, recovering from a system crash, media recovery

Text Book:

1.Database Management Systems
Raghu Ramakrishnan and Johannes Gehrke McGraw-Hill

2. Data System Concepts
H.F.Korth and A.silberschatz McGraw-Hill

Reference Book:

1. Fundamentals of Database System R.El. Masri and S.B. Navathe

B.Tech. (IT) Fifth Semester
FORMAL LANGUAGES AND AUTOMATA THEORY

Course Code: EURIT505 | Category: **CE**
Credits: **4** | No. of hours: **4 per week**
Department: **IT** | Sem. End exam: 60
Total Marks: 100 | Con. Eval : 40

UNIT I.Finite Automata and Regular Expressions:
Basic Concepts of Finite State Systems, Deterministic and Non-Deterministic Finite Automata, Finite Automata with $\in$-moves, Regular Expressions, Mealy and Moore Machines.

UNIT II. Regular Sets & Regular Grammars:

Basic Definitions of Formal Languages and Grammars, Regular Sets and Regular Grammars, Closure Properties of Regular Sets, Pumping Lemma for Regular Sets, Decision Algorithm for Regular Sets,, Myhill-Nerode Theorem, Minimization of Finite Automata. Chomsky hierarchy, Def of unrestricted grammars.

UNITIII. Context Free Grammars and Languages:
Context Free Grammars and Languages, Derivation Trees, Simplification of Context Free Grammars, Normal Forms, Pumping Lemma for CFL, closure properties of CFL's , Membership Algorithm(CYK), Decision Algorithm for CFL,CFL relationship between class of languages.

UNIT IV.Push down Automata and Deterministic CFL:
Informal Description, Definitions, Push-Down Automata and Context free Languages, equivalence of CFL and PDFs, LR(k) Grammars, Properties of LR (k) Grammars.

UNIT V.Turing Machines and Undecidability:
Design and Techniques for Construction of Turing Machines, Rice's Theorem, Modifications of Turing Machines, Techniques of Turing machines, Universal Turing Machines(UTM), Undecidability Problems, Post Correspondence Problem(PCP), Undecidability Of PCP, modified Post Correspondence Problem(MPCP).

Text Books:

1. Introduction to Automata Theory, Languages & Computation By J.E Hopcraft & Jeffery D.Ulman –Pearson Education 3/e. 2007

2. Introduction to languages & and theory of computation(sie) byJohn C martin , Narosa Publications. Edition-3e

Reference Books:

1. Theory of Computer Science By Mishra & Chandra Sekharan, PHI Introduction to Languages & Theory of Computation by Martin, TMH Publications.
2. An Introduction to Automata Theory &Formal Languages. ---Adesh K Pandey

B.Tech. (IT) Fifth Semester
COMPUTER ORIENTED OPTIMIZATION TECHNIQUES

Course Code: EUR**IT506**
Credits: **3**
Department: **IT**
Total Marks: 100

Category: **BE**
No. of hours: **3 per week**
Sem. End exam: 60
Con. Eval : 40

Unit –I
Overview of Operation Research : The nature and meaning of Operations Research.
Linear Programming: Introduction – Formulation of the Linear Programming Model. Standard form of LPP the Graphical Solution Simplex Method (Technique or Algorithm) – Artificial Variables Techniques – Big-M Method – Two Phase Method.

Unit –II
Advanced Topics in Linear Programming – Duality in Linear Programming – The Dual Simplex Method – The Revised Simplex Method – Integer Programming.

Unit –III
Transportation Model and its variants – The Transportation Algorithm – Assignment Model – Hungarian Solution of the Assignment Model – Job Sequencing ,Travelling Salesman Problem .

Unit –IV
Network Models – Intoduction – Definition of events, activities – Network diagrams- Applications of PERT and CPM.

Unit V
Inventory – Inventory Model – Static EOQ Models – Price Breaks
Game Theory – Minimax – Miximin Principle – Pure Strategies
Mixed Strategies – Expected Payoff

Text Books:
1. Introduction to Operations Research – A Computer – Oriented Algorithmic Approach - BILLY E. GILLETT
2. Operations Research - P.K.GUPTA & D.S.HIRA

Reference:
Introduction to Operations Research - H.TAHA

B.Tech. (IT) Fifth Semester
COMPUTER GRAPHICS LAB

Course Code: EUR**IT511**
Credits: **2**
Department: **IT**
Total Marks: 100

Category: **CE**
No. of hours: **3 per week**

Con. Eval : 100

1. Drawing various types of lines and curves
2. Creating various types text an fonts.
3. Creative two dimensional objects using the lines and curves
4. Animating the two dimensional picture using transformations.
5. Coloring the pictures and Zooming.
6. Creating an object and applying animation of key framing
7. Creating three dimensional objects using wire frame modeling
8. Rotation, scaling and translating the 3 D objects
9. Coloring the 3 D objects
10. Shading the 3 D objects
11. Rendering the objects
12. Creating smooth surfaces.
13. Creating rugged surfaces based on fractal geometry.

B.Tech. (IT) Fifth Semester
D B M S Laboratory

Course Code: EUR**IT512**
Credits: **2**
Department: **IT**

Category: **CE**
No. of hours: **3 per week**
Total Marks: 100
Con. Eval : 100

Creating a database, Simple Queries.

1. Use of Select Statement for queries using
   i) AND, OR, NOT operations.
   ii) Union, Intersection, Projection and Join Operations.
   iii) Sorting and Grouping.
2. Nested queries using SQL.
3. Built in functions of SQL.
4. Update operations using SQL.
5. Use SQL forms.
6. Use of Indexes, creating views and queuing in views.
7. Embedded SQL with C.

Student Evaluation System.

Reference Books

1. Oracle PL/SQL programming by steven Feuerstein O'reilly Publishers.
2. PL/pgSQL search internet for necessary documentation.
3. Oracle books form oracle press.

B.Tech. (IT) Sixth Semester
COMPUTER NETWORKS

Course Code:EURIT601 Category: **CE**
Credits: **3** No. of hours: **3 per week**
Department**: IT**

Unit-I
Reference Models: OSI, TCP/IP and Differences between OSI and TCP/IP. Examples of Networks: Novel Netware, Internet, Connection Oriented Networks.
MAC Sub layer: Channel Allocation Problems: Static and Dynamic. Multiple Access Protocols: ALOHA, CSMA, Collision-free protocols.

Unit-II
IEEE 802.x Standards Ethernet, Wireless LANS: 802.11 protocol stack, physical layer, MAC sub layer protocol, frame structure and services. Bluetooth, Data link Layer Switching: Bridges from 802.x to 802.y, Local Internetworking, Spanning tree bridges, Remote bridges, Repeaters, Hubs, Bridges, Switches, Routers and Gateways.

Unit-III
Network Layer: Design Issues: Store and forward packet switching, Services provided to the Transport Layer, Implementation of connection less and connection oriented services and comparisons. Routing Algorithms, Congestion Algorithms, The Network Layer in the Internet: IP, ICP and IPV6.

Unit-IV
Transport Layer: Transport Services: Services provided to the upper layer, Primitives, Berkeley Sockets and examples. Elements of Transport Protocols: Addressing, Connection Establishment, Release, Flow control and Buffering, Multiplexing and crash Recovery. The Internet Transport Protocols: TCP, UDP.

Unit-V
Application Layer: DNS, E-MAIL, WWW, MULTIMEDIA.

Text Books:

1. Computer Networks – Andrew S Tanenbum, 4th Edition. Pearson Education/PHI.
2. Data Communications and Networking by Behrouz a Forouzan, 4th Edition. Tata McGraw-Hill.

Reference Book:

1. Data and Computer Communications, 7th Edition by William Stallings.

B.Tech. (IT) Sixth Semester
WEB TECHNOLOGIES

Course Code: EURIT 602 Category: **CE**

Credits: **3** No. of hours: **3 per week**
Department: **IT** Sem. End exam: 60
Total Marks: 100 Con. Eval : 40

UNIT-I:Introduction to Web Technology : Internet, WWW, Web Browsers with suitable examples , Web Servers with suitable examples, URL, HTTP, MIME.

Introduction to HTML& DHTML : Basic Syntax, HTML Document Structure , Text Formatting, Images, Lists, Links, Tables, Frames, Forms.

Cascade Style Sheets : Levels Of Style Sheets, Specification Formats, Style Classes , Properties, Colors, Span and Div tags.

UNIT-II

Introduction to Java Script: Overview of java Script, Syntactic characteristics, Primitives, Operator and Expression, control statements, Arrays, functions, errors in scripts, Document Object Model(DOM),Event driven computation, element access in Java script, The navigator Object.

Dynamic Document with Java Script : Element positioning, Moving elements, Changing colors and fonts, Dynamic content, Locating the mouse Cursor, Slow movements of elements, Dragging and Dropping Elements.

UNIT-III

Introduction to XML: Syntax of XML, Document Structure, Document type definition, Namespaces,XML Schemas, Document Object model, Presenting XML, Using XML Processors: DOM and SAX

Java Beans: Introduction to Java Beans, Advantages of Java Beans, BDK Introspection, Using Bound properties, Bean Info Interface, Constrained properties Persistence, Customizes, Java Beans API, Introduction to EJB's

UNIT-IV:

Web Servers and Servlets: Tomcat web server, Introduction to Servelets: Lifecycle of a Serverlet, Web Server operations, general server characteristics, Overview of Servlets with Examples,JSDK, The Servelet API, The javax.servelet Package, Reading Servelet parameters, Reading Initialization parameters. The javax.servelet HTTP package, Handling Http Request & Responses, Using Cookies-Session Tracking, Security Issues, Structure of Web Application, Deploying Web Application, Introduction to Model View Controller (MVC) Architecture, its structure, components.

UNIT-V:

Introduction to PHP: Overview of PHP, general server characteristics, Creating PHP Pages, Form handling , Data Base access with PHP & MySql.

Introduction to JSP: The Problem with Servelet. The Anatomy of a JSP Page, JSP Processing. JSP Application Design with MVC Setting Up and JSP Environment: Installing the Java Software Development Kit, Tomcat Server & Testing Tomcat

Text books:

1. Programming world wide web- Robert W.Sebesta , Pearson 2nd edition
2. The complete Reference Java 2 Fifth Edition by Patrick Naughton and Herbert Schildt. TMH
3. J2EE The complete Reference by Jim Keogh
4. Beginners PHP, Apache, MY Sql, Web Development, by Michael Glass Wrox.

Reference books:

1. Core SERVLETS ANDJAVASERVER PAGES VOLUME 1: CORE TECHNOLOGIES By Marty Hall and Larry Brown Pearson
2. Internet and World Wide Web – How to program by Dietel and Nieto PHI/Pearson Education Asia.
3. Jakarta Struts Cookbook , Bill Siggelkow, S P D O'Reilly for chap 8.
4. Murach's beginning JAVA JDK 5, Murach, SPD
5. An Introduction to web Design and Programming –Wang-Thomson
6. Web Applications Technologies Concepts-Knuckles,John Wiley
7. Web Warrior Guide to Web Programmming-Bai/Ekedaw-Thomas
8. Beginning Web Programming-Jon Duckett WROX.Java Server Pages, Pekowsky, Pearson.

B.Tech. (IT) Sixth Semester
SOFTWARE ENGINEERING

Course Code: EURIT 603 | Category: **CE**
Credits: **4** | No. of hours: **4 per week**
Department: **IT** | Sem. End exam: 60
Total Marks: 100 | Con. Eval : 40

UNIT I: Introduction to Software Engineering. Software, Software Engineering, Changing Nature of Software, Software myths.
A Generic view of process. Software engineering- A layered technology, a process framework, Process patterns, process assessment, personal and team process models, Process Technology, Product and Process
Process models. The waterfall model, Incremental process models, Evolutionary process models, The Formal methods model, The Unified process.The Software engineering Process.
UNIT II:Requirements engineering. A bridge to Design and Construction Requirements engineering tasks, Initiating Requirements engineering Process, Eliciting Requirements, Bulding the Analysis Model, Negotiating Requirements, Validating Requirements, Requirements Analysis, Object Oriented Analysis, Scenario-Based Modeling ,Flow-Oriented Modeling ,Class-Based Modeling.
UNIT III :Design Engineering. Design process and Design quality, Design concepts, the design model. Pattern based Software Design.
Creating an architectural design. Software architecture, Data design, Architectural styles and patterns, Architectural Design, Mapping Data-Flow into a
Software Architecture.
Modeling Component-Level Design, What is a Component? Design Class-Based Components, Conducting Component level Design.
Performing User interface design : Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation.
UNIT IV:Testing Strategies.A strategic approach to software testing, strategic issues, test strategies for conventional software, test strategies Object Oriented software, Validation testing, System testing.
Testing Tactics. Software testing fundamentals, White-Box testing, Basic Path testing, Control Structure testing, Black-Box testing.
Product metrics. Software Quality,A frame work for Product Metrics, Metrics for source code, Metrics for testing, Metrics for maintenance.
UNIT V: Metrics for Process and Products. Software Measurement, Metrics for software quality.**Estimation.** Observation on Estimation, Resources, Software Project estimation, Decomposition Techniques.**Risk management :** Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan.**Project Scheduling**. Basic Concepts, Scheduling. **Quality Management :** Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Software reliability.
Project Management. The Management Spectrum, People, Product.
Text Book:
Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition.McGrawHill International Edition.
References :
1. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
2. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill Companies.
3. Software Engineering- Sommerville, 7th edition, Pearson education

B.Tech. (IT) Sixth Semester
COMPILER DESIGN

Course Code: EURIT 604
Credits: **4**
Department: **IT**
Total Marks: 100

Category: **CE**
No. of hours: **4 per week**
Sem. End exam: 60
Con. Eval : 40

UNIT –I

The theory of automata:

Definition and description - Transition systems - properties - Acceptability of string - NDFA - Equivalence in between DFA & NDFA. Grammars - Types of Grammars - Grammars and Automata - Regular expressions - Finite Automata and Regular expressions - Regular sets and Regular Grammars.

Overview of compilers:
Brief discussion on various phases of Compilers

UNIT-II
Lexical analyser:
Design of lexical analyzer - Design of Parsers - Shift Reduce parser - Operator Precedence Parser - Predictive Parser - LR parser - SLR parser - LALR parser.

UNIT-III
Syntax directed translation:
Syntax directed translation and implementation - Intermediate code - Postfix notation - Parsing tree - Three addresses Code - Quadruples - Triples.
Intermediate code optimization:
The principle sources of optimization - Loop Optimization - DAG - Global data flow analysis.

UNIT-IV
Code generation:
Problems - Machine model - A simple code generator - Register allocation and assignment - Code generation from DAG - Peep hole optimization.

UNIT-V
Symbol tables - Run-time storage administration.

Text books:
1. Principles of Compiler Design - Alfred V. Aho, D. Ullman (chapters: 1, 2,3,4,5,6,7,9, 10, 12, 15).
2. Systems Programming - John. J. Donovan (chapter: 8)
3. Theory of Computer Science - K.L.P.Mishra, N.Chandra Sekharan (chapter: 2, 3, 4)

B.Tech. (IT) Sixth Semester
Design And Analysis of Algorithms

Course Code: EURIT 605
Credits: **4**
Department: **IT**
Total Marks: 100

Category: **CE**
No. of hours: **4 per week**
Sem. End exam: 60
Con. Eval : 40

UNIT I

Introduction to algorithms: Algorithm specification -- Performance Analysis. *Divide and Conquer:* The general method -- Binary search -- finding maximum and minimum -- Merge sort -- Quick sort -- Selection -- Strassen's Matrix multiplication.

UNIT II

The Greedy Method: The general method – Knapsack problem -- Job sequencing with deadlines -- Optimal storage on tapes -- minimum cost spanning trees -- single source shortest paths.

UNIT III

Dynamic Programming: The general method -- Multistage graphs -- all pairs shortest paths -- optimal binary search trees -- reliability design -- the traveling sales person problem.

Unit IV

Basic search and traversing techniques: Techniques for Binary trees – Techniques for Graphs – Connected components and spanning trees -- Bi-connected components and depth first search. *Back Tracking:* The General Method -- Eight Queens problem -- Sum of subsets -- Graph coloring -- Hamiltonian cycle.

Unit V

Branch and Bound: The method -- Traveling sales person problem -- efficiency considerations. *Algebraic Problems:* The general method -- Evaluation and Interpolation.

Text Books: 1.Fundamentals of Computer Algorithms by Ellis Horowitz, S. Sahni et.al. Galgotia Pub. 2001.
2.The Design and Analysis of Computer Algorithms by Aho, Hopecraft, Ullman.

Reference Books :

1.Computer Algorithms : Introduction to Design and Analysis by Sara Baase, Allen Van Gelder, Pearson Education.
2.Data Structures and Algorithm Analysis in C++ by Mark Allen Weiss, Pearson Education.

B.Tech. (IT) Sixth Semester
ARTIFICIAL INTELLIGENCE

Course Code: EURIT 606 | Category: **CE**
Credits: **4** | No. of hours: **4 per week**
Department: **IT** | Sem. End exam: 60
Total Marks: 100 | Con. Eval : 40

UNIT - 1

- Introduction to Artificial Intelligence, Artificial Intelligence Problems, Artificial Intelligence Techniques, problems, Problem space and search-defining the problem as a state space search, Production System, Problem characteristics
- Heuristic Search Technologies Generate & Test Hill Climbing, Best First search, Problem reduction, Constraint satisfaction, Means Endo Analysis

UNIT -2

Knowledge Representation Representation Knowledge using predicate logic-representing simple facts in logic, representing instance and is relationships, computable functions and predicates resolution.Representing Knowledge Using Rules: Procedural Vs Declarative knowledge, Logic Programming, Forward Vs Backward Reasoning, Matching, Control Knowledge.

UNIT -3

- Symbolic Reasoning under uncertainty
  Introduction to Non-monotonic Reasoning, logics for Non-monotonic Reasoning, Implementation :depth first search-Dependency – Directed Backtracking. Justification-based truth maintenance, logic based truth maintenance systems Statistical Reasoning-probability and bayes theorem,certainity factors and rule-base systems beyesian networks,dempster-shaffer theory. Weak Slot and Filler Structures Sematic nets, Frames.

UNIT - 4

Strong slot and filler structures Conceptual dependencies, Scripts.

- Game Planning Overview – an example domain-Block world, Components of a Planning System, Goal State Planning, Non Linear Planning using constraint posting, Hierarchical Planning.

UNIT - 5

- Natural Language Processing: Introduction, Syntactic Analysis, Semantic Analysis, Discuses and Pragmatic Processing.
- Introduction and Fundamentals of Artificial Neural Networks: Biological prototype, Artificial Neuron, Single layer Artificial, Neural Networks, Multilayer Artificial Neural Networks, Training of Artificial Neural Networks.

Prescribed Books: 1) Artificial Intelligence- Rich E & Knight K TMH (1991)
2) Neural Computing: Theory and practice – Waserman

Reference Book: 1)Artificial Intelligence Structures and Strategies complex problem solving – George F.Lugar Pearson Education
2)Neural Networks: A Comprehensive Foundation 2/e –Symen Pearson Education.
3) Intoduction to Artificical Inteligence & Expert Systems-Dan w.patterson(Pearson Education)

B.Tech. (IT) Sixth Semester

WEB TECHNOLOGIES LABORATORY

Course Code: EURIT 611
Credits: **2**
Department: **IT**

Category: **CE**
No. of hours: **3 per week**
Total Marks: 100
Con. Eval : 100

1.) Intoduction To Web Technologies Lab

2.) Introduction To Html
   A.) Sample Static Webpage
   B.) Source Code

3.) Introduction To Javascript
   A.) Sample Webpage
   B.) Source Code

4.) Introduction To Dhtml
   A.) Sample Dynamic Webpage
   B.) Source Code

5.) Introduction To Servlets
   A.) Sample Program
   B.) Output
   C.) Sample Program With Database Connectivity
   D.) Output

6.) Introduction To Jsp (Java Server Page)
   A.) Sample Program
   B.) Output
   C.) Sample Program With Database Connectivity
   D.) Output

7.) Introduction To Asp (Active Server Page)
   A.) Sample Program
   B.) Output
   C.) Sample Program With Database Connectivity
   D.) Output

8.) Introduction To Flash
   A.) Sample Program
   B.) Output

B.Tech. (IT) Sixth Semester
LANGUAGE PROCESSORS LABORATORY

Course Code: EURIT 612 | Category: **CE**
Credits: **2** | No. of hours: **3 per week**
Department: **IT** | Total Marks: 100
Con. Eval : 40

Note: All the programs are to be implemented in C & C++

1.Develop a lexical analyzer to recognize the following patterns
a) Identifiers
b) Constants
c) Comments
d) Operators

2. General Lexical using LEX.

3. Develop an LL (1) parser. Construct the parse table also.

4. Develop an operator precedence parser. Construct the parse table also.

5. Develop recursive descent parser.

6. Write a program for generating various intermediate code forms:

a) Three address code
b) Polish notation

7. Given any intermediate code form implement code optimization techniques.

8. Write a program to parse using Brute Force technique of Top down parsing .
9. Generate YACC specification for a few syntactic categories.

9. Write a program to simulate heap storage allocation strategy.

B.Tech. (IT) Sixth Semester

PERSONALITY DEVELOPMENT

Course Code: EURIT 613
Credits: **No credits**
Department**: IT**

Category: **HS**
No. of hours: **3 per week**

B.Tech. (IT) Seventh Semester

OBJECT ORIENTED ANALYSIS AND DESIGN

(Common with CSE)

Course Code :EURIT 701 Category: CE
Credits:3 Hours : 3 per week
Department: **IT** Sem. End exam: 60
Total Marks: 100 Con. Eval : 40

UNIT-I

Introduction to UML: Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture, Software Development Life Cycle.

UNIT-II

Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams.

Advanced Structural Modeling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages.

UNIT-III

Class & Object Diagrams: Terms, concepts, modeling techniques for Class & Object Diagrams.

Basic Behavioral Modeling-I: Interactions, Interaction diagrams.

UNIT-IV

Basic Behavioral Modeling-II: Use cases, Use case Diagrams, Activity Diagrams.

Advanced Behavioral Modeling: Events and signals, state machines, processes and Threads, time and space, state chart diagrams.

UNIT-V

Architectural Modeling: Component, Deployment, Component diagrams and Deployment diagrams.

Case Study: The Unified Library application.

Text books:

1. Grady Booch, James Rumbaugh, Ivar Jacobson: The Unified Modeling Language User Guide, Pearson Education.
2. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado: UML 2 Toolkit, WILEY-Dreamtech India Pvt. Ltd.

Reference books:

1. Meilir Page-Jones: Fundamentals of Object Oriented Design in UML, Pearson Education.
2. Pascal Roques: Modeling Software Systems Using UML2, WILEY-Dreamtech India Pvt. Ltd.
3. Atul Kahate: Object Oriented Analysis & Design, The McGraw-Hill Companies.
4. Mark Priestley: Practical Object-Oriented Design with UML,TATA McGrawHill
5. Appling UML and Patterns: An introduction to Object – Oriented Analysis and Design and Unified Process, Craig Larman, Pearson Education.

B.Tech. (IT) Seventh Semester

DATA WAREHOUSING AND DATA MINING

Course Code :EURIT 702 Category: CE
Credits:3 Hours : 3 per week
Department: **IT** Sem. End exam: 60
Total Marks: 100 Con. Eval : 40

UNIT-I

1. Introduction to Data Mining:
Motivation and importance, What is Data Mining, Relational Databases, Data Warehouses, Transactional Databases, Advanced Database Systems and Advanced Database Applications, Data Mining Functionalities, Interestingness of a pattern Classification of Data Mining Systems, Major issues in Data Mining . Data Mining Primitives: What defines a Data Mining Task?Architectures of Data Mining Systems.

why Pre-process the Data? Data Cleaning, Data Integration and Transformation

Data Reduction, Discretization and Concept Hierarchy Generation

UNIT-II

2. Data Warehouse and OLAP Technology for Data Mining (8)

What is a Data Warehouse? Multi-Dimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, Development of Data Cube Technology, Data Warehousing to Data Mining

UNIT-III

Concept Description: Characterization and comparison
What is Concept Description, Data Generalization and summarization-based Characterization, Analytical Characterization: Analysis of Attribute Relevance,
Mining Class Comparisons: Discriminating between different Classes, Mining Descriptive Statistical Measures in large Databases

UNIT-IV

Mining Association rule in large Databases
Association Rule Mining, Mining Single-Dimensional Boolean Association Rules from Transactional Databases, Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses, From Association Mining to Correlation Analysis, Constraint-Based Association Mining

UNIT-V

Classification and prediction
Concepts and Issues regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Classification by Back propagation, Classification Based on Concepts from Association Rule Mining, Other Classification Methods.

Cluster Analysis
What is Cluster Analysis, Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning algorithms

Text books:

1. **Data Mining Concepts and Techniques Jiawei Han** and **Micheline Kamber**
   Morgan Kaufman Publications

Reference Books:

1. Data Mining Introductory and Advanced Topics, Margaret H Dunhan, Pearson Education.
2. Data Mining, Ian H.Witten Eibe Frank, Morgan Kaufman Publications.
3. Data Mining by Tan, Steinbach, Vipin Kumar, Pearson Education.

B.Tech. (IT) Seventh Semester
NETWORK SECURITY
(Common with CSE)

Course Code :EURIT 703 Category: CE
Credits:2 Hours : 2 per week
Department: **IT** Sem. End exam: 60
Total Marks: 100 Con. Eval : 40

UNIT-I

Introduction: Services, Mechanisms, Attacks, OSI Security Architecture, Model for Network Security, Classical Encryption Techniques, Symmetric Encryption, Substitution Techniques, And transposition techniques, Steganography, Block Ciphers and the Data Encryption Standard: Simple DES, Block cipher principles, Differential and linear cryptanalysis, Block cipher design principles, Block cipher mode operation.

UNIT-II

Advanced Encryption Standard, Contemporary Symmetric Ciphers: Triple DES, Blowfish, RC5, Block Cipher Characteristics, Stream Cipher Properties, RC4. Confidentiality Using Symmetric Encryption: Placement of Encryption, Traffic confidentiality, Key Distribution, Random Numbers generation.

UNIT-III

Introduction to Finite Fields, Introduction to Number Theory, Public Key Cryptography and RSA, Key Management; Other Public Key Cryptosystems: Diffie-Hellman key exchange, Elliptical curve cryptography.

UNIT-IV

Message Authentication and Hash Functions: Message Authentication, Message Authentication Codes, Hash Functions, Hash Functions & MAC Security. Hash Algorithms: MD5, Secure Hash algorithm, RIPEMD-160, HMAC, and Digital Signatures & Authentication Protocols.

UNIT-V

Authentication Applications: Kerberos, X.509 Authentication Service. Electronic Mail Security: Pretty Good Privacy (PGP), S/MIME, IP Security: IP Security architecture, Web Security, Intruders, Malicious Software, Firewalls

Text book:

1. Cryptography and Network Security Third Edition, William Stallings
2. Cryptography and Network Security Behrouz A . Forouzan, TMH
3. Cryptography and Network Security Second edition, Atul Kahate, TMH

References :

1. Modern cryptography : Theory and practice Mao, Pearson Education.
2. Network Security : Private communication in a public world, 2/e. Kaufman, Perlman & Speciner. PHI.
3. Network Security and Management. Single PHI.

B.Tech. (IT) Seventh Semester

DEPARTMENT ELECTIVES – I

MULTIMEDIA SYSTEMS

(Common with CSE)

Course Code :EURIT 721 | Category: DE
Credits:4 | Hours : 4 per week
Department: **IT** | Sem. End exam: 60
Total Marks: 100 | Con. Eval : 40

UNIT-I

Fundamental concepts in Text and Image: Multimedia and hypermedia, world wide web, overview of multimedia software tools. Graphics and image data representation graphics/image data types, file formats, Color in image and video: color science, color models in images, color models in video.

Fundamental concepts in video and digital audio: Types of video signals, analog video, digital video, digitization of sound, MIDI, quantization and transmission of audio.

UNIT-II

Action Script I: ActionScript Features, Object-Oriented ActionScript, Datatypes and Type Checking, Classes, Authoring an ActionScript Class.

Action Script II : Inheritance, Authoring an ActionScript 2.0 Subclass, Interfaces, Packages, Exceptions.

UNIT-III

Application Development: An OOP Application Frame work, Using Components with Action Script Movie Clip Subclasses.

Multimedia data compression: Lossless compression algorithm: Run-Length Coding, Variable Length Coding, Dictionary Based Coding, Arithmetic Coding, Lossless Image Compression, Lossy compression algorithm: Quantization, Transform Coding, Wavelet-Based Coding, Embedded Zerotree of Wavelet Coefficients Set Partitioning in Hierarchical Trees (SPIHT).

UNIT-IV

Basic Video Compression Techniques: Introduction to video compression, video compression based on motion compensation, search for motion vectors, MPEG, Basic Audio Compression Techniques.

UNIT-V

Multimedia Networks: Basics of Multimedia Networks, Multimedia Network Communications and Applications : Quality of Multimedia Data Transmission, Multimedia over IP, Multimedia over ATM Networks, Transport of MPEG-4, Media-on-Demand(MOD).

Text Books:

1. Fundamentals of Multimedia by Ze-Nian Li and Mark S. Drew PHI/Pearson Education.
2. Essentials ActionScript 2.0, Colin Moock, SPD O,REILLY.

References:

1. Digital Multimedia, Nigel chapman and jenny chapman, Wiley-Dreamtech
2. Macromedia Flash MX Professional 2004 Unleashed, Pearson.
3. Multimedia and communications Technology, Steve Heath, Elsevier (Focal Press).
4. Multimedia Applications, Steinmetz, Nahrstedt, Springer.
5. Multimedia Basics by Weixel Thomson
6. Multimedia Technology and Applications, David Hilman , Galgotia

B.Tech. (IT) Seventh Semester
ADVANCED DATABASES
(Common with CSE)

Course Code :EURIT 722 Category: DE
Credits:4 Hours : 4 per week
Department: **IT** Sem. End exam: 60
Total Marks: 100 Con. Eval : 40

Aims of the Module To study the advanced aspects of modern database management systems (DBMS), and recent advances in DBMS technology in three major directions: (1) DBMS performance (2) Distribution and heterogeneity of DBMS and (3) Varieties of information managed by the DBMS.

UNIT-I **Review of the fundamental principles of modern database management systems (DBMS):** architecture and functionality; relational databases (the relational data model, the relational algebra, SQL); object-oriented databases (ODMG data model and query language); object-relational DBMS: Oracle 10g.

UNIT-II
Query processing and query optimization.

UNIT-III
Transaction Management: ACID properties, concurrency control, and recovery.

UNIT-IV
Distributed databases: architecture, distributed database design, distributed query processing, distributed transaction management

UNIT – V
Heterogeneous databases: architecture, schema translation and schema integration, query processing, transaction management, and alternative transaction models.

Text-books: 1.R. Ramakrishnan, Database Management Systems, McGraw-Hill , ISBN 0-07-050775-9
2. M.T. Oszu, P. Valduriez, Principles of Distributed Database Systems, 2nd Edition, Prentice-Hall 1999, ISBN 0-13-659707-6.

References
1. P.A. Bernstein, V. Hadzilacos, N.Goodman,Concurrency Control and Recovery in Database Systems,Addison-Wesley, 1987, ISBN 0-201-10715-5.
2.A.Elmagarmid, M.Rusinkiewicz, A.Sheth (eds)Management of Heterogeneous and Autonomous Database Systems, Morgan Kaufmann, 1999, ISBN 1-55860-216-X.
3.M.Piattini and O.Diaz (eds) Advanced Database Technology and Design, Artech House, 2000.

B.Tech. (IT) Seventh Semester
EMBEDDED SYSTEMS
(Common with CSE)

Course Code :EURIT 723 | Category: DE
Credits:4 | Hours : 4 per week
Department: **IT** | Sem. End exam: 60
Total Marks: 100 | Con. Eval : 40

UNIT-I

Embedded Computing: Introduction, Complex Systems and Microprocessor, The Embedded System Design Process, Formalisms for System Design, Design Examples. (**Chapter I from Text Book 1, Wolf**).

The 8051 Architecture : Introduction, 8051 Micro controller Hardware, Input/Output Ports and Circuits, External Memory, Counter and Timers, Serial data Input/Output, Interrupts. (**Chapter 3 from Text Book 2, Ayala**).

UNIT-II

Basic Assembly Language Programming Concepts: The Assembly Language Programming Process, Programming Tools and Techniques, Programming the 8051. Data Transfer and Logical Instructions.
(**Chapters 4,5 and 6 from Text Book 2, Ayala**).

Arithmetic Operations, Decimal Arithmetic. Jump and Call Instructions, Further Details on Interrupts. (**Chapter 7and 8 from Text Book 2, Ayala**)

UNIT-III

Applications : Interfacing with Keyboards, Displays, D/A and A/D Conversions, Multiple Interrupts, Serial Data Communication. (**Chapter 10 and 11 from Text Book 2, Ayala**).

Introduction to Real – Time Operating Systems: Tasks and Task States, Tasks and Data, Semaphores, and Shared Data; Message Queues, Mailboxes and Pipes, Timer Functions, Events, Memory Management,
Interrupt Routines in an RTOS Environment. (**Chapter 6 and 7 from Text Book 3, Simon**).

UNIT-IV

Basic Design Using a Real-Time Operating System: Principles, Semaphores and Queues, Hard Real-Time Scheduling Considerations, Saving Memory and Power, An example RTOS like uC-OS (Open Source); Embedded Software Development Tools: Host and Target machines, Linker/Locators for Embedded Software, Getting Embedded Software into the Target System; Debugging **Techniques:** Testing on Host Machine, Using Laboratory Tools, An Example System. (Chapter 8,9,10 & 11 from Text Book 3, Simon).

UNIT-V

Introduction to advanced architectures: ARM and SHARC, Processor and memory organization and Instruction level parallelism; Networked embedded systems: Bus protocols, I2C bus and CAN bus; Internet-Enabled Systems, Design Example-Elevator Controller. (**Chapter 8 from Text Book 1, Wolf**).

TEXT BOOKS:

1. Computers as Components-principles of Embedded computer system design, Wayne Wolf, Elseveir.
2. The 8051 Microcontroller, Third Edition, Kenneth J.Ayala, Thomson.

REFERENCES:

1. Embedding system building blocks, Labrosse, via CMP publishers.
2. Embedded Systems, Raj Kamal, TMH.
3. Micro Controllers, Ajay V Deshmukhi, TMH.
4. Embedded System Design, Frank Vahid, Tony Givargis, John Wiley.
5. Microcontrollers, Raj kamal, Pearson Education.
6. An Embedded Software Primer, David E. Simon, Pearson Education.

B.Tech. (IT) Seventh Semester
BIO-INFORMATICS
(Common with CSE)

Course Code :EURIT 724 | Category: DE
Credits:4 | Hours : 4 per week
Department: **IT** | Sem. End exam: 60
Total Marks: 100 | Con. Eval : 40

UNIT-I

Introduction: Definitions, Sequencing, Biological sequence/structure, Genome Projects, Pattern recognition an prediction, Folding problem, Sequence Analysis, Homology and Analogy.

Protein Information resources: Biological databases, Protein pattern databases, and structure classification databases. Secondary databases, Protein pattern databases, and Structure classification databases.

UNIT-II

Genome Information resources: DNA sequence databases, specialized genomic resources

DNA sequence analysis: Importance of DNA analysis, Gene structure and DNA sequences, Features of DNA sequence analysis, EST (Expressed Sequence Tag) searches, Gene hunting, Profile of a cell, EST analysis, Effects of EST data on DNA databases.

UNIT-III

Pair wise alignment techniques: Database searching, Alphabets and complexity, Algorithm and programs, Comparing two sequences, sub-sequences, Identity and similarity, The Dotplot, Local and global similarity, different alignment techniques, Dynamic Programming, Pair wise database searching.

UNIT-IV

Multiple sequence alignment: Definition and goal, The consensus, computational complexity, Manual methods, Simultaneous methods, Progressive methods, Databases of Multiple alignments and searching.

Secondary database searching: Importance and need of secondary database searches, secondary database structure and building a sequence search protocol.

UNIT-V

Analysis packages: Analysis package structure, commercial databases, commercial software, comprehensive packages, packages specializing in DNA analysis, Intranet Packages, Internet Packages.

Text Books:

1. Introduction to Bioinformatics, by T K Attwood & D J Parry-Smith
   Addison Wesley Longman
2. Bioinformatics – A Beginner's Guide by Jean-Michel Claveriw, Cerdric Notredame, WILEY dreamlech India Pvt. Ltd.

Reference Books:

1.Introduction to Bioinformatics by M.Lesk OXFORD publishers (Indian Edition)
2. Bioinformatics computing Bryan Bergerar Pearson Education.
3. Fundamental concepts of Bioinformatic Dan E, Kranle Pearson Education.

B.Tech. (IT) Seventh Semester
E – COMMERCE
(Common with CSE)

Course Code :EURIT 725 | Category: DE
Credits:4 | Hours : 4 per week
Department: **IT** | Sem. End exam: 60
Total Marks: 100 | Con. Eval : 40

UNIT-I

Electronic Commerce-Frame work, anatomy of E-Commerce applications, E-Commerce Consumer applications, E-Commerce organization applications.

Consumer Oriented Electronic commerce - Mercantile Process models.

UNIT-II

Electronic payment systems - Digital Token-Based, Smart Cards, Credit Cards, Risks in Electronic Payment systems.

Inter Organizational Commerce - EDI, EDI Implementation, Value added networks.

UNIT-III

Intra Organizational Commerce - work Flow, Automation Customization and internal Commerce, Supply chain Management.

Corporate Digital Library - Document Library, digital Document types, corporate Data Warehouses. Advertising and Marketing - Information based marketing, Advertising on Internet, on-line marketing process, market research.

UNIT-IV

Consumer Search and Resource Discovery - Information search and Retrieval, Commerce Catalogues, Information Filtering.

UNIT-V

Multimedia - key multimedia concepts, Digital Video and electronic Commerce, Desktop video processings, Desktop video conferencing.

Text Book:

1. Frontiers of electronic commerce – Kalakata, Whinston, Pearson.

References:

1. E-Commerce fundamentals and applications Hendry Chan, Raymond Lee, Tharam Dillon, Ellizabeth Chang, John Wiley.

2. E-Commerce, S.Jaiswal – Galgotia.

3. E-Commerce, Efrain Turbon, Jae Lee, David King, H.Michael Chang.

4. Electronic Commerce – Gary P.Schneider – Thomson.

5. E-Commerce – Business, Technology, Society, Kenneth C.Taudon, Carol Guyerico Traver.

B.Tech. (IT) Seventh Semester

DEPARTMENT ELECTIVES - II

IMAGE PROCESSING

(Common with CSE)

Course Code :EURIT 731 | Category: DE
Credits:4 | Hours : 4 per week
Department: **IT** | Sem. End exam: 60
Total Marks: 100 | Con. Eval : 40

UNIT – I

Introduction: Examples of fields that use digital image processing, fundamental steps in digital image processing, components of image processing system.. Digital Image Fundamentals: A simple image formation model, image sampling and quantization, basic relationships between pixels (p.nos. 15-17, 21- 44, 50-69).

UNIT – II

Image enhancement in the spatial domain : Basic gray-level transformation, histogram processing, enhancement using arithmetic and logic operators, basic spatial filtering, smoothing and sharpening spatial filters, combining the spatial enhancement methods (p.nos 76-141).

UNIT – III

Image restoration : A model of the image degradation/restoration process, noise models, restoration in the presence of noise–only spatial filtering, Weiner filtering, constrained least squares filtering, geometric transforms; Introduction to the Fourier transform and the frequency domain, estimating the degradation function (p.nos 147-167, 220-243, 256-276).

Color Image Processing : Color fundamentals, color models, pseudo color image processing, basics of full–color image processing, color transforms, smoothing and sharpening, color segmentation (p.nos: 282- 339).

UNIT – IV

Image Compression : Fundamentals, image compression models, error-free compression, lossypredictive coding, image compression standards (p.nos: 409-467,492-510).

Morphological Image Processing : Preliminaries, dilation, erosion, open and closing, hit or miss transformation, basic morphologic algorithms (p.nos:519-550).

UNIT – V

Image Segmentation : Detection of discontinuous, edge linking and boundary detection, thresholding, region–based segmentation (p.nos: 567-617).

Object Recognition : Patterns and patterns classes, recognition based on decision–theoretic methods, matching, optimum statistical classifiers, neural networks, structural methods – matching shape numbers, string matching (p.nos: 693-735).

Text Book:

1. Digital Image Processing, Rafeal C.Gonzalez, Richard E.Woods, Second Edition, Pearson Education/PHI.

References:

1. Image Processing, Analysis, and Machine Vision, Milan Sonka, Vaclav Hlavac and Roger Boyle, Second Edition, Thomson Learning.
2. Introduction to Digital Image Processing with Matlab, Alasdair McAndrew, Thomson Course Technology
3. Computer Vision and Image Processing, Adrian Low, Second Edition, B.S. Publications
4. Digital Image Processing using Matlab, Rafeal C.Gonzalez, Richard E.Woods, Steven L. Eddins, Pearson Education.
5. Digital Image Processing, William K. Prat, Wily Third Edition
6. Digital Image Processing and Analysis, B. Chanda, D. Datta Majumder, Prentice Hall of India, 2003.

B.Tech. (IT) Seventh Semester
REAL TIME SYSTEMS
(Common with CSE)

Course Code :EURIT 732 Category: DE
Credits:4 Hours : 4 per week
Department: **IT** Sem. End exam: 60
Total Marks: 100 Con. Eval : 40

UNIT-I

Examples of real-time computing systems; real-time scheduling and resource management algorithms; analytical and efficient validation methods; examples of real-time operating systems; temporal consistency of real-time data; formal methods for specification of and reasoning about timing constraints. Examples of real-time applications; types of timing constraints

UNIT-II

Scheduling and resource management paradigms Periodic-task model: cyclic executive, priority- driven approach, schedulability conditions, validation methods

UNIT-III

Complex workload model: well known scheduling algorithms, scheduling anomalies, methods for deriving worst-case performance bounds Concurrency control and temporal consistency of real-time data Real-time facilities of programming languages (e.g., Ada, Ada9x)

UNIT-IV

Operating systems and hardware support for real-time applications. Posex real-time extensions; features of well-known real-time operating systems; guaranteeing timely message delivery in FDDI networks; etc.

UNIT-V

Formal methods for specifying and reasoning about timing constraints

Textbook:

Real-Time Systems, 1st edition; by Liu; 0-13-099651-3, Pearson Education.

References :

Liu, Person Pearson education.

B.Tech. (IT) Seventh Semester
NEURAL NETWORKS
(Common with CSE)

Course Code :EURIT 733 | Category: DE
Credits:4 | Hours : 4 per week
Department: **IT** | Sem. End exam: 60
Total Marks: 100 | Con. Eval : 40

UNIT – I
Introduction : History of neural networks, structure and function of a biological neuron, models of a neuron, neural networks viewed as secreted graphs, feed back network architectures.
Learning process : Error correction learning, memory – based learning, Hebbian learning, competitive learning, Boltzmann learning.
UNIT – II
Single layer and multilayer perception : Adaptive filtering problem, learning curves, perception convergence theorem, multi layer perception, back propagation, output representation and decision rules, network pruning techniques.
UNIT – III
Hopfield Networks : The Hopfield model, Hopfield networks , recurrent and Bidirectional associative memories, counter propagation networks, artificial Resonance theory.

UNIT – IV
Redial Basis Function Networks : Introduction **,** cover's Theorem on the Separability of Patterns, Interpolation problem, Supervised learning as an III – Posed Hyper surface Reconstruction problem, Regularization theory, Regularization Networks, Generalized Radial Basis Function Networks, XOR Problem (revised) Estimation of the regularization parameter, Approximation properties of RBF Networks.
UNIT – V
Introduction to fuzzy set theory: Classical set Vs fuzzy set, properties of fuzzy sets, operations of fuzzy sets – union, intersection, complement, T – norm and co T – norm.
Fuzzy relations: Operations on fuzzy relations, cylindrical extensions interference rules , compositional rule of interference.
Text Books:

1. Introduction to Aritifical Neural System, S.M.Zurada, Jaico Publishing House (1992)
2. Neural networks – A Comprehensive Foundation by Simon Haykin – Second Edition – Pearson Education.
3. Neural Computing – Theory and Practice, Philip D. Wesserman, Van Nostrand Rein hold, New York (1989)
4. Neural Networks and Fuzzy Systems, Bart Kosko, Prentice Hall, NJ (1992)

Reference Books:

1. Artificial Neural Networks by B. Yegnanarayana – PHI publications
2. An Introduction to fuzzy Control, by D.Driankov, H.Hellen Doorn, M.Reinfrank , Naraosa Publishing House.
3. Essential of Fuzzy Modelling and Control, R.K. Yager, D.P.Filev, John Willey & Sons, Inc NY 1994.

B.Tech. (IT) Seventh Semester

KNOWLEDGE AND DATA ENGINEERING

(Common with CSE)

Course Code :EURIT 734 | Category: DE
Credits:4 | Hours : 4 per week
Department: **IT** | Sem. End exam: 60
Total Marks: 100 | Con. Eval : 40

UNIT-I

1. Introduction to Knowledge-Based Systems.
2. Structure.
3. Logic and Automated Reasoning.

UNIT-II

4. Forward Reasoning Rule-Based Systems.
5. Backward-Reasoning Systems.
6. Associative Networks, Frames, and Objects.
7. Blackboard Architectures.

UNIT-III

8. Uncertainty Management.
9. Advanced Reasoning Techniques.
10. The Software Lifecycle in Knowledge-based Systems.
11. Feasibility Analysis.
12. Requirements Specification and Design.

UNIT-IV

13. Knowledge Acquisition and System Implementation.
14. Practical Considerations in Knowledge Acquisition.
15. Alternative Knowledge Acquisition Means.

UNIT-V

16. Verification and Validation.
17. Legal Issues in Knowledge-Based Systems.

Appendix A: The CLIPS System.
Appendix B: The Personal Consultant Shell System.

Text-Books:

1) Gonzalez, A.J. and Dankel, D.D. (1993) The Engineering of Knowledge-Based Systems. Englewood Cliffs, NJ: Prentice Hall.
2) Tansley, D.S.W. and Hayball, C.C. (1993) Knowledge-Based Systems Analysis and Design: A KADS Developer's Handbook. Hemel Hempstead: Prentice-Hall.

References: Schreiber, G., Akkermans, H., Anjewierden, A. et al. (1999) Knowledge Engineering and Management: The Common KADS Methodology. Boston: MIT Press.

B.Tech. (IT) Seventh Semester

Verilog H D L

(Common with CSE)

Course Code :EURIT 735 | Category: DE
Credits:4 | Hours : 4 per week
Department: **IT** | Sem. End exam: 60
Total Marks: 100 | Con. Eval : 40

UNIT I

1. Overview of Digital Design with Vermilion HDL.

UNIT II

2. Hierarchical Modeling Concepts
3. Basic Concepts

UNIT III

4. Modules and ports

UNIT IV

5. Gate-Level Modeling
6. Dataflow Modeling

UNIT V

7. Behavior Modeling.
8. Tasks and functions.

Text Books:

Verilog HDL – A guide to Digital Design and Synthesis, Samir Palitkar, Pearson Education Pvt. Ltd. (Chapter 1,2,3,4,5,6,7,8)

Reference Book:

1. A Verilog HDL – Primer, J Bhaskar, Second Edition, Star Galaxy Publications, 1999.

B.Tech. (IT) Seventh Semester
SOFT COMPUTING
(Common with CSE)

Course Code :EURIT 736 | Category: DE
Credits:4 | Hours : 4 per week
Department: **IT** | Sem. End exam: 60
Total Marks: 100 | Con. Eval : 40

Syllabus for Soft Computing

UNIT I
1. Neural Networks: Adaptive Networks, Supervised Learning NN, Reinforcement Learning,Unsupervised Learning

UNIT II
2. Uncertainty and Evidence: Shafer Dumpster belief and possibility Theory, Random Sets and mass assignments, Dumpsters Rule, Fuzzy measures and aggregation operators, Bayesian networks/graphical methods.

UNIT III
3. Automated Learning: Supervised vs unsupervised learning, Decision tree induction, Rule induction algorithms,

UNIT IV
4. Automated Learning : Bayesian network learning algorithms, Evolutionary Algorithms.

UNIT V
5. Fuzzy Methods: Fuzzy set theory, Fuzzy control (including model based control), Fuzzy clustering, Fuzzy decision trees, Neuro-fuzzy systems, Fuzzy genetic algorithms. (12)

Texts:

1) Neuro-Fuzzy and Soft Computing: A Computational Approach to Learning and Machine by Jyh-Shing Roger Jang, Chuen-Tsai Sun, Eiji Mizutani, Pearson.

2) Machine Learning by Tom Mitchell, McGraw Hill, 1997

References :

Soft Computing Techniques and Applications, by Robert John, R. Birkenhead, Ralph Birkenhead

B.Tech. (IT) Seventh Semester

Network Programming Lab

(Common with CSE)

Course Code :EURIT 711 Category: CE
Credits:2 Hours : 3 per week
Department: **IT** Con. Eval : 100
Total Marks: 100

1. Identifying well known ports on a Local/Remote System:By trying to listen to the various well-known ports by opening client connections. If the exception does not occur then the remote port is active else the remote port is inactive.

2. Writing a chat application:
   i) One-One: By opening socket connection and displaying what is written by one party to the other.
   ii) Many-Many (Broad cast): Each client opens a socket connection to that chat server and writes to the socket. What ever is written by one party can be seen by all other parties.

3. Data retrieval from a Remote database:

At the remote database a server listens for client connections. The server accepts SQL Queries from the client executes it on the database and sends the responses to the client.

4. Mail Client:
   i) POP Client: Gives the server name, user name and password, retrieve the mails and allow manipulation of mailbox using POP commands.
   ii) SMTP Client: Gives the server name, send email to the recipient using SMTP commands.(Core Java 2 Pg:163)

5. Simulation of Telnet:

Provide a user interface to contact well known ports so that client server interaction can be seen by the user.

6. Simple file transfer between two systems (with out protocols):

By opening socket connection to our server on one system and sending a file from one system to another.

7. TFTP Client:

To develop a TFTP client for file transfer. (Unix network programming Stevens.)

8. HTTP Server:

Develop a HTTP server to implement the following commands.
GET, POST HEAD, DELETE.
The server must handle multiple clients.

9. Downloading Image Files from HTTP server: Using Java URL connection class (Ref. Book: Java Network Programming-Orielly)

B.Tech. (IT) Seventh Semester
UML LAB

Course Code :EURIT 712 Category: CE
Credits:2 Hours : 3 per week
Department: **IT** Con. Eval : 100
Total Marks: 100

The student is expected to take up about five mini-projects and model them and produce Use Cases, Analysis Documents - both static & dynamic aspects, Sequence Diagrams and State-Charts, Database Design using Rational Products A sample collection of ideas is given. Numerous other ideas can be found in the pages from the list of references given below.

Mini-Project - I: A Point-of-Sale (POS) System

A POS system is a computerized application used to record sales and handle payments; it is typically used in a retail store, it includes hardware components such as a computer and bar code scanner, and software to run the system. It interfaces to various service applications, such as a third-party tax calculator and inventory control. These systems must be relatively fault tolerant; that is, even if remote services are temporarily unavailable they must still be of capturing sales and handling at least cash payments. A POS system must support multiple and varied client-side terminals and interfaces such as browser, PDAs, touch-screens.

Mini-Project - II: Online Bookshop Example

Following the model of amazon.com or bn.com, design and implement an online bookstore.

Mini-Project - III: A Simulated Company

Simulate a small manufacturing company. The resulting application will enable the user to take out a
loan, purchase a machine, and over a series of monthly production runs, follow the performance of their
company.

Mini-Project - IV: A Multi-Threaded Airport Simulation

Simulate the operations in an airport. Your application should support multiple aircrafts using several
runways and gates avoiding collisions/conflicts.
Landing: an aircraft uses the runway, lands, and then taxis over to the terminal. Take-Off: an aircraft
taxies to the runway and then takes off

Mini-Project -V: An Automated Community Portal

Business in the 21st Century is above all BUSY. Distractions are everywhere. The current crop of "enterprise intranet portals" are often high noise and low value, despite the large capital expenditures it takes to stand them up. Email takes up 30 - 70% of an employee's time. Chat and Instant Messaging are either in the enterprise or just around the corner. Meanwhile, management is tasked with unforeseen and unfunded leadership and change-agent roles as well as leadership development and succession management. What is needed is a simplified, repeatable process that enhances communications within
an enterprise, while allowing management and peers to self-select future leaders and easily recognize high performance team members in a dynamic way. Additionally, the system should function as a general-purpose confent management, business intelligence and peer-review application. Glasscode's goal is to build that system. The software is released under a proprietary

license, and will have the following features: Remote, unattended moderation of discussions However, it will have powerful discovery and business intelligence features, and be infinitely extendable, owing to a powerful API and adherence to Java platform standards. Encourages peer review and indicates for manage-ment potential leaders, strong team players and reinforces enterprise and team goals seamlessly and with zero administration.

Mini-Project -VI: A Content Management System

The goal is to enable non-technical end users to easily publish, access, and share information over the
web, while giving administrators and managers complete control over the presentation, style, security,
and permissions.

Features:

? Robust Permissions System
? Templates for easy custom site designs
? Total control over the content
? Search engine friendly URL's
? Role based publishing system
? Versioning control
? Visitor profiling

Mini-Project-VII: An Auction Application

Several commerce models exist and are the basis for a number of companies like eBay.com,
pricellne.com etc. Design and implement an auction application that provides auctioning services.
It should clearly model the various auctioneers, the bidding process, auctioning etc.

Mini-Project -VIII: A Notes and File Management System

In the course of one's student years and professional career one produces a 1 lot of personal notes and
documents. All these documents are usually kept 1 on papers or individual files on the computer.
Either way the bulk of the I information is often erased corrupted and eventually lost. The goal of this 1 project is to build a distributed software application that addresses this "| problem. The system will provide an interface tocreate, organize and manage I personal notes through the Internet for multiple users. The system will also allow users to collabo-rate by assigning permissions for multiple users to view and edit notes.

Mini-Project - IX: A Customizable Program Editor

A programmer's editor which will be focused on an individual programmer's particular needs and style. The editor will act according to the specific language the current source file is in, and will perform numerous features, such as auto-completion or file summari-zation, on the file. These features will be able to be turned on or off by the programmer, and the programming style of the user will be used to create *as* efficient an editing envi-ronment as possible.

Mini-Project - X: A Graphics Editor

Design and implement a Java class collection that supports the construction of graph editing applications, i.e., applications that include the ability to draw structured and unstructured diagrams. E.g.,
The goal of the GEF project is to build a graph editing library that can be used to construct many, highquality
graph editing appications. Some of GEF's features are:

A simple, concrete design that makes the framework easy to understand and extend.
Node-Port-Edge graph model that is powerful enough for the vast majorityof connected graph applications. Model-View-Controller design based on the Swing Java Ul library makes GEF able to act as a Ul to existing data structures, and also minimizing learning time for developers familiar with Swing. High-quality user interactions for moving, resizeing, reshaping, etc. GEF also supports several novel interactions such as the broom alignment tool and secltion-action-buttons. Generic properties sheet based on JavaBeans introspection. XML-based file formats based on the PGML standard

Text Book(s):
"Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and the Unified Process", Craig Larman, Pearson Education Asia, 2002,
2nd Edition
Reference(s):
"Object Oriented Systems Analysis and Design using UML", Simon Sennet, Steve McRobb, and Ray
Farmer, McGraw Hill, 2002, 2nd Edition
"Object-Oriented Analysis & Design," Andrew Haigh, Tata McGraw-Hill, 2001,
Various Net Resources and projects:
http://user-mode-linux.sourceforge.net/case-studies.html
http://www.onesmartclick.com/programming/case-studies.html
http://www.tigris.org/sarvlets/ProjectList?type=P rejects
http://hotscripts.com/
http://www.developingwebs.net/
http://sourceforge.net/projects/
http://governing.com/gpp/gponline.htm
http://www.cio.com/research/government/gov.html
http://www.whitehouse.gov/omb/inforeg/egovstrategy.pdf
http://www.andhrapradesh.com/
http://www.ap-lt.com/
http://www.aponline.gov.in

B.Tech. (IT) Seventh Semester
Project Phase - I

Course Code : ERUIT713 **Category: PW**
Credits: 3 **Hours: - 5**
Sem. End Exam : 50 **Con. Eval : 50**

B.Tech. (IT) Seventh Semester
Training

Course Code : ERUIT714 **Category: IT**
Credits: 2 **Hours: - Nil**
Total Marks: 100 **Con. Eval : 100**

B.Tech (IT) Eighth Semester

MANAGEMENT INFORMATION SYSTEMS

Course Code :EURIT 801 Category: HS
Credits:3 Hours : 3 per week
Department: **IT** Sem. End Marks: 60
Total Marks: 100 Con. Eval : 40

Unit-I

1) Introduction to Management Information System:

a. Management Information System
b. Role and Importance of Management
c. Process of Management
d. Organization Structure and Theory
e. Strategic Management of Business

Unit-II

1) Decision Making
2) Information
3) Systems
4) Development of MIS.

Unit-III

1) Choice of I.T.
2) Application in Manufacturing Sector
3) Application in Service Sector.

Unit-IV

1) Decision Support System.
2) Enterprise Management System

Unit-V

1) Technology of Information System.
2) Business Process Engineering

Text Books:

1) Management Information Systems, W.S. Jawadekar, Tata McGraHill)

References :

1) Management Information Systems, James A.O' Brien (TMH)
2) Robert SChuttheis, Mery Sunner

B.Tech (IT) Eighth Semester
DEPARTMENT ELECTIVES – III
MOBILE COMPUTING

Course Code :**EURIT 841**	Category : DE
Credits: 4	Hours : 4 per week
Total : 100	Sem. End Exam: 60
	Con. Eval. : 40

UNIT I

Introduction, Cellular networks overview, TCP/IP networking basics,

UNIT II

Wireless LANs, 802.11-DCF, 802.11-PCF, Mobile IP, Adhoc networks, Tutorial & Review,

UNIT III

TCP over wireless, TCP and mobility, GSM-Basics, GSM-Air Interface,

UNIT IV

GPRS-Network Architecture, CDMA, WAP-Protocol stack, WAP-Application Environment, Tutorial & Review,

UNIT V

Designing Mobile applications, Mobile agents, Data broadcasting, Location based services, Sensor networks.

Textbooks:

1. J. Schiller, Mobile Communications. Addison Wesley, 2000, Pearson.

References:

1. IEEE Standards 802.11

2. ETSI Standards – GSM/GPRS IETF RFCs/Drafts – Mobile IP.

B.Tech (IT) Eighth Semester

DISTRIBUTED OPERATING SYSTEMS

Course Code	:**EURIT 842**	Category	: DE
Credits:	4	Hours	: 4 per week
Total : 100		Sem. End Exam: 60	
		Con. Eval. : 40	

Unit I
Introduction to Distributed systems, What is a distributed systems?, Hardware concepts, software concepts, design issues.

Unit II
Communication in distributed systems, Lay red protocols, ATM networks, The client – Server model, Remote procedure call, Group communication.

Unit III
Synchronization in Distributed system, clock synchronization, mutual exclusion, election algorithms, atomic transactions, deadlocks in distributed system.

Unit IV
Process and Processors in Distributed system threads,System models, Processors allocation. Scheduling in Distributed system, Distributed file system, Distributed file system design, Distributed file system implementation.

Unit V
Distributed Shared Memory, Introduction. What is shared memory?
Consistency models, page based distributed shared memory, shared variable distributed shared memory. Object based distributed shared memory.

Text Book:
Distributed Operating Systems
- Andrew S. Tanenbanm(Pearson Education)

Reference Book:
Advanced Concepts in Operating Systems
Makes Singhal and Niranjan G. Shivaratna.

B.Tech (IT) Eighth Semester
OBJECT ORIENTED SOFTWARE ENGINEERING

Course Code :**EURIT 843**
Credits: 4
Total : 100

Category : DE
Hours : 4 per week
Sem. End Exam: 60
Con. Eval. : 40

Unit-I
Software engineering: software related problems, software engineering, concepts, development activities,
Modeling: modeling with UML.
Project communications: Project communication, modes, mechanisms and activities.

Unit-II
Requirements: Requirements elicitation, concepts , activities and managing requirements elicitation.
Analysis: Analysis overview, concepts, activities and managing analysis

Unit- III
System design: Design overview, concepts, activities and managing system design.
Object design: Object design overview, concepts, activities and managing object design

Unit- IV
Rationale management: Rational overview, concepts, activities and managing rationale
Testing: Testing overview, concepts, activities and managing testing.

Unit- V
Software configuration management: Configuration management overview, concepts, activities and managing configuration management
Project management: project management overview, concepts, activities and managing project management models and activities.

Text book:
Object-oriented Software engineering: Conquering complex and changing systems, Bernd Bruegge and Allen H. Dutoit.
Pearson Education Asia.

Reference Book:
Object–oriented software engineering: Practical software development using Uml and Java - Timothy C. lethbridge and Robert Langaniere-Mcgraw–Hill Higher Educatio

B.Tech (IT) Eighth Semester
SOFTWARE PROJECT MANAGEMENT
(Common with CSE)

Course Code :**EURIT 844** Category : DE
Credits: 4 Hours : 4 per week
Total : 100 Sem. End Exam: 60
Con. Eval. : 40

UNIT-I

Conventional Software Management:

The waterfall Model, Conventional Software Management Performance, evolution of Software Economics: software Economics. Pragmatic Software Cost Estimation.

Improving Software Economics:

Reducing Software Product Size, Improving Software Processes, Improving Team Effectiveness , Improving Automation, Achieving Required Quality, Peer Inspections.

UNIT-II

Conventional And Modern Software Management:

Principles pf Conventional Software Engineering, Principles of Modern Software Management, Transitioning to an interactive Process, Life Cycle Phases : Engineering and Production Stages Inception, Elaboration, Construction, Transition phases .

UNIT-III

Artifacts Of The Process:

The Artifact Sets. Management Artifacts, Engineering Artifacts, Programmatic Artifacts. Model Based Software Architectures: A Management Perspective and Technical Perspective.

UNIT-IV

Flows Of The Process :

Software Process Workflows. Inter Trans Workflows. Checkpoints of the Process: Major Mile Stones, Minor Milestones, Periodic Status Assessments. Interactive Process Planning : Work Breakdown Structures, Planning Guidelines, Cost and Schedule Estimating. Interaction Planning Process. Pragmatic Planning.

UNIT-V

Project Organizations And Responsibilities:

Line-of-Business Organizations, Project Organizations, and Evolution of Organizations. Process Automation Building Blocks, The Project Environment.

Project Control And Process Instrumentation:

Server Care Metrics, Management Indicators, Quality Indicators, Life Cycle Expectations Pragmatic Software Metrics Automation. Tailoring the Process : Process Discriminates, Example.

Text Books:

1. Walker Rayce, “Software Project Management”, 1998, PEA.
2. Henrey, “Software Project Management”, Pearson.

Reference Books:

1. Richard H.Thayer.” Software Engineering Project Management”, 1997, IEEE Computer Society.
2. Shere K.D.: “Software Engineering and Management”, 1998, PHI.
3. S.A. Kelkar, “Software Project Management: A Consise Study”, PHI.
4. Hughes Cotterell, “Software Project Management”, 2e, TMH.
5. Kaeron Conway, “ Software Project Management from Concept to Development”, Dream Tech.

B.Tech (IT) Eighth Semester
Project Phase - II

Course Code :EURIT 811
Credits:5
Total : 100

Category : PW
Hours : - 10
Sem. End Exam : 50
Con. Eval. : 50

B.Tech (IT) Eighth Semester
Comprehensive Viva

Course Code :EURIT 812
Credits:2
Total : 100

Category : CE
Hours : -
Sem. End Exam : 100

B.Tech (IT) Eighth Semester
EURIT 854: Elective-I: Systems Modeling & Simulation

Course Code :**EURIT 854** Category : IE
Credits: 4 Hours : 4 per week
Total : 100 Sem. End Exam: 60
Con. Eval. : 40

UNIT-I

- **SYSTEM MODELS:**Concept of a system, System Environment, Stochastic activities, continuous and Discrete Systems, System Modeling, Physical and Mathematical Models for Systems, Static and Dynamic Categorization of these physical and mathematical Models. Principles used in modeling.
  SYSTEM SIMULATION: MONTE–CARLO Method: Comparison of Simulation and analytical methods, Experimental nature, Types of Simulation, Numerical Computation Technique for continuous model and for Discrete model, Distributed Lag Models, Cobweb Models.

UNIT-II

- **CONTINUOUS SYSTEM SIMULATION:**Differential Equations, Analog Computers, Analog Models, hybrid Computers, digital – Analog Simulations, Continuous System Simulation Languages (CSSLS), CSMP – III, Hybrid Simulation, Feedback Systems, Simulation of an _____, Interactive Systems, Real-Time Simulation.
- **SYSTEM DYNAMICS:** Exponential Growth Models, Exponential Decay Models, Logistic Curves, Generalization of Growth Models, Simple System Dynamics Diagrams, Multi-segment Models, Representation of Time Delays, WORLD Models.

UNIT-III

- **PROBABILITY CONCEPTS IN SIMULATION:** Stochastic Variables, Discrete Probability functions, Continuous Probability functions, Measures of Probability functions, Numerical Evaluation of Continuous Probability functions, continuous Uniformly Distributed Random Numbers, A Uniform Random Number Generator, Generating Discrete Distributions.
- **ARRIVAL PATTERNS AND SERVICE TIMES:** Poisson's Arrival patterns, Exponential Distribution, Erlang Distribution, Hyper-Exponential Distribution, Normal Distribution, Queuing Disciplines, Mathematical Solutions of Queuing Problems.

UNIT-IV

- **INTRODUCTION TO GPSS:** GPSS Programs, General Description Action Times, Succession of Events, Choice of Paths, Simulation of a manufacturing Shop, Conditional Transfers, Control Statements, Functions, Simulation of a Super Market, Transfer modes, GPSS Model of a Simple Telephone system.
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UNIT-V

- **RANDOM ACCESS SYSTEMS:**
  Aloha, Slotted Aloha, Carrier Sense Multiple Access, Delay Calculations in CSMA/CD, Performance comparisons, Reservation Techniques.
  ROUTING AND FLOW ALLOCATION: Routing Model, Shortest Path Algorithms, Capacity Constrains, Flow control and Routing, Routing in Practice.

Text Books:

1. System Simulation by GEOFFREY GORDON, PHI, Second Edition.
2. Modeling and Analysis of computer Communications Networks. Networks Jeremiah F.

Hayes, Khanna Publications.
References :Geoffrey Gordon

B.Tech (IT) Eighth Semester
EURIT 858: Elective-I: Biomedical Instrumentation

Course Code	:**EURIT 858**	Category	: IE
Credits:	4	Hours	: 4 per week
Total : 100		Sem. End Exam: 60	
		Con. Eval. : 40	

UNIT I

Bioelectric Signals and Electrodes: Origin of bioelectric signals – action potentials, Recording electrodes – Skin-contact impedance – Electrodes for ECG – electrodes for EEG – Electrodes for EMG – Electrical conductivity of electrode jellies and creams – microelectrodes.

UNIT II

Physiological Transducers: Pressure transducers, Transducers for body temperature measurement – Pulse sensors – Respiration sensors.

UNIT III

Biomedical recorders: Electrocardiograph-block diagram, ECG leads, effects of artifacts on ECG recordings; Phonocardiograph; Electroencephalograph – Eletromyograph – preamplifier, filters, delay circuits, stimulators.

UNIT IV

Biomedical telemetry: Wireless telemetry – single channel telemetry systems – Temperature telemetry system – Multichannel wireless telemetry system – Multipatient telemetry – Implantable telemetry systems – Transmission of analog physiological signals over telephone lines.

UNIT V

Patient safety: Electric shock hazards – Leakage currents – Test instruments for checking safety parameters of biomedical equipments.

Text books:

1. R.S. Khandpur, Hand book of Biomedical Instrumentation, TMH, New Delhi, 2001
2. Cromwell, Weibell and Pfeiffer., Biomedical instrumentation and measurements, Pearson Education, 2003

Reference:

John.G.Webster., Medical Instrumentation application and design., John Wiley&sons inc., 3rd edition., 1999.

B.Tech (IT) Eighth Semester
EURIT 859: Elective-I: Power Electronics

Course Code	:**EURIT 859**	Category	: IE
Credits:	4	Hours	: 4 per week
Total : 100		Sem. End Exam: 60	
		Con. Eval. : 40	

UNIT I

Power Semiconductor Switches: (15 hrs)

Power diodes, Power transistors – Thyristor family – SCR – Triac – GTO – Power MOSFET – IGBT – two transistor model – Gate characteristics – static and dynamic characteristics – Turn-ON-Turn-OFF methods – Series and Parallel operation of Thyristors – Gate triggering circuits – UJT as an SCR trigger – Thyristor ratings. Protection circuits.

UNIT II

Phase Controlled Rectifiers: (8 hrs)

Single phase and three phase – half wave – full wave – and Bridge controlled rectifiers – Dual converters – effect of load and source inductance – Natural communication.

UNIT III

Choppers : (6 hrs)

Principle of operation, step up choppers – step down choppers – various types of choppers Morgan – Jones – Oscillation chopper – communication circuits.

UNIT IV

Inverters (10 hrs)

Classification – series and parallel inverters – single phase and three phase inverters – **McMurray** – McMurray Bedford inverter – Voltage control Harmonic reduction – current source inverters.

UNIT V

AC to AC Converters: (9 hrs)

Principle of operation of Cyclo-converter – single phase to single phase Cyclo-converter – Cyclo-converter circuits – three phase output. Single phase and three phase voltage controllers using Thyristor and Triac – AC choppers.

Textbooks:

1. "Power Electronics", M. Rashid. PHI
2. "Power Electronics", P.S. Bimbra. Khanna Publishers
3. "Power Electronics", Singn M.D. and Khanchandani, TMH

Reference Books:

1. 'An introduction to Thyristors and their applications', M.Rama Murthy; East-West press.
2. 'Power Electronics', R.Ramshaw.
3. 'Thyristorised Power Controllers', Dubey., Wiley Eastern Ltd.

B.Tech (IT) Eighth Semester
EURIT 8510: Elective-I: Project Planning & Management

Course Code :**EURIT 8510**	Category : IE
Credits: 4	Hours : 4 per week
Total : 100	Sem. End Exam: 60
	Con. Eval. : 40

UNIT–I

Project Management Systems, Organization, Scope of construction management, Significance, concept of scientific management, qualities of manager, organization – authority policy, recruitment process and training.

UNIT- II

CPM and PERT: Introduction of Pert and CPM, Planning scheduling and controlling, Bar charts, Pert and CPM networks.

UNIT–III

Estimation, Resource Analysis, Justification and Evaluation – Introduction – Costing Proposals – Budgets – Resource analysis – Pricing Projects – Project Risk analysis – Cash Flow Consideration – Strategic Investment Decisions.

UNIT–IV

The role of Management and Leadership in Project environment – Individual Skills and Attitudes – Individual Motivation – Structural implications for Project managers – Cultural Implications – Management Style – Development of Management Thinking.

UNIT–V

Project Review – Project Completion & Handover – Long term Project audit and review – Continuous improvement – Bench Marking of Performance and Process – The role of Project Leader in the World Class Projects.

Text Book:

Harvey Maylor, Mac Millan India Ltd., Delhi

Reference Book:

Punmia: Laxmi Publications

B.Tech (IT) Eighth Semester
EURIT 8512: Elective-I: Introduction to Micro Electromechanical Systems(MEMS)

Course Code :**EURIT 8512** Category : IE
Credits: 4 Hours : 4 per week
Total : 100 Sem. End Exam: 60
Con. Eval. : 40

UNIT I

1. Introduction: History of MEMS, Overview of MEMS Processes, Properties of Silicon, A Sample MEMS Process. Definitions and Terminology, A sample Process, Lithography and Etching. (3 hrs.)
2. Micromachining: Subtractive Processes (Wet and Dry etching), Additive Processes (Evaporation, Sputtering, Epitaxial growth). (4 hrs)
3. Fundamental Devices and Processes: Basic mechanics and electrostatics for MEMS, parallel plate actuators, pull-in point, comb drives. Electrostatic actuators; MEMS foundries, Cronos MUMPs (multi user MEMS process). (5 hrs)

UNIT II

1. MUMPs (Multi User MEMS Process): JDS Uniphase MUMPs processing sequence and design rules. Design rules; applications; micro hinges and deployment actuators. 5 Hrs.
2. CMOS MEMS: CMOS foundry processes, integrated IC/MEMS, MEMS postprocessing, applications. (4 Hrs)

UNIT III

1. Thermal Transducers: bimorphs, “heatuators”, cilia arrays. (3 hrs.)
2. MicroOptoElectroMechanical Systems (MOEMS): Micro Scanners, Digital Mirror Display, Retinal Scanning Display. Grating light valve, coroner cube retroreflector, optical switches, other micro-optical devices (5 hrs)

iezoresistivity; Scanning Probe Microscopy: scanning tunneling icroscope (STM), atomic force microscope (AFM)(3 Hrs)

UNIT IV

1. Wireless MEMS: mechanical and electrical resonators, Q-factor, switches, filters (3 hrs)
2. Power for MEMS: thin film batteries, micro fuel cells, energy fields,

MEMS Packaging and Assembly: microassembly: serial and parallel, deterministic and stochastic; microgrippers: HexSil process; packaging techniques (4 hrs)

UNIT V

1. The future of MEMS: Biomems – neural implants, gene chips, diagnostic chips; MEMS in space; mechanical computers; invisible and ubiquitous computing (3 hrs)

Text Books:

1. Fundamentals of Microfabrication: The Science of Miniaturization, Second Edition ISBN: 0849308267, CRC Press, 1997 by Marc J Madou
2. MEMS a Practical Guide of Design, Analysis, and Applications
   Korvink, Jan, Paul, Oliver
   2006,Approx. 9800 p., Oliver ISBN: 3-540-21117-9
3. Mechanics of Microelectromechanical Systems
   Lobontiu, Nicolae, Garcia, Ephrahim
   2004, XII, 405 P.295 illus., Hardcover ISBN: 1-4020-8013-1
4. MEMS & Microsystems TMGH 2002 by Tai-ran Hsu
5. Microsensors, MEMS & Smart Devices John Wiley 2002 by JW Gardner & VK Varadan

B.Tech (IT) Eighth Semester

EURIT 8513: Elective-I: ENTREPRENEURSHIP

Course Code :**EURIT 8513** Category : IE
Credits: 4 Hours : 4 per week
Total : 100 Sem. End Exam: 60
Con. Eval. : 40

UNIT I
INTRODUCTION:
Meaning, importance, benefits of Entrepreneurship-characterizes, factors of Entrepreneurship-Barriers of Entrepreneurship-Difference between Entrepreneurship and management-Evolution of the concept of entrepreneur-Difference between entrepreneur and entrepreneur. Motivational aspects of entrepreneur (McClelland theory)

UNIT II
PROJECT IDENTIFICATION AND SELECTION:
Meaning, classification of projects-Factors involved in project identification. Selection-significance contents, formulation of a project report – specimen of a project report-planning commission's guidelines for formulating a project-Basics of capital budgeting-Pay back period. Net present value. Internal Rate of Return.

UNIT III

SOURCES OF FINANCE:
Cost of capital-importance of a capital-Basic concepts, rational assumptions-cost of debt, reference, equity capital-source of finance-internal, external sources-institutional finance to entrepreneurs and institutional support to entrepreneurs.

UNIT IV
PROJECT APPRAISAL:
Concept project appraisal-Methods of project appraisal, Economic analysis, Financial analysis, Market analysis Technical feasibility and Managerial competence (assessment of working and fixed capital Govt. Policies, qualitative methods of market analysis, Life cycle segmentation).

UNIT V

OWNERSHIP STRUCTURES & EVALUATION OF EDPS:

Ownership structures-sole trader, partnership (Partnership deed) types of partnership-Joint stock companies-Difference between private and a public company – Advantage and disadvantages of the ownership structures – Distinction between MDP and EDP – Training methods and Role playing (Games).

Text Books:

1. Harold Koontz & Heinz Weihrich. *Essentials of Management, McGraw Hill International.*
2. Hirich R.D. & Peters Irwin M.P., *Enterpreneurship, Mc Graw Hill*
3. Rao T.V. & Deshpande M.V., Prayag Metha, Nadakarni M.S. *Developing Entrepreneurship, Hand Book. Learning Systems.*
4. Donald Kurado & Hodgelts R.M., *Entrepreneurship A Contemporary Appraoch.* The Dryden Press.
5. Dr Patel V.G. Seven Business Crisis, Tata McGraw Hill
6. Timmons J.N. New Venture Creation – Entrepreneurship for 21ST century, Mc Graw Hill International.

References:

1. Patel J.B .Nold S.S. A Manual on Business Opportunity Identification, Selections, EDH.
2. Rao C.R. Finance for Small Scale Industries.
3. Pandey M.W. Compier Guide to Successful Entrepreneurship. Vikas Publishing

B.Tech (IT) Eighth Semester
EURIT 8514: Elective-I: PUBLIC ADMINISTRATION

Course Code :**EURIT 8514** Category : IE

Credits: 4 Hours : 4 per week
Total : 100 Sem. End Exam: 60
Con. Eval. : 40

UNIT I

Definition, nature and scope of public administration; the chief executive; leadership qualities of administrator.

UNIT II

Principles of organization; organization of Ministries of Home and Finance;

UNIT III

Personnel administration – bureaucracy; recruitment, promotion, conduct and discipline.

UNIT IV

Employer – employee relations; administration at work-planning, policy formulation, decision making supervision, coordination; integrity in administration;

UNIT V

Public corporations in India; financial administration in India; local administration in India.

Text Book:

1. Public Administration: R.N. Venkateswara

Reference Books:

1. Public Administration by Herbert A. Simon, Donals W. Smithburg, Victor A. Thompson

2. Mastering Public Administration: From Max Weber to Dwight Waldo by Brian R. Fry

3. Public Administration: Balancing Power and Accountability by Jerome B. Mckinney, Lawrence C. Howard.

4. Public Administration in the Global Village by Jean-Claude Garcia-Zamor, Renu Khator

B.Tech (IT) Eighth Semester

EURIT 8515: Elective-I: Fundamentals of Communication Engineering

Course Code :**EURIT 8515**	Category : IE
Credits: 4	Hours : 4 per week
Total : 100	Sem. End Exam: 60
	Con. Eval. : 40

UNIT I

Amplitude Modulation: Modulation, Frequency Translation, Amplitude modulation, AM equation, Modulation index, AM generation, AM detection, Applications of linear modulation systems, Frequency division multiplexing.

UNIT II

Angle Modulation: angle modulation, FM, modulation index, frequency deviation, NBFM, WBFM, Phase modulation, Comparison of FM and PM, Generation of FM, Phasor representation of FM and AM, FM demodulation, Pre-emphasis and De-emphasis, Comparison of AM and FM.

UNIT III

Radio Transmitters & Receivers: Classification of Radio Transmitters, AM Transmitters, FM Transmitters, Classification of Radio Receivers, TRF Receiver, Superhetrodyne Receiver, AGC.

UNIT IV

Discrete modulation techniques: Sampling, sampling Theorem for low pass and bandpass signals, Time Division Multiplexing, Pulse Amplitude Modulation, Pulse time modulation – Pulse Width Modulation and Pulse Position Modulation – generation and detection.

UNIT V

Digital Modulation Techniques: Pulse Code Modulation, Differential Pulse Code Modulation, Delta Modulation, Binary Amplitude Shift Keying Binary frequency Shift Keying Binary Phase Shift Keying, Differential Phase Shift Keying.

Text Books:

1. Electronic Communication Systems G. Kennedy, McGraw Hill
2. Communications Systems Simon Haykins, PHI.

References:

1. Applied Electronics and Radio Engg. GK. Mithal
2. Modern Digital and Analog Communications Systems B.P. Lathi, BSP.

Reference:

John.G. Webster., Medical Instrumentation application and design., Wiley & sons inc., 3rd edition., 1999.

B.Tech (IT) Eighth Semester

EURIT 864: INDUSTRIAL ELECTRONICS

Course Code :**EURIT 864**	Category : IE
Credits: 4	Hours : 4 per week
Total : 100	Sem. End Exam: 60
	Con. Eval. : 40

UNIT I

THYRISTORS:

PNPN diode: Basic structure. Two transistor version, Volt – Ampere characteristic. Holding current. Temperature dependence. Rate effect, Bilateral PNPN diode switch(DLAC):Basic structure. Volt-Ampere characteristics. Silicon Controlled Rectifier (SCR): Basic structure. Two transistor Representation. Volt-Ampere characteristics. On and OFF times of gate. SCR rating. Silicon Controlled Switch(SCS): Basic structure. Two transistor equivalent. Diodc transistor equivalent.

Triac: Basic structure. Volt – Ampere characteristics. Positive bias and Negative bias operations.

UNIT II

UNI JUNCTION TRANSISTOR:

Basic structure. Potential divider equivalent Static emitter characteristics. Gate circuit of SCR. Two SCRs connected back-to-back. Delayed firing of SCR by phase shifted A.C. wave. Delayed firing of SCR by UJT.

UNIT III

PLYPHASE RECTIFIERS:

Three-phase half-wave delta-wve rectifier with resistive load. Six-phase star half-wave rectifier with resistive load. Delta-to-double wye half-wave rectifier with inter phase transformer and with resistive load. Three-phase delta-wye bridge rectifier with resistive load. General m-phase rectifier. DC power outputs, efficiencies and ripple factors, Transformer utility factor. Rectifier performance.

Communication in polyphase rectifiers.

UNIT IV

RESISTANCE WELDING & HEATING:

Basic circuit for a.c. resistance welding. Spot welding, Projection welding, Butt welding, Scam welding and Pulsating welding arrangements.

Induction Heating: Principle of induction heating. Applications. High frequency power source for induction heating.

Dielectric Heating: Principle of dielectric heating. Electrodes used in dielectric heating. Methods of coupling of Electrodes to R.F. Generator . Applications.

UNIT V

CONTROLLER RECTIFIERS (outlines of topics only):

Single-phase Controlled Rectifiers: Half-wave controlled rectifier with resistance load.

Full-wave →

→ Controlled rectifier with resistance load.

Three-phase Controlled Rectifiers: Half wave controlled rectifier with resistance load, Six-Phase half-wave →

→ Controlled rectifier with resistance load.

ELECTRONIC SPEED CONTROL OF MOTORS(outlines of topics only):

DC Motor Speed Control: Methods of speed control, single phase SCR drive. Three phase SCR drives. Closed-Loop motor control system. Half-wave feedback circuit for

B.Tech (IT) Eighth Semester

EURIT 865: COMPTUER AIDED DESIGN

Course Code :**EURIT 865**	Category : IE
Credits: 4	Hours : 4 per week
Total : 100	Sem. End Exam: 60
	Con. Eval. : 40

UNIT I

Fundamentals of CAD – Introduction – The design process- Application of computers for design – Operating systems – Hardware in CAD: The design work station – I/O Devices – CAD system configuration – Creating database for manufacturing – benefits of CAD.

UNIT II

Interactive Computer Graphics – Graphic display devices – Graphics system – Graphics standards – Graphical user interface – Transformation systems – windowing – clipping – 2D and 3D transformations – Linear transformation – Display files for 3D data – Geometric Modeling – Modeling Techniques – Wire frame Modeling – Surface Modeling – 3D Solid Modeling.

UNIT III

Introduction to finite element Analysis – CAD techniques to finite element data preparation – Automatic mesh generation – presentation of results – 3-dimensional shape description and mesh generation – CAD applications of FEM.

UNIT IV

CAD applications and Exposure to CAD packages: Simple examples of computer aided drafting, design and analysis – introduction to simple machine elements – Analysis of cross sectional area, centroid & moment of inertia-Kinematics of crank-slider mechanism and other simple design applications. Introduction to CAD packages like ANSYS, NASTRON, NISA – II.

UNIT V

Introduction to Artificial Intelligence Introduction to Artificial Intelligence – Applications of AI in design and CAD.

Text Books:

1. CAD/CAM- Computer Aided Design & Manufacturing, by M.D. Groover & E.Q.Zimmer, Pearson.
2. Computer Aided Design and Manufacturing by Dr. Sadhu Singh, Khanna Publishers.

References: 1. Computer Aided Design in Mechanical Engineering, by V. Rama Murthy. 2. Elements of Computer Aided Design 7 manufacturing, by Y.C. Rao, 3. Computer Aided Kinetics for Machine Design, by D.L.Ryan. 4. computer Aided Design and Manufacturing, by C.B. Besant & C.W.K. Lui. 5. computer Aided Analysis & Design by S. Ghosal, Prentice Hall of India. 6. CAD/CAM/CIM by Radhakrishna, New age international.

B.Tech (IT) Eighth Semester

EURIT 866: ROBOTICS & AUTOMATION

Course Code :**EURIT 866** Category : IE
Credits: 4 Hours : 4 per week
Total : 100 Sem. End Exam: 60
Con. Eval. : 40

UNIT I

Introduction: Historical robots, robots in science fiction, future trends of robots, definitions of robots, present application status.

Robot End Effectors: Classification of end effectors, drive systems for grippers, mechanical grippers, magnetic grippers, vacuum grippers, adhesive grippers, hooks, scoops and miscellaneous devices, active and passive grippers.

UNIT II

Robot Drives Actuators and Control: Functions of drive system, general types of control, Pump classification, and introduction to pneumatic systems, electrical drives, DC motor and transfer function, stepper motor, drive mechanisms.

UNIT III

Robot Kinematics: Forward and reverse kinematics of 3 DOF arm, forward and reverse kinematics of 4 DOF arm, Homogeneous transformation, kinematics equations using homogeneous transformations.

UNIT IV

Robot Sensors: Need for sensing systems, types of sensor, robot vision, robot tactile syst5em, proximity sensors.

UNIT V

Robot applications: Capabilities of robots, material handling, machine loading and unloading, machining and fettling robot assembly, welding, future applications. Introductory concepts.

Text Books:

1) Robotics Technology and Flexible Automation by S.R. Deb
2) James L. Fuller

B.Tech (IT) Eighth Semester

EURIT 867: MECHATRONICS

Course Code :**EURIT 867**	Category : IE
Credits: 4	Hours : 4 per week
Total : 100	Sem. End Exam: 60
	Con. Eval. : 40

UNIT I

Introduction: Multi disciplinary Scenario Origins Evolution of Mechatronics, An overview of Mechatronics, Introduction to Manufacturing Design.

Digital logic: Digital logic number systems, logic gates, Boolean algebra, karnaugh maps, application of logic gates, sequential logic.

UNIT II

Sensors and Transducers: Introduction and background, difference between transducer and sensor, transducers types, transduction principle, photoelectric transducers, thermistors, thermo devices, thermo couple, inductive transducers, capacitive transducers, pyroelectric transducers, piezoelectric transducers, Hall-effect transducers, Fibre optic transducers.

UNIT III

Actuators: Introduction, actuator types and application areas, electromechanical actuators, DC Motors, AC Motors - fluid power actuators – piezo electric actuators.

UNIT IV

System modeling: Introduction, system modeling, mechanical system electrical system, fluid system, thermal systems, translational mechanical system with spring, damper and mass, Rotational mechanical system with spring, damper and mass, modeling electric motor, modeling pneumatic actuator.

UNIT V

Advanced Applications in Mechatronics – Sensors for condition monitoring, mechatronic control in automated manufacturing artificial intelligence in mechatronics, fuzzy logic applications in mechatronics microsensors in mechatronics.

Text-books:

1. Mechatronics system design by Devdas Shetty and Richard A. Kolk, PWS Publishing Company.
2. Mechatronics Principles concepts and applications by Nitaigour Premchand Mahalik, Tata McGraw Hill Publishing Company Ltd.
3. Mechatronics by Bolton, Pearson Education.

B.Tech (IT) Eighth Semester

EURIT 8611: THERMODYNAMICS

Course Code :**EURIT 8611**	Category : IE
Credits: 4	Hours : 4 per week
Total : 100	Sem. End Exam: 60
	Con. Eval. : 40

UNIT I

Introduction – Basic concepts – Thermodynamic systems, Micro & Macro systems – Homogeneous and heterogeneous systems – Concept of continuum – Pure substance – Thermodynamic equilibrium, State Property, Path, Process – Reversible and irreversible cycles – Energy as a property of the systems – energy in state and transition, work Heat, Point function, Path function – Heat transfer. Zeroth Law of thermodynamics – Concept of equality of temperatures – Joule's experiments –

UNIT II

First law of thermodynamics – Corollaries – Isolated systems and steady flow systems – Specific heats at constant volume and pressure – First law applied to flow systems – systems undergoing a cycle and change of state – First law applied to steady flow processes – Limitations of first law of thermodynamics.

UNIT III

Perfect gas laws – Equation of state – Universal gas constant various non-flow processes – Properties of end states – Heat transfer and work transfer – change in internal energy – throttling and free expansion. Second law of thermodynamics – Kelvin Plank statement and Clausius statement and their equivalence, Perpetual motion machines of first kind and second kind – Carnot Cycle – Heat engines and heat pumps – Carnot efficiency – Clausius theorem – Clausius inequality – Concept of entropy – Principles of increase of entropy – Entropy and disorder.

UNIT IV

I.C. engines: Classification, comparison of two stroke and four stroke engines, comparison of SI and CI engines. Air cycles – Otto, Diesel, Dual, Stirling, Ericcson and Atkinson cycles and their analysis. Valve timing and port timing diagrams – Efficiencies – air standard efficiency, indicated thermal efficiency, brake thermal efficiency, mechanical efficiency, volumetric efficiency and relative efficiency. Testing and performances of I.C. engines. Basic principles of carburetion and fuel injection.

UNIT V

Refrigeration & Air Conditioning: Bell-Coleman cycle, Vapor compression cycle-effect of suction and condensing temperature of cycle performance. Properties of common refrigerants, Vapor absorption system, Electrolux refrigerator.

REFERENCE BOOKS:

Engineering Thermodynamics, by P.K.Nag, Tata McGraw Hill Publications company.

References:

1. Thermal Engineering, by M.L.Mathur and F.S.Mehta, Jain Brothers.
2. Applied Thermodynamics-II by R. Yadav
3. I.C. Engines, by Mathur and Mehta
4. I.C. Engines by V Ganesan.
5. Thermal Engineering by P.L.Ballaney Khanna Publishers.

B. Tech(CSE) Eighth Semester
DIGITAL SIGNAL PROCESSING

Course Code :**EURIT 8612**	Category : IE
Credits: 4	Hours : 4 per week
Total : 100	Sem. End Exam: 60
	Con. Eval. : 40

UNIT I

Characterization of system is Discrete Time: Impulse response and system function H(z) of digital systems, Frequency response, Stability analysis, Direct Form-I, Direct form – II, Cascade and Parallel realization structures of digital filters, finite word length effects Limit cycle and Dead band effect.

UNIT II

Discrete Fourier transform (DFT): Discrete-Time Fourier transform, computation of DFT, circular convolution and linear convolution using DFT, circular convolution and linear convolution using DFT, overlap-add method, overlap-save method, Fast Fourier Transforms (FFT), Radix-2 decimation-in-time and decimation-in-frequency algorithms, Inverse FFT.

UNIT III

Design of IIR filters: linear phase characteristics, Fourier series method, window function technique, comparison between IIR and FIR filters.

UNIT IV

Design of FIR filters, linear phase characteristics, Fourier series method, window function technique, comparison between IIR and FIR filters.

UNIT V

DSP architecture for signal processing, Harvard architecture, pipelining, hardware multiplier, accumulator, general purpose digital signal processors, Fixed point digital processors, floating point digital signal processors.

Applications of DSP: in spectrum analysis and filtering, Application of DSP in audio applications, telecommunication and bio-medical.

B.Tech (IT) Eighth Semester

EURIT 8613: ELECTRONIC MEASUREMENT & INSTRUMENTATION

Course Code :**EURIT 8613**	Category : IE
Credits: 4	Hours : 4 per week
Total : 100	Sem. End Exam: 60
	Con. Eval. : 40

UNIT I

Measurement Instrumentation and Calibration:

Classification of transducers–performance characteristics–calibration and standards.

Signals and their representation:

Standard test–Periodic–Aperiodic–Modulated Signals–Sampled data–pulse modulation and pulse code modulation.

UNIT II

Dynamics of Instrument Systems:

General performance of Systems–Electromechanical systems–Fluidic systems– Filtering and dynamic compensation.

UNIT III

Electronic Instruments:

Digital voltmeters – Digital frequency meter – digital phase angle meter. Storage oscilloscope – analog and digital type – wave analysers – spectrum analyzers – Vector impedance meter – Q-meter-Peak reading and RMS Voltmeters.

UNIT IV

Transducers:

Advantages of Electrical Transducers – Classification of Transducers – characteristics and choice of Transducers – resistor – Inductor and capacitor Transducers – Strain gauge – gauge factor – types – thermistors – thermocouples – LVDT – Synchros – Peizo-Electric Transducers – Photovoltaic – Photo conductive cells – Photo diodes and Transistors.

UNIT V

Measurement of Non-electrical Quantities:

Measurement of Strain – Gauge sensitivity – Temperature compensation – Load cell – Measurement of Pressure using electrical transducers as secondary transducers – Vacuum Gauges – Torque measurement – Angular velocity using Tachometers and digital methods. LVDT type accelerometer – Flow measurement suing electromagnetic – hot-wire anemometer and ultrasonic types – Capacitance method for liquid level measurement.

Text Books:

1. Transducers and Instrumentation by DVS Murthy, Prentice-Hall of India.
2. Instrumentation: Devices and Systems – by C.S. Rangan, G.R. Sarma and Mani, Tata Mc Graw-Hill, 2nd edition.
3. Modern Electronic Instrumentation and Measurement Techniques – by A.D. Helfrick and W.D. Cooper, Prentice-Hall of India.

Reference Books:

1. Measurement Systems, Applications and Design – by D.O. Deoblin.
2. Electrical and Electronics Measurements and Instrumentation by A.K. Shawnay, Dhanpatrai and Sons.
3. Process Control Instrumentation Technology – by C.Johnson, Prentice-Hall of India.
4. Principles of Measurement and Instrumentation – by A.S. Morris, Prentice-Hall of India.

B.Tech (IT) Eighth Semester

EURIT 8614:VERY LARGE SCALE INTEGRATED SYSTEMS DESIGN (VLSI)

Course Code :**EURIT 8614**	Category : IE
Credits: 4	Hours : 4 per week
Total : 100	Sem. End Exam: 60
	Con. Eval. : 40

UNIT I

1. Review of microelectronics and Introduction to MOS technology:

Introduction MOS and related VLSI technology – NMOS-CMOS-BICMOS-GaAas Technologies – thermal aspects of processing – production of E beam masks.

UNIT II

2. MOS and BICMOS circuit design process:

MOS layers – stick diagrams – design rules and layout – 2m meter – 1.2 m meter CMOS rules – Layout diagrams – Symbolic diagrams.

UNIT III

3. Basic Circuit Concepts:

Sheet resistance – Area capacitance of layers – delay unit – wiring capacitances – choice of layers.

UNIT IV

4. Scaling of MOS circuits:

Scaling modesl – Scaling function for device parameters – Limitation of Scaling.

Subsystem design process:

Architectural issues – switch logic – examples of structural design (Combinational logic)– design of ALU subsystem – commonly used storage elements – aspects of design rules.

UNIT V

Test and Testability:

Design for testability built in self test (BIST) – teaching combinational logic – testing sequential logic – practical design for test guide lines – scan design techniques – etc.

Text Books:

1. Basic VLSI design by Douglas A, Pucknell, Kamran Eshraghian, Prantice Hall, 1996 3rd edition.

Reference book:

Mead, C.A and Conway, L.A., Introduction to VLSI Systems, Wesley – Wesley.

B.Tech (IT) Eighth Semester

EURIT 8615: Elective-I: FUNDAMENTALS OF CIVIL ENGINEERING

Course Code :**EURIT 8615**	Category : IE
Credits: 4	Hours : 4 per week
Total : 100	Sem. End Exam: 60
	Con. Eval. : 40

UNIT-I

Surveying – Classification, general principles of surveying, Basic terms and delimitations in chain, campus, leveling surveying and use of surveying.

UNIT-II

Buildings Planning and Drawing : Buildings, definitions of orientation, plan, section, Elevation and site plan, classification according to NBC, Plinth area, Floor area, carpet area, Floor space index, floor area ratio, selection of site for residential buildings. Buildings regulations and Bye Laws.

UNIT-III

Building materials and Instillations: Construction materials – stone, brick, cement, cement-mortar, concrete, steel their properties – uses, Instillations –

UNIT-IV

Water supply – types of pipes, pipe appurtenances, Type of pumps, sanitation services, Lifts, Air Conditions, Electrical instillations.

UNIT-V

Units of measurement of different items of works in residential buildings.

Text books

1. Surveying by B.C., Punnia
2. Planning and Designing by Gurucharan Sing
3. Estimation, Costing, Specification and Valuation in Civil Engineering by M. Chakraborti.

Reference books:

1. Principles of Surveying by Kenatkar

B.Tech (IT) Eighth Semester
EURIT 8616: Elective-I: ENGINEERING MATERIALS

Course Code :**EURIT 8616** Category : IE
Credits: 4 Hours : 4 per week
Total : 100 Sem. End Exam: 60
Con. Eval. : 40

UNIT I

Metallic Materials:

a) Ferrous Materials: Iron Materials, Carbon Materials, Phase Distribution, Heat Treatment of steel, Wrought iron, properties and Classification of Plain Carbon & alloy steels like Marogim Steel, Hard Field Steel, Stainless Steel, Tool Steel, cast iron and its applications.
b) Non-ferrous Materials: Aluminum and its applications, Copper and its applications, Nickel and its applications.

Unit II

Composite Materials:

a) Science: Polymer matrix Composites, Cement Matrix Composites Carbon Matrix Composites, Metal Matrix Composites, Ceramic matrix composites.
b) Applications: Structural applications, Electronic applications, Thermal applications, Electro chemical applications, environmental applications, Biomedical applications.

UNIT III

Polymeric Materials:

Types of polymerization, properties of Macro Molecules, Fabrication of plastics, Preparation of epoxy resins and polycarbonates, Carbon fibre reinforced Plastics, Molecular Computers, Rubbers and Elastomers.

UNIT IV

Ceramic & Refractory Materials:

Ceramics: Classification of white wears, Manufacturing of white wears, Earthen wear, Stine wear, Engineering applications of ceramics.

Refractory Materials: Classification of Refractory materials, Characteristics of refractory materials, Engineering application of refractory materials.

UNIT V

Electronic Materials:

Introduction: Metallic glasses-surface ecostic view materials-Bio metallic ceramics-Cermets-Electrets-Nano Phase Materials, Intermeterial components, SMART Materials, Conducting Polymers, Electronic detectors and Emitters, Logic Structure Materialization Technology.

Text Books:

1. Composite materials Science & Applications, D.L.Chung, Deborah, Springer Publication.
2. Introduction to Physical materials, S.H.Aveneer, Tata MacGrawhill

References

1. Text book of Engineering Chemistry, Sashi Chawla, Dhopatrai & Sons
2. Engineering Chemistry, S.S. Dhara