



J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY

UGC AUTONOMOUS

(Permanently Affiliated to JNTUH, Approved by AICTE, New Delhi and Accredited by NBA, NAAC)

Yenkapally, Moinabad Mandal, P.O. Himayatnagar, R.R. District, Hyderabad – 500 075
Telangana State, India.

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ACADEMIC REGULATIONS (JBIET R-14), COURSE STRUCTURE AND SYLLABI FOR B. TECH (I & II SEMESTERS) UNDER AUTONOMOUS STATUS FOR 2014 ADMITTED BATCH

B.Tech. Regular Four Year Degree Programme (For the batches admitted from the academic year 2014 - 2015) & B.Tech. (Lateral Entry Scheme) (For the batches admitted from the academic year 2015 - 2016)

Note: The regulations hereunder are subject to amendments as may be made by the Academic Council of the College from time to time. Any or all such amendments will be effective from such date and to such batches of candidates (including those already pursuing the program) as may be decided by the Academic Council of JBIET.

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ACADEMIC REGULATIONS- R14 FOR B. TECH. (REGULAR)

**Applicable for the students of B. Tech. (Regular) from the Academic
Year 2014-15 and onwards**

1. Award of B. Tech. Degree

A student will be declared eligible for the award of B. Tech. Degree if he fulfills the following academic regulations:

- 1.1 The candidate shall pursue a course of study for not less than four academic years and not more than eight academic years(i.e. No student is allowed to have more than four times detention)
- 1.2 After eight academic years of course of study, the candidate is permitted to write the examinations for two more years.
- 1.3 The candidate shall register for 212 credits and secure 205 credits with compulsory subjects as listed in Table-1.

Serial Number	Subject Particulars
1	All practical subjects
2	Industry oriented mini project
3	Science based Mini Project
4	Internship
5	Comprehensive Viva-Voce
6	Seminar
7	Project work

2. Forfeiting B.Tech Degree

The students, who fail to fulfill all the academic requirements for the award of the degree within ten academic years from the year of their admission, shall forfeit their seats in B. Tech. course.

3. Courses of study

The following courses of study are offered at present as specializations for the B. Tech. Course:

Branch Code	Branch
01	Civil Engineering
02	Electrical and Electronics Engineering
03	Mechanical Engineering
04	Electronics and Communication Engineering
05	Computer Science and Engineering
12	Information Technology
19	Electronics and Computer Engineering
25	Mining Engineering

4. Credits

Each course is normally assigned a certain number of credits as follows:

	Semester	
	Periods /Week	Credits
Theory	4	04
	3+1*/3	03
Practical	03	02
Drawing	01+03	03
Mini Project	--	02
Science based Mini project	-	02
Internship	-	02
Comprehensive Viva Voce	--	02
Seminar	6	02
Project	15	10

*Tutorial

5 Distributions and Weightage of Marks

- 5.1 The performance of a student in each semester shall be evaluated subject-wise for a maximum of 100 marks for a theory and 75 marks for a practical subject. In addition, industry-oriented mini-project, Science based mini project, Internship, seminar, Comprehensive viva and project work shall be evaluated for 50, 50, 50, 50, 100 and 200 marks, respectively.
- 5.2 For theory subjects the distribution shall be 25 marks for Internal Evaluation and 75 marks for the End-Examination.
- 5.3 For theory subjects, during a semester there shall be 2 mid-term examinations. Each mid-term examination consists of one objective paper, one essay paper and one assignment. The objective paper and the essay paper shall be for 10 marks each with a total duration of 1 hour 20 minutes (20 minutes for objective and 60 minutes for essay paper). The Objective paper is set with 20 bits of multiple choice, fill-in the blanks and matching type of questions for a total of 10 marks. The essay paper shall contain 4 full questions (two from each unit for first mid and minimum one from each unit in the second mid) out of which, the student has to answer 2 questions, each carrying 5 marks. While the first mid-term examination shall be conducted in first *Two Units* of the syllabus, the second mid-term examination shall be conducted in last Three Units. Five (5) marks are allocated for Assignments (as specified by the subject teacher concerned). The first Assignment should be submitted before the conduct of the first mid-examination, and the second Assignment should be submitted before the conduct of the second mid-examination. The total marks secured by the student in each mid-term examination are evaluated for 25 marks, and the average of the two mid-term examinations shall be taken as the final marks secured by each candidate. . If any candidate is absent from any subject of a mid-term examination with a valid reason (only medical reasons are allowed), re-examination will be conducted for such student.

The details of End Examination Question Paper pattern is as follows:

The End semesters Examination will be conducted for 75 marks which consist of two parts viz. i). Part-A for 25 marks, ii). Part –B for 50 marks

- ***Part-A is compulsory question which consists of Five questions, one from each unit and carries 5 marks each.***
 - ***Part-B consists of five Questions (numbered from 2 to 6) carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. For each question there will be an “either” “or” choice (that means there will be two questions from each unit and the student should answer any one question)***
- 5.4 For practical subjects there shall be a continuous evaluation during a semester for 25 sessional marks and 50 end semester examination marks. Out of the 25 marks for internal evaluation, day-to-day work in the laboratory shall be evaluated for 15 marks and internal practical examination shall be evaluated for 10 marks conducted by the laboratory teacher concerned. The end semester examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from the clusters of colleges which are decided by the examination branch of JBIET.
- 5.5 For the subject having design and/or drawing, (such as Engineering Graphics, Engineering Drawing, Machine Drawing) and Estimation, the distribution shall be 25 marks for internal evaluation (15 marks for day-to-day work and 10 marks for internal tests) and 75 marks for end semester examination. There shall be two internal tests in a Semester and the average of the two shall be considered for the award of marks for internal tests.

- 5.6 There shall be Science based Mini-Project, to be taken up during the vacation after I year II Semester examination and it will be evaluated in II Year I semester. However, the Science based mini-project marks will be added in IV year II Semester. The Science based Mini-Project shall be submitted in a report form and presented before the committee. It shall be evaluated for 50 marks. The committee consists of head of the department, and the supervisor of the Science based project and a senior faculty member of the department. There shall be no external marks for Science based Mini-Project.
- 5.7 There shall be an internship, in collaboration with an industry of their specialization, to be taken up during the vacation after II year II Semester examination and it will be evaluated in III Year I semester. However, the Science based mini-project marks will be added in IV year II Semester. However, the internship report shall be evaluated in IV year II Semester. The internship report shall be submitted in a report form and presented before the committee. It shall be evaluated for 50 marks. The committee consists of head of the department, and internship supervisor and a senior faculty member of the department. There shall be no external marks for internship.
- 5.8 There shall be an industry-oriented Mini-Project, in collaboration with an industry of their specialization, to be taken up during the vacation after III year II Semester examination. However, the mini-project and its report shall be evaluated along with the project work in IV year II Semester. The industry oriented mini-project shall be submitted in a report form and presented before the committee. It shall be evaluated for 50 marks. The committee consists of an external examiner, head of the department, the supervisor of the mini-project and a senior faculty member of the department. There shall be no internal marks for industry-oriented mini-project.
- 5.9 There shall be a seminar presentation in IV year II Semester. For the seminar, the student shall collect the information on a specialized topic and prepare a technical report, showing his understanding of the topic, and submit it to the department. It shall be evaluated by the departmental committee consisting of head of the department, seminar supervisor and a senior faculty member. The seminar report shall be evaluated for 50 marks. There shall be no external examination for the seminar.
- 5.10 There shall be a Comprehensive Viva-Voce in IV year II semester. The Comprehensive Viva-Voce will be conducted by a Committee consisting of Head of the Department and two Senior Faculty members of the Department. The Comprehensive Viva-Voce is intended to assess the student's understanding of the subjects he studied during the B. Tech. course of study. The Comprehensive Viva-Voce is evaluated for 100 marks by the Committee. There are no internal marks for the Comprehensive Viva-Voce.
- 5.11 Out of a total of 200 marks for the project work, 50 marks shall be allotted for Internal Evaluation and 150 marks for the End Semester Examination (50 marks for thesis, 50 marks for successful execution of the project and 50 marks for Viva Voce). The End Semester Examination of the project work shall be conducted by the same committee as appointed for the industry-oriented mini-project. In addition, the project supervisor shall also be included in the committee. The topics for Science based project, Internship, industry oriented mini project, and seminar and project work shall be different from one another. The evaluation of project work shall be made at the end of the IV year. The Internal Evaluation shall be on the basis of two seminars given by each student on the topic of his project.
- 5.12 The Laboratory marks and the sessional marks awarded by the examiners are subject to scrutiny and scaling by the college wherever necessary. In such cases, the sessional and laboratory marks awarded by the examiners will be referred to a Committee. The Committee will arrive at a scaling factor and the marks will be scaled accordingly. The recommendations of the Committee will be final and binding. The laboratory records and internal test papers

shall be preserved and should be produced before the Committees as and when required.

6 Attendance Requirements

- 6.1 A student is eligible to write the End Semester examinations only if he acquires a minimum of 75% of attendance in aggregate of all the subjects.
- 6.2 Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each semester may be granted by the College Academic Committee
- 6.3 Shortage of Attendance below 65% in aggregate shall not be condoned and student will be detained on account of shortage of attendance below 65%.
- 6.4 A student who is short of attendance in semester may seek re-admission into that semester when offered within 4 weeks from the date of the commencement of class work.
- 6.5 Students whose shortage of attendance is not condoned in any semester are not eligible to write their end semester examination of that class and their registration stands cancelled.
- 6.6 A stipulated fee shall be payable towards condonation of shortage of attendance.
- 6.7 A student will be promoted to the next semester if he satisfies the attendance requirement of the present semester, as applicable, including the days of attendance in sports, games, NCC and NSS activities.
- 6.8 If any candidate fulfills the attendance requirement in the present semester, he shall not be eligible for readmission into the same class.

7 Minimum Academic Requirements

The following academic requirements have to be satisfied in addition to the attendance requirements mentioned in item no.6.

- 7.1 A student is deemed to have satisfied the minimum academic requirements if he has earned the credits allotted to each theory/practical design/drawing subject/project and secures not less than 35% of marks in the end semester exam, and minimum 40% of marks in the sum total of the mid-term and end semester exams.
- 7.2 A student shall be promoted from first year to second year if he fulfills the minimum attendance requirement.
- 7.3 A student will not be promoted from II year to III year unless he fulfills the academic requirement of 40 credits up to II year II semester from all the examinations, whether or not the candidate takes the examinations.
- 7.4 A student shall be promoted from III year to IV year only if he fulfils the academic requirements of 60 credits up to III year II semester from all the examinations, whether or not the candidate takes the examinations.
- 7.5 A student shall register and put up minimum attendance in all 212 credits and earn 205 credits. Marks obtained in the best 200 credits shall be considered for the calculation of percentage of marks.
- 7.6 Students who fail to earn 200 credits as indicated in the course structure within ten academic years (8 years of study + 2 years additionally for appearing for exams only) from the year of their admission, shall forfeit their seat in B.Tech. course and their admission stands cancelled.

8 Course Pattern

- 8.1 The entire course of study is for four academic years. I , II, III and IV years shall be on semester pattern.
- 8.2 A student, eligible to appear for the end examination in a subject, but absent from it or has failed in the end semester examination, may write the exam in that subject during the period of supplementary exams.
- 8.3 When a student is detained for lack of credits/shortage of attendance, he may be re-admitted into the next semester. However, the academic regulations under which he was first admitted shall continue to be applicable to him.

9 Award of Class

After a student has satisfied the requirements prescribed for the completion of the program and is eligible for the award of B. Tech. Degree, he shall be placed in one of the following four classes:

Class Awarded	% of marks to be secured	From the aggregate marks secured from 200 Credits.
First Class with Distinction	70% and above	
First Class	Below 70 but not less than 60%	
Second Class	Below 60% but not less than 50%	
Pass Class	Below 50% but not less than 40%	

The marks obtained in internal evaluation and end semester examination shall be shown separately in the memorandum of marks.

10 Minimum Instruction Days

The minimum instruction days for each semester shall be 90 days. Tentative Schedule must be as per the pattern given below.

First Semester	Instructions Days	16 Weeks
	Mid Term Examinations	2 Weeks
	Preparation & Practical Examinations	2Weeks
	End Examinations	2Weeks
Semester Break		2Weeks
Second Semester	Instructions Days	16 Weeks
	Mid Term Examinations	2 Weeks
	Preparation & Practical Examinations	2Weeks
	End Examinations	2Weeks
Summer Break		6 weeks

11. Branch Transfer of students

There shall be no branch transfers after the completion of the admission process.

12. Transfer of students from other colleges/universities

Transfer of students from the Constituent Colleges of *JNTUH* or from other Colleges/Universities shall be considered only on a case-to-case basis by the Academic Council of the Institute while following rules as in the force at that time promulgated by JNTUH and State government of Telangana.

13. Withholding Of Results

If the student has not paid the dues, if any, to the college or if any case of indiscipline is pending against him, the result of the student will be withheld and he will not be allowed into the next semester. His degree will be withheld in such cases.

14. Transitory regulations

- 14.1 Discontinued, detained, or failed candidates are eligible for readmission, as and when next offered.
- 14.2 After the revision of the regulations, the students of the previous batches will be given two chances for passing in their failed subjects, one supplementary and the other regular. If the students cannot clear the subjects in the given two chances, they shall be given equivalent subjects as per the revised regulations which they have to pass in order to obtain the required number of credits.
- 14.3 In case of transferred students from other Universities and colleges, the credits shall be transferred to JBIET as per the academic regulations and course structure of the JBIET.

15. General

- 15.1 Wherever the words “he”, “him”, “his”, occur in the regulations, they include “she”, “her”, “hers”.
- 15.2 The academic regulation should be read as a whole for the purpose of any interpretation.
- 15.3 In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Principal is final.
- 15.4 The **College** may change or amend the academic regulations or syllabi at any time and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the **College**.
- 15.5 The students seeking transfer to JBIET from various other Universities/ Institutions have to pass the failed subjects which are equivalent to the subjects of JBIET, and also pass the subjects of JBIET which the candidates have not studied at the earlier Institution on their own without the right to sessional marks. Further, though the students have passed some of the subjects at the earlier institutions, if the same subjects are prescribed in different semesters of JBIET, the candidates have to study those subjects in JBIET in spite of the fact that those subjects are repeated.

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ACADEMIC REGULATIONS R14 FOR B. TECH. (LATERAL ENTRY SCHEME)

Applicable for the students admitted into II year B. Tech. (LES) from the Academic Year 2014-15 and onwards

1 Eligibility for award of B. Tech. Degree (LES)

- I. The LES candidates shall pursue a course of study for not less than three academic years and not more than six academic years.
 - II. They shall be permitted to write the examinations for two more years after six academic years of course work.
2. The candidate shall register for **152** credits and secure **150** credits from II to IV year B.Tech. Program (LES) for the award of B.Tech. degree with compulsory subjects as listed in Table-1.

Serial Number	Subject Particulars
1	All practical subjects
2	Industry oriented mini project
3	Comprehensive Viva-Voce
4	Seminar
5	Project work

3. The students, who fail to fulfil the requirement for the award of the degree in 8 consecutive academic years (6 years of study + 2 years additionally for appearing exams only) from the year of admission, shall forfeit their seats.
4. The attendance regulations of B. Tech. (Regular) shall be applicable to B.Tech. (LES).

5. Promotion Rule

A student shall be promoted from second year to third year if he fulfills the minimum attendance requirement.

A student shall be promoted from III year to IV year only if he fulfills the academic requirements of 40 credits up to III year II semester from all the examinations, whether or not the candidate takes the examinations.

6. Award of Class

After a student has satisfied the requirement prescribed for the completion of the program and is eligible for the award of B. Tech. Degree, he shall be placed in one of the following four classes:

Class Awarded	% of marks to be secured	
First Class with Distinction	70% and above	From the aggregate marks secured for 150 Credits. (i.e. II year to IV year)
First Class	Below 70% but not less than 60%	
Second Class	Below 60% but not less than 50%	
Pass Class	Below 50% but not less than 40%	

The marks obtained in the internal evaluation and the end semester examination shall be shown separately in the marks memorandum.

7. All the other regulations as applicable to **B. Tech. 4-year degree course (Regular)** will hold good for **B. Tech. (Lateral Entry Scheme)**.

MALPRACTICES RULES

DISCIPLINARY ACTION FOR / IMPROPER CONDUCT IN EXAMINATIONS

	Nature of Malpractices/Improper conduct	Punishment
	<i>If the candidate:</i>	
1. (a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, Cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which he is appearing but has not made use of (material shall include any marks on the body of the candidate which can be used as an aid in the subject of the examination)	Expulsion from the examination hall and cancellation of the performance in that subject only.
(b)	Gives assistance or guidance or receives it from any other candidate orally or by any other body language methods or communicates through cell phones with any candidate or persons in or outside the exam hall in respect of any matter.	Expulsion from the examination hall and cancellation of the performance in that subject only of all the candidates involved. In case of an outsider, he will be handed over to the police and a case is registered against him.
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or practical) in which the candidate is appearing.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted to appear for the remaining examinations of the subjects of that Semester/year. The Hall Ticket of the candidate is to be cancelled and kept with the examination branch.
3.	Impersonates any other candidate in connection with the examination.	The candidate who has impersonated shall be expelled from examination hall. The candidate is also debarred and forfeits the seat. The performance of the original candidate who has been impersonated,

		shall be cancelled in all the subjects of the examination (including practicals and project work) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all End semester examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him.
4.	Smuggles in the Answer book or additional sheet or takes out or arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all End semester examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
5.	Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks.	Cancellation of the performance in that subject.
6.	Refuses to obey the orders of the Chief Superintendent/Assistant – Superintendent / any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs	In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject and all other subjects the candidate(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The candidates also are debarred and forfeit their seats. In case of outsiders, they will be handed over to the

	or by visible representation, assaults the officer-in-charge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the College campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.	police and a police case is registered against them.
7.	Leaves the exam hall taking away answer script or intentionally tears of the script or any part thereof inside or outside the examination hall.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all End semester examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
8.	Possess any lethal weapon or firearm in the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat.
9.	If student of the college, who is not a candidate for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.	Student of the colleges expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the

		<p>subjects of that semester/year. The candidate is also debarred and forfeits the seat.</p> <p>Person(s) who do not belong to the College will be handed over to police and, a police case will be registered against them.</p>
10.	Comes in a drunken condition to the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year.
11.	Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.	Cancellation of the performance in that subject and all other subjects the candidate has appeared including practical examinations and project work of that semester/year examinations.
12.	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the University for further action to award suitable punishment.	

Malpractices identified by squad or special invigilators

1. Punishments to the candidates as per the above guidelines.
2. Punishment for invigilators : (if the squad reports that the invigilator is also involved in encouraging malpractices)
 - (i) A show cause notice shall be issued to the invigilator.
 - (ii) Impose a suitable fine on the invigilator.

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UGC AUTONOMOUS

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INFORMATION TECHNOLOGY

COURSE STRUCTURE-R14

I YEAR I -SEMESTER

Code	Subject	L	T/P/D	C
C110A	English	3	-	3
C110B	Mathematics — I	4	1	4
C110C	Engineering Physics	3	1	3
C115A	Computer Programming	3	-	3
C113F	Engineering Drawing -I	1	3	3
C1101	Computer Programming Lab	-	3	2
C1102	Engineering Physics Lab	-	3	2
C1104	Engineering Workshop	-	3	2
C1105	English Lab	-	3	2
	Total			24

I YEAR II -SEMESTER

Code	Subject	L	T/P/D	C
C120A	Technical English	3	-	3
C120B	Mathematics — II	4	1	4
C120D	Engineering Chemistry	3	-	3
C125A	Data Structures	3	-	3
C120F	Professional Ethics	3	-	3
C120E	Mathematical Methods	4	1	4
C1201	Data Structures Lab	-	3	2
C1203	Engineering Chemistry Lab	-	3	2
C1204	IT Workshop	-	3	2
	Total			26

II-YEAR I SEMESTER

Code	Subject	L	T/P/D	C
C210A	Probability and Statistics	3	1	3
C216A	Mathematical Foundations of Computer Science	3	1	3
C215A	Advanced programming in C++ and Java	4	1	4
C210B	Environmental Studies	3		3
C212C	Basic Electrical Engineering	4	1	4
C214C	Electronic Devices and Circuits	4	1	4
C2105	Electronic Devices and Circuits Lab		3	2
C2112	Basic Electrical Engineering Lab		3	2
C2113	Advanced programming Lab		3	2
	Total			27

II YEAR II SEMESTER

Code	Subject	L	T/P/D	C
C224F	Digital Logic Design & Computer Organization	3	1	3
C225A	Database Management Systems	4	1	4
C226A	OOPS Through PYTHON	4	1	4
C225B	Operating Systems	4	1	4
C226B	Design and Analysis of Algorithms	3	1	3
C2216	OOPS Through PYTHON Lab		3	2
C2214	Operating Systems Lab		3	2
C2215	Database Management Systems Lab		3	2
C220C	Comprehensive Assignment			2
	Total			26

III YEAR I-SEMESTER

Code	Subject	L	T/P/D	C
	Automata and Compiler Design	3	1	3
	OPEN ELECTIVE Intellectual Property Rights Disaster Management Operation Research Cyber Laws	3		3
	Software Engineering	3		3
	Data Communication and Computer Networks	4	1	4
	Web Technologies	4	1	4
	Linux Programming	4	1	4
	Computer Networks Lab		3	2
	Web Technologies Lab		3	2
	Linux Programming Lab		3	2
	Total			27

III YEAR II SEMESTER

Code	Subject	L	T/P/D	C
	Principles of Programming Languages	3	1	3
	ELECTIVE – I Adhoc Sensor Networks Storage Area Networks Middleware Technologies Web services	3		3
	Data Warehousing and Data Mining	4	1	4
	Software Testing Methodologies	4	1	4
	Object Oriented Analysis and Design	4	1	4
	Data Warehousing and Data Mining Lab		3	2
	Software Testing Lab		3	2
	Case Tools Lab		3	2
	Industrial Internship			2
	Total			26

IV YEAR I SEMESTER

Code	Subject	L	T/P/D	C
	Information Security	4		4
	Information Retrieval Systems	3	1	3
	Elective – II Wireless Networks and Mobile Computing Software Architecture and Design Patterns Semantic Web and Social Networks Soft computing	3		3
	Elective – III Software Project Management Scripting Languages Computer Forensics Computer Graphics	3		3
	Mobile Application Development	4	1	4
	Embedded Systems	4	1	4
	Mobile Application Development Lab		3	2
	Embedded Systems Lab		3	2
	Soft skills Lab-I		3	2
	Total			27

IV YEAR II SEMESTER

Code	Subject	L	T/P/D	C
	Management Science for Engineers	4		4
	Elective – IV			
	Big Data & Cloud Computing			
	Enterprise Computing	4	1	4
	Visual Programming Techniques			
	Advanced Mobile Computing			
	Elective Lab-IV			
	Big Data & Cloud Computing Lab			
	Enterprise Computing Lab		3	2
	Visual Programming Techniques Lab			
	Advanced Mobile Computing Lab			
	Soft skills Lab –II		3	2
	Mini Project			2
	Seminar		6	2
	Project Work		15	10
	Comprehensive Viva			2
	Total			28

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

I.B.TECH-SEMESTER-I

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

ENGLISH

(Common to all branches)

Unit-I Academic Vocabulary

- Word Formation-Word Disintegration
- Root/Base Word- Word Origin
- Affixation-Prefix & Suffix
- Synonym/Antonym-Homophone/Homonym/Homograph
- Use of Dictionary & Thesaurus
- Phrasal Verbs, Idioms
- One Word Substitutes
- Collocations
- Technical Vocabulary

Unit-II- Grammar

- Parts of Speech- Introduction to English Grammar
- All about- Noun, Pronoun, Verb, Adverb
- Adjective, Preposition, Conjunction, Interjection
- Articles- Use of Articles A, An and The.
- Punctuations
- Tenses**
- Tenses in English
- Use of appropriate Tenses in different contexts
- Use of Tenses in Narration

Unit-III-- Improving Reading Skills

- Reading for Specific Purposes
- Reading for General Information
- Reading for facts
- Reading between/beyond the lines
- Reading for Skimming & Scanning
- Dialogue Reading
- Comprehension

Unit-IV- Basics of Writing

- Syntax & Sentence Structure
- Construction of Proper Sentences in English
- Sentences Types- Purposes
- Email Etiquette
- Note Making and Note Taking

Unit-V Common Errors in English

-Subject-Verb Agreement

Text Books:

1. *Language In Use - Intermediate: Self-Study Workbook with Answer Key/2008* Adrian Doff ,
PB Cambridge University Press.
2. *English Vocabulary in Use: Pre-Intermediate & Intermediate*(PB +CD ROM)/3rd Edition
Stuart Redman Cambridge University Press.

Reference Books:

1. *Technical Communication: Principles And Practice* (With Dvd) 2nd Edition (English) 2nd
Edition Sangeeta Sharma, Meenakshi Raman, Oxford Univesity Press
2. *The Fundamental Aspects of Communication Skills/2009*,Dr.P. Prasad S.K Kataria & Sons
Active Grammar with Answer Level 1,2 &3 Davis Cambridge University Press

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I.B.TECH-SEMESTER-I

L	T/P/D	C
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MATHEMATICS – I

(Common to all branches)

UNIT-I : Sequences - Series

Basic definitions of Sequences and Series – Convergence and divergence – Ratio test – Comparison test – Integral test – Cauchy’s root test – Raabe’s test – Absolute and conditional convergence.

Function of Single Variable

Rolle’s Theorem – Lagrange’s Mean Value Theorem – Cauchy’s mean value Theorem – Generalized mean value theorem (all theorems without proof) .

UNIT-II : Function of Several Variables

Functional dependence – Jacobian – Maxima and Minima of functions of two variables with constraints and without constraints.

UNIT-III : : Curve Tracing : Cartesian, polar and parametric curves.

Geometrical applications of Differential Calculus: Radius of Curvature, Centre and Circle of Curvature-Evolutes and Envelopes.

UNIT-IV : Multiple Integrals :Double and triple integrals – change of order of integration – change of variable.

UNIT-V : Vector Calculus

Vector Calculus: Gradient-Divergence-Curl and their related properties, Potential function – Laplacian and second order operators. Line integral – work done – surface integrals-Flux of a vector valued functions.

Vector integrals theorem: Green’s –Stoke’s and Gauss’s Divergence Theorems (Statement & their verification).

TEXT BOOKS:

1. Grewal B.S, “Higher Engineering Mathematics”, Khanna publications, 42nd edition 2012
2. Advanced Engineering Mathematics by Jain and S.R.K. Iyengar, Narosa Publications.
3. Engineering Mathematics by B.V.Ramana, Tata McGrawhill Publishing company Ltd .New Delhi, 5th edition, 2011.

REFERENCES:

1. Engineering Mathematics-I by T.K.V. Iyengar & B.Krishna Gandhi & Others, S.Chand
2. Engineering Mathematics-I by G.Shankar Rao, I.K.International Publications.
3. KREYSZIG. E, “Advanced Engineering Mathematics” JohnWiley & Sons Singapore, 10th edition, 2012.
4. Veerarajan.T “ Engineering Mathematics-I”, Tata McGrawhill Publishing Co.New Delhi, 5th edition, 2006.

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I.B.TECH-SEMISTER-I

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ENGINEERING PHYSICS

(Common to ECE, EEE, CSE, IT & ECM)

UNIT-I

Crystallography -Space Lattice, Unit Cell, Lattice Parameters, Crystal Systems, Bravais Lattices, Packing Factor of SC, BCC, FCC, Diamond Structures, Miller Indices, Crystal Planes and Directions, Inter Planar Spacing of Orthogonal Crystal Systems

XRD & its applications: Basic Principles of XRD, Bragg's Law, X-Ray diffraction Methods: Laue Method, Powder Method, XRD its Applications

UNIT-II

Defects in solids: Vacancies, Substitution, Interstitial, Concentration of Frenkel and Schottky Defects, line defects (Qualitative) & Burger's Vector

Principles of Quantum Mechanics: Waves and Particles, de Broglie Hypothesis, Matter Waves, G.P.Thomson, Davisson and Germer's Experiment, Heisenberg uncertainty principle, Schrödinger's Time Independent Wave Equation – Physical Significance of the Wave Function – Particle in a One-Dimensional potential well(Zero point energy).

UNIT-III

Dielectric Properties: Electric Dipole, Dipole Moment, Dielectric Constant, Polarizability, Electric Susceptibility, Displacement Vector, Electronic, Ionic and Orientation Polarizations and Calculation of Polarizabilities(Electronic and Ionic): Internal Fields in Solids, Clausius -Mossotti Equation, Ferroelectricity, piezo and Pyro Electricity, Its applications.

Magnetic Properties: Permeability, Field Intensity, Magnetic Field Induction, Magnetization, Magnetic Susceptibility, Origin of Magnetic Moment, Bohr Magnetron, Classification of magnetic materials, Properties of Anti-Ferro and Ferri Magnetic Materials and their Applications, Explanation of Hysteresis curve on the basis of Domain Theory of Ferro magnetism, soft and Hard Magnetic Materials.

UNIT-IV

Superconductivity: Concept of superconductivity, Properties of Superconductors, Type-I and Type-II superconductor, BCS Theory, Applications of Superconductors.

Semiconductor Physics: Fermi Level in Intrinsic and Extrinsic Semiconductors, Calculation of carrier concentration in Intrinsic &, Extrinsic Semiconductors, Hall Effect and its Applications.

UNIT-V

Lasers: Characteristics of Lasers, Spontaneous and Stimulated Emission of Radiation, Einstein's Coefficients and Relation between them, Population Inversion, Lasing Action, Ruby Laser, Helium-Neon Laser, Semiconductor laser, Applications of Lasers

Optical fiber:

Principle of Optical Fiber, Construction of optical fiber, Acceptance Angle and Acceptance Cone, Numerical Aperture, Types of Optical Fibers: Step Index and Graded Index Fibers, Attenuation in Optical Fibers, Application of Optical Fiber in communication systems.

TEXT BOOKS:

1. Applied Physics – P.K.Mittal (I.K.Internationalhosesepvt Ltd) (New Edition)
2. Enginnering Physics-P.K Palaniswamy (Scitech Publications India) Pvt Ltd, Fifth Print 2010.)
3. Engineering Physics-Senthilkumar ((Vrb Publishers Limited,)

REFERENCES

1. Applied Physics for Engineers – A.J. Dekker (Macmillan).
2. Introduction to Solid State Physics – C. Kittel (Wiley Eastern).
3. Solid State Physics –S.O.PILLAI
4. Solid State Physics – M. Armugam (Anuradha Publications).
5. Modern Physics – R. Murugeshan& K. Siva PrasSh – S. Chand & Co. (for Statistical Mechanics).
6. A Text Book of Engg Physics – M. N. Avadhanulu& P. G. Khsirsagar– S. Chand & Co. (for acoustics).
7. Modern Physics by K. Vijaya Kumar, S. Chandralingam: S. Chand &Co.Ltd

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I.B.TECH-SEMISTER-I

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COMPUTER PROGRAMMING
(Common to all Braches)

UNIT- I Computer fundamentals-Hardware, software, computer language , translators , Compiler, Interpreter, Loader, and linker, Program Development steps-Algorithms, Pseudo code, flow charts, Specification for Converting Algorithms into Programs basic, Introduction to C Language – History, Simple C Program, Structure of a C Program, Identifiers, Basic data types, user defined data types, Variables, Constants, type qualifiers, Managing Input / Output, Operators, Expressions, Precedence and Associativity, Expression Evaluation, Type conversions, Simple C Programming examples.

UNIT – II Selection Statements – if and switch statements, Repetitive statements – while, for, do-while statements, C Programming examples, other statements related to looping – break, continue, go to, C Programming examples. Arrays– Basic concepts, one-dimensional arrays, two – dimensional arrays, multidimensional arrays, C programming examples.

UNIT – III Introduction to Structured Programming, Functions- basics, user defined functions, inter function communication, Standard functions, Storage classes-auto, register, static, extern, scope rules, arrays to functions, recursive functions, example C programs.

Strings – Basic concepts, String Input / Output functions, arrays of strings, string handling functions, strings to functions, C programming examples.

UNIT – IV Derived types – Structures – Basic concepts, nested structures, arrays of structures, structures and functions, unions, bit fields, C programming examples.

Pointers – Basic concepts, pointers and functions, pointers and strings, pointers and arrays, pointers and structures, self-referential structures , example C programs.

UNIT – V Introduction Using Files in C, Declaration of File Pointer, Opening a File, Closing and Flushing Files, Working with Text Files, Character Input and Output, End of File (EOF)

Working with Binary Files, Direct File Input and Output, Sequential Versus Random File Access, Files of Records, working with Files of Records, Random Access to Files of Records, Other File Management Functions, Deleting a File Renaming a File.

Low-Level I/O

TEXT BOOKS:

1. Programming in C. P. Dey and M Ghosh , Oxford University Press.
2. The C Programming Language, by Brian W. Kernighan , Dennis M. Ritchie

REFERENCE BOOKS:

1. C programming A Problem-Solving Approach by Behrouz A.Forouzan
2. Programming with C, B.Gottfried, 3rd edition, Schaum's outlines, TMH.
3. Graphics Under C by Yashavant Kanetkar , BPB Publications , 2003
4. Programming in C – Stephen G. Kochan, III Edition, Pearson Education
5. C Programming with problem solving, J.A. Jones & K. Harrow,Dreamtech Press.

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I.B.TECH-SEMESTER-I

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ENGINEERING DRAWING-I
(Common to All Branches)

UNIT – I

INTRODUCTION TO ENGINEERING DRAWING: Principles of Engineering Drawing and their Significance – Drawing Instruments and their Use – Conventions in Drawing – Lettering – BIS Conventions.

SCALES: Different types of Scales, Plain scales, Vernier Scale, Digonal Scale, Scales of chords.

UNIT - II

CONSTRUCTION OF CURVES USED IN ENGINEERING PRACTICE:

a) Conic Sections

 Ellipse- General, Concyclic Circle, Arcs of circle and Oblong Method

 Parabola- General, Tangent and Rectangle Methods

 Hyperbola-General, Point/Rectangle Method

b) Cycloid, Epicycloid and Hypocycloid

c) Involute for Circle, Rectangle and Triangle

UNIT – III

PROJECTIONS OF POINTS AND LINES: Principles of Orthographic Projections – Conventions – First and Third Angle, Projections of Points and Lines inclined to planes, True lengths, traces.

UNIT – IV

PROJECTIONS OF PLANES: Projections of regular Planes, auxiliary planes and Auxiliary projection inclined to both planes.

UNIT – V

PROJECTIONS OF SOLIDS: Projections of Regular Solids inclined to both planes – Auxiliary Views.

TEXT BOOK:

1. Engineering Drawing, N.D. Bhat / Charotar
2. Engineering Drawing and Graphics, Venugopal / New age.
3. Engineering Drawing – Basant Agrawal, TMH

REFERENCES :

1. Engineering drawing – P.J. Shah.S.Chand.
2. Engineering Drawing, Narayana and Kanniah / Scitech publishers.
3. Engineering Drawing- Johle/Tata Macgraw Hill.
4. Computer Aided Engineering Drawing- Trymbaka Murthy- I.K. International.

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I.B.TECH-SEMISTER-I

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COMPUTER PROGRAMMING LAB
(Common to all Braches)

WEEK 1

Simple C programs -to implement basic arithmetic operations – sum, average, product, smallest, largest of the numbers, difference, quotient and remainder of given numbers etc.

WEEK 2

Programs on if, else-if, nested if, else if ladder - largest and smallest of given numbers, to find the grade of a student based on marks, roots of a quadratic equation etc.

WEEK 3

- a. Programs on switch-case – to check the type of a given character, to find the grade of a student etc.
- b. Programs on while and do-while- to find factorial, Fibonacci series, GCD, Sin(x), Cos(x) series , to check whether a given number is an Armstrong, Palindrome, Perfect, number conversion, and Prime number etc.

WEEK 4

Programs on “for loop” - sum of n natural numbers, factorial, sin(x), to generate Pascal’s triangle etc.

WEEK 5

- a. Programs on nested loops – check for Fibonacci prime, Pyramids of numbers, generation of prime numbers in the given range, multiplication table etc.
- b. programs using break, go to, continue.

WEEK 6

- a. Programs on 1-D array-finding Minimum and maximum element ,Sorting and Searching etc.
- b. Programs on 2-D array – Sum, product and Multiplication of two Matrices etc.

WEEK 7

- a. Programs on Functions-Implementation of user defined functions categories, passing of arrays to functions etc.
- b. Programs on recursion - factorial of a given integer, GCD of two given integers etc.

WEEK 8

- a. Programs on String handling functions-Copying, reverse, substring, concatenation.
- b. Programs on structure and unions.

WEEK 10

Programs using pointers- pointer basic operations, pointers and functions etc

WEEK 11

Programs on pointers and structures, Pointers and arrays, pointers and strings.

WEEK 12

Programs on files-Implementation of file handling functions. Programs on files error handling.
Programs on Dynamic memory allocation

WEEK 13

Programs on command line arguments. Programs on preprocessor directives

WEEK 14

Program draws basic shapes such as circle, line, rectangle, ellipse and display text on screen using c graphics. Smiling face Animation using c graphics displaying face at random position on screen

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ENGINEERING PHYSICS LAB

(Common to ECE, EEE, CSE, IT & ECM)

Minimum Eight Experiments out of Ten

List of Experiments:

1. Torsional pendulum.
2. Melde's experiment – Transverse and longitudinal modes.
3. Time constant of an R-C circuit.
4. L-C-R circuit.
5. Magnetic field along the axis of current carrying coil – Stewart and Gees method.
6. Study the characteristics of LASER sources.
7. Evaluation of numerical aperture of given fiber.
8. Energy gap of a material of p-n junction.
9. Impedance Analysis/Dielectric constant of Measurements of materials.
10. Analysis of XRD spectra.

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ENGINEERING WORKSHOP

TRADES FOR EXERCISES

Three exercises from each trade

- (i) Carpentry
- (ii) Fitting
- (iii) Black Smithy
- (iv) Welding
- (v) Power Tools in Construction, Wood working, Electrical

Engineering works and Mechanical Engineering

TRADES FOR DEMONSTRATION & EXPOSURE

- (vi) Plumbing

TEXT BOOKS:

1. Work shop manual-P.Kannaiah, K.Narayana, Scitech Publishers
2. Workshop Manual-Venkat Reddy

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ENGLISH LAB

(Common to all branches)

MULTI-MEDIA LANGUAGE LAB

Unit 1	Introduction to Phonetics
Unit 2	Sounds of English- Vowels, Diphthongs
Unit 3	Consonants
Unit 4	Introduction to Stress, Rhythm and Intonation
Unit 5	Improving Listening Skills

ENGLISH COMMUNICATION SKILLS LAB

Unit 1	Self Introduction, Introducing others Agreeing/Disagreeing and Asking questions
Unit 2	‘Just A Minute’ Sessions (JAM) & Situational Dialogues
Unit 3	Describing Objects / Situations / People.
Unit 4	Oral Presentations- Prepared and Extempore.
Unit 5	Debate

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TECHNICAL ENGLISH

(Common to all branches)

Unit-I Formal & Informal Writing

-Formal & Informal Writing, Cover Letter

Unit-II- Writing Techniques

-Developing Paragraphs- Cohesion
-Developing passage by arranging paragraphs

Unit-III- Official Correspondence

- Types of Business Correspondence
-Technical Vocabulary, Report writing, Applications, Complaints & Requisitions

Unit-IV- e-Writing

-e-Mail Etiquette

Unit-V- Presentation Skills

- Paper, Seminars, Conferences, Symposia, Workshop presentation
-Power Point Presentation(Microsoft Office Suit)
-Project Proposal Presentation

Text Books:

Study Writing, 2nd Edition ,LIZ HAMP, Cambridge University Press

English for Job Seekers/2013,Lina Mukhopadhyay, Muthukumar Maganti, Geetha Rajeevan,
Priyadarshi Patnaik, B Sai Lakshmi, Nandini Nayar, Mohanan, C L N Prakash"
Cambridge University Press

Reference Books:

Strengthen Your Writing- V.R. Narayanaswami -Orient Longman

A Communicative Grammar Of English- Geoffrey Leech Jan Svartvik, Pearson Education

Strengthen Your Steps-Maruthi Publications, Hyderabad

Spoken English -2nd EditionR K Bansal & J B Harrison - Orient BlackSwan

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MATHEMATICS – II

(Common to all branches)

UNIT-I : Differential equations of first order and their applications

Overview of differential equations – exact, linear and Bernoulli. Applications to Newton's Law of cooling, Law of natural growth and decay, orthogonal trajectories

Higher Order Linear differential equations and their applications

Linear differential equations of second and higher order with constant coefficients, RHS term of the $f(x)=e^{ax}$, $\cos ax$, $\sin ax$, x^n , $e^{ax} V(x)$, $x^n V(x)$ and method of variation of parameters. Applications on bending of beams, Electrical circuits, simple harmonic motion.

UNIT-II : Laplace transform and its application to Ordinary differential equations

Laplace transform of standard functions – Inverse transform – first shifting theorem, Transforms of derivatives and integrals – Unit step function – second shifting theorem – Convolution theorem – Periodic function – differentiation and integration of transforms – Application of Laplace transforms to ordinary differential equations.

UNIT-III : Fourier Series

Determination of Fourier coefficients – Fourier series – even and odd functions – Fourier series in an arbitrary interval – even and odd periodic continuation – Half-range Fourier sine and cosine expansions.

UNIT-IV : Transforms

Fourier Transform: Fourier integral theorem – Fourier sine and cosine integrals. Fourier transforms – Fourier sine and cosine transforms – properties – inverse transforms – Finite Fourier transforms, Parseval's formula.

Z-Transform : Z-Transform-Properties-Damping rule-shifting rule-Initial & Final value theorems-convolution theorem – solution of difference equations by Z-transform.

UNIT-V : Partial differential equations

Introduction and Formation of partial equation by elimination of arbitrary constants and arbitrary functions, solutions of first order linear (Lagrange) equation and nonlinear (Standard type) equations- Classification of PDE-Finite difference methods for: Elliptic, Hyperbolic & Parabolic equations- solution of Heat equation(one dimensional)

TEXT BOOKS:

1. Grewal B.S, "Higher Engineering Mathematics", Khanna publications, 42nd edition 2012
2. Advanced Engineering Mathematics by Jain and S.R.K. Iyengar, Narosa Publications.
3. Engineering Mathematics by B.V.Ramana, Tata McGrawhill Publishing company Ltd .New Delhi, 5th edition, 2011.

REFERENCES:

1. Engineering Mathematics-I, Mathematical Methods by T.K.V. Iyengar & B.Krishna Gandhi & Others, S.Chand
2. Engineering Mathematics-I, Mathematical methods by G.Shankar Rao, I.K.International Publications.
3. KREYSZIG. E, "Advanced Engineering Mathematics" JohnWiley & Sons Singapore, 10th edition, 2012.
4. Veerarajan.T " Engineering Mathematics-I", Tata McGrawhill Publishing Co.New Delhi, 5th edition, 2006.

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I.B.TECH-SEMISTER-II

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ENGINEERING CHEMISTRY
(Common to ECE, ECM, EEE, CSE & IT)

UNIT I:

Electrochemistry and Batteries: Concept of Electrochemistry, Conductance-Electrolyte in solution, Conductance-Specific, Equivalent and molar conductance, Kohlrausch's Law, application of conductance. EMF: Galvanic Cells, Reference Electrode, Nernst equation, galvanic series, Application of EMF measurements.

Batteries: Primary and secondary cells, (lead-Acid cell, Ni-Cd cell, Lithium cells). Application's of batteries. Fuel cells – Hydrogen – Oxygen fuel cells, advantages of fuel cells.

UNIT II:

Polymers: Introduction-classification-natural and synthetic polymers; Types of Polymerization (Chain growth & Step growth).Plastics: Thermoplastic & Thermoset resins. Engineering applications of: Teflon, Bakelite, Nylon. Conducting polymers- Poly acetylene, polyaniline- conduction, doping, and its application. Fibers – polyester, fiber reinforced plastics (FRP), applications.

UNIT III:

Energy sources: Introduction- fuels, classification – conventional fuels (solid, liquid, gaseous). Calorific value-HCV and LCV. Solid fuels – coal –processing of coal. Liquid fuels – primary – petroleum – refining of petroleum-cracking knocking synthetic petrol – Bergius and Fischer-tropsch's process

UNIT IV:

Water Technology: Introduction, Hardness: Causes, expression of hardness – units – types of hardness, estimation of temporary & permanent hardness of water. Boiler troubles – Scale & sludge formation, caustic embrittlement, corrosion, priming & foaming Softening of water (Internal & external treatment-Lime soda, Zeolites, Ion exchange process) Reverse osmosis, electro dialysis.

UNIT V:

Photochemistry: Laws of photochemistry - Grotthuss-Draper law, Stark-Einstein law and Lambert-Beer Law. Photo processes - Internal Conversion, Inter-system crossing, Fluorescence, Phosphorescence. **Spectroscopy:** Electromagnetic spectrum - Absorption of radiation – Electronic, Vibrational and rotational transitions. UV-visible and IR spectroscopy – principles, instrumentation (Block diagram only).

Nanochemistry: Introduction. Synthesis: Top down and bottom up processes, Properties and Applications and future prospects.

TEXT BOOKS:

1. Text Book of Engineering Chemistry – Shashi Chawla, Dhanpat Rai publishing Company, New Delhi (2008).
2. Engineering Chemistry by P.C Jain & Monica Jain, Dhanpatrai Publishing Company (2008).
3. Text of Engineering Chemistry by S.S. Dara & Mukkati S. Chand & Co, New Delhi (2006)

REFERENCE BOOKS:

1. Engineering Chemistry by B. Siva Shankar Mc.Graw Hill Publishing Company Limited , New Delhi (2006)
2. Engineering Chemistry J.C. Kuriacase & J. Rajaram, Tata McGraw Hills co., New Delhi (2004).
3. Chemistry of Engineering Materials by R.P Mani and K.N.Mishra, CENGAGE learning.
4. Applied Chemistry – A text for Engineering & Technology – Springer (2005).

5. Text Books of Engineering Chemistry by C.P. Murthy, C.V. Agarwal, A. Naidu B.S. Publications, Hyderabad (2006).
6. Engineering Chemistry – R. Gopalan, D. Venkatappayya, D.V. Sulochana Nagarajan – Vikas Publishers (2008).
7. P. Kannan and A. Ravikrishnan, “Engineering Chemistry”, Sri Krishna Hi-tech Publishing
8. Company Pvt. Ltd. Chennai, 2009.
9. S. Vairam, P. Kalyani and Suba Ramesh, “Engineering Chemistry”, Wiley India, 2011
10. G.A. Ozin and A.C. Arsenault, “Nanochemistry: A Chemical Approach to Nanomaterials”, RSC Publishing, 2005.

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I Year B.Tech - II Semester

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DATA STRUCTURES
(Common to all Braches)

UNIT-I

Data Structures – Introduction to Data Structures, abstract data types, Linear list – singly linked list implementation, insertion, deletion and searching operations on linear list, circular linked list implementation, Double linked list implementation, insertion, deletion and searching operations. Applications of linked lists.

UNIT –II

Stacks-Operations, array and linked representations of stacks, stack applications-infix to postfix conversion, postfix expression evaluation, recursion implementation. Queues-operations, array and linked representations. Circular Queue operations, Dequeue, applications of queue

UNIT-III

Trees – Definitions, Binary tree representation, Binary search tree, binary tree traversals.

UNIT-IV

Graphs: Terminology, sequential and linked representation, graph traversals : Depth First Search & Breadth First Search implementation. Spanning trees, Prims and Kruskals method.

UNIT-V

Searching and Sorting – Big O Notation, Sorting- selection sort, bubble sort, insertion sort, quick sort, merge sort, Searching-linear and binary search methods.

TEXT BOOKS:

1. Data Structures Using C Reema Thareja, Oxford University Press, 2011 Learning.
2. Data Structures Using C (Paperback) by Aaron M. Tenenbaum

REFERENCE BOOKS:

1. C Programming & Data Structures, B.A.Forouzan and R.F. Gilberg, Third Edition, Cengage
2. C& Data structures – P. Padmanabham, Third Edition, B.S. Publications.
3. Data Structures using C – A.M.Tanenbaum, Y.Langsam, and M.J. Augenstein, Pearson Education
4. C Programming & Data Structures, E. Balagurusamy, TMH.
5. C Programming & Data Structures, P. Dey, M Ghosh R Thereja, Oxford University Press
6. C& Data structures – E V Prasad and N B Venkateswarlu, S. Chand&Co.

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I.B.TECH-SEMESTER-II

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Professional Ethics

(Common to ECE,CSE,IT,EEE and ECM)

UNIT-I : Basic concepts

Introduction, terminology, stake holders, governing edicts, contextual aspects, ethical dilemmas, life skills, emotional, intelligence, Indian and western thoughts on ethics, value education, dimensions of ethics, setting goals in life, importance of morality and ethics, basic ethical principles, moral developments theories, classification of ethical theories, some basic theories, moral issues, moral dilemmas autonomy.

UNIT-II : Professional and professionalism

Introduction, meaning of profession, professionals, professionalism, professional association, professional's roles and professional risks, professional accountability, successful professional, ethics and profession, engineering profession, engineering as social experimentation, engineering professionals, engineering ethics, roles of engineers, balanced out look on law, rights and responsibilities as citizens, professional responsibilities, professional rights.

UNIT-III : Global issues and safety

Introduction, current scenario, business ethics, environmental ethics, computer ethics, media ethics, war ethics, bio-ethics, research ethics, intellectual property right, safety and risk, assessment of risk, risk and cost, engineers responsibility for safety, risk benefit, analysis, risk cause and management, case studies, providing for safe exit, ethical issues of safety.

UNIT-IV : Ethical codes and audits

Introduction, need for ethical codes, sample codes, corporate codes, limitations of the codes, need for ethical audit, ethical profile of organizations, ethical standards and bench marketing, audit brief, ethical auditors, procedure for ethical audit, ethical audit report, examples.

UNIT-V : Human values and ethical living

Introduction, terminology, domains of learning, human values, attitudes, values, attitudes and professionals, needs of life, harmony in life, what is ethical living, case studies.

TEXT BOOKS:

1. Professional ethics by R. Subramanian, Oxford press.
2. Text book on Professional ethics and human values by R.S.Nagarajan, New age international.

REFERENCES:

1. Professional ethics and human value by D.R.Kiran, Tata McGraw Hills education.
2. Ethics in engineering by Mike W. Martin and Roland Schinzinger, Tata McGraw Hills education.
3. Fundamental of Ethics by Edmund G Seebauer and Robert L.Barry, Oxford university press.

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Mathematical Methods

(Common to ECE,CSE,IT,EEE &ECM)

UNIT-I : Solution of Algebraic and Transcendental Equations

Solution of Algebraic and Transcendental Equations: Introduction – The Bisection Method – The Method of False Position – The Iteration Method – Newton Raphson Method.

Interpolation:

Introduction – Errors in Polynomial Interpolation – Finite differences – Forward Difference – Backward difference – Central difference – Symbolic relations and separation of symbols – Difference Equations – Differences of polynomial – Newton’s formulae for interpolation – Central difference interpolation Formulae – Gauss Central Difference Formulae – Interpolation with unevenly spaced points.

UNIT-II: Solution for linear systems

Matrices and Linear systems of equations: Elementary row transformations- Rank-Echelon form, Normal forms–Existence of solution-Gauss elimination with pivoting-Gauss Jordan Method-III conditioned systems-Jacobi iterative method-Gauss seidal method-convergence of iterative methods

UNIT-III : Vector Spaces & Linear Transformatins

Vector Spaces : Vector Spaces- Linear independence- Basis & Dimensions- Linear transformation- Matrix linear transformation- permutations-inner product- orthogonal and –Orthonormal sets – Gram-Schmidt process

Linear Transformations: Properties of Real & Complex Matrices, orthogonal matrices, Linear Transformation – Orthogonal Transformation. Eigen values and Eigen vectors of Real & complex matrices and their properties.

UNIT- IV: Eigen Values & Eigen Vectors

Quadratic forms- Reduction of quadratic form to canonical form – Rank – Positive, Negative definite – semi definite – index – signature- Sylvester law, Singular value decomposition.

Eigen values, Eigen vectors – properties, Cayley-Hamilton – Theorem (with Proof) – Inverse and powers of a matrix by Cayley-Hamilton theorem – Diagonization of matrix. Calculation of powers of matrix – Model and spectral matrices.

UNIT-V : Numerical Differentiation & Numerical solution of IVP’s in ODE

Numerical Differentiation: Derivatives using Forward, Backward & central difference formulae.

Numerical solution of IVP’s in ODE: Numerical solution of Ordinary Differential equations: Solution by Taylor’s series-Picard’s Method of successive Approximations – Euler’s Method- Runge-Kutta Methods –Predictor-Corrector Methods.

TEXT BOOKS:

1. Grewal B.S, “Higher Engineering Mathematics”, Khanna publications, 42nd edition 2012
2. Advanced Engineering Mathematics by Jain and S.R.K. Iyengar, Narosa Publications.
3. Engineering Mathematics by B.V.Ramana, Tata McGrawhill Publishing company Ltd .New Delhi, 5th edition, 2011.

REFERENCES:

1. Engineering Mathematics-I by T.K.V. Iyengar & B.Krishna Gandhi & Others, S.Chand

2. Engineering Mathematics-I by G.Shankar Rao, I.K.International Publications.
3. KREYSZIG. E, "Advanced Engineering Mathematics" JohnWiley & Sons Singapore, 10th edition, 2012.
4. Veerarajan.T " Engineering Mathematics-I", Tata McGrawhill Publishing Co.New Delhi, 5th edition, 2006.

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
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I Year B.Tech - II Semester

L	T/P/D	C
0	3	2

DATA STRUCTURES LAB
(Common to all Braches)

WEEK 1:

Write a C program that uses functions to perform the following operations on singly linked list:

- i) Creation ii) Insertion iii) Deletion iv) Traversal v) merge two single linked lists

WEEK 2:

Write a C program that uses functions to perform the following operations on doubly linked list.:

- i) Creation ii) Insertion iii) Deletion iv) Traversal in both ways

WEEK 3:

Write a C program that uses functions to perform the following operations on circular linked list:

- i) Creation ii) Insertion iii) Deletion iv) Traversal

WEEK 4:

Write C programs that implement stack operations using

- i) Arrays ii) Linked Lists

WEEK 5:

1. Write a program to convert infix expression to postfix expression using stack
2. Write a program to evaluate postfix expression

WEEK 6:

1. Programs using recursion
2. Write a program to convert infix expression to prefix expression using stack

WEEK 7:

Write a program to implement Linear queue using

- i) Arrays ii) Linked Lists

WEEK 8:

Write a program to perform following operations on a circular Queue

- I) insertions II) deletions III) search and count

WEEK 9:

Write a program to perform following operations on a circular DeQueue

I) insertions II) deletions III) search and count

WEEK 10:

1. Write a program to implement Linear search
2. Write a program to implement Binary Search

WEEK 11:

Write C programs that implement the following sorting methods to sort a given list of integers in ascending order:

I) Bubble sort ii) Selection sort II) Insertion Sort

WEEK 12:

Write C programs that implement the following sorting methods to sort a given list of integers in ascending order:

I) Merge sort II) Quick sort

WEEK 13:

Implementation of a binary tree representation using

i) Arrays ii) Linked Lists

WEEK 14:

1. Implementation of a Graph representation using Adjacency Matrix
2. Write a program to implement graph traversals.

TEXT BOOKS:

1. C Programming & Data Structures, B.A.Forouzan and R.F. Gilberg, Third Edition, Cengage Learning.
2. Data Structures Using C (Paperback) by Aaron M. Tenenbaum

REFERENCE BOOKS:

1. C& Data structures – P. Padmanabham, Third Edition, B.S. Publications.
2. Data Structures using C – A.M.Tanenbaum, Y.Langsam, and M.J. Augenstein, Pearson Education / PHI
3. C Programming & Data Structures, E. Balagurusamy, TMH.
4. C Programming & Data Structures, P. Dey, M Ghosh R Thereja, Oxford University Press
5. C& Data structures – E V Prasad and N B Venkateswarlu, S. Chand&Co.

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I.B.TECH-SEMISTER-II

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Engineering Chemistry Lab
(Common to ECE, ECM, CSE, EEE&IT)

List of Experiments (Any 08 of the following)

Introduction:

- Laboratory safety and precautions.
- Preparation of solution.
- Determination of unknown concentration of given solutions and calculations.

Titrimetry:

1. Estimation of hardness of water by EDTA method.

Mineral Analysis:

2. Determination of percentage purity of pyrolusite.

Instrumental Methods:

3. Conductometric titration of strong acid Vs strong base.
4. Effect of dilution on conductance for i) Strong acids, ii) weak acids and iii) Ionic salts.
5. Determination of ferrous iron in cement by colorimetric method
6. Estimation of Copper by Colorimetric method.

Physical Properties:

7. Determination of viscosity of sample oil by Oswald's viscometer
8. Determination Surface Tension of given unknown liquid using stalganometer.

Preparations:

9. Preparation of organic compound Aspirin.

Demonstration Experiments: (Any two)

10. Preparation of Thiokol rubber.

TEXT BOOKS:

1. Practical Engineering Chemistry by K. Mukkanti, etal, B.S. Publications, Hyderabad.
2. Inorganic quantitative analysis, Vogel.

REFERENCE BOOKS:

1. Text Book of engineering chemistry by R. N. Goyal and Harmendra Goel.
2. A text book on experiments and calculation Engg. S.S. Dara.
3. Instrumental methods of chemical analysis, Chatwal, Anand, Himalaya Publications.

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I Year B.Tech - II Semester

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IT WORKSHOP
(Common to all Braches)

Week 1: Familiarizing with Computer Hardware

Identify the peripherals of a computer, components in a CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral and submit to your instructor.

Week 2: PC Assembly

Every student should disassemble and assemble the PC back to working condition. Also students need to go through the video which shows the process of assembling a PC. A video would be given as part of the course content.

Week 3: Installation of Windows and Linux

Every student should individually install MS windows on the personal computer. Every student should install Linux on the computer. This computer should have windows installed. The system should be configured as dual boot with both windows and Linux.

Week 4: Hardware Troubleshooting:

Students have to be given a PC which does not boot due to improper assembly or defective peripherals. They should identify the problem and fix it to get the computer back to working condition.

Week 5: Software Troubleshooting:

Students have to be given a malfunctioning CPU due to system software problems. They should identify the problem and fix it to get the computer back to working condition.

Week 6: Networking Concepts

Orientation & Connectivity Boot Camp: Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Surfing the Web: Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and pop up blockers. Also, plug-ins like Macromedia Flash and JRE for applets should be configured

Week 7: Internet and Search Engines

Search Engines & Netiquette: Students should know what search engines are and how to use the search engines. A few topics would be given to the students for which they need to search on Google / yahoo / Bing. Cyber Hygiene: Students would be exposed to the various threats on the internet and would be asked to configure their computer to be safe on the internet. They need to first install antivirus software, configure their personal firewall and windows update on their computer. Then they need to customize their browsers to block pop ups, block active x downloads to avoid viruses and / or worms

Week 8: Word Processor

The mentor needs to give an overview of Microsoft (MS) office / Libre Office tool - Overview of toolbars, saving files, Using help and resources, rulers, format painter. Overview of formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option, Inserting Table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check, Track Changes. Overview of Creating a Table of Content, Newspaper columns, Images from files and clipart. Drawing toolbar and Word Art, Formatting Images, Textboxes, Paragraphs and Mail Merge in word.

Week 9: Spread Sheet

The mentor needs to tell the importance of MS Excel / Libre office Calc tool - teach toolbars, saving excel files, Using help and resources. Create employee payroll using functions. Other features to be covered are Cell Referencing, Charts, Renaming and Inserting worksheets, Hyper linking, LOOKUP/VLOOKUP, Sorting, Conditional formatting.

Week 10: Presentation

The mentor needs to give overview of MS Power Point / Libre office Impress tool – to create basic power point presentation. PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows. Students need to create a PPT and present it.

Week 11: Virtual Box Installation

Installing multiple operating systems on your PC using (virtual box) / hyper-v / VM Ware

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II.B.TECH-SEMESTER-I

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PROBABILITY & STATISTICS

(Common to CSE, IT, MECH, CIVIL & MINING)

UNIT-I : Probability

Review of Probability. Definitions of Random variables (Discrete and continuous).

Distributions

Binomial , Poisson & normal distributions related properties . Sampling distributions –Sampling distribution of means (σ known and Unknown)

UNIT-II: Testing of Hypothesis

Testing of Hypothesis I: Tests of hypothesis point estimations – interval estimations. Large samples, Null hypothesis – Alternate hypothesis type I, & type II errors – critical region, confidence interval for mean testing of single variance. Difference between the mean.

Testing of Hypothesis II: Confidence interval for the proportions. Tests of hypothesis for proportions single and difference between the proportions.

UNIT-III: Small samples

Confidence interval for the t- distribution – Tests of hypothesis – t- distributions, F-distributions, χ^2 distribution. Test of Hypothesis.

UNIT-IV:

Correlation & Regression: Coefficient of correlation – Regression Coefficient – The lines of regression – The rank correlation

Curve Fitting: Fitting of straight-second degree curve- exponential curve-power curve by method of Least squares

UNIT-V:

Queuing Theory: Arrival Theorem - Pure Birth process and Death Process M/M/1 Model .

Time Series analysis: Time series – utility of time series analysis, components of time series. Preliminary adjustments before analyzing time series. Measurement of trend by the method of least squares, method of moments.

TEXT BOOKS:

1. Grewal B.S, “Higher Engineering Mathematics”, Khanna publications, 42nd edition 2012
2. Advanced Engineering Mathematics by Jain and S.R.K. Iyengar, Narosa Publications.
3. Engineering Mathematics by B.V.Ramana, Tata McGrawhill Publishing company Ltd .New Delhi, 5th edition, 2011

REFERENCES:

1. Engineering Mathematics-I by T.K.V. Iyanar & B.Krishna Gandhi & Others, S.Chand
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3. KREYSZIG. E, “Advanced Engineering Mathematics” JohnWiley & Sons Singapore, 10th edition, 2012.
4. Veerarajan.T “ Engineering Mathematics-I”, Tata McGrawhill Publishing Co.New Delhi, 5th edition, 2006.

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II B.Tech IT -I Sem

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MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

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

UNIT-II: Relations: Properties of Binary Relations, equivalence, transitive closure, compatibility and partial ordering relations, Lattices, Hasse diagram. Functions: Inverse Function Composition of functions, recursive Functions, Lattice and its Properties, Algebraic structures: Algebraic systems Examples and general properties, Semi groups and monads, groups sub groups' homomorphism, Isomorphism.

UNIT-III: Elementary Combinatorics : Basis of counting, Combinations & Permutations, with repetitions, Constrained repetitions, Binomial Coefficients, Binomial Multinomial theorems, the principles of Inclusion – Exclusion. Pigeon hole principles and its application.

UNIT-IV: Recurrence Relation: Generating Functions, Function of Sequences Calculating Coefficient of generating function, Recurrence relations, solving recurrence relation by substitution and Generating funds. Characteristics roots solution of In homogeneous Recurrence Relation.

UNIT-V: Graph Theory: Representation of Graph, DFS, BFS, Spanning Trees, planar Graphs. Graph Theory and Applications, Basic Concepts Isomorphism and Sub graphs, Multi graphs and Euler circuits, Hamiltonian graphs, Chromatic Numbers.

Text Books:

1. Elements of DISCRETE MATHEMATICS- A computer Oriented Approach- C L Liu, D P Mohapatra. Third Edition, Tata McGraw Hill.
2. Discrete Mathematics by RK Bisht, HS Dhani, Oxford University Press.

Reference Books:

1. Discrete Mathematics for Computer Scientists & Mathematicians, J.L. Mott, A. Kandel, T.P. Baker, PHI.
2. Discrete and Combinational Mathematics- An Applied Introduction-5th Edition – Ralph. P.Grimaldi.Pearson Education
3. Discrete Mathematics and its Applications, Kenneth H. Rosen, Fifth Edition.TMH.
4. Discrete Mathematical structures Theory and application-Malik & Sen, Cengage.
5. Discrete Mathematics with Applications, Thomas Koshy, Elsevier
6. Logic and Discrete Mathematics, Grass Man & Trembley, Pearson Education.

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II B.Tech IT -I Sem

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ADVANCED PROGRAMMING IN C++ AND JAVA

UNIT-I: C++ Overview- Concepts of Classes ,Objects, C++ Programming Structure, Constructors and destructors, parameter passing methods, method and Constructor Over Loading, Inline functions, static class members, this pointer, friend functions, Operator Overloading, Generic Programming- Function and class templates, I/O Streams.

UNIT-II: Overview Of Java Language : Java History – Features of java, java Programming Structure, Java Tokens, Constants, Variables, Expressions, Overview of arrays and strings, Concept of Classes ,objects, accessing class members, constructors ,overloading of methods and constructors, This ,static members, String Buffer class, Wrapper classes, Command Line Arguments.

UNIT-III: Inheritance and Interfaces: Defining a sub class, inheritance types, sub class constructor, Final, super, Runtime polymorphism in java, runtime polymorphism using virtual functions in C++.

Abstract methods and classes, visibility control, Defining Interfaces, extending interfaces, implementing interfaces.

Packages: Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages, Exploring java.io, java.util

UNIT-IV: Exception Handling and Multithreaded Programming: Types of errors-Compile time and Run time errors, Exceptions, Types of Exceptions, Syntax of Exception handling code, Multiple catch statements, Using finally statement, Throwing our own exceptions.

Introduction to threads: Creating Threads, life cycle of a thread, Thread priority, synchronization, and daemon Threads.

UNIT-V: Applet Programming: Introduction, how applet differ from applications, building applet code, applet life cycle, **passing** parameters to applets.

Event Handling: Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes.

Swing – Introduction, components, containers, exploring swing- JApplet, JFrame and JComponent, Icons and Labels, text fields, buttons – The JButton class, Check boxes, Radio buttons, Combo boxes, Tabbed Panes, Scroll Panes, Trees, and Tables.

Text Books:

1. Object Oriented Programming with C++, 6e, E Balagurusamy ,Tata McGraw-Hill Education
2. Java: the complete reference, 7th editon, Herbert schildt, TMH.

Reference Books:

1. C++: The Complete Reference, 5th Edition, Herbert schildt, TMH.
2. Understanding OOP with Java, updated edition, T. Budd, Pearson eduction.
3. Object Oriented Programming with JAVA, 4e, E Balagurusamy ,Tata McGraw-Hill Education

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II B.Tech. I - Sem

(Common to CSE, ECE, ECM, EEE & IT)

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ENVIRONMENTAL STUDIES

UNIT-I: ECOSYSTEMS & NATURAL RESOURCES, BIODIVERSITY: Classification of Resources: Living and Non-Living resources, Renewable and Non-Renewable resources. Water resources: use and over utilization, Land resources, land degradation, Forest resources, Mineral resources uses & Exploitation Energy resources: growing energy needs, use of alternate energy sources. Concept of ecosystem, Classification of ecosystem, Functions of ecosystem, Food chains, Food webs and ecological pyramids, Flow of energy, Biogeochemical cycles, Biomagnifications, carrying capacity. Species, Ecosystem Diversity, Hotspots, Value Of Biodiversity, Threats To Biodiversity, Conservation Of Biodiversity: In-Situ And Ex-Situ Conservation.

UNIT-II: ENVIRONMENTAL POLLUTION AND CONTROL: Classification of pollutions and pollutants, causes, effects of water, air, noise pollution, Introduction to control technologies: Water (primary, secondary, tertiary), Air(particulate and gaseous emissions), Soil(conservation and remediation), Noise(controlling devices) Solid waste, (Municipal) types, collection and disposal methods, characteristics of e-waste & hazardous waste, biomedical waste management. Biological disasters, pandemic and epidemics, Biological warfare.

UNIT-III: GLOBAL ENVIRONMENTAL PROBLEMS AND GLOBAL EFFORTS: Green house effect, Green House Gases(GHG), Global Warming, Sea level rise, climate change and their impacts on human environment. Ozone depletion and Ozone depleting substances(ODS). Deforestation and desertification, International conventions/protocols: Earth Summit, Kyoto Protocol and Montreal Protocol, green-belt-development, Concept of Green Building, Clean Development Mechanism(CDM). Biological disasters, pandemic and epidemics, Biological warfare.

UNIT-IV: ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PLAN: definition of Impact, classification of impacts, methods of baseline data acquisition. Impacts on different components: such as human health resources, air, water, flora, fauna and society, EIA guide lines as per ministry of environment & forest, impact assessment methodologies. Environmental Impact Statement (EIS). Environmental management plan (EMP).

UNIT-V: ENVIRONMENTAL POLICY, LEGISLATION, RULES AND REGULATIONS & TOWARDS SUSTAINABLE FUTURE: Concept of Sustainable Development, Threats to Sustainability, Strategies for achieving Sustainable development, Environmental Ethics, Environmental Economics, Concept of Green Computing, Green chemistry and low Carbon life styles.: National Environmental Policy, Environmental Protection Act: Air (Prevention and control of pollution) Act-1981, Water (Prevention and control of pollution) Act-1974, Water pollution Cess Act-1977, Forest

Conservation Act, solid waste (biomedical waste and hazardous waste)management and handling rules.

Text Book:

1. TEXT BOOK OF ENVIRONMENTAL Science and Technology by M.Anji Reddy 2007
2. Principles of Environmental Science and Engineering by P.Venugopal Rao
3. Introduction to Environmental Studies by K.Mukkanti

References

1. Tata McgrawHill : Introduction to Environmental Studies by Benny Joseph
2. Environmental studies by Erach Bharucha 2005, University Grants Commission, University Press

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II Year B.Tech. IT. I-Sem

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Basic Electrical Engineering

UNIT - I Introduction to Electrical Circuits: ohm's law, basic circuit components, Kirchhoff's laws. Simple problems.

Network Analysis: Basic definitions, types of elements, types of sources, resistive networks, inductive networks, capacitive networks, series parallel circuits, star delta and delta star transformation. , Network theorems- Superposition, Reciprocity Thevenin's, Norton's, Maximum power transfer theorems and simple problems.

UNIT-II Alternating Quantities:

Principle of ac voltages, waveforms and basic definitions, root mean square and average values of alternating currents and voltage, form factor and peak factor, phasor representation of alternating quantities, the J operator and phasor algebra, analysis of ac circuits with single basic network element, single phase series circuits.

UNIT-III D.C Generators and D.C motors:

Principle of operation of dc machines, types of D.C generators, e.m.f equation in D.C generator.

Principle of operation of dc motors, types of D.C motors, losses and torque equation, losses and efficiency calculation in D.C generator

UNIT-IV A.C. Machines :

Transformer- Principles of operation, Constructional Details, Ideal Transformer and Practical Transformer, Losses, Transformer Test, Efficiency and Regulation Calculations (All the above topics are only elementary treatment and simple problems). Three phase induction motor, principle of operation, slip and rotor frequency, torque (simple problems).

UNIT V Basic Instruments:

Introduction, classification of instruments, operating principles, essential features of measuring instruments, Moving coil permanent magnet (PMMC) instruments, Moving Iron of Ammeters And Voltmeters (elementary Treatment only) Single phase dynamo wattmeter.

TEXT BOOKS:

1. . Basic Electrical & Electronics Engineering by D.P.Kothari & I.J.Nagarath, TMH, 2013.
2. Basic Electrical Engineering - By M.S.Naidu and S. Kamakshiah – TMH.
3. Basic Electrical Engineering –By T.K.Nagasarkar and M.S. Sukhija Oxford University Press.
4. Electrical and Electronic Technology-By Hughes – Pearson Education.

REFERENCES:

1. Theory and Problems of Basic Electrical Engineering by D.P.Kothari & I.J. Nagrath PHI.
2. Principles of Electrical Engineering by V.K Mehta, S.Chand Publications.
3. Essentials of Electrical and Computer Engineering by David V. Kerns, JR. J. David Irwin Pearson.

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II Year B.Tech. -I Sem

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ELECTRONIC DEVICES AND CIRCUITS

(COMMON FOR IT CSE)

Unit- I: P-N Junction Diode

Qualitative Theory of p-n Junction, p-n Junction as a Diode, Diode Equation, Volt-Ampere Characteristics, Temperature dependence of VI characteristic, Ideal versus Practical – Resistance levels (Static and Dynamic), Transition and Diffusion Capacitances, Diode Equivalent Circuits, Load Line Analysis, Breakdown Mechanisms in Semi Conductor Diodes, Zener Diode Characteristics.

Unit II: Special Purpose Electronic Devices

Principle of Operation and Characteristics of Tunnel Diode (with the help of Energy Band Diagram) and Varactor Diode, Principle of Operation of Schottky Barrier Diode, SCR, and Semiconductor Photo Diode. Introduction to UJT and UJT characteristics

Diode Applications: The p-n junction as a Rectifier, Half wave Rectifier, Full wave Rectifier, Bridge Rectifier, Harmonic components in a Rectifier Circuit, Inductor Filters, Capacitor Filters, L- Section Filters, π - Section Filters, Comparison of Filters, Voltage Regulation using Zener Diode.

Unit- III: Bipolar Junction Transistor

The Junction Transistor, Transistor Current Components, Transistor as an Amplifier, Transistor Construction, BJT Operation, BJT Symbol, Common Base, Common Emitter and Common Collector Configurations, Limits of Operation , BJT Specifications.

Transistor Biasing and Stabilization: Operating Point, The DC and AC Load lines, Need for Biasing, Fixed Bias, Collector Feedback Bias, Emitter Feedback Bias, Collector - Emitter Feedback Bias, Voltage Divider Bias, Bias Stability, Stabilization Factors, Stabilization against variations in V_{BE} and β , Bias Compensation using Diodes and Transistors, Thermal Runaway, Thermal Stability.

Unit-IV: Small Signal Low Frequency BJT Models

BJT Hybrid Model for CE, CB and CC Configuration, simplified H- parameter model Determination of h-parameters from Transistor Characteristics, Comparison of CB, CE, and CC Amplifier Configurations, Conversion of h-parameters CE to CB, CE to CC, vice versa

Unit-V: Field Effect Transistor

The Junction Field Effect Transistor (Construction, principle of operation, symbol) – Pinch-off Voltage - Volt-Ampere characteristics, Biasing of FET, FET as Voltage Variable Resistor, Comparison of BJT

and FET. The JFET Small Signal Model, Generalized FET amplifier, common source Amplifier, common Gate Amplifier and common Drain Amplifier,
MOSFET:., MOSFET (Construction, principle of operation, symbol), MOSFET Characteristics in Enhancement and Depletion modes.

Text Books

1. Electronics Devices and circuits by David Bell Oxford press.
- 2 Millman's Electronic Devices and Circuits – J. Millman, C.C.Halkias, and Satyabrata Jit, 2ed.,
1998, TMH.
- 3 Electronic Devices and Circuits – R.L. Boylestad and Louis Nashelsky, 9 ed., 2006, PEI/PHI.

References

1. Integrated Electronics – J. Millman and Christos C. Halkias, 1991 ed., 2008, TMH.
2. Electronic Devices and Circuits - K. Lal Kishore, 2 ed., 2005, BSP.
3. Electronic Devices and Circuits – Anil K. Maini, Varsha Agarwal, 1 ed., 2009, Wiley India Pvt. Ltd.
4. Electronic Devices and Circuits – S.Salivahanan, N.Suresh Kumar, A.Vallavaraj, 2 ed., 2008, TMH.

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II Year B.Tech. IT-I Sem

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ELECTRONIC DEVICES AND CIRCUITS LAB

PART A: (Only for Viva-voce Examination)

ELECTRONIC WORKSHOP PRACTICE (in 3 lab sessions) :

1. Identification, Specifications, Testing of R, L, C Components (Color Codes), Potentiometers, Switches (SPDT, DPDT, and DIP), Coils, Gang Condensers, Relays, Bread Board s, PCB's
2. Identification, Specifications and Testing of Active Devices, Diodes, BJT's, Low power JFET's, MOSFET's, Power Transistors, LED's, LCD's, SCR, UJT.
3. Study and operation of
 - Multimeters (Analog and Digital)
 - Function Generator
 - Regulated Power Supplies
 - CRO.

PART B: (For Laboratory Examination – Minimum of 10 experiments)

1. Forward & Reverse Bias Characteristics of PN Junction Diode.
2. Zener diode characteristics and Zener as voltage Regulator.
3. Input & Output Characteristics of Transistor in CB Configuration.
4. Input & Output Characteristics of Transistor in CE Configuration.
5. Half Wave Rectifier with & without filters
6. Full Wave Rectifier with & without filters
7. FET characteristics
8. Measurement of h parameters of transistor in CB, CE, CC configurations

9. Frequency Response of CC Amplifier.
10. Frequency Response of CE Amplifier.
11. Frequency Response of Common Source FET amplifier
12. SCR characteristics.
13. UJT Characteristics

PART C:

Equipment required for Laboratories:

- | | | |
|--|---|--|
| 1. Regulated Power supplies (RPS) | - | 0-30 V |
| 2. CRO's | - | 0-20 MHz. |
| 3. Function Generators | - | 0-1 MHz. |
| 4. Multimeters | | |
| 5. Decade Resistance Boxes/Rheostats | | |
| 6. Decade Capacitance Boxes | | |
| 7. Ammeters (Analog or Digital) | - | 0-20 μ A, 0-50 μ A, 0-100 μ A, 0-200 μ A, 0-10 mA. |
| 8. Voltmeters (Analog or Digital) | - | 0-50V, 0-100V, 0-250V |
| 9. Electronic Components
FETs, LEDs, MOSFETs, diodes Ge& Si type,
Transistors – npn, pnp type) | - | Resistors, Capacitors, BJTs, LCDs, SCRs, UJTs, |

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Basic Electrical Engineering Lab

The following experiments are required to be conducted as compulsory experiments :

S.No	Experiments
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- | | |
|-----|--|
| 1. | Determination of Z & Y – parameters. |
| 2. | Verification of super position and reciprocity theorem. |
| 3. | Verification of Maximum power transfer theorem. |
| 4. | Verification of Thevenin’s and Norton's theorem. |
| 5. | Determination of ABCD parameters |
| 6. | Swinburne's Test on D.C. Shunt machine. |
| 7. | Load test on D.C. Shunt motor. |
| 8. | Speed control of D.C. Shunt motor by
a). Armature voltage control b). Field control |
| 9. | O.C. & S.C. Test on 1- Φ transformer |
| 10. | Open circuit characteristics of DC shunt generator. |
| 11. | Break test on 3-phase induction motor |

Part-B.

1. PN junction diode characteristics(forward and reverse bias)
2. Zener diode characteristics
3. Transistor CE and CB characteristics.
4. Rectifier without filters (full wave and half wave rectifiers)
5. Rectifiers with filters (full wave and half wave

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(UGC AUTONOMOUS)

II B.Tech IT -I Sem

L	T/P/D	C
0	-/3/-	2

ADVANCED PROGRAMMING LAB

Week 1:

- a) Write a C++ program implement the concept of Class and Object.
- b) Write a C++ program to find the Fibonacci sequence The first two values in the sequence are 1 and 1.

Week 2:

- a) Write a C++ program to implement method overloading and constructor overloading.
- b) Write a C++ program to implement Friend function.

Week 3:

- a) Write a C++ program to implement the concept of operator overloading(Unary and Binary operators).
- b) Write a C++ program to implement the concept of types of Inheritance.

Week 4:

- a) Write a C++ program to implement the concept of Runtime polymorphism using virtual function.
- b) Write a C++ program to implement the concept of Class and Function Template.

Week 5:

- a) Write a Java program that prints all real solutions to the quadratic equation $ax^2 + bx + c = 0$. Read in a, b, c and use the quadratic formula. If the discriminant $b^2 - 4ac$ is negative, display a message stating that there are no real solutions.
- b) Java program that prompts the user for an integer and then prints out all prime numbers up to that integer.

Week 6:

- a) Write a Java program that prompts the user for an integer and then prints out all prime numbers up to that integer.

b) Write a Java program to multiply two given matrices.

c) Write a Java Program that reads a line of integers, and then displays each integer, and the sum of all the integers.

Week 7:

a) Write a java program to implement concept of implementing Interfaces and Extending Interface.

b) Write a java program to create user defined package and import it.

Week 8:

a) Write a program to implement Exception Handling Mechanism in C++ and Java.

b) Write a java program to create User defined Exception.

Week 9:

a) Write a java program to create Multiple threads using Thread Class and Runnable Interface.

b) Write a java program to implement the concept of Thread Priorities.

Week 10:

a) Develop an applet that displays a simple message.

b) Write a java program to Handle Mouse and Keyboard Events.

Week 11:

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

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

Week 12:

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

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

TEXTBOOKS:

1. Object Oriented Programming with C++, 6e, E Balagurusamy, Tata McGraw-Hill Education
2. Java: the complete reference, 7th edition, Herbert Schildt, TMH.
3. C++: The Complete Reference, 5th Edition, Herbert Schildt, TMH.
4. Java How to Program, Sixth Edition, H.M. Dietel and P.J. Dietel, Pearson Education/PHI.
5. Programming with Java, M.P. Bhave and S.A. Patekar, Pearson Education

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(UGC AUTONOMOUS)

II B.Tech IT -II Sem

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3 1/-/ 3

DIGITAL LOGIC DESIGN AND COMPUTER ORGANIZATION

UNIT-I: Basic Structure of Computers: Computer Types, Functional units, Basic operational concepts, Bus structures, Software, Performance, multiprocessors and multi computers, Computer Generations. Data Representation: Binary Numbers, Fixed Point Representation. Floating – Point Representation. Number base conversions, Octal and Hexadecimal Numbers, complements, Signed binary numbers, Binary codes.

UNIT-II: Digital Logic Circuits-I: Basic Logic Functions, Logic gates, universal logic gates, Minimization of Logic expressions. Flip-flops, Combinational Circuits. **Digital Logic Circuits -II:** Registers, Shift Registers, Binary counters, Decoders, Multiplexers, Programmable Logic Devices.

UNIT-III: Computer Arithmetic: Algorithms for fixed point and floating point addition, subtraction, multiplication and division operations. Hardware Implementation of arithmetic and logic operations, High performance arithmetic. Instruction Set & Addressing: Memory Locations and Addresses, Machine addresses and sequencing, Various Addressing Modes, Instruction Formats, Basic Machine Instructions. IA-32 Pentium example.

UNIT-IV: Processor Organization: Introduction to CPU, Register Transfers, Execution of Instructions, Multiple Bus Organization, Hardwired Control, Micro programmed Control Memory Organization: Concept of Memory, RAM, ROM memories, memory hierarchy, cache memories, virtual memory, secondary storage, memory management requirements.

UNIT-V:Input / Output Organization : Introduction to I/O, Interrupts- Hardware, Enabling and disabling Interrupts, Device Control, Direct memory access, buses, interface circuits, standard I/O Interfaces.

Text Books:

1. Computer Organization – Carl Hamacher, Zvonko Vranesic, Safwat Zaky, fifth edition, McGraw Hill.
2. Computer Architecture and Organization- An Integrated Approach, Miles Murdocca, Vincent Heuring, Second Edition, Wiley India.
3. Computer Systems Architecture – M.Moris Mano, IIIrd Edition, Pearson.

Reference Books:

1. Computer Organization and Architecture – William Stallings Sixth Edition, Pearson
2. Digital Logic Design & Computer Organization with Computer Architecture for Security- Nikrouz Faroughi, McGrawHill Education
3. J. Hennessy and D. Patterson, Computer Architecture- Morgan Kaufmann, 5th Edition
4. Digital Logic and Computer Organization-V. Rajaraman, T. Radhakrishnan, PHI Learning Pvt Ltd- 2006

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(UGC AUTONOMOUS)**

II B.Tech IT-II Sem

L	T/P/D	C
4	1/-/	4

DATABASE MANAGEMENT SYSTEMS

UNIT I : Data base System Applications, data base System VS file System – View of Data – Data Abstraction – Instances and Schemas – data Models – the ER Model – Relational Model – Other Models – Database Languages – DDL – DML – database Access for applications Programs – data base Users and Administrator – Transaction Management – data base System Structure – Storage Manager – the Query Processor

ER diagrams – Beyond ER Design Entities, Attributes and Entity sets – Relationships and Relationship sets – Additional features of ER Model – Concept Design with the ER Model

UNIT II : Introduction to the Relational Model – Integrity Constraint Over relations – Enforcing Integrity constraints – Querying relational data – Logical data base Design – Introduction to Views – Destroying /altering Tables and Views.

Relational Algebra – Selection and projection set operations – renaming – Joins – Division – Examples of Algebra overviews – Relational calculus – Tuple relational Calculus – Domain relational calculus – Expressive Power of Algebra and calculus.

UNIT III : Form of Basic SQL Query – Examples of Basic SQL Queries – Introduction to Nested Queries – Correlated Nested Queries Set – Comparison Operators – Aggregative Operators – NULL values – Comparison using Null values – Logical connectivity” s – AND, OR and NOT – Impact on SQL Constructs – Outer Joins – Disallowing NULL values – Complex Integrity Constraints in SQL Triggers and Active Data bases.

Schema refinement – Problems Caused by redundancy – Decompositions – Problem related to decomposition – reasoning about FDS – FIRST, SECOND, THIRD Normal forms – BCNF – Lossless join Decomposition – Dependency preserving Decomposition – Schema refinement in Data base Design – Multi valued Dependencies – FORTH Normal Form.

UNIT IV : Transaction Concept- Transaction State- Implementation of Atomicity and Durability – Concurrent – Executions – Serializability- Recoverability– Implementation of Isolation – Testing for serializability- Lock –Based Protocols – Timestamp Based Protocols- Validation- Based Protocols – Multiple Granularity.

Recovery and Atomicity – Log – Based Recovery – Recovery with Concurrent Transactions – Buffer Management – Failure with loss of nonvolatile storage-Advance Recovery systems- Remote Backup systems.

UNIT V : Data on External Storage – File Organization and Indexing – Cluster Indexes, Primary and Secondary Indexes – Index data Structures – Hash Based Indexing – Tree base Indexing – Comparison of File Organizations – Indexes and Performance Tuning- Intuitions for tree Indexes – Indexed Sequential Access Methods (ISAM) – B+ Trees: A Dynamic Index Structure.

Advanced Database Management System: Introduction to Distributed Database-Reference Architecture, fragmentation, Allocation, Joins

Text Books :

1. Data base Management Systems, Raghurama Krishnan, Johannes Gehrke, TATA McGrawHill 3rd Edition
2. Data base System Concepts, Silberschatz, Korth, McGraw hill, V edition.

Reference Books:

1. Data base Systems design, Implementation, and Management, Peter Rob & Carlos Coronel 7th Edition.
2. Fundamentals of Database Systems, Elmasri Navrate Pearson Education
3. Introduction to Database Systems, C.J.Date Pearson Education
4. Oracle for Professionals,The X Team,S.Shah and V.Shah,SPD.
5. Database Systems Using Oracle:A Simplified guide to SQL and PL/SQL,Shah,PHI.
6. Fundamentals of Database Management Systems,M.L.Gillenson,Wiley Student Edition.
7. Distributed Databases Principles & Systems, Stefano Ceri, Giuseppe Pelagatti, TMH.
8. Principles of Distributed Database Systems, M. Tamer Ozsu, Patrick Valduriez , Pearson Education, 2nd Edition.

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(UGC AUTONOMOUS)

II B.Tech IT -II Sem

L T/P/D C

4 1/-/ 4

OOPS THROUGH PYTHON

UNIT-I: Programming paradigms; Structured programming vs object oriented programming, OOPs fundamentals- class , object, abstraction, , encapsulation, polymorphism, and inheritance; Introduction to Python: Getting started to Python- an interpreted high level language, interactive mode and script mode. Variables, Expressions and Statements: Values and types, Variables and keywords, statements, evaluating expressions, operators and operands, order of operations, composition. Functions: function calls, type conversion, type coercion, pre-defined functions, composition, user define functions, flow of execution, passing parameters, function parameters and scope. Conditionals and recursion: modulus operator, Boolean expression, logical operators, conditional execution, alternative execution, chained and nested conditionals, return statement; Recursion, infinite recursion.

UNIT-II: Python data structures: **Strings:** Creating, initializing and accessing the elements; String operators, comparing strings using relational operators; String functions and methods. **Lists:** Concept of mutable lists, creating, initializing and accessing the elements, traversing, appending, updating and deleting elements; List operations; List functions and Methods, list parameters, nested lists, Matrices..**Dictionaries:** Concept of key-value pair, creating, initializing and accessing the elements in a dictionary, dictionary operations: traversing, appending, updating and deleting elements, Dictionary functions and methods. **Tuples:** Mutability and tuples, Immutable concept, creating, initializing and accessing the elements in a tuple, Tuple functions.

UNIT-III: Object oriented programming using Python: creating python classes, classes and objects: user defined compound types, attributes, instances as arguments, instances as return values, objects are mutable, copying ; classes and functions: pure function, modifiers; Exceptions: raising exceptions, handling exceptions, exception hierarchy

UNIT-IV: Classes and methods: object oriented features, optional arguments, initialization method, operator overloading and polymorphism. Inheritance: Basic Inheritance: extending built-ins, overriding and super; Multiple inheritance: the diamond problem, different sets of arguments.

UNIT-V: Files handling and Exceptions: Text files, writing variables, Directories, Pickling;

Database Programming in Python: Connection module, connect MySQL Data base, perform DDL, DML and DQL operations.

Text Books:

1. Python 3 Object Oriented Programming, Dusty Phillips, Packet Publishing, 2010.

2. Programming in Python 3- A complete Introduction to the Python Language- Second Edition, Mark Summerfiels, Addison-Wesley 2010.

Reference Books:

1. Programming Python- 4th Edition, Mark Lutz, O'Reilly, 2011.

2. Object-Oriented Programming in Python, Michael H, Goldwasser, David Letscher, Pearson Prentice Hall, 2008

J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

II B.Tech IT -II Sem

L	T/P/D	C
4	1/-/	4

OPERATING SYSTEM

UNIT-I: Operating System Overview: Overview of Computer Operating Systems, Operating System Functions, Protection and Security, Distributed Systems, Special Purpose Systems, Operating System Structures, Operating System Services and Systems Calls, Operating Systems Generation. **Process Management:** Process Concepts, Threads, Scheduling-Criteria, Algorithms Evaluation, Thread Scheduling.

UNIT-II: Concurrency: Process Synchronization, Critical-Section Problem, Peterson's Solution, Synchronization Hardware, Semaphores, Classic Problems of Synchronization, Monitors, Synchronization examples, Atomic Transactions. **Memory Management:** Swapping, Contiguous Memory Allocation, Paging, Page-Table Structure, Segmentation, Virtual Memory, Demand Paging, Page-Replacement Algorithms, Frames Allocation, Thrashing.

UNIT-III: Principles of Deadlock: System Model, Deadlock Characterization, Deadlock Prevention, Detection and Avoidance, Recovery from Deadlock. File System Interface, File Concepts, Access Methods and Directory Structure, File System Mounting, File Sharing and Protection.

UNIT-IV: File System Implementation: File System Structure, File System Implementation, Directory Implementation, Allocation Methods, Free-Space Management, Efficiency and Performance. Case Studies: UNIX, Linux and Windows. **Mass Storage Overview:** Mass-Storage Structure, Disk Structure, Disk Attachment, Disk Scheduling, Swap-Space Management, RAID Structure, Stable-Storage Implementation, Tertiary Storage Structure.

UNIT-V: Protection: Goals of Protection, Principles of Protection, Domain of Protection Access Matrix, Implementation of Access Matrix, Access Control, Revocation of Access Rights, Capability-Based Systems, Language-Based Protection. **Security:** Security Problem, Program Threats, System and Network Threats Cryptography as a Security Tool, User Authentication, Implementing Security Defenses, Firewalling to protect Systems and Networks, Computer-Security Classifications, Case Studies: UNIX, Linux and Windows. **Advanced Operating Systems:** Distributed Operating Systems, Multi-Processor Operating Systems, Real-Time Operating Systems and Mobile Operating Systems.

Text Books:

1. Operating System Concepts-Abraham Silberchatz, Peter B. Galvin, Greg Gagne,
7th Edition, John Wiley.

2. Operating Systems- A Concept based Approach-D.M.Dhamdhere, 2nd Edition, TMH.

Reference Books:

1. Principles of Operating Systems-Naresh Chauhan, Oxford Higher Education.
2. Operating System A Design Approach-Crowley, TMH.
3. Modern Operating Systems-Andrew S Tanenbaum, 2nd Edition Pearson, PHI.

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II B.Tech IT -II Sem

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

DESIGN AND ANALYSIS OF ALGORITHMS

UNIT-I: Introduction: Algorithm, Pseudo Code for expressing Algorithms, Performance Analysis: Space Complexity, Time Complexity, Asymptotic Notations: Big-oh Notation, Omega Notation, Theta Notation, Little-oh Notation. Disjoint Sets: Disjoint Set Operations, Union and Find Algorithms, Spanning Trees, Connected Components and Biconnected Components.

UNIT-II: Divide and Conquer: General Method, Applications: Binary Search, Quick Sort, Merge Sort, Strassen's Matrix Multiplication. **Greedy Method:** General Method, Applications: Job Sequencing with Deadlines, 0/1 Knapsack Problem, Minimum Cost Spanning Trees: Prim's and Kruskal's Algorithms, Single Source Shortest Path Problem, Huffman Codes.

UNIT-III: Dynamic Programming: General Method, Principle of Optimality, Applications: Multistage Graphs, Matrix Chain Multiplication, Optimal Binary Search Trees, 0/1 Knapsack Problem, All Pairs Shortest Path Problem, Travelling Sales Person Problem, Reliability Design.

UNIT-IV: Backtracking: General Method, Applications: Nqueen Problem, Recursive Permutation Generator, Sum of Subsets Problem, Graph Coloring, Hamiltonian Cycles.

UNIT-V: Branch and Bound: General Method, Applications: Travelling Sales Person Problem, 0/1 Knapsack Problem, LC Branch and Bound Solution, FIFO Branch and Bound Solution. NP-Hard and NP-Complete Problems: Basic Concepts, Non-Deterministic Algorithms, NP-Hard and NP-Complete Classes, Cook's Theorem.

Text Books:

1. Fundamentals of Computer Algorithms-Ellis Horowitz, Satraj Sahni and Rajasekharam, Galgotia Publications Pvt. Ltd.
2. Introduction to Algorithms-T.H.Cormen, C.E.Leiserson, R.L.Rivest and C.Stein, 2nd Edition, Pearson Education, PHI Pvt. Ltd.

Reference Books:

1. Algorithm Design: Foundations, Analysis and Internet Examples-M.T.Goodrich and R.Tomassia, John Wiley and Sons.
2. Introduction to Design and Analysis of Algorithms A strategic Approach-R.C.T.Lee, S.S.Tseng, R.C.Chang and T.Tsai, Mc-Graw Hill.
3. Design and analysis of Algorithms-S. Sridhar , Oxford Higher Education.
4. Design and Analysis of Algorithms-Aho, Ullman and Hopcroft, Pearson Education.
5. Algorithms-Richard Johnson Baugh and Marcus Schaefer, Pearson Education.

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II B.Tech IT -II Sem

L T/P/D C

0 -3/- 2

OOPS THROUGH PYTHON LAB

Week 1:

1. Write a python program to obtain user input data (int, float, string) and display.
2. Write a python program to find the roots of a quadratic equation
3. Write a python program to perform arithmetic operations (+, -, *, /, %) for given input values and printout the result values.

Week 2:

1. Write a python programs that use both recursive and non-recursive functions to find the factorial of a given integer
2. Operators and Operands in Python: (Arithmetic, relational and logical operators), operator precedence, Expressions and Statements.
3. (Assignment statement); Taking input (using raw input () and input ()) and displaying output (print statement); Putting Comments.

Week 3:

1. Write python programs to perform operation on Strings using following functions: *len, capitalize, find, isalnum, isalpha, isdigit, lower, islower, isupper, upper, lstrip, rstrip, isspace, istitle, partition, replace, join, split, count, decode, encode, swapcase*.
2. Enter the details of 5 students and display the details sequentially.

Week 4:

1. Write python programs to perform List operators: (joining, list slices)
2. Write python programs to perform List functions: *len, insert, append, extend, sort, remove, and reverse, pop*.
3. Write python programs to check whether the string is palindrome or not?

Week 5:

1. Write python programs to perform Tuple functions: *cmp(), len(), max(), min(), tuple()*
2. Write python programs to check whether the word is present in the tuple or not?
3. Write python programs to Take a string as ("1234567890") and create a pair {(1,2),(3,4),(5,6),(7,8),(9,0)} using tuple.

Week 6:

1. Write python programs to perform Dictionary functions & Methods: *cmp, len, clear(), get(), has_key(), items(), keys(), update(), values()* .
2. Write python programs to Create a list of animal using dictionary variable "animal" and find out if the specific animal present in the list or not?

Week 7:

1. Write a python program to create a class, its objects and accessing attributes.
2. Create a Customer class and check the balance and withdraw and deposit some amount.

Week 8:

Write a python script to implement exception handling.

1. Check whether the input no is integer or not.
2. Handel the exceptions that are come at the time of division.

Week 9:

Write a python script to perform inheritance.

Week 10:

Write a python script to perform various FILE handling operations.

Open, close, read, write, copy.

Week 11:

1. Write a python script to connect to the database and perform DDL operations.
2. Create table, insert data into table and display the table data.

Week 12:

Write a python script to connect to the database and perform various DML and DQL operations.

Reference Books:

1. Programming in Python 3- A complete Introduction to the Python Language- Second Edition, Mark Summerfiels, Addison-Wesley 2010.
2. Programming Python- 4th Edition, Mark Lutz, O'Reilly, 2011.
3. Object-Oriented Programming in Python, Michael H, Goldwasser, David Letscher, Pearson Prentice Hall, 2008

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II B.Tech IT -II Sem

L	T/P/D	C
0	-/3/-	2

OPERATING SYSTEM LAB

1. Simulate the following CPU scheduling algorithms:
 - a) Round Robin
 - b) SJF
2. Simulate the following CPU Scheduling algorithms:
 - a) FCFS
 - b) Priority
3. Simulate all file allocation strategies
 - a) Sequential
 - b) Indexed
 - c) Linked
4. Simulate MVT and MFT
5. Simulate the following File Organization Techniques
 - a) Single level directory
 - b) Two level
6. Simulate the following File Organization Techniques
 - a) Hierarchical
 - b) DAG
7. Simulate Disk scheduling algorithms
 - a) FCFS
 - b) SSTF
 - c) SCAN
 - d) C-SCAN
 - e) LOOK
8. Simulate Bankers Algorithm for Dead Lock Avoidance
9. Simulate Bankers Algorithm for Dead Lock Prevention
10. Simulate all page replacement algorithms
 - a) FIFO
 - b) LRU
 - c) LFU Etc. ...
11. Simulate Paging Technique of memory management.
12. Simulate on Allocation of Frames.

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(UGC AUTONOMOUS)**

II B.Tech IT -II Sem

L T/P/D C

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DATA BASE MANAGEMENT SYSTEMS LAB

Objective: This lab enables the students to practice the concepts learnt in the subject DBMS by developing a database for an example company named "Roadway Travels" whose description is as follows. The student is expected to practice the designing, developing and querying a database in the context of example database "Roadway travels". Students are expected to use "Oracle" database. Roadway Travels "Roadway Travels" is in business since 1997 with several buses connecting different places in India. Its main office is located in Hyderabad.

The company wants to computerize its operations in the following areas:

- Reservations and Ticketing
- Cancellations Reservations & Cancellation: Reservations are directly handled by booking office. Reservations can be made 30 days in advance and tickets issued to passenger. One Passenger/person can book many tickets (to his/her family). Cancellations are also directly handed at the booking office. In the process of computerization of Roadway Travels you have to design and develop a Database which consists the data of Buses, Passengers, Tickets, and Reservation and cancellation details. You should also develop query's using SQL to retrieve the data from the database.

The above process involves many steps like

1. Analyzing the problem and identifying the Entities and Relationships
2. E-R Model
3. Relational Model
4. Normalization
5. Creating the database
6. Querying. Students are supposed to work on these steps week wise and finally create a complete "Database System" to Roadway Travels.

Examples are given at every experiment for guidance to students.

Experiment 1: E-R Model

Analyze the problem carefully and come up with the entities in it. Identify what data has to be persisted in the database. This contains the entities, attributes etc.

Identify the primary keys for all the entities. Identify the other keys like candidate keys, partial keys, if any

Example: Entities:

1. BUS
2. Ticket
3. Passenger

Relationships:

1. Reservation
2. Cancellation

PRIMARY KEY ATTRIBUTES:

1. Ticket ID (Ticket Entity)
2. Passport ID (Passenger Entity)
3. Bus_NO (Bus Entity)

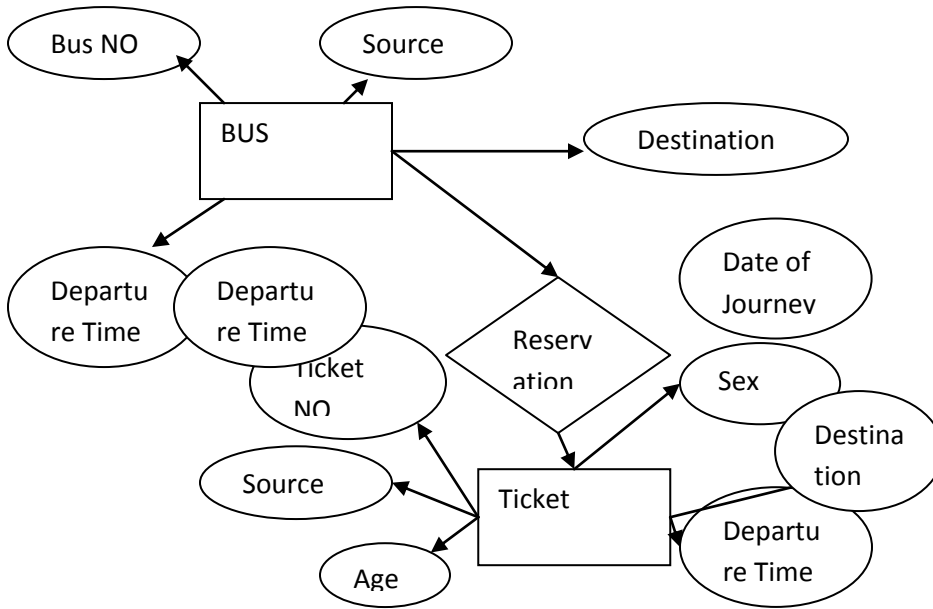
Apart from the above mentioned entities you can identify more. The above mentioned are few.

Note: *The student is required to submit a document by writing the Entities and Keys to the lab teacher.*

Experiment 2: Concept design with E-R Model

Relate the entities appropriately. Apply cardinalities for each relationship. Identify strong entities and weak entities (if any). Indicate the type of relationships (total / partial). Try to incorporate generalization, aggregation, specialization etc wherever required.

Example: E-R diagram for bus



Note: The student is required to submit a document by drawing the E-R Diagram to the lab teacher.

Experiment 3: Relational Model

Represent all the entities (Strong, Weak) in tabular fashion. Represent relationships in a tabular fashion. There are different ways of representing relationships as tables based on the cardinality. Represent attributes as columns in tables or as tables based on the requirement. Different types of attributes (Composite, Multi-valued, and Derived) have different way of representation.

Example: The passenger tables look as below. This is an example. You can add more attributes based on your E-R model. This is not a normalized table.

Passenger

Name	Age	Sex	Address	<u>Passport ID</u>	Ticket_id

Note: *The student is required to submit a document by Represent relationships in a tabular fashion to the lab teacher.*

Experiment 4: Normalization

Database normalization is a technique for designing relational database tables to minimize duplication of information and, in so doing, to safeguard the database against certain types of logical or structural problems, namely data anomalies. For example, when multiple instances of a given piece of information occur in a table, the possibility exists that these instances will not be kept consistent when the data within the table is updated, leading to a loss of data integrity. A table that is sufficiently normalized is less vulnerable to problems of this kind, because its structure reflects the basic assumptions for when multiple instances of the same information should be represented by a single instance only.

For the above table in the First normalization we can remove the multi valued attribute Ticket_id and place it in another table along with the primary key of passenger.

First Normal Form: The above table can be divided into two tables as shown below.

Passenger

Name	Age	Sex	Address	<u>Passport ID</u>

<u>Passport ID</u>	Ticket_id

You can do the second and third normal forms if required. Any how Normalized tables are given at the end.

Experiment 5: Installation of Mysql and Practicing DDL and DML commands.

Installation of MySQL. In this week you will learn Creating databases, How to create tables, altering the database, dropping tables and databases if not required. You will also try truncate, rename commands etc.

Example for creation of a normalized “Passenger” table.

```
CREATE TABLE Passenger (  
    Passport_id INTEGER PRIMARY KEY,  
    Name VARCHAR (50) Not NULL,  
    Age Integer Not NULL,  
    Sex Char,  
    Address VARCHAR (50) Not NULL);
```

Similarly create all other tables.

Note: Detailed creation of tables is given at the end.

Insert data into the above tables.

DML commands are used to for managing data within schema objects. Some examples:

- SELECT - retrieve data from the a database
- INSERT - insert data into a table
- UPDATE - updates existing data within a table
- DELETE - deletes all records from a table, the space for the records remain

Inserting values into “Bus” table:

Insert into Bus values (1234,'hyderabad', 'tirupathi');

Insert into Bus values (2345,'hyderabad', 'Banglore');

Insert into Bus values (23,'hyderabad', 'Kolkata');

Insert into Bus values (45,'Tirupathi', 'Banglore');

Insert into Bus values (34,'hyderabad', 'Chennai');

Inserting values into “Passenger” table:

Insert into Passenger values (1, 45,'ramesh', 45, 'M', 'abc123');

Insert into Passenger values (2, 78,'geetha', 36,'F','abc124');

Insert into Passenger values (45, 90,'ram', 30,'M','abc12');

Insert into Passenger values (67, 89,'ravi', 50,'M','abc14');

Insert into Passenger values (56, 22,'seetha', 32,'F','abc55');

Few more Examples of DML commands:

Select * from Bus; (selects all the attributes and display)

UPDATE BUS SET Bus No = 1 WHERE BUS NO=2;

Experiment 6: Querying

In this week you are going to practice queries (along with sub queries) using ANY, ALL, IN, Exists, NOT EXISTS, UNION, INTERSECT, Constraints etc.

Practice the following Queries:

1. Display unique PNR_no of all passengers.
2. Display all the names of male passengers.
3. Display the ticket numbers and names of all the passengers.
4. Find the ticket numbers of the passengers whose name start with 'r' and ends with 'h'.
5. Find the names of passengers whose age is between 30 and 45.
6. Display all the passengers names beginning with 'A'
7. Display the sorted list of passengers names

Experiment 7: Querying (continued...)

You are going to practice queries using Aggregate functions (COUNT, SUM, AVG, and MAX and MIN),

GROUP BY, HAVING and Creation and dropping of Views.

1. Write a Query to display the Information present in the Passenger and cancellation tables.
Hint: Use UNION Operator.
2. Display the number of days in a week on which the 9W01 bus is available.
3. Find number of tickets booked for each PNR_no using GROUP BY CLAUSE.
Hint: Use GROUP BY on PNR_No.
4. Find the distinct PNR numbers that are present.
5. Find the number of tickets booked by a passenger where the number of seats is greater than 1.
Hint: Use GROUP BY, WHERE and HAVING CLAUSES.
6. Find the total number of cancelled seats.
7. Display the details of passengers who travelled within the last 3 months.

8. Create a view for the details of passengers who cancelled their tickets.

Experiment 8: Create tables for the following schema. Student(snum: integer, sname: string, major: string, level: string, age: integer) Class(name: string, meets at: time, room: string, fid: integer) Enrolled(snum: integer, cname: string) Faculty(fid: integer, fname: string, deptid: integer)

Experiment 9: Querying

1. Find the names of all Juniors (Level = JR) who are enrolled in a class taught by I. Teacher.
2. Find the age of the oldest student who is either a History major or is enrolled in a course taught by I. Teacher.
3. Find the names of all classes that either meet in room R128 or have 5 or more students enrolled.
4. Find the names of all students who are enrolled in two classes that meet at the same time.
5. Find the names of faculty members who teach in every room in which some class is taught.
6. Find the names of faculty members for whom the combined enrollment of the courses that they teach is less than 5
7. Print the Level and the average age of students for that Level, for each Level.
8. Print the Level and the average age of students for that Level, for all Levels except JR. 9 9. Print the Level and the average age of students for that Level, whose average age is greater than 20.
10. Find the names of students who are enrolled in the maximum number of classes.
11. Find the names of students who are not enrolled in any class.
12. Count the number of junior level students.
13. Display all the students whose names starts with the letter “p”.
14. Display all the teachers whose names contain letter ‘a’ or ‘I’ in their names.

Experiment 10: PL/SQL Programs

1. Program to find sum of first 'n' natural no.s
2. Program to find reverse of a number
3. Insert the values of areas of a circle into a table called areas taking radius values from 2 to 8.

Experiment 11: Cursors

In this week you need to do the following: Declare a cursor that defines a result set. Open the cursor to establish the result set. Fetch the data into local variables as needed from the cursor, one row at a time. Close the cursor when done.

Practice the following programs using cursors.

1. Write a cursor program to retrieve the details of all students using cursors (Use students table in experiment 9)
2. Write a PL/SQL block to update the level of students from JL to “junior Level” and SL to “senior Level” and insert a record in new level table.
3. Write a cursor program to display the details of Senior Level students.

Experiment 12: Procedures

In this session you are going to learn Creation of stored procedure, Execution of procedure and modification of procedure. Practice procedures using the above database.

Eg: CREATE PROCEDURE myProc()

BEGIN

SELECT COUNT(Tickets) FROM Ticket WHERE age>=40;

End;

Experiment 13: Triggers

In this week you are going to work on Triggers. Creation of insert trigger, delete trigger, update trigger. Practice triggers using the above database.

Eg: **CREATE TRIGGER updcheck BEFORE UPDATE ON passenger**

FOR EACH ROW

BEGIN

IF NEW.TickentNO > 60 THEN

SET New.Tickent no = Ticket no;

ELSE

SET New.Ticketno = 0;

END IF;

END;

REFERENCES:

1. Introduction to SQL,Rick F.Vander Lans,Pearson education.
2. Oracle PL/SQL, B.Rosenzweig and E.Silvestrova,Pearson education.
3. Oracle PL/SQL Programming,Steven Feuerstein,SPD.
4. SQL & PL/SQL for Oracle 10g,Black Book, Dr.P.S.Deshpande,Dream Tech.
5. Oracle Database ll g PL/SQL Programming,M.Laughlin.TMH.
6. SQL Fundamentals,! J.Patrick,Pearson Education.