BACHELOR OF TECHNOLOGY

CSE(Cyber Security)

R-22 ACADEMIC REGULATIONS

COURSE STRUCTURE

B.Tech Ist YEAR SYLLABUS

(Batches admitted from the Academic Year 2022-2023)

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(Autonomous Institution-UGC, Govt. of India)

Accredited by NBA & NAAC with 'A' Grade, UGC, Govt. of India

NIRF Indian Ranking, Accepted by MHRD, Govt. of India

Band Excellent National Ranking by ARIIA, MHRD, Govt. of India

Maisammaguda, Dhullapally, Secunderabad, Kompally-500100

BACHELOR OF TECHNOLOGY

UNDERGRADUATE PROGRAMME

ACADEMIC REGULATIONS (R-22)

(Batches admitted from the Academic Year 2022 - 2023)

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(Autonomous Institution-UGC,Govt. of India)

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ACADEMIC REGULATIONS FOR B.TECH REGULAR STUDENTS

WITH EFFECT FROM THE ACADEMIC YEAR 2022-23 (R-22)

1.0 Under-Graduate Degree Programme in Engineering & Technology

Malla Reddy Engineering College for Women (MRECW) offers a 4-year (8 Semesters) **Bachelor of Technology** (B.Tech.) degree programme, under Choice Based Credit System (CBCS) for the following branches of Engineering.

S.No	Name of the Department
1	Electrical and Electronics Engineering
2	Electronics & Communication Engineering
3	Computer Science and Engineering
4	Computer Science and Engineering(AI & ML)
5	Computer Science and Engineering (Data Science)
6	Computer Science and Engineering (Cyber Security)
7	Computer Science and Engineering (Internet Of Things)
8	Information Technology

Eligibility for admission

Admission to the under graduate (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.

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

B.Tech. Programme structure

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 under graduate programme and award of the B.Tech. degree.

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

Semester scheme Each under graduate programme is of 4 academic years (8 semesters) with the academic year divided into two semesters of 22 weeks (≥90 instructional days) each, each semester having - '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 as suggested by AICTE are followed.

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.

The candidate has to register for Mandatory- courses like Environmental Science, Foreign Language: French, Human Values & Professional Ethics, Indian Constitution, Indian Traditional Knowledge & Technical & Soft Skills lab and Gender Sensitization in which 50% of scoring is required for the award of the Degree in Internal Examination. These courses will not carry any credits.

Subject Course Classification

All subjects/ courses offered for the under graduate programme in E&T (B.Tech. degree programmes) are broadly classified as follows. Malla Reddy Engineering College for Women (MRECW) has followed almost all the guidelines issued by JNTUH/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	PE – Professional Electives	Includes elective subjects related to the parent discipline/ department/ branch of Engineering.

6	(EℓC)	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	PR-Project Work/ Industrial training/ Mini- project/ Seminar	B.Tech. project or UG project or UG major project or Project Stage I & II
8			Industrial training/ Summer Internship/
			Industrial Oriented Mini-project/ Mini-project
9			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)

Course Registration

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

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 on-line registration requests for any 'current semester' shall be **completed before the commencement of SEEs (Semester End Examinations) of the 'preceding semester'**.

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 Head of the Department, faculty advisor/ counselor and the student.

Every student has to register for a set of Courses in each Semester, with the total number of their Credits being limited by considering the permissible weekly Contact Hours (typically: 30/Week); For this, an average Course Registration of minimum 15 Credits/Semester (e.g., 6-7 Courses) and a maximum of 24 credits are generally acceptable on recommendation of concerned academic advisor by satisfying the pre-requisite conditions..

Approval of the Course Registration will be informed by the concerned Head of the Department on the beginning of the semester by taking the number of students registered (minimum **one-third** students per class) and availability of the faculty into consideration.

Dropping of the Course Registration can be permitted up to two weeks from the commencement of the semester. Thereafter no droppings are permitted.

Interchanging of Course Registrations are not permitted.

The Pre-requisite conditions for the additional course(s) registration by the students are based on the slots available in the Time Table, Class rooms and Faculty availability.

Open Electives: Open elective course may be offered to the students, only if a minimum of 30 students opt for it The students have to choose one open elective (OE-I) during II year II semester, one (OE-II) during III year I semester, one (OE-III) in III year II semester and one (OE-IV) in IV year I Semester, from the list of open electives given. However, the student cannot opt for an open elective subject offered by their own (parent) department, if it is already listed under any category of the subjects offered by parent department in any semester

Professional electives: Professional elective course may be offered to the students, only if a minimum of 30 students opt for it. Students have to choose Professional Elective – I(PE-I) in III year I semester from the list of professional electives given. The student can register one subject for Professional Elective – I (PE-I) either from the list of Professional elective-I subjects offered by their own (parent) department or Same subject in MOOC Courses offered by the reputed organizations like NPTEL. Final Marks and grades are allotted based on best score achieved either in college conducted exam or MOOC Courses offered by the reputed organizations like NPTEL. Professional Electives – II, III & IV (PE-II ,PE-III and PE-IV) in III year II Semester and Professional electives V & VI (PE-V and PE-VI) in IV year – I Semester can be selected from the list of professional electives given. However, the student can opt for a Professional elective subject offered by their own (parent) department.

Attendance Requirements:

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 (excluding attendance in mandatory courses like Environmental Science, Foreign Language: French, Human Values & Professional Ethics, Indian Constitution , Indian Traditional Knowledge and Technical & Soft Skills) for that semester.

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.

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

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

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. 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.

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

Academic requirements

The following academic requirements have to be satisfied, in addition to the attendance requirements mentioned in item no.**5.**

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% (25 marks out of 70 marks) in the semester end examination, 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.

A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each Industrial Oriented Mini Project/Summer Internship, if student secures not less than 35% (25 marks out of 70 marks) in the semester end examination, 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. The student is deemed to have failed, if she (i) does not submit a report on Industrial Oriented Mini Project/Summer Internship, or does not make a presentation of the same before the evaluation committee as per schedule, or (ii) does not present the seminar as required in the IV year I Semester, or (iii) secures less than 40% marks in Industrial Oriented Mini Project/Summer Internship and seminar 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

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 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 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 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.

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 $\geq$5.0 (in each semester), and

CGPA (at the end of each successive semester) ≥5.0, (iv) **passes all the Mandatory Courses,** to successfully complete the under graduate programme. The performance of the student in these 160 credits shall be taken into account for the calculation of 'the final CGPA **(at the end of under graduate programme),** and shall be indicated in the grade card of IV year II semester.

A student eligible to appear in the end semester 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.

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

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

Evaluation - Distribution and Weightage of marks

The performance of a student in each semester shall be evaluated subject-wise for a maximum of 100 marks for a theory and 100 marks for a practical subject. In addition, Technical Seminar,Mini Project and Project stage 1&2 shall be evaluated for 100 marks each.

For theory subjects the distribution shall be 30 marks for Internal Evaluation and 70marks for the End-Examination.

For theory subjects, during a semester there shall be 2 mid-term examinations. Each mid- term examination consists of one descriptive paper, one objective paper and assignment. The descriptive paper shall be for 20 marks. The descriptive paper shall contain 6 full questions out of which, the student has to answer 4 questions, each carrying 5 marks. The objective paper shall be for Five (5) marks, containing (10) objective questions - each carries half mark and no choice, with a total duration of 2 hours. Two (2) marks are allotted for attendance. Three (3) marks are allotted for Assignments (as specified by the subject teacher concerned). The first Assignment should be submitted before the conduct of the first mid-examination, and the second Assignment should be submitted before the conduct of the second mid-examination. While the first mid-term examination shall be conducted from 1 to 2 1/2 units of the syllabus, the second mid-term examination shall be

conducted from 2 1/2 to 5 units. The total marks secured by the student in each mid-term examination are evaluated for 30 marks, and the average of the two mid-term examinations shall be taken as the final marks secured by each candidate.

Any Student who fails to attend any one/both of Mid-I and Mid-II examinations on medical grounds, with prior permission from the respective HOD/Principal, along with proof, can appear for remedial Mid examinations which shall be conducted at the end of the semester.

However, if any student is absent/scoring internal marks less than 40% in any subject of a mid-term examination she will be given a chance to write the internal exam once again after she re-registering for the internal exam in the concerned subject and paying stipulated fees as per the norms.

The end examination will be conducted for 70 marks with Part A & B. Part-A consisting of 8 short answer questions out of which 5 question need to be answered, each question carries 2 marks. Part-B consisting of two parts each (a) and (b), out of which the student has to answer either (a) or (b), not both and each question carrying 12 marks.

For practical subjects, there shall be a continuous evaluation during a semester for 30 internal marks and 70 end semester examination marks. Out of the 30 marks for internal evaluation, day-to-day work in the laboratory shall be evaluated for 15 marks and internal practical examination shall be evaluated for 15 marks conducted by the laboratory teacher concerned. The end semester examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from the clusters of colleges which are decided by the Principal of the College.

For the Engineering Graphics subject, the distribution shall be 30 marks for internal evaluation (15 marks for day-to-day work and 15 marks for internal tests) and 70 marks for end semester examination. There shall be two internal tests in a Semester and the average of the two shall be considered for the award of marks for internal tests.

For Mandatory Courses like Environmental Science, Foreign Language: French, Human Values & Professional Ethics, Indian Constitution , Indian Traditional Knowledge, Technical & Soft Skills and Gender Sensitization, a student has to secure 50 marks out of100 marks (i.e. 50% of the marks allotted) in the continuous internal evaluation, for passing the subject/course.

INNOVATIVE PRODUCT DEVELOPMENT

Innovative Product Development shall be carried out in five stages: Innovative Product Development-I during II Year I semester, Innovative Product Development-II during II Year II semester, Innovative Product Development-III during III Year I semester, Innovative Product Development-IV during III Year II semester and Innovative Product Development-V during IV Year I semester. Each stage will be evaluated for 100 marks. Student has to work for implementation of their innovative idea, prepare a technical report and submit it to the department. Out of a total of 100 marks for the Innovative

Product Development in each stage,30 marks shall be for internal and 70 marks shall be for external end semester examination (Viva – Voce). The Internal marks evaluation shall be evaluated by the departmental committee consisting of Head of the Department, mentor and a senior faculty member. External marks shall be evaluated by the committee consisting of an external examiner from Industry; Head of the Department and mentor based on the work carried out in Innovative Product Development.

A student shall acquire 1 credit assigned to the each stage of Innovative Product Development. The student is deemed to have failed, if she (i) does not submit a report on Innovative Product Development or does not make a presentation of the same before the external examiner as per schedule, or (ii) secures less than 40% marks in the sum total of the CIE and SEE taken together.

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, she has to reappear for the same in the next subsequent semester, as and when it is scheduled.

INDUSTRY ORIENTED MINI PROJECT/INTERNSHIP

a) There shall be an Industry oriented Mini-Project / Internship, in collaboration with an Industry of the relevant specialization, to be registered immediately after III Year II Semester examinations, and taken up during the summer vacation for about eight weeks duration.

b) Industrial Oriented Mini Project/Summer Internship shall be submitted in a report form and presented before the committee in IV year I semester. Out of a total of 100 marks for the Industry Oriented Mini Project / Internship, 30 marks shall be for internal and 70 marks shall be for external End Semester Examination (Viva – Voce). The Industrial Oriented Mini Project/Summer Internship shall be evaluated in the IV Year I Semester. The Internal marks evaluation for shall be evaluated by the departmental committee consisting of Head of the Department, supervisor and a senior faculty member. External marks shall be evaluated by the committee consisting of an external examiner; Head of the Department and supervisor of the Industrial Oriented mini project/Summer Internship.

c) A student shall acquire 2 credits assigned to the Industrial Oriented Mini Project/Summer Internship. The student is deemed to have failed, if she (i) does not submit a report on Industrial Oriented mini project/Summer Internship. or does not make a presentation of

the same before the external examiner as per schedule, or (ii) secures less than 40% marks in the sum total of the CIE and SEE taken together.

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, she has to reappear for the same in the next subsequent semester, as and when it is scheduled.

d) There shall be an Industry oriented Mini-Project / Summer Internship, in collaboration with an Industry of the relevant specialization, to be registered immediately after III Year II Semester examinations, and taken up during the summer vacation for about eight weeks duration.

e) Industrial Oriented Mini Project/Summer Internship shall be submitted in a report form and presented before the committee in IV year I semester. Out of a total of 100 marks for the Industry Oriented Mini Project / Internship, 30 marks shall be for internal and 70 marks shall be for external End Semester Examination (Viva – Voce). The Industrial Oriented Mini Project/Summer Internship shall be evaluated in the IV Year I Semester. The Internal marks evaluation shall be evaluated by the departmental committee consisting of Head of the Department, supervisor and a senior faculty member. External marks shall be evaluated by the committee consisting of an external examiner; Head of the Department and supervisor of the Industrial Oriented mini project/Summer Internship.

UG project work shall be carried out in two stages: Project stage – I during IV Year I Semester. Project stage – I will be evaluated for 100 marks. Project Stage – II during IV Year II Semester. Project stage – II will be evaluated for 150 marks. Student has to submit project work report at the end of each semester. First report includes project work carried out in IV Year I semester and second report includes project work carried out in IV Year II Semester. Semester End Examination for both project stages shall be completed before the commencement of Semester End Theory examinations.

Each Student shall start the Project Work during the IV Year I Semester, as per the instructions of the Project Guide/Project Supervisor assigned by the Head of Department. Out of total 100 marks allotted for the Project Work, 30 marks shall be for CIE (Continuous Internal Evaluation and 70marks for the SEE (End Semester Viva-voce Examination). The report and the presentation shall be evaluated by the departmental committee consisting of Head of the Department, Project supervisor and a senior faculty member. It shall be evaluated for 30 marks by Project Supervisor and the other 70marks shall be awarded by a Departmental Committee consisting of Head of the Department, Senior faculty member and Project Supervisor based on the work carried out . A student shall acquire 4 credits assigned to the Project stage-I, when she secures 40% or more marks for the total of 100 marks. The Project stage-I shall be evaluated at the end of VII

semester by the department committee. There shall be no external evaluation for Project stage-I.

For Project Stage – I, the departmental committee consisting of Head of the Department, project supervisor and a senior faculty member shall evaluate the project work for 70 marks and project supervisor shall evaluate for 30 marks. The student is deemed to have failed, if he (i) 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, or (ii) secures less than 40% marks in the sum total of the Continuous Internal Evaluation and Semester End Examination taken together.

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

There shall be a Technical Seminar presentation in IV year II semester. For the seminar, the student shall collect the information on a specialized topic, prepare a technical report, and submit it to the department. It shall be evaluated by the departmental committee consisting of Head of the Department, seminar supervisor and a senior faculty member. The seminar report shall be evaluated for 100 internal marks. There shall be no external evaluation for the Technical Seminar.

Note: The topics for industrial oriented mini project, seminar and Project Stage – I shall be different from one another.

INNOVATION STARTUP & ENTREPRENEURSHIP

Innovation Startup & Entrepreneurship work shall be carried out in IV Year II Semester. The Innovation Startup & Entrepreneurship will be evaluated for 150 marks. Student has to work for implementation of their innovative idea, prepare a technical report, and submit it to the department. It shall be evaluated by the departmental committee consisting of Head of the Department, seminar supervisor and a senior faculty member. The report shall be evaluated for 150 internal marks. There shall be no external evaluation for the Technical Seminar.

Each Student shall start the Innovation Startup & Entrepreneurship Work during the IV Year II Semester, as per the instructions of the mentor assigned by the Head of Department. The Student has to work for implementation of their innovative idea, prepare a technical report, and submit it to the department. The Innovation Startup & Entrepreneurship will be evaluated for 150 marks. Out of total 150 marks allotted for the Innovation Startup & Entrepreneurship Work 50 marks shall be for CIE (Continuous Internal Evaluation and 100marks for the SEE (End Semester Viva-voce Examination). The report and the presentation shall be evaluated by the departmental committee

consisting of Head of the Department, mentor and a senior faculty member. It shall be evaluated for 50 marks by mentor and the other 100marks shall be awarded by a Departmental Committee consisting of Head of the Department, Senior faculty member and mentor based on the work carried out .

A student shall acquire 2 credits assigned to the Innovation Startup & Entrepreneurship, when she secures 40% or more marks for the total of 150 marks. Semester End Examination for The Innovation Startup & Entrepreneurship shall be completed before the commencement of Semester End Theory examinations. There shall be no external evaluation for Innovation Startup & Entrepreneurship.

For Project Stage – II, the external marks evaluation committee constituting of external examiner, Head of the Department and supervisor shall evaluate the project work for 100 marks and the internal marks evaluation committee constituting of Head of the department, senior faculty of the department and project supervisor shall evaluate it for 50 marks. The student is deemed to have failed, if she (i) does not submit a report on Project Stage - II, or does not make a presentation of the same before the external examiner as per schedule, or (ii) secures less than 40% marks in the sum total of the CIE and SEE taken together.

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, she has to reappear for the same in the next subsequent semester, as and when it is scheduled.

Course pattern

The entire course of study is for four academic years. I, II, III and IV years shall be on semester pattern.

A student, eligible to appear for the end examination in a subject, but absent for it or has failed in the end semester examination, may write the exam in that subject during the period of supplementary exams.

When a student is detained for lack of credits/shortage of attendance, she will not be promoted to the next semester for that particular academic year. However, the academic regulations under which she was first admitted shall continue to be applicable to her.

Grading procedure

Grades will be awarded to indicate the performance of students in each theory subject, laboratory / Practical's, seminar, Industry Oriented Mini Project, and project Stage – I &II. Based on the percentage of marks obtained (Continuous Internal Evaluation plus Semester End Examination, both taken together) as specified in item 7 above, a corresponding letter grade shall be given.

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:

Letter Grade (UGC Guidelines)	**Points**	**% of Marks secured in a subject or course (Class Intervals)**
O (Outstanding)	10	Greater than or equal to 90%
A+(Excellent)	9	80 and less than 90%
A(Very Good)	8	70 and less than 80%
B+(Good)	7	60 and less than 70%
B(Average)	6	50 and less than 60%
C(Pass)	5	40 and less than 50%
F(Fail)	0	Below 40%
AB (Absent)	0	-

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.

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.

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.

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

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

The Semester Grade Point Average (SGPA) is calculated by dividing the sum of credit points (CP) 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

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

where 'i' is the subject indicator index (takes into account 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 represents the grade points (GP) corresponding to the letter grade awarded for that i^{th} subject.

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 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

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

(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 1^{st} semester onwards up to and inclusive of the **8^{th}** semester, 'j' is the subject indicator index (takes into account all subjects from 1 to 8^{th} semesters), C_j is the no. of credits allotted to the j^{th} subject, and G 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 above illustrated calculation process of CGPA 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.

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

For calculations listed in regulations 9.6 to 9.9, performance in failed subjects/ courses (securing **F** grade) will also be taken into account, and the credits of such subjects/ courses will also be included in the multiplications and summations. After passing the failed subject(s) newly secured letter grades will be taken into account for calculation of SGPA and CGPA. However, Mandatory Courses will not be taken into consideration.

Passing standards

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

After the completion of each semester, a grade card or grade sheet (or transcript) 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, and grade earned etc.), credits earned, SGPA, and CGPA.

Declaration of results

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

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

Award of degree

In assessing the performance of the students in examinations, the usual approach is to award marks based on the examinations conducted at various stages (mid-term, end-semester etc.,) in a semester. As per UGC Autonomous guidelines, the following system is implemented in awarding the grades and CGPA under the **Choice Based Credit System (CBCS).**

A student shall register and put up minimum attendance in all 160 credits and shall earn a total of 160 credits for the award of B.Tech degree. Further, marks obtained in the 160 credits shall be considered for the calculation of percentage of marks as well as overall 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 the B.Tech. Degree in the chosen branch of Engineering as selected at the time of admission.

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

Students with final CGPA (at the end of the under graduate programme) ≥7.50, and shall be placed in **'first class with distinction'**.

Students with final CGPA (at the end of the under graduate programme) ≥6.50 but < 7.50, shall be placed in **'first class'**.

Students with final CGPA (at the end of the under graduate programme) ≥5.50 but < 6.50, shall be placed in **'Second class'.**

All the other students who qualify for the award of the degree (as per item 12.1), with final CGPA (at the end of the under graduate programme) ≥5.00 but < 5.50, shall be placed in **'pass class'** provided they secure a total of 160 credits.

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

Students fulfilling the conditions listed under item 12.3 alone will be eligible for award of **'university rank'** and **'gold medal'.**

Withholding of results

If the student has not paid the fees to the university/ college 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 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

Transitory regulations.

A student who has discontinued for any reason, or has been detained for want of attendance or lack of required credits as specified, or who has failed after having undergone the degree programme, may be considered eligible for readmission to the same subjects/ courses (or equivalent subjects/ courses, as the case may be), and same Professional Electives/ Open Electives (or from set/category of electives or equivalents suggested, as the case may be) as and when they are offered (within the time-frame of 8 years from the date of commencement of student's first year first semester).

After the revision of the regulations, the students of the previous batches will be given two chances for passing in their failed subjects, one supplementary and the other regular. If the students cannot clear the subjects in the given two chances, they shall be given equivalent subjects as per the revised regulations which they have to pass in order to obtain the required number of credits.

In case of transferred students from other Universities, the credits shall be transferred to JNTUH as per the academic regulations and course structure of the MRECW.

Minimum Instruction Days

The minimum instruction days for each semester shall be 90 days.

General

The academic regulation should be read as a whole for the purpose of any interpretation.

In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Academic Council is final.

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

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 prescribed curriculum of the institute, and also pass the subjects of prescribed curriculum of the institute which the candidates have not studied at the earlier Institution on their own without the right to sessional marks. Further, though the students have passed some of the subjects at the earlier institutions, if the same subjects are prescribed in different semesters of prescribed curriculum of the institute, the candidates have to study those subjects in prescribed curriculum of the institute in spite of the fact that those subjects are repeated.

Scope

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

In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Academic Council is final.

The college 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 date notified by the College Authorities.

Academic Regulations for B.Tech. (Lateral Entry Scheme) w.e.f the AY 2022-23

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

The LES students after securing admission shall pursue a course of study for not less than three academic years and not more than six academic years.

2. The student shall register for 123 credits and secure total 123 credits with CGPA ≥ 5 from II year to IV year B.Tech. programme (LES) for the award of B.Tech. degree.

3. The students, who fail to fulfill the requirement for the award of the degree in six academic years from the year of admission, shall forfeit their seat in B.Tech.

4. The attendance requirements of B. Tech. (Regular) shall be applicable to B.Tech. (LES).

5. <u>Promotion rule</u>

A student is deemed to have satisfied the minimum academic requirements if he has earned the credits allotted to each theory/practical design/drawing subject/project and secures not less than 35% of marks in the mid examination (rounded to 10 marks out of 30 marks) and also not less than 35% in end semester examination and minimum 40% of marks in the sum total of the mid-term and end semester exams put together.

A student will be eligible to be promoted from II year to III year, upon fulfilling the academic requirements of 60 % credits up to II year II semester examinations and secures prescribed minimum attendance in II year.

5.4 A student will be eligible to be promoted from III year to IV year, upon fulfilling the academic requirements of 60 % credits up to III year II semester examinations and secures prescribed minimum attendance in III year.

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

<u>MALPRACTICES RULES</u>

DISCIPLINARY ACTION FOR IMPROPER CONDUCT IN EXAMINATIONS

S.No	Nature of Malpractices/Improper conduct	Punishment
	If the candidate:	
1. (a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, Cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which he is appearing but has not made use of (material shall include any marks on the body of the candidate which can be used as an aid in the subject of the examination)	Expulsion from the examination hall and cancellation of the performance in that subject only.
(b)	Gives assistance or guidance or receives it from any other candidate orally or by any other body language methods or communicates through cell phones with any candidate or persons in or outside the exam hall in respect of any matter.	Expulsion from the examination hall and cancellation of the performance in that subject only of all the candidates involved. In case of an outsider, he will be handed over to the police and a case is registered against him.

2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or practical) in which the candidate is appearing.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted to appear for the remaining examinations of the subjects of that Semester/year. The Hall Ticket of the candidate is to be cancelled in accordance with the Malpractice Committee decision.
3.	Impersonates any other candidate in connection with the examination.	The candidate who has impersonated shall be expelled from examination hall. The candidate is also debarred and forfeits the seat. The performance of the original candidate who has been impersonated, shall be cancelled in all the subjects of the examination (including practicals and project work) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him.
4.	Smuggles in the Answer book or additional sheet or takes out or arranges to send out the question paper during the examination or answer	Expulsion from the examination hall and cancellation of performance in that subject and all

	book or additional sheet, during or after the examination.	the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
5.	Using objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks.	Cancellation of the performance in that subject.
6.	Refuses to obey the orders of the Chief Superintendent/Assistant Superintendent / any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs or by visible representation, assaults the officer-incharge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the College campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.	In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject and all other subjects the candidate(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The candidates also are debarred and forfeit their seats. In case of outsiders, they will be handed over to the police and a police case is registered against them.
7.	Leaves the exam hall taking away answer script or intentionally tears of the script or any part	Expulsion from the examination hall and cancellation of

	thereof inside or outside the examination hall.	performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
8.	Possess any lethal weapon or firearm in the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat.
9.	If student of the college, who is not a candidate for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.	Student of the colleges expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat. Person(s) who do not belong to the College will be handed over to police and, a police case will be registered against them.

10.	Comes in a drunken condition to the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year.
11.	Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.	Cancellation of the performance in that subject and all other subjects the candidate has appeared including practical examinations and project work of that semester/year examinations.
12.	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the University for further action to award suitable punishment.	

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BACHELOR OF TECHNOLOGY

CSE (CYBER SECURITY)

COURSE STRUCTURE

B.Tech Ist YEAR SYLLABUS

(Batches admitted from the Academic Year 2022 - 2023)

MALLA REDDY ENGINEERINGCOLLEGE FOR WOMEN

(Autonomous Institution-UGC, Govt. of India)

Accredited by NBA & NAAC with 'A' Grade, UGC, Govt. of India
NIRF Indian Ranking, Accepted by MHRD, Govt. of India
Band Excellent National Ranking by ARIIA, MHRD, Govt. of India
Maisammaguda, Dhullapally, Secunderabad, Kompally-500100

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(Autonomous Institution –UGC, Govt. of India)

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NIRF Indian Ranking ,Accepted by MHRD, Govt. of India | Rank Band –Excellent by ARIIA, Accepted by MHRD, Govt.of India
Approved by AICTE, Affiliated to JNTUH, ISO 9001: 2015 Certified Institution
Platinum Rated by AICTE-CII Survey , AAAA+ Rated by Digital Learning Magazine, AAAA Rated by Careers 360
National Ranking –Top 100 Rank band by Outlook Magazine, Ranked as Top Engineering Colleges of Eminence in India- 2022 by CSR Rankings
51st National Ranking & 5th Telangana State Ranking by Times of India News Magazine, 86th National Ranking by the Week Magazine of India

COURSE STRUCTURE

I Year B. Tech – I Semester (I Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks	
							INT	EXT
1	2200BS01	Linear Algebra and Differential Equations	3	1	0	4	30	70
2	2205ES01	Programming for Problem Solving	3	0	0	3	30	70
3	2202ES01	Basic Electrical Engineering	3	1	0	4	30	70
4	2200BS07	Engineering Chemistry	3	0	0	3	30	70
5	2205ES61	Programming for Problem Solving Lab	0	0	3	1.5	30	70
6	2202ES61	Basic Electrical Engineering Lab	0	0	2	1	30	70
7	2200BS62	Engineering chemistry Lab	0	0	2	1	30	70
8	2203ES61	Engineering Workshop	1	0	3	2.5	30	70
9	2200MC01	Environmental Science*	1	0	0	0	100	0
10		Induction Programme						
		TOTAL	**14**	**2**	**10**	**20**	**340**	**560**

I Year B. Tech – II Semester (II Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks	
							INT	EXT
1	2200BS03	Advanced Calculus & Transform Techniques	3	1	0	4	30	70
2	2205ES02	Python Programming	3	0	0	3	30	70
3	2200BS06	Applied Physics	3	1	0	4	30	70
4	2200HS01	English	2	0	0	2	30	70
5	2203ES01	Computer Aided Engineering Graphics	1	0	4	3	30	70
6	2200BS61	Applied Physics Lab	1	0	3	1.5	30	70
7	2205ES62	Python Programming Lab	0	0	3	1.5	30	70
8	2200HS61	English Language and Communication Skills Lab	0	0	2	1	30	70
9	2200MC02	French Language*	2	0	0	0	100	0
		TOTAL	**14**	**2**	**12**	**20**	**340**	**560**

**Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree*

II Year B. Tech – I Semester (III Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks	
							INT	EXT
1	2200BS04	Probability and Statistics	3	1	0	4	30	70
2	2204ES01	Analog and Digital Electronic Circuits	3	0	0	3	30	70
3	2205PC01	Data Structures & Algorithms	3	0	0	3	30	70
4	2205PC03	Discrete Mathematics	3	0	0	3	30	70
5	2205PC10	Computer Networks	3	0	0	3	30	70
6	2205PC61	Data Structures & Algorithms Lab	0	0	3	1.5	30	70
7	2205PC66	Computer Networks lab	0	0	3	1.5	30	70
8	2262PR01	Innovative Product Development-1	0	0	2	1	30	70
9	2200MC03	Human values and Professional Ethics*	2	0	0	0	100	0
		TOTAL	**17**	**1**	**8**	**20**	**340**	**560**

**Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree*

II Year B. Tech – II Semester (IV Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks	
							INT	EXT
1	2200HS03	Managerial Economics and Financial Analysis	3	0	0	3	30	70
2	2205PC06	Object Oriented Programming through Java	3	1	0	4	30	70
3	2262PC01	Fundamentals of Network Security	3	0	0	3	30	70
4	2205PC05	Design and Analysis of Algorithms	3	0	0	3	30	70
5	2205PC08	Database Management Systems	3	0	0	3	30	70
6	2205PC63	Object Oriented Programming through Java Lab	0	0	3	1.5	30	70
7	2205PC64	Database Management Systems Lab	0	0	3	1.5	30	70
8	2262PR02	Innovative Product Development-2	0	0	2	1	30	70
9	2200MC04	Indian Constitution *	2	0	0	0	100	0
		TOTAL	**20**	**1**	**8**	**20**	**340**	**560**

**Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree*

I I I Year B. Tech – I Semester (V Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks	
							INT	EXT
1	2262PC02	Applied Cryptography	3	0	0	3	30	70
2	2262PC06	Linux programming	3	1	0	4	30	70
3		Open Elective -1	3	0	0	3	30	70
4	2262PC03	Intrusion Detection Systems	3	0	0	3	30	70
5		Professional Elective-1	3	0	0	3	30	70
6	2262PC63	Linux programming Lab	0	0	3	1.5	30	70
7	2262PC61	Applied Cryptography Lab	0	0	3	1.5	30	70
8	2262PR03	Innovative Product Development-3	0	0	2	1	30	70
9	2200MC05	Technical Communications and Soft Skills*	2	0	0	0	100	0
		TOTAL	**17**	**0**	**8**	**20**	**340**	**560**

*Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree

III Year B. Tech – II Semester (VI Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks	
							INT	EXT
1	2200HS02	Professional English	3	0	0	3	30	70
2	2262PC04	Ethical Hacking	3	0	0	3	30	70
3	2262PC07	Cyber security and Vulnerability Assessment	3	1	0	3	30	70
4		Professional Elective – 2	3	0	0	3	30	70
5		Open Elective – 2	3	0	0	3	30	70
6	2262PC65	Ethical Hacking lab	0	0	3	1.5	30	70
7	2262PC64	Cyber security and Vulnerability Assessment Lab	0	0	3	1.5	30	70
8	2262PR04	Innovative Product Development-4	0	0	2	1	30	70
9	2200MC06	Indian Tradition Knowledge *	2	0	0	0	100	0
		TOTAL	**17**	**1**	**8**	**20**	**340**	**560**

*Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree Industry Oriented Mini Project/ Internship - During Summer Vacation- Evaluation in IV-I

IV Year B. Tech – I Semester (VII Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks	
							INT	EXT
1	2205PC12	Machine Learning	3	0	0	3	30	70
2	2262PC05	Digital Forensics	3	0	0	3	30	70
3		Professional Elective -3	3	0	0	3	30	70
4		Professional Elective -4	3	0	0	3	30	70
5		Open Electives-3	3	0	0	3	30	70
6	2205PC67	Machine Learning Lab	0	0	2	1	30	70
7	2262PC62	Digital Forensics Lab	0	0	2	1	30	70
8	2262PR05	Innovative Product Development -5	0	0	2	1	100	0
9	2262PR06	Industry Oriented Mini Project / Internship	0	0	2	1	30	70
10	2262PR07	Project-I	0	0	2	1	30	70
11	2200MC07	Gender Sensitization*	2	0	0	0	100	0
		TOTAL	**17**	**0**	**10**	**20**	**470**	**630**

*Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree

*Summer between III & IV Year: Mini Project

IVYear B. Tech – II Semester (VIII Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks	
							INT	EXT
1		Professional Elective -5	3	0	0	3	30	70
2		Professional Elective -6	3	0	0	3	30	70
3		Open Electives-4	3	0	0	3	30	70
4	2262PR08	Technical Seminar	2	0	0	2	100	0
5	2262PR09	Project-II	0	0	12	6	30	70
6	2262PR10	Innovation Startup & Entrepreneurship	0	0	6	3	30	70
		TOTAL	**11**	**0**	**18**	**20**	**250**	**350**

Semester	I-I	I-II	II-I	II-II	III-I	III-II	IV-I	IV-II	TOTAL
Credits	20	20	20	20	20	20	20	20	160

PROFESSIONAL ELECTIVES					
Professional Elective –I		**Professional Elective -II**		**Professional Elective -III**	
2205PE01	Artificial Neural Networks	2205PE03	Principles of Natural language Processing	2205PE07	Computer Vision
2212PE01	Foundations of Data Science	2266PE01	Text Analytics	2267PE03	Software Testing Methodologies
2262PE13	Adhoc Sensor Networks	2205PE04	Mobile Computing	2267PE02	Data Mining
Professional Elective –IV		**Professional Elective -V**		**Professional Elective –VI**	
2205PE05	Pattern Recognition	2205PE09	Principles Of Deep Learning	2205PE11	Web Services
2212PE04	Business Analytics	2205PE05	Introduction to Big Data Analytics	2212PE06	Distributed Trust and Block Chain Technology
2205PE08	Cloud Computing	2205PE10	Distributed Systems	2205PE12	Internet of Things

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2200BS01: LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS

B.TECH I YEAR I SEMESTER **L T P C**
3 1 0 4

Course Objectives:.To learn

- Types of Matrices and their properties, concept of a rank of the matrix and applying this concept to know the consistency and solving the system of linear equations.
- Concept of Eigen values and Eigenvectors and to reduce the quadratic form to canonical form.
- Methods of solving the linear differential equations of first order, equations solvable for p, y and x.
- Methods of solving the linear differential equations of higher order.
- Partial differentiation, concept of total derivative, finding maxima and minima of function of two and three variables.

Course Outcomes:

After learning the contents of this paper, the student must be able to

- Write the matrix representation of a set of linear equations and to analyze the solution of the system of equations
- Find the Eigen values and Eigen vectors and reduce the quadratic form to canonical form using orthogonal transformations.
- Identify whether the given differential equation of first order is exact or not and solve the first order differential equations.
- Solve higher differential equation and apply the concept of differential equation to real world problems.
- Find the extreme values of functions of two variables with/ without constraints.

UNIT-I:

Matrices: Types of Matrices, Symmetric; Skew-symmetric; Hermitian; Skew-Hermitian; Orthogonal matrices; Unitary Matrices; Rank of a matrix by Echelon form and Normal form, Inverse of Non-singular matrices by Gauss-Jordan method; System of linear equations; Solving system of Homogeneous and Non-Homogeneous equations. Gauss elimination method; Gauss Seidel Iteration Method.

UNIT-II:

Eigen Values and Eigen Vectors: Eigen values and Eigenvectors and their properties; Diagonalization of a matrix; Cayley-Hamilton Theorem (without proof); Finding inverse and powers of a matrix by Cayley-Hamilton Theorem; Linear Transformation and Orthogonal Transformation; Quadratic forms and Nature of the Quadratic Forms; Reduction of Quadratic form to Canonical form by Orthogonal Transformation.

UNIT-III:

First Order ODE: Exact, Linear and Bernoulli's equations; Newton's law of cooling, Law of Natural Growth and Decay; Equations not of first degree: Equations solvable for p, y and x, Clairaut's type.

UNIT-IV:

Ordinary Differential Equations of Higher Order: Second order linear differential equations with constant coefficients: Non-Homogeneous terms of the type e^{ax}, *sin ax, cos ax*, polynomials in x, $e^{ax}V(x)$ and $x\,V(x)$, Method of Variation of Parameters.

UNIT-V:

Multivariable Calculus: Definitions of Limit and Continuity. Partial Differentiation; Euler's Theorem; Total derivative; Jacobian; Functional dependence & independence, Maxima and minima of functions of two variables and three variables using method of Lagrange's multipliers.

TEXTBOOKS:

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36th Edition, 2010.
2. R. K. Jain and S.R.K. Iyengar, Advanced Engineering Mathematics,NarosaPubishers, 4th Edition, 2014.

REFERENCES:

1. Michael Greenberg, Advanced Engineering Mathematics, Pearson Education, 2nd Edition, 1998.
2. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons,
3. Ramana B.V., Higher Engineering Mathematics, Tata McGraw Hill New Delhi, 11th Reprint, 2017.

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MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2205ES01: PROGRAMMING FOR PROBLEM SOLVING

B.TECH I YEAR I SEMESTER **L T P C**
3 0 0 4

Course Objectives:

- To learn the fundamentals of computers.
- To understand the various steps in program development.
- To learn the syntax and semantics of C programming language.
- To learn the usage of structured programming approach in solving problems.

Course Outcomes: The student will learn

- To write algorithms and to draw flowcharts for solving problems.
- To convert the algorithms/flowcharts to C programs.
- To code and test a given logic in C programming language.
- To decompose a problem into functions and to develop modular reusable code.
- To use arrays, pointers, strings and structures to write C programs.
- Searching and sorting problems.

UNIT I:

Introduction: Introduction to components of a computer system: disks, primary and secondary memory, processor, operating system, compilers, creating, compiling and executing a program etc., Number systems.

Introduction to Algorithms: steps to solve logical and numerical problems. Representation of Algorithm, Flowchart/Pseudo code with examples, Program design and structured programming. Introduction to C Programming Language:

Structure of a C program, Identifiers, variables (with data types and space requirements), Syntax and Logical Errors in compilation, object and executable code, Operators- Arithmetic operators, relational and logical operators, increment and decrement operators, Bitwise operators, conditional operator, assignment operator, expressions and precedence, Expression evaluation, type conversion, typedef, The main method and command line arguments.

I/O: Simple input and output with scanf and printf, formatted I/O, Introduction to stdin, stdout and stderr.

UNIT II:

Conditional Branching and Loops: Writing and evaluation of conditionals and consequent branching with if, if-else, switch-case, ternary operator, goto, Iteration with for, while, do while loops

Arrays: one and two dimensional arrays, creating, accessing and manipulating elements of arrays.

Strings: Introduction to strings, handling strings as array of characters, basic string functions available in C (strlen, strcat, strcpy, strstr etc.), arrays of strings

UNIT – III

Functions: Designing structured programs, declaring a function, Signature of a function, Parameters and return type of a function, passing parameters to functions, call by value, Passing arrays to functions, passing pointers to functions, idea of call by reference, Some C standard functions and libraries, Passing 1-D arrays, 2-D arrays tofunctions

Recursion: Simple programs, such as Finding Factorial, Fibonacci series, Towers of Hanoi etc., Limitations of Recursive functions.

Storage Classes - extern, auto, register, static, scope rules, block structure.

UNIT IV:

Structures: Defining structures, initializing structures, unions, Array of structures

Pointers: Idea of pointers, Defining pointers, Pointers to Arrays and Structures, pointers to pointers ,Use of Pointers in self-referential structures, usage of self referential structures in linked list (no implementation) Enumeration data type and bit-fields.

Dynamic Memory Management functions, Preprocessing Directives, Preprocessor: Commonly used Preprocessor commands like include, define, undef, if, ifdef, ifndef .

UNIT – V

File Handling: Files: Text and Binary files, Creating and Reading and writing text and binary files, Appending data to existing files, Writing and reading structures using binary files, Random access using fseek, ftell and rewind functions

Introduction to Algorithms: Algorithms for finding roots of quadratic equations, finding minimum and maximum numbers of a given set, finding if a number is prime number, etc. Basic searching in an array of elements (linear and binary search techniques), Basic algorithms to sort array of elements (Bubble, Insertion and Selection sort algorithms), Basic concept of order of complexity through the example programs

Text Books:

1. Computer Science: A Structured Programming Approach Using C, B. A. ForouzanandR. F. Gilberg, Third Edition, Cengage Learning.
2. Programming in C. P. Dey and M Ghosh , Second Edition, Oxford University Press.

Reference Books:

1. The C Programming Language, B.W. Kernighan and Dennis M. Ritchie, Second Edition, Pearson education.
2. Programming with C, B. Gottfried, 3rd edition, Schaum's outlines, McGraw Hill Education (India) PvtLtd.
3. C From Theory to Practice, G S. Tselikis and N D. Tselikas,CRCPress.
4. Basic computation and Programming with C, Subrata Saha and S. Mukherjee, Cambridge University Press

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2202ES01: BASIC ELECTRICAL ENGINEERING

B.TECH I YEAR I SEMESTER **L T P C**
3 1 0 4

Course Objectives:

1. To introduce the concepts of electrical circuits and its components
2. To understand DC circuits and AC single phase & three phase circuits
3. To study and understand the different types of DC/AC machines and Transformers.
4. To import the knowledge of various electrical installations.
5. To introduce the concept of power, power factor and its improvement.

Course Outcomes:

After learning the course the student will be able to

1. Analyze and solve electrical circuits using network laws and theorems.
2. Understand and analyze basic electric circuits
3. Study the working principles of various electrical machines
4. Introduce components of Low Voltage Electrical Installations

UNIT-I:

D.C. Circuits: Electrical circuit elements (R, L and C), voltage and current sources, KVL&KCL, analysis of simple circuits with DC excitation. Superposition, Thevenin and Norton Theorems. Time-domain analysis of first-order RL and RC circuits.

UNIT-II

A.C. Circuits: Representation of sinusoidal waveforms, peak and rms values, phasor representation, real power, reactive power, apparent power, power factor, Analysis of single- phase AC circuits consisting of R, L, C, RL, RC, RLC combinations (series and parallel), resonance in series RLC circuit. Three-phase balanced circuits, voltage and current relations in star and delta connections.

UNIT-III:

Transformers: Ideal and practical transformer, equivalent circuit, losses in transformers, regulation and efficiency. Auto-transformer and three-phase transformer connections.

UNIT-IV:

Electrical Machines: Generation of rotating magnetic fields, Construction and working of a three-phase induction motor, Significance of torque-slip characteristic. Loss components and efficiency. Single-phase induction motor. Construction, working, torque-speed characteristic and speed control of separately excited DC motor. Construction and working of synchronous generators.

UNIT-V:

Electrical Installations: Components of LT Switchgear: Switch Fuse Unit (SFU), MCB, ELCB, MCCB, Types of Wires and Cables, Earthing. Types of Batteries, Important Characteristics for Batteries. Elementary calculations for energy consumption, power factor improvement.

Text-Books:

1. Basic Electrical Engineering - D.P. Kothari and I.J. Nagrath, 3rd edition 2010, Tata McGrawHill.
2. D.C. Kulshreshtha, "Basic Electrical Engineering", McGraw Hill,2009.
3. L.S. Bobrow, Fundamentals of Electrical Engineering", Oxford University Press,2011

Reference-Books:

1. Electrical and Electronics Technology, E. Hughes, 10th Edition, Pearson,2010
2. Electrical Engineering Fundamentals, Vincent Deltoro, Second Edition, Prentice Hall India,1989.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2200BS07 : ENGINEERING CHEMISTRY

B.TECH I YEAR I SEMESTER **L T P C**
3 0 0 3

COURSE OBJECTIVES: To learn

- To bring adaptability to the concepts of chemistry and to acquire the required skills to become a perfect engineer.
- To impart the basic knowledge of atomic, molecular and electronic modifications which makes the student to understand the technology based on them.
- To acquire the knowledge of electrochemistry, corrosion and water treatment which are essential for the Engineers and in industry.
- To acquire the skills pertaining to spectroscopy and to apply them for medical and other fields.
- To impart the knowledge of stereochemistry and synthetic aspects useful for understanding reaction pathways

COURSE OUTCOMES:

The basic concepts included in this course will help the student to gain:

- The knowledge of atomic, molecular and electronic changes, band theory related to conductivity.
- To know the modern technology and interpret different problems involved in industrial utilization of water.
- The required principles and concepts of electrochemistry, corrosion to predict the behavior of a system under different variables.
- The knowledge of configurational and conformational analysis of molecules and reaction mechanisms.
- The required skills to get clear concepts on basic spectroscopy and application to medical and other fields.

UNIT - I:

Molecular structure and Theories of Bonding: Atomic and Molecular orbital's. Linear Combination of Atomic Orbital's (LCAO), molecular orbital's of diatomic molecules, molecular orbital energy level diagrams of N_2, O_2 and F_2 molecules. π molecular orbital's of butadiene and benzene.

Crystal Field Theory (CFT): Salient Features of CFT – Crystal Field Splitting of transition metal ion d-orbital's in Tetrahedral, Octahedral and square planar geometries. Band structure of solids and effect of doping on conductance.

UNIT - II:

Water and its treatment: Introduction – hardness of water – Causes of hardness - Types of hardness: temporary and permanent – expression and units of hardness – Estimation of hardness of water by complexo metric method. Potable water and its specifications. Boiler troubles: Scales and Sludge's,

Priming and Foaming, Caustic Embrittlement. Steps involved in treatment of water – Disinfection of water by chlorination and ozonization. Boiler feed water and its treatment – Calgon conditioning, Phosphate conditioning and Colloidal conditioning. External treatment of water – Ion exchange process. Desalination of water – Reverse osmosis. Numerical problems.

UNIT - III:

Electrochemistry and corrosion: Electro chemical cells – electrode potential, standard electrode potential, types of electrodes – Calomel, Quinhydrone and Glass electrode. Nernst equation, Determination of pH of a solution by using quinhydrone and glass electrode. Electrochemical series and its applications. Numerical problems. Potentiometric titrations.

Electrochemical sensors: Potentiometric Sensors and voltametric sensors. Examples:analysis of Glucose and urea.

Batteries – Primary: Lithium cell, secondary batteries : Lead – acid storage battery and Lithium ion battery, Fuel cells: H_2-O_2 Fuel cell, CH_3OH-O_2 Fuel cell.

Causes and effects of corrosion – Theories of chemical and electrochemical corrosion – mechanism of electrochemical corrosion, Types of corrosion: Galvanic, water-line and pitting corrosion. Factors affecting rate of corrosion, Corrosion control methods- Cathodic protection – Sacrificial anode and impressed current cathodic methods. Surface coatings – metallic coatings – methods of application: Galavanising , Tinning , Metal Cladding, Electro-deposition, Electroless plating of Nickel.

UNIT - IV:

Stereochemistry, Reaction Mechanism and synthesis of drug molecules: Introduction to representation of 3-dimensional structures, Structural and stereoisomers, configurations, symmetry and chirality. Enantiomers, diastereomers, optical activity and Absolute configuration. Conformation analysis of n- butane.

Substitution reactions: Nucleophilic substitution reactions: Mechanism of SN^1, SN^2 reactions.

Electrophilic and nucleophilic addition reactions: Addition of HBr to propene. Markownikoff and anti Markownikoff's additions. Grignard additions on carbonyl compounds. Elimination reactions: Dehydro halogenation of alkylhalides, Saytzeff rule. Oxidation reactions: Oxidation of alcohols using $KMnO_4$ and chromic acid. Reduction reactions: Reduction of carbonyl compounds using $LiAlH_4$ & $NaBH_4$.Hydroboration of olefins. Structure, synthesis and pharmaceutical applications of Paracetamol and Aspirin.

UNIT – V

Spectroscopic techniques and applications: Principles of electronic spectroscopy: Beer Lamberts law, Numerical problems, types of electronic excitations , applications of UV –Visible spectroscopy. IR Spectroscopy: Principle, Modes of vibrations, selection rules, Force Constant ,Some common organic functional groups Wave number regions (C-H, NH_2, OH, -COOH, C=O, C ≡ N, C=C, C ≡ C), Á́pplications of IR Spectroscopy, ^{1}H-NMR(NMR Spectroscopy), Principles of NMR spectroscopy, chemical shift, Chemical shifts of some organic protons , Introduction to Magnetic resonance imaging.

Suggested Text Books:

1. Physical Chemistry, by P.W. Atkins
2. Engineering Chemistry by P.C.Jain & M.Jain; Dhanpat Rai Publishing Company (P)Ltd., New Delhi.
3. Fundamentals of Molecular Spectroscopy, by C.N. Banwell
4. Organic Chemistry: Structure and Function by K.P.C. Volhardt and N.E.Schore, 5th Edition.
5. University Chemistry, by B.M. Mahan, Pearson IV Edition.
6. Engineering Chemistry (NPTEL Web-book), by B.L. Tembe, Kamaluddin and M.S.Krishnan.

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MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2205ES61: PROGRAMMING FOR PROBLEM SOLVING LAB

B.TECH I YEAR I SEMESTER **L T P C**

0 0 3 1.5

Course Objectives: The students will learn the following:

- To work with an IDE to create, edit, compile, run and debug programs
- To analyze the various steps in program development.
- To develop programs to solve basic problems by understanding basic concepts in C like operators, control statements etc.
- To develop modular, reusable and readable C Programs using the concepts like functions, arrays etc.
- To write programs using the Dynamic Memory Allocation concept.
- To create, read from and write to text and binary files

Course Outcomes: The candidate is expected to be able to:

- formulate the algorithms for simple problems
- translate given algorithms to a working and correct program
- correct syntax errors as reported by the compilers
- identify and correct logical errors encountered during execution
- represent and manipulate data with arrays, strings and structures
- use pointers of different types
- create, read and write to and from simple text and binary files
- modularize the code with functions so that they can be reused

Practice sessions:

1. Write a simple program that prints the results of all the operators available in C (including pre/ post increment, bitwise and/or/not, etc.). Read required operand values from standard input.
2. Write a simple program that converts one given data type to another using auto conversion and casting. Take the values form standard input.

Simple numeric problems:

a) Write a program for fiend the max and min from the three numbers.
b) Write the program for the simple, compound interest.
c) WriteprogramthatdeclaresClassawardedforagivenpercentageofmarks,wheremark <40%= Failed, 40% to <60% = Second class, 60% to <70%=First class, >= 70% = Distinction.Read percentage from standard input.
d) Write a program that prints a multiplication table for a given number and the number of rows in the table.

For example, for a number 5 and rows = 3, the output should be:

5 x 1 = 5

5 x 2=10

5 x 3=15

e) Write a program that shows the binary equivalent of a given positive number between 0 to 255.

Expression Evaluation:

i) A building has 10 floors with a floor height of 3 meters each. A ball is dropped from the top of the building. Find the time taken by the ball to reach each floor. (Use the formulas = ut+(1/2)at^2 where u and a are the initial velocity in m/sec (= 0) and acceleration in m/sec^2 (= 9.8m/s^2)).

ii) Write a C program, which takes two integer operands and one operator from the user, performs the operation and then prints the result. (Consider the operators +,-,*, /, % and use Switch Statement)

iii) Write a program that finds if a given number is a prime number

iv) Write a C program to find the sum of individual digits of a positive integer and test given number is palindrome.

v) A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to generate the first n terms of the sequence.

vi) Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.

vii) Write a C program to find the roots of a Quadratic equation.

viii) Write a C program to calculate the following, where x is a fractional value. 1-x/2 +x^2/4-x^3/6

ix) WriteaCprogramtoreadintwonumbers,xandn,andthencomputethesumofthis geometricprogression:1+x+x^2+x^3+.....+x^n.Forexample:ifnis3andxis5, then the program computes 1+5+25+125.

Arrays and Pointers and Functions:

a) Write a C program to find the minimum, maximum and average in an array of integers.

b) Write a functions to compute mean, variance, Standard Deviation, sorting of n elements in single dimension array.

c) Write a C program that uses functions to perform the following:

i. Addition of Two Matrices

ii. Multiplication of Two Matrices

iii. Transpose of a matrix with memory dynamically allocated for the new matrix as row and column counts may not be same.

d) Write C programs that use both recursive and non-recursive functions

To find the factorial of a given integer.

i) To find the GCD (greatest common divisor) of two givenintegers.
ii) To find x^n

e) Write a program for reading elements using pointer into array and display the values using array.
f) Write a program for display values reverse order from array usingpointer.
g) Write a program through pointer variable to sum of n elements fromarray.

Strings

a) Write a C program to convert a Roman numeral ranging from I to L to its decimal equivalent.
b) Write a C program that converts a number ranging from 1 to 50 to Romanequivalent
c) Write a C program that uses functions to perform the followingoperations:
   - To insert a sub-string in to a given main string from a givenposition.
   - To delete n Characters from a given position in a givenstring.
d) Write a C program to determine if the given string is a palindrome or not (Spelled same in both directions with or without a meaning like madam, civic, noon, abcba,etc.)
e) Write a C program that displays the position of a character ch in the string S or – 1 if S doesn‘t contain ch.
f) Write a C program to count the lines, words and characters in a giventext.

Structures & Unions:

a) Write a C program that uses functions to perform the following operations usingStructure
   - Reading a complex number
   - Writing Complex Number
   - Addition of 2 Complex Numbers
   - Multiplication of two complex numbers
b) Write a C program to store information of 5 students using structures.
c) Write a C program to Access all structures members using pointer structure variable.
d) Write a C program to access members of union?

Files

a) Write a C program to display the contents of a file to standard output device.
b) Write a C program which copies one file to another, replacing all lowercase characters with their upper case equivalents.
c) Write a C program to count the number of times a character occurs in a text file. The file name and the character are supplied as command line arguments.
d) Write a C program that does the following:
e) It should first create a binary file and store 10 integers, where the file name and 10 values aregiveninthecommandline.(hint:convertthestringsusingatoifunction)Nowthe

   program asks for an index and a value from the user and the value at that index should be changed to the new value in the file. (hint: use fseek function).The program should then read all 10 values and print them back.

f) Write a C program to merge two files into a third file (i.e., the contents of the firs t file followed by those of the second are put in the third file).

Miscellaneous:

a. Write a menu driven C program that allows a user to enter n numbers and then choose between finding the smallest, largest, sum, or average. The menu and all the choices are to be functions. Use a switch statement to determine what action to take. Display an error message if an invalid choice is entered.
b. Write a C Program to construct a pyramid of numbers as follows:1

```
*       1       1       *
* *     2 3     2 2     * *
* * *   4 5 6   3 3 3   * * *
                4 4 4 4 * * * *
```

c. Write a C Program implement Student Data Base System Using Files &Structures.

Sorting and Searching:

a. Write a C program that uses non recursive function to search for a Key value in a given list of integers using linear search method.
b. Write a C program that uses non recursive function to search for a Key value in a given sorted list of integers using binary search method.
c. Write a C program that implements the Bubble sort method to sort a given list of integers in ascending order.
d. Write a C program that sorts the given array of integers using selection sort in descending order
e. Write a C program that sorts the given array of integers using insertion sort in ascending order
f. Write a C program that sorts a given array of names

Suggested Reference Books for solving the problems:

i. Byron Gottfried, Schaum's Outline of Programming with C, McGraw-Hill
ii. B.A. Forouzan and R.F. Gilberg C Programming and Data Structures, Cengage Learning, (3rd Edition)
iii. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hall of India
iv. R.G. Dromey, How to solve it by Computer, Pearson(16thImpression)
v. Programming in C, Stephen G. Kochan, Fourth Edition, Pearson Education.
vi. Herbert Schildt, C: The Complete Reference, Mc Graw Hill,4thEdition

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2202ES61: BASIC ELECTRICAL ENGINEERING LAB

B.TECH I YEAR I SEMESTER **L T P C**
0 0 2 1

Course Objectives:

1. To analyze a given network by applying various electrical laws and network theorems
2. To know the response of electrical circuits for different excitations
3. To calculate, measure and know the relation between basic electrical parameters.
4. To analyze the performance characteristics of DC and AC electrical machines

Course Outcomes:

After learning the lab course the student will be able to

1. Get an exposure to basic electrical laws.
2. Understand the response of different types of electrical circuits to different excitations.
3. Understand the measurement, calculation and relation between the basic electrical parameters
4. Understand the basic characteristics of transformers and electrical machines.

List of experiments/demonstrations

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

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2200BS62: ENGINEERING CHEMISTRY LAB

B.TECH I YEAR I SEMESTER **L T P C**
0 0 2 1

COURSE OBJECTIVES:

The course consists of experiments related to the principles of chemistry required for engineering student. The student will learn:

- Estimation of hardness and chloride content in water to check its suitability for drinking purpose.
- To determine the rate constant of reactions from concentrations as an function of time.
- The measurement of physical properties like adsorption and viscosity.
- To synthesize the drug molecules and check the purity of organic molecules by thin layer chromatographic (TLC) technique.

COURSE OUTCOMES:

1) Ability to perform experiments illustrating the principles of chemistry relevant to the study of science and engineering.
2) To record the amount of hardness and chloride content in water and interpret the significance of its presence in water.
3) Understand the kinetics of a reaction from a change in concentration of reactants or products as a function of time .
4) To report and predict the significance of properties like adsorption ,conductance ,viscosity, pH and surface tension.
5) To demonstrate the technique of thin Layer Chromotograhy (TLC) and synthesise drug molecules widely used in industry.

List of Experiments

1. Determination of total hardness of water by complexometric method using EDTA
2. Determination of chloride content of water by Argentometry
3. Estimation of an HCl by Conductometric titrations
4. Estimation of Acetic acid by Conductometric titrations
5. Estimation of HCl by Potentiometric titrations
6. Estimation of Fe^{2+} by Potentiometry using $KMnO_4$
7. Determination of rate constant of acid catalysed hydrolysis of methyl acetate
8. Synthesis of Aspirin and Paracetamol
9. Thin layer chromatography calculation of R_f values. eg ortho and para nitro phenols

10. Determination of acid value of coconut oil
11. Verification of freundlich adsorption isotherm-adsorption of acetic acid on charcoal
12. Determination of viscosity of castor oil and ground nut oil by using Ostwald's viscometer.
13. Determination of partition coefficient of acetic acid between n-butanol and water.
14. Determination of surface tension of a give liquid using stalagmometer.

References

1. Senior practical physical chemistry, B.D. Khosla, A.Gulati and V.Garg (R. Chand & Co., Delhi)
2. An introduction to practical chemistry, K.K. Sharma and D. S.Sharma (Vikas publishing, N. Delhi)
3. Vogel's text book of practical organic chemistry 5th edition
4. Text book on Experiments and calculations in Engineering chemistry – S.S. Dara.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2203ES61: ENGINEERING WORKSHOP

B.TECH I YEAR I SEMESTER **L T P C**
1 0 3 2.5

COURSE OBJECTIVES:

1. To Study of different hand operated power tools, uses and their demonstration.
2. To gain a good basic working knowledge required for the production of various engineering products.
3. To provide hands on experience about use of different engineering materials, tools, equipment's and processes those are common in the engineering field.
4. To develop a right attitude, team working, precision and safety at work place.
5. To study commonly used carpentry joints and to have practical exposure to various welding and joining processes.

COURSE OUTCOMES: At the end of the course, the student will be able to:

1. Study and practice on machine tools and their operations
2. Practice on manufacturing of components using workshop trades including pluming, fitting, carpentry, foundry, house wiring and welding.
3. Identify and apply suitable tools for different trades of Engineering processes including drilling, material removing, measuring, chiseling.
4. Apply basic electrical engineering knowledge for house wiring practice.
5. Study commonly used carpentry joints.

I. Carpentry

1. Cross lap joint
2. Mortise & tenon joint

II. Fitting

1. V- fitting
2. Semi - Circular Fitting

III. Tin Smithy

1. Making of Rectangular Tray
2. Making of Conical Funnel

IV. Housing wiring

1. Two points controlled by two-one way switches (parallel connection)
2. One point controlled by two-two way switches (stair case connection)

V. Foundry

1. Single piece pattern
2. Multi-piece pattern

VI. Black Smithy

1. Round to Square
2. S - Hook

Trades for Demonstration:

1. Plumbing
2. Welding
3. Machine Shop
4. Metal Cutting (Water Plasma)

TEXT BOOKS:

1. Workshop Manual, P. Kannaiah and K. L. Narayana, 3rd Edition, Scitech, 2015
2. Elements of Workshop Technology Vol.1 & 2, S. K. Hajra Choudhury, A. K. Hajra Choudhury and Nirjhar Roy, 13th Edition, Media Promoters & Publishers Pvt. Ltd., 2010.

REFERENCE BOOKS:

1. Workshop Manual / Venkat Reddy/ BSP
2. Workshop Manual / K Venu Gopal / Anuradha

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2200MC01: ENVIRONMENTAL SCIENCE

B.TECH I YEAR I SEMESTER **L T P C**
1 0 0 0

COURSEOBJECTIVES:

- Understandingtheimportanceofecologicalbalanceforsustainabledevelopment.
- Recognize ,the significance of natural resources, their classifications. Alternative energy for the sustainability of the environment by appropriate maintance of natural resources.
- Understand the biodiversity & type of biodiversity along with the value &conservation of biodiversity
- Categorize, the type of environmental pollution & various treatment technologies for diminution of environmental pollutants summarize the global environmental issues
- Understand the sustainable development concept & importance of green buildings ,EIA, EIS,EMP.

COURSEOUTCOMES:

- Understand the scarcity of natural resources and will be able to replace them with alternative energy resources for the sustainability of environmental society & economy
- Recognize the type of biodiversity along the values & conservation biodiversity and know about the biogeographical regions
- Categorize the types of environmental pollution & the various treatment technologies for the diminution of environmental pollutants and contaminants
- Summarize the global environmental issues to create awareness about the international conventions and protocols for extenuating global environmental issues
- Understand the importance of environmental legislation policies, sustainable development and concept of green building

UNIT-I

Ecosystems: Definition, Scope, and Importance of ecosystem. Classification, structure, andfunction of an ecosystem, Food chains, food webs, and ecological pyramids. Flow of energy, Biogeochemical cycles, Bioaccumulation, Biomagnifications, ecosystem value, services and carrying capacity, Field visits.

UNIT-II

Natural Resources: Classification of Resources: Living and Non-Living resources, **water resources:** use and over utilization of surface and ground water, floods and droughts, Dams: Benefits and problems. **Mineral resources:** use and exploitation, environmental effects of extracting and using mineral resources, **Land resources:** Forest resources, **Energy resources:** growing energy needs, renewable and non renewable energy sources, use of alternate energy source, case studies.

UNIT-III

Biodiversity And Biotic Resources: Introduction, Definition, genetic, species and ecosystem

diversity. Value of biodiversity; consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega diversity nation, Hot spots of biodiversity. Field visit. Threats to biodiversity: habitat loss, poaching of wildlife, man-wild life conflicts; conservation of biodiversity: In-Situ and Ex-situ conservation. National Biodiversity act.

UNIT-IV

Environmental Pollution and Control Technologies: **Environmental Pollution:** Classification of pollution, **Air Pollution:** Primary and secondary pollutants, Automobile and Industrial pollution, Ambient air quality standards.**Water pollution**: Sources and typesof pollution, drinking water quality standards. **Soil Pollution:** Sources and types, Impacts of modern agriculture, degradation of soil. **Noise Pollution:** Sources and Health hazards, standards, **Solid waste:** Municipal Solid Waste management, composition and characteristics of e-Waste and its management. **Pollution control technologies:** Wastewater Treatment methods: Primary, secondary and Tertiary. Overview of air pollution control technologies, Concepts of bioremediation. **Global Environmental Issues and Global Efforts:** Climate change and impacts on human environment. Ozone depletion and Ozone depleting substances(ODS). Deforestation and desertification. International conventions / Protocols: Earth summit, Kyoto protocol, and Montréal Protocol.

UNIT-V

Environmental Policy, Legislation & EIA: Environmental Protection act, Legal aspects Air Act-1981, Water Act, Forest Act, Wild life Act, Municipal solid waste management and handling rules, biomedical waste management and handling rules, hazardous waste management and handling rules. EIA: EIA structure, methods of baseline data acquisition. Overview on Impacts of air, water, biological and Socio-economical aspects. Strategies for risk assessment, Concepts of Environmental Management Plan(EMP). **Towards Sustainable Future:** Concept of Sustainable Development Goals, Population and its explosion, Crazy Consumerism, Environmental Education, Urban Sprawl, Human health, Environmental Ethics, Concept of Green Building, Ecological Foot Print, Life Cycle assessment (LCA), Low carbon life style.

TEXTBOOKS:

1. Textbook of Environmental Studies for Undergraduate Courses by Erach Bharucha for University Grants Commission.
2. Environmental Studies by R. Rajagopalan, Oxford University Press.

REFERENCEBOOKS:

1. Environmental Science :towards a sustainable future by Richard T.Wright. 2008PHL Learning Private Ltd. NewDelhi.
2. Environmental Engineering and science by Gilbert M.Masters and Wendel lP.Ela. 2008PHI Learning Pvt.Ltd.
3. Environmental Science by Daniel B.Botkin & EdwardA.Keller, Wiley INDIA edition.

4. Environmental Studies by Anubha Kaushik, 4thEdition, New age international publishers.
5. Textbook of Environmental Science and Technology-Dr.M.Anji Reddy2007, BS Publications.
6. Introduction to Environmental Science by Y.Anjaneyulu, BS. Publications.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2200BS03: ADVANCED CALCULUS & TRANSFORM TECHNIQUES

B.TECH I YEAR II SEMESTER **L T P C**
3 1 0 4

Course Objectives: To learn

- Geometrical approach to the mean value theorems, their application to the mathematical problems and Evaluation of improper integrals using Beta and Gamma functions
- Evaluation of multiple integrals and their applications.
- The physical quantities involved in engineering field related to vector valued functions and their applications to line, surface and volume integrals.
- A periodic function by Fourier series and a non-periodic function by Fourier transform and properties.
- Properties of Laplace transforms, solving ordinary differential equations using Laplace transforms techniques. Also, Z- transform of a sequence and properties.

Course Outcomes: After learning the contents of this paper the student must be able to

- Solve the applications on mean value theorems and evaluate the improper integrals using Beta and Gamma functions
- Evaluate the multiple integrals and apply the concept to find areas, volumes.
- Find the directional derivatives, Irrotational and Solenoidal functions and angle between the surfaces. Evaluate the line, surface and volume integrals and converting them from one to another.
- Express any periodic function in terms of Sines and Cosines and express a non-periodic function as integral transform.
- Use the Laplace transform techniques for solving ODE's and sequence as Z – transforms.

UNIT-I:

Differential Calculus: Rolle's theorem (without proof), Lagrange's Mean value theorem (without proof) with their Geometrical Interpretation, Cauchy's Mean value Theorem (without proof). Definition of Improper Integral; Definition of Beta and Gamma functions, properties, relation between them.

UNIT-II:

Multiple Integrals: Evaluation of Double Integrals (Cartesian); Change of order of integration (only Cartesian form); Evaluation of Triple Integrals.Areas (by double integrals) and Volumes (by double integrals and triple integrals).

UNIT-III:

Vector Differentiation: Vector point functions and Scalar point functions. Gradient, Divergence and Curl. Directional derivatives, Scalar potential functions.

Vector Integration: Line and Surface integrals

UNIT – IV

Fourier series: Introduction, Fourier series definition, Dirichlet's conditions, Even and odd functions.

Fourier Transforms: Fourier integral theorem (without proof), Fourier sine and cosine integrals, sine and cosine transforms, properties, inverse Fourier transforms.

UNIT – V

Laplace Transforms:

Definition of Laplace transform, Laplace transform of standard functions, and properties Definition of Inverse Laplace transform ,Inverse Laplace transforms of standard functions Convolution theorem, Solution of ordinary differential equations by Laplace transforms.

Z- transforms: Z- transforms inverse z-transforms, properties .convolution theorem, solution of difference equation by z-transforms.

TEXTBOOKS:

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36thEdition, 2010.
2. R. K. Jain and S.R.K. Iyengar, Advanced Engineering Mathematics, Narosa Pubishers, 4th Edition, 2014.

REFERENCES:

1. Erwin Kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons, 2006.
2. Staff, E. B. and A. D. Snider , Fundamentals of Complex Analysis , Pearson.
3. S. L. Ross, Differential Equations, 3rd Ed., Wiley India, 1984.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2205ES02: PYTHON PROGRAMMING

B.TECH I YEAR II SEMESTER **L T P C**
3 0 0 3

Course Objectives:

This course will enable students to

- Learn Syntax and Semantics and create Functions in Python.
- Handle Strings and Files in Python.
- Understand Lists, Dictionaries and Regular expressions in Python.
- Implement Object Oriented Programming concepts in Python.
- Build GUI Programming in Python.

Course Outcomes:

The students should be able to

- Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
- Demonstrate proficiency in handling Strings and File Systems.
- Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions.
- Interpret the concepts of Object-Oriented Programming as used in Python.
- Implement exemplary applications related to Graphical User Interface (GUI) in Python.

UNIT I

PYTHON Programming Introduction, History of Python, Python is Derived from?, Python Features, Python Applications, Why Python is Becoming Popular Now a Day?, Existing Programming Vs Python Programming, Writing Programs in Python, Top Companies Using Python, Python Programming Modes, Interactive Mode Programming, Scripting Mode Programming, Flavors in Python, Python Versions, Download & Install the Python in Windows & Linux, How to set Python Environment in the System?, Anaconda - Data Science Distributor, Downloading and Installing Anaconda, Jupyter Notebook & Spyder, Python IDE - Jupyter Notebook Environment, Python IDE – Spyder Environment, Python Identifiers(Literals), Reserved Keywords, Variables, Comments, Lines and Indentations, Quotations, Assigning Values to Variables

UNIT II

Data Types in Python, Mutable Vs Immutable, and Fundamental Data Types: int, float, complex, bool, str, Number Data Types: Decimal, Binary, Octal, Hexa Decimal & Number Conversions,

Inbuilt Functions in Python, Data Type Conversions, Priorities of Data Types in Python,

Python Operators, Arithmetic Operators, Comparison (Relational) Operators, Assignment Operators, Logical Operators, Bitwise Operators, Membership Operators, Identity Operators, Slicing & Indexing, Forward Direction Slicing with +ve Step, Backward Direction Slicingwith -ve Step, Decision Making Statements, if Statement, if-else Statement, elif Statement, Looping Statements, Why we use Loops in python?, Advantages of Loops
for Loop, Nested for Loop, Using else Statement with for Loop, while Loop, Infinite while Loop, Using else with Python while Loop, Conditional Statements, break Statement, continue Statement, Pass Statement

UNIT III

Advanced Data Types: List, Tuple, Set, Frozenset, Dictionary, Range, Bytes & Bytearray, None, List Data Structure, List indexing and splitting Updating List values, List Operations, Iterating a List, Adding Elements to the List, Removing Elements from the List, List Built-in Functions, List Built-in Methods, Tuple Data Structure, Tuple Indexing and Splitting, Tuple Operations, Tuple Inbuilt Functions, Where use Tuple, List Vs Tuple, Nesting List and Tuple, Set Data Structure, Creating a Set, Set Operations, Adding Items to the Set, Removing Items from the Set, Difference Between discard() and remove(), Union of Two Sets, Intersection of Two Sets, Difference of Two Sets, Set Comparisons, Frozenset Data Structure, Dictionary Data Structure, Creating the Dictionary, Accessing the Dictionary Values, Updating Dictionary Values, Deleting Elements Using del Keyword, Iterating Dictionary, Properties of Dictionary Keys, Built-in Dictionary Functions, Built-in Dictionary Methods, List Vs Tuple Vs Set Vs Frozenset Vs Dictionary, Range, Bytes, Bytearray & None

UNIT IV

Python Functions, Advantage of Functions in Python, Creating a Function, Function Calling, Parameters in Function, Call by Reference in Python, Types of Arguments, Required Arguments, Keyword Arguments, Default Arguments, Variable-Length Arguments, Scope of Variables, Python Built-in Functions, Python Lambda Functions, String with Functions, Strings Indexing and Splitting String Operators, Python Formatting Operator, Built-in String Functions, Python File Handling, Opening a File, Reading the File, Read Lines of the File, Looping through the File, Writing the File, Creating a New File Using with Statement with Files, File Pointer Position, Modifying File Pointer Position Renaming the File & Removing the File, Writing Python Output to the Files File Related Methods, Python Exceptions, Common Exceptions, Problem without Handling Exceptions, except Statement with no Exception, Declaring Multiple Exceptions, Finally Block, Raising Exceptions, Custom Exception,

UNIT V

Python Packages, Python Libraries, Python Modules, Collection Module, Math Module, OS Module, Random Module, Statistics Module, Sys Module, Date & Time Module, Loading the Module in our Python Code, import Statement, from-import Statement, Renaming a Module, Regular Expressions, Command Line Arguments, Object Oriented Programming (OOPs), Object-oriented vs Procedure-oriented Programming languages, Object, Class, Method,

Inheritance, Polymorphism, Data Abstraction, Encapsulation, Python Class and Objects, Creating Classes in Python, Creating an Instance of the Class, Python Constructor, Creating the, Constructor in Python, Parameterized Constructor, Non-Parameterized Constructor, In-built Class Functions, In-built Class Attributes, Python Inheritance, Python Multi-Level

Inheritance, Python Multiple Inheritance, Method Overriding, Data Abstraction in Python, Graphical User Interface (GUI) Programming, Python Tkinter, Tkinter Geometry, pack() Method, grid() Method, place() Method, Tkinter Widgets

TEXT BOOK:

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

REFERENCE BOOK:

1. Programming Languages, A.B. Tucker, R.E. Noonan, TMH.
2. Programming Languages, K. C. Louden and K A Lambert., 3rd edition, Cengage Learning.
3. Programming Language Concepts, C Ghezzi and M Jazayeri, Wiley India.
4. Programming Languages 2nd Edition Ravi Sethi Pearson.
5. Introduction to Programming Languages Arvind Kumar Bansal CRC Press.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2200BS06: APPLIED PHYSICS

B.TECH I YEAR II SEMESTER **L T P C**

3 1 0 4

Course Objectives:

- Students will demonstrate skills in scientific inquiry, problem solving and laboratory techniques.
- Students will be able to demonstrate competency and understanding of the concepts found in Quantum Mechanics, Fiber optics and lasers, Semiconductor physics.
- The graduates will be able to solve non-traditional problems that potentially draw on knowledge in multiple areas of physics.
- To study applications in engineering like memory devices, transformer core and electromagnetic machinery.

Course Outcomes: Upon graduation:

- The student would be able to learn the fundamental concepts on Quantum behavior of matter in its micro state.
- The knowledge of fundamentals of Semiconductor physics, Optoelectronics, Lasers and fibre optics enable the students to apply to various systems like communications, solar cell, photo cells and so on.
- Design, characterization and study of properties of material help the students to prepare new materials for various engineering applications.
- The course also helps the students to have exposure on dielectric materials and magnetic materials.

UNIT-I: Quantum Mechanics:

Introduction to quantum physics, Black body radiation, Photoelectric effect, Compton effect experiment and Compton shift, Wave-particle duality, de-Broglie's hypothesis, Davisson and Germer experiment, Heisenberg's Uncertainty principle, physical significance of Wave function (ψ), Schrodinger's time independent wave equation, Particle in one dimensional box.

UNIT-II: Semiconductor Physics:

Intrinsic and Extrinsic semiconductors, Fermi level in intrinsic and extrinsic semiconductors, calculation of carrier concentration in intrinsic and extrinsic semiconductors, Carrier generation and recombination, Carrier transport: diffusion and drift, Hall effect: determination of Hall coefficient and experiment, Hall voltage, direct and indirect band gap semiconductors, p-n junction diode: energy band diagram for open and closed circuits, Zener diode and its V-I Characteristics and applications.

UNIT-III: Optoelectronics:

Radiative and non-radiative recombination mechanisms in semiconductors, Types of luminescence: Electro luminescence and Photo luminescence, LED: Device structure, Materials,

Characteristics and figures of merit, Semiconductor photo detectors: Solar cell: working principle, structure, Materials, PIN and Avalanche photo detectors: working principle, structure, Materials, and Characteristics and applications.

UNIT-IV: Lasers and Optical fibers:

Lasers: Characteristics of Lasers, interaction of radiation with matter: stimulated absorption, spontaneous and stimulated emission, Einstein's relations, Principle and working of Laser: Population inversion, Pumping mechanisms, Types of Lasers: Ruby laser, He-Ne laser, Semiconductor lasers, Applications of laser. Fiber Optics: Introduction to Optical fiber, Optical fiber as a dielectric wave guide, Total internal reflection, Acceptance angle, Acceptance cone and Numerical aperture, mode and transmission of signal through Step and Graded index fibers, Losses associated with optical fibers, Applications of optical fibers in communication system (block diagram) and in other fields.

UNIT-V: Dielectric and Magnetic Properties of Materials:

Electric dipole, dipole moment, dielectric constant, polarizability, electric displacement, electric susceptibility, types of polarization: electronic, ionic and orientation (qualitative) polarizations, calculation of polarizabilities of electronic and ionic polarization, Internal fields in a solid, Clausius-Mossotti equation, Ferroelectrics, Piezo electrics and Pyro electrics, Applications of dielectrics, Magnetization, field intensity, magnetic field induction, permeability and susceptibility, Bohr magneton, Classification of magnetic materials on the basis of magnetic moment, explanation of hysteresis curve based on domain theory, soft and hard magnetic materials, applications of magnetic materials.

TEXT BOOKS:

1. Engineering Physics, B.K. Pandey, S. Chaturvedi - Cengage Learing.
2. Halliday and Resnick, Physics - Wiley.
3. A textbook of Engineering Physics, Dr. M. N. Avadhanulu, Dr. P.G. Kshirsagar - S. Chand

REFERENCES:

1. Richard Robinett, Quantum Mechanics
2. J. Singh, Semiconductor Optoelectronics: Physics and Technology, Mc Graw-Hill inc. (1995).
3. Online Course: "Optoelectronic Materials and Devices" by Monica Katiyar and Deepak Guptha on NPTEL
4. "Semiconductor Physics and Devices", Mc Graw Hill, 4th Edition by Donald Neamen
5. Introduction to Solid State Physics by Charles kittel, wiley student edition.
6. S.M.Sze, Semiconductor Devices: Physics and Technology, wiley (2008).

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2200HS01: ENGLISH

B.TECH I YEAR II SEMESTER

L	T	P	C
2	0	0	2

INTRODUCTION

In view of the growing importance of English as a tool for global communication and the consequent emphasis on training students to acquire language skills, the syllabus of English has been designed to develop linguistic, communicative and critical thinking competencies of Engineering students.

In English classes, the focus should be on the skills development in the areas of vocabulary, grammar, reading and writing. For this, the teachers should use the prescribed text for detailed study. The students should be encouraged to read the texts leading to reading comprehension and different passages may be given for practice in the class. The time should be utilized for working out the exercises given after each excerpt, and also for supplementing the exercises with authentic materials of a similar kind, for example, newspaper articles, advertisements, promotional material etc. The focus in this syllabus is on skill development, fostering ideas and practice of language skills in various contexts and cultures.

Course Objectives: The course will help to:

a. Improve the language proficiency of students in English with an emphasis on Vocabulary, Grammar, Reading and Writing skills.
b. To enhance competencies in writing essays and gist of the passage in words.
c. Equip students to study academic subjects more effectively and critically using the theoretical and practical components of English syllabus.
d. Develop study skills and communication skills in formal and informal situations.

Course Outcomes: Students should be able to:

1. Use English Language effectively in spoken and written forms.
2. Comprehend the given texts and respond appropriately.
3. Communicate confidently in various contexts and different cultures.
4. Acquire basic proficiency in English including reading and listening, comprehension, writing and speaking skills.

UNIT –I

'The Raman Effect' from the prescribed textbook 'English for Engineers' published by Cambridge University Press.

Vocabulary Building: The Concept of Word Formation --The Use of Prefixes and Suffixes.

Grammar: Identifying Common Errors in Writing with Reference to Articles and Prepositions.

Reading: Reading and Its Importance- Techniques for Effective Reading.

Basic Writing Skills: Sentence Structures - Use of Phrases and Clauses in Sentences-Importance of Proper Punctuation- Techniques for writing precisely – Paragraph writing – Types, Structures and Features of a Paragraph - Creating Coherence-Organizing Principles of Paragraphs in documents.

UNIT –II

'Ancient Architecture in India' from the prescribed textbook 'English for Engineers' published by Cambridge University Press.

Vocabulary: Homonyms, Homophones and Homographs. Acquaintance with Prefixes and Suffixes from Foreign Languages in English to form Derivatives-Words from Foreign Languages and their Use in English.

Grammar: Identifying Common Errors in Writing with Reference to Noun-pronoun Agreement and Subject- Verb Agreement.

Reading: Improving Comprehension Skills – Techniques for Good Comprehension.

Writing: Format of a Formal Letter-Writing Formal Letters - E.g.., Letter of Complaint, Letter of Requisition, Job Application with Resume.

UNIT –III

'Blue Jeans' from the prescribed textbook 'English for Engineers' published by Cambridge University Press.

Vocabulary: Synonyms and Antonyms

Grammar: Identifying Common Errors in Writing with Reference to Misplaced Modifiers and Tenses and **Question Tags.**

Reading: Sub-skills of Reading- Skimming and Scanning.

Writing: Nature and Style of Sensible Writing- Defining- Describing Objects, Places and Events – Classifying- Providing Examples or Evidence, E-mail writing and practices.

UNIT –IV

'What Should You Be Eating' from the prescribed textbook 'English for Engineers' published by Cambridge University Press.

Vocabulary: Idioms and phrases, **Phrasal Verbs** and One-word substitutions.

Grammar: Active voice and Passive voice- Redundancies and Clichés in Oral and Written Communication.

Reading: Comprehension- Intensive Reading and Extensive Reading.

Writing: Writing Practices--Writing Introduction and Conclusion - Essay Writing-Précis Writing.

UNIT –V

'How a Chinese Billionaire Built Her Fortune' from the prescribed textbook 'English for Engineers' published by Cambridge University Press.

Vocabulary: Standard Abbreviations in English and Technical Vocabulary and their usage.

Grammar: Reported speech and Common Errors in English.

Reading: Reading Comprehension-Exercises for practice.

Writing: Report writing - Introduction – Characteristics of a Report – Categories of Reports, Formats- Structure of Reports (Manuscript Format) -Types of Reports - Writing a Report.

Textbook:

1. **Sudarshana, N.P. and Savitha, C. (2018). English for Engineers. Cambridge UniversityPress.**

References:

1. Swan, M. (2016). Practical English Usage. Oxford University Press.
2. Kumar, S and Lata, P.(2018). Communication Skills. Oxford University Press.
3. Wood, F.T. (2007).Remedial English Grammar.Macmillan.
4. Zinsser, William. (2001). On Writing Well. Harper Resource Book.
5. Hamp-Lyons, L. (2006).Study Writing. Cambridge University Press.
6. Exercises in Spoken English. Parts I –III. CIEFL, Hyderabad. Oxford University Press.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2203ES01: COMPUTER AIDED ENGINEERING GRAPHICS

B.TECH I YEAR II SEMESTER **L T P C**
1 0 4 3

Course Objectives:

1. To enable the students with various concepts like Dimensioning, Conventions and standards related to working drawing in order to become professionally efficient and to introduce fundamental concepts of curves used in engineering,
2. Students are capable to understand the Orthographic Projections of Points and Lines and are able to improve their visualization skills so that they can apply these skills in developing the new products.
3. Understands and becomes efficient in applying the concept of Orthographic Projections of Points, Lines and Planes in industrial applications
4. Can employ freehand 3D pictorial sketching to aid in the visualization process and to efficiently communicate ideas graphically.
5. Analyze a drawing and can efficiently communicate ideas graphically and Draw the 3D views using CAD.

Course Outcomes:

1. Gets knowledge on usage of various drawing instruments and capable to draw various curves like conic curves, cycloidal curves and involutes.
2. Understand the Orthographic Projections of Points and Lines and are able to improve their visualization skills so that they can apply these skills in developing the new products.
3. Understand about orthographic projection and able to draw planes and solids according to orthographic projections.
4. Can employ freehand 3D pictorial sketching to aid in the visualization process and to draw the 3D views using CAD software.
5. To convert and draw the given orthographic view to isometric view using CAD software and vice versa.

UNIT-I:

Introduction to AutoCAD Software:

The Menu System, Toolbars (Standard, Object Properties, Draw, Modify and Dimension), Drawing Area (Background, Crosshairs, Coordinate System), Dialog boxes and windows, Shortcut menus (Button Bars), The Command Line, The Status Bar, Different methods of zoom as used in CAD, Select and erase objects.

Introduction to Engineering Drawing:

Principles of Engineering drawing and their significance, Conventions, Drawing Instruments

Engineering Curves: Construction of Ellipse, Parabola and Hyperbola – General and Special methods; Cycloidal curves- Epicycloids and Hypocycloids.

UNIT-II:

Orthographic Projections, Projections of Points & Straight Lines: Principles of Orthographic Projections – Conventions; Projections of Points in all positions; Projections of lines Parallel to one Plane and Perpendicular to other Plane and Vice-versa - Inclined to one Plane and Parallel to other Plane and Vice-versa - Surface inclined to both the Planes.

UNIT-III:

Projections of Planes: Projections of Planes- Surface Parallel to one Plane and Perpendicular to other Plane and Vice-versa – Surface Inclined to one Plane and Parallel to other Plane and Vice-versa - Surface Inclined to both the Planes.

UNIT-IV:

Projections of Regular Solids: Projections of Regular Solids-Parallel to one Plane and Perpendicular to other Plane and vice-versa- inclined to one Plane and Parallel to other Plane and vice-versa- Inclined to both the Planes– Prisms, Pyramids, Cylinder and Cone.

UNIT-V:

Isometric Projections: Principles of Isometric projection – Isometric Scale, Isometric Views, Conventions; Isometric Views of lines, Planes, Simple and Compound Solids

Conversion of Isometric Views to Orthographic Views and Vice-versa, Conventions

Introduction to Solid Modeling: Creation of simple solid models relevant to the domain.

TEXT BOOKS

1. Engineering Drawing, N.D. Bhatt – N.D. Bhatt & V.M Panchal, 48th Edition, 2005 Charotar Publishing House, and Gujarat.
2. "Computer Aided Engineering Drawing"by Dr. M H Annaiah, Dr C N Chandrappa and Dr B Sudheer Premkumar Fifth edition, New Age International Publishers.
3. Engineering Drawing by K.Venu Gopal& V.Prabu Raja New Age Publications.

REFERENCES

1. Engineering drawing – P.J. Shah .S.Chand Publishers.
2. Engineering Drawing / Basant Agarwal and McAgarwal / McGraw Hill
3. Engineering Drawing- Johle/Tata Macgraw Hill Book Publisher.
4. Computer Aided Engineering Drawing – S. Trymbaka Murthy, - I.K. International Publishing House Pvt. Ltd., New Delhi, 3rd revised edition-2006.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2200BS61: APPLIED PHYSICS LAB

B.TECH I YEAR II SEMESTER. **L T P C**

0 0 3 1.5

List of Experiments

Course Objectives:

1. Students will demonstrate skills in scientific inquiry, problem solving and laboratory techniques.
2. Students will be able to demonstrate competency and understanding of the concepts found in Quantum Mechanics, Fiber optics and lasers, Semiconductor physics and a broad base of knowledge in physics.
3. The graduates will be able to solve non-traditional problems that potentially draw on knowledge in multiple areas of physics.
4. To study applications in engineering like memory devices, transformer core and electromagnetic machinery.

Course Outcomes: Upon graduation

1. The student would be able to learn the fundamental concepts on Quantum behavior of matter in its micro state.
2. The knowledge of fundamentals of Semiconductor physics, Optoelectronics, Lasers and fibre optics enable the students to apply to various systems like communications, solar cell, photo cells and so on.
3. Design, characterization and study of properties of material help the students to prepare new materials for various engineering applications.
4. The course also helps the students to be exposed to the phenomena to have exposure on dielectric materials and magnetic materials.

Note: Any 8 Experiments to be performed

1. **Energy gap of a PN junction diode**

   To determine the energy band gap of a semiconductor p-n junction diode

2. **Solar Cell**

   To study the Characteristics of a given Solar Cell

3. **Light Emitting Diode**

   To study the V-I characteristics of a Light Emitting Diode

4. **Stewart and Gee's Experiment**

   To determine the magnetic induction at the center and at several points on the axis of a circular coil

5. HALL Effect Experiment

Determination of hall coefficient and Hall voltage

To calculate the Hall coefficient and the carrier concentration of the sample material.

6. Photoelectric Effect

To determine the work function of a given material.

7. LASER

To study the characteristics of LASER diode Sources.

8. A) Optical Fiber Numerical Aperture

To determine the numerical Aperture (NA) of the given optical fiber

B) Optical Fiber Bending Loss

To determine the loss caused in optical fibers in dB due to macro bending of the fiber

9. A) LCR series Circuit

To study the frequency response of LCR series circuits and to determine the Resonant Frequency.

B) LCR Parallel Circuit

To study the frequency response of LCR parallel circuits and to determine the Resonant Frequency.

10. R-C Circuit

To determine the time constant of the given RC circuit

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2205ES62: PYTHON PROGRAMMING LAB

B.TECH I YEAR II SEMESTER **L T P C**

0 0 3 1.5

Course Objectives:

- Introduce core programming basics and program design with functions using Python programming language.
- To understand a range of Object-Oriented Programming, as well as in-depth data and information processing techniques.
- To understand the high-performance programs designed to strengthen the practical expertise.

Course Outcomes:

- Student able to understand the basic concepts scripting and the contributions of scripting language
- Ability to explore python especially the object oriented concepts, and the built in objects of Python.
- Ability to create practical and contemporary applications such as TCP/IP network programming, Web applications, discrete event simulations

Week 1:

1. Python program to print "Hello Python"
2. Write a program that computes and prints the result of $512 - 282 / 47 \cdot 48 + 5$.
   It is roughly .1017
3. Ask the user to enter a number. Print out the square of the number but use the sep optional argument to print it out in a full sentence that ends in a period. Sample output is shown below.
   Enter a number: 5
   The square of 5 is 25.
4. Ask the user to enter a number x. Use the sep optional argument to print out x, 2x, 3x, 4x, and 5x, each separated by three dashes, like below.
   Enter a number: 7
   7---14---21---28---35

Week 2:

1. Write a program that asks the user to enter three numbers (use three separate input statements). Create variables called total and average that hold the sum and average of the three numbers and print out the values of total and average.
2. A lot of cell phones have tip calculators. Write one. Ask the user for the price of the meal and the percent tip they want to leave. Then print both the tip amount and the total bill with the tip included.
3. Write a program which will find all such numbers which are divisible by 7 but are not a multiple of 5,between 2000 and 3200 (both included). The numbers obtained should be

printed in a comma-separated sequence on a single line.

Hints: Consider use range(#begin, #end) method

4. Write a program that calculates and prints the value according to the given formula: Q = Square root of [(2 * C * D)/H]
   Following are the fixed values of C and H:C is 50. H is 30.D is the variable whose values should be input to your program in a comma-separated sequence, let us assume the following comma separated input sequence is given to the program: 100,150,180The output of the program
   Hint:
   If the output received is in decimal form, it should be rounded off to its nearest value (for example, if the output received is 26.0, it should be printed as 26)18, 22,24should be:

Week 3:

1. Write a program that asks the user to enter a length in centimeters. If the user enters a negative length, the program should tell the user that the entry is invalid. Otherwise, the program should convert the length to inches and print out the result. There are 2.54 centimeters in an inch.
2. Ask the user for a temperature. Then ask them what units, Celsius or Fahrenheit, the temperature is in. Your program should convert the temperature to the other unit. The conversions are F = 9 5 C + 32 and C = 5 9 (F − 32)
3. Ask the user to enter a temperature in Celsius. The program should print a message based on the temperature: • If the temperature is less than -273.15, print that the temperature is invalid because it is below absolute zero. • If it is exactly -273.15, print that the temperature is absolute 0. • If the temperature is between -273.15 and 0, print that the temperature is below freezing. • If it is 0, print that the temperature is at the freezing point. • If it is between 0 and 100, print that the temperature is in the normal range. • If it is 100, print that the temperature is at the boiling point. • If it is above 100, print that the temperature is above the boiling point
4. Write a program that asks the user how many credits they have taken. If they have taken 23 or less, print that the student is a freshman. If they have taken between 24 and 53, print that they are a sophomore. The range for juniors is 54 to 83, and for seniors it is 84 and over.

Week 4:

1. A year is a leap year if it is divisible by 4, except that years divisible by 100 are not leap years unless they are also divisible by 400. Write a program that asks the user for a year and prints out whether it is a leap year or not
2. Write a multiplication game program for kids. The program should give the player ten randomly generated multiplication questions to do. After each, the program should tell them whether they got it right or wrong and what the correct answer is.

   Question 1: 3 x 4 = 12
   Right!
   Question 2: 8 x 6 = 44
   Wrong.
   The answer is 48.

...
...
Question 10: 7 x 7 = 49
Right.

3. A jar of Halloween candy contains an unknown amount of candy and if you can guess exactly how much candy is in the bowl, then you win all the candy. You ask the person in charge the following: If the candy is divided evenly among 5 people, how many pieces would be left over? The answer is 2 pieces. You then ask about dividing the candy evenly among 6 people, and the amount left over is 3 pieces. Finally, you ask about dividing the candy evenly among 7 people, and the amount left over is 2 pieces. By looking at the bowl, you can tell that there are less than 200 pieces. Write a program to determine how many pieces are in the bowl
   Write a program that asks the user to enter a value n, and then computes (1+ 1 2 + 1 3 +⋯+ 1 n)− ln(n). The ln function is log in the math module

Week 5:

1. A number is called a perfect number if it is equal to the sum of all of its divisors, not including the number itself. For instance, 6 is a perfect number because the divisors of 6 are 1, 2, 3, 6 and 6 = 1 + 2 + 3. As another example, 28 is a perfect number because its divisors are 1, 2, 4, 7, 14, 28 and 28 = 1 + 2 + 4 + 7 + 14. However, 15 is not a perfect number because its divisors are 1, 3, 5, 15 and 15 6= 1 + 3 + 5. Write a program that finds all four of the perfect numbers that are less than 10000.
2. . Ask the user to enter 10 test scores. Write a program to do the following:
   (a) Print out the highest and lowest scores.
   (b) Print out the average of the scores.
   (c) Print out the second largest score.
   (d) If any of the scores is greater than 100, then after all the scores have been entered, print a message warning the user that a value over 100 has been entered.
   (e) Drop the two lowest scores and print out the average of the rest of them
3. Write a program that computes the factorial of a number. The factorial, n!, of a number n is the product of all the integers between 1 and n, including n. For instance, 5! = 1 · 2 · 3 · 4 · 5 = 120. [Hint: Try using a multiplicative equivalent of the summing technique.]

Week 6:

1. Write a program that asks the user for a number and then prints out the sine, cosine, and tangent of that number.
2. The Fibonacci numbers are the sequence below, where the first two numbers are 1, and each number thereafter is the sum of the two preceding numbers. Write a program that asks the user how many Fibonacci numbers to print and then prints that many.
   1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89 . . .
3. Use a for loop to print a triangle like the one below. Allow the user to specify how high the triangle should be.

*
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***
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*****

Week 7:

1. Use for loops to print a diamond like the one below. Allow the user to specify how high the diamond should be.

```
*
***
*****
*******
*****
***
*
```

2. Write a program that asks the user to enter an angle between -180° and 180° . Using an expression with the modulo operator, convert the angle to its equivalent between 0° and 360° .
3. (a) One way to find out the last digit of a number is to mod the number by 10. Write a program that asks the user to enter a power. Then find the last digit of 2 raised to that power.

   (b) One way to find out the last two digits of a number is to mod the number by 100. Write a program that asks the user to enter a power. Then find the last two digits of 2 raised to that power.

   (c) Write a program that asks the user to enter a power and how many digits they want. Find the last that many digits of 2 raised to the power the user entered

Week 8:

1. The GCD (greatest common divisor) of two numbers is the largest number that both are divisible by. For instance, gcd(18, 42) is 6 because the largest number that both 18 and 42 are divisible by is 6. Write a program that asks the user for two numbers and computes their gcd. Shown below is a way to compute the GCD, called Euclid's Algorithm.
   - First compute the remainder of dividing the larger number by the smaller number
   - Next, replace the larger number with the smaller number and the smaller number with the remainder.
   - Repeat this process until the smaller number is 0. The GCD is the last value of the larger number.
2. Write a program that asks the user to enter a string. The program should then print the following:
   (a) The total number of characters in the string
   (b) The string repeated 10 times
   (c) The first character of the string (remember that string indices start at 0)
   (d) The first three characters of the string
   (e) The last three characters of the string
   (f) The string backwards
   (g) The seventh character of the string if the string is long enough and a message otherwise
   (h) The string with its first and last characters removed
   (i) The string in all caps

(j) The string with every a replaced with an e
(k) The string with every letter replaced by a space

Week 9:

1. Write a program that asks the user to enter a string. The program should create a new string called new string from the user's string such that the second character is changed to an asterisk and three exclamation points are attached to the end of the string. Finally, print new string. Typical output is shown below: Enter your string: Qbert Q*ert!!!
2. Write a program that computes the net amount of a bank account based a transaction log from console input. The transaction log format is shown as following:
   D 100 W 200 D means deposit while W means withdrawal.
   Suppose the following input is supplied to the program:D 300D 300 W200D 100Then, the output should be: 500

Week 10:

1. A website requires the users to input username and password to register. Write a program to check the validity of password input by users.
   Following are the criteria for checking the password:
   1. At least 1 letter between [a-z]
   2. At least 1 number between [0-9]
   1. At least 1 letter between [A-Z]
   3. At least 1 character from [$#@]
   4. Minimum length of transaction password: 6
   5. Maximum length of transaction password: 12

   Your program should accept a sequence of comma separated passwords and will check them according to the above criteria. Passwords that match the criteria are to be printed, each separated by a comma.
   Example
   If the following passwords are given as input to the program:
   ABd1234@1,a F1#,2w3E*,2We3345

   Then, the output of the program should be:
   ABd1234@1
2. Write a program that accepts sequence of lines as input and prints the lines after making all characters in the sentence capitalized
   Suppose the following input is supplied to the program:
   Hello world
   Practice makes perfect
   Then, the output should be:
   HELLO WORLD
   PRACTICE MAKES PERFECT

3. The goal of this exercise is to see if you can mimic the behavior of the in operator and the count and index methods using only variables, for loops, and if statements.
   (a) Without using the in operator, write a program that asks the user for a string and a letter and prints out whether the letter appears in the string.

(b) Without using the count method, write a program that asks the user for a string and a letter and counts how many occurrences there are of the letter in the string.

(c) Without using the index method, write a program that asks the user for a string and a letter and prints out the index of the first occurrence of the letter in the string. If the letter is not in the string, the program should say so.

TEXT BOOK:

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

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2200HS61: ENGLISH LANGUAGE AND COMMUNICATION SKILLS LAB

B.TECH I YEAR II SEMESTER **L T P C**
0 0 2 1

The **Language Lab** focuses on the production and practice of sounds of language and familiarizes the students with the use of English in everyday situations both in formal and informal contexts.

Course Objectives:

- To facilitate computer-assisted multi-media instruction enabling individualized and independent language learning
- To sensitize students to the nuances of English speech sounds, word accent, intonation and rhythm
- To bring about a consistent accent and intelligibility in students' pronunciation of English by providing an opportunity for practice in speaking
- To improve the fluency of students in spoken English and neutralize their mother tongue influence
- To train students to use language appropriately for public speaking and interviews
- To foster better understanding of nuances of English language through audio- visual experience and group activities
- To inculcate neutralization of accent for intelligibility
- To enhance students' speaking skills with clarity and confidence which in turn enhances their employability skills

Syllabus

English Language and Communication Skills Lab (ELCS) shall have two parts:

a. **Computer Assisted Language Learning (CALL)Lab**
b. **Interactive Communication Skills (ICS)Lab**

Listening Skills

Objectives:

1. To enable students develop their listening skills so that they may appreciate its role in the LSRW skills approach to language and improve their pronunciation.

2. To equip students with necessary training in listening so that they can comprehend the speech of people of different backgrounds and regions.

Students should be given practice in listening to the sounds of the language, to be able to recognize them and find the distinction between different sounds, to be able to mark stress and recognize and use the right intonation in sentences.

- Listening for general content
- Listening to fill up information
- Intensive listening
- Listening for specific information

Speaking Skills

Objectives:

1. To involve students in speaking activities in various contexts
2. To enable students express themselves fluently and appropriately in social and professional contexts

- Oral practice: Just A Minute (JAM)Sessions
- Describing objects/situations/people
- Role play – Individual/Group activities
- Group Discussion – Group activities

Exercise– I CALL

Lab:

Understand: Listening Skill- Its importance – Purpose- Process- Types- Barriers of Listening.
Practice: Introduction to Phonetics – Speech Sounds – Vowels and Consonants.

ICS Lab:

Understand: Communication at Work Place- Spoken vs. Written language.
Practice: Ice-Breaking Activity and JAM Session- Situational Dialogues – Greetings – Taking Leave– Introducing Oneself and Others.

Exercises – II

CALL Lab:

Understand: Structure of Syllables – Word Stress and Rhythm– Weak Forms and Strong Forms in Context.
Practice: Basic Rules of Word Accent - Stress Shift - Weak Forms and Strong Forms in Context.

ICS Lab:

Understand: Features of Good Conversation – Non-verbal Communication.
Practice: Situational Dialogues – Role-Play- Expressions in Various Situations –Making Requests and Seeking Permissions - Telephone conversation.

Exercise - III

CALL Lab:

Understand: Intonation-Errors in Pronunciation-the Influence of Mother Tongue (MTI).
Practice: Common Indian Variants in Pronunciation – Differences in British and American Pronunciation.

ICS Lab:
Understand: Telephonic Etiquette, How to make Formal Presentations.
Practice: Formal Telephone conversation and Formal Presentations.

Exercise – IV

CALL Lab:
Understand: Consonant Clusters, Plural and Past tense Markers
Practice: Words often Misspelled – Confused/ Misused.

ICS Lab:
Understand: Public Speaking – Exposure to Structured Talks.
Practice: Making a Short Speech – Extempore.

Exercise – V

CALL Lab:
Understand: Listening for General and Specific Details.
Practice: Listening Comprehension Tests.

ICS Lab:
Understand: Group Discussion *and* Interview Skills.
Practice: Case study Group Discussions *and* Mock Interviews.

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Minimum Requirement of infrastructural facilities for ELCS Lab:

1. Computer Assisted Language Learning (CALL)Lab:

The Computer Assisted Language Learning Lab has to accommodate 40 students with 40 systems, with one Master Console, LAN facility and English language learning software for self- study by students.

System Requirement (Hardware component):

Computer network with LAN facility (minimum 40 systems with multimedia) with the following specifications:

i) Computers with Suitable Configuration
ii) High Fidelity Headphones

2. Interactive Communication Skills (ICS)Lab:

The Interactive Communication Skills Lab: A Spacious room with movable chairs and audio- visual aids with a Public-Address System, a LCD and a projector etc.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

2200MC02 :FRENCH LANGUAGE

B.TECH I YEAR II SEMESTER **L T P C**

2 0 0 0

Introduction:

In view of the growing importance of foreign languages as a communication tool in some countries of the world, French has been identified as one of the most popular languages after English. As a result, French program is introduced to develop the linguistic and communicative skills of engineering students and to familiarize them to the French communication skills. This course focuses on basic oral skills.

Course Objectives:

- To inculcate the basic knowledge of the French language.
- To hone the basic sentence constructions in day to day expressions for communication in their vocation.

Course Outcomes

- The students will be able to communicate in French at A1level.
- The student will have an advantage in the competitive job market.
- This course benefits the graduates when pursuing study *opportunities* in the countries where French is the official language.

UNIT - I:

Speaking: Introduction to the French language and culture – Salutations - French alphabet - Introducing people

Writing: Understand and fill out a form

Grammar: The verbs “to be ' and “to have " in the present tense of the indicative Vocabulary:The numbers from 1 to 20 - Professions - Nationalities

UNIT - II:

Speaking: Talk about one’s family – description of a person - express his tastes and preferences -express possession - express negation Writing:

Write and understand a short message

Grammar: Nouns (gender and number) - Articles - The –er verbs in the present – Possessive adjectives - Qualifying adjectives

Vocabulary: The family – Clothes - Colors - The numbers from 1 to 100 - The classroom

UNIT - III

Speaking: Talk about your daily activities - be in time - ask and indicate the date and time –talk

about sports and recreation - express the frequency Writing: A letter to a friend

Grammar - The expression of time – Their verbs in the present - The verbs do, go, take, come,

-Adverbs - Reflexive verbs

Vocabulary - The days and months of theyear-The sports -Hobbies

UNIT - IV

Speaking: Express the quantity - ask and give the price - express the need, the will and thecapacity

- compare (adjective) - speak at the restaurant /

in the shops Writing: A dialogue between a

vendor and a customer at the market

Grammar: Verbs “to want”, “to can” - Express capacity / possibility -

Express will / desire –thefuture tense

Vocabulary: The food – Meals - Fruits and vegetables – The parts of the body

UNIT - V

Speaking: Express the prohibition and the obligation - describe an apartment - talk about the weather / ask the weather - ask the opinion - give your opinion - express your agreement or disagreement

Writing: Descriptions

Grammar: Demonstrative adjectives -Prepositions - The verb 'must' to indicate obligation and necessity in the present

Vocabulary: Seasons – Holidays - The city – Furniture

NOTE: The students are exposed to simple listening and reading activities.

REFERENCE BOOKS

1. Apprenons le Français 1& 2, New Saraswati House,2015
2. A propos, A1, Langers International,2010
3. Easy French Step-by-step by Myrna Bell Rochester
4. Ultimate French Beginner-Intermediate (Course book) By Livid Language
5. Ã L' Aventure: An Introduction to French Language and Francophone Cultures byEvelyne Charvier-Berman, Anne C. Cummings.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(2200BS04) PROBABILITY AND STATISTICS

B.Tech. II Year I Sem **LTPC**

3 1 0 4

Course Objectives:

- Understand a random variable that describes randomness or an uncertainty in certain realistic situation. It can be of either discrete or continuous type.
- In the discrete case, study of the binomial and the Poisson random variables and the Normal random variable for the continuous case predominantly describe important probability distributions. Important statistical properties for these random variables provide very good insight and are essential for industrial applications.
- Most of the random situations are described as functions of many single random variables.
- The types of sampling, Sampling distribution of means, Sampling distribution of variance, Estimations of statistical parameters, Testing of hypothesis of few unknown statistical parameters.

Course Outcomes:

- Students would be able to identify distribution in certain realistic situation. It is mainly useful for circuits as well as non-circuit branches of engineering. Also able to differentiate among many random variables involved in the probability models. It is quite useful for all branches of engineering.
- The student would be able to calculate mean and proportions (small and large sample) and to make important decisions from few samples which are taken out of unmanageably huge populations.

UNIT – I

Probability and Discrete Probability Distributions:

Probability Definition, conditional probability, Baye's theorem (without proof) ; Discrete Random variables ,Binomial and Poisson distributions and their properties. (Without proof)

UNIT – II

Continuous Probability Distributions: Continuous random variables and their properties (without proof), distribution functions , Normal distribution.

Curve Fitting: Curve fitting by the method of least squares- fitting of straight lines, second degree parabolas and exponential curves.

UNIT – III

Sampling Distribution: Definitions of population, sample, statistic, parameter. Types of sampling, Expected values of Sample mean and variance, sampling distribution, Standard

error, Sampling distribution of mean and sampling distribution of variance.

UNIT – IV

Testing of hypothesis: Null hypothesis, Alternate hypothesis, type I, & type II errors - critical region, confidence interval, Level of significance, one tailed test and two tailed test. **Large sample tests:**

i. Test of Equality of means of two samples equality of sample mean and population mean(cases of known variance & unknown variance, equal and unequal variances)
ii. Tests of significance difference between sample proportion and population proportion & difference between two sample proportions.

UNIT – V

Small sample tests: Student t-distribution, its properties; Test of significance difference between sample mean and population mean; difference between means of two small samples. Snedecor's F-distribution and it's properties. Test of equality of two population variances. Chi-square distribution, it's properties, Chi-square test of goodness of fit.

TEXT BOOKS:

1. Higher Engineering Mathematics by Dr. B.S Grewal, Khanna Publishers
2. Probability and Statistics for Engineers and Scientists by Sheldon M.Ross, Academic Press

REFERENCE BOOKS:

1. Mathematics for Engineers by K.B.Datta and M.S.Srinivа, Cengage Publications
2. Probability and Statistics by T.K.V.lyengar & B.Krishna Gandhi Et
3. Fundamentals of Mathematical Statistics by S C Gupta and V.K.Kapoor
4. O.neil by P&S only applications
5. Veerajan T., Engineering Mathematics (for semester III) , Tata McGraw-Hill, New Delhi,2010. Erwin Kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons,2006.
6. P.G. Hoel, S.C.Port and C.J. Stone, Introduction to Probability theory, Universal Book Stall, 2003(Reprint).

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2204ES01) ANALOG AND DIGITAL ELECTRONICS CIRCUITS

B.Tech. II Year I Sem **LT PC**
3 0 0 3

Course Objectives:

- To familiarize the student with the principle of operation, analysis and design of Junction diode, BJT and FET amplifier circuits, transistors and field effect transistors.
- To understand diode as rectifier.
- To apply principles of Boolean algebra to minimize logic expressions using minimization techniques.
- To outline the formal procedures to design the combinational and sequential circuits of desired functionality.

Course Outcomes:

Upon successful completion of this course, the student will be able to:

- Understand and analyze the different types of diodes, operation and its characteristics.
- Design and analyze the DC bias circuitry of BJT and FET.
- Perform arithmetic operations on different number systems and to apply the principles of Boolean algebra to minimize logic expressions.
- Analyze some basic components used in digital systems such as adder and subtractor, decoder, encoder, multiplexer, flip-flops, registers and counters.
- Design various combinational PLDs such as ROMs, PALs, PALs.

UNIT -I

Junction Diode: P-N Junction as a Diode, Volt- Ampere Characteristics, Temperature dependence of VI characteristics, Transition and Diffusion Capacitances, Breakdown Mechanisms in Semiconductor Diodes, Zener Diode Characteristics.

Rectifiers and Filters: The P-N junction as a Rectifier, Half wave Rectifier, Full wave Rectifier, Inductor Filters, and Capacitor Filters.

UNIT –II

Bipolar Junction Transistor: The Junction Transistor, Transistor as an Amplifier, Common Base, Common Emitter and Common Collector Configurations , BJT Specifications, BJT Hybrid Model, Comparison of CB, CE, and CC Amplifier Configurations.

Transistor Biasing and Stabilization: Operating Point, The DC and AC Load lines, Need for Biasing, Bias Compensation using Diodes and Transistors, Thermal Runaway, Analysis of a Transistor Amplifier Circuit using h- Parameters,

UNIT –III

Field Effect Transistor: The Junction Field Effect Transistor, Volt-Ampere characteristics, **MOSFET:** MOSFET Characteristics in Enhancement and Depletion modes, Comparison of BJT and FET.

Digital Systems: Binary Numbers, Number base conversions, Octal, Hexadecimal and other base numbers, complements, binary codes, Error detection and correction, Basic theorems and properties of Boolean Algebra, Boolean functions, canonical and standard forms.

UNIT –IV

Gate–Level Minimization: The K-Map Method, Three-Variable Map, sum of products, product of sums simplification, Don't care conditions, NAND and NOR implementation, Exclusive-OR function.

Combinational Logic Circuits: Combinational circuit for different code converters, Binary Adder-Subtractor, Decimal Adder, Binary Multiplier, Decoders, Encoders, Multiplexers, De-multiplexers.

UNIT –V

Sequential Logic Circuits: Sequential Circuits, Latches, Flip-flops, analysis of clocked sequential circuits, Registers, Shift registers, Ripple counters, Synchronous counters.

Memory: Introduction, Random-Access memory, ROM, Programmable Logic Array, Programmable Array Logic.

TEXT BOOKS:

1. Millman's Electronic Devices and Circuits – J. Millman, C.C.Halkias, and SatyabrataJit, 2 Ed.,1998,TMH
2. Electronic Devices and Circuits – David A. Bell, 5Ed,Oxford.
3. M. Morris Mano, Michael D. Ciletti (2008), Digital Design, 4th edition, Pearson Education/PHI, India.
4. Thomas L. Floyd (2006), Digital fundamentals, 9th edition, Pearson Education International.

REFERENCE BOOKS:

1. Integrated Electronics – J. Millman and Christos C. Halkias, 1991 Ed., 2008,TMH.
2. Electronic Devices and Circuits - K. Lal Kishore, 2nd Ed.,2005,BSP.
3. Electronic Devices and Circuits – S.Salivahanan, N.Suresh Kumar, A.Vallavaraj, 2nd Ed., 2008,TMH.
4. Zvi. Kohavi (2004), Switching and Finite Automata Theory, Tata McGraw Hill,India.
5. C.V.S. Rao (2009), Switching and Logic Design, 3rd edition, Pearson Education,India.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(2205PC01) DATA STRUCTURES AND ALGORITHMS

B.Tech. II year I SEM **LTPC**

3 0 0 3

Course Objectives:

- To impart the basic concepts of data structures and algorithms.
- To understand concepts about searching and sorting techniques
- To understand basic concepts about stacks, queues, lists trees and graphs.
- To enable them to write algorithms for solving problems with the help of fundamental data Structures

Course Outcomes:

At the end of the course the students are able to:

- For a given Algorithm student will able to analyze the algorithms to determine time& computation complexity and justify the correctness.
- For a given Search problem (Linear Search and Binary Search) student will able to implement it. For a given problem of Stacks, Queues and linked list student will able to implement it and analyze the same to determine the time and computation complexity.
- Student will able to write an algorithm Selection Sort, Bubble Sort, Insertion Sort, Quick Sort, Merge Sort, Heap Sort and compare their performance in term of Space and Time complexity. Student will able to implement Graph search and traversal algorithms and determine the time and computation complexity.

UNIT-I

Introduction: Basic Terminologies: Elementary Data Organizations. Data Structure Operations: insertion, deletion, traversal etc. Analysis of an Algorithm, Asymptotic Notations, Time-Space trade off. **Searching:** Linear Search and Binary Search Techniques using C & Python and their complexity analysis.

UNIT-II

Stacks and Queues using C & Python: **ADT Stack and its operations:** Algorithms and their complexity analysis, Applications of Stacks: Expression Conversion and evaluation – corresponding algorithms and complexity analysis. **ADT Queue:** Types of Queue: Simple Queue, Circular Queue, Priority Queue. Double ended Queue and operations on each types of Queues and Algorithms , Applications of Queue.

UNIT-III

Linked Lists implementation using C & Python: Singly linked lists: Representation in memory, Algorithms of several operations: Traversing, Searching, Insertion into, Deletion from linked list; Linked representation of Stack and Queue, Header nodes. **Doubly Linked List:** operations on it and algorithmic analysis. **Circular Linked List:** all operations on it. Applications of Linked List

UNIT-IV

Trees implementation using C & Python: Basic Tree Terminologies: Different types of Trees: Binary Tree, Threaded Binary Tree, Binary Search Tree, **AVL Tree:** Tree operations on each of the trees and their algorithms. Applications of Binary Trees, B-Tree, B+ Tree: definition and its construction algorithm.

UNIT-V

Sorting and Hashing implementation using C & Python: Objective and properties of different sorting algorithms: Selection Sort, Bubble Sort, Insertion Sort, Quick Sort, Merge Sort, Heap Sort. Performance and Comparison among all the methods, Hashing.

Graph : Basic Terminologies & Representations, Applications of a Graph, Graph traversal algorithms, &complexity analysis.

TEXTBOOKS:

1. Data structures and algorithms in python by Michael T. Goodrich
2. Data Structures and Algorithmic Thinking with Python by Narasimha Karumanchi

REFERENCE BOOKS:

1. Hands-On Data Structures and Algorithms with Python: Write complex and powerful code using the latest features of Python 3.7, 2nd Edition by Dr. Basant Agarwal, Benjamin Baka.
2. Data Structures and Algorithms with Python by Kent D. Lee and Steve Hubbard.
3. Problem Solving with Algorithms and Data Structures Using Python by Bradley N Miller and David L. Ranum.
4. Core Python Programming -Second Edition,R. Nageswara Rao, Dreamtech Press

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2205PC03) DISCRETE MATHEMATICS

B.Tech. II Year I Sem **LTPC**
3 0 0 3

Course Objectives:

- Use mathematically correct terminology and notation.
- Construct correct direct and indirect proofs.
- Use division into cases in a proof.
- Use counter examples.
- Apply logical reasoning to solve a variety of problems.

Course Outcomes:

At the end of the course the students are able to:

- For a given logic sentence express it in terms of predicates, quantifiers, and logical connectives
- For a given a problem, derive the solution using deductive logic and prove the solution based on logical inference
- For a given a mathematical problem, classify its algebraic structure Evaluate Boolean functions and simplify expressions using the properties of Boolean algebra Develop the given problem as graph networks and solve with techniques of graph theory.

UNIT-I

Propositional Logic: Syntax, Semantics, Validity and Satisfiability, Basic Connectives and Truth Tables, Logical Equivalence: The Laws of Logic, Logical Implication, Rules of Inference, Normal Forms, Disjunctive and Conjunctive Normal Form, The use of Quantifiers.

UNIT-II

Sets, Relation and Function: Operations and Laws of Sets, Cartesian Products, Binary Relation, Partial Ordering Relation, Equivalence Relation, Image of a Set, Sum and Product of Functions, Bijective functions, Inverse and Composite Function, Size of a Set, Finite and infinite Sets, Countable and uncountable Sets.

Principles of Mathematical Induction: The Well-Ordering Principle, Recursive definition, The Division algorithm: Prime Numbers, The Greatest Common Divisor: Euclidean Algorithm, The Fundamental Theorem of Arithmetic.

UNIT-III

Algebraic Structures and Morphism: Algebraic Structures with one Binary Operation, Semi Groups, Monoids, Groups, Congruence Relation and Quotient Structures, Free and Cyclic Monoids and Groups,

Permutation Groups, Substructures, Normal Subgroups, Algebraic

Structures with two Binary Operation, Rings, Integral Domain and Fields. Boolean Algebra and Boolean Ring, Identities .of Boolean Algebra, Duality, Representation ofBoolean Function.

UNIT-IV

Elementary Combinatorics: Basic counting techniques-inclusion and exclusion, pigeon-hole principle, permutations and combinations With Repetition and Without Repetition.

UNIT-V

Graphs and Trees: Graphs and their properties, Degree, Connectivity, Path, Cycle, Sub Graph, Isomorphism, Eulerian and Hamiltonian Walks, Graph Colouring, Colouring maps and Planar Graphs, Colouring Vertices, Colouring Edges, List Colouring, Perfect Graph, definition properties and Example, rooted trees, trees and sorting, weighted trees and prefix codes, Bi- connected component and Articulation Points, Shortestdistances.

TEXT BOOKS:

1. Kenneth H. Rosen, Discrete Mathematics and its Applications, Tata McGraw–Hill
2. Susanna S. Epp, Discrete Mathematics with Applications,4th edition, Wadsworth Publishing Co. Inc.
3. C L Liu and D P Mohapatra, Elements of Discrete Mathematics A Computer Oriented Approach, 3rd Edition by, Tata McGraw–Hill.

REFERENCE BOOKS:

1. J.P. Tremblay and R. Manohar, “Discrete Mathematical Structure and It’s Application to Computer Science”, TMGEdition, TataMcGraw-Hill
2. Norman L. Biggs, Discrete Mathematics, 2nd Edition, Oxford University Press. Schaum’s Outlines Series, Seymour Lipschutz, MarcLipson,
3. Discrete Mathematics, Tata McGraw–Hill

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(2205PC10)COMPUTER NETWORKS

B.Tech. II Year I Sem **L T P C**

3 0 0 3

Course Objectives:

- To introduce the fundamental various types of computer networks.
- To demonstrate the TCP/IP and OSI models with merits and demerits.
- To explore the various layers of OSI Model.
- To introduce UDP and TCP Models.
- To introduce Encryption Security Mechanism

Course Outcomes:

- Students should be understand and explore the basics of Computer Networks and various Protocols. He/She will be in a position to understand the World Wide Web concepts.
- Students will be in a position to administrate a network and flow of information further he/she can understand easily the concepts of network security, Mobile and adhoc networks.

UNIT – I

Data Communications: Components – Direction of Data flow – Networks – Components and Categories – Types of Connections – Topologies –Protocols and Standards – ISO / OSI model, Physical layer: Transmission modes, Multiplexing, Transmission Media, Switching, Circuit Switched Networks, Datagram Networks, Virtual Circuit Networks.

UNIT – II

Data link layer: Introduction, Framing, and Error – Detection and Correction – Parity – LRC– CRC Hamming code, Flow and Error Control, Noiseless Channels, Noisy Channels, HDLC, Point to Point Protocols. 111 Medium Access sub layer: ALOHA, CSMA/CD, LAN– Ethernet IEEE 802.3, IEEE 802.5 – IEEE 802.11, Random access, Controlled access

UNIT – III

Network layer: Logical Addressing, Internetworking, Tunneling, Address mapping, ICMP,IGMP, Forwarding, Uni-Cast Routing Protocols, Multicast Routing Protocols.

UNIT – IV

Transport Layer: Process to Process Delivery, UDP and TCP protocols, Data Traffic, Congestion, Congestion Control, QoS, Integrated Services, Differentiated Services, QoS in Switched Networks.

UNIT – V

Application Layer: Domain name space, DNS in internet, electronic mail, SMTP, FTP, WWW, HTTP, SNMP, **Security – PGP - SSH**

TEXT BOOKS:

1. Data Communications and Networking, Behrouz A. Forouzan , Fourth Edition TMH, 2006.
2. Computer Networks, Andrew S Tanenbaum, 4th Edition. Pearson Education, PHI.

REFERENCES:

1. Data communications and Computer Networks, P.C .Gupta, PHI.
2. An Engineering Approach to Computer Networks, S. Keshav, 2nd Edition, PearsonEducation.
3. Understanding communications and Networks, 3rd Edition, W.A. Shay, Cengage Learning.
4. Computer Networking: A Top-Down Approach Featuring the Internet. James F. Kurose &Keith W. Ross, 3 rd Edition, Pearson Education.
5. Data and Computer Communication, William Stallings, Sixth Edition, Pearson Education,2000

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(2205PC61) DATA STRUCTURES & ALGORITHMS LAB

B.Tech. II Year I Sem **LTPC**

0031.5

Course Objectives:

- To make the student to implement using python and C.
- To make the student write ADTS for all data structures.

Course Outcomes:

At the end of the course the students are able to:

- For a given algorithm student will able to analyze the algorithms to determine time & computation complexity and justify the correctness.
- For a given Search problem (Linear Search and Binary Search) student will able to implement it.
- For a given problem of Stacks, Queues and linked list student will able to implement it and analyze the same to determine the time and computation complexity.
- Student will able to write an algorithm Selection Sort, Bubble Sort, Insertion Sort, Quick Sort, Merge Sort, Heap Sort and compare their performance in term of Space and Time complexity.

Week1: Write a C program and Python program to implement the following searching techniques in both recursive and non recursive manner.

i)Linearsearch ii) BinarySearch.

Week 2: Write a C & Python program to implement the following using List and Dictionary.

a) Stack b) Queue

Week 3: Write a C & Python program to implement Linked list data structure and perform the following operations.

a) Insert an element in to a list. b) Delete an element from list

c) Search for a key element in list d) count number of nodes in list.

Week 4: Write a C & Python program to implement the following using a singly linked list.

a)Stack b) Queue

Week 5: Write a C & Python program to implement the Deque (double ended queue)ADT using a List.

Week 6: Write a C& python program to perform the following operations:

a) Insert an element into a binary search tree.

b) Delete an element from a binary search tree.

c) Search for a key element in a binary search tree.

Week 7: Write a C & Python program that uses recursive functions to traverse the given binary search tree in a)Preorder b) inorder and c) postorder.

Week 8: Write a C & Python program to perform the following operations
a) Insertion into aB-tree
b) Deletion from a B-tree

Week 9: Write a C&Python program to construct AVL tree and perform the following operation
a) Insertion into an AVL-tree

Week 10: Write a C & Python program to implement hash table and perform the following operations
a) Inserting a key-value pair b) Deleting a key-value pair

Week 11: Write a C & Python program for implementing the following sorting methods
a)Mergesort b) Heapsort

Week 12: Write a C & Python program to implement the following sorting techniques
i)Bubblesort ii) Selectionsort
iv) Quicksort iv) Insertionsort
Week 13: Write a C & Python program to implement the Graph Traversal Techniques.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(2205PC66) COMPUTER NETWORKS LAB

B.Tech. II Year I Sem **LTP C**

0 0 3 1.5

Course Objectives:

- ✓ To understand the functionalities of various layers of OSI model
- ✓ To understand the operating System functionalities

Course Outcomes:

- ✓ Ability to understand the encryption and decryption concepts in Linux environment
- ✓ Ability to understand the mechanism of Noiseless channel.
- ✓ Ability to apply appropriate algorithm for the finding of shortest route.
- ✓ Ability to configure the routing table and Routing protocol

System/ Software Requirement

Intel based desktop PCs LAN CONNECTED with minimum of 166 MHZ or faster processorwith at least 64 MB RAM and 100 MB free disk space

Computer Networks Lab:

1. Implement the data link layer framing methods such as character, character stuffing, and bitstuffing.
2. Implement on a data set of characters the three CRC polynomials – CRC 12, CRC 16 andCRC.
3. Implement Stop and wait protocol.
4. Implement Dijkstra‘s algorithm to compute the Shortest path through a graph.
5. Take an example subnet graph with weights indicating delay between nodes. Now obtainRouting table art each node using distance vector routing algorithm
6. To implement Open Shortest Path First (OSPF) Routing Protocol
7. Take a 64 bit playing text and encrypt the same using DES algorithm
8. Using RSA algorithm encrypts a text data and Decrypt the same.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(2200MC03) HUMAN VALUES AND PROFESSIONAL ETHICS

B.Tech. II Year I Sem **LTPC**

2 0 0 0

Course Objective:

To enable the students to imbibe and internalize the Values and Ethical Behaviour in the personal and Professional lives.

Course Outcome:

The students will understand the importance of Values and Ethics in their personal lives and professional careers. The students will learn the rights and responsibilities as an employee, team member and a global citizen.

UNIT - I:

Introduction to Human Values: Need, basic Guidelines, Content and Process for Value Education, Self Exploration - 'Natural Acceptance' and Experiential Validation. Continuous Happiness and Prosperity - A look at basic Human Aspirations. Right understanding, Relationship and Physical Facilities. Understanding Happiness and Prosperity correctly

UNIT - II:

Understanding Harmony in the Family and Society: Harmony in Human - Human Relationship: Understanding harmony in the Family the basic unit of human interaction. Understanding values in human - human relationship; meaning of Nyaya and program for its fulfillment to ensure Ubhay-tripti; Trust (Vishwas) and Respect (Samman) as the foundational values of relationship. Understanding the harmony in the society (society being an extension of family). Visualizing a universal harmonious order in society - Undivided Society (AkhandSamaj), Universal Order (SarvabhaumVyawastha) - from family to worldfamily!

UNIT – III:

Introduction to Professional Ethics: Basic Concepts, Governing Ethics, Personal & Professional Ethics, Ethical Dilemmas, Life Skills, Emotional Intelligence, Thoughts of Ethics, Value Education, Dimensions of Ethics, Profession and professionalism, Professional Associations, Professional Risks, Professional Accountabilities, Professional Success, Ethics

and Profession.

UNIT – IV:

Professional Practices in Engineering: Work Place Rights & Responsibilities, Professions and Norms of Professional Conduct, Norms of Professional Conduct vs. Profession; Responsibilities,ObligationsandMoralValuesinProfessionalEthics,Professionalcodesof

ethics, the limits of predictability and responsibilities of the engineering profession. Central Responsibilities of Engineers – The Centrality of Responsibilities of Professional Ethics; lessons from 1979 American Airlines DC-10 Crash and Kansas City Hyatt Regency Walk away Collapse.

UNIT – V:

Global issues in Professional Ethics: Introduction – Current Scenario, Technology Globalization of MNCs, International Trade, World Summits, Issues, Business Ethics and Corporate Governance, Sustainable Development Ecosystem, Energy Concerns, Ozone Depletion, Pollution, Ethics in Manufacturing and Marketing, Media Ethics, War Ethics, Bio Ethics, Intellectual Property Rights.

TEXT BOOKS:

1. R. R. Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and ProfessionalEthics.
2. Professional Ethics: R. Subramanian, Oxford UniversityPress,2015.
3. Ethics in Engineering Practice & Research, Caroline Whitbeck, 2e,Cambridge University Press2015.

REFERENCE BOOKS:

1. Prof. K. V. Subba Raju, 2013, Success Secrets for Engineering Students, Smart Student Publications,3rdEdition.
2. Ivan IIIich, 1974, Energy & Equity, The Trinity Press, Worcester, and HarperCollins,USA
3. Engineering Ethics, Concepts Cases: Charles E Harris Jr., Michael S Pritchard, Michael J Rabins, 4e, Cengagelearning,2015.
4. Business Ethics concepts & Cases: Manuel G Velasquez, 6e,PHI,2008.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2200HS03) MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS

B.Tech. II Year II Sem **LTPC**
3 0 0 3

Course Objectives:
To enable the student to understand and appreciate, with a particular insight, the importance of certain basic issues governing the business operations namely; demand and supply, production function, cost analysis, markets, forms of business organizations, capital budgeting, financial accounting and financial analysis.

Course Outcomes:
At the end of the course, the student will understand the market dynamics namely, demand and supply, demand forecasting, elasticity of demand and supply, pricing methods and pricing in different market structures, gain an insight into how production function is carried out to achieve least cost combination of inputs and cost analysis, develop an understanding of how capital budgeting decisions are carried out, understanding the framework for both manual and computerized accounting process, know how to analyze and interpret the financial statements through ratio analysis.

UNIT I

Introduction & Demand Analysis: Definition, Nature and Scope of Managerial Economics. Demand Analysis: Demand Determinants, Law of Demand and its exceptions. Elasticity of Demand: Definition, Types, Measurement and Significance of Elasticity of Demand. Demand Forecasting, Factors governing demand forecasting, methods of demand forecasting.

UNIT II

Production & Cost Analysis: Production Function - MRTS, Least Cost Combination of Inputs, Laws of Returns, Internal and External Economies of Scale. Cost Analysis: Cost concepts. Break-even Analysis (BEA)-Determination of Break-Even Point (simple problems) – Managerial Significance.

UNIT III

Markets & New Economic Environment: Types of competition and Markets, Features of Perfect competition, Monopoly and Monopolistic Competition. Pricing: Objectives and Policies of Pricing. Methods of Pricing. Business: Features and evaluation of different forms of Business Organization: Sole Proprietorship, Partnership, Joint Stock Company, Public Enterprises and their types, New Economic Environment: Changing Business Environment in Post-liberalization scenario.

UNIT IV

Capital Budgeting: Capital and its significance, Types of Capital, Estimation of Fixed and Working capital requirements, Methods and sources of raising capital - Capital Budget, Cash Budget. Capital Budgeting: features of capital budgeting proposals, Methods of Capital Budgeting: Payback Method, Accounting Rate of return (ARR) and Net Present Value Method (simple problems).

UNIT V

Introduction to Financial Accounting & Financial Analysis: Accounting concepts and Conventions - Double-Entry Book Keeping, Journal, Ledger, Trial Balance - Final Accounts (Trading Account, Profit and Loss Account and Balance Sheet with simple adjustments). Financial Analysis: Analysis and Interpretation of Liquidity Ratios, Activity Ratios, and Capital structure Ratios and Profitability ratios.

TEXT BOOKS:

1. Varshney &Maheswari: Managerial Economics, SultanChand, 2009.
2. S.A. Siddiqui & A.S. Siddiqui, Managerial Economics and Financial Analysis, New Age international Publishers,Hyderabad2013.
3. M. Kasi Reddy & Saraswathi, Managerial Economics and Financial Analysis, PHI New Delhi,2012.

REFERENCES:

1. Ambrish Gupta, Financial Accounting for Management, Pearson Education, New Delhi,2012.
2. H. Craig Peterson & W. Cris Lewis, Managerial Economics,Pearson,2012.
3. Lipsey &Chrystel, Economics, Oxford UniversityPress,2012.
4. Domnick Salvatore: Managerial Economics In a Global Economy,Thomson,2012.
5. Narayanaswamy: Financial Accounting - A Managerial Perspective,Pearson,2012.
6. S.N. Maheswari& S.K. Maheswari, Financial Accounting,Vikas,2012.
7. Truet and Truet: Managerial Economics: Analysis, Problems and Cases, Wiley,2012.
8. Dwivedi: Managerial Economics,Vikas,2012.
9. Shailaja & Usha: MEFA, UniversityPress,2012.
10. Aryasri: Managerial Economics and Financial Analysis,TMH, 2012.
11. Vijay Kumar &Appa Rao, Managerial Economics & Financial Analysis, Cengage2011.

J.V. Prabhakar Rao & P.V. Rao, Managerial Economics & Financial Analysis, Maruthi Publishers,2011.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(2205PC06) OBJECT ORIENTED PROGRAMMING THROUGH JAVA

B.Tech. II Year II Sem **LTPC**

3 0 0 3

Course Objective:

- The objective of this course is to provide object-oriented concepts through which robust, secured and reusable software can be developed.
- To understand object-oriented principles like abstraction, encapsulation, inheritance and polymorphism and apply them in solving problems.
- To understand the principles of inheritance and polymorphism and demonstrate how they relate to the design of abstract classes.
- To understand the implementation of packages and interfaces.
- To understand the concepts of exception handling, multithreading and collection classes.
- To understand the design of Graphical User Interface using applets and swing controls.

Course Outcomes:

At the end of the course the students are able to:

- An understanding of the principles and practice of object-oriented analysis and design in the construction of robust, maintainable programs which satisfy their requirements;
- A competence to design, write, compile, test and execute straightforward programs using a high-level language;
- An appreciation of the principles of object-oriented programming;
- An awareness of the need for a professional approach to design and the importance of good documentation to the finished programs.
- Be able to implement, compile, test and run Java programs comprising more than one class, to address a particular software problem.
- Demonstrate the ability to use simple data structures like arrays in a Java program.
- Be able to make use of members of classes found in the Java API.
- Demonstrate the ability to employ various types of selection constructs in a java program. Be able to employ a hierarchy of Java classes to provide a solution to a given set of requirements.
- Able to develop applications using Applet and Swings.

UNIT-I

Object-oriented thinking- A way of viewing world – Agents and Communities, messages and methods, Responsibilities, Classes and Instances, Class Hierarchies- Inheritance, Method binding, Overriding and Exceptions, Summary of Object-Oriented concepts.

An Overview of Java -History of Java, comments, Data types, Variables, Constants, Scope andLifetimeofvariables,Operators,Typeconversionandcasting,Enumeration,Controlflow-

block scope, conditional statements, loops, break and continue statements, simple java standalone programs, arrays, console input and output, classes, methods, constructors, static, this keyword, recursion, exploring string classes and garbage collection.

UNIT – II

Inheritance–Inheritance hierarchy, super keyword, preventing inheritance: final classes and methods, the Object class and its methods**.**

Polymorphism–dynamic binding, Constructor and method overloading, method overriding, abstract classes**.**

Interfaces-Interfaces Vs Abstract Classes, defining an interface, implementing interfaces, accessing implementations through interface references, extending interface, inner class.

Packages-Defining, creating and accessing a package, CLASSPATH, Access modifiers, importing packages.

UNIT-III

Exception Handling-Dealing with errors, benefits of exception handling, the classification of exceptions - exception hierarchy, checked exceptions and unchecked exceptions, usage of try, catch, throw, throws and finally, creating own exception subclasses.

Multithreading – Differences between multiple processes and multiple threads, thread lifecycle, creating threads, interrupting threads, thread priorities, synchronizing threads, inter-thread communication-producer consumer problem.

UNIT-IV

Collection Framework in Java – Introduction to java collections, Overview of java collection framework, Commonly used collection classes-ArrayList, LinkedList, HashSet, TreeSet, Map-HashMap, TreeMap, Legacy Classes-Vector, Stack,Hashtable.

Other Utilities-Scanner, String Tokenizer, Random, Date.

Files-Streams**-**Byte Streams, Character Streams, Text input/output, Binary input /output , File Management using File class.

UNIT-V

Applets – Inheritance hierarchy for applets, differences between applets and applications, Life cycle of an applet and Passing parameters to applets

GUI Programming - Swing -The AWT class hierarchy, Introduction to Swing, Swing Vs AWT, Hierarchy for Swing components, Overview of Swing components – JButton, JLabel, JTextField, JCheckBox, RadioButton, JTextArea, etc simple Swing applications, Layout managers– FlowLayout, BorderLayout, GridLayout andGridbagLayout.

Event Handling-Events, Event sources, Event classes, Event Listeners, Delegation event model, Handling Mouse and Key events, Adapter classes.

TEXTBOOKS:

1. Java Fundamentals–A Comprehensive Introduction, Herbert Schildt and Dale Skrien, TMH.
2. Understanding Object-Oriented Programming with Java, updated edition, T. Budd, Pearson Education

REFERENCE BOOKS:

1. Java for Programmers, P.J. Deitel and H.M. Deitel, PEA(or) Java: How to Program , P.J. Deitel and H.M. Deitel, PHI
2. Object Oriented Programming through Java,P. RadhaKrishna, Universities Press.
3. Thinking in Java, Bruce Eckel, PE
4. Programming in Java, S. Malhotra and S. Choudhary, Oxford Universities Press.

Design Patterns Erich Gamma, Richard Helm, Ralph Johnson and John Vlissides

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(2005PC05) DESIGN AND ANALYSIS OF ALGORITHMS

B.Tech. II Year II Sem

L T P C

3 0 0 3

Course Objectives:

- To analyze performance of algorithms.
- To choose the appropriate data structure and algorithm design method for a specified application.
- To understand how the choice of data structures and algorithm design methods impacts the performance of programs.
- To solve problems using algorithm design methods such as the greedy method, divide and conquer, dynamic programming, backtracking and branch and bound.

Course Outcomes:

- Be able to analyze algorithms and improve the efficiency of algorithms.
- Apply different designing methods for development of algorithms to realistic problems, such as divide and conquer, greedy and etc.
- Ability to understand and estimate the performance of algorithm.

UNIT - I

Introduction-Algorithm definition, Algorithm Specification, Performance Analysis-Space complexity, Time complexity, probabilistic analysis Randomized Algorithms.

Divide and conquer- General method, applications - Binary search, Merge sort, Quick sort,

Strassen's Matrix Multiplication.

UNIT - II

Disjoint set operations- union and find algorithms, Efficient non-recursive binary tree traversal algorithms, spanning trees, graph traversals- BFS and DFS, AND/OR graphs, Game Tree, Connected Components and Spanning trees, Bi-connected components

UNIT - III

Greedy method- General method, applications- Knapsack problem, Job sequencing with deadlines, Minimum cost spanning trees, Single source shortest path problem.

Dynamic Programming- General Method, applications- All pairs shortest path problem, Optimal binary search trees, 0/1 knapsack problem, Reliability design, Travelling sales person problem.

UNIT - IV

Backtracking-General method, applications-The 8-queen problem, sum of subsets problem, graph colouring, Hamiltonian cycles.

Branch and Bound- General Method, applications-0/1 Knapsack problem, LC Branch and Bound solution, travelling sales person problem.

UNIT - V

NP- Hard and NP-Complete problems- Basic concepts, Non-deterministic algorithms, NP - Hard and NP- Complete classes, Cook's theorem.

TEXT BOOKS:

1. Fundamentals of Computer Algorithms, 2nd Edition, Ellis Horowitz, SartajSahniand S. Raja sekharan, Universities Press.
2. Design and Analysis of Algorithms, P. H. Dave, H. B. Dave, 2ndedition, Pearson Education.

REFERENCE BOOKS:

1. Algorithm Design: Foundations, Analysis and Internet examples, M. T. Goodrich and R. Tomassia, John Wiley andsons.
2. Design and Analysis of Algorithms, S. Sridhar, Oxford Univ. Press
3. Design and Analysis of algorithms, Aho, Ullman and Hopcroft, Pearson Education.
4. Foundations of Algorithms,, R. Neapolitan and K. Naimipour, 4thedition, Jones and Bartlett Student edition.
5. Introduction to Algorithms, 3rdEdition, T. H. Cormen, C. E. Leiserson, R. L. Rivest, and

C. Stein, PHI

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(2205PC08) DATABASE MANAGEMENT SYSTEMS

B.Tech. II Year II Sem

LTPC

3 0 0 3

Course Objectives:

- To understand the basic concepts and the applications of database systems.
- To master the basics of SQL and construct queries using SQL.
- To understand the relational database design principles.
- To become familiar with the basic issues of transaction processing and concurrency control.
- To become familiar with database storage structures and access techniques.

Course Outcomes:

- Demonstrate the basic elements of a relational database management system and Ability to identify the data models for relevant problems.
- Ability to design entity relationship model and convert entity relationship diagrams into RDBMS and formulate SQL queries on the data.
- Apply normalization for the development of application software.

UNIT – I: Introduction: Database System Applications, Purpose of Database Systems, View of Data, Database Languages – DDL, DML, Relational Databases, Database Design, Database Architecture, Data Mining and Information Retrieval, Database Users and Administrators, History of Database Systems.

Introduction to Data base design: Database Design and ER diagrams, Entities, Attributes and Entity sets, Relationships and Relationship sets, Additional features of ER Model, Conceptual Design with the ER Model, Conceptual Design for Large enterprises.

UNIT – II: Relational Model: Introduction to the Relational Model, Integrity Constraints over Relations, Enforcing Integrity constraints, Querying relational data, Logical data base Design: ER to Relational, Introduction to Views, Destroying /Altering Tables and Views.

Relational Algebra and Calculus: Preliminaries, Relational Algebra, Relational calculus– Tuple relational Calculus, Domain relational calculus.

UNIT – III: SQL: Queries, Constraints, Triggers: Form of Basic SQL Query, UNION, INTERSECT, and EXCEPT, Nested Queries, Aggregate Operators, NULL values, Natural JOINS, Complex Integrity Constraints in SQL, Triggers and Active Data bases..

Schema Refinement and Normal Forms: Introduction to Schema Refinement, Functional Dependencies - Reasoning about FDs, Normal Forms, Properties of Decompositions,

Normalization, Schema Refinement in Database Design, Other Kinds of Dependencies.

UNIT – IV: Transaction Management: Transactions, Transaction Concept, A Simple Transaction Model, Storage Structure, Transaction Atomicity and Durability, Transaction Isolation, Serializability.

Concurrency Control: Lock–Based Protocols, Multiple Granularity, Timestamp-Based Protocols, Validation-Based Protocols.

Recovery System-Failure Classification, Recovery and Atomicity, Recovery Algorithm, Buffer Management, Failure with loss of nonvolatile storage, Remote Backupsystems.

UNIT – V: Storage and Indexing: Overview of Storage and Indexing: Data on External Storage, File Organization and Indexing, Index Data Structures, Comparison of File Organizations. Tree-Structured Indexing: Intuition for tree Indexes, Indexed Sequential Access Method (ISAM), **B+ Trees**: A Dynamic Index Structure, Search, Insert, Delete.

TEXT BOOKS:

1. Data base Management Systems, Raghu Ramakrishnan, Johannes Gehrke, McGraw Hill Education (India) Private Limited, 3rd Edition. (Part of UNIT-I, UNIT-II, UNIT-III, UNIT-V)
2. Data base System Concepts, A. Silberschatz, Henry. F. Korth, S. Sudarshan, McGraw Hill Education(India) Private Limited l, 6th edition.(Part of UNIT-I,UNIT-IV)

REFERENCE BOOKS:

1. Database Systems, 6th edition, R Elmasri, Shamkant B.Navathe, Pearson Education.
2. Database System Concepts, Peter Rob & Carlos Coronel, Cengage Learning.
3. Introduction to Database Management, M. L. Gillenson and others, Wiley Student Edition.
4. 4.Database Development and Management, Lee Chao, Auerbach publications, Taylor& Francis Group. Introduction to Database Systems, C. J. Date, Pearson Education.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(2205PC63) OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB

B.Tech. II Year II Sem **LTPC**

0031.5

Course Objectives:

- To prepare students to become familiar with the Standard Java technologies ofJ2SE
- To prepare students to excel in Object Oriented programming and to succeed as a Java Developer through global rigorous education.
- To provide Students with a solid foundation in OOP fundamentals required to solve programming problems and also to learn Advanced Java topics like J2ME, J2EE, JSP and JavaScript
- To train Students with good OOP programming breadth so as to comprehend, analyze, design and create novel products and solutions for the real life problems.
- To inculcate in students professional and ethical attitude, multidisciplinary approach and an ability to relate java programming issues to broader application context.
- To provide student with an academic environment aware of excellence, written ethical codes and guidelines and lifelong learning needed for a successful professional career.

Course Outcomes:

- Able to analyze the necessity for Object Oriented Programming paradigm and over structured programming and become familiar with the fundamental concepts inOOP.
- Demonstrate an ability to design and develop java programs, analyze, and interpret object oriented data and report results.
- Demonstrate an ability to design an object oriented system, Swing components or multithreaded process as per needs and specifications.
- Demonstrate an ability to visualize and work on laboratory and multidisciplinary tasks like console and windows applications both for standalone and Applets program

Week 1: a) Write a java program to find the Fibonacci series using recursive and non recursive functions.

a) Write a java program to multiply two given matrices.

Week 2: a) Write a java program for Method overloading and Constructor overloading.

b) Write a java program to display the employee details using Scannerclass.

c) Write a java program that checks whether a given string is palindrome or not.

Week 3: a) Write a java program to represent Abstract class with example.

b) Write a java program to implement Interface using extends keyword.

Week 4: a) Write a java program to create user defined package.

Week 5: a) Write a java program to create inner classes.

b) Write a java program for creating multiple catch blocks.

c) Write a Java Program for creating User Defined Exception.

Week 6: a) Write a java program for producer and consumer problem using Threads. b)Write a Java program that implements a multi-thread application that has three threads.

Week 7: a) Write a java program to implement all file operations.

b) Write a Java Program to list all the files in a directory including the files present in all its sub directories.

Week 8: a) Write a java program to represent ArrayList class.

b) Write a Java program loads phone no, name from a text file using Hashtable.

Week 9: a) Write an applet program that displays a simple message. b)Write a Java program compute factorial value using Applet.

c)Write a program for passing parameters using Applet.

Week 10: Write a java program for handling Mouse events and Key events

Week 11: Write a java program that works as a simple calculator. Use a Grid Layout arrange Buttons for digits and for the + - * % operations. Add a text field to display the result.

TEXT BOOK/ REFERENCE BOOKS:

1. Java Fundamentals – A Comprehensive Introduction, Herbert Schildt and Dale Skrien, TMH.

Java for Programmers, P.J. Deitel and H.M. Deitel, PEA (or) Java: How to Program , P.J. Deitel and H.M. Deitel, PHI

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(2205PC64) DATABASE MANAGEMENT SYSTEMS LAB

B.Tech. II Year II Sem **LTPC**

0031.5

Course Objectives:

Students will have the ability to:

- Keep abreast of current developments to continue their own professional development.
- To engage themselves in lifelong learning of Database management systems theories and technologies this enables them to purse higher studies.
- To interact professionally with colleagues or clients located abroad and the ability to overcome challenges that arises from geographic distance, cultural differences, and multiple languages in the context of computing.
- Develop team spirit, effective work habits, and professional attitude in written and oral forms, towards the development of database applications

Course Outcomes:

Students will be able to demonstrate their skills

- In drawing the ER, EER, and UML Diagrams.
- In analyzing the business requirements and producing a viable model for the implementation of the database.
- In converting the entity-relationship diagrams into relational tables.
- To develop appropriate Databases to a given problem that integrates ethical, social, legal, and economic concerns.

A. Practice on SQL Queries to acquire knowledge on RDBMS.

B. Case Study:

Objective: This lab enables the students to practice the concepts learnt in the subject DBMS by developing a database for an example company named "Roadway Travels" whose description is as follows. The student is expected to practice the designing, developing and querying a database in the context of example database -Roadway travels". Students are expected to use "Mysql" database.

Roadway Travels: "Roadway Travels" is in business since 1997 with several buses connecting different places in India. Its main office is located in Hyderabad.

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

- Reservations and Ticketing
- Cancellations

- Reservations & Cancellation:

Reservations are directly handled by booking office. Reservations can be made 30 days in advance and tickets issued to passenger .One Passenger /person can book many tickets (to his/her family).

Cancellations are also directly handed at the booking office.

In the process of computerization of Roadway Travels you have to design and develop a Database which consists the data of Buses, Passengers, Tickets, and Reservation and cancellation details. You should also develop query's using SQL to retrieve the data from the database.

The above Process involves many steps like

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

Experiment 1: E-R Model

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

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

Example:

Entities:

1. BUS
2. Ticket
3. Passenger

Relationships:

1. Reservation
2. Cancellation

PRIMARY KEY ATTRIBUTES:

1. Ticket ID (TicketEntity)
2. Passport ID(PassengerEntity)
3. Bus_NO(BusEntity)

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

Ex: Bus Entity

Ex: Reservation relationship

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

Experiment 2: Installation of Mysql and practicing DDL, commands

Installation of MySql. In this week you will learn Creating databases, How to create tables, altering the database, dropping tables and databases if not required. You will also try truncate, rename commands etc.
Example for creation of a normalized "Passenger" table.

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

Similarly create all other tables.

Note: Detailed creation of tables is given at the end. Experiment 3: Practicing DML commands

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

- SELECT - retrieve data from the adatabase
- INSERT - insert data into atable
- UPDATE - updates existing data within atable

- DELETE-deletes all records from a table, the space for the recordsremain

Inserting values into "Bus" table:

Insert into Bus values (1234,'hyderabad', ‘tirupathi');
Insert into Bus values (2345,’hyderabd’ ‘Banglore’);
Insert into Bus values (23,'hyderabd','Kolkata');
Insert into Bus values (45,'Tirupathi,'Banglore');
Insert into Bus values (34,'hyderabd','Chennai');

Inserting values into "Passenger" table:

Insert into Passenger values (1, 45,'ramesh', 45,’M',‘abc123');
Insert into Passenger values (2, 78,'geetha', 36,'F','abc124');
Insert into Passenger values (45, 90,' ram', 30,'M','abc12');
Insert into Passenger values (67, 89,' ravi', 50,'M','abc14');
Insert into Passenger values (56, 22,'seetha', 32,'F','abc55');

Few more Examples of DML commands:

Select * from Bus; (selects all the attributes and display)
UPDATE BUS SET Bus No = 1 WHERE BUS NO=2;

Experiment 4: Querying

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

Practice the following Queries:

Display unique PNR_no of all Passengers. Display all the names of male passengers.
Display the ticket numbers and names of all the passengers.
Find the ticket numbers of the passengers whose name start with 'r' and ends with 'h'. Find the names of passengers whose age is between 30 and 45.
Display all the passengers names beginning with 'A' Display the sorted list of passengers names

Experiment 5: Aggregate Functions and Number Functions, Nested Query and Co-related Queries You are going to practice queries using Aggregate functions and number functions(COUNT, SUM, AVG, and MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.
Write a Query to display the Information present in the Passenger and cancellation tables. Hint: Use UNION Operator.
Display the number of days in a week on which the 9W01 bus is available.
Find number of tickets booked for each PNR_no using GROUP BY CLAUSE. Hint: Use GROUP BY on PNR_No.

Find the distinct PNR numbers that are present.
Find the number of tickets booked by a passenger where the number of seats is greater than 1.Hint: Use GROUP BY, WHERE and HAVINGCLAUSES.
Find the total number of cancelled seats.

Nested Query and Co-related Queries

Use the tables sailors, reserves, boats for implementing the following
Sailors (sid: integer, sname: string, rating: integer, age: real);
Boats(bid: integer, bname: string, color: string); Reserves(sid: integer, bid: integer, day: date).

- Find the names of sailors who have reservedboat103
- Find the name and the age of the youngestsailor
- Find the names and ratings of sailor whose rating is better than some sailor called Horatio
- Find the names of sailors who have reserved allboats

Experiment 6: VIEWS and JOIN

In this week, we are going to implement views and also perform various operations like alter, update and delete commands.

View:

Write a query to execute and verify the SQL commands using Views (Use Employee Table)
(a) Alter (b) Update (c) Delete

Join:

Write a query to execute and verify the SQL commands using Join (Use Customer Table)
(a) Inner join, (b).Left join, (c).Right join (d).Full join

Experiment 7: Triggers

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

Eg: CREATE TRIGGER up d check BEFORE UPDATE ON passenger FOR EACH ROW BEGIN

IF NEW.Tickent N0 > 60 THEN SET
New.Tickent no = Ticket no; ELSE SET
New.Ticket no = 0; END IF;
END;

Experiment 8: Procedures

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

Eg: CREATE PROCEDURE myProc()

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

Experiment 9: Cursors

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

CREATE PROCEDURE myProc (in_customer_id INT) BEGIN DECLARE v_id INT;
DECLARE v_nameVARCHAR(30);
DECLAREclCURSORFORSELECTppno,nameFROMPassengerWHERE
ppno=in_customer_id; OPENcl;
FETCH cl
into v_id, v_name; Close cl; END
Tables BUS
Bus No: Varchar:
PK (Primary key) Source: Varchar Destination:
Varchar DeptTime:Varchar **Passenger**
PPNO: Varchar(15)) :
PK Name:
Varchar(15) Age : int (4) Sex:Char(I 0) : Male/Female Address: VarChar(20)

Passenger_Tickets

PPNO: Varchar(15)) : FK Ticket No: Numeric (9)

Reservation

PNR_No: Numeric(9) :
PK Journey_date :datetime(8) No_of_seats : int (8) Address: Varchar(50)
Contact_No: Numeric (9) —> Should not be less than 9 and Should not
accept any other character other than Integer Status: Char (2) : Yes / No

Cancellation

PNR_No:Numeric(9):

FK Journey_date:datetime (8) No_of_seats : int (8)
Address : Varchar (50)
Contact_No: Numeric (9) —> Should not be less than 9 and should not accept any other character other than Integer
Status: Char (2) : Yes / No

Ticket

Ticket_No: Numeric(9):
PK Journey_date :datetime(8) Age : int (4)

Sex:Char(10) :Male/Female
Source :Varchar Destination :Varchar Dep_time :Varchar

Experiment 10: Normalization

Database normalization is a technique for designing relational database tables to minimize duplication of information and, in so doing, to safeguard the database against certain types of logical or structural problems, namely data anomalies. For example, when multiple instances of a given piece of information occur in a table, the possibility exists that these instances will not be kept consistent when the data within the table is updated, leading to a loss of data integrity. A table that is sufficiently normalized is less vulnerable to problems of this kind, because its structure reflects the basic assumptions for when multiple instances of the same information should be represented by a single instanceonly.
For the above table in the First normalization we can remove the multi valued attribute Ticket_id and place it in another table along with the primary key of passenger.

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

Passenger
Name Age Sex Address PassportID

Passport_id Ticket_id

You can do these cond and third normal forms if required. And how Normalize dtables are given at the end.

Experiment 11: PL/SQL Programs

In this week, you are going to learn and work on PL/SQL procedures.

- Write a PL/SQL procedure to find the average of marks?
- Write a PL/SQL procedure to find the factorial of a number?
- Write a PL/SQL code to calculate tax for an employee of an organization–XYZ and to display his/her name & tax, by creating table under employee database as below.
  Employee_salaryEmp_no Basic HRA DA Total_deduction

  Net_salary Gross_salary

Experiment 12: Revoke/Grant/Commit/Rollback

In this week, you need to do the following: Declare a table that defines a result set using revoke, grant, save point, commit, rollback operations

Consider the following tables namely "DEPARTMENTS" and "EMPLOYEES" Their schemas are as follows, Departments (dept _no , dept_ name , dept_location); Employees (emp_id , emp_name , emp_salary);

1. Developaquerytograntallprivilegesofemployeestableintodepartmentstable
2. Developaquerytograntsomeprivilegesofemployeestableintodepartmentstable
3. Developaquerytorevokeallprivilegesofemployeestablefromdepartmentstable
4. Develop a query to revoke some privileges of employees table from departmentstable
5. Write a query to implement the savepoint
6. Write a query to implement thecommit
7. Write a query to implementrollback

Reference Books:

1. Introduction to SQL, RickF. Vander Lans, Pearsoneducation..
2. Oracle PL/SQL, B.Rosenzweig and E.Silvestrova, Pearsoneducation.
3. Oracle PL/SQL Programming, StevenFeuerstein,SPD.
4. SQL & PL/SQL for Oracle 10g,B lack Book, Dr.P.S.Deshpande, DreamTech
5. Oracle Database 11g PL/ SQL Programming,M.McLaughlin,TMH

SQL Fundamentals, J.J.Patrick, PearsonEducation

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2200MC04) INDIAN CONSTITUTION
B.Tech. II Year II Sem

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Course Objective:

- To enable the students to be aware of emergence and evolution of Indian Constitution, to understand their fundamental rights and duties and to understand the structure and composition of Election Commission.

Course Outcome:

- Students will be able to understand and discuss about Indian constitution. The students will learn their Rights and Responsibilities as an Indian citizen.

UNIT –I

Meaning and Importance of Constitution, Evolution of the constitution of India. Salient features of the constitution of India

UNIT –II

Scheme of fundamental rights, fundamental duties and its legal status. The Directive Principles of State Policy- Significance and implementation

UNIT –III

Government of the Union : President of India – Election and Powers, Prime Minister and Council of Ministers, Lok Sabha – Composition and Powers, Rajya Sabha – Composition and Powers

UNIT –IV

The historical perspectives of the constitutional amendments in India. Emergency provisions: National Emergency, President Rule, Financial Emergency, Local self-government-Constitutional scheme in India

UNIT –V

Election Commission: Role and Functioning, Chief Election Commissioner and Election Commissioners, State Election Commission: Role and Functioning, Institute and Bodies for the welfare of SC/ST/OBC and women.

TEXTBOOKS:

1. The Constitution of India, 1950 (Bare Act), Government Publication.
2. M. P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis,2014.

REFERENCES:

1. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015
2. 'Indian Administration' by Avasti and Avasti