CMR
ENGINEERING COLLEGE
EXPLORE TO INVENT

CMR ENGINEERING COLLEGE

UGC AUTONOMOUS

Approved by AICTE-New Delhi | Affiliated to JNTUH | Accredited by NAAC & NBA

Dept. of Computer Science and Engineering

STUDENT HANDBOOK

2024-25

KANDLAKOYA, MEDCHAL ROAD, HYDERABAD-501401.

www.cmrec.ac.in

CONTENTS

1. VISION & MISSION OF THE INSTITUTE

Vision:

To be recognized as a premier institution in offering value based and futuristic quality technical education to meet the technological needs of the society

Mission:

1. To impart value based quality technical education through innovative teaching and learning methods
2. To continuously produce employable technical graduates with advanced technical skills to meet the current and future technological needs of the society
3. To prepare the graduates for higher learning with emphasis on academic and industrial research.

2. VISION & MISSION OF THE DEPARTMENT

Vision:

To produce globally competent and industry-ready graduates in Computer Science & Engineering by imparting quality education with the know-how of cutting-edge technology and holistic personality.

Mission:

1. To offer high-quality education in Computer Science & Engineering in order to build core competence for the graduates by laying a solid foundation in Applied Mathematics and program frameworkwith a focus on concept building.
2. The department promotes excellence in teaching, research, and collaborative activities to prepare graduates for a professional career or higher studies.
3. Creating an intellectual environment for developing logical skills and problem-solving strategies, thus developing, an able and proficient computer engineer to compete in the current global scenario.

3. LIST OF PEO's & LIST PO's

PEO 1: Excel in professional career and higher education by acquiring knowledge of mathematical computing and engineering principles.
PEO 2: To provide an intellectual environment for analyzing and designing computing systems for technical needs.
PEO 3: Exhibit professionalism to adapt current trends using lifelong learning with legal and ethical responsibilities.
PEO 4: To produce responsible graduates with effective communication skills and multidisciplinary practices to serve society and preserve the environment.

Program Outcomes (POs):

Engineering Graduates will be able to satisfy these NBA graduate attributes:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to theprofessional engineering practice
7. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and normsof the engineering practice
8. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
9. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective

presentations, and give and receive clear instructions

10. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
11. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

Program Specific Outcomes (PSOs):

PSO1: Professional Skills and Foundations of Software development: Ability to analyze, design and develop applications by adopting the dynamic nature of Software developments.
PSO2: Applications of Computing and Research Ability: Ability to use knowledge in cutting edge technologies in identifying research gaps and to render solutions with innovative ideas.

4. DEPARTMENT PROFILE

Introduction: The Department of Computer Science and Engineering was established in the year 2010 and offers both UG and PG programs under the JNTU Hyderabad. The Department has good infrastructural facilities apart from good faculty strength to impart high quality education in the changing technological and social scenario so as to make the students prepare for the students prepare for the global challenges.

Academic Programs: The four year B.Tech CSE program has an intake of 420 and two year M.Tech CSE has an intake of 12.

Faculty: The Department currently has 64 dedicated faculty members. Many of them are actively engaged in research across a wide range of areas relevant to both industry and society. Their research interests include **Machine Learning, Deep Learning, Artificial Intelligence, Cloud Computing, Internet of Things (IoT), Neural Networks, and Blockchain Technology**.

To ensure students stay updated with the latest developments, the department regularly organizes seminars and workshops. Additionally, faculty members participate in staff development programs to continuously enhance their skills and knowledge.

5. UNIVERSITY REGULATIONS

PRELIMINARY DEFINITIONS AND NOMENCLATURES

AICTE: Means All India Council for Technical Education, New Delhi.

Autonomous Institute: Means an institute designated as Autonomous by University Grants Commission (UGC), New Delhi in concurrence with affiliating University (Jawaharlal Nehru Technological University, Hyderabad) and State Government of Telangana.

Academic Autonomy: Means freedom to an institute in all aspects of conducting its academic programs, granted by UGC for Promoting Excellence.

Academic Council: The Academic Council is the highest academic body of the institute and is responsible for the maintenance of standards of instruction, education and examination within the institute. Academic Council is an authority as per UGC regulations and it has the right to take decisions on all academic matters including academic research.

Academic Year: It is the period necessary to complete an actual course of study within a year. It comprises two main semesters i.e., (one odd + one even) and supplementary semester.

Branch: Means specialization in a program like B.Tech. Degree program in Electronics and communication Engineering, B.Tech degree program in Computer Science and Engineering, etc.

Board of Studies (BOS): BOS is an authority as defined in UGC regulations, constituted by Head of the Organization for each of the departments separately. They are responsible for curriculum design and updation in respect of all the programs offered by a department.

Backlog Course: A course is considered to be a backlog course, if the student has obtained a failure grade (F) in that course.

Basic Sciences: The courses offered in the areas of Mathematics, Physics, Chemistry etc., are considered to be foundational in nature.

Commission: Means University Grants Commission (UGC), New Delhi.

Choice Based Credit System: The credit based semester system is one which provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching along with provision of choice for the student in the course selection.

Compulsory course: Course required to be undertaken for the award of the degree as per the program.

Continuous Internal Examination: It is an examination conducted towards sessional assessment.

Core: The courses that are essential constituents of each engineering discipline are categorized as professional core courses for that discipline.

Course: A course is a subject offered by a department for learning in a particular semester.**Course Outcomes:** The essential skills that need to be acquired by every student through a course.

Credit: A credit is a unit that gives weight to the value, level or time requirements of an academic course. The number of 'Contact Hours' in a week of a particular course determines its credit value. One credit is equivalent to one lecture/tutorial/lab hour per week.

Credit point: It is the product of grade point and number of credits for a course.

Cumulative Grade Point Average (CGPA): It is a measure of cumulative performance of a student over all the completed semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

Curriculum: Curriculum incorporates the planned interaction of students with instructional content, materials, resources, and processes for evaluating the attainment of Program Educational Objectives.

Department: An academic entity that conducts relevant curricular and co-curricular activities, involving both teaching and non-teaching staff, and other resources in the process of study for a degree.

Dropping from Semester: Student who does not want to register for any semester can apply in writing in prescribed format before the commencement of that semester.

Elective Course: A course that can be chosen from a set of courses. An elective can be Professional Elective and or Open Elective.

Evaluation: Evaluation is the process of judging the academic performance of the student in her/his courses. It is done through a combination of continuous internal assessment and semester end examinations.

Grade: It is an index of the performance of the students in a said course. Grades are indicated by alphabets.

Grade Point: It is a numerical weight allotted to each letter grade on a 10 - point scale.

Honors: An Honors degree typically refers to a higher level of academic achievement at an undergraduate level.

Institute: Means CMR Engineering, Hyderabad unless indicated otherwise by the context.

Massive Open Online Courses (MOOC): MOOC courses inculcate the habit of self- learning. MOOC courses would be additional choices in all the elective group courses.

Minor: Minor are coherent sequences of courses which may be taken in addition to the courses required for the B.Tech. Degree.

Pre-requisite: A specific course or subject, the knowledge of which is required to complete before student register another course at the next grade level.

Professional Elective: It indicates a course that is discipline centric. An appropriate choice of minimum number of such electives as specified in the program will lead to a degree with specialization.

Program: Means, UG degree program: Bachelor of Technology (B.Tech.) and PG degree program: Master of Technology (M.Tech.).

Program Educational Objectives: The broad career, professional and personal goals that every student will achieve through a strategic and sequential action plan.

Project work: It is a design or research based work to be taken up by a student during his/her final year to achieve a particular aim. It is a credit based course and is to be planned carefully by the student.

Re-Appearing: A student can reappear only in the semester end examination for theory component of a course, subject to the regulations contained herein.

Registration: Process of enrolling into a set of courses in a semester of a program.

Regulations: The regulations, common to all B.Tech. Programs offered by Institute, are designated as – CMREC Regulations – R-22 and are binding on all the stakeholders.

Semester: It is a period of study consisting of 15 to 18 weeks of academic work equivalent to normally 90 working days. Odd semester commences usually in July and even semester in December of every year.

Semester End Examinations: It is an examination conducted for all courses offered in a semester at the end of the semester.

Student Outcomes: The essential skill sets that need to be acquired by every student during her/his program of study. These skill sets are in the areas of employability, entrepreneurial, social and behavioral.

University: Means Jawaharlal Nehru Technological University Hyderabad (JNTUH), Hyderabad, is an affiliating University.

Withdraw from a Course: Withdrawing from a course means that a student can drop from a course within the first two weeks of odd or even semester. However, he / she can choose a substitute course in place of it by exercising the option within 5 working days from the date of withdrawal.

FOREWORD

The autonomy is conferred to **CMR Engineering College (CMREC),** Hyderabad by University Grants Commission (UGC), New Delhi based on its performance as well as future commitment and competency to impart quality education. It is a mark of its ability to function independently in accordance with the set norms of the monitoring bodies including JNT University Hyderabad (JNTUH), Hyderabad and AICTE, New Delhi. It reflects the confidence of the affiliating University in the autonomous institution to uphold and maintain standards it expects to deliver on its own behalf. Thus, an autonomous institution is given the freedom to have its own **examination system** and **monitoring mechanism**, independent of the affiliating University but under its observance.

CMREC is proud to win the credence of all the above bodies monitoring the quality in education and has gladly accepted the responsibility of sustaining, if not improving upon the standards and ethics for which it has been striving for more than a decade in reaching its present standing in the arena of contemporary technical education. As a follow up, statutory bodies such as Academic Council and Board of Studies (BOS) are constituted with the guidance of the Governing Body of the institute and recommendations of the JNTUH to frame the regulations, course structure, and syllabi under autonomous status.

The autonomous regulations, course structure, and syllabi have been prepared after prolonged and detailed interaction with several expertise solicited from academics, industry and research, in accordance with the vision and mission of the institute in order to produce a quality engineering graduate to the society.

All the faculty, parents, and students are requested to go through all the rules and regulations carefully. Any clarifications needed are to be sought at appropriate time and from the principal of the institute, without presumptions, to avoid unwanted subsequent inconveniences and embarrassments. The cooperation of all the stake holders is requested for the successful implementation of the autonomous system in the larger interests of the institute and brighter prospects of engineering graduates.

PRINCIPAL

ACADEMIC REGULATIONS (R22) FOR B.TECH REGULAR STUDENTS WITH EFFECT FROM THE ACADEMIC YEAR 2022-23

1.0 Under-Graduate Degree Programme in Engineering & Technology (UGP in E&T)

Jawaharlal Nehru Technological University Hyderabad (JNTUH) offers a 4-year (8 semesters) **Bachelor of Technology** (B.Tech.) degree programme, under Choice Based Credit System (CBCS) at its non-autonomous constituent and affiliated colleges with effect from the academic year **2022-23.**

2.0 Eligibility for Admission

2.1 Admission to the undergraduate (UG) programme shall be made either on the basis of the merit rank obtained by the qualified student in entrance test conducted by the Telangana State Government (EAMCET) or the University or on the basis of any other order of merit approved by the University, subject to reservations as prescribed by the government from time to time.

2.2 The medium of instructions for the entire undergraduate programme in Engineering & Technology will be **English** only.

3.0 B.Tech. Programme Structure

3.1 A student after securing admission shall complete the B.Tech. programme in a minimum period of **four** academic years (8 semesters), and a maximum period of eight academic years (16 semesters) starting from the date of commencement of first year first semester, failing which student shall forfeit seat in B.Tech course. Each student shall secure 160 credits (with CGPA $\geq$ 5) required for the completion of the undergraduate programme and award of the B.Tech. Degree.

3.2 UGC/ AICTE specified definitions/ descriptions are adopted appropriately for various terms and abbreviations used in these academic regulations/ norms, which are listed below.

3.2.1 Semester Scheme

Each undergraduate programme is of 4 academic years (8 semesters) with the academic year divided into two semesters of 22 weeks (≥ 90 instructional days) each and in each semester - 'Continuous Internal Evaluation (CIE)' and 'Semester End Examination (SEE)' under Choice Based Credit System (CBCS) and Credit Based Semester System (CBSS) indicated by UGC, and curriculum/course structure suggested by AICTE are followed.

3.2.2 Credit Courses

All subjects/ courses are to be registered by the student in a semester to earn credits which shall be assigned to each subject/ course in an L: T: P: C (lecture periods: tutorial periods:

practical periods: credits) structure based on the following general pattern.

One credit for one hour/ week/ semester for Theory/ Lecture (L) courses or Tutorials.

- One credit for two hours/ week/ semester for Laboratory/ Practical (P) courses.

Courses like Environmental Science, Constitution of India, Intellectual Property Rights, and Gender Sensitization Lab are mandatory courses. These courses will not carry any credits.

3.2.3 Subject Course Classification

All subjects/ courses offered for the undergraduate programme in E&T (B.Tech. degree programmes) are broadly classified as follows. The University has followed almost all the guidelines issued by AICTE/UGC.

S. No.	Broad Course Classification	Course Group/ Category	Course Description
1	Foundation Courses (FnC)	BS – Basic Sciences	Includes Mathematics, Physics and Chemistry subjects
2		ES - Engineering Sciences	Includes Fundamental Engineering Subjects
3		HS – Humanities and Social Sciences	Includes subjects related to Humanities, Social Sciences and Management
4	Core Courses (CoC)	PC – Professional Core	Includes core subjects related to the parent discipline/ department/ branch of Engineering.
5	Elective Courses (EℓC)	PE – Professional Electives	Includes elective subjects related to the parent discipline/ department/ branch of Engineering.
6		OE – Open Electives	Elective subjects which include inter-disciplinary subjects or subjects in an area outside the parent discipline/ department/ branch of Engineering.
7	Core Courses	Project Work	B.Tech. Project or UG Project or UG Major Project or Project Stage I & II
8		Industry Training/ Internship/ Industry Oriented Mini-	Industry Training/ Internship/ Industry Oriented Mini-Project/ Mini-Project/ Skill Development Courses
9		project/ Mini- Project/ Skill Development Courses	

		Seminar	Seminar/ Colloquium based on core contents related to parent discipline/ department/ branch of Engineering.
10	Minor Courses	-	1 or 2 Credit Courses (subset of HS)
11	Mandatory Courses (MC)	-	Mandatory Courses (non-credit)

4.0 Course Registration

4.1 A 'faculty advisor or counselor' shall be assigned to a group of 20 students, who will advise the students about the undergraduate programme, its course structure and curriculum, choice/option for subjects/ courses, based on their competence, progress, pre-requisites and interest.

4.2 The academic section of the college invites 'registration forms' from students before the beginning of the semester through 'on-line registration, ensuring 'date and time stamping'. The online registration requests for any 'current semester' shall be **completed before the commencement of SEEs (Semester End Examinations) of the 'preceding semester'**.

4.3 A student can apply for **on-line** registration, **only after** obtaining the '**written approval'** from faculty advisor/counselor, which should be submitted to the college academic section through the Head of the Department. A copy of it shall be retained with the Head of the Department, Faculty Advisor/ Counselor and the student.

4.4 A student may be permitted to register for all the subjects/ courses in a semester as specified in the course structure with maximum additional subject(s)/course(s) limited to 6 Credits (any 2 elective subjects), based on **progress** and SGPA/ CGPA, and completion of the '**pre-requisites'** as indicated for various subjects/ courses, in the department course structure and syllabus contents.

4.5 Choice for '**additional subjects/courses'**, not more than any 2 elective subjects in any Semester, must be clearly indicated, which needs the specific approval and signature of the Faculty Advisor/Mentor/HOD.

4.6 If the student submits ambiguous choices or multiple options or erroneous entries during **online** registration for the subject(s) / course(s) under a given/ specified course group/ category as listed in the course structure, only the first mentioned subject/ course in that category will be taken into consideration.

4.7 Subject/ course options exercised through **on-line** registration are final and **cannot** be changed or inter-changed; further, alternate choices also will not be considered. However, if the subject/ course that has already been listed for registration by the Head of the Department in a semester could not be offered due to any inevitable or unexpected reasons, then the student shall be allowed to have alternate choice either for

a new subject (subject to offering of such a subject), or for another existing subject (subject to availability of seats). Such alternate arrangements will be made by the Head of

the Department, with due notification and time-framed schedule, within **a week** after the commencement of class-work for that semester.

4.8 Dropping of subjects/ courses may be permitted, only after obtaining prior approval from the faculty advisor/ counselor 'within a period of 15 days' from the beginning of the current semester.

4.9 **Open Electives**: The students have to choose three Open Electives (OE-I, II & III) from the list of Open Electives given by other departments. However, the student can opt for an Open Elective subject offered by his own (parent) department, if the student has not registered and not studied that subject under any category (Professional Core, Professional Electives, Mandatory Courses etc.) offered by parent department in any semester. Open Elective subjects already studied should not repeat/should not match with any category (Professional Core, Professional Electives, Mandatory Courses etc.) of subjects even in the forthcoming semesters.

4.10 Professional Electives: The students have to choose six Professional Electives (PE-I to VI) from the list of professional electives given.

5.0 Subjects/ courses to be offered

5.1 A subject/ course may be offered to the students, **only if** a minimum of 15 students opt for it.

5.2 More than **one faculty member** may offer the **same subject** (lab/ practical may be included with the corresponding theory subject in the same semester) in any semester. However, selection of choice for students will be based on - '**first come first serve** basis and CGPA criterion' (i.e. the first focus shall be on early **on-line entry** from the student for registration in that semester, and the second focus, if needed, will be on CGPA of the student).

5.3 If more entries for registration of a subject come into picture, then the Head of the Department concerned shall decide, whether or not to offer such a subject/ course for **two (or multiple) sections**.

5.4 In case of options coming from students of other departments/ branches/ disciplines (not considering **open electives**), first **priority** shall be given to the student of the **'parent department'**.

6.0 Attendance requirements:

6.1 A student shall be eligible to appear for the semester end examinations, if the student acquires a minimum of 75% of attendance in aggregate of all the subjects/ courses (including attendance in mandatory courses like Environmental Science, Constitution of India, Intellectual Property Rights, and Gender Sensitization Lab) for that semester. **Two periods** of attendance for each theory subject shall be considered, if the student appears for the mid-term examination of that subject. **This attendance should also be Included in the attendance uploaded every fortnight in the University Website.**

6.2 Shortage of attendance in aggregate up to 10% (65% and above, and below 75%) in each

semester may be condoned by the college academic committee on genuine and valid grounds, based on the student's representation with supporting evidence.

6.3 A stipulated fee shall be payable for condoning of shortage of attendance.

6.4 Shortage of attendance below 65% in aggregate shall in **NO** case be condoned.

6.5 Students whose shortage of attendance is not condoned in any semester are not eligible to take their end examinations of that semester. They get detained and their registration for that semester shall stand cancelled, including all academic credentials (internal marks etc.) of that semester. **They will not be promoted to the next semester**. They may seek re-registration for all those subjects registered in that semester in which the student is detained, by seeking re-admission into that semester as and when offered; if there are any professional electives and/ or open electives, the same may also be re-registered if offered. However, if those electives are not offered in later semesters, then alternate electives may be chosen from the **same** set of elective subjects offered under that category.

6.6 A student fulfilling the attendance requirement in the present semester shall not be eligible for readmission into the same class.

7.0 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 shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course, if student secures not less than 35% (14 marks out of 40 marks) in the Continuous Internal Evaluation (CIE), not less than 35% (21 marks out of 60 marks) in the semester end examinations (SEE), and a minimum of 40% (40 marks out of 100 marks) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together; in terms of letter grades, this implies securing **'C'** grade or above in that subject/ course.

7.2 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to Real-time Research Project (or) Field Based Research Project (or) Industry Oriented Mini Project (or) Internship (or) Seminar, if the student secures not less than 40% marks (i.e. 40 out of 100 allotted marks) in each of them. The student is deemed to have failed, if he (i) does not submit a report on Industry Oriented Mini Project/Internship, or (ii) not make a presentation of the same before the evaluation committee as per schedule, or (iii) secures less than 40% marks in Real-time Research Project (or) Field Based Research Project (or) Industry Oriented Mini Project (or) Internship evaluations.

A student may reappear once for each of the above evaluations, when they are scheduled again; if the student fails in such 'one reappearance' evaluation also, the student has to reappear for the same in the next subsequent semester, as and when it is scheduled.

7.3 Promotion Rules:

S. No.	Promotion	Conditions to be fulfilled
1	First year first semester to first year second semester	Regular course of study of first year first semester.
2	First year second semester to Second year first semester	(i) Regular course of study of first year second semester. (ii) Must have secured at least 20 credits out of 40 credits i.e., 50% credits up to first year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
3.	Second year first semester to Second year second semester	Regular course of study of second year first semester.
4	Second year second semester to Third year first semester	(i) Regular course of study of second year second semester. (ii) Must have secured at least 48 credits out of 80 credits i.e., 60% credits up to second year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
5	Third year first semester to Third year second semester	Regular course of study of third year first semester.
6	Third year second semester to Fourth year first semester	(i) Regular course of study of third year second semester. (ii) Must have secured at least 72 credits out of 120 credits i.e., 60% credits up to third year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
7	Fourth year first semester to Fourth year second semester	Regular course of study of fourth year first semester.

7.4 A student (i) shall register for all courses/subjects covering 160 credits as specified and listed in the course structure, (ii) fulfills all the attendance and academic requirements for 160 credits, (iii) earn all 160 credits by securing SGPA ≥ 5.0 (in each semester), and CGPA ≥ 5 (at the end of 8 semesters), (iv) **passes all the mandatory courses,** to successfully complete the undergraduate programme. The performance of the student in these 160 credits shall be considered for the calculation of the final CGPA **(at the end of undergraduate programme),** and shall be indicated in the grade card / marks memo of IV-year II semester.

7.5 If a student registers for '**extra subjects'** (in the parent department or other departments/branches of Engg.) other than those listed subjects totaling to 160 credits as specified in the course structure of his department, the performances in those '**extra subjects'** (although evaluated and graded using the same procedure as that of the required 160 credits) will not be considered while calculating the SGPA and CGPA. For such '**extra subjects'** registered, percentage of marks and letter grade alone will be indicated in the grade card / marks memo as a performance measure, subject to completion of the attendance and academic requirements as stated in regulations Items 6 and 7.1 – 7.4 above.

7.6 A student eligible to appear in the semester end examination for any subject/ course, but absent from it or failed (thereby failing to secure **'C'** grade or above) may reappear for that subject/ course in the supplementary examination as and when conducted. In such cases, internal marks (CIE) assessed earlier for that subject/ course will be carried over, and added to the marks to be obtained in the SEE supplementary examination for evaluating performance in that subject.

7.7 A student **detained in a semester due to shortage of attendance may be re-admitted in the same semester in the next academic year for fulfillment of academic requirements**. The academic regulations under which a student has been re-admitted shall be applicable. Further, no grade allotments or SGPA/ CGPA calculations will be done for the entire semester in which the student has been detained.

7.8 A student detained **due to lack of credits, shall be promoted to the next academic year only after acquiring the required number of academic credits.** The academic regulations under which the student has been readmitted shall be applicable to him.

8.0 Evaluation - Distribution and Weightage of Marks

8.1 The performance of a student in every subject/course (including practical's and Project Stage – I & II) will be evaluated for 100 marks each, with 40 marks allotted for CIE (Continuous Internal Evaluation) and 60 marks for SEE (Semester End-Examination).

8.2 In CIE, for theory subjects, during a semester, there shall be two mid-term examinations. Each Mid-Term examination consists of two parts i) **Part – A** for 10 marks, ii) **Part – B** for 20 marks with a total duration of 2 hours as follows:

1. Mid Term Examination for 30 marks:
   a. Part - A : Objective/quiz paper/Short Answers for 10 marks.(5*2=10Marks)
   b. Part - B : Descriptive paper for 20 marks.

The objective/quiz paper is set with multiple choice, fill-in the blanks and match the following type of questions for a total of 10 marks. The descriptive paper shall contain 6 full questions out of which, the student has to answer 4 questions, each carrying 5 marks. The **average of the two Mid Term Examinations** shall be taken as the final marks for Mid Term Examination (for 30 marks).

The remaining 10 marks of Continuous Internal Evaluation are distributed as:

2. Assignment for 5 marks. (**Average of 2 Assignments** each for 5 marks)
3. Subject Viva-Voce/PPT/Poster Presentation/ Case Study on a topic in the concerned subject for 5 marks.

While the first mid-term examination shall be conducted on 50% of the syllabus, the second mid-term examination shall be conducted on the remaining 50% of the syllabus.

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-term examination, and the second assignment should be submitted before the conduct of the second mid-term examination. The average of the two assignments shall be taken as the final marks for assignment (for 5 marks).

Subject Viva-Voce/PPT/Poster Presentation/ Case Study on a topic in the subject concerned for 5 marks before II Mid-Term Examination.

- The Student, in each subject, shall have to earn 35% of marks (i.e. 14 marks out of 40 marks) in CIE, 35% of marks (i.e. 21 marks out of 60) in SEE and Overall 40% of marks (i.e. 40 marks out of 100 marks) both CIE and SEE marks put together.

The student is eligible to write Semester End Examination of the concerned subject, if the student scores ≥ 35% (14 marks) of 40 Continuous Internal Examination (CIE) marks.

In case, the student appears for Semester End Examination (SEE) of the concerned subject but not scored minimum 35% of CIE marks (14 marks out of 40 internal marks), his performance in that subject in SEE shall stand cancelled inspite of appearing the SEE.

There is NO Computer Based Test (CBT) for R22 regulations. The

details of the end semester question paper pattern are as follows:

8.2.1 The semester end examinations (SEE), for theory subjects, will be conducted for 60 marks consisting of two parts viz. i) **Part- A** for 10 marks, ii) **Part - B** for 50 marks.

- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.

- Part-B consists of five questions (numbered from 2 to 6) carrying 10 marks each. Each of these questions is from each unit and may contain sub-questions. For each question there will be an “either” “or” choice, which means that there will be two questions from each unit and the student should answer either of the two questions.

- The duration of Semester End Examination is 3 hours.

8.3 For practical subjects there shall be a Continuous Internal Evaluation (CIE) during the semester for 40 marks and 60 marks for semester end examination. Out of the 40 marks for internal evaluation:

1. A write-up on day-to-day experiment in the laboratory (in terms of aim, components/procedure, expected outcome) which shall be evaluated for 10 marks
2. **10 marks for viva-voce (**or) tutorial (or) case study (or) application (or) poster presentation of the course concerned.
3. Internal practical examination conducted by the laboratory teacher concerned shall be evaluated for 10 marks.
4. The remaining 10 marks are for Laboratory Project, which consists of the Design (or) Software / Hardware Model Presentation (or) App Development (or) Prototype Presentation submission which shall be evaluated after completion of laboratory course and before semester end practical examination.

The Semester End Examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from the cluster / other colleges which will be decided by the examination branch of the University.

In the Semester End Examination held for 3 hours, total 60 marks are divided and allocated as shown below:

1. 10 marks for write-up
2. 15 for experiment/program
3. 15 for evaluation of results
4. 10 marks for presentation on another experiment/program in the same laboratory course and
5. 10 marks for viva-voce on concerned laboratory course.

- The Student, in each subject, shall have to earn 35% of marks (i.e. 14 marks out of 40 marks) in CIE, 35% of marks (i.e. 21 marks out of 60) in SEE and Overall 40% of marks (i.e. 40 marks out of 100 marks) both CIE and SEE marks put together.

The student is eligible to write Semester End Examination of the concerned subject, if the student scores ≥ 35% (14 marks) of 40 Continuous Internal Examination (CIE) marks.

In case, the student appears for Semester End Examination (SEE) of the concerned subject but not scored minimum 35% of CIE marks (14 marks out of 40 internal marks), his performance in that subject in SEE shall stand cancelled inspite of appearing the SEE.

8.4 There shall be an Industry training (or) Internship (or) Industry oriented Mini-project (or) Skill Development Courses (or) Paper presentation in reputed journal (or) Industry Oriented Mini Project in collaboration with an industry of their specialization. Students shall register for this immediately after II-Year II Semester Examinations and pursue it during summer vacation/semester break & during III Year without effecting regular course work. Internship at reputed organization (or) Skill development courses (or) Paper presentation in reputed journal (or) Industry Oriented Mini Project shall be submitted in a report form and presented before the committee in III-year II semester

before end semester examination. It shall be evaluated for 100 external marks. The committee consists of an External Examiner, Head of the Department, Supervisor of the Industry Oriented Mini Project (or) Internship etc, Internal Supervisor and a Senior Faculty Member of the Department. There shall be **NO internal marks** for Industry Training (or) Internship (or) Mini-Project (or) Skill Development Courses (or) Paper Presentation in reputed journal (or) Industry Oriented Mini Project.

8.5 The UG project shall be initiated at the end of the IV Year I Semester and the duration of the project work is one semester. The student must present Project Stage – I during IV Year I Semester before II Mid examinations, in consultation with his Supervisor, the title, objective and plan of action of his Project work to the departmental committee for approval before commencement of IV Year II Semester. Only after obtaining the approval of the departmental committee, the student can start his project work.

8.6 UG project work shall be carried out in two stages: Project Stage – I for approval of project before Mid-II examinations in IV Year I Semester and Project Stage – II during IV Year II Semester. Student has to submit project work report at the end of IV Year II Semester. The project shall be evaluated for 100 marks before commencement of SEE Theory examinations.

8.7 For Project Stage – I, the departmental committee consisting of Head of the Department, project supervisor and a senior faculty member shall approve the project work to begin before II Mid-Term examination of IV Year I Semester. The student is deemed to be not eligible to register for the Project work, if he does not submit a report on Project Stage - I or does not make a presentation of the same before the evaluation committee as per schedule.

A student who has failed may reappear once for the above evaluation, when it is scheduled again; if he fails in such 'one reappearance' evaluation also, he has to reappear for the same in the next subsequent semester, as and when it is scheduled.

8.8 For Project Stage – II, the external examiner shall evaluate the project work for 60 marks and the internal project committee shall evaluate it for 40 marks. Out of 40 internal marks, the departmental committee consisting of Head of the Department, Project Supervisor and a Senior Faculty Member shall evaluate the project work for 20 marks and Project Supervisor shall evaluate for 20 marks. The topics for Industry Oriented Mini Project/ Internship/SDC etc. and the main Project shall be different from the topic already taken. The student is deemed to have failed, if he (i) does not submit a report on the Project, or (ii) does not make a presentation of the same before the External Examiner as per schedule, or (iii) secures less than 40% marks in the sum total of the CIE and SEE taken together. For conducting viva-voce of project, University selects an external examiner from the list of experts in the relevant branch submitted by the Principal of the College.

8.9 A student who has failed, may reappear once for the above evaluation, when it is scheduled again; if student fails in such 'one reappearance' evaluation also, he has to reappear for the same in the next subsequent semester, as and when it is scheduled.

A student shall be given only one time chance to re-register for a maximum of two

subjects in a semester:

- If the internal marks secured by a student in the Continuous Internal Evaluation marks for 40 (Sum of average of two mid-term examinations consisting of Objective & descriptive parts, Average of two Assignments & Subject Viva- voce/PPT/ Poster presentation/ Case Study on a topic in the concerned subject) are less than 35% and failed in those subjects.

A student must re-register for the failed subject(s) for 40 marks within four weeks of commencement of the class work in next academic year.

In the event of the student taking this chance, his Continuous Internal Evaluation marks for 40 and Semester End Examination marks for 60 obtained in the previous attempt stand cancelled.

9.0 Grading Procedure

9.1 Grades will be awarded to indicate the performance of students in each Theory Subject, Laboratory/Practicals/ Industry-Oriented Mini Project/Internship/SDC and Project Stage. Based on the percentage of marks obtained (Continuous Internal Evaluation plus Semester End Examination, both taken together) as specified in item 8 above, a corresponding letter grade shall be given.

9.2 As a measure of the performance of a student, a 10-point absolute grading system using the following letter grades (as per UGC/AICTE guidelines) and corresponding percentage of marks shall be followed:

% of Marks Secured in a Subject/Course (Class Intervals)	Letter Grade (UGC Guidelines)	Grade Points
Greater than or equal to 90%	O (Outstanding)	10
80 and less than 90%	A^+ (Excellent)	9
70 and less than 80%	A (Very Good)	8
60 and less than 70%	B^+ (Good)	7
50 and less than 60%	B (Average)	6
40 and less than 50%	C (Pass)	5
Below 40%	F (FAIL)	0
Absent	Ab	0

9.3 A student who has obtained an **'F'** grade in any subject shall be deemed to have **'failed'** and is required to reappear as a 'supplementary student' in the semester end examination, as and when offered. In such cases, internal marks in those subjects will remain the same as those obtained earlier.

9.4 To a student who has not appeared for an examination in any subject, **'Ab'** grade will be allocated in that subject, and he is deemed to have **'Failed'**. A student will be required to reappear as a 'supplementary student' in the semester end examination, as and when offered next. In this case also, the internal marks in those subjects will remain the same as those obtained earlier.

9.5 A letter grade does not indicate any specific percentage of marks secured by the student, but it indicates only the range of percentage of marks.

9.6 A student earns Grade Point (GP) in each subject/ course, on the basis of the letter grade secured in that subject/ course. The corresponding 'Credit Points' (CP) are computed by multiplying the grade point with credits for that particular subject/ course.

Credit Points (CP) = Grade Point (GP) x Credits …. For a course

9.7 A student passes the subject/ course only when **GP ≥ 5 ('C' grade or above)**

9.8 The Semester Grade Point Average (SGPA) is calculated by dividing the sum of credit points (ΣCP) secured from all subjects/ courses registered in a semester, by the total number of credits registered during that semester. SGPA is rounded off to **two** decimal places. SGPA is thus computed as

SGPA = $\{\sum_{i=1}^{N} C_i G_i\} / \{\sum^{N} C_i\}$ **…. For each semester**,

where 'I' is the subject indicator index (considering all subjects in a semester), 'N' is the no. of subjects **'registered'** for the semester (as specifically required and listed under the course structure of the parent department), C_i is the no. of credits allotted to the i^{th} subject, and G_i represents the grade points (GP) corresponding to the letter grade awarded for that i^{th} subject.

9.9 The Cumulative Grade Point Average (CGPA) is a measure of the overall cumulative performance of a student in all semesters considered for registration. The CGPA is the ratio of the total credit points secured by a student in **all** registered courses (of 160) in **all** semesters, and the total number of credits registered in **all** the semesters. CGPA is rounded off to **two** decimal places. CGPA is thus computed from the I year II semester onwards at the end of each semester as per the formula

CGPA = $\{\sum_{j=1}^{M} C_j G_j\} / \{\sum^{M} C_j\}$ **… for all S semesters registered**

$$\sum_{j=1}$$

(i.e., up to and inclusive of S semesters, S ≥ 2),

where **'M'** is the **total** no. of subjects (as specifically required and listed under the course structure of the parent department) the student has **'registered'** i.e., from the 1st semester onwards up to and inclusive of the 8th semester, 'j' is the subject indicator index (takes into account all subjects from 1 to 8 semesters), C_j is the no. of credits allotted to the j^{th} subject, and G_j represents the grade points (GP) corresponding to the letter grade awarded for that j^{th} subject. After registration and completion of I year I semester, the SGPA of that semester itself may be taken as the CGPA, as there are no cumulative effects.

Illustration of calculation of SGPA:

Course/Subject	Credits	Letter Grade	Grade Points	Credit Points
Course 1	4	A	8	4 x 8 = 32
Course 2	4	O	10	4 x 10 = 40
Course 3	4	C	5	4 x 5 = 20
Course 4	3	B	6	3 x 6 = 18
Course 5	3	A+	9	3 x 9 = 27
Course 6	3	C	5	3 x 5 = 15
	21			152

SGPA = 152/21 = 7.24

Illustration of Calculation of CGPA up to 3rd Semester:

Semester	Course/ Subject Title	Credits Allotted	Letter Grade Secured	Corresponding Grade Point (GP)	Credit Points (CP)
I	Course 1	3	A	8	24
I	Course 2	3	O	10	30
I	Course 3	3	B	6	18
I	Course 4	4	A	8	32
I	Course 5	3	A+	9	27
I	Course 6	4	C	5	20
II	Course 7	4	B	6	24
II	Course 8	4	A	8	32
II	Course 9	3	C	5	15
II	Course 10	3	O	10	30
II	Course 11	3	B+	7	21
II	Course 12	4	B	6	24
II	Course 13	4	A	8	32
II	Course 14	3	O	10	30
III	Course 15	2	A	8	16
III	Course 16	1	C	5	5
III	Course 17	4	O	10	40
III	Course 18	3	B+	7	21

III	Course 19	4	B	6	24
III	Course 20	4	A	8	32
III	Course 21	3	B+	7	21
	Total Credits	**69**		**Total Credit Points**	**518**

CGPA = 518/69 = 7.51

The calculation process of CGPA illustrated above will be followed for each subsequent semester until 8th semester. The CGPA obtained at the end of 8th semester will become the final CGPA secured for entire B.Tech. Programme.

9.10 For merit ranking or comparison purposes or any other listing, **only** the **'rounded off'** values of the CGPAs will be used.

9.11 SGPA and CGPA of a semester will be mentioned in the semester Memorandum of Grades if all subjects of that semester are passed in first attempt. Otherwise the SGPA and CGPA shall be mentioned only on the Memorandum of Grades in which sitting he passed his last exam in that semester. However, mandatory courses will not be taken into consideration.

10.0 Passing Standards

10.1 A student shall be declared successful or 'passed' in a semester, if he secures a GP ≥ 5 (**'C'** grade or above) in every subject/course in that semester (i.e. when the student gets an SGPA ≥ 5.0 at the end of that particular semester); and he shall be declared successful or 'passed' in the entire undergraduate programme, only when gets a CGPA ≥ 5.00 (**'C'** grade or above) for the award of the degree as required.

10.2 After the completion of each semester, a grade card or grade sheet shall be issued to all the registered students of that semester, indicating the letter grades and credits earned. It will show the details of the courses registered (course code, title, no. of credits, grade earned, etc.) and credits earned. **There is NO exemption of credits in any case.**

11.0 Declaration of results

11.1 Computation of SGPA and CGPA are done using the procedure listed in 9.6 to 9.9.

11.2 For final percentage of marks equivalent to the computed final CGPA, the following formula may be used.

% of Marks = (final CGPA – 0.5) x 10

12.0 Award of Degree

12.1 A student who registers for all the specified subjects/ courses as listed in the course structure and secures the required number of 160 credits (with CGPA ≥ 5.0), within 8 academic years from the date of commencement of the first academic year, shall be

declared to have **'qualified'** for the award of B.Tech. degree in the branch of Engineering selected at the time of admission.

12.2 A student who qualifies for the award of the degree as listed in item 12.1 shall be placed in the following classes.

12.3 A student with final CGPA (at the end of the undergraduate programme) > 8.00, and fulfilling the following conditions - shall be placed in **'First Class with Distinction'**.

However, he

(i) Should have passed all the subjects/courses in **'First Appearance'** within the first 4 academic years (or 8 sequential semesters) from the date of commencement of first year first semester.

(ii) Should not have been detained or prevented from writing the semester end examinations in any semester due to shortage of attendance or any other reason.

A student not fulfilling any of the above conditions with final CGPA > 8 shall be placed in **'First Class'.**

12.4 Students with final CGPA (at the end of the undergraduate programme) ≥ 7.0 but < 8.00 shall be placed in **'First Class'.**

12.5 Students with final CGPA (at the end of the undergraduate programme) ≥ 6.00 but < 7.00, shall be placed in **'Second Class'**.

12.6 All other students who qualify for the award of the degree (as per item 12.1), with final CGPA (at the end of the undergraduate programme) ≥ 5.00 but < 6, shall be placed in **'pass class'**.

12.7 A student with final CGPA (at the end of the undergraduate programme) < 5.00 will not be eligible for the award of the degree.

12.8 Students fulfilling the conditions listed under item 12.3 alone will be eligible for award of **'Gold Medal'**.

12.9 Award of 2-Year B.Tech. Diploma Certificate

*1.*A student is awarded 2-Year UG Diploma Certificate in the concerned engineering branch on completion of all the academic requirements and earned all the 80 credits (within 4 years from the date of admission) upto B.Tech. II Year II Semester, if the student want to exit the 4-Year B.Tech. Program and *requests for the 2 -Year* B. Tech. (*UG) Diploma Certificate.*

2. The student **once opted and awarded 2-Year UG Diploma Certificate, the student**

will be permitted to join in B. Tech. III Year I Semester and continue for completion of remaining years of study for 4-Year B. Tech. Degree ONLY in the next academic year along with next batch students. However, if any student wishes to continue the study after opting for exit, he/she should register for the subjects/courses in III Year I Semester before commencement of class work for that semester.

3. The students, who exit the 4-Year B. Tech. program after II Year of study and wish to re-join the B.Tech. program, must submit the 2 -Year B. Tech. (UG) Diploma Certificate awarded to him, subject to the eligibility for completion of Course/Degree.
4. A student may be permitted to take one year break after completion of II Year II Semester or B. Tech. III Year II Semester (with university permission through the principal of the college well in advance) and can re-enter the course in **next Academic Year in the same college** and complete the course on fulfilling all the academic credentials within a stipulated duration i.e. double the duration of the course (Ex. within 8 Years for 4-Year program).

13.0 Withholding of results

13.1 If the student has not paid the fees to the University at any stage, or has dues pending due to any reason whatsoever, or if any case of indiscipline is pending, the result of the student may be withheld, and the student will not be allowed to go into the next higher semester. The award or issue of the degree may also be withheld in such cases.

14.0 Transitory Regulations

A. For students detained due to shortage of attendance:

1. A Student who has been detained in I year of R20 Regulations due to lack of attendance, shall be permitted to join I year I Semester of R22 Regulations and he is required to complete the study of B.Tech. Programme within the stipulated period of eight academic years from the date of first admission in I Year.
2. A student who has been detained in any semester of II, III and IV years of R20 regulations for want of attendance, shall be permitted to join the corresponding semester of R22 Regulations and is required to complete the study of B.Tech. within the stipulated period of eight academic years from the date of first admission in I Year. The R22 Academic Regulations under which a student has been readmitted shall be applicable to that student from that semester. See rule (C) for further Transitory Regulations.

B. For students detained due to shortage of credits:

3. A student of R20 Regulations, who has been detained due to lack of credits, shall be promoted to the next semester of R22 Regulations only after acquiring the required number of credits as per the corresponding regulations of his/her first admission. The total credits required are 160 including both R20 & R22 regulations. The student is

required to complete the study of B.Tech. within the stipulated period of eight academic years from the year of first admission. The R22 Academic Regulations are applicable to a student from the year of readmission. See rule (C) for further Transitory Regulations.

C. For readmitted students in R22 Regulations:

4. A student who has failed in any subject under any regulation has to pass those subjects in the same regulations.
5. The maximum credits that a student acquires for the award of degree, shall be the sum of the total number of credits secured in all the regulations of his/her study including R22 Regulations. **There is NO exemption of credits in any case**.
6. If a student is readmitted to R22 Regulations and has any subject with 80% of syllabus common with his/her previous regulations, that particular subject in R22 Regulations will be substituted by another subject to be suggested by the University.

Note: If a student readmitted to R22 Regulations and has not studied any subjects/topics in his/her earlier regulations of study which is prerequisite for further subjects in R22

Regulations, the College Principals concerned shall conduct remedial classes to cover those subjects/topics for the benefit of the students.

15.0 Student Transfers

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

15.2 There shall be no transfers from one college/stream to another within the constituent colleges and units of Jawaharlal Nehru Technological University Hyderabad.

15.3 The students seeking transfer to colleges affiliated to JNTUH from various other Universities/institutions have to pass the failed subjects which are equivalent to the subjects of JNTUH, and also pass the subjects of JNTUH which the students have not studied at the earlier institution. Further, though the students have passed some of the subjects at the earlier institutions, if the same subjects are prescribed in different semesters of JNTUH, the students have to study those subjects in JNTUH in spite of the fact that those subjects are repeated.

15.4 The transferred students from other Universities/Institutions to JNTUH affiliated colleges who are on rolls are to be provided one chance to write the CBT (for internal marks) in the **equivalent subject(s)** as per the clearance letter issued bythe University.

15.5 The autonomous affiliated colleges have to provide one chance to write the internal examinations in the **equivalent subject(s)** to the students transferred from other universities/institutions to JNTUH autonomous affiliated colleges who are on rolls, as per the clearance (equivalence) letter issued by the University.

16.0 Scope

16.1 The academic regulations should be read as a whole, for the purpose of any interpretation.

16.2 In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Vice-Chancellor is final.

16.3 The University may change or amend the academic regulations, course structure or syllabi at any time, and the changes or amendments made shall be applicable to all students with effect from the dates notified by the University authorities.

16.4 Where the words “he”, “him”, “his”, occur in the regulations, they include “she”,“her”, “hers”.

6. ACADEMIC CALENDAR

CMR ENGINEERING COLLEGE

UGC AUTONOMOUS

(Approved by AICTE - New Delhi. Affiliated to JNTUH and Accredited by NAAC & NBA)

Kandlakoya (V), Medchal (M), Medchal - Malkajgiri (D)-501401

ACADEMIC CALENDAR **Date: 11-06-2024**

B.Tech II and III YEAR: ACADEMIC YEAR (2024-25)

II & III B.Tech. I – SEMISTER				
S. No.	**EVENT**	**DATE**		**DURATION**
		FROM	**TO**	
1	Commencement of Class Work	**29.07.2024**		---
2	First Spell of Instructions	29.07.2024	21.09.2024	8 weeks
3	**First Mid Term Examinations (Theory & Practical)**	***23.09.2024***	***28.09.2024***	***1 Week***
4	Second Spell of Instructions (Including **Dussehra Vacation)***	30.09.2024	30.11.2024	9 weeks
5	Submission of First Mid Term Marks to Exam Branch	05.10.2024		---
6	Parents Teacher's Meeting	14.10.2024		---
7	**Second Mid Term Examinations (Theory & Practical)**	***02.12.2024***	***07.12.2024***	***1 Week***
8	Submission of Second Mid Term Marks to Exam Branch	14.12.2024		---
9	Preparation Holidays and Practical Examinations	09.12.2024	14.12.2024	1 week
10	**End Semester & Supplementary Examinations**	***16.12.2024***	***28.12.2024***	***2 Weeks***

II & III B.Tech. II – Semester				
S. No.	**EVENT**	**DATE**		**DURATION**
		FROM	**TO**	
1	Commencement of **II-SEM** Class work	**30.12.2024**		---
2	First Spell of Instructions	30.12.2024	22.02.2025	8 weeks
3	**First Mid Term Examinations**	***24.02.2025***	***01.03.2025***	1 week
4	Second Spell of Instructions	03.03.2025	26.04.2025	8 weeks
5	Submission of First Mid Term Marks to Exam Branch	08.03.2025		---
6	Parents Teacher's Meeting	15.03.2025		----
7	**Second Mid Term Examinations**	***28.04.2025***	***03.05.2025***	1 week
8	**Summer Vacation**	***05.05.2025***	***31.05.2025***	4 weeks
9	Submission of Second Mid Term Marks to Exam Branch	14.06.2025		---
10	Preparation and Practical Examinations	02.06.2025	07.06.2025	1 week
11	**End Semester & Supplementary Examinations**	***09.06.2025***	***21.06.2025***	***2 weeks***
12	**Commencement of Class Work for the next A.Y-2025-2026**	***30.06.2025***		

- * **Dussehra Vacation** Subject to declaration by JNTUH / Govt of TG

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Controller of Examinations

Principal
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Principal

CMR ENGINEERING COLLEGE

UGC AUTONOMOUS

(Approved by AICTE - New Delhi. Affiliated to JNTUH and Accredited by NAAC & NBA)

Kandlakoya (V), Medchal (M), Medchal - Malkajgiri (D)-501401

ACADEMIC CALENDAR Date: 11-06-2024

B.Tech IV-YEAR: ACADEMIC YEAR (2024-25)

IV B.Tech. I – SEMISTER				
S. No.	EVENT	DATE		DURATION
		FROM	TO	
1	Commencement of Class Work	08.07.2024		---
2	First Spell of Instructions	08.07.2024	31.08.2024	8 weeks
3	**First Mid Term Examinations (Theory & Practical)**	***02.09.2024***	***07.09.2024***	***1 Week***
4	Submission of First Mid Term Marks to Exam Branch	14.09.2024		---
5	Parents Teacher's Meeting	21.09.2024		---
6	Second Spell of Instructions **(Including Dussehra Vacation)***	09.09.2024	09.11.2024	9 weeks
7	**Second Mid Term Examinations (Theory & Practical)**	***11.11.2024***	***16.11.2024***	***1 Week***
8	Submission of Second Mid Term Marks to Exam Branch	23.11.2024		---
9	Preparation Holidays and Practical Examinations	18.11.2024	23.11.2024	1 week
10	**End Semester & Supplementary Examinations**	***25.11.2024***	***07.12.2024***	***2 Weeks***

IV B.Tech. II – Semester				
S. No.	EVENT	DATE		DURATION
		FROM	TO	
1	Commencement of II-SEM Class work	09.12.2024		---
2	First Spell of Instructions	09.12.2024	01.02.2025	8 weeks
3	**First Mid Term Examinations****	***03.02.2025***	***06.02.2025***	***4 Days***
4	Submission of First Mid Term Marks to Exam Branch	13.02.2025		---
5	Second Spell of Instructions	07.02.2025	03.04.2025	8 weeks
6	**Second Mid Term Examinations****	***04.04.2025***	***08.04.2025***	***4 Days***
7	Submission of Second Mid Term Marks to Exam Branch	15.04.2025		---
8	Preparation and Project Evaluation	09.04.2025	15.04.2025	1 week
9	**End Semester & Supplementary Examinations**	***16.04.2025***	***30.04.2025***	***2 weeks***

- * **Dussehra** Vacation Subject to declaration by JNTUH / Govt of TG
- ** **IV-B.Tech II-Sem** has only ' **3** ' **Subjects**

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Controller of Examinations

Principal
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Principal

7. EVENT PLANNER

TENTATIVE EVENT PLANNER SEM I

S.NO	DATE and MONTH	EVENT NAME
1	08.07.2024 to 07.12.2024	Commencement of B.Tech class work IV-I
2	17.07.2024	Holiday Muharram
3	29.07.2024	Commencement of B.Tech class work III-I
4	29.07.2024	Commencement of B.Tech class work II-I
5	07.08.2024	Webinar on Artificial Intelligence and Machine learning
6	15.08.2024	**Independence day**
7	17.08.2024	Guest Lecture On Logic and Knowledge Representation in AI
8	26.08.2024	Holiday Janmashtami
9	02.09.2024 to 07.09.2024	**I MID Exams for IV-I**
10	05.09.2024	Teachers Day
11	07.09.2024	Holiday Ganesh chaturthi
12	10.09.2024	Industrial Visit Report –BRAHMOS AEROSPACE, Hyderabad
13	14.09.2024	Webinar on“The Future of Java: What Developer Needs to Know”
14	15.09.2024	Engineers Day
15	16.09.2024	Holiday Eid e Milad ul Nabi
16	16.09.2024 to 20.09.2024	STTP on Cryptography and Network Security
17	21.09.2024	Parent Teacher Meeting (IV-I) Students
18	30.09.2024 to 05.10.2024	**I MID Exams for II-I & III-I**
19	02.10.2024	Holiday Gandhi Jayanthi
20	07.10.2024 to 12.10.2024	**Dussehra Vaccation**
21	19.10.2024 to 20.10.2024	6th IEEE International conference on Cybernetics,Cognition & Machine Learning Application, Germany
22	26.10.2024	Parent Teacher Meeting (II-I & III-I) Students
23	29.10.2024	Industrial Visit Report – NRSC
24	31.10.2024	Holiday Diwali

25	09.11.2024	Webinar on"GENERATIVE AI TOOLS AND BUSINESS IMPACT"
26	09.11.2024	Guest Lecture on "Java Web Application Build and Deployment"
27	11.11.2024 to 16.11.2024	**II MID Exams for IV-I**
28	12.11.2024	Workshop on Mega Generative AI Workshop
29	13.11.2024	Workshop on Entrepreneurship and Innovation as a Career Opportunity
30	15.11.2024	Holiday Guru Nanak Jayanthi
31	18.11.2024 to 23.11.2024	Preparation Holidays and Practical examination
32	25.11.2024 to 07.12.2024	**End semester & Supplementary Examinations IV-I**
33	02.12.2024 to 07.12.2024	**II MID Exams for III-I & II-I**
34	09.12.2024 to 14.12.2024	**Preparation Holidays and Practical examination III-I & II-I**
35	16.12.2024 to 28.12.2024	**End semester & Supplementary Examinations III-I & II-I**

TENTATIVE EVENT PLANNER SEM II

S.NO	DATE and MONTH	EVENT NAME
1	09.12.2024 to 30.04.2024	**Commencement of B.Tech class work IV-II**
2	25.12.2024	Holiday Christmas
3	30.12.2024	**Commencement of B.Tech class work II-II**
4	30.12.2024	**Commencement of B.Tech class work III-II**
5	31.12.2024	Freshers Day For First Year
6	01.01.2025	Holiday-New Year
7	10.01.2025	Guest Lecture on " AI Tools " CSI Events
8	11.01.2025 to 15.01.2025	Holiday-Makar Sankranti
9	26.01.2025	Happy Republic Day
10	29-01-2025	Seminar conducting on Career oppurtunities
11	01-02-2025	Guest Lecture on "Performance Analysis of Classification Algorithms in Machine Learning"
12	03.02.2025 to 06.02.2025	**I MID Exams for IV-II**
13	14-02-2025	Industrial Visit T Hub for III year Students

14	15-02-2025	Guest Lecture on Process of Innovation Development Technology Readiness Level(TRL),Commercialization of lab Technologies and Tech -Transfer
15	17-02-2025 to 21-02-2025	One week National Level Faculty Development Program on AI Tools
16	20-02-2025	A Seminar Conducting on Overseas Education
17	21-02.2025	Industrial Visit T works for II year Students
18	26.02.2025	Holiday-Mahashivratri
19	04.03.2025 to 08.03.2025	**I MID Exams for II-II& III-II**
20	07-03-2025 to 08-03-2025	7th IEEE International conference on Empowering Gen Alpha & Beta : AI Driven Educational Systems
21	08.03.2025	Happy Womens day
22	14.03.2025	Holiday-Holi
23	15.03.2025	Parent Teacher Meeting (III-II) & (II-II)
24	30.03.2025	Holiday Ugadi
25	31.03.2025	Holiday-Ramadan
26	04.04.2025 to 08.04.2025	**II MID Exams for IV-II**
27	06.04.2025	Holiday-Rama Navami
28	09.04.2025 to 14.04.2025	**Preparation Holidays and Project Evaluation IV-II**
29	14.04.2025	Holiday - Ambedkar Jayanthi
30	16.04.2025 to 30.04.2025	**End semester & Supplementary Examinations IV-II**
31	18.04.2025	Holiday-Good Friday
32	28.04.2025 to 03.05.2025	**II MID Exams for III-II & II-II**
33	05.05.2025 to 31.05.2025	Summer Vacation
34	02.06.2025 to 07.06.2025	**Preparation Holidays and Practical examination III-II & II-II**
35	07.06.2025	**HOLIDAY BAKRI EID**
36	09.06.2025 to 21.06.2025	**End semester & Supplementary Examinations III-II & II-II**

ACADEMIC SCHEDULE FOR II,III,IV B.TECH I SEM

S.NO	DAY	DATE	ACTIVITY	REMARKS
1	Monday	08.07.2024	**Commencement of B.Tech class work IV-I**	
2	Tuesday	09.07.2024	Academic Classes /Labs	
3	Wednesday	10.07.2024	Academic Classes /Labs	
4	Thrusday	11.07.2024	Academic Classes /Labs	
5	Friday	12.07.2024	Academic Classes /Labs	
6	Saturday	13.07.2024	Academic Classes /Labs	
7	Sunday	14.07.2024	**SUNDAY**	
8	Monday	15.07.2024	Academic Classes /Labs	
9	Tuesday	16.07.2024	Academic Classes /Labs	
10	Wednesday	17.07.2024	**MOHARRAM HOLIDAY**	
11	Thrusday	18.07.2024	Academic Classes /Labs	
12	Friday	19.07.2024	Academic Classes /Labs	
13	Saturday	20.07.2024	Academic Classes /Labs	
14	Sunday	21.07.2024	**SUNDAY**	
15	Monday	22.07.2024	Academic Classes /Labs	
16	Tuesday	23.07.2024	Academic Classes /Labs	
17	Wednesday	24.07.2024	Academic Classes /Labs	
18	Thrusday	25.07.2024	Academic Classes /Labs	
19	Friday	26.07.2024	Academic Classes /Labs	
20	Saturday	27.07.2024	Academic Classes /Labs	
21	Sunday	28.07.2024	**SUNDAY**	
22	Monday	29.07.2024	**Commencement of B.Tech class work II-I & III-I**	
23	Tuesday	30.07.2024	Academic Classes /Labs	
24	Wednesday	31.07.2024	Academic Classes /Labs	
25	Thrusday	01.08.2024	Academic Classes /Labs	
26	Friday	02.08.2024	Academic Classes /Labs	
27	Saturday	03.08.2024	Academic Classes /Labs	
28	Sunday	04.08.2024	**SUNDAY**	
29	Monday	05.08.2024	Academic Classes /Labs	
30	Tuesday	06.08.2024	T&P	II-I Placement Training
31	Wednesday	07.08.2024	Academic Classes /Labs	Webinar on Artificial Intelligence and Machine learning III-I STUDENTS
32	Thrusday	08.08.2024	T&P	III-I Placement Training
33	Friday	09.08.2024	Academic Classes /Labs	
34	Saturday	10.08.2024	Academic Classes /Labs	
35	Sunday	11.08.2024	**SUNDAY**	

36	Monday	12.08.2024	Academic Classes /Labs	
37	Tuesday	13.08.2024	T&P	II-I Placement Training
38	Wednesday	14.08.2024	Academic Classes /Labs	
39	Thrusday	15.08.2024	**Independence Day**	
40	Friday	16.08.2024	Academic Classes /Labs	
41	Saturday	17.08.2024	Academic Classes /Labs	Guest Lecture On Logic and Knowledge Representation in AI
42	Sunday	18.08.2024	**SUNDAY**	
43	Monday	19.08.2024	Academic Classes /Labs	
44	Tuesday	20.08.2024	T&P	II-I Placement Training
45	Wednesday	21.08.2024	Academic Classes /Labs	
46	Thrusday	22.08.2024	T&P	III-I Placement Training
47	Friday	23.08.2024	Academic Classes /Labs	
48	Saturday	24.08.2024	Academic Classes /Labs	
49	Sunday	25.08.2024	**SUNDAY**	
50	Monday	26.08.2024	**JANMASHTAMI HOLIDAY**	
51	Tuesday	27.08.2024	T&P	II-I Placement Training
52	Wednesday	28.08.2024	Academic Classes /Labs	
53	Thrusday	29.08.2024	T&P	III-I Placement Training
54	Friday	30.08.2024	Academic Classes /Labs	
55	Saturday	31.08.2024	Academic Classes /Labs	
56	Sunday	01.09.2024	**SUNDAY**	
57	Monday	02.09.2024	Academic Classes /Labs	
58	Tuesday	03.09.2024	T&P	II-I Placement Training
59	Wednesday	04.09.2024	Academic Classes /Labs	
60	Thrusday	05.09.2024	T&P	III-I Placement Training
61	Friday	06.09.2024	Academic Classes /Labs	
62	Saturday	07.09.2024	**GANESH HOLIDAY**	
63	Sunday	08.09.2024	**SUNDAY**	
64	Monday	09.09.2024	Academic Classes /Labs	
65	Tuesday	10.09.2024	T&P	Industrial Visit Report – BRAHMOS AEROSPACE, Hyderabad(III-I) STUDENTS & II-I Placement Training
66	Wednesday	11.09.2024	Academic Classes /Labs	
67	Thrusday	12.09.2024	T&P	III-I Placement Training
68	Friday	13.09.2024	Academic Classes /Labs	

69	Saturday	14.09.2024	Academic Classes /Labs	Webinar on"The Future of Java: What Developer Needs to Know" II-I STUDENTS & Engineers Day
70	Sunday	15.09.2024	**SUNDAY**	
71	Monday	16.09.2024	Holiday Eid e Milad ul Nabi	STTP on Cryptography and Network Security
72	Tuesday	17.09.2024	T&P	II-I Placement Training
73	Wednesday	18.09.2024	Academic Classes /Labs	
74	Thrusday	19.09.2024	T&P	**III-I Placement Training**
75	Friday	20.09.2024	Academic Classes /Labs	
76	Saturday	21.09.2024	Academic Classes /Labs	
77	Sunday	22.09.2024	**SUNDAY**	
78	Monday	23.09.2024 to 28.09.2024	**Academic Classes /Labs (I MID Exams for IV B.Tech I-Sem)**	I MID Exams for IV-I
79	Tuesday	24.09.2024	T&P	**II-I Placement Training**
80	Wednesday	25.09.2024	Academic Classes /Labs	
81	Thrusday	26.09.2024	T&P	**III-I Placement Training**
82	Friday	27.09.2024	Academic Classes /Labs	
83	Saturday	28.09.2024	**Academic Classes /Labs (I MID Exams for IV B.Tech I-Sem)**	I MID Exams for IV-I
84	Sunday	29.09.2024	**SUNDAY**	
85	Monday	30.09.2024	**Academic Classes /Labs (I MID Exams for III B.Tech I-Sem)&(I MID Exams for II B.Tech I-Sem)**	I MID Exams for III B.Tech I-Sem)&(I MID Exams for II B.Tech I-Sem)
86	Tuesday	01.10.2024	Academic Classes /Labs	
87	Wednesday	02.10.2024	Holiday Gandhi Jayanthi	
88	Thrusday	03.10.2024	Academic Classes /Labs	
89	Friday	04.10.2024	Academic Classes /Labs	
90	Saturday	05.10.2024	Academic Classes /Labs	I MID Exams for III B.Tech I-Sem)&(I MID Exams for II B.Tech I-Sem)
91	Sunday	06.10.2024	**SUNDAY**	
92	Monday	07.10.2024	**DUSSERA VACCATION**	
93	Tuesday	08.10.2024		
94	Wednesday	09.10.2024		
95	Thrusday	10.10.2024		
96	Friday	11.10.2024		
97	Saturday	12.10.2024		

98	Sunday	13.10.2024	**SUNDAY**	
99	Monday	14.10.2024	Academic Classes /Labs	
100	Tuesday	15.10.2024	T&P	**II-I Placement Training**
101	Wednesday	16.10.2024	Academic Classes /Labs	
102	Thrusday	17.10.2024	T&P	**III-I Placement Training**
103	Friday	18.10.2024	Academic Classes /Labs	
104	Saturday	19.10.2024	Academic Classes /Labs	6th IEEE International conference on Cybernetics,Cognition & Machine Learning Application, Germany
105	Sunday	20.10.2024	**SUNDAY**	
106	Monday	21.10.2024	Academic Classes /Labs	
107	Tuesday	22.10.2024	T&P	**II-I Placement Training**
108	Wednesday	23.10.2024	Academic Classes /Labs	
109	Thrusday	24.10.2024	T&P	**III-I Placement Training**
110	Friday	25.10.2024	Academic Classes /Labs	
111	Saturday	26.10.2024	Academic Classes /Labs	Parent Teacher Meeting (II-I & III-I) Students
112	Sunday	27.10.2024	**SUNDAY**	
113	Monday	28.10.2024	Academic Classes /Labs	
114	Tuesday	29.10.2024	T&P	**II-I Placement Training & Industrial Visit Report – NRSC**
115	Wednesday	30.10.2024	Academic Classes /Labs	
116	Thrusday	31.10.2024	**Holiday Diwali**	
117	Friday	01.11.2024	Academic Classes /Labs	
118	Saturday	02.11.2024	Academic Classes /Labs	
119	Sunday	03.11.2024	**SUNDAY**	
120	Monday	04.11.2024	Academic Classes /Labs	
121	Tuesday	05.11.2024	T&P	**II-I Placement Training**
122	Wednesday	06.11.2024	Academic Classes /Labs	
123	Thrusday	07.11.2024	T&P	**III-I Placement Training**
124	Friday	08.11.2024	Academic Classes /Labs	
125	Saturday	09.11.2024	Academic Classes /Labs	Webinar on“GENERATIVE AI TOOLS AND BUSINESS IMPACT” & "Guest Lecture on “Java Web Application Build and Deployment”
126	Sunday	10.11.2024	**SUNDAY**	

127	Monday	11.11.2024	Academic Classes /Labs (II MID Exams for IV B.TECH I-SEM)	II MID Exams for IV B.TECH I-SEM
128	Tuesday	12.11.2024	T&P	II MID Exams for IV B.TECH I-SEM & II-I Placement Training
129	Wednesday	13.11.2024	Academic Classes /Labs	II MID Exams for IV B.TECH I-SEM
130	Thrusday	14.11.2024	T&P	II MID Exams for IV B.TECH I-SEM & III-I Placement Training
131	Friday	15.11.2024	Academic Classes /Labs	II MID Exams for IV B.TECH I-SEM
132	Saturday	16.11.2024	Academic Classes /Labs	II MID Exams for IV B.TECH I-SEM
133	Sunday	17.11.2024	**SUNDAY**	
134	Monday	18.11.2024	Academic Classes /Labs (IV B.TECH-I SEM Preparation Holidays and Practical examination)	IV B.TECH-I SEM Preparation Holidays and Practical examination & DIWALI HOLIDAY
135	Tuesday	19.11.2024	**T&P**	IV B.TECH-I SEM Preparation Holidays and Practical examination & II-I Placement Training
136	Wednesday	20.11.2024	Academic Classes /Labs	IV B.TECH-I SEM Preparation Holidays and Practical examination
137	Thrusday	21.11.2024	**T&P**	IV B.TECH-I SEM Preparation Holidays and Practical examination & III-I Placement Training
138	Friday	22.11.2024	Academic Classes /Labs	IV B.TECH-I SEM Preparation Holidays and Practical examination
139	Saturday	23.11.2024	Academic Classes /Labs	IV B.TECH-I SEM Preparation Holidays and Practical examination
140	Sunday	24.11.2024	**SUNDAY**	
141	Monday	25.11.2024	Academic Classes /Labs	IV B.TECH-I SEM End semester & Supplementary Examinations

142	Tuesday	26.11.2024	**T&P**	IV B.TECH-I SEM End semester & Supplementary Examinations & II-I Placement Training
143	Wednesday	27.11.2024	Academic Classes /Labs	IV B.TECH-I SEM End semester & Supplementary Examinations
144	Thrusday	28.11.2024	**T&P**	IV B.TECH-I SEM End semester & Supplementary Examinations & III-I Placement Training
145	Friday	29.11.2024	Academic Classes /Labs	IV B.TECH-I SEM End semester & Supplementary Examinations
146	Saturday	30.11.2024	Academic Classes /Labs	IV B.TECH-I SEM End semester & Supplementary Examinations
147	Sunday	01.12.2024	**SUNDAY**	
148	Monday	02.12.2024	II MID Exams for III B.Tech I-Sem & II MID Exams for II B.Tech I-Sem	IV B.TECH-I SEM End semester & Supplementary Examinations
149	Tuesday	03.12.2024	II MID Exams for III B.Tech I-Sem & II MID Exams for II B.Tech I-Sem	IV B.TECH-I SEM End semester & Supplementary Examinations & III-I Placement Training
150	Wednesday	04.12.2024	II MID Exams for III B.Tech I-Sem & II MID Exams for II B.Tech I-Sem	IV B.TECH-I SEM End semester & Supplementary Examinations
151	Thrusday	05.12.2024	II MID Exams for III B.Tech I-Sem & II MID Exams for II B.Tech I-Sem	IV B.TECH-I SEMEnd semester & Supplementary Examinations & II-I Placement Training
152	Friday	06.12.2024	II MID Exams for III B.Tech I-Sem & II MID Exams for II B.Tech I-Sem	IV B.TECH-I SEM End semester & Supplementary Examinations
153	Saturday	07.12.2024	II MID Exams for III B.Tech I-Sem & II MID Exams for II B.Tech I-Sem	IV B.TECH-I SEM End semester & Supplementary Examinations
154	Sunday	08.12.2024	**SUNDAY**	

155	Monday	09.12.2024	Commencement of B.Tech class work IV-II	III B.TECH I-SEM & II B.TECH I-SEMPreparation Holidays and Practical examination
156	Tuesday	10.12.2024	III B.TECH I-SEM & II B.TECH I-SEMPreparation Holidays and Practical examination	
157	Wednesday	11.12.2024	III B.TECH I-SEM & II B.TECH I-SEMPreparation Holidays and Practical examination	
158	Thrusday	12.12.2024	III B.TECH I-SEM & II B.TECH I-SEMPreparation Holidays and Practical examination	
159	Friday	13.12.2024	III B.TECH I-SEM & II B.TECH I-SEMPreparation Holidays and Practical examination	
160	Saturday	14.12.2024	III B.TECH I-SEM & II B.TECH I-SEMPreparation Holidays and Practical examination	
161	Sunday	15.12.2024	**SUNDAY**	
162	Monday	16.12.2024	III B.TECH I-SEM End semester & Supplementary Examinations & II B.TECH I-SEM End semester & Supplementary Examinations	
163	Tuesday	17.12.2024	III B.TECH I-SEM End semester & Supplementary Examinations & II B.TECH I-SEM End semester & Supplementary Examinations	
164	Wednesday	18.12.2024	III B.TECH I-SEM End semester & Supplementary Examinations & II B.TECH I-SEM End semester & Supplementary Examinations	
165	Thrusday	19.12.2024	III B.TECH I-SEM End semester & Supplementary Examinations & II B.TECH I-SEM End semester & Supplementary Examinations	
166	Friday	20.12.2024	III B.TECH I-SEM End semester & Supplementary Examinations & II B.TECH I-SEM End semester & Supplementary Examinations	

167	Saturday	21.12.2024	III B.TECH I-SEM End semester & Supplementary Examinations & II B.TECH I-SEM End semester & Supplementary Examinations	
168	Sunday	22.12.2024	**SUNDAY**	
169	Monday	23.12.2024	III B.TECH I-SEM End semester & Supplementary Examinations & II B.TECH I-SEM End semester & Supplementary Examinations	
170	Tuesday	24.12.2024	III B.TECH I-SEM End semester & Supplementary Examinations & II B.TECH I-SEM End semester & Supplementary Examinations	
171	Wednesday	25.12.2024	**CHIRTSMAS HOLIDAY**	
172	Thrusday	26.12.2024	III B.TECH I-SEM End semester & Supplementary Examinations & II B.TECH I-SEM End semester & Supplementary Examinations	
173	Friday	27.12.2024	III B.TECH I-SEM End semester & Supplementary Examinations & II B.TECH I-SEM End semester & Supplementary Examinations	
174	Saturday	28.12.2024	III B.TECH I-SEM End semester & Supplementary Examinations & II B.TECH I-SEM End semester & Supplementary Examinations	
175	Sunday	29.12.2024	**SUNDAY**	
176	Monday	30.12.2024	**Next Semester Class work**	

ACADEMIC SCHEDULE FOR II,III,IV B.TECH II SEM

S.NO	DAY	DATE	ACTIVITY	REMARKS
1	Monday	09.12.2024	**Commencement of B.Tech class work IV-II**	
2	Tuesday	10.12.2024	Academic Classes /Labs	
3	Wednesday	11.12.2024	Academic Classes /Labs	
4	Thrusday	12.12.2024	Academic Classes /Labs	
5	Friday	13.12.2024	Academic Classes /Labs	
6	Saturday	14.12.2024	Academic Classes /Labs	
7	Sunday	15.12.2024	**SUNDAY**	
8	Monday	16.12.2024	Academic Classes /Labs	
9	Tuesday	17.12.2024	Academic Classes /Labs	
10	Wednesday	18.12.2024	Academic Classes /Labs	
11	Thrusday	19.12.2024	Academic Classes /Labs	
12	Friday	20.12.2024	Academic Classes /Labs	
13	Saturday	21.12.2024	Academic Classes /Labs	
14	Sunday	22.12.2024	**SUNDAY**	
15	Monday	23.12.2024	Academic Classes /Labs	
16	Tuesday	24.12.2024	Academic Classes /Labs	
17	Wednesday	25.12.2024	**CHIRTSMAS HOLIDAY**	
18	Thrusday	26.12.2024	Academic Classes /Labs	
19	Friday	27.12.2024	Academic Classes /Labs	
20	Saturday	28.12.2024	Academic Classes /Labs	
21	Sunday	29.12.2024	**SUNDAY**	
22	Monday	30.12.2024	**Commencement of B.Tech class work III-II & II-II**	
23	Tuesday	31.12.2024	Academic Classes /Labs	Fresher Day for First year
24	Wednesday	01.01.2025	**Holiday-New Year**	
25	Thrusday	02.01.2025	Academic Classes /Labs	
26	Friday	03.01.2025	Academic Classes /Labs	
27	Saturday	04.01.2025	Academic Classes /Labs	
28	Sunday	05.01.2025	**SUNDAY**	
29	Monday	06.01.2025	Academic Classes /Labs	
30	Tuesday	07.01.2025	Academic Classes /Labs	
31	Wednesday	08.01.2025	Academic Classes /Labs	
32	Thrusday	09.01.2025	Academic Classes /Labs	
33	Friday	10.01.2025	Academic Classes /Labs	Guest Lecture on " AI Tools " CSI Event for II Year
34	Saturday	11.01.2025	**Holiday-Makar Sankranti**	
35	Sunday	12.01.2025		

36	Monday	13.01.2025		
37	Tuesday	14.01.2025		
38	Wednesday	15.01.2025		
39	Thrusday	16.01.2025	Academic Classes /Labs	
40	Friday	17.01.2025	Academic Classes /Labs	
41	Saturday	18.01.2025	Academic Classes /Labs	
42	Sunday	19.01.2025	**SUNDAY**	
43	Monday	20.01.2025	Academic Classes /Labs	
44	Tuesday	21.01.2025	Academic Classes /Labs	
45	Wednesday	22.01.2025	Academic Classes /Labs	
46	Thrusday	23.01.2025	Academic Classes /Labs	
47	Friday	24.01.2025	Academic Classes /Labs	
48	Saturday	25.01.2025	Academic Classes /Labs	
49	Sunday	26.01.2025	**SUNDAY**	**Happy Republic Day**
50	Monday	27.01.2025	Academic Classes /Labs	
51	Tuesday	28.01.2025	Academic Classes /Labs	
52	Wednesday	29.01.2025	Academic Classes /Labs	Seminar conducting on Career oppurtunities
53	Thrusday	30.01.2025	Academic Classes /Labs	
54	Friday	31.01.2025	Academic Classes /Labs	
55	Saturday	01.02.2025	Academic Classes /Labs	Guest Lecture on "Performance Analysis of Classification Algorithms in Machine Learning"
56	Sunday	02.02.2025	**SUNDAY**	
57	Monday	03.02.2025	**Academic Classes /Labs (I MID Exams for IV B.Tech II-Sem)**	I MID Exams for IV-II
58	Tuesday	04.02.2025	Academic Classes /Labs	I MID Exams for IV-II
59	Wednesday	05.02.2025	Academic Classes /Labs	I MID Exams for IV-II
60	Thrusday	06.02.2025	Academic Classes /Labs	I MID Exams for IV-II
61	Friday	07.02.2025	Academic Classes /Labs	
62	Saturday	08.02.2025	Academic Classes /Labs	
63	Sunday	09.02.2025	**SUNDAY**	
64	Monday	10.02.2025	Academic Classes /Labs	
65	Tuesday	11.02.2025	Academic Classes /Labs	
66	Wednesday	12.02.2025	Academic Classes /Labs	
67	Thrusday	13.02.2025	Academic Classes /Labs	
68	Friday	14.02.2025	Academic Classes /Labs	Industrial Visit T Hub for III year Students

69	Saturday	15.02.2025	Academic Classes /Labs	Guest Lecture on Process of Innovation Development Technology Readiness Level(TRL),Commercialization of lab Technologies and Tech -Transfer
70	Sunday	16.02.2025	**SUNDAY**	
71	Monday	17.02.2025	Academic Classes /Labs	One week National Level Faculty Development Program on AI Tools for **faculty**
72	Tuesday	18.02.2025	Academic Classes /Labs	
73	Wednesday	19.02.2025	Academic Classes /Labs	
74	Thrusday	20.02.2025	Academic Classes /Labs	A Seminar Conducting on Overseas Education
75	Friday	21.02.2025	Academic Classes /Labs	Industrial Visit T works for II year Students
76	Saturday	22.02.2025	Academic Classes /Labs	
77	Sunday	23.02.2025	**SUNDAY**	
78	Monday	24.02.2025	Academic Classes /Labs (I MID Exams for III B.Tech II-Sem & II B.Tech - II Sem)	
79	Tuesday	25.02.2025	Academic Classes /Labs	
80	Wednesday	26.02.2025	**HOLIDAY MAHASHIVARATRI**	
81	Thrusday	27.02.2025	Academic Classes /Labs	
82	Friday	28.02.2025	Academic Classes /Labs	
83	Saturday	01.03.2025	Academic Classes /Labs	
84	Sunday	02.03.2025	**SUNDAY**	
85	Monday	03.03.2025	Academic Classes /Labs	
86	Tuesday	04.03.2025	Academic Classes /Labs	**I MID Exams for III B.Tech II-Sem & II B.Tech - II Sem**
87	Wednesday	05.03.2025	Academic Classes /Labs	**I MID Exams for III B.Tech II-Sem & II B.Tech - II Sem**
88	Thrusday	06.03.2025	Academic Classes /Labs	**I MID Exams for III B.Tech II-Sem & II B.Tech - II Sem**

89	Friday	07.03.2025	Academic Classes /Labs	**I MID Exams for III B.Tech II-Sem & II B.Tech - II Sem & 7th IEEE International conference on Empowering Gen Alpha & Beta : AI Driven Educational Systems for Faculty**
90	Saturday	08.03.2025	Academic Classes /Labs	**I MID Exams for III B.Tech II-Sem & II B.Tech - II Sem**
91	Sunday	09.03.2025	**SUNDAY**	
92	Monday	10.03.2025	Academic Classes /Labs	
93	Tuesday	11.03.2025	Academic Classes /Labs	
94	Wednesday	12.03.2025	Academic Classes /Labs	
95	Thrusday	13.03.2025	Academic Classes /Labs	
96	Friday	14.03.2025	**HOLIDAY HOLI**	
97	Saturday	15.03.2025	Academic Classes /Labs	
98	Sunday	16.03.2025	**SUNDAY**	
99	Monday	17.03.2025	Academic Classes /Labs	
100	Tuesday	18.03.2025	Academic Classes /Labs	
101	Wednesday	19.03.2025	Academic Classes /Labs	
102	Thrusday	20.03.2025	Academic Classes /Labs	
103	Friday	21.03.2025	Academic Classes /Labs	
104	Saturday	22.03.2025	Academic Classes /Labs	
105	Sunday	23.03.2025	**SUNDAY**	
106	Monday	24.03.2025	Academic Classes /Labs	
107	Tuesday	25.03.2025	Academic Classes /Labs	
108	Wednesday	26.03.2025	Academic Classes /Labs	
109	Thrusday	27.03.2025	Academic Classes /Labs	
110	Friday	28.03.2025	Academic Classes /Labs	
111	Saturday	29.03.2025	Academic Classes /Labs	
112	Sunday	30.03.2025	**SUNDAY/ HOLIDAY UGADI**	
113	Monday	31.03.2025	**HOLIDAY RAMZAN EID UL FITR**	
114	Tuesday	01.04.2025	Academic Classes /Labs	
115	Wednesday	02.04.2025	Academic Classes /Labs	
116	Thrusday	03.04.2025	Academic Classes /Labs	
117	Friday	04.04.2025	Academic Classes /Labs	II MID Exams for IV B.TECH II-SEM
118	Saturday	05.04.2025	Academic Classes /Labs	II MID Exams for IV B.TECH II-SEM

119	Sunday	06.04.2025	**SUNDAY /Holiday-Rama Navami**	
120	Monday	07.04.2025	Academic Classes /Labs	II MID Exams for IV B.TECH II-SEM
121	Tuesday	08.04.2025	Academic Classes /Labs	II MID Exams for IV B.TECH II-SEM
122	Wednesday	09.04.2025	Academic Classes /Labs	Preparation Holidays and Project Evaluation IV-II
123	Thrusday	10.04.2025	Academic Classes /Labs	Preparation Holidays and Project Evaluation IV-II
124	Friday	11.04.2025	Academic Classes /Labs	Preparation Holidays and Project Evaluation IV-II
125	Saturday	12.04.2025	Academic Classes /Labs	Preparation Holidays and Project Evaluation IV-II
126	Sunday	13.04.2025	**SUNDAY**	
127	Monday	14.04.2025	**Holiday - Ambedkar Jayanthi**	
128	Tuesday	15.04.2025	Academic Classes /Labs	
129	Wednesday	16.04.2025	Academic Classes /Labs	IV B.TECH -II SEM End semester & Supplementary Examinations
130	Thrusday	17.04.2025	Academic Classes /Labs	IV B.TECH -II SEM End semester & Supplementary Examinations
131	Friday	18.04.2025	Holiday-Good Friday	
132	Saturday	19.04.2025	Academic Classes /Labs	IV B.TECH -II SEM End semester & Supplementary Examinations
133	Sunday	20.04.2025	**SUNDAY**	
134	Monday	21.04.2025	Academic Classes /Labs	IV B.TECH -II SEM End semester & Supplementary Examinations
135	Tuesday	22.04.2025	Academic Classes /Labs	IV B.TECH -II SEM End semester & Supplementary Examinations
136	Wednesday	23.04.2025	Academic Classes /Labs	IV B.TECH -II SEM End semester & Supplementary Examinations
137	Thrusday	24.04.2025	Academic Classes /Labs	IV B.TECH -II SEM End semester & Supplementary Examinations
138	Friday	25.04.2025	Academic Classes /Labs	IV B.TECH -II SEM End semester & Supplementary Examinations

139	Saturday	26.04.2025	Academic Classes /Labs	IV B.TECH -II SEM End semester & Supplementary Examinations
140	Sunday	27.04.2025	**SUNDAY**	
141	Monday	28.04.2025	**I MID Exams for III B.Tech II-Sem & II B.Tech - II Sem**	IV B.TECH -II SEM End semester & Supplementary Examinations
142	Tuesday	29.04.2025	**I MID Exams for III B.Tech II-Sem & II B.Tech - II Sem**	IV B.TECH -II SEM End semester & Supplementary Examinations
143	Wednesday	30.04.2025	**I MID Exams for III B.Tech II-Sem & II B.Tech - II Sem**	IV B.TECH -II SEM End semester & Supplementary Examinations
144	Thrusday	01.05.2025	**I MID Exams for III B.Tech II-Sem & II B.Tech - II Sem**	
145	Friday	02.05.2025	**I MID Exams for III B.Tech II-Sem & II B.Tech - II Sem**	
146	Saturday	03.05.2025	**I MID Exams for III B.Tech II-Sem & II B.Tech - II Sem**	
147	Sunday	04.05.2025	**SUNDAY**	
148	Monday	05.05.2025	**SUMMER VACCATION**	
149	Tuesday	06.05.2025		
150	Wednesday	07.05.2025		
151	Thrusday	08.05.2025		
152	Friday	09.05.2025		
153	Saturday	10.05.2025		
154	Sunday	11.05.2025		
155	Monday	12.05.2025		
156	Tuesday	13.05.2025		
157	Wednesday	14.05.2025		
158	Thrusday	15.05.2025		
159	Friday	16.05.2025		
160	Saturday	17.05.2025		
161	Sunday	18.05.2025		
162	Monday	19.05.2025		
163	Tuesday	20.05.2025		
164	Wednesday	21.05.2025		
165	Thrusday	22.05.2025		
166	Friday	23.05.2025		
167	Saturday	24.05.2025		
168	Sunday	25.05.2025		
169	Monday	26.05.2025		

170	Tuesday	27.05.2025		
171	Wednesday	28.05.2025		
172	Thrusday	29.05.2025		
173	Friday	30.05.2025		
174	Saturday	31.05.2025		
175	Sunday	01.06.2025	**SUNDAY**	
176	Monday	02.06.2025	III B.TECH II-SEM & II B.TECH II-SEM Preparation Holidays and Practical examination	
177	Tuesday	03.06.2025	III B.TECH II-SEM & II B.TECH II-SEM Preparation Holidays and Practical examination	
178	Wednesday	04.06.2025	III B.TECH II-SEM & II B.TECH II-SEM Preparation Holidays and Practical examination	
179	Thrusday	05.06.2025	III B.TECH II-SEM & II B.TECH II-SEM Preparation Holidays and Practical examination	
180	Friday	06.06.2025	III B.TECH II-SEM & II B.TECH II-SEM Preparation Holidays and Practical examination	
181	Saturday	07.06.2025	**HOLIDAY BAKRI EID**	
182	Sunday	08.06.2025	**SUNDAY**	
183	Monday	09.06.2025	**III B.TECH II-SEM & II B.TECH II-SEM End semester & Supplementary Examinations**	
184	Tuesday	10.06.2025	**III B.TECH II-SEM & II B.TECH II-SEM End semester & Supplementary Examinations**	
185	Wednesday	11.06.2025	**III B.TECH II-SEM & II B.TECH II-SEM End semester & Supplementary Examinations**	
186	Thrusday	12.06.2025	**III B.TECH II-SEM & II B.TECH II-SEM End semester & Supplementary Examinations**	
187	Friday	13.06.2025	**III B.TECH II-SEM & II B.TECH II-SEM End semester & Supplementary Examinations**	
188	Saturday	14.06.2025	**III B.TECH II-SEM & II B.TECH II-SEM End semester & Supplementary Examinations**	
189	Sunday	15.06.2025	**SUNDAY**	
190	Monday	16.06.2025	**III B.TECH II-SEM & II B.TECH II-SEM End semester & Supplementary Examinations**	

191	Tuesday	17.06.2025	**III B.TECH II-SEM & II B.TECH II-SEM End semester & Supplementary Examinations**	
192	Wednesday	18.06.2025	**III B.TECH II-SEM & II B.TECH II-SEM End semester & Supplementary Examinations**	
193	Thrusday	19.06.2025	**III B.TECH II-SEM & II B.TECH II-SEM End semester & Supplementary Examinations**	
194	Friday	20.06.2025	**III B.TECH II-SEM & II B.TECH II-SEM End semester & Supplementary Examinations**	
195	Saturday	21.06.2025	**III B.TECH II-SEM & II B.TECH II-SEM End semester & Supplementary Examinations**	
196	Sunday	22.06.2026	**SUNDAY**	
197	Monday	23.06.2025	**Commencement of B.Tech class work Next Academic year 2025-26**	

REVISED EVENT PLANNER

S.No	DATE	Events of type	NAME OF THE EVENT	RESOURCE PERSON
1	17/06/2024 to 22/06/2024 (6 Days)	FDP	Faculty Development Program (FDP) Report on "Generative AI"	**Mr. V Shankar & V**
2	07.08.2024	WEBINAR	Webinar Report On "Introduction to IPR & Computer Related Inventions(CRIs) "	**Mr. Sankar V**
3	14.09.2024	WEBINAR	Webinar Report On "The Future of Java: What Developer Needs to Know"	**Mr. Shrikanth Racharla**
4	09.11.2024	WEBINAR	Webinar Report On "GENERATIVE AI TOOLS AND BUSINESS IMPACT"	**Mr. Sharath Babu**
5	22.06.2024	Guest Lecture	Guest Lecture on Building CGI Applications using Python	**Mr. Sagar M**
6	17.08.2024	Guest Lecture	Guest Lecture On Logic and Knowledge Representation in AI	**Dr.Rajesh Kumar Verma**
7	09.11.2024	Guest Lecture	Guest Lecture on "Java Web Application Build and Deployment"	**Mr. Sathish Kumar Katakam**
8	10.09.2024	Industrial Visit	Industrial Visit Report –BRAHMOS AEROSPACE, Hyderabad	–
9	29.10.2024	Industrial Visit	Industrial Visit Report – NRSC	–

10	**13.11.2024**	**Workshop**	**Workshop on Enterpreneurship and**	**Dr. P Bhanu Sireesha**
			Innovation as a Career Opportunity	
11	12.11.2024	Workshop	Workshop on Mega Generative AI Workshop	**Mr. Prashanth Ravichandran**
12	16.09.2024 to 20.09.2024	STTP	STTP on Cryptography and Network Security	**NITTTR, Chandigarh**
13	19.10.2024 to 20.10.2024	CONFERENCE	6th IEEE International conference on Cybernetics,Cognition & Machine Learning Application, Germany	**Dr Jacek Maciej Zurada,**
14	02/12/2024 to 22/12/2024	STTP	National Level Short-Term Training Program on JAVA Full Stack with React JS & AI	**Dr.Buddha Chandrashekar**
15	10-01-2025	Guest Lecture	GUEST LECTURE on "ARTIFICIAL INTELLIGENCE TOOLS"	**Mr Venkata Sai D**
16	29-01-2025	SEMINAR	Seminar Conducting on Carrer Oppurtunities	**Mr. Vijay Saradhy**
17	01-02-2025	Guest Lecture	Guest Lecture on "Performance Analysis of Classification Algorithms in Machine Learning"	**Dr.K.Adi Narayana Reddy**
18	17-02-2025	Industrial Visit	Industrial Visit Report – T-Hub(CSI)	
19	20-02-2025	SEMINAR	A seminar Conducting on Overseas Education	**A Sreekanth**
20	21-02-2025	Industrial Visit	Industrial Visit Report T-Works.	
21	17-02-2025 to 21-02-2025	FDP	One Week National Level FDP on AI Tools	**Online mode**

22	21-02-2025	Guest Lecture	Guest Lecture on Process of Innovation Development ,Technology Readiness Level(TRL),Commercialization of lab Technologies and Tech Transfer	Mr Manoj Kumar Bada Ghar wala
23	07-03-2025 to 08-03-2025	CONFERENCE	7th IEEE International conference on Empowering Gen Alpha & Beta : AI Driven Educational Systems	1.Dr. Gaurav Kapoor2. Dr Pankaj Sharma 3. Dr Anil kumar 4.Dr S K Gupta 5.Dr Sucheta singh

8. LIST OF SUBJECTS

S.NO	List of Subjects
1	SE
2	PP
3	ADE
4	BEFA
5	COSM
6	ES

9. SUBJECT PLANNERS

ACADEMIC PLANNER

OPERATING SYSTEMS

(1) Preamble/Introduction

This course teaches the basic operating system abstractions, mechanisms, and their implementations. The core of the course contains concurrent programming (threads and synchronization), inter process communication, and an introduction to distributed operating systems.

(2) Prerequisites

1. A Course on "C Programming/programming problem solving".
2. A Course on "Computer Organization and Architecture".

(3) Objectives

- Introduce operating system concepts (i.e., processes, threads, scheduling, synchronization, deadlocks, memory management, file and I/O subsystems and protection)
- Introduce the issues to be considered in the design and development of operating system.
- Introduce basic Unix commands, system call interface for process management, inter-process communication and I/O in Unix

Course Outcomes: -

CO.1	The student will be able to **remember** the operating systems concepts, types of operating systems, system class, etc
CO.2	**Understand** and be able to **Explain** the CPU Scheduling algorithms and Deadlock handling methods.
CO.3	**Explain** and **Remember** the Memory management techniques and virtual memory such as Paging, Segmentation, Demand, Paging, and Page Replacement Algorithms.
CO.4	**Explain** file system interfaces and operations and recall the basic commands/ functions of Unix operating systems.
CO.5	Will be able to Understand and Remember the processes of synchronization, Semaphores, and Classical Problems of Synchronization

SYLLABUS:-

UNIT –I

Operating System –Introduction Structures - Simple Batch, Multi-programmed, Time-shared, Personal Computer, Parallel, Distributed Systems, Real-Time Systems, System components, Operating System services, System Calls.

Process - Process concepts and scheduling, Operations on processes, Cooperating Processes, Threads.

UNIT - II

CPU Scheduling -Scheduling Criteria, Scheduling Algorithms, Multiple -Processor Scheduling.

System call interface for process management-fork, exit, wait, waitpid, exec.

Deadlocks - System Model, Deadlocks Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, and Recovery from Deadlock.

UNIT - III

Process Management and Synchronization - The Critical Section Problem, Synchronization Hardware, Semaphores, and Classical Problems of Synchronization, Critical Regions, Monitors.

Inter-process Communication Mechanisms: IPC between processes on a single computer system, IPC between processes on different systems, using pipes, FIFOs, message queues, shared memory.

UNIT - IV

Memory Management and Virtual Memory - Logical versus Physical Address Space, Swapping, Contiguous Allocation, Paging, Segmentation, Segmentation with Paging, Demand Paging, Page Replacement, Page Replacement Algorithms.

UNIT - V

File System Interface and Operations -Access methods, Directory Structure, Protection, File System Structure, Allocation methods, Free-space Management. Usages of open, create, read, write, close, lseek, stat, ioctl system calls.

(4.2) SYLLABUS – GATE

1. System calls
2. Scheduling algorithms
3. Deadlocks, semaphores, bankers algorithm
4. Page replacement algorithms.

(5) List of Expert Details:-

INTERNATIONAL

1. Avi Silberschatz professor of computer science at yale university Office: Watson, Room 308 Phone: (203) 432-4713 Fax: (203) 436-4918 Email: avi@yale.edu.
2. Robert Soule Department of computer science at yale university, Prospect Street, Room 206 New Haven, CT, 06511 U.S.A. +1 (203) 432-1215 robert.soule@yale.edu.
3. Abhishek Bhattacharjee, Associate Professor of Computer Science at yale university Abhishek [at] cs.yale.edu

NATIONAL

1. Dr.D. Janakiram Professor, Department of CSE, IIT Madras
Email: djram@cse.iitm.ac.in.

2. Dr.C.Mala, Professor Room No.:203, Department of Computer Science and Engineering, National Institute of Technology, Tiruchirappalli.
Email:mala@nitt.edu

3. Dr.S.Valli Professor& Head Department of CSE Anna University, Chennai.
Email: svalli@cs.annauniv.edu.

REGIONAL

1. Dr.A. Govardhan, Prof,Department of CSE in JNTU-HYDERABAD
2. Dr.M.Bhaskar, Assoc.Prof, Department of CSE, in MLRITM –HYERABAD.
   MOB.NO-9703333896.
3. Mr.P.Shashank , Asst.Professor, BVRIT - Hyderabad

(6)JOURNALS

INTERNATIONAL

1. **TITLE:** A HAL for component-based embedded operating systems

   AUTHORS:QIMING TENG,HUA WANG,XIANGQUN CHEN
   LINK: HTTPS://IEEEXPLORE.IEEE.ORG/DOCUMENT/1508073/AUTHORS

2 **TITLE:** Smart Round Robin CPU Scheduling Algorithm For Operating Systems
AUTHORS: Samkit Mody, Sulalah Mirkar
LINK: https://ieeexplore.ieee.org/document/9114602

3 **TITLE:** Deadlocks in different operating systems
AUTHORS: Helidon Karcanaj,Edra Bumci,Igli Tafa,Julian Fejaz

LINK: **https://ieeexplore.ieee.org/abstract/document/7113559**

4. **TITLE:** The study and improvement of memory management based on SOS

AUTHORS: FUQING WU, MAX Q-H MENG,LINGFEI WU,ZHUANCHENG ZHANG,XIJUN CHEN

LINK: **HTTPS://IEEEXPLORE.IEEE.ORG/DOCUMENT/4913315/AUTHORS#AUTHORS**

5. **TITLE:** File system design for educational operating system

AUTHORS: CHANGWEI CHEN,BO QU

LINK: **HTTPS://IEEEXPLORE.IEEE.ORG/DOCUMENT/6526223**

ACADEMIC PLANNER

Subject: Software Engineering

S.NO		CONTENT
(1)	-	**Preamble/Introduction**
(2)	-	**Prerequisites**
(3)	-	**Objectives and Outcomes**
(4)	-	**Syllabus** **1. JNTU/R20-CMREC** **2. GATE** **3. IES**
(5)	-	**List of Expert Details**(Local/National/International with Contact details/Profile link/Blogs/their research Contribution towards the subject)
(6)	-	**Journals with min 5 ref paper for literature study**
(7)	-	**Subject -Lesson plan**
(8)	-	**Suggested Books (**prescribed and References)
(9)	-	**Websites for self learning Resources like** *www.geeksforgeeks.org, www.schools.com, Coursera,edX, Udemy, Khan Academy*, NPTEL etc along Registration procedures*)*
(10)	-	**Question Banks** **1. JNTUH/Model papers** **2. GATE**
(11)	-	**Two case study presentations with Project / Product/ Model /prototypes/ Industrial applications.**
(12)	-	**Assignment Question/Innovative Assignments sets.**
(13)	-	**List of topics for students Seminars with Guidelines**
(14)	-	**STEP/Course material in softcopy**
(15)	-	**Expert Lectures with topics &Schedules (if any)**

(1) INTRODUCTION

Software Engineering provides a standard procedure to design and develop software. By studying this subject, a student can understand certain topics of Software Engineering like Software Engineering Models, Software Development Life Cycle, Requirement Engineering, Software Design tools, Software Project Management, Software Testing approaches, Quality Assurance Vs. Quality control.

(2) PREREQUISITES

Awareness about software systems, software development process and computer fundamentals would be beneficial.

(3) Course Objectives & outcomes:

Course Objectives:

- The aimofthe course is to provide an understanding ofthe working knowledge ofthetechniquesforestimation,design,testingandqualitymanagementoflargesoftwaredevelopmentprojects.
- Topics include process models, software requirements, software design, software testing,softwareprocess/productmetrics, riskmanagement, qualitymanagementandUMLdiagrams

Course Outcomes:

- Ability to understand generic view of process, and types of software process models.
- Abilitytotranslateend-userrequirementsintosystemandsoftwarerequirements,usinge.g.UML,andstructuretherequirementsina SoftwareRequirementsDocument(SRD).
- Identifyandapplyappropriatesoftwarearchitecturesandpatternstocarryouthighleveldesignofa systemand beableto critically compare alternativechoices.
- Willhaveexperienceand/orawarenessoftestingproblemsandwillbeabletodevelopasimpletestingreport.
- Ability to understand quality control and how to ensure good quality software.

(4) SYLLABUS

UNIT-1

OBJECTIVES

- Fundamental concepts of software, software engineering
- Objectives of software engineering
- Categories of software
- Challenges in software engineering and
- Basic concepts of process and process models.
- Various generic process models along with their merits and demerits and applicability.

SYLLABUS

Introduction to Software Engineering: The evolving role of software, Changing Nature of Software, legacy software, Software myths.

A Generic view of process: Software engineering- a layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

Process models: The waterfall model, Incremental process models, Evolutionary process models, specialized process models, The Unified process.

UNIT – II

OBJECTIVES

- The concept of user and fundamental requirements.
- Functional and non functional requirements and
- How software requirements may be organized in requirements documents
- Requirements engineering process
- System models

SYLLABUS

Software Requirements: Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

Requirements engineering process: Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.

System models: Context Models, Behavioral models, Data models, Object models, structured methods.

UNIT - III

OBJECTIVES

- This unit provides the design process and design quality to develop a quality product
- Understand the concept of software architecture.
- conceptualmodelofUML

SYLLABUS

Design Engineering: Design process and design quality, design concepts, the design model.

Creatinganarchitecturaldesign:softwarearchitecture,datadesign,architecturalstylesandpatterns,architecturaldesign,conceptualmodelofUML,basicstructuralmodeling,classdiagrams,sequencediagrams,collaboration diagrams,usecase diagrams,componentdiagrams.

UNIT - IV

OBJECTIVES

- Testing strategies
- Preparation of test cases
- White box testing, black box testing
- Verification and validation
- Software quality

SYLLABUS

TestingStrategies: Astrategicapproachtosoftwaretesting,teststrategiesforconventionalsoftware,black-boxandwhite-box testing,validationtesting,system testing,theartofdebugging.
Product metrics: Software quality, metrics for analysis model, metrics for design model, metricsforsourcecode,metrics for testing,metrics for maintenance.

UNIT – V

OBJECTIVES

- Process metrics and software process improvement
- Risk analysis and management process.
- The focus of this unit is quality. In this we will understand some fundamental Aspects of quality such a quality concept, quality assurance and software reliability and quality standard ISO 9000.

SYLLABUS

Metrics for Process and Products: Software measurement, metrics forsoftware quality.

Risk management : Reactive V s proactive risk strategies, software risks, risk identification, risk projection, risk refinement, RMMM, RMMM plan.

Quality Management: Quality concepts, software quality assurance, software reviews formal technical reviews, statistical software quality assurance, software reliability, the ISO9000 quality standards.

TEXT BOOKS

1. Software Engineering, A practitioner's Approach-Roger S.Pressman,6th edition, McGraw Hill International Edition.
2. Software Engineering- Sommerville,7th edition, Pearson Education.
3. The unified modeling language userguide GradyBooch ,James Rambaugh, IvarJacobson,PearsonEducation.

REFERENCEBOOKS:

1. Software Engineering, an Engineering approach-James F.Peters, Witold Pedrycz, JohnWiley.
2. SoftwareEngineeringprinciplesandpractice-WamanSJawadekar,TheMcGraw-HillCompanies.
3. Fundamentals of object-oriented design using UML Meilerpage-Jones: Pearson Education.

SUBJECT Useful Links

1. https://ocw.mit.edu/courses/aeronautics-and-astronautics/16-355j-software-engineering-concepts-fall-2005/lecture-notes/cnotes2.pdf
2. https://ocw.mit.edu/courses/aeronautics-and-astronautics/16-355j-software-engineering-concepts-fall-2005/lecture-notes/cnotes7.pdf

(4.2) SYLLABUS – GATE

- Information gathering
- Requirement and feasibility analysis
- Data flow diagrams
- Process specifications
- Input/output design
- Process life cycle
- Planning and managing the project
- design, coding, testing, implementation, maintenance

(4.3) SYLLABUS - IES

NOT APPLICABLE

5. EXPERT DETAILS

INTERNATIONAL

1. **Timothy Christian Lethbridge**
   Professor of Computer Science and Software Engineering at University of Ottawa
   Dr. Lethbridge is a Professional Engineer, and also an Information Systems Professional. He is a senior member of the IEEE, a senior member of the ACM and a fellow of CIPS.

https://www.linkedin.com/in/tclethbridg

2. **Giuliano Antoniol**

   Prof at Ecole Polytechnique Montreal, Quebec, Canada
   Giuliano Antoniol is professor of Software Engineering in the Department of Computer and Software Engineering of the Polytechnique Montréal. His research interest include software traceability, traceability recovery and maintenance, software evolution, empirical software engineering, search based software engineering, and software testing.

https://ca.linkedin.com/in/giuliano-antoniol-a729b15

NATIONAL

1. Pankaj Jalote, Professor , CSE Dept, IIT Delhi

   Contact:

   Phone: 011-26907499
   Email: jalote@iiitd.ac.in
   Website: http://faculty.iiitd.ac.in/~jalote/
   Office: A-705 (R&D Block)

2. **Dr. Partha Pratim Das (PPD)**

Professor, Dept. of CSE; Jt-PI, NDL Project; IIT Kharagpur; Editor-in-Chief, IEIB
https://in.linkedin.com/in/ppdas

REGIONAL

1. Dr.Mohammad Miskeen Ali ,Associate Professor, CSE Dept, Guru Nanak institute of Technology.
   https://in.linkedin.com/in/mohammed-miskeen-ali-42b55b35
2. Dr. Abdul Bari, HOD CSE, ISL, Bandlaguda.
   https://in.linkedin.com/in/dr-abdul-bari-mohammed-a860aa10
3. Name: A.Lalitha,
   E-Mail: a.lalitha@gmail.com
   Contact No:7799874563
   Address: Vellore Institute of Technology(VIT-Chennai)
4. Mr.G.Lingam, Associate Professor, Dept in CSE, Narsimha Reddy Engineering College
   E-mail: lingam.g@gmail.com
   Contact no: 7013748176

6. Journals with min 5 ref paper for literature study

1. https://ieeexplore.ieee.org/document/1674590
2. http://ijarcsms.com/docs/paper/volume4/issue2/V4I2-0019.pdf
3. https://www.irjet.net/archives/V3/i3/IRJET-V3I301.pdf
4. 7-5-94-101.pdf (ijcsi.org)

7. SUBJECT (LESSON) PLAN

S.No	Topic (JNTU syllabus)	Sub-Topic	No.of Lectures	Suggested Books	Remarks
1	**UNIT-I Introduction to Software Engineering & Generic view of process, Process models**	Introduction to Software Engineering & Generic view of process, Process models	L1	T1 T2,R1	M1
2		Evolving Role of Software, Changing nature of software	L2	T1 T2	M1
3		Software myths	L3	T1,R1	M1
4		A Generic view of process: Software engineering- a layered technology, A process framework	L4	T1	M4(ppt)
5		The Capability Maturity Model Integration (CMMI)	L5	T1 T2,R2	M1
6		Process Patterns, Process Assessments,	L6	T1	M1
7		Personal and team process models	L7	T1	M1
8		Water fall model.	L8	T1,R1	M1
9		Incremental Process model	L9	T1	M1
10		Evolutionary Process models	L10	T1	M2
11		Specialized process models	L11	T1 T2	M4(ppt)
12		Unified Process model	L12	T1 T2,R3	M1
		TOTAL	**12**		

13	**UNIT-II Software Requirements, Requirements engineering process& System models**	Functional and non-Functional Requirements	L13	T2,R2	M1
14		User's requirements, System requirements	L14	T2,R1	M1
15		Feasibility Study, Requirements elicitation and Analysis.	L15	T2	M1,M2
16		Requirements validation, Requirements management	L16	T1 T2,R2	M1
17		Context models	L17	T1	M2
18		Behavioral model	L18	T1 T2	M1
19		Data model, object model, Structured models	L19	T1 T2,R1	M1
		TOTAL	**7**		
20	**UNIT-III Design Engineering & Creating an Architectural design**	Design Engineering: Design Process and design quality	L20	T1	M1
21		Design concepts and design model	L21	T1	M1
22		Creating an Architectural design: Software architecture, data design	L22	T1,R1	M1
23		Architectural styles and pattern, Architectural Design	L23	T1	M1
24		Conceptual model of UML	L24	T1	M1
25		Basic structural modeling,	L25		
26		Class diagrams,	L26	T1	M1
27		sequence diagrams	L27		
28		Collaboration diagrams,	L28	T1,R1,R3	M4(ppt)
29		Use case diagrams	L29	T1	M4(ppt)
30		Component diagram	L30	T1	M1
		TOTAL	**11**		
31	**UNIT-IV Testing Strategies &**	**Testing Strategies:** AStrategic approach to software testing	L31	T1,R2,R3	M1
32		Testing strategy for conventional software	L32	T1 T2	M4(ppt)
33		Black box Testing and White box Testing	L33	T1 T2	M1

	Product metrics				
34		Validation testing, system testing,	L34	T1 T2,R1	M1
35		The art of debugging	L35	T1	M4(ppt)
36		Product metrics: Software Quality,	L36	T1 T2.R1	M1
37		metrics for analysis model	L37	T1 T2,R2	M1,M2
38		Metrics for design model, metrics for source code	L38	T1 T2,R1,R3	M1
39		Metrics for testing,	L39	T1 T2,R1	M1
40		Metrics for maintenance	L40	T1	M4(ppt)
		TOTAL	**10**		
41	**UNIT-V** **Metrics for Process and Products ,Risk Management,** **Quality management**	Metrics for Process and Products: Software Measurement, Metrics for Software quality	L41	T1,R1	M1
42		Risk Management: Reactive Vs proactive risk strategies	L42	T1 T2	M4(ppt)
43		Software risks, Risk identification	L43	T1 T2,R1	M2
44		Risk projection, Risk refinement	L44	T1	M1
45		RMMM, RMMM Plan	L45	T1	M1
46		Quality management: Quality concepts, Software quality assurance	L46	T1,R2	M1
47		Software Reviews, Formal technical reviews	L47	T1 T2,R1	M1
48		Statistical Software quality Assurance,	L48	T1 T2,R1	M1
49		Software reliability,	L49	T1	M4(ppt)
50		The ISO 9000 quality standards	L50	T1	M1
		TOTAL	**50**		

NOTE: 1. Any Subject in a Semester is suppose to be completed in 55 to 65 periods.

2. Each Period is of 50 minutes.

3. Each unit duration & completion should be mentioned in the Remarks Column.

4. List of Suggested books can be marked with Codes like T1, T2, R1, R2 etc.

8. SUGGESTED BOOKS

TEXT BOOKS

1. SoftwareEngineering,Apractitioner'sApproach-RogerS.Pressman,6th edition,McGrawHillInternationalEdition.
2. SoftwareEngineering- Sommerville,7th edition,PearsonEducation.
3. Theunifiedmodelinglanguageuserguide GradyBooch,JamesRambaugh,IvarJacobson,PearsonEducation.

REFERENCE BOOKS:

1. SoftwareEngineering,anEngineeringapproach-JamesF.Peters,WitoldPedrycz,JohnWiley.
2. SoftwareEngineeringprinciplesandpractice-WamanSJawadekar,TheMcGraw-HillCompanies.
3. Fundamentalsofobject-orienteddesignusingUMLMeilerpage-Jones: PearsonEducation

9. Websites for self learning Resources:

1. https://www.coursera.org/learn/software-processes
2. https://nptel.ac.in/courses/106/105/106105182/
3. https://www.tutorialspoint.com/sdlc/sdlc_waterfall_model.htm
4. https://www.geeksforgeeks.org/software-engineering-architectural-design/
5. https://www.guru99.com/white-box-testing.html
6. https://www.javatpoint.com/black-box-testing

10. QUESTION BANK

Unit-I

1. Elaborate on evolution of software
2. Discuss the attributes of a good software
3. What is CASE? Discuss different types of it.
4. How software engineering is different from hardware engineering?
5. What is CMM? Discuss how various maturity levels of CMM can be measured?
6. Discuss various process maturity levels. Also discuss various KPAs that must be achieved in each level.
7. Discuss the major problems with Capability Maturity Model
8. Explain about capability assessment process
9. Explain the five software process assessment principles
10. Discuss about various phases of assessment
11. A) Explain about classic life cycle model.
    B) What is linear sequential model? Discuss the problems encountered in it.
12. Describe the incremental software development process model
13. Illustrate on RAD process model.
14. Discuss bout prototyping model. Explain it's merits and demerits.
15. Describe the elements of concurrent process model
16. Discuss various evolutionary software process models in detail
17. Explain the unified approach to software development. Discuss the merits and demerits of this approach.

Unit-II

1. Discuss various techniques for requirements elicitation and analysis
2. What are non-functional requirements? Explain the classification
3. Define brainstorming. Explain where it is used with an example.
4. What are viewpoint and service template forms? Explain why they are used.
5. Define a scenario. Write a sample use-case scenario for an article downloading in the library system.
6. Discuss an example of a type of system where social and political factors might strongly influence the system requirements. Explain why these factors are important in your example?
7. What is requirements management? Why is it needed?
8. What is object models with examples

Unit-III

1. Discuss the statement abstraction and refinement are complementary concepts
2. Discuss the advantages and disadvantages of modularization
3. Why should we not over modularize? How would you decompose a software solution to obtain the best set of modules?
4. Define refactoring. Explain its intent. Also explain the advantages and disadvantages of it.
5. Define design class. Describe their purpose. Explain different types of it.
6. Define and explain about coupling and cohesion. Also differentiate between them.
7. What is software architecture? Why is it important?
8. What is meant by transform mapping? Explain the steps involved in mapping data flow diagrams into an architecture.
9. Discuss the design principles that reduce user's memory in user interface
10. State and explain the different models that come into play when a user interface is to be analyzed and designed
11. What are the goals of the user interface design
12. What is meant by user interface? What are the three areas that user interface design focuses? Explain them
13. Explain about user interface analysis
14. State some examples that illustrates why response time variability of user interface can be an issue

Unit-IV

1. List some of the problems that might be associated with the creation of an independent test group
2. The software analysis and design are constructive tasks and software testing is considered to be destructive from the point of view of developer. Discuss
3. What is the overall strategy for software testing? Explain it clearly.
4. Discuss a testing strategy for object-oriented architectures
5. Why is a highly coupled module is difficult to unit testing?
6. What is meant by bottom-up integration test? Explain how it is implemented.
7. Bottom-up integration eliminates the need for complex stubs. Discuss
8. Describe the difference between process and project metrics in your own words
9. Discuss about software tools for project and process metrics
10. What is an indirect measure? And how are such measures common in software metrics work?
11. Explain the size-oriented metrics with an example
12. Discuss the relationship between lines of code and function points
13. What is object oriented metrics and how it is different from LOC and FP metrics?
14. Distinguish between metrics and measurements

Unit-V

1. Discuss the importance of quality assurance
2. What is software quality control
3. What is meant by SQA? Discuss in detail SQA activities
4. Discuss in detail the defect amplification with reviews and without reviews
5. Discuss in detail about Formal Technical Reviews(FTR) performed by software engineers
6. When will be the formal technical reviews are conducted? And what re its objectives?
7. What is meant by software reliability? Discuss the measures of it.
8. Discuss about ISO 9000 quality standards.
9. Discuss the seven principles of risk management which were identified by SEI

1. JNTUH MODEL PAPERS

SE.rar

(11) <u>Two Case Study Presentations With Project / Product/ Model /Prototypes/ Industrial Applications</u>

1. ATTENDANCE MANAGEMENT SYSTEM (CASE STUDY)

Problem Statement:

Based on the observation, there is no available student attendance system is still practicing the manual way of taking daily attendance. Lecturer distributes attendance sheet to be sign by student during class session or personally marked the attendance sheet one by one by calling out student name accordingly. However, the attendance sheet can be lost easily and the whole attendance process is tending to human mistake. Consequently, data loss may happen and the data in attendance list might be inaccurate due to deception. , lecturer needs to manually analyze number of absences and calculate the percentage of present from the attendance list collected or recorded. Lecturer needs to identify number of absentees based on each subject with the respective classes that he or she taught. At the end of the semester, lecturer required to calculate the percentage of present of each student to make sure the student can take their final exam for

the respective subject. In addition, lecturer needs to manually write all the details about the attendance data to the appropriate documents when needed.

To overcome the drawbacks of the existing system, the proposed system has been evolved. This project aims to reduce the paper work and saving time to generate accurate results from the student's attendance. The system provides with the best user interface. The efficient reports can be generated by using this proposed system.

2. Library Management System

Problem Statement:

The system we have currently is a poor manual library system. There is a lot of book in library but no serial number of them. Different writers have different books but no chart of them. Our library supervisor maintains only a register chart. Where there is no information about the book. So it is difficult to find out the book in next time. And it is risky too to give a book. Students are not able to lend a book from the library because library supervisor has no sufficient information about them that she/he can search out the lender.

To reduce these haphazard we decide to make this LMS system automated. In this system a user easily get which books are in the library. How many copies have of them, the name of the writer of the book etc? But now we want to do it automatically. Which will be so easier for Whole University and it has some advantages

- Dynamic System
- Error free
- User Friendly

11. ASSIGNMENT QUESTION SETS ON EACH UNIT

UNIT-1

Set-1

1. Discuss about various phases of assessment
2. Explain various types of evolutionary development
3. What is water fall model? How is it different from other engineering process models?
4. Elaborate on evolution of software
5. Discuss the attributes of a good software

UNIT-II

Set-1

1. Explain about Feasibility studies?
2. Explain the requirement analysis techniques
3. Discuss an example of a type of system where social and political factors might strongly influence the system requirements. Explain why these factors are import ant in your example?
4. Define design class. Describe their purpose. Explain different types of it.
5. Discuss about principal requirements engineering activities and their relationships?

UNIT-III

Set-1

1. Discuss the design principles that reduce user's memory in user interface
2. Define interface. Discuss various types of interfaces. Give examples for each.
3. Explain about designing class based components?
4. Discuss the design principles that reduce user's memory in user interface
5. Define interface. Discuss various types of interfaces. Give examples for each.

UNIT-IV

Set-1

1. What is meant by black box testing? Explain graph-based testing method with example
2. The software analysis and design are constructive tasks, and software testing is considered to be Destructive from the point o view of developer. Discuss.
3. Explain about white box testing?
4. Explain about test strategies for conventional software?
5. Explain about metrics for analysis model?

UNIT-V

Set-1

1. Explain about risk refinement?
2. Explain about RMMM?
3. Discuss these principles of risk management which were identified by SEI.
4. What is software quality assurance (SOA)?
5. Explain about software reliability

INNOVATIVE QUESTIONS

1. Illustrate use case diagram for bank ATM system.

2. Design a UML diagram for college management system.

3. Implement AES algorithm for image encryption.

4. Design UML for traffic monitoring system project.

5. Write about different software techniques for testing methodologies.

6. Solve wireless finger print identification based on unique devices by using software engineering principles.

12. TOPICS FOR STUDENT'S SEMINARS

1. Automated Software Engineering
2. Agile Supply Chain
3. Design quality
4. Testing strategies
5. Software quality
6. Software risks

13. STEP/Course material in softcopy

SE-STEP MATERIAL.rar

14. Expert Lectures with topics & Schedules (if any)

Expert Name	Topic	Date	Time
Mr.G.Lingam, Associate Professor, Dept in CSE,NREC.			
Dr. Miskeen Ahmed,Associate Professor, CSE Dept, Goka Raju Ranga Raju College of Engineering and Technology.			

ACADEMIC PLANNER

Subject: Python Programming

S.NO		CONTENT
(1)	-	**Preamble/Introduction**
(2)	-	**Prerequisites**
(3)	-	**Objectives and Outcomes**
(4)	-	**Syllabus** **1. JNTU/R20-CMREC** **2. GATE** **3. IES**
(5)	-	**List of Expert Details**(Local/National/International with Contact details/Profile link/Blogs/their research Contribution towards the subject)
(6)	-	**Journals with min 5 ref paper for literature study**
(7)	-	**Subject -Lesson plan**
(8)	-	**Suggested Books (**prescribed and References)
(9)	-	**Websites for self learning Resources like** *www.geeksforgeeks.org, www.schools.com, Coursera,edX, Udemy, Khan Academy*, NPTEL etc along Registration procedures*)*
(10)	-	**Question Banks** **1. JNTUH/Model papers** **2. GATE**
(11)	-	**Two case study presentations with Project / Product/ Model /prototypes/ Industrial applications.**
(12)	-	**Assignment Question/Innovative Assignments sets.**
(13)	-	**List of topics for students Seminars with Guidelines**
(14)	-	**STEP/Course material in softcopy**
(15)	-	**Expert Lectures with topics &Schedules (if any)**

1. Preamble/Introduction

Python is a widely used general-purpose, high level programming language. It was created by Guido Van Rossum in 1991 and further developed by the Python Software Foundation. It was designed with an emphasis on code readability, and its syntax allows programmers to express their concepts in fewer lines of code.

2. Prerequisites:

Prerequisites to learn python is having a basic knowledge of any programming language concepts like basic 'C' language and some concepts of OOPS in addition If you have strong command over the basics of any programming language, you can learn Python quickly.

3. Course Objectives:

1. This course will enable students to Learn Syntax and Semantics and create Functions inPython.
2. Handle Strings and Files inPython.
3. Understand Lists, Dictionaries and Regular expressions inPython.
4. Implement Object Oriented Programming concepts inPython.
5. Build Web Services and introduction to Network and Database Programming in Python.

Course Outcomes:

1. The students should be able to Examine Python syntax and semantics and be fluent in the use of Python flow control andfunctions.
2. Demonstrate proficiency in handling Strings and FileSystems.
3. Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use RegularExpressions.
4. Interpret the concepts of Object-Oriented Programming as used inPython.
5. Implement exemplary applications related to Network Programming, Web Services and Databases inPython.

4. Syllabus (R20 Autonomous)

UNIT - I

Python Basics, Objects- Python Objects, Standard Types, Other Built-in Types, Internal Types, Standard Type Operators, Standard Type Built-in Functions, Categorizing the Standard Types, Unsupported Types

Numbers - Introduction to Numbers, Integers, Floating Point Real Numbers, Complex Numbers, Operators, Built-in Functions, Related Modules

Sequences - Strings, Lists, and Tuples, Mapping and Set Types

UNIT - II

FILES: File Objects, File Built-in Function [open()], File Built-in Methods, File Built-in Attributes, Standard Files, Command-line Arguments, File System, File Execution, Persistent Storage Modules, Related Modules

Exceptions: Exceptions in Python, Detecting and Handling Exceptions, Context Management,*ExceptionsasStrings, RaisingExceptions, Assertions, StandardExceptions,

*Creating Exceptions, Why Exceptions (Now)?, Why Exceptions at All?, Exceptions and the sys Module, Related Modules

Modules: Modules and Files, Namespaces, Importing Modules, Importing Module Attributes, Module Built-in Functions, Packages, Other Features of Modules

UNIT - III

Regular Expressions: Introduction, Special Symbols and Characters, Res and Python Multithreaded Programming: Introduction, Threads and Processes, Python, Threads, and the Global Interpreter Lock, Thread Module, Threading Module, Related Modules

UNIT - IV

GUI Programming: Introduction, Tkinter and Python Programming, Brief Tour of Other GUIs, Related Modules and Other GUIs

WEB Programming: Introduction, Wed Surfing with Python, Creating Simple Web Clients, Advanced Web Clients, CGI-Helping Servers Process Client Data, Building CGI Application Advanced CGI, Web (HTTP) Servers

UNIT – V

Database Programming: Introduction, Python Database Application Programmer's Interface (DB-API), Object Relational Managers (ORMs), Related Modules

6. Expert Details (Guest Lect. / Seminars)

INTERNATIONAL:

Jen Walraven, data science and engineering manager at Netflix
https://www.linkedin.com/in/jen-walraven

NATIONAL

1. PROF. SUDARSHAN IYENGAR, Department of Computer Science and Engineering IIT Ropar,**Email:** sudarshan@iitrpr.ac.in
2. PROF. YAYATI GUPTA Department: of Computer Science and Engineering IIIT Dharwad
3. R. Kumaraswamy Pantech E Learning
Email: events@antechelearning.com

REGIONAL

1. Mr.A.Prasantha Rao,Assoc.Prof,Dept of IT in CVSR.
(E-mail-id: prasanthraoit@cvsr.ac.in,Ph.No:9490232922)

6. Journals with min 5 ref paper for literature study

http://ijirt.org/master/publishedpaper/IJIRT149340_PAPER.pdf

1. Python: The Programming Language of Future

http://ijaerd.com/papers/special_papers/IT032.pdf

2. Python Programming-Applications and Future

https://www.irjet.net/archives/V4/i12/IRJET-V4I1266.pdf

3. Python – The Fastest Growing Programming Language

http://ijariie.com/AdminUploadPdf/PROGRAMMING_LANGUAGE_PYTHON__A_REVIEW_ijariie11892.pdf

4. PROGRAMMING LANGUAGE PYTHON: A REVIEW

https://www.ijsr.net/archive/v8i2/ART20194929.pdf

5. Python – Using Database and SQL

7. Subject -Lesson plan

S.NO	Topic	Sub-Topic	NO. OF LECTURES REQUIRED	Suggested Books	Teaching Methods
UNIT – I					
1	**Python Objects, Numbers & Sequences**	Python basics	**L1**	**T1,R1**	**M1(Board)**
2		Python Objects, Standard Types	**L2-L3**	**T1**	**M1**
3		Other Built-in Types, Internal Types	**L4**	**T1**	**M1**
4		Standard Type Operators, Standard Type Built-in Functions	**L5-L6**	**T1,R1**	**M1**
5		Categorizing the Standard Types, UnsupportedTypes	**L7**	**T1**	**M1**
6		Introduction to Numbers, Integers, Floating Point Real Numbers	**L8**	**T1**	**M1**
7		Complex Numbers, Operators, Built-in Functions, Related Modules	**L9**	**T1**	**M1**

8		Sequences - Strings, Lists, and Tuples	**L10-L11**	**T1,R1**	**M1**
9		Mapping and Set Types	**L12**	**T1,R2**	**M1**
UNIT – II					
10	**Files, Exceptions & Modules**	File Objects, File Built-in Function [open()]	**L13**	**T1,R3**	**M1**
11		File Built-in Methods, File Built-in Attributes, Standard Files	**L14**	**T1**	**M2(PPT)**
12		Command-line Arguments, File System, File Execution	**L15-L16**	**T1**	**M2**
13		Persistent Storage Modules, Related Modules	**L17**	**T1**	**M2(NPTEL)**
14		Exceptions in Python, Detecting and Handling Exceptions	**L18,L19**	**T1,R3**	**M2(PPT)**
15		Context Management,*Exceptionsas Strings	**L20,L21**	**T1,R3**	**M2**
16		RaisingExceptions,Assertions	**L22**	**T1,R3**	**M2**

17		Standard Exceptions, Creating Exceptions	**L23,L24**	**T1**	**M2(PPT)**
18		Why Exceptions (Now)?, Why Exceptions at All?, Exceptions and the sys Module, Related Modules	**L25,L26**	**T1,R2**	**M2(PPT)**
19		Modules: Modules and Files, Namespaces	**L27**	**T1**	**M2**
20		Importing Modules, Importing Module Attributes	**L28**	**T1**	**M2**
21		Module Built-in Functions, Packages, Other Features of Modules	**L29,L30**	**T1**	**M2**
UNIT-III					
22	**Regular Expressions & Multithreaded Programming**	Introduction to Regular Expressions, Special Symbols and Characters	**L31**	**T1**	**M2**
23		Res and Python	**L32**	**T1**	**M2**
24		Introduction to Multithreaded programming , Threads and Processes	**L33**	**T1,R2**	**M2**
25		Threads, and the Global Interpreter Lock	**L34**	**T1**	**M2(E-resources)**
26		Thread Module, Threading Module, Related Modules	**L35**	**T1**	**M2(NPTEL)**
UNIT-IV					

27	GUI Programming & Web Programming	Introduction GUI, Tkinter and Python Programming	**L36**	**T1,R1**	**M2**
28		Brief Tour of Other GUIs, Related Modules and Other GUIs	**L37**	**T1,R1**	**M2**
29		Introduction to Web Programming, Wed Surfing with Python	**L38,L39**	**T1,R1**	**M2(PPT)**
30		Creating Simple Web Clients, Advanced Web Clients	**L40**	**T1**	**M3(NPTEL)**
31		CGI-Helping Servers Process Client Data	**L41**	**T1**	**M3(NPTEL)**
32		Building CGI Application Advanced CGI	**L42**	**T1**	**M2**
33		Web (HTTP) Servers	**L43**	**T1**	**M2**
UNIT –V					
34	**DATABASE PROGRAMMING**	Introduction	**L44**	**T1**	**M2**
35		Python Database Application Programmer's Interface (DB-API)	**L45**	**T1,R2**	**M2(PPT)**
36		Object Relational Managers (ORMs)	**L46-L47**	**T1**	**M3(NPTEL)**
37		Related Modules	**L48**	**T1**	**M2**

8. Suggested Books (prescribed and References)

Prescribed Book

1. Core Python Programming, Wesley J. Chun, Second Edition, Pearson

Reference Books

1. Core Python Programming by R.Nageshwar Rao, Second Edition, Dreamtech press.
2. Python for Programmers by Paul Deitel ,Harvey Deital
3. Python Programming Using Problem Solving Approach by Reema Thareja

9. Websites for self learning Resources like

1. https://www.python.org/
2. https://nptel.ac.in/courses/106106182
3. https://youtu.be/9kNDT-0yAEM
4. https://www.programiz.com/python-programming
5. https://www.geeksforgeeks.org/python-programming-examples/
6. https://www.w3schools.com/python/default.asp
7. https://www.tutorialspoint.com/python/index.htm
8. https://www.javatpoint.com/python-tutorial

10 .Question Bank.

PART-A

1.a) State any four applications where python is more popular.
b) List out the main differences between lists and tuples.
c) What are the uses of file object?
d) Give a brief description of several built in attributes related to File objects.
e) Summarize the purpose of pipe and dot symbols used for pattern matching
f) Explain the basic functionality of match() function.
g) What is the need of Tkinter module in python?
h) How to Label widget in Python?
i) State the need of persistent storage.

j) Discuss the SQL commands/statements used for creating, using and dropping a database.

PART-B

2. a) How to declare and call functions in python programs? Illustrate with an example script.
   b) List and explain few most commonly used built-in types in python.

OR

3. Summarize various operators, built-in functions and standard library modules that deals with python numeric types.
4. Explain the following file built- in functions and methods with clear syntax, description and illustration:
   a) open() b) file() c) seek() d) tell() e) read()

OR

5.a) How does try-except statement work? Demonstrate with example python code.
b) Illustrate the concept of importing module attributes in python scripts.
6. Examine how python supports regular expressions through the 're' module with brief introduction and various built-in methods related to it.
7. a) What is the motivation behind parallelism and state how python achieves parallelism?

11. Two case study presentations with Project / Product/ Model /prototypes/ Industrial applications.

1. Python – Spell Corrector GUI using Tkinter

Python offers multiple options for developing a GUI (Graphical User Interface). Out of all the GUI methods, Tkinter is the most commonly used method. Python with Tkinter outputs the fastest and easiest way to create GUI applications. In this article, we will learn how to create a GUI Spell Corrector application using Tkinter, with a step-by-step guide.

To create a Tkinter :

- Importing the module – tkinter
- Create the main window (container)
- Add any number of widgets to the main window.
- Apply the event Trigger on the widgets.

2. Python: Age Calculator using Tkinter:

Python offers multiple options for developing a GUI (Graphical User Interface). Out of all the GUI methods, Tkinter is the most commonly used method. It is a standard Python interface to

the Tk GUI toolkit shipped with Python. Python with Tkinter outputs the fastest and easiest way to create GUI applications. Now, it's up to the imagination or necessity of a developer, what he/she wants to develop using this toolkit.

To create a Tkinter :

- Importing the module – Tkinter
- Create the main window (container)
- Add any number of widgets to the main window.
- Apply the event Trigger on the widgets.

12 .Assignment Question/Innovative Assignment Questions:

I -ASSIGNMENT

1. a. Explain Python objects characteristics.
   b. Summarize the primitive data types of the Python with example.
2. a. Compare mutable and immutable data types.
   b. Contrast String and List data structures in Python
3. a. Define the Dictionary data structure in Python
   b. Write Python File Modes in Python
4. a. Explain the usage of Command-Line Arguments in Python with an example.
   b. Write about the errors and exceptions in Python. Give suitable examples.
5. a. Explain the standard exceptions with examples.
   b. Write about modules and import in Python with examples.

II ASSIGNMENT

1. What are regular expressions?
2. How to find whether an email id entered by useris valid or not using Python 're' module.
3. Differentiate thread and threading classes.
4. List web address components and explain them.
5. Explain Persistent Storage.

INNOVATIVE ASSIGNMENT QUESTIONS

1. **How can you generate random numbers in Python ?**

2. **What are negative indexes and why are they used?**
3. **What advantages do NumPy arrays offer over (nested) Python lists?**
4. **Describes anonymous functions examples?**
5. **Write a brief notes on PIP, Explain installing package via PIP.**

Important Question sets on each unit

UNIT-1

1. List the standard type operators in Python with examples.
2. a) Give a note on each of the following constructs in Python language.
   (i) quotes (single, double and triple) (ii) multiline statements (iii) indentation

b) How Python is different from C++.

3. a) Narrate the other built in data types of Python

b) List the unsupported types in Python along with explanation.

4. a)Explain Python bitwise operators with example

b) Compare and contrast the List and Tuple.

5. What is Python? Explain in detail.
6. Explain about the type of operators used in Python?
7. How to declare and call functions in python programs? Illustrate with an example script.
8. List and explain few most commonly used built-in types in python.
9. State any four applications where python is more popular.
10. List out the main differences between lists and tuples.

UNIT-II

1. What is the need of Exception in python. Explain 'Now' exception.
2. Explain the importing module attribute with suitable examples.
3. What are the two ways of importing a module? Which one is more beneficial?
4. a) Explain Briefly discuss about Python packages.
   b) Explain about handling an exception.
5. a) How to handle an exception using try except block? Explain with the help of a program
   b) Why Exceptions (Now) is needed? Discuss with detailed examples.
6. Demonstrate usage of exceptions in Python?
7. Explain in detail about Packages in Python?
8. Give a short note on Python built in functions?

UNIT-III

1. What are regular expressions? How to find whether an email id entered by user is valid or not using Python‘re’ module.
2. Differentiate match () and search ().
3. a) What are the threads in Python?
   b) Differentiate thread and threading classes.
4. a) List special symbols and characters while forming regular expressions.
   b) Explain various String pattern matching functions in Python.
5. a) What is multithreading? Discuss about starting a new thread.
   b) Explain the methods of threading module.
6. Give a short note on Regular Expressions (Res)?
7. Explain threads with Global interpreter lock?

UNIT-IV

1. a) Explain about GUI programming in python
   b) Write a program to implement Turtle Graphics in Python

2. Write a Python program that creates a GUI with a textbox, Ok button and Quit button. On clicking Ok, the text entered in textbox is to be printed in Python shell; on clicking Quit, the program should terminate.

3. a) Explain about GUI programming in python
   b) Explain urllib Module along with the methods in urllib module.

4. a) Explain a procedure to create a static web page using Python.
   b) Explain a procedure to create Web Server in Python.

5. a) Explain a procedure to create a static web page using Python.
   b) Explain a procedure to create Web Server in Python.

6. What is the need of Tkinter module in python?

UNIT-V

1. a) Explain Persistent Storage.
   b) Database Connection Objects in Python.
2. a) Discuss database adapter with examples.
   b) Explain the object relational managers (ORMs)
3. a) Narrate the DB-API Module attributes with description.
   b) List Type Objects and Constructors along with the description.
4. a) Explain the Database connectivity procedure with an example.
   b) Explain the Cursor Object Attributes.

13. List of topics for student's seminars

1. Sequences
2. Regular expressions.
3. Files
4. Exceptions
5. Multi threading.
6. GUI programming.
7. Network application Programming.

14. STEP/Course material in softcopy

Step Material For python programming.rar

15. Expert Lectures with topics &Schedules (if any)

1. Mrs.A.Prasantha Rao,Assoc.Prof,Dept of IT in CVSR.
   (E-mail-id:prasanthraoit@cvsr.ac.in,Ph.No:9490232922)
2. Mrs. A. Sravanthi Assoc, Department of CSE in NREC.
(E-mail-id: sravaanthi.a@nrcmec.org , ph.no. 9628938890)

Real time applications of multi-threading and Database programming –Tentative period: in month of April last week.

ACADEMIC PLANNER

Subject: Analog and Digital Electronics

S.NO		CONTENT
(1)	-	**Preamble/Introduction**
(2)	-	**Prerequisites**
(3)	-	**Objectives and Outcomes**
(4)	-	**Syllabus** **1. JNTU/R20-CMREC** **2. GATE** **3. IES**
(5)	-	**List of Expert Details**(Local/National/International with Contact details/Profile link/Blogs/their research Contribution towards the subject)
(6)	-	**Journals with min 5 ref paper for literature study**
(7)	-	**Subject -Lesson plan**
(8)	-	**Suggested Books (**prescribed and References)
(9)	-	**Websites for self learning Resources like** *www.geeksforgeeks.org, www.schools.com, Coursera,edX, Udemy, Khan Academy*, NPTEL etc along Registration procedures*)*
(10)	-	**Question Banks** **1. JNTUH/Model papers** **2. GATE**
(11)	-	**Two case study presentations with Project / Product/ Model /prototypes/ Industrial applications.**
(12)	-	**Assignment Question/Innovative Assignments sets.**
(13)	-	**List of topics for students Seminars with Guidelines**
(14)	-	**STEP/Course material in softcopy**
(15)	-	**Expert Lectures with topics &Schedules (if any)**

1. PREAMBLE /INTRODUCTION:

This is structured foundation course, dealing with concepts analog electronics , Diodes and its applications, transistors and digital circuit deals with storage elements and registers . This is the basic primer for all electronic communication and engineering subjects and for computer science and engineering subjects .

2. PREREQUISITES

This course should have previous knowledge of semiconductors and diodes.

4. OBJECTIVES AND OUTCOMES

COURSE OBJECTIVES

- To introduce components such as diodes, BJTs and FETs.
- To know the applications of components.
- To give understanding of various types of amplifier circuits
- To learn basic techniques for the design of digital circuits and fundamental concepts used in
  the design of digital systems.
- To understand the concepts of combinational logic circuits and sequential circuits.

COURSE OUTCOMES:

At the end of the course:

- Know the characteristics of various components.
- Understand the utilization of components.
- Design and analyze small signal amplifier circuits.
- Learn Postulates of Boolean algebra and to minimize combinational functions
- Design and analyze combinational and sequential circuits
- Know about the logic families and realization of logic gates

1. SYLLABUS

UNIT - I

Diodes and Applications: Junction diode characteristics: Open circuited p-n junction, p-n junction as a rectifier, V-I characteristics, effect of temperature, diode resistance, diffusion capacitance, diode switching times, breakdown diodes, Tunnel diodes, photo diode, LED.

Diode Applications - clipping circuits, comparators, Half wave rectifier, Full wave rectifier, rectifier with capacitor filter.

UNIT - II

BJTs: Transistor characteristics: The junction transistor, transistor as an amplifier, CB, CE, CC

configurations, comparison of transistor configurations, the operating point, self-bias or Emitter bias, bias compensation, thermal runaway and stability, transistor at low frequencies, CE amplifier response, gain bandwidth product, Emitter follower, RC coupled amplifier, two cascaded CE and multi stage CE amplifiers.

UNIT - III

FETs and Digital Circuits: FETs: JFET, V-I characteristics, MOSFET, low frequency CS and CD amplifiers, CS and CD amplifiers.

Digital Circuits: Digital (binary) operations of a system, OR gate, AND gate, NOT, EXCLUSIVE OR gate, De Morgan Laws, NAND and NOR DTL gates, modified DTL gates, HTL and TTL gates, output stages, RTL and DCTL, CMOS, Comparison of logic families.

UNIT - IV

Combinational Logic Circuits: Basic Theorems and Properties of Boolean Algebra, Canonical and Standard Forms, Digital Logic Gates, The Map Method, Product-of-Sums Simplification, Don't-Care Conditions, NAND and NOR Implementation, Exclusive-OR Function, Binary Adder-Subtractor, Decimal Adder, Binary Multiplier, Magnitude Comparator, Decoders, Encoders, Multiplexers.

UNIT - V

Sequential Logic Circuits: Sequential Circuits, Storage Elements: Latches and flip flops, Analysis of Clocked Sequential Circuits, State Reduction and Assignment, Shift Registers, Ripple Counters, Synchronous Counters, Random-Access Memory, Read-Only Memory.

GATE SYLLABUS

- **NOT APPLICABLE**

IES SYLLABUS

- **NOT APPLICABLE**

5. LIST OF EXPERT DETAILS:

LOCAL:

1. Dr. Mohammad Farukh Hashmi, Assistant Professor, ECE Department, NIT, Warangal
   E-Mail: mdfarukh@nitw.ac.in
   Phone No: 9666740604
2. Dr. T. Kishore Kumar, Professor , ECE Department, NIT, Warangal
   E-Mail: kishoret@nitw.ac.in,kishorefr@gmail.com

Phone No: 8332969353, 9440973318

NATIONAL:

1. Mrs.Avirup Dasgupta, Ph. D. Assistant Professor (Semiconductors)
   ECE Department, IIT Roorkee, Uttarakhand, India. PIN: 247667
   Phone: (+91-1332)28-4967)-Office
   Email: avirup@ece.iitr.ac.in

2 Arnab Datta,Ph.D. Associate Professor (VLSI),

ECE Department, IIT Roorkee, Uttarakhand, India. PIN: 247667

PHONE: (+91-1332-285464)-Office

Email: arnab.datta@ece.iitr.ac.in

INTERNATIONAL:

1. Dr.ROBERT FOX(Analog Integrated Circuit Design), associate professor AND ECE ASSOCIATE CHAIR at the University of Florida.

   Email: fox@tec.ufl.edu

   Phone: 352-392-2543

   Mailing Address: P.O. Box 116130, Gainesville, FL 32611-6130

2. Dr.Abeer Alwan , ECE Department Vice Chair of Undergraduate Affairs was a member of the faculty of the UCLA Samueli School of Engineering
   Email:alwan@ee.ucla.edu
   Phone: (310) 206-2231

5. JOURNALS FOR LITERATURE STUDY:

1. ieeexplore.ieee.org/abstract/document/1335548

   TITLE: Superconducting digital electronics

2. ieeexplore.ieee.org/document/8281936

   TITLE:Design and implementation of logic gate emulator

3. ieeexplore.ieee.org/abstract/document/8357308

TITLE :Low power latch based design with smart retiming

4. ieeexplore.ieee.org/document/9203217

TITLE :Circuit Models of Field Emission Silicon Diode and Transistor with a Nanoscale Vacuum Channel

5. ieeexplore.ieee.org/document/8567008

TITLE:Characteristics of Failure Schottky Barrier Diode and PN Junction Diode for Bypass Diode using Induced Lightning Serge Test

6. SUBJECT - LESSON PLAN

S.NO	TOPIC TO BE COVERED	Suggested Books (Eg: T1,T2,)	NO. OF LECTURES REQUIRED	Teaching methods
	UNIT-I Classes required - 12			
1	Introduction	**T1,R1**	**1**	**White board, PPT**
2	Junction diode characteristics: Open circuited p-n junction,:	**T1**	**1**	**White board, PPT**
3	V-I characteristics	**T1,R1**	**1**	**White board, PPT**
4	Effect of temperature, diode resistance, diffusion capacitance	**T1**	**2**	**White board, PPT**
5	diode switching times	**T1,R1**	**1**	**White board, PPT**
6	Breakdown diodes ,Tunnel diodes, photo diode, LED	**T1**	**1**	**White board, PPT**
7	Diode Applications - clipping circuits	**T1,R1**	**1**	**White board, PPT**
8	Comparators	**T1**	**1**	**White board, PPT**
9	Half wave rectifier, Full	**T1**	**2**	**White board, PPT**

	wave rectifier			
10	capacitor filter	**T1**	**1**	**White board, PPT**
Unit-11 Classes required-13				
11	**BJTs**: Transistor characteristics: The junction transistor	**T1,R1**	**2**	**White board, PPT**
12	transistor as an amplifier	**T1**	**2**	**White board, PPT**
13	CB configurations, CE configurations	**T1**	**1**	**White board, PPT**
14	CC configurations, comparison of transistor configurations	**T1**	**1**	**White board, PPT**
15	the operating point, self-bias or Emitter bias, bias compensation	**T1**	**1**	**White board, PPT**
16	Thermal runaway and stability	**T1**	**1**	**White board, PPT**
17	Transistor at low frequencies, CE amplifier Response	**T1**	**1**	**White board, PPT**
18	Gain bandwidth product	**T1**	**1**	**White board, PPT**
19	Emitter follower, RC coupled amplifier	**T1**	**2**	**White board, PPT**
20	two cascaded CE and multi stage CE amplifiers	**T1**	**1**	**White board, PPT**
UNIT-III Classes required - 10				
21	**FETs and Digital Circuits**: FETs: JFET, V-I	**T1**	**1**	**White board, PPT**

	characteristics			
22	MOSFET	**T1**	**1**	**White board, PPT**
23	low frequency CS and CDamplifiers	**T1**	**1**	**White board, PPT**
24	Digital Circuits: Digital (binary) operations of a system,	**T1**	**1**	**White board, PPT**
25	OR gate, AND gate, NOT, EXCLUSIVE OR Gate	**T1**	**1**	**White board, PPT**
26	De Morgan Laws	**T1**	**1**	**White board, PPT**
27	NAND and NOR DTL gates	**T1**	**1**	**White board, PPT**
28	modified DTL gates	**T1**	**1**	**White board, PPT**
29	HTL and TTL gates output stages, RTL and DCTL,	**T1**	**1**	**White board, PPT**
30	CMOS, Comparison of logic families	**T1**	**1**	**White board, PPT**
UNIT-IV Classes required - 10				
31	**Combinational Logic Circuits:** Basic Theorems and Properties of Boolean Algebra,	**T2**	**1**	**White board, PPT**
32	Canonical and Standard Forms, Digital Logic Gates	**T2**	**1**	**White board, PPT**
33	The Map Method, Product-of-Sums Simplification, Don't-Care Conditions	**T2**	**1**	**White board, PPT**

34	NAND and NOR Implementation	**T2**	**2**	**White board, PPT**
35	Exclusive-OR Function	**T2**	**1**	**White board, PPT**
36	Binary Adder-Subtractor, Decimal Adder	**T2**	**1**	**White board, PPT**
37	Binary Multiplier	**T2**	**1**	**White board, PPT**
38	Magnitude Comparator	**T2**	**1**	**White board, PPT**
39	Decoders, Encoders, Multiplexers	**T2**	**2**	**White board, PPT**
UNIT-V Classes required - 12				
40	**Sequential Logic Circuits:** Sequential Circuits,	**T2**	1	**White board, PPT**
41	Storage Elements: Latches and flip flops	**T2**	2	**White board, PPT**
42	Analysis of Clocked Sequential Circuits	**T2**	1	**White board, PPT**
43	State Reduction and Assignment	**T2**	2	**White board, PPT**
44	Shift Registers	**T2**	2	**White board, PPT**
45	Ripple Counters	**T2**	2	**White board, PPT**
46	Synchronous Counters	**T2**	2	**White board, PPT**

7. SUGGESTED BOOKS (PRESCRIBED AND REFERENCES):

TEXT BOOKS:

1.

1. Integrated Electronics: Analog and Digital Circuits and Systems, 2/e, Jaccob Millman, Christos Halkias and Chethan D. Parikh, Tata McGraw-Hill Education, India, 2010.

2. Digital Design, 5/e, Morris Mano and Michael D. Cilette, Pearson, 2011.

REFERENCE BOOKS:

1. Electronic Devices and Circuits, Jimmy J Cathey, Schaum's outline series, 1988.

2. Digital Principles, 3/e, Roger L. Tokheim, Schaum's outline series, 1994

9. WEBSITES FOR SELF LEARNING:

1. nptel.ac.in/courses/108/102/108102095/
2. nptel.ac.in/courses/108/105/108105132/
3. nptel.ac.in/courses/108/102/108102112/
4. www.geeksforgeeks.org/digital-electronics-logic-design-tutorials/
5. https://www.coursera.org/specializations/semiconductor-devices

10. QUESTION BANKS: (ATTACHED SEPARATELY)

1. **JNTUH Model Papers**

ADE JNTUH QUESTION PAPERS.rar

2. **GATE**

- **NOT APPLICABLE**

11. CASE STUDY

1. **Design and development of sensor-based mini projectsof Electronic Components – a Case Study**

ABSTRACT: This is the circuit diagram of a simple **corrosion free water level indicator** for home and industries. In fact, the level of any conductive non-corrosive liquids can be measured using this circuit. The circuit is based on 5 transistor switches. Each transistor is switched on to drive the corresponding LED when its base is supplied with current through the water through

the electrode probes.

One electrode probe is (F) with 6V AC is placed at the bottom of the tank. Other probes are placed step by step above the bottom probe. When water is rising the base of each transistor gets electrical connection to 6V AC through water and the corresponding probe. This, in turn, makes the transistors conduct to glow LED and indicate the level of water. The ends of probes of the water tank level indicator are connected to corresponding points in the circuit as shown in circuit diagramInsulated Aluminum wires with end insulation removed will do for the probe. Arrange the probes in order on a PVC pipe according to the depth and immerse it in the tank. AC voltage is used to prevent electrolysis at the probes. So this setup will last really long. I guarantee at least a 2 years of maintenance-free operation. That's what I got and is still going.

2. Automatic Emergency LED Light

ABSTRACT: This automatic emergency LED light used in night at emergency time when the power cut or off by some region. This emergency light takes 230V AC and it converts it in 12V DC and charge the battery which is used in this circuit.

The power of the battery is used at that time when the power is cut off or we need to use it .This light is used mostly in villages because there is lack of electricity.

12. ASSIGNMENT QUESTIONS:

MID-1

SET 1

1. Explain about shunt clippers?
2. what is half wave rectifier? Explain half wave rectifier with capacitor filter?
3. what are the input and output characteristics of CB configuration?
4. Explain about CE configuration?
5. Explain about operating point?

SET 2

1. write a short note on full wave rectifier with capacitor filter?
2. Explain about a)diode operating point, b)tunnel diode?
3. Explain about operating point?
4. Explain bias stabilization of a transistor?

5. explain about CE configuration?

MID-2

SET -1

1. Define logic gates and their truth tables
2. Define gates using DTL and TTL logics
3. Define Canonical and Standard Forms of Boolean equations
4. Convert the following equation to its standard form
   AB+BC+AC'
5. Define RAM and ROM

SET-2

1. Explain difference between combinational and sequential circuits?
2. Explain about flip-flops and latches?
3. Explain about shift registers and ripple counters?
4. Explain about decoders and encoders?
5. Explain about NAND implementation

13. LIST OF STUDENT SEMINARS:

1. Diode rectification
2. Transistor- transistor logic for designing logic gates
3. Logic gates and their implementation using nand and nor gates
4. Design a full adder using two half adders
5. Design 4 –bit parallel in serial out shift register

14. COURSE FILE

(Attached Separately)

15. EXPERT LECTURE:

S.NO	SUBJECT	TOPIC	YEAR	RESOURCE PERSON	DATE

1	ADE – 01	Amplifiers	II-II	Others	31/03/2022
2	ADE - 02	Sequential Circuits	II-II	Others	30/04/2022

ACADEMIC PLANNER

Subject: Business Economics and Financial Analysis

S.NO **CONTENT**

(1) - Preamble/Introduction
(2) - Prerequisites
(3) - Objectives and Outcomes
(4) - Syllabus
1. JNTU/R20-CMREC
2. GATE
3. IES
(5) - List of Expert Details(Local/National/International with Contact details/Profile link/Blogs/their research Contribution towards the subject)
(6) - Journals with min 5 ref paper for literature study
(7) - Subject -Lesson plan
(8) - Suggested Books (prescribed and References)
(9) - Websites for self learning Resources like *www.geeksforgeeks.org, www.schools.com, Coursera,edX, Udemy, Khan Academy*, NPTEL etc along Registration procedures*)*
(10) - Question Banks
1. JNTUH/Model papers
2. GATE
(11) - Two case study presentations with Project / Product/ Model /prototypes/ Industrial applications.
(12) - Assignment Question/Innovative Assignments sets.
(13) - List of topics for students Seminars with Guidelines
(14) - STEP/Course material in softcopy
(15) - Expert Lectures with topics &Schedules (if any)

(1) OBJECTIVES AND RELEVANCE

- Understand the concepts but apply them in real life by developing problem solving skills.
- Which are directly relevant to the practice of Management and decision making processes within an enterprise.
- There exists a relationship between Business Economics and Accounting and same is deal in the second part of the course.
- The focus here is on picking up the basics of Accounting
- Such as Accounting Data and Financial Statements, which constitute the language of Business?
- The student is exposed and made familiar with generation, interpretation and use of Accounting Data.

Course outcome

CA50510.1	Define the economic techniques andconceptsand Decidean action for business objectives.
CA50510.2	Explain Demandfunction to carry out efficientand productivity to and analysis of demand and supply
CA50510.3	Develop production function to carry out efficient productivity and cost analysis to determine price of commodity.
CA50510.4	Evaluatethe basic accounting functions & make use of accounting principles for financialanalysis
CA50510.5	Interpret the financial statements through ratio analysis fora company.

(2) SCOPE

As far as Business Economic is concerned it is very wide in scope. It takes into account almost all the problems and areas of manager and the firm. B.E deals with Demand analysis,

Forecasting, Production function, Cost analysis, Inventory Management, Advertising, Pricing System, Resource allocation etc. Following aspects are to be taken into account while knowing the scope of B.E: The scope of accounting as it was in earlier days has undergone lots of changes in recent times. As accounting is a dynamic subject, its scope and area of operation have been always increasing keeping pace with the changes in socio- economic changes. As a result of continuous research in this field the new areas of application of accounting principles and policies are emerged.

National accounting, human resources accounting and social Accounting are examples of the new areas of application of accounting systems

(3) PREREQUISITES

Basic Concepts of Business Economics, Management & Concepts of Financial Accounting

(4.1) *SYLLABUS*

UNIT-I

OBJECTIVES

Define the economic techniques andconceptsand decidean action for business objectives.

SYLLABUS

UNIT-I

Introduction to business and economics

Business: Structure of Business Firm, Theory of Firm, Types of Business Entities, Limited Liability Companies, Sources of Capital for a Company, Non-Conventional Sources of Finance.

Economics: Significance of Economics, Micro and Macro Economic Concepts, Concepts and Importance of National Income, Inflation, Money Supply in Inflation, Business Cycle, Features and Phases of Business Cycle. Nature and Scope of Business Economics, Role of Business Economist, Multidisciplinary nature of Business Economics.

UNIT - II

OBJECTIVES

Explain Demandfunction to carry out efficientand productivity to and analysis of demand and supply

SYLLABUS

DEMAND AND SUPPLY ANALYSIS

Elasticity of Demand: Elasticity, Types of Elasticity, Law of Demand, Measurement and Significance of Elasticity of Demand, Factors affecting Elasticity of Demand, Elasticity of Demand in decision making, Demand Forecasting: Characteristics of Good Demand Forecasting, Steps in Demand Forecasting, Methods of Demand Forecasting.

Supply Analysis: Determinants of Supply, Supply Function & Law of Supply.

UNIT - III

OBJECTIVE

Developproduction function to carry out efficient productivity
And cost analysis to determine price of commodity.

SYLLABUS

PRODUCTION, COST, MARKET STRUCTURES AND PRICING

Production Analysis: Factors of Production, Production Function, Production Function with one variable input, two variable inputs, Returns to Scale, Different Types of Production Functions.

Cost analysis: Types of Costs, Short run and Long run Cost Functions.

Market Structures: Nature of Competition, Features of Perfect competition, Monopoly, Oligopoly, and Monopolistic Competition.

Pricing: Types of Pricing, Product Life Cycle based Pricing, Break Even Analysis, and Cost Volume Profit Analysis.

UNIT - IV

OBJECTIVE

Evaluatethe basic accounting functions & make use of accounting Principles for financialanalysis

SYLLABUS

FINANCIAL ACCOUNTING

Accounting concepts and Conventions, Accounting Equation, Double-Entry system of Accounting, Rules for maintaining Books of Accounts, Journal, Posting to Ledger, Preparation of Trial Balance, Elements of Financial Statements, Preparation of Final Accounts.

UNIT - V

OBJECTIVE

Interpretthe financial statements through ratio analysis fora company

SYLLABUS

FINANCIAL ANALYSIS THROUGH RATIOS

Concept of Ratio Analysis, Liquidity Ratios, Turnover Ratios, Profitability Ratios, Proprietary Ratios, Solvency, Leverage Ratios (simple problems). Introduction to Fund Flow and Cash Flow Analysis (simple problems).

(4.2) SYLLABUS – GATE

NOT APPLICABLE

(4.3) SYLLABUS - IES

NOT APPLICABLE

5. Subject (lesson plan)

BUSINESS ECONOMICS & FINANCIAL ANALYSIS					
S. NO	Topic (JNTU syllabus)	Sub-Topic	NO. OF LECTURES REQUIRED	Suggested Books	Remarks
		UNIT – I			
1	INTRODUCTIONTO BUSINESS AND ECONOMICS	Introduction and definition of Business	L1	T1	
2		Theory of firms.	L2	T1	
3		Types of Business entities and Sources of capital for a company	L3	T1	
4		Introduction of Economics and Significance of Economics	L4	T1	
5		Micro and Macro	L5	T1	

		concepts			
6		National income concepts and Importance.	L6	T1	
7		Inflation and Money Supply in inflation.	L7	T1	
8		Features and Phases of Business Cycle.	L8	T1	
9		Nature and Scope of Business Economics and Role and Multidisciplinary nature	L9,L10	T1	
		UNIT - II			
10	DEMAND AND SUPPLY ANALYSIS	Introduction of Elasticity of Demand	L11,L12	T1	
11		Types of Elasticity and Law of Demand	L13	T1	

12		Measurement and significance of Elasticity of Demand	L14	T1	
13		Factors affecting Elasticity of Demand and good demand in decision making	L15,L16	T1	
14		Demand Forecasting: Characteristics and steps in Demand forecasting	L17	T1	
15		Methods in Demand forecasting	L18,L19	T1	
16		Supply Analysis: Introduction of Supply analysis and Determinants of Supply	L20,L21	T1	
17		Law of Supply and	L22	T1	

		Functions			
		UNIT – III			
18	PRODUCTION,COST, MARKET STRUCTURE AND PRICING	Production Analysis: Factors of production and production function	L23	T1	
19		Production function with one variable input, two variable inputs, Return to scale	L24,L25,L26	T1	
20		Different types of production functions	L27,L28	T1	
21		Cost analysis: Types of cost, short run and long run function	L29,L30	T1	
22		Market structures: Introduction	L31,L32	T1	
23		Nature and competition of	L33	T1	

		market structure			
24		Features of perfect competition, monopoly, oligopoly and monopolistic competition	L34	T1	
25		Pricing: Types of pricing, product life cycle based pricing.	L35,L36	T1	
26		Break even analysis, and cost volume profit analysis	L37	T1	
		UNIT – IV			
27	FINANCIAL ACCOUNTING	Accounting concepts and Conventions	L41	T1,R1	
28		Accounting Equation	L42	T1,R1	

29		Double-Entry Book Keeping.	L43	T1,R1	
30		Rules for maintaining Books of Accounts	L44	T1,R1	
31		Journal, Ledger.	L45,L46	T1,R1	
32		Trial Balance.	L47	T1,R1	
33		Final Accounts	L48	T1,R1	
		UNIT – V			
34	FINANCIAL ANALYSIS THROUGH RATIOS	Concept of Ratio Analysis	L49, L50	T1,R1	
35		Liquidity Ratios	L51 ,L52	T1,R1	
36		Turnover Ratios	L53 ,L54	T1,R1	
37		Profitability Ratios	L55 ,L56	T1,R1	
38		Proprietary Ratios	L57 ,L58	T1,R1	
39		Solvency	L59 ,L60	T1,R1	
40		Leverage Ratios (simple problems)	L61 ,L62	T1,R1	

41		Introductio n to Fund Flow and Cash Flow Analysis (simple problems	L63 ,L64	T1,R 1	

NOTE: 1. Any Subject in a Semester is supposed to be completed in 55 to 65 periods.

2. Each Period is of 50 minutes.

3. Each unit duration & completion should be mentioned in the Remarks Column.

4. List of Suggested books can be marked with Codes like T1, T2, R1, R2 etc.

6. SUGGESTED BOOKS

TEXT BOOKS

T1 D. D. Chaturvedi, S. L. Gupta, Business Economics – Theory and Applications, International Book House Pvt. Ltd. 2013.

T2 Dhanesh K Khatri, Financial Accounting, Tata Mc –Graw Hill, 2011.

T3 Geethika Ghosh, Piyali Gosh, Purba Roy Choudhury, Managerial Economics, 2e, Tata Mc Graw Hill Education Pvt. Ltd. 2012

7. QUESTION BANK

UNIT-1

1. Define Business Economics. Explain its Nature And Scope?
2. Discuss the importance of Business Economics in decision making?
3. What is Business Economics? Explain its focus areas?

4. Point out the importance of Business Economics in decision making?
5. Define Business and Structure of business ?
6. What are the different types of Business organizations?
7. What are the features of Sole trading form of Organization?
8. What are the characteristics of a Business Unit?
9. What are the characteristic features of a sole trader form of organization?
10. What are the salient features Partnership firm?
11. Explain Different kinds of partners?
12. What are the advantages and limitations of partnership firm?
13. What do you mean by Joint Stock Company? What are the salient features?
14. Describe the advantages and disadvantages of Joint Stock Companies?
15. Analyses the Formation of Joint Stock Company?
16. What are the different types of companies?
17. Distinguish between the Joint Stock Company and Partnership?
18. Explain Theory of firms?
19. What are the different types of Business Entities?
20. What are limited liability companies?
21. What are sources of capital for a company?
22. Define Economics and importance of Economics?
23. Micro and macro concepts of Economics?
24. Concepts and Importance of National Income?
25. What is Inflation and types of inflation?
26. What is money supply in inflation and what are the types of money?
27. Features and Phases of Business cycle?
28. Explain law of demand and expectations of law demand with curve?

UNIT-II

1. Define elasticity of demand and measurement types of elasticity of demand?
2. Explain these terms? a) Law of supply b) production function c) fixed cost
3. What is meant by 'Elasticity of Demand'? How do you measure it? (very Imp)
4. What is cross Elasticity of Demand? Explain
5. Explain the various factors influencing elasticity of demand ?
6. Explain the Measurements of elasticity of demand?
7. Elasticity of demand in decision making ?
8. Define 'Demand' and explain the factors that influence the demand of a product?
9. State the 'Law of Demand'. What are the various factors that determine the demand for a Mobile Phone?
10. Explain the concept of Cross Elasticity of Demand. Illustrate your answer with Examples?
11. Why does the Law of Diminishing Returns operate? Explain with the help of assumed data and also represent in a diagram.?
12. What are the needs for Demand Forecasting? Explain the various steps involved in demand forecasting.?
13. What are the possible approaches to forecasting demand for new products? Illustrate all the methods of Demand Forecasting?
14. Define supply and explain Law of supply?
15. Explain supply Function and Determinant?
16. Explain law of demand and expectations of law demand with curve?
17. Explain statistical method in demand forecasting ?
18. Define expect opinion method in demand forecasting?
19. Explain law of supply?
20. Determinates of law of supply?

UNIT-III

1 Define production function with one variable input with example?

2 Define production Function. Discuss in detail the different types of production functions?

3 Explain the following with reference to production function

4 Define 'Cost'. How are costs classified? Explain any five important cost concepts useful for managerial decisions?

5 Discuss the role and importance of cost analysis in managerial decisions?

6 State and explain Break-Even analysis and explain its importance?

7 What are its limitations? Use suitable diagram? .

8 Define Market and explain how markets are classified?

9 Explain these terms ?

10 a) What is perfect competition and its features?

b) What are the important features in Market structure?

11 How is market price determined under conditions of Perfect Market Competition?

12 Explain in detail, the important features of perfect competition?

13 How can a competitor attain equation position under conditions of perfect competition? CO3

14 Explain the features of Monopoly?

15 What are the different market situations in imperfect competition?

16 Define production function with one variable input with example?

17 How can a Monopolist attain equilibrium position under conditions of monopoly?

18 What are the features of Monopolistic Competition? How can a firm attain equilibrium position?

19 Compare and contrast between Perfect competition and Monopoly?

20 Explain pricing and methods of pricing ?

UNIT-IV

1. Give a brief account on the important records of Accounting under Double Entry System and discuss briefly the scope of each?

2. Explain the purpose of preparing the following accounts/statements and also elaborate the various items that appear in each of them. a) Trading Account b) Profit & Loss Account c) Balance Sheet

3. Explain the following concepts and illustrate their treatment with imaginary data. a) Depreciation?

a) Prepaid expenses b) Reserve for bad and Doubtful debts) Income received in advance

4. Explain the following adjustments and illustrate suitably with assumed data?

a) Closing stock b) Outstanding expenses c) Prepaid Income d) Bad debts

5. Define the concepts 'Accounting', Financial Accounting and Accounting System'?

6. Explain the main objectives of Accounting and its important functions.

7. What is three columnar cash book? What is Contra Entry? Illustrate

8. What do you understand by Double Entry Book Keeping? What are its advantages?

9. What is Trial Balance? Why it is prepared?

10. What are the different Concepts and Conventions of Financial Accounting?

11 Mr. Nirmal has the following transactions in the month of April.

Write Journal Entries for the transactions.

10th April : Commenced business with a capital of 1,00,000

11th April : Purchased goods from Veeru for 20,000

13th April : Purchased Goods for Cash 15,000

14th April : Purchased Goods from Abhiram for cash 9,000

16th April : Bought Goods from Shyam on credit 12,000

17th April : Sold goods worth 15,000 to Tarun

19th April : Sold goods for cash 20,000

20th April : Sold goods to Utsav for cash 6,000

21st April : Sold goods to Pranav on credit 17,000

22nd April : Returned goods to Veeru 3,000

23rd April : Goods returned from Tarun 1,000

25th April : Goods taken by the proprietor for personal use 1,000

26th April : Bought Land for 50,000

27th April : Purchased machinery for cash 45,000

28th April : Bought computer from Intel Computers for 25,000

28th April : Cash sales 15,000

29th April : Cash purchases 22,000

30th April : Bought furniture for proprietor's residence and paid cash 10,000

12) Calculate Trading account, P/L account and balance sheet ?

UNIT-V

1. Explain the meaning of the 'Analysis of Financial Statementco5

2. Discuss briefly the different type of analysis.co5

3. Discuss the importance of Ratio Analysis for inter firm and intra-firm comparison, including circumstances responsible for its limitations, if any.co5

4. How are ratios classified for the purpose of financial analysis? With assumed data, illustrate any two types of ratios under each category?co5

5. Write a brief note on the importance of ratio analysis to different category of users.co5

6. As a financial analyst, what precautions would you take while interpreting ratios meaningfully?co5

7. What are the limitations of Ratio Analysis? Does ratio analysis really measure the financial performance of a company?c05

8. Following is the Profit and Loss account and Balance Sheet of Jai Hind Ltd. Calculate the following ratios:co5

a) Gross Profit Ratio b) Current Ratio c) Quick ratio

8. E-RESOURCES (CMREC REPOSITORIES)

https://economictimes.indiatimes.com/definition/law-of-demand

http://www.economicsdiscussion.net/monopolistic-competition/price-and-output-determination-under-monopoly/4099

http://www.accountingnotes.net/final-accounts/problems-final-accounts/top-5-problems-on-final-accounts-of-the-companies/11284

9. EXPERT DETAILS

The Expert Details which have been mentioned below are only a few of the eminent ones known Internationally, Nationally and Locally. There are a few others known as well.

International

Dr.Rana singh Professor in Management & Associate Dean Centinum Institute

Rakesh Bhalla Vice- chairman ,NRIC of ICWA

National

Dr. D.Ganesh Rao - Prof. & Head, Deptt. of Telecommunication Engg., M.S. Ramayya Instt. of Tech., Bangalore

Prof. S.C. Dutta Roy, Deptt. of Electrical Engg., IIT, Delhi.

Mr. A.Nagoor Kani, 52, Seshachalam Street, Saidapet, Chennai.

Regional

Prof. N.S. Murthy, Dept. of ECE, NIT, Warangal.

Mr. K.V.Srinivasa Rao, HoD, Dept. of ECE, Aurora Engineering College, Bhongir, Nalgonda.

10. ASSIGNMENT QUESTION SETS ON EACH UNIT

- What is Limited Liability Company and types of Limited Liability Company?(CO1)
- Explain wealth, welfare and Robbins Definition of economics and concepts of economics?(CO1)
- Define business economics and nature, features and scope of business economics?(CO1)
- a)Explain law of demand exceptions of law of demand?(CO2)

b) Law of supply and determinates of law of supply?(CO2)

- Define production function and what is law of one variable production with assumed data table and graph?(CO3)

- Define market , types and price output determination under monopoly?(CO3)
- Explain pricing and methods of pricing?(CO3)
- Explain these items?(CO5)
- Write formulas of liquidity ratio
- What is double entry system book keeping and advantages?(CO4)
- Performa of final accounts?(Trading account, profit and loss account, balance sheet)(CO4)
- The balance sheet of Punjab auto limited as on 31-12-2000 was as follows(CO5)

Particulars	Rs	Particulars	Rs
Equity share capital	40000	Plant and machinery	24000
capital reserve	8000	Land and building	40000
8 % loan on mortgage	32000	Furniture and fixtures	16000
Creditors	16000	Stock	12000
Bank overdraft	4000	Debtors	12000
Taxation	4000	investment (short	4000

		term)	
Current	4000	cash in hand	12000
Future	4000		
profit and loss account	12000		
Toatal	1,20,000		1,20,000

From the above, compute

- The current ratio
- Quick ratio
- Debt equity ratio
- Proprietary ratio

11. IMPORTANT QUESTION SETS ON EACH UNIT

UNIT-I

SET-1

1. Define Business Economics.
2. Explain its Nature of Business economics
3. Discuss the importance of Business Economics in decision making.
4. Write scope of BE
5. Explain wealth, welfare and Robbins Definition of economics and concepts of economics?

SET-2

1. What is Limited Liability Company and types of Limited Liability Company?
2. Explain wealth, welfare and Robbins Definition of economics and concepts of economics?
3. Explain the role of a Business Economist in a Business Firm.
4. Define Business cycle and phases

SET-3

1. Explain about micro and macro economics
2. Write in brief about sources of capital for a company
3. Write about non conventional sources of finance
4. Explain concepts and importance national income

SET-4

1. Write in brief about structure of business firm
2. Write about multidisciplinary nature of business economics
3. Explain theory of firm and write about types of business entities
4. Define inflation and write about money supply in inflation

UNIT-II

SET-1

1. Define elasticity of demand and measurement types of elasticity of demand?
2. Explain the terms? a) Law of supply b) production function c) fixed cost
3. What is meant by 'Elasticity of Demand'? How do you measure it?
4. What is cross Elasticity of Demand? Explain.

SET-2

1. Explain the various factors influencing elasticity of demand
2. Explain the Measurements of elasticity of demand?
3. Elasticity of demand in decision making?
4. Define 'Demand' and explain the factors that influence the demand of a product?

SET-3

1. State the 'Law of Demand'. What are the various factors that determine the demand for a Mobile Phone?

2. Explain the concept of Cross Elasticity of Demand. Illustrate your answer with Examples.

3. Why does the Law of Diminishing Returns operate? Explain with the help of assumed data and also represent in a diagram.

4. What are the needs for Demand Forecasting? Explain the various steps involved in demand forecasting?

SET-4

1. What are the possible approaches to forecasting demand for new products? Illustrate all the methods of Demand Forecasting.

2. Define supply and explain Law of supply?

3. Explain supply Function and Determinant?

4. Explain law of demand and expectations of law demand with curve?

UNIT-III

SET-1

1. Define production function with one variable input with example?

2. Define production Function. Discuss in detail the different types of production functions.

3. Explain the following with reference to production function

4. Define 'Cost'. How are costs classified? Explain any five important cost concepts useful for managerial decisions?

SET-2

1. Discuss the role and importance of cost analysis in managerial decisions

2. State and explain Break-Even analysis and explain its importance

3. What are its limitations? Use suitable diagrams?

4. Define Market and explain how markets are classified?

5. What are the important features in Market structure? a) What is perfect competition? What are its features?

SET-3

1. How is market price determined under conditions of Perfect Market Competition?

2. Explain in detail, the important features of perfect competition?

3. How can a competitor attain equation position under conditions of perfect competition?

4. Explain the features of Monopoly?

5. What are the different market situations in imperfect competition?

SET-4

1. Define production function with one variable input with example?
2. How can a Monopolist attain equilibrium position under conditions of monopoly?
3. What are the features of Monopolistic Competition? How can a firm attain equilibrium position?
4. Compare and contrast between Perfect competition and Monopoly?

UNIT –IV

SET-1

1. Give a brief account on the important records of Accounting under Double Entry System and discuss briefly the scope of each?

2. Explain the purpose of preparing the following accounts/statements and also elaborate the various items that appear in each of them. a) Trading Account b) Profit & Loss Account c) Balance Sheet

3. Explain the following concepts and illustrate their treatment with imaginary data. a) Depreciation b) Prepaid expenses c) Reserve for bad and Doubtful debts d) Income received in advance?

4. Explain the following adjustments and illustrate suitably with assumed data.

Closing stock b) Outstanding expenses c) Prepaid Income d) Bad debts?

SET-2

1. Define the concepts ‘Accounting’, Financial Accounting and Accounting System’.
2. Explain the main objectives of Accounting and its important functions.
3. What is three columnar cash book? What is Contra Entry? Illustrate
4. What do you understand by Double Entry Book Keeping? What are its advantages?
5. What is Trial Balance? Why it is prepared?

SET-3

1. Explain the following concepts and illustrate their treatment with imaginary data. a) Depreciation

B) Prepaid expenses c) Reserve for bad and Doubtful debts) Income received in advance?

2. What do you understand by Double Entry Book Keeping? What are its advantages?
3. Define accounting and write concepts and conventions of accounting?
4. Write in brief about rules of accounting?

SET-4

1. Write about double entry system?
2. Distinguish between trail balance and financial statement
3. Write about rules for maintaining books of accounts
4. Write about journal, ledger, trail balance and final account

UNIT-V

SET-1

1. Explain the meaning of the 'Analysis of Financial Statement?
2. Discuss briefly the different type of analysis
3. Discuss the importance of Ratio Analysis for inter firm and intra-firm comparison, including circumstances responsible for its limitations, if any.
4. How are ratios classified for the purpose of financial analysis? With assumed data, illustrate any two types of ratios under each category?

SET-2

1. Write a brief note on the importance of ratio analysis to different category of users.
2. As a financial analyst, what precautions would you take while interpreting ratios meaningfully?
3. What are the limitations of Ratio Analysis? Does ratio analysis really measure the financial performance of a company?
4. following is the Profit and Loss account and Balance Sheet of Jai Hind Ltd. Calculate the following ratios:

   a) Gross Profit Ratio b) Current Ratio c) Quick ratio

SET-3

1. Discuss briefly the different type of analysis.
2. Discuss the importance of Ratio Analysis for inter firm and intra-firm comparison, including circumstances responsible for its limitations, if any.
3. As a financial analyst, what precautions would you take while interpreting ratios meaningfully?
4. What are the limitations of Ratio Analysis? Does ratio analysis really measure the financial performance of a company?

SET-4

1. Following is the Profit and Loss account and Balance Sheet of Jai Hind Ltd. Calculate the following ratios:

A) Gross Profit Ratio b) Current Ratio c) Quick ratio

2. Explain the meaning of the 'Analysis of Financial Statement?

3. What are the limitations of Ratio Analysis? Does ratio analysis really measure the financial performance of a company?

4. Distinguish between funds flow and cash flow?

12. TOPICS FOR STUDENT'S SEMINARS

- Economics
- Business economics and managerial economics
- Firm, industry, organization
- Demand and supply
- National income
- Inflation, law of demand
- Elasticity of demand
- Production function
- Types of production
- Short run and long run cost functions
- Product life cycle based on pricing
- Break even analysis
- Cost volume profit analysis
- Demand forecasting
- Measurement and significance of elasticity of demand

- Perfect competition, monopoly, oligopoly, monopolistic competition
- Accounting concepts and conversations
- Accounting equation
- Double entry system of accounting
- Rules of books of accounts
- ledger, trail balance and final account
- Ratio analysis
- Liquidity ratio
- Turnover ratio
- Profitability ratio
- Proprietary ratio
- Solvency ratio

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