ACADEMIC REGULATIONS
COURSE STRUCTURE
AND
DETAILED SYLLABUS

I - B.TECH - I & II - SEMESTERS

ELECTRICAL AND ELECTRONICS ENGINEERING

FOR
B.TECH FOUR YEAR DEGREE COURSE
[Choice Based Credit System (CBCS)]
R15 Regulations
(Applicable for the batches admitted from 2015-2016 Onwards)

ANURAG GROUP OF INSTITUTIONS
AUTONOMOUS
VENKATAPUR, GHATKESAR, HYDERABAD – 500 088, TELANGANA STATE.

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)
Venkatapur, Ghatkesar, Hyderabad – 500 088
****

Definitions of Key Words:

Academic Year: Two consecutive (one odd + one even) semesters constitute one academic year.

Choice Based Credit System (CBCS): The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses).

Course: Usually referred to, as 'papers' is a component of a programme. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/ tutorials/laboratory work/ field work/ outreach activities/ project work/vocational training/viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination of some of these.

Credit Based Semester System (CBSS): Under the CBSS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the students.

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

Credit: A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week.

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

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

Letter Grade: It is an index of the performance of students in a said course.

Grades are denoted by letters O, A+, A, B+, B, C, P and F.

Programme: An educational programme leading to award of a Degree, diploma or certificate.

Semester Grade Point Average (SGPA): It is a measure of performance of work done in a semester. It is ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.

Semester: Each semester will consist of 15-18 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from July to December and even semester from January to June.

Transcript or Grade Card or Certificate: Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade

certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester and CGPA earned till that semester.

Types of Courses: The Courses in a programme may be of three kinds: Core, Elective and Foundation.

Core Course:-

There may be a Core Course in every semester. This is the course which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.

Elective Course:-

Elective course is a course which can be chosen from a pool of papers. It may be:

- Supportive to the discipline of study
- Providing an expanded scope
- Enabling an exposure to some other discipline/domain
- Nurturing student's proficiency/skill.

An elective may be "Generic Elective" focusing on those courses which add generic proficiency to the students. An elective may be "Discipline centric" or may be chosen from an unrelated discipline. It may be called an "Open Elective."

Foundation Course:-

The Foundation Courses may be of two kinds: Compulsory Foundation and Elective foundation. "Compulsory Foundation" courses are the courses based upon the content that leads to Knowledge enhancement. They are mandatory for all disciplines. Elective Foundation courses are value-based and are aimed at man-making education.

ACADEMIC REGULATIONS FOR B. TECH. (REGULAR)

Applicable for the students of B. Tech. (Regular) from the Academic Year 2015-16 onwards

1. **Title and Duration of the Course**

    1.1 The course shall be called the degree course in Bachelor of Technology, abbreviated as B.Tech.

    1.2 The course shall be of four academic years duration divided into eight semesters, each semester having duration of minimum 16 weeks of instruction.

    1.3 The calendar of events in respect of the course shall be fixed by the Institute from time to time.

    1.4 The external examination in all the subjects shall be conducted at the end of each semester for all the eight semesters.

    1.5 Students joining the B.Tech. Programme shall have to complete the programme within a stipulated time frame of 8 years from the year of joining and Students joining the B.Tech. Programme in the third semester directly through Lateral Entry Scheme (LES) shall have to complete the programme within a stipulated time frame of 6 years from the year of joining otherwise they shall forfeit their seat in B.Tech Programme and their admission shall stand cancelled.

2. **Admission Procedure**

    2.1 Admissions will be done as per the norms prescribed by the Government of Telangana State.

    2.2 The Government orders in vogue shall prevail.

    2.3 The candidate should have passed the prescribed qualifying examination on the date of admission.

3. **Award of B. Tech. Degree**

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

    3.1 The candidate shall pursue a course of study for not less than four academic years and not more than eight academic years.

    3.2 The candidate shall register for 192 credits and secure all the 192 credits by securing a minimum CGPA of 5.0.

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

4. Courses of Study

The following B. Tech. Courses are offered at present:

Branch	Branch Code
Civil Engineering	01
Electrical and Electronics Engineering	02
Mechanical Engineering	03
Electronics and Communication Engineering	04
Computer Science and Engineering	05
Chemical Engineering	08
Information Technology	12

and any other course as approved by the Authorities from time to time.

5. Credits

	Semester	
	Contact Periods / week	**Credits**
Theory	04	04
	03	03
	02	02
Practical	03	02
Drawing	00+04	02
	02+02	03
	00+06	03
Mini project	--	02
Comprehensive Viva Voce	--	02
Seminar	6	02
Project	15	10

*Note on Tutorials:- No Credits for < 2 periods /week

6. Distribution and Weightage of Marks

6.1 The performance of a student in a semester shall be evaluated subject-wise for a maximum of 100 marks each for a theory and practical subject. In addition, industry-oriented mini-project, seminar, Comprehensive Viva-Voce and project work shall be evaluated for 100, 100, 100 and 200 marks, respectively.

6.2 For theory subjects the distribution shall be 25 marks for Continuous Internal Evaluation (CIE) and 75 marks for the Semester End- Examination (SEE).

6.3 For theory subjects, during the semester there shall be 2 midterm examinations. Each mid term examination consists of Part-A (Short Answers) for 5 marks and Part-B

(Long Answers) for 15 marks with duration of 90 Minutes and an assignment carrying 5 marks.

Part-B shall contain 5 questions of which student has to answer 3 questions each 5 marks. First mid term examination shall be conducted for 2.5 units of syllabus and second mid term examination shall be conducted for remaining 2.5 units. First Assignment should be submitted before the conduct of the first mid, and the second Assignment should be submitted before the conduct of the second mid.

The total marks secured by the student in each mid term examination for 25 marks is considered and the average of the two mid term examinations shall be taken as the final marks secured by each candidate. If he/she is absent for any test / assignment, he/she is awarded zero marks for that test / assignment.

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

6.5 Part-A is compulsory, which consists of ten questions (numbered from 1 to 10) two from each unit carrying 2/3 marks each.

6.6 Part-B consists of five questions (numbered from 11 to 15) carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. For each question there will be an "either" "or" choice (that means there will be two questions from each unit and the student should answer any one question)

6.7 For practical subjects there shall be a continuous evaluation during a semester for 25 sessional marks. Out of the 25 marks for internal evaluation, day-to-day work in the laboratory shall be evaluated for 15 marks and internal practical examination shall be evaluated for 10 marks conducted by the laboratory teacher concerned. Semester end examinations carries 75 marks.

6.8 The practical end semester examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed by the Principal from the panel of examiners recommended by Chairman, Board of Studies in respective Branches.

6.9 For the subject having design and / or drawing, (such as Engineering Graphics, Engineering Drawing, Machine Drawing) and estimation, the distribution shall be 25 marks for internal evaluation (15 marks for day-to-day work and 10 marks for internal tests) and 75 marks for end 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.

6.10 There shall be an industry-oriented mini-Project, to be taken up during the vacation after III year II Semester examination. However, the mini project and its report shall be evaluated in IV year I Semester. The industry oriented mini project shall be submitted in report form and should be presented before the committee, which shall be evaluated for 100 marks. The committee consists of an external examiner, head of the department, the supervisor of mini project and a senior faculty member of the department. There shall be no internal marks for industry oriented mini project.

6.11 There shall be a seminar presentation in IV year II Semester. For the seminar, the student shall collect the information on a specialized topic and prepare a technical report, showing his understanding of the topic, and submit it to the department. It shall be evaluated by the departmental committee consisting of Head of the Department, Seminar Supervisor and a Senior Faculty member. The seminar report shall be evaluated for 100 marks. There shall be no external examination for the seminar.

6.12 There shall be a Comprehensive Viva-Voce in IV year II semester. The Comprehensive Viva-Voce will be conducted by a Committee consisting of Head of the Department and two Senior Faculty members of the Department. The Comprehensive Viva-Voce is intended to assess the students understanding of the subjects he studied during the B. Tech. course of study. The Comprehensive Viva-Voce is evaluated for 100 marks by the departmental Committee. There are no external marks for the Comprehensive Viva-Voce.

6.13 Out of a total of 200 marks for the project work, 50 marks shall be for Internal Evaluation and 150 marks for the End Semester Examination. The End Semester Examination (viva-voce) shall be conducted by the committee. The committee consists of an external examiner, head of the department, the supervisor of project and a senior faculty member of the department. The topics for industry oriented mini project, seminar and project work shall be different from each other. The evaluation of project work shall be conducted at the end of the IV year II Semester. The internal evaluation shall be on the basis of two seminars given by each student on the topic of his project.

6.14 The Laboratory marks and the sessional marks awarded by the faculty are subject to scrutiny and scaling by the Institution whenever/wherever necessary. In such cases, the sessional and laboratory marks awarded by the teacher will be referred to a College Standing Committee/ Academic Committee. The Committee will arrive at a scaling factor and the marks will be scaled accordingly. The recommendations of the Committee are final and binding. The laboratory records and internal test papers shall be preserved as per the University rules and produced before the Committees of the University as and when asked for.

6.15 Candidates shall be permitted to apply for recounting/revaluation of SEE scripts within the stipulated period with payment of prescribed fee.

7. Attendance Requirements

7.1 A student is eligible to write the Semester end examinations only if he / she acquires a minimum of 75% of attendance in aggregate of all the subjects.

7.2 Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each semester may be granted on medical grounds with a documentary evidence approved by the Academic Council

7.3 A stipulated fee shall be payable towards condonation of shortage of attendance.

7.4 Shortage of attendance below 65% in aggregate shall not be condoned under any circumstances.

7.5 Students whose shortage of attendance is not condoned are not eligible to write semester end examinations of that semester. Such students are detained and their registration for examination stands cancelled.

7.6 A student detained due to shortage of attendance in a semester may seek re-admission into that semester, as and when offered, within four weeks from the date of the commencement of class work with the academic regulations of the batch into which he/she gets admitted.

7.7 A student will be promoted to the next semester if he/she satisfies the attendance requirement of the present semester and shall not be eligible for readmission into the same semester.

7.8 For all mandatory, non credit courses offered in a semester, a "Satisfactory Participation Certificate" shall be issued to the student from the concerned authorities, only after securing $\geq 75\%$ attendance in such a course. No marks or Letter Grade shall be allotted for these activities.

8. Minimum Academic Requirements

The following academic requirements have to be satisfied in addition to the attendance requirements mentioned in item no.7.

8.1 A student is deemed to have satisfied the minimum academic requirements if he has earned the credits allotted to each theory/practical/design/drawing subject/project and secured not less 35% marks in semester end examination (SEE), and minimum 40% of marks in the sum total of the internal evaluation and end examination taken together.

8.2 The student has to pass the failed course by appearing the supplementary examination as per the requirement for the award of degree.

8.3 Students who fail to earn 192 credits as indicated in the course structure within eight academic years from the year of their admission, shall forfeit their seat in B. Tech. course and their admission stands cancelled.

8.4 A student shall be promoted from I Year to II Year only if he/she fulfills the academic requirements of securing 50% of average credits (24 credits out of 48 credits) upto I year II Semester, from all the examinations, whether or not the candidate takes the examinations.

8.5 A student shall be promoted from II Year to III Year only if he/she fulfills the academic requirements of securing 50% of average credits (36 credits out of 72 credits) up to II year I semester, from all the examinations, whether or not the candidate takes the examinations.

8.6 A student shall be promoted from III year to IV year only if he/she fulfills the academic requirements of securing 50% of average credits (60 credits out of 120

credits) up to III year I semester, from all the examinations, whether or not the candidate takes the examinations.

8.7 A student shall register and put up minimum attendance in all 192 credits and earn all 192 credits for the award of degree.

8.8 When a Student is detained due to shortage of attendance in any semester, no Grade Allotments or SGPA/CGPA calculations will be done for that entire Semester in which he got detained.

8.9 When a Student is detained due to lack of Credits in any year, he may be readmitted after fulfillment of the Academic Requirements, with the Academic Regulations of the Batch into which he gets readmitted subject to 3.3.

8.10 For readmitted candidates, if there are any Professional Electives / 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.

8.11 After securing the necessary 192 Credits as specified for the successful completion of the entire UGP, an exemption of 8 secured Credits (in terms of two of their corresponding Subjects/Courses) may be permitted for optional drop out from these 192 Credits earned; resulting in 184 Credits for UGP performance evaluation, i.e., the performance of the Student in these 184 Credits shall alone be taken into account for the calculation of 'the final CGPA (at the end of UGP, which takes the SGPA of the IV Year II Semester into account)' , and shall be indicated in the Grade Card of IV Year II Semester; however, the Student's Performances in the earlier individual Semesters, with the corresponding SGPA and CGPA for which already Grade Cards are given, will not be altered. Further, optional drop out for such 8 secured Credits shall not be allowed for Subjects/ Courses listed as … i) Laboratories/ Practicals, ii) Industrial Training/ Mini-Project, iii) Seminar, iv) Comprehensive Viva Voce v) Major Project.

8.12 If a Student registers for some more 'extra Subjects' (in the parent Department or other Departments/Branches of Engg.) other than those listed Subjects totaling to 192 Credits as specified in the Course Structure of his Department, the performances in those 'extra Subjects' (although evaluated and graded using the same procedure as that of the required 192 Credits) will not be taken into account while calculating the SGPA and CGPA. For such 'extra Subjects' registered, % marks and Letter Grade alone will be indicated in the Grade Card, as a performance measure, subject to completion of the Attendance and Academic Requirements as stated in Items 7 and 8.1 – 8.11 above.

9. Program Structure

S. No.	Classification		Course Work - Subject Area	Range of Total Credits (%)	
	AICTE	UGC		Min	Max
1	HS	Foundation Courses	Humanities and Social Sciences including Management; (HS),	5	10
2	BS		Basic Sciences(BS) including Mathematics, Physics, Chemistry, Biology;	15	20
3	ES		Engineering Sciences (ES), including Materials, Workshop, Drawing, Basics of Electrical/ Electronics/ Mechanical/Computer Engineering Instrumentation;	15	20
4	PC	Core Courses	Professional Subjects-Core (PC), relevant to the chosen specialization/branch; (May be split into Hard (no choice) and Soft (with choice), if required ;)	30	40
5	PW		Project Work, Seminar and/or Internship in Industry or elsewhere.	10	15
6	PE	Elective Courses	Professional Subjects – Electives (PE), relevant to the chosen specialization/ branch;	10	15
7	OE		Open Subjects- Electives (OE), from other technical and/or emerging subject areas;	5	10

10. Course pattern

10.1 The entire course of study is for four academic years in semester pattern.

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

10.3 A student eligible to appear in the End Semester Examination in any Subject / Course, but absent at it or failed(thereby failing to secure P Grade or above), may reappear for that Subject / Course at the supplementary as and when examination conducted. In such cases, his Internal Marks(CIE) assessed earlier for that Subject/Course will be carried over, and added to the Marks to be obtained in the supplementary examinations, for evaluating his performance in that subject.

11. Minimum Instruction Days

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

12. Grade Points

12.1 Marks will be awarded to indicate the performance of each student in each theory subject, or Lab/Practicals, or Seminar, or Project, or Mini-Project, Minor Course etc., based on the % marks obtained in CIE+SEE(Continuous Internal Evaluation + Semester End Examination, both taken together) as specified in Item 6 above, and a corresponding Letter Grade shall be given.

12.2 As a measure of the student's performance, a 10-point Absolute Grading System

using the following Letter Grades and corresponding percentage of marks shall be followed.

Letter Grade	Grade Points	% of marks Secured (Class Intervals)
O (Out Standing)	10	80% and above ($\geq$80%, $\leq$100%)
A+ (Excellent)	9	Below 80% but not less than 70% ($\geq$70%, <80%)
A (Very Good)	8	Below 70% but not less than 60% ($\geq$60%, < 70%)
B+ (Good)	7	Below 60% but not less than 55% ($\geq$55%, < 60%)
B (Above Average)	6	Below 55% but not less than 50% ($\geq$50%, < 55%)
C (Average)	5	Below 50% but not less than 45% ($\geq$45%, < 50%)
P (Pass)	4	Below 45% but not less than 40% ($\geq$40%, < 45%)
F (Fail)	0	Below 40% (< 40%)
Ab (Absent)	0	--

12.3 A student obtaining F Grade in any Subject shall be considered 'failed' and will be required to reappear as 'Supplementary Candidate' in the End Semester Examination (SEE), as and when offered. In such cases; his Internal Marks (CIE Marks) in those Subject(s) will remain same as those he obtained earlier.

12.4 A Letter Grade does not imply any specific % of Marks.

12.5 In general, a student shall not be permitted to repeat any Subject/Course (s) only for the sake of 'Grade Improvement' or 'SGPA/CGPA Improvement'. However, he has to repeat all the Subjects/Courses pertaining to that Semester, when he is detained (as listed in items 8.10 - 8.11).

12.6 A student earns Grade Point (GP) in each Subject/ Course, on the basis of the Letter Grade obtained by him in that Subject/ Course (excluding Mandatory non-credit Courses). Then 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**

12.7 The Student passes the Subject/ Course only when he gets GP $\geq$ 4 (P Grade or above).

13. Registration/Dropping

13.1 Each student has to compulsorily register for course work at the beginning of each semester as per the schedule mentioned in the Academic Calendar. It is absolutely necessary for the student to register for courses in time.

13.2 The student has to register for a minimum of 20 credits and may register up to a maximum of 28 credits based on the advice of the Faculty Advisor. On an average, a student is expected to register for 24 credits.

13.3 A student at the end of II year II sem either having the CGPA of ≥ 7.0 or having passed all previous courses in first attempt with a minimum CGPA ≥ 5.0 is allowed to register an additional course / credits from the offered open electives. However mandatory non credit courses can be register during the course of study with the consent of the faculty advisor.

13.4 Open Electives are offered to students, in IV year I sem and II sem, which can be registered by the students during III year and IV year I sem, Prior permission for registration of Open Electives as additional course is compulsory.

13.5 A student would be allowed to register in an additional course only if he/she satisfies the prerequisites.

13.6 Departments will notify at the time of registration about the minimum number of students to be enrolled for a particular open elective to be offered.

13.7 Any student may be barred from registering for any course for specific reasons like disciplinary reasons, non- payment of fees, etc.

13.8 Dropping of Courses: Within four weeks after the commencement of the semester, the student may, in consultation with his / her faculty advisor, drop one or more courses without prejudice to the minimum number of credits as specified in 13.2. The dropped courses are not recorded in the Grade Card.

13.9 After Dropping, minimum credits registered shall be 20.

14 Earning of Credit

A student shall be considered to have completed a Course successfully and earned the credits if he/she secures an acceptable letter grade in the range 'O' to 'P'. Letter grade 'F' in any Course implies failure of the student in that Course and no credits earned.

15 Passing Standards:

15.1 A student shall be declared successful or 'passed' in a Semester, only when he gets a SGPA ≥ 5.00 (at the end of that particular Semester); and a student shall be declared successful or 'passed' in the entire UGP, only when he/she gets a CGPA ≥ 5.00; subject

to the condition that he secures a GP ≥ 4 (P Grade or above) in every registered Subject/ Course in each Semester (during the entire UGP) for the Degree Award, as required

15.2 In spite of securing P Grade or above in some (or all) Subjects/ Courses in any Semester, if a Student receives a SGPA < 5.00 and/ or CGPA < 5.00 at the end of such a Semester, then he 'may be allowed' (on the 'specific recommendations' of the Head of the Department and subsequent approval from the Principal)

(i) to go into the next subsequent Semester (subject to fulfilling all other attendance and academic requirements as listed under Items 7-8);

(ii) to 'improve his SGPA of such a Semester (and hence CGPA) to 5.00 or above', by reappearing for ONE or MORE (as per Student's choice) of the same Subject(s) / Course(s) in which he has secured P Grade(s) in that Semester, at the Supplementary Examinations to be held in the next subsequent Semester(s). In such cases, his Internal Marks (CIE Marks) in those Subject(s) will remain same as those he obtained earlier.

In these considerations, the newly secured Letter Grades will be recorded and taken into account for calculation of SGPA and CGPA, only if there is an improvement.

15.3 A Student shall be declared successful or 'passed' in any Non-Credit Subject/ Course, if he secures a 'Satisfactory Participation Certificate' for that Mandatory Course.

15.4 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, Grade Earned etc.), Credits earned, SGPA, and CGPA

16 Vertical Progression

It shall also be necessary to lay down uniform minimum standards for SGPA and CGPA together with the minimum number of *credits* to be earned in a semester for the *vertical progression* of students. This shall be used in facilitating the mobility of students from one College to another and also in avoiding any confusion among the students. The

a) Minimum Standard for SGPA =5.0;
b) Minimum Standard for CGPA =5.0; (at the end of each semester)

However, failure to secure a minimum CGPA = 5.0 at the end of any semester for the first time, shall **attract a warning** before approval of the student to continue in the following semester and will be required to register for courses having a GPA of 4.0 to improve the SGPA to 5.0 or above.

17 Eligibility for Award of B.Tech. Degree

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

17.1 Registered and successfully completed all the components prescribed in the

Programme of study to which he/she is admitted,

17.2 Obtained CGPA greater than or equal to 5.0 (Minimum requirements for Pass),

17.3 Has no dues to the Institute, hostels, Libraries, NCC/NSS etc., and

17.4 No disciplinary action is pending against him/her.

18 Award of Class

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

CGPA	Class Awarded	
≥8.00	First Class with Distinction	**From the CGPA secured from 192 credits**
≥6.50 - <8.00	First Class	
≥5.50 - <6.50	Second Class	
≥5.00 - <5.50	Pass Class	

18.1 The marks obtained in Continuous Internal Evaluation (CIE) and Semester end Examination (SEE) will not be shown in the memorandum of marks.

18.2 For the purpose of awarding First Class with Distinction (CGPA ≥ 8.0), the student must obtain the minimum required CGPA within 4 academic years or within 3 academic years in case of Lateral Entry candidates by clearing all the courses.

18.3 Candidates detained / prevented from writing the semester end examinations due to any reason in any semester are not eligible for the award of First Class with Distinction. Such candidates even if the CGPA ≥ 8.0 shall be placed in first class.

18.4 For the purpose of awarding First, Second and Pass Class, CGPA obtained in the examinations appeared within the maximum period allowed for the completion of course shall be considered as per the regulations.

18.5 A student with final CGPA (at the end of the UGP) < 5.00 will not be eligible for the Award of the Degree.

18.6 The CGPA can be converted to equivalent percentage of marks by using the following equation:

(CGPA - 0.5) X 10

19 Consolidated Grade Card

A consolidated grade card containing credits & grades obtained by the candidates will be issued after completion of the four years B. Tech Programme.

20 Withholding of Results

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

referred to the academic council. The decision of the academic council is final.

21 Transitory Regulations

21.1 Discontinued, detained, or failed candidates are eligible for readmission as and when next offered as per the college admission procedure.

21.2 Students on transfer shall complete the prescribed courses of the concerned programme not covered earlier and however he/she should take the remaining programme along with others.

21.3 There shall be no branch transfers after the cut off date of admissions in the academic year.

22 Transcripts

After successful completion of the total Programme of study, a Transcript containing performance of all academic years will be issued as a final record. Duplicate transcripts will also be issued if required after the payment of requisite fee.

23 Supplementary Examinations

In addition to the Regular Final Examinations held at the end of each semester, Supplementary Final Examinations will be conducted during the academic year. Candidates taking the Regular / Supplementary examinations as Supplementary candidates may have to take more than one End Semester Examination per day. A student can appear for any number of supplementary examinations till he/she clears all courses which he/she could not clear in the first attempt. However the maximum stipulated period cannot be relaxed under any circumstances.

24 Graduation Ceremony

24.1 The College shall have its own annual Graduation Ceremony for the award of degree to students completing the prescribed academic requirements in each case, in consultation with the University and by following the provisions in the Statute.

24.2 The College shall institute Prizes and Awards to meritorious students, for being given away annually at the Graduation Ceremony.

25 Termination From The Program

The admission of a student to the program may be terminated and the student asked to leave the Institute in the following circumstances:

25.1 The student fails to satisfy the requirements of the program within the maximum period stipulated for that program.

25.2 The student fails to satisfy the norms of discipline specified by the institute from time to time.

26 Non-Credit Courses (Mandatory Courses)

26.1 All the courses designated as mandatory course is a compulsory requirement for all students for the award of degree.

26.2 These activities carry no credits and are evaluated as Satisfactory/ Unsatisfactory.

26.3 Minimum attendance requirement as per the regulations is compulsory for completing the mandatory courses.

27 Amendments

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 undergoing the program) as may be decided by the Academic Council.

28 General

28.1 Wherever the words "he", "him", "his", occur in the regulations, they include "she", "her", "hers".

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

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

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

Applicable for the students admitted into II year B. Tech. (Lateral Entry Scheme) from the Academic Year 2016-17 and onwards

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

    1.1 The LES candidates shall pursue a course of study for not less than three academic years and not more than six academic years.

    1.2 The candidate shall register for 144 credits and secure 144 credits by securing a minimum CGPA of 5.0 from II to IV year B.Tech. Program (LES) for the award of B.Tech. degree.

    1.3 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 seats.

    1.4 The attendance regulations of B. Tech. (Regular) shall be applicable to B.Tech.(LES).

2. **Promotion Rule**

    A student shall be eligible for promotion in B.Tech programme, if he/she acquires the minimum number of credits as given below:

    2.1 A student shall be promoted from II Year to III Year only if he/she fulfills the academic requirements of securing 50% of average credits (12 credits out of 24 credits) up to II year I semester, from all the examinations, whether or not the candidate takes the examinations.

    2.2 A student shall be promoted from III year to IV year only if he/she fulfills the academic requirements of securing 50% of average credits (36 credits out of 72 credits) up to III year I semester, from all the examinations, whether or not the candidate takes the examinations.

    2.3 A student shall register and put up minimum attendance in all 144 credits and earn all 144 credits to be eligible for award of degree.

    2.4 Students who fail to earn 144 credits as indicated in the course structure within six academic years, shall forfeit their seat in B.Tech. course and their admission stands cancelled.

3. **Award of Class**

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

CGPA	Class Awarded	
≥8.00	First Class with Distinction	**From the CGPA secured from 144 credits**
≥6.50 - <8.00	First Class	
≥5.50 - <6.50	Second Class	
≥5.00 - <5.50	Pass Class	

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

--*

ANNEXURE - I

1 Grade Point Average

1.1 SGPA and CGPA

The *credit index* can be used further for calculating the Semester Grade Point Average *(SGPA)* and the Cumulative Grade Point Average *(CGPA),* both of which being important performance indices of the student. While *SGPA* is equal to the *credit index* for a semester divided by the total number of *credits* registered by the student in that semester, *CGPA* gives the sum total of *credit indices* of all the previous semesters divided by the total number of *credits* registered in all these semesters. Thus,

The Grade Point Average (GPA) will be calculated according to the formula:

$$GPA = \frac{\sum c_i G_i}{\sum c_i}$$

Where C_i = number of credits for the course i,

G_i = grade points obtained by the student in the course.

1.2 Semester Grade Point Average (SGPA) is awarded to candidates considering all the courses of the semester. Zero grade points are also included in this computation. SGPA is rounded off to TWO Decimal Places.

SGPA will be computed as follows;

∑ [(Course *credits*) X (*Grade points*)] (for all Courses passed in that semester)

∑ [(Course *credits*)] (for all courses in that semester)

1.3 To arrive at Cumulative Grade Point Average (CGPA), the formula is used considering the student's performance in all the courses taken in all the semesters completed up to the particular point of time. CGPA is rounded off to TWO Decimal Places.

CGPA will be computed as follows:

∑ [(Course *credits*) X (*Grade points*)] (for all Courses passed upto that semester)

∑ [(Course *credits*)] (for all Courses until that semester)

CGPA is thus computed from the I Year First Semester onwards, at the end of each Semester, as per the above formula. However, the SGPA of I year I Semester itself may be taken as the CGPA, as there are no cumulative effects

1.4 **Illustrative Example**

An illustrative example given in below Table below indicates the use of the above two equations in calculating SGPA and CGPA, both of which facilitate the declaration of academic performance of a student, at the end of a semester and at the end of successive semesters respectively . Both of them shall be normally calculated up to the second decimal position, so that the *CGPA,* in particular, can be made use of in rank ordering the student's performance in a class. If two students get the same *CGPA*, the tie should be resolved by considering the number of times a student has obtained higher *SGPA;* But, if it is not resolved even at this stage, the number of times a student has obtained higher grades like O, A, B etc shall be taken into account in rank ordering of the students in a class.

Year and Semester	Course No.	Credits	Grade	Grade Points	Credit Points
I Year I sem	XX101	5	A	8	40
I Year I sem	XX102	4	F	0	00
I Year I sem	XX103	3	A+	9	27
I Year I sem	XX104	4	F	0	00
I Year I sem	XX105	5	C	5	25
I Year I sem	XX106	5	P	4	20
Total		**26 (18*)**			**112**
SGPA = 112/26 = 4.31				**CGPA = 4.31**	
I Year II Sem	XX107	5	B+	7	35
I Year II Sem	XX108	4	A	8	32
I Year II Sem	XX109	3	C	5	15
I Year II Sem	XX110	5	P	4	20
I Year II Sem	XX111	4	A+	9	36
I Year II Sem	XX112	2	F	0	00
I Year II Sem	Xx113	2	A	8	16
Total		**25 (23*)**			**154**
SGPA = 154/25 = 6.16				**CGPA = 266/51 = 5.22**	

*Total No. of credits excluding those with 'F'; this is particularly important to keep track of the number of credits earned by a student up to any semester;

MALPRACTICES RULES
DISCIPLINARY ACTION FOR / IMPROPER CONDUCT IN EXAMINATIONS

	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. The Hall Ticket of the candidate is to be cancelled.
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. The candidate is also debarred for two consecutive semesters from class work and all END examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture

		of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him.
4.	Smuggles in the Answer book or additional sheet or takes out or arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester. The candidate is also debarred for two consecutive semesters from class work and all END examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
5.	Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks.	Cancellation of the performance in that subject.
6.	Refuses to obey the orders of the Chief Superintendent/Assistant – Superintendent / any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs or by visible representation, assaults the officer-in-charge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the College campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.	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. 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 thereof inside or outside the examination hall.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work

		and shall not be permitted for the remaining examinations of the subjects of that semester. The candidate is also debarred for two consecutive semesters from class work and all END 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. 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. 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.
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 examinations.
12.	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the PRINCIPAL for further action to award suitable punishment.	

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I YEAR I SEMESTER   **COURSE STRUCTURE**

Subject Code	Subject	Lectures	T/P/D	Credits
A51001	English-I	2	0	2
A51002	Mathematics - I	3	1	3
A51003	Engineering Physics-I	2	1	2
A51005	Computer Programming - I	3	1	3
A51008	Electrical Circuits	3	1	3
A51009	Engineering Graphics	0	6	3
A51205	English Language Communication Skills Lab-I	0	3	2
A51206	Computer Programming – I Lab	0	3	2
A51207	Engineering Physic Lab	0	3	2
A51208	Engineering Workshop	0	3	2
	Total	16	19	24

I YEAR II SEMESTER   **COURSE STRUCTURE**

Subject Code	Subject Name	Lectures	T/P/D	Credits
A52001	English-II	2	0	2
A52002	Mathematics - II	3	1	3
A52003	Engineering Physics-II	2	1	2
A52006	Computer Programming – II	3	1	3
A52008	Mathematics - III	3	1	3
A52009	Engineering Chemistry	3	1	3
A52205	English Language Communication Skills Lab-I	0	3	2
A52206	Computer Programming – II Lab	0	3	2
A52207	Engineering Chemistry Lab	0	3	2
A52208	IT Work shop	0	3	2
	Total	16	17	24

Note : All End Examinations (Theory and Practical) are of three hours duration.

T – Tutorial   **P – Practical**   **D – Drawing**

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – I Sem	L	T/P/D	C
	3	1/-/-	3

MATHEMATICS-I

(Calculus and Matrices)

UNIT-I: Functions of Single Variable and Functions of several variables

Rolle's Theorem – Lagrange's Mean Value Theorem – Cauchy's mean value Theorem – Generalized Mean Value theorem (all theorems without proof) – Geometrical interpretation of Mean value theorems. Functions of several variables – Partial Differentiation and total differentiation - Functional dependence-Jacobian Determinent- Maxima and Minima of functions of two variables with constraints and without constraints.

UNIT-II: Matrices and Linear System of Equations

Matrices and Linear systems of equations: Real matrices – Symmetric, skew - symmetric, orthogonal, Linear Transformation – Orthogonal Transformation. Complex matrices: Hermitian, Skew – Hermitian and Unitary. Elementary row transformations-Rank-Echelon form, Normal form – Solution of Linear Systems – Direct Methods (Gauss Elimination, Gauss Jordan).

UNIT-III: Eigen Values and Eigen Vectors

Eigen values, Eigen vectors – properties, Cayley-Hamilton Theorem (without Proof) - Inverse and powers of a matrix by Cayley-Hamilton theorem – Diagonolization of matrix.

UNIT-IV: Differential Equations of first order and their Applications

Differential equations of first order and first degree: exact, linear and Bernoulli, Applications to Newton's law of cooling, law of natural growth and decay, orthogonal trajectories.

UNIT-V: Higher Order Linear Differential Equations and their Applications

Linear differential equations of second and higher order with constant coefficients, RHS term of the type $f(X) = e^{ax}, \sin ax, \cos ax$ and $x^k, e^{ax}V(x), x^kV(x)$. Method of variation of parameters. Applications - Bending of beams, Electrical circuits, simple harmonic motion.

TEXT BOOKS:
1. Grewal B.S (2007), Higher Engineering Mathematics, 40th Edition, New Delhi, Khanna Publishers.
2. Iyengar T.K.V., Krishna Gandhi B. & Others (2011), Engineering Mathematics Vol - I, 10th Revised Edition, New Delhi, S. Chand & Company Limited.

3. Iyengar T.K.V., Krishna Gandhi B. & Others (2011), Mathematical Methods, 10th Revised Edition, New Delhi, S. Chand & Company Limited.
4. Advanced Engineering Mathematics: Erwin Kreyszig, Wiley.

REFERENCE BOOKS:
1. Jain R. K., and Iyengar S. R. K (2008), Advanced Engineering Mathematics, 3rd Edition, New Delhi, Narosa Publication House.
2. Shahanaz Bathul (2007), Engineering Mathematics-I, 3rd Edition, Hyderabad, Right Publishers.
3. Ramana B.V (2010), Engineering Mathematics, New Delhi, Tata McGraw Hill Publishing Co. Limited
4. Mathematical Methods: S.R.K. Iyengar and R.K. Jain, Narosa Publishing House. Mathematical Methods of Science and Engineering (Aided with Matlab) Kanti B.Datta (2012), Seventh Edition, CENGAGE Learning.

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – I Sem

L	T/P/D	C
2	0	2

English-I

1. INTRODUCTION:

In view of the growing importance of English as a tool for global communication and the consequent emphasis on training students to acquire communicative competence, the syllabus has been designed to develop linguistic and communicative competencies of Engineering students. The prescribed books and the exercises are meant to serve broadly as students' handbooks.

In the English classes, the focus should be on the skills of reading, writing, listening and speaking and for this the teachers should use the text prescribed for detailed study. For example, the students should be encouraged to read the texts/selected paragraphs silently. The teachers can ask comprehension questions to stimulate discussion and based on the discussions students can be made to write short paragraphs/essays etc. The text for non-detailed study is for extensive reading/reading for pleasure. Hence, it is suggested that they read it on their own the topics selected for discussion in the class. The time should be utilized for working out the exercises given after each section, as also for supplementing the exercises with authentic materials of a similar kind for example, from newspaper articles, advertisements, promotional material etc.. *However, the stress in this syllabus is on skill development, fostering ideas and practice of language skills.*

2. OBJECTIVES:
a. To improve the language proficiency of the students in English with emphasis on LSRW skills.
b. To equip the students to study academic subjects more effectively using the theoretical and practical components of the English syllabus.
c. To develop the study skills and communication skills in formal and informal situations.

LEARNING OUTCOMES:
1. Usage of English Language, written and spoken.
2. Enrichment of comprehension and fluency
3. Gaining confidence in using language in verbal situations.

SYLLABUS:
Listening Skills:

Objectives
1. To enable students to develop their listening skill 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 recognise them, to distinguish between them to mark stress and recognise 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 make students aware of the role of speaking in English and its contribution to their success.
2. To enable students to express themselves fluently and appropriately in social and professional contexts.
• Oral practice
• Describing objects/situations/people
• Role play – Individual/Group activities (Using exercises from the five units of the prescribed text: *Skills Annexe - Functional English for Success)*
• Just A Minute(JAM) Sessions.

Reading Skills:
Objectives
1. To develop an awareness in the students about the significance of silent reading and comprehension.
2. To develop the ability of students to guess the meanings of words from context and grasp the overall message of the text, draw inferences etc.
• Skimming the text
• Understanding the gist of an argument
• Identifying the topic sentence
• Inferring lexical and contextual meaning
• Understanding discourse features
• Scanning
• Recognizing coherence/sequencing of sentences

NOTE : *The students will be trained in reading skills using the prescribed text for detailed study.*
They will be examined in reading and answering questions using 'unseen' passages which may be taken from
authentic texts, such as magazines/newspaper articles.

Writing Skills :
Objectives
1. To develop an awareness in the students about writing as an exact and formal skill
2. To equip them with the components of different forms of writing, beginning with the lower order ones.
• Writing sentences
• Use of appropriate vocabulary
• Paragraph writing
• Coherence and cohesiveness
• Narration / description
• Note Making

• Formal and informal letter writing
• Describing graphs using expressions of comparison

TEXTBOOKS PRESCRIBED:
For Detailed study:
First Textbook: *"Skills Annexe -Functional English for Success*", Published by Orient Black Swan, Hyderabad

For Non-detailed study:
Second text book *"Epitome of Wisdom",* Published by Maruthi Publications, Guntur

UNIT –I
Chapter 1: **'Wit and Humour'** from 'Skills Annexe' -Functional English for Success,
Published by Orient Black Swan, Hyderabad   2 hrs
L-Listening For Sounds, Stress and Intonation   1
S-Greeting and Taking Leave, Introducing Oneself and
Others (Formal and Informal Situations)   1
R- Reading for Subject/ Theme   1
W- Writing Paragraphs   1

UNIT –II
Chapter 2:**'Mokshagundam Visvesvaraya'** from "Epitome of Wisdom",
Published by Maruthi Publications, Hyderabad.   3 hrs
G-Types of Nouns and Pronouns   1
V- Homonyms, homophones synonyms, antonyms   2

UNIT-III
Chapter 3: **"Cyber Age"** from "Skills Annexe -Functional English for Success" Published by
Orient Black Swan, Hyderabad.   2 hrs
L – Listening for themes and facts   1
S – Apologizing, interrupting, requesting and making polite conversation   1
R- For theme and gist   1
W- Describing People, Places, Objects, Events   1

UNIT-IV
Chapter 4:**'Three Days To See'** from "Epitome of Wisdom", Published by Maruthi
Publications, Hyderabad   2 hrs
G- Verb forms   2
V- noun, verb, adjective and adverb   2

UNIT-V
Chapter 5**'Risk Management'** from "Skills Annexe -Functional English for Success"
Published by Orient Black Swan, Hyderabad   2 hrs
L – for main points and sub-points for note taking   1
S – giving instructions and directions; Speaking of hypothetical situations 1
R – reading for details   1
W – note-making, information transfer, punctuation   1

REFERENCES :
1. Contemporary English Grammar Structures and Composition by David Green, MacMillan Publishers, New Delhi.2010.
2. Innovate with English: A Course in English for Engineering Students, edited by T Samson, Foundation Books.
3. English Grammar Practice, Raj N Bakshi, Orient Longman.
4. Technical Communication by Daniel Riordan. 2011. Cengage Publications. New Delhi.
5. Effective English, edited by E Suresh Kumar, A RamaKrishna Rao**,** P Sreehari, Published by Pearson
6. Handbook of English Grammar& Usage, Mark Lester and Larry Beason, Tata Mc Graw – Hill.
7. Spoken English, R.K. Bansal & JB Harrison, Orient Longman.
8. Technical Communication, Meenakshi Raman, Oxford University Press
9. Objective English Edgar Thorpe & Showick Thorpe, Pearson Education
10. Grammar Games, Renuvolcuri Mario, Cambridge University Press.
11. Murphy's English Grammar with CD, Murphy, Cambridge University Press.
12. Everyday Dialogues in English, Robert J. Dixson, Prentice Hall India Pvt Ltd.,
13. ABC of Common Errors Nigel D Turton, Mac Millan Publishers.
14. Basic Vocabulary Edgar Thorpe & Showick Thorpe, Pearson Education
15. Effective Technical Communication, M Ashraf Rizvi, Tata Mc Graw –Hill.
16. An Interactive Grammar of Modern English, Shivendra K. Verma and Hemlatha Nagarajan , Frank Bros & CO
17. A Communicative Grammar of English, Geoffrey Leech, Jan Svartvik, Pearson Education
18. Enrich your English, Thakur K B P Sinha, Vijay Nicole Imprints Pvt Ltd.,
19. A Grammar Book for You And I, C. Edward Good, MacMillan Publishers

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – I Sem	L	T/P/D	C
	3	0	3

ENGINEERING PHYSICS – I

UNIT- I

INTERFERENCE AND DIFFRACTION: **10**
Superposition principle, resultant amplitude, coherence, methods to obtain coherent sources, interference, Young's double slit experiment (Qualitative), interference in thin films by reflection, Newton's rings Experiment, Distinction between Fraunhofer and Fresnel diffraction, Diffraction at single slit, Diffraction grating (Qualitative), Introduction to polarization, Brewster's law and Double refraction.

UNIT - II
CRYSTAL STRUCTURES: 05
Space lattice – Unit cell – Lattice parameter – Crystal systems – Bravais lattices, Atomic radius – Co-ordination number - Structures and Packing fractions of Simple Cubic – Body Centered Cubic – Face Centered Cubic crystals.

DIRECTIONS, PLANES AND X-RD: **05**
Miller Indices for Crystal planes and directions – Inter planar spacing of orthogonal crystal systems –Diffraction of X-rays by crystal planes and Bragg's law–Powder method – Applications of X-ray diffraction.

UNIT - III
ELEMENTS OF STATISTICAL MECHANICS: **08**
Introduction, Phase space, Definition of Ensembles, Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics – Photon gas –Planck's law of black body radiation – Deduction of Wien's law and Rayleigh-Jeans law from Plank's law.

UNIT – IV
MAGNETIC PROPERTIES :   08
Introduction – Basic definitions - Origin of magnetic moment, Bohr magneton – Classification of magnetic materials (Dia, Para and Ferro)- Domain theory of ferromagnetism, Hysteresis curve – Soft and Hard magnetic materials – properties of Anti ferro and Ferri magnetic materials .
SUPERCONDUCTIVITY: Introduction, Meissner effect – Critical fields, Type I and Type II superconductors-Applications of super conductors.

UNIT - V
DIELECTRIC PROPERTIES: 09
Electric dipole, Dipole moment, Dielectric constant – Parallel plate Capacitor, Electronic, Ionic and Orientation Polarization – Calculation of Polarizibilities – Internal fields – Claussius – Mossotti equation – Basic concepts of Piezo, Pyro and Ferro electricity.

TEXT BOOKS:
(1) Engineering Physics by P K palanisamy :Scietech publication
(2) Solid State Physics by M Armugam; Anuradha Publications

REFERENCE BOOKS:
(1) Introduction to Solid State Physics by Charles Kittel : John Wiley & Sons
(2) Engineering Physics by R.K.Gaur and S.L.Gupta; Dhanpat Rai and Sons
(3) Engineering Physics by V Rajendran; McGraw hill education private ltd.
(4) A Text book of Engineering Physics by M N Avadhanulu, P G Kshirsagar; S Chand
(5) Engineering Physics by K Malik, A K Singh; Tata Mc Graw hill book publishers
(6) Engineering Physics by M.R.Srinivasan, New Age Publishers

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – I Sem	L	T/P/D	C
	3	1	3

ELECTRICAL CIRCUITS

UNIT-I: Introduction to Electrical Circuits:
Circuit concept, R-L-C parameters, voltage and current sources, dependent and independent sources, source transformations, relationship for passive elements for different input signals (square, ramp, saw- tooth, triangular).
KCL, KVL, network reduction technique, series, parallel, series-parallel, Star-Delta, Delta-Star transformations. Nodal analysis, Mesh analysis - super node and super mesh for DC excitations.

UNIT-II: Magnetic circuits:
Magnetic circuits, Faraday's laws of electro magnetic induction - concept of self and mutual inductance. Dot convention, coefficient of coupling, composite magnetic circuits, analysis of series and parallel magnetic circuits.

UNIT-III: Single Phase AC Circuits:
R.M.S, average values and form factor for different periodic wave forms – steady state analysis of R,L,C (in different combination) with sinusoidal excitation - concept of reactance, impedance, susceptance and admittance. Phase and phase difference, concept of power factor, real and reactive power, J – notation , complex and polar forms of representation, complex power.

UNIT-IV: Locus diagram and Resonance:
Locus diagram: Series R-L, R-C, R-L-C and parallel combination with variation of various parameters. **Resonance**: Series, parallel circuits, concept of bandwidth and Q-factor.

UNIT –V: Network Theorems(with A.C and D.C Excitations):
Super position, Norton's, Reciprocity, Thevenin's, Maximum power transfer, Milliman's, and compensation theorems. Problems on all above theorems.

Text Books:
1. Engineering circuits analysis by William Hayt and Jack E. Kemmerly, McGraw Hill company, 6th edition.
2. Network Analysis by A. sudhakar and Shyammohan S Palli, Tata McGraw-Hill.
3. Electrical circuits by A. Chakrabarthy, Dhanpat Rai & Sons.

Reference Books:
1. Network Analysis by M.E Van Valkenberg.
2. Linear circuits analysis(time domain, phasor and laplace transform approaches) Second edition by Raymond A. Decarlo and Penmin-Lin, Oxford University Press. Second edition, 2004.
3. Electrical circuits theory by K. Rajeswaran, Pearson Education, 2004.
4. Basic circuits analysis by D.R.Cunningham & J.A. Stuller, Jaico publications.

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – I Sem	L	T/P/D	C
	3	1/-/-	3

COMPUTER PROGRAMMING - I

UNIT - I

Introduction to Computers – Computer Systems, Computing Environments, Computer Languages, operating system functions, language processor concepts.
Overview of C Language : Program structure and simple programs using scanf and printf functions.
data representations- Binary, octal, hexa number systems, ASCII and EBCDIC, data types, Identifiers, Variables, Constants, declarations.

UNIT - II

Operators, Expressions, Precedence and Associativity, evaluation of expressions, sample programs using expressions, Type conversions, unformatted I/O.
Algorithms- control structure – grouping, selectors, repetitions.
Step wise refinement, flowchart.

UNIT - III

Statements- Selection Statements – if and switch statements, algorithm and program example using selectors.
Repetition statements (loops)-while, for, do-while statements, algorithm development using repetition and programs using repetition, break, continue, goto, exit, Simple C Program examples.

UNIT - IV

Arrays – Introduction, declaration, reading and printing arrays , programs using arrays, two – dimensional arrays,
multidimensional arrays, C program examples.
Strings – Concepts, C Strings, String Input / Output functions, arrays of strings, string manipulation functions, C program examples.

UNIT – V

Functions- procedural abstraction, function declarations, function calls and parameter passing , Standard functions, Storage classes- recursion- recursive functions, example C programs.

TEXT BOOKS:

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

REFERENCE BOOKS:

1. C& Data structures – P. Padmanabham, Third Edition, B.S. Publications.
2. C for All, S. Thamarai Selvi, R.Murugesan, Anuradha Publications.

3. Problem Solving and Program Design in C, J.R. Hanly and E.B. Koffman, 7th Edition, Pearson education.
4. Programming in C, Ajay Mittal, Pearson.
5. Programming with C, B.Gottfried, 3rd edition, Schaum's outlines, TMH.
6. Problem solving with C, M.T.Somasekhara, PHI
7. Programming with C, R.S.Bickar, Universities Press.
8. Computer Programming & Data Structures, E.Balagurusamy, 4th edition, TMH.

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – I Sem

L	T/P/D	C
0	-/-/6	3

ENGINEERING GRAPHICS

UNIT - I
Introduction to Engineering Drawing: Drawing Instruments and their uses, types of lines, use of pencils, Lettering, Rules of dimensioning. Construction of polygons Practice only.
Curves used in Engineering Practice and their Constructions:
Conic Sections: Ellipse, Parabola, Hyperbola including the Rectangular Hyperbola - General method only.

UNIT - II
Drawing of Projections or Views (Orthographic Projection in First Angle Projection Only):
Principles of Orthographic Projections – Conventions – First and Third Angle Projections, Projection of Points, Projection of Lines - inclined to both planes, True lengths. (Mid points & Traces are eliminated).

UNIT - III
Projections of Planes: Projections of regular Planes – Inclined to both planes.

Projections of Solids: Projections of Regular Solids, solids of revolution, Axis inclined to both planes – Change of position method only.

UNIT –IV

Isometric Projections/views: Principles of Isometric Projection – Isometric Scale – Isometric Views – Conventions – Isometric Views of Lines, Plane Figures, Simple and Compound Solids.

UNIT –V

Conversion of Orthographic Views to Isometric Views and isometric views to orthographic views of simple objects

TEXT BOOKS:
1. Engineering Drawing, N.D. Bhatt / Charotar publishers
2. Engineering Drawing, K.L.Narayana and Kannaiah / Scietech publishers.

REFERENCES:
1. Engineering Drawing, K.Venugopal/G.Sreekanjana, New Age International Publishers.
2. Engineering Drawing, Basant Agarwal, TMH
3. Engineering Drawing, R. K. Dhawan, S.Chand Publishers.
Note: External exam question paper consists of 5 Questions (With Internal Choice) each question carries 15M.

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – I Sem

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

English Language Communication Skills Lab-I

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

Objectives
1. To facilitate computer-aided multi-media instruction enabling individualized and independent language learning
2. To sensitise the students to the nuances of English speech sounds, word accent, intonation and rhythm
3. To bring about a consistent accent and intelligibility in their pronunciation of English by providing an opportunity for practice in speaking
4. To improve the fluency in spoken English and neutralize mother tongue influence
5. To train students to use language appropriately for interviews, group discussion and public speaking

Learning Outcomes:
1. Better Understanding of nuances of language through audio- visual experience and group activities
2. Neutralization of accent for intelligibility
3. Speaking with clarity and confidence thereby enhancing employability skills of the students

Syllabus: English Language Communication Skills Lab shall have two parts:

a. Computer Assisted Language Learning (CALL) Lab

b. Interactive Communication Skills (ICS) Lab

The following course content is prescribed for the English Language Communication Skills Lab:

Exercise-I

CALL Lab: Introduction to Phonetics
       Speech Sounds
       Vowels and Consonants

Exercise-II

ICS Lab: Ice-Breaking activity and JAM session
       Articles, Prepositions, Word formation- Prefixes & Suffixes, Synonyms & Antonyms

Exercise-III

CALL Lab: Structure of Syllables
       Past Tense Marker and Plural Marker

Weak Forms and Strong Forms
Consonant Clusters.

Exercise-IV

ICS Lab: Situational Dialogues -Role-Play- Self-introduction and introducing others-Greetings- Apologies- Requests.

Exercise-V

ICS Lab: Social and Professional Etiquette and Telephone Etiquette-Tenses-Non-Verbal Communications.

Minimum Requirement of infra structural facilities for ELCS Lab:
1. Computer Assisted Language Learning (CALL) Lab:
The Computer aided Language Lab for 40 students with 40 systems, one master console, LAN facility and English language software for self- study by learners.
System Requirement (Hardware component):
Computer network with Lan with minimum 60 multimedia systems with the following specifications:
i) P – IV Processor
a) Speed – 2.8 GHZ
b) RAM – 512 MB Minimum
c) Hard Disk – 80 GB
ii) Headphones of High quality
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 T. V., a digital stereo –audio & video system and camcorder etc.

Books Suggested for English Language Lab Library (to be located within the lab in addition to the CDs of the text book which are loaded on the systems):

1. Suresh Kumar, E. & Sreehari, P. 2009. A Handbook for English Language Laboratories. New Delhi: Foundation
2. **Strengthen Your Steps -** Dr. M. Hari Prasad and others, Maruthi Publications
3. Speaking English Effectively 2nd Edition by Krishna Mohan and N. P. Singh, 2011. Macmillan Publishers India Ltd. Delhi.
4. Kumar, V & Dhamija, P.V. How to Prepare for Group Discussion and Interviews. Tata McGraw Hill
5. Hancock, M. 2009. English Pronunciation in Use. Intermediate. Cambridge: CUP
6. Spoken English: A Manual of Speech and Phonetics by R. K. Bansal & J. B. Harrison. 2013. Orient Blackswan. Hyderabad.
7. Hewings, M. 2009. English Pronunciation in Use. Advanced. Cambridge: CUP
8. Marks, J. 2009. English Pronunciation in Use. Elementary. Cambridge: CUP
9. Nambiar, K.C. 2011. Speaking Accurately. A Course in International Communication. New Delhi : Foundation

10. Soundararaj, Francis. 2012. Basics of Communication in English. New Delhi: Macmillan
11. **Spoken English** (CIEFL) in 3 volumes with 6 cassettes, OUP.
12. **English Pronouncing Dictionary** Daniel Jones Current Edition with CD.
13. **A textbook of English Phonetics for Indian Students** by T. Balasubramanian (Macmillan)
14. **Lab Manual:** A Manual entitled "**English Language Communication Skills (ELCS) Lab Manual- cum- Work Book**", published by Cengage Learning India Pvt. Ltd, New Delhi. 2013

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – I Sem

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

COMPUTER PROGRAMMING – I   LAB

Week 1:

1. Familiarity with Linux Commands – Login, Wild Chars, ls, cp, mv, mkdir, wc, chdir.
2. Creation of text files using vi editor.

Week 2:

Using vi editor – perform operations of pattern search, insertion, deletion and substitution operations

Week 3:

Write simple programs using scanf and printf functions and familiarity with format strings.

Week 4 & 5:

Write programs to illustrate the Assignment Operators

Week 6:

Write programs to illustrate the Logical Operators

Week 7:

Write programs to illustrate the Relational Operators

Week 8:

Write programs using If Statement

Week 9:

Write programs using while, do-while loops

Week 10:

Write programs using for loop

Week 11:

Write programs to illustrate one dimensional arrays

Week 12:

Write programs to illustrate two dimensional arrays

Week 13:

Write programs to illustrate String concepts.

Week 14:

Write programs using functions

Week 15:

Review

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – I Sem

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

ENGINEERING PHYSICS LAB

1. Diffraction Grating with sodium vapor lamp

2. Single Slit with laser source

3. Newton's Rings

4. Energy gap of a semiconductor material

5. Torsional Pendulum Expt. to determine the rigidity modulus of material of a wire

6. Seebeck Effect

7. Decay of charge - R C circuit and time constant

8. L C R Series circuits

9. Dispersive Power of the material of a Prism using Spectrometer

10. Stewart & Gee's experiment

11. LED Characteristics

12. Numerical Aperture of an Optical Fibre & Bending losses of an Optical Fibre

13. Diffraction Grating with laser source

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – I Sem	L	T/P/D	C
	0	-/3/-	2

ENGINEERING WORKSHOP

1. TRADES FOR EXERCISES:

At least two exercises from each trade:
1. Carpentry
2. Fitting
3. Tin-smithy and development of jobs carried out and soldering.
4. House-wiring
5. Welding

2. TRADES FOR DEMONSTRATION&EXPOSURE:
1. Plumbing
2. Machine shop
3. Power tools in construction, wood working, electrical engineering and mechanical engineering.

TEXT BOOKS:
1. Work shop manual - P.Kannaiah/K.L Narayana/scitech publishers.
2. Workshop manual by Venkat Reddy

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – II Sem

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

MATHEMATICS – II
(Mathematical Techniques)

UNIT-I: Laplace transform and its applications to Ordinary differential equations

Laplace transform of standard functions – Inverse transform – first shifting Theorem, Transforms of derivatives and integrals – Unit step function – second shifting theorem – Dirac's delta function – Convolution theorem – Periodic function - Differentiation and integration of transforms – Application of Laplace transforms to ordinary differential equations.

UNIT-II: Gamma and Beta Functions:

Gamma and Beta Functions-Relation between them, their properties – evaluation of improper integrals using Gamma / Beta functions.

UNIT – III:

Multiple Integrals

Multiple integrals - double and triple integrals – change of order of integration- change of variables. Gradient- Divergence- Curl and their related properties - Potential function - Laplacian and second order operators.

UNIT-IV: Vector Calculus

Line integral – work done —- Surface integrals - Flux of a vector valued function. Vector integrals theorems: Green's – Stoke's and Gauss's Divergence Theorems (Only Statements & their Verifications).

UNIT-V: Fourier Series

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

TEXT BOOKS:
1. Grewal B.S (2007), Higher Engineering Mathematics, 40th Edition, New Delhi, Khanna Publishers.
2. Iyengar T.K.V., Krishna Gandhi B. & Others (2011), Mathematical Methods, 10th Revised Edition, New Delhi, S. Chand & Company Limited.
3. Iyengar T.K.V., Krishna Gandhi B. & Others (2011), Engineering Mathematics Vol - I, 10th Revised Edition, New Delhi, S. Chand & Company Limited.

4. Advanced Engineering Mathematics: Erwin Kreyszig, Wiley.

REFERENCE BOOKS:
 1. Shahanaz Bathul (2007), Mathematical Methods, 3rd Edition, Hyderabad, Right

    Publishers.
 2. Jain R. K., and Iyengar S. R. K (2008), Advanced Engineering Mathematics, 3rd
    Edition, New Delhi, Narosa Publication House.
 3. Dass H.K. and Rajnish Verma Er (2007), Higher Engineering Mathematics, First
    Edition, New Delhi, S. Chand & Company Limited.
 4. Integral Transforms by A.R.Vasista
 5. Schaum's outline series on Vector Analysis; Linear Algebra.
 6. Larry C. Andrews and Bhimsen K. Shivamoggi, Integral Transforms for Engineers,
    Prentice – Hall of India Private Limited, New Delhi.
 7. Mathematical Methods of Science and Engineering (Aided with Matlab) Kanti
    B.Datta (2012), Seventh Edition, CENGAGE Learning.

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – II Sem   **L   T/P/D   C**
                                                     3   1/-/-   3

MATHEMATICS-III
(Numerical Techniques and Partial Differential Equations)

UNIT-I: Solution of Non- linear Equations and Linear System of Equations.
Solution of Algebraic and Transcendental Equations – The Bisection Method – The Method of False Position – The Iteration Method – Newton-Raphson Method.

Solving system of non-homogeneous equations by L-U Decomposition method(Crout's Method)Jacobi's and Gauss-Seidel Iteration method,

UNIT-II: Interpolation:
Introduction- Errors in Polynomial Interpolation – Finite differences- Forward Differences-Backward differences –Central differences – Symbolic relations and separation of symbols-Difference Equations - Differences of a polynomial-Newton's formulae for interpolation – Central difference interpolation Formulae – Gauss Central Difference Formulae – Interpolation with unevenly spaced points-Lagrange's Interpolation formula.

UNIT-III: Numerical Differentiation, Numerical Integration & Curve fitting
Numerical Diferentiation, Generalized Quadrature (Newton's Cote's formula), Trapezoidal, Simson's and Weddle's rules and problems. Curve fitting: Fitting a straight line – Second degree curve – exponential curve-power curve by method of least squares.

UNIT – IV: Numerical solution of IVP's in ODE

Numerical solution of Ordinary Differential equations: Solution by Taylor's series-Picard's Method of successive Approximations-Euler's Method-Runge-Kutta Methods –Predictor-Corrector Methods- Adams-Bashforth Method-Milne Thamson Method.

UNIT-V: Partial differential equations
Introduction and Formation of partial differential equation by elimination of arbitrary constants and arbitrary functions, solutions of first order linear (Lagrange) equation and nonlinear (Standard type) equations, Charpits Method, Method of separation of Variables for second order equations. Classification of general second order partial differential equations. Applications of Partial Differential Equations-One dimensional wave equation, Heat equation.

TEXT BOOKS:
1. Grewal B.S (2007), Higher Engineering Mathematics, 40th Edition, New Delhi, Khanna Publishers.
2. Iyengar T.K.V., Krishna Gandhi B. & Others (2011), Mathematical Methods, 10th Revised Edition, New Delhi, S. Chand & Company Limited.
3. Advanced Engineering Mathematics: Erwin Kreyszig, Wiley.

REFERENCE BOOKS:
1. Shahanaz Bathul (2007),   Mathematical Methods, 3rd Edition, Hyderabad, Right

   Publishers.
2. Jain R. K., and Iyengar S. R. K (2008), Advanced Engineering Mathematics, 3rd

   Edition, New Delhi, Narosa Publication House.
3. Introductory Methods of Numerical Analysis. S.S. Sastry, Prentice Hall.
4. Numerical Analysis (Paper IV), First Edition 2010, Telugu Akademi, Hyderabad.
5. Schaum's outline series on Matrices.
6. Mathematical Methods of Science and Engineering (Aided with Matlab) Kanti
   B.Datta (2012), Seventh Edition, CENGAGE Learning.

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – II Sem	L	T/P/D	C
	2	0	2

English-II

1. INTRODUCTION:

In view of the growing importance of English as a tool for global communication and the consequent emphasis on training students to acquire communicative competence, the syllabus has been designed to develop linguistic and communicative competencies of Engineering students. The prescribed books and the exercises are meant to serve broadly as students' handbooks.

In the English classes, the focus should be on the skills of reading, writing, listening and speaking and for this the teachers should use the text prescribed for detailed study. For example, the students should be encouraged to read the texts/selected paragraphs silently. The teachers can ask comprehension questions to stimulate discussion and based on the discussions students can be made to write short paragraphs/essays etc. The text for non-detailed study is for extensive reading/reading for pleasure. Hence, it is suggested that they read it on their own the topics selected for discussion in the class. The time should be utilized for working out the exercises given after each section, as also for supplementing the exercises with authentic materials of a similar kind for example, from newspaper articles, advertisements, promotional material etc.. *However, the stress in this syllabus is on skill development, fostering ideas and practice of language skills.*

2. OBJECTIVES:

a. To improve the language proficiency of the students in English with emphasis on LSRW skills.
b. To equip the students to study academic subjects more effectively using the theoretical and practical components of the English syllabus.
c. To develop the study skills and communication skills in formal and informal situations.

LEARNING OUTCOMES:

1. Usage of English Language, written and spoken.
2. Enrichment of comprehension and fluency
3. Gaining confidence in using language in verbal situations.

SYLLABUS:
Listening Skills:

Objectives
1. To enable students to develop their listening skill 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 recognise them, to distinguish between them to mark stress and recognise 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 make students aware of the role of speaking in English and its contribution to their success.
2. To enable students to express themselves fluently and appropriately in social and professional contexts.
• Oral practice
• Describing objects/situations/people
• Role play – Individual/Group activities (Using exercises from the five units of the prescribed text: *Skills Annexe - Functional English for Success)*
• Just A Minute(JAM) Sessions.

Reading Skills:
Objectives
1. To develop an awareness in the students about the significance of silent reading and comprehension.
2. To develop the ability of students to guess the meanings of words from context and grasp the overall message of the text, draw inferences etc.
• Skimming the text
• Understanding the gist of an argument
• Identifying the topic sentence
• Inferring lexical and contextual meaning
• Understanding discourse features
• Scanning
• Recognizing coherence/sequencing of sentences

NOTE : *The students will be trained in reading skills using the prescribed text for detailed study. They will be examined in reading and answering questions using 'unseen' passages which may be taken from authentic texts, such as magazines/newspaper articles.*

Writing Skills :
Objectives
1. To develop an awareness in the students about writing as an exact and formal skill
2. To equip them with the components of different forms of writing, beginning with the lower order ones.
• Writing sentences
• Use of appropriate vocabulary
• Paragraph writing
• Coherence and cohesiveness
• Narration / description
• Note Making
• Formal and informal letter writing
• Describing graphs using expressions of comparison

TEXTBOOKS PRESCRIBED:
For Detailed study:
First Textbook: *"Skills Annexe -Functional English for Success"*, Published by Orient
Black Swan, Hyderabad
For Non-detailed study:
Second text book *"Epitome of Wisdom",* Published by Maruthi Publications, Guntur

UNIT-I
Chapter 1:**'Leela's Friend'** by R.K. Narayan from "Epitome of Wisdom", Published by
Maruthi Publications, Hyderabad   2 hrs
G – Present Tense   2
V – Synonyms and Antonyms   2

UNIT-II
Chapter 2: **'Human Values and Professional Ethics'** from "Skills Annexe -Functional
English for Success" Published by Orient Black Swan, Hyderabad   2 hrs
L -Listening for specific details and information   1
S- Narrating, expressing opinions and telephone interactions   1
R -Reading for specific details and information   1
W- Writing formal letters and CVs   1

UNIT-III

Chapter 3: **'The Convocation Speech'** by N.R. Narayanmurthy' from "Epitome of Wisdom",
Published by Maruthi Publications, Hyderabad   2 hrs
G- Past and future tenses   2
V- Vocabulary - idioms and Phrasal verbs   2

UNIT-IV
Chapter 4: **'Sports and Health'** from "Skills Annexe -Functional English for Success"
Published by Orient Black Swan, Hyderabad   2 hrs
L- Critical Listening and Listening for speaker's tone/ attitude   1
S- Group discussion and Making presentations   1
R- Critical reading, reading for reference   1
W-Project proposals; Technical reports, Project Reports and Research Papers   1

UNIT-V
Chapter5: 'The Secret of Work' from "Epitome of Wisdom", Published by Maruthi
Publications Hyderabad.   2 hrs
G- Adjectives, Prepositions and Concord   2
V- Collocations and Technical Vocabulary   2

REFERENCES :
1. Contemporary English Grammar Structures and Composition by David Green, MacMillan
   Publishers, New Delhi.2010.
2. Innovate with English: A Course in English for Engineering Students, edited by T Samson,
   Foundation Books.
3. English Grammar Practice, Raj N Bakshi, Orient Longman.

4. Technical Communication by Daniel Riordan. 2011. Cengage Publications. New Delhi.
5. Effective English, edited by E Suresh Kumar, A RamaKrishna Rao, P Sreehari, Published by Pearson
6. Handbook of English Grammar& Usage, Mark Lester and Larry Beason, Tata Mc Graw – Hill.
7. Spoken English, R.K. Bansal & JB Harrison, Orient Longman.
8. Technical Communication, Meenakshi Raman, Oxford University Press
9. Objective English Edgar Thorpe & Showick Thorpe, Pearson Education
10. Grammar Games, Renuvolcuri Mario, Cambridge University Press.
11. Murphy's English Grammar with CD, Murphy, Cambridge University Press.
12. Everyday Dialogues in English, Robert J. Dixson, Prentice Hall India Pvt Ltd.,
13. ABC of Common Errors Nigel D Turton, Mac Millan Publishers.
14. Basic Vocabulary Edgar Thorpe & Showick Thorpe, Pearson Education
15. Effective Technical Communication, M Ashraf Rizvi, Tata Mc Graw –Hill.
16. An Interactive Grammar of Modern English, Shivendra K. Verma and Hemlatha Nagarajan , Frank Bros & CO
17. A Communicative Grammar of English, Geoffrey Leech, Jan Svartvik, Pearson Education
18. Enrich your English, Thakur K B P Sinha, Vijay Nicole Imprints Pvt Ltd.,
19. A Grammar Book for You And I, C. Edward Good, MacMillan Publishers

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – II Sem   **L   T/P/D   C**
                                        3   0   3

ENGINEERING PHYSICS – II

UNIT- I PRINCIPLES OF QUANTUM MECHANICS: 08
Waves and particles – De Broglie hypothesis - Matter waves - Davisson and Germer experiment – Schrodinger Wave Equation – Wave function and its Physical Significance - Particle in one dimensional potential box(wave functions, probability densities and energy states).

UNIT- II FREE ELECTRON THEORY OF METALS: 06
Classical Theory, Electrical Conductivity and Ohm's Law – Drawbacks, Sommerfield theory (Qualitative), Density of States, Effect of temperature on the Fermi-Dirac distribution.
BAND THEORY OF SOLIDS: 06
Electron in a periodic potential – Bloch Theorem - Kronig-Penney model (Qualitative) – Origin of energy band formation in solids – Classification of materials into conductors, semiconductors & Insulators - Concept of effective mass of an electron.

UNIT- III SEMICONDUCTOR PHYSICS: 08
Fermi level in Intrinsic and Extrinsic semiconductors - Intrinsic semiconductor and carrier concentration – Extrinsic semiconductor and carrier concentration – Characteristics of p-n junction diode - Hall effect, LED, Photodiode.
FIBRE OPTICS   04
Basic principle of optical fibre, Acceptance angle, Acceptance cone, numerical aperture (Quantitative), Types of optical fibre, applications of optical fibre.

UNIT IV LASERS: 06
Characteristics of Lasers – Spontaneous and Stimulated Emission of radiation, meta stable state, population inversion, lasing action, Einstein's coefficients and relation between them – – Ruby Laser – Helium-Neon Laser –Semiconductor Laser – Applications of lasers.

UNIT V BASIC PRINCIPLES OF NANO SCIENCE: 07
Introduction, surface to volume ratio, quantum confinement – Fabrication of nano materials-Top down fabrication, Bottom up fabrication: sol-gel Technique, CVD method–Characterization (XRD & TEM) - Applications of nanomaterials.

TEXT BOOKS:
(1) Engineering Physics by P K palanisamy :Scietech publication
(2) Solid State Physics by M Armugam; Anuradha Publications

REFERENCE BOOKS:
(1) Introduction to Solid State Physics by Charles Kittel : John Wiley & Sons
(2) Engineering Physics by R.K.Gaur and S.L.Gupta; Dhanpat Rai and Sons
(3) Engineering Physics by V Rajendran; McGraw hill education private ltd.
(4) A Text book of Engineering Physics by M N Avadhanulu, P G Kshirsagar; S Chand
(5) Engineering Physics by K Malik, A K Singh; Tata Mc Graw hill book publishers
(6) Engineering Physics by M.R.Srinivasan, New Age Publishers

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – II Sem

L	T/P/D	C
3	1	3

ENGINEERING CHEMISTRY

Course objectives:
1. To appraise the students about the importance and role of chemistry in the field of Engineering by explaining the relevant topics.
2. To enable students to apply the knowledge acquired in improving the properties of engineering materials.
3. To provide the students with the necessary knowledge to solve the problems and make decisions with regards to the application of materials in a variety of engineering disciplines.
4. To equip the students with the required fundamentals of engineering chemistry carry out in the interdisciplinary research such that the findings benefit the common man.
5. After the completion of the course, the student would understand about the important chemistry of water, corrosion and its control, polymer chemistry, electrochemistry (including batteries) and advanced engineering materials.

UNIT I: WATER: Hardness of water, expression of hardness ($CaCO_3$ equivalent), units and types of hardness. Estimation of temporary and permanent hardness of water by EDTA method. Numerical problems based on hardness of water. Potable water: characteristics, treatment of water for domestic supply. Desalination of brackish water: reverse osmosis. Alkalinity of water and its determination. Boiler troubles: priming and foaming, boiler corrosion, scales, sludges and caustic embrittlement. Boiler feed water and its treatment: Internal treatment (colloidal, phosphate calgon conditioning of water). External treatment (zeolite process and ion –exchange process) , Numerical problems on softening of water.

UNIT II: ELECTROCHEMISTRY : Conductance and its types . Electrode, electrode potential, galvanic cell , cell reactions and cell notation, cell EMF , types of electrodes (Normal Hydrogen Electrode , calomel electrode, glass electrode and quinhydrone electrode) , Nernst equation Numerical problems. Potentiometric titrations. Concentration cells, classification with examples.
BATTERIES: Introduction to cell and battery, characteristics of a cell. Primary (dry cell and lithium cell) and secondary cells, (lead-Acid cell, Ni-Cd cell and Lithium ion cells,). Solar battery, engineering applications of batteries. Fuel cells – Hydrogen – Oxygen fuel cell, advantages and engineering applications of fuel cells.

UNIT III: CORROSION AND ITS CONTROL Introduction, types of corrosion : chemical and electrochemical corrosion, mechanism of chemical and electrochemical corrosion , galvanic , water line and pitting corrosion, factors affecting the rate of corrosion : nature of the metal , galvanic series, purity of metal, nature of corrosion product , nature of environment : effect of temperature, effect of pH, humidity. Corrosion control methods: Cathodic protection: sacrificial anode method and impressed current cathode method. Protective coatings : metallic coatings (anodic and cathodic), methods of application on metals , hot dipping (galvanizing), cladding, cementation, electroplating(of copper) electroless plating (of nickel) . Organic coatings – paints, its constituents and their functions.

UNIT IV: POLYMER CHEMISTRY : Introduction, classification of polymers, types of polymerization (addition and condensation, *mechanisms not included*). Plastics- types of plastics -thermoplastics and thermosetting plastics. Compounding and moulding of plastics. Preparation, properties and engineering applications of PVC, Teflon and Bakelite. Fibers: Nylon 6, 6 and Terelene (Dacron). Elastomers: natural rubber, structure, vulcanization. Synthetic rubbers: Buna-S, butyl rubber, Thikol rubber. Conducting polymers: classification, mechanism of conduction, Poly acetylene - preparation and effects of doping on conduction. Applications of conducting polymers.

UNIT V: ADVANCED ENGINEERING MATERIALS: Biodegradable polymers, types, examples: Polyhydroxy butyrate (PHB) ,Poly-Hydroxybutyrate-co-b-Hydroxy valerate (PHBV) ,Polyglycolic acid (PGA) , Polylactic acid (PLA) ,Poly (Î-caprolactone) (PCL). Applications of biodegradable polymers.
Composite materials: Constituents of composite materials. Types of composite materials. Advantages and engineering applications of composite materials.
Nano materials: Introduction, basic methods of preparation and applications of nano meterials.
Insulators- Classification, characteristics of thermal & electrical insulators and applications.
Biofuels – biodiesel, general methods of preparation and advantages

Text Books:
1. Engineering Chemistry by NYS.Murthy, Pearson, India.
2. Engineering Chemistry by P.C Jain & Monica Jain, Dhanpat Rai Publishing Company

Reference Books:
1. Text Book of Engineering Chemistry by Shasi Chawla, Dhantpat Rai publishing Company,
2. Engineering Chemistry by C.Daniel Yesudian , Anuradha publications

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – II Sem	L	T/P/D	C
	3	1/-/-	3

COMPUTER PROGRAMMING - II

UNIT - I
Searching and Sorting – Sorting- selection sort, bubble sort, Insertion sort, Quick Sort, Merge sort, Searching-linear and binary search methods.

UNIT - II
Structures - Declaration, initialization, accessing structures, operations on structures,nested structures, arrays of structures, Unions, Enumerated types, Type Definition(typedef), C programming examples.

UNIT - III
Pointers – Concepts, declarations, usage, pointers to pointers, pointer expressions, Arrays and Pointers, array of pointers,parameter passing of pointers, pointers to void, pointers to functions, structures through pointers, self referential structures, C programming examples

UNIT - IV
Lists- Linear list – singly linked list implementation, insertion, deletion and searching operations on linear list, Stacks-
Push and Pop Operations, Queues- Enqueue and Dequeue operations.

UNIT - V
Input and Output – Concept of a file, streams, text files and binary files, Differences between text and binary files,State of a file, Opening and Closing files, file input / output functions (standard library input / output functions for files), file status functions (error handling),Positioning functions, command –line arguments, C program examples.

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

REFERENCE BOOKS:
1. C& Data structures – P. Padmanabham, Third Edition, B.S. Publications.
2. C for All, S. Thamarai Selvi, R.Murugesan, Anuradha Publications.
3. Problem Solving and Program Design in C, J.R. Hanly and E.B. Koffman, 7th Edition, Pearson education.
4. Programming in C, Ajay Mittal, Pearson.
5. Programming with C, B.Gottfried, 3rd edition, Schaum's outlines, TMH.
6. Problem solving with C, M.T.Somasekhara, PHI
7. Programming with C, R.S.Bickar, Universities Press.
8. Computer Programming & Data Structures, E.Balagurusamy, 4th edition, TMH.

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – II Sem

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

English Language Communication Skills Lab-II

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

Objectives
1. To facilitate computer-aided multi-media instruction enabling individualized and independent language learning
2. To sensitise the students to the nuances of English speech sounds, word accent, intonation and rhythm
3. To bring about a consistent accent and intelligibility in their pronunciation of English by providing an opportunity for practice in speaking
4. To improve the fluency in spoken English and neutralize mother tongue influence
5. To train students to use language appropriately for interviews, group discussion and public speaking

Learning Outcomes:
1. Better Understanding of nuances of language through audio- visual experience and group activities
2. Neutralization of accent for intelligibility
3. Speaking with clarity and confidence thereby enhancing employability skills of the students

Syllabus: English Language Communication Skills Lab shall have two parts:

1. **Computer Assisted Language Learning (CALL) Lab**
2. **Interactive Communication Skills (ICS) Lab**

The following course content is prescribed for the English Language Communication Skills Lab

Exercise-I

CALL Lab: Minimal Pairs

Word accent and Stress Shifts

Listening Comprehension

Exercise-II

ICS Lab: Descriptions- Narrations- Giving Directions and Guidelines

Question Tags and One-Word Substitutes

Concord (Subject in agreement with verb) and Words often misspelt- confused/misused

Exercise-III

CALL Lab: Intonation and Common Errors in Pronunciation.**-**Neutralization of Mother Tongue Influence and Conversation Practice.

Exercise-IV

ICS Lab: Extempore- Public Speaking

        Active and Passive Voice,

        Common Errors in English,

        Idioms and Phrases

Exercise-V

ICS Lab: Information Transfer

        Oral Presentation Skills

        Reading Comprehension

        Job Application with Resume preparation.

Minimum Requirement of infra structural facilities for ELCS Lab:
1. Computer Assisted Language Learning (CALL) Lab:
The Computer aided Language Lab for 40 students with 40 systems, one master console, LAN facility and English language software for self- study by learners.
System Requirement (Hardware component):
Computer network with Lan with minimum 60 multimedia systems with the following specifications:
i) P – IV Processor
a) Speed – 2.8 GHZ
b) RAM – 512 MB Minimum
c) Hard Disk – 80 GB
ii) Headphones of High quality
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 T. V., a digital stereo –audio & video system and camcorder etc.

Books Suggested for English Language Lab Library (to be located within the lab in addition to the CDs of the text book which are loaded on the systems):
1. Suresh Kumar, E. & Sreehari, P. 2009. A Handbook for English Language Laboratories. New Delhi: Foundation
2. **Strengthen Your Steps -** Dr. M. Hari Prasad and others, Maruthi Publications
3. Speaking English Effectively 2nd Edition by Krishna Mohan and N. P. Singh, 2011. Macmillan Publishers India Ltd. Delhi.
4. Sasi Kumar, V & Dhamija, P.V. How to Prepare for Group Discussion and Interviews. Tata McGraw Hill
5. Hancock, M. 2009. English Pronunciation in Use. Intermediate. Cambridge: CUP
6. Spoken English: A Manual of Speech and Phonetics by R. K. Bansal & J. B. Harrison. 2013. Orient Blackswan. Hyderabad.
7. Hewings, M. 2009. English Pronunciation in Use. Advanced. Cambridge: CUP
8. Marks, J. 2009. English Pronunciation in Use. Elementary. Cambridge: CUP
9. Nambiar, K.C. 2011. Speaking Accurately. A Course in International Communication. New Delhi : Foundation
10. Soundararaj, Francis. 2012. Basics of Communication in English. New Delhi: Macmillan

11. **Spoken English** (CIEFL) in 3 volumes with 6 cassettes, OUP.
12. **English Pronouncing Dictionary** Daniel Jones Current Edition with CD.
13. **A textbook of English Phonetics for Indian Students** by T. Balasubramanian (Macmillan)
14. **Lab Manual:** A Manual entitled "**English Language Communication Skills (ELCS) Lab Manual- cum- Work Book**", published by Cengage Learning India Pvt. Ltd, New Delhi. 2013

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – II Sem

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

COMPUTER PROGRAMMING – II LAB

Week 1:

Review of Arrays and functions.

Week 2:

Write programs to illustrate the implementation of Bubble Sort and Selection Sort

Week 3:

Write programs to illustrate the implementation of Insertion Sort and Quick Sort

Week 4:

Write programs to illustrate the implementation of Merge Sort.

Week 5:

Write programs to illustrate the implementation of Binary Search and Linear Search.

Week 6 & 7:

Write programs to illustrate the various concepts of structures

Week 8:

Write programs to illustrate the concepts of accessing variables using pointers

Week 9:

Write programs to illustrate the implementation of call by reference

Week 10:

Write programs to illustrate the implementation of arrays using pointers

Week 11:

Write programs to implement structures using pointers

Week 12:

Write program to illustrate the implementation of Single Linked List

Week 13:

Write programs to illustrate Stack operations using arrays and pointers

Week 14:

Write programs to illustrate Queue operations using arrays and pointers

Week 15:

Write programs to illustrate the various concepts of files.

Week 16:

Review

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – II Sem

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

ENGINEERING CHEMISTRY LAB

Course objectives:

1 To impart fundamental knowledge in handling the equipment /glassware and chemicals in the chemistry laboratory.

2. To offer hands on experience on the basic equipment related to engineering chemistry.

3. For practical understanding of theoretical concepts of chemistry.

(Any <u>ten experiments</u> out of the following fourteen experiments should be performed)
Titrimetry:

1. Fundamentals of volumetric analysis : (a) Determination of strength of an acid (HCl)
2. Estimation of ferrous iron by dichrometry
3. Estimation of hardness of water by EDTA method.
4. Determination of alkalinity of water.
5. Determination of free chlorine or chlorides in water.
6. Determination of iron by permanganometry.
7. Estimation of copper by colorimetric method.
8. Estimation of HCl by conductometry using standard NaOH solution.
9. Estimation of HCl by potentiometry using standard NaOH solution.
10. Determination of viscosity of sample oil by Redwood/Oswald's viscometer
11. Determination surface tension of lubricants.
12. Determination of the rate constant of acid catalyzed hydrolysis of methyl acetate .
13. Preparation of thiokol rubber and nylon 6,6.
14. Preparation of Biodiesel from Waste Vegetable Oil (WVO).

TEXT BOOKS:

1**.** Vogel's Textbook of Quantitative Chemical Analysis

2. Essentials of experimental engineering chemistry, Shashi Chawla, Dhanpat Rai & Co

3. Laboratory manual of engineering chemistry, S.K.Bhasin and Sudha Rani , Dhanpat Rai & Co.

4. A text book on experiments and calculations. S.S. Dara, S. Chand & Co

REFERENCE BOOKS:

1. Instrumental methods of chemical analysis, Chatwal, Anand, Himalaya Publications.

ANURAG GROUP OF INSTITUTIONS
(AUTONOMOUS)

I Year B.Tech. EEE – II Sem

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

IT WORKSHOP

Objectives:

The IT Workshop for engineers is a training lab course spread over 40 hours. The modules include training on PC Hardware, Internet & World Wide Web and Productivity tools including Word, Excel, and Power Point.

PC Hardware introduces the students to a personal computer and its basic peripherals, the process of assembling a personal computer, installation of system software like MS Windows, Linux and the required device drivers. In addition hardware and software level troubleshooting process, tips and tricks would be covered. **The students should work on working PC to disassemble and assemble to working condition and install Windows and Linux on the same PC. Students are suggested to work similar tasks in the Laptop scenario wherever possible.**

Internet & World Wide Web module introduces the different ways of hooking the PC on to the internet from home and workplace and effectively usage of the internet. Usage of web browsers, email.

Productivity tools module would enable the students in crafting professional word documents, excel spread sheets and power point presentations. (**Recommended to use Microsoft office 2007 in place of MS Office 2003**)

PC Hardware

Exercise 1 – Task 1: Identify the peripherals of a computer, components in a System Cabinet and its functions. Draw the block diagram of the compute mother board along with the configuration of each peripheral and submit to your instructor.

Exercise 2 – Task 2 : Every student should disassemble and **assemble the PC back to working condition.** Lab instructors should verify the work and follow it up with a Viva. Also students need to go through the video which shows the process of assembling a PC. A video would be given as part of the course content.

Exercise 3 – Task 3 : Every student should individually install MS windows on the personal computer. Lab instructor should verify the installation and follow it up with a Viva.

Exercise 4 – Task 4: Every student should install Linux on the computer. This computer should have windows installed. The system should be configured as dual boot with both windows and Linux. Lab instructors should verify the installation and follow it up with a Viva

Internet & World Wide Web

Exercise 5 - Task 1 : **Orientation & Connectivity Boot Camp :** Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Finally students should demonstrate, to the instructor, how to access the websites and email. If there is no internet connectivity preparations need to be made by the instructors to simulate the WWW on the LAN.

Exercise 6 - Task 3: Search Engines & Netiquette: Students should know what search engines are and how to use the search engines. A few topics would be given to the students for which they need to search on Google. This should be demonstrated to the instructors by the student.

MS Word

Exercise 7&8: The mentor needs to give an overview of Microsoft (MS) word 2007: Accessing, overview of toolbars, saving files, Using help and resources, rulers, format painter in word. Give a task covering to create project certificate. Features to be covered:-Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Inserting table, using Drawing toolbar in word.

MS Excel

Exercise 9&10: The mentor needs to tell the importance of MS office 2007 Excel as a Spreadsheet tool covering Accessing, overview of toolbars, saving excel files, Using help and resources., Also give a task that is covering the features like Gridlines, Format Cells, Summation, auto fill, Formatting Text.

MS Power Point

Exercise 11&12: Students will be working on MS power point which help them create basic power point presentation. Topic covered during this Exercise includes :- PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows in Power point. Students will be given model power point presentation which needs to be replicated (exactly how it's asked).

REFERENCES:

1. Comdex Information Technology course tool kit Vikas Gupta, WILEY Dream tech
2. The Complete Computer upgrade and repair book,3rd edition Cheryl A Schmidt, WILEY Dreamtech
3. Introduction to Information Technology, ITL Education Solutions limited, Pearson Education.
4. PC Hardware and A+Handbook – Kate J. Chase PHI (Microsoft)
5. IT Essentials PC Hardware and Software Companion Guide Third Edition by David Anfinson   and Ken Quamme. – CISCO Press, Pearson Education.
6. IT Essentials PC Hardware and Software Labs and Study Guide Third Edition by Patrick Regan – CISCO Press, Pearson Education.