

**VASAVI COLLEGE OF ENGINEERING(AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD-31**

Approved by A.I.C.T.E., New Delhi and
Affiliated to Osmania University, Hyderabad-07

**Sponsored by
VASAVI ACADEMY OF EDUCATION
Hyderabad**



**STUDENT HAND BOOK
2018-19**

**Academic Regulations (VCE-2018-19) for B.E under
CHOICE BASED CREDIT SYSTEM (CBCS)for the
students admitted w.e.f academic year
2018-19 onwards**

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CONTENTS

		Page
1	About the College	3
2	VAE and VCE Members	5
3	Student Personal Data	8
4	College Profile	9
5	Academic Rules and Regulations	17
6	Awards and Rewards	43
7	Transport Facilities	46
8	Rules of Conduct to Students	49
9	Profiles of Departments	51
10	ALMANAC	63
11	B.E Scheme and Syllabi	64
12	Department wise Faculty Members Information	136
13	Campus Placements of 2017 out-going Students	142
14	Personal Notes	147

ABOUT THE COLLEGE

VISION

Striving for a symbiosis of technological excellence and human values

Established in 1981 by Vasavi Academy of Education under the stewardship of Late Sri Pendekanti Venkata Subbaiah, a veteran statesman of independent India and by a few eminent people from

different walks of life Vasavi College of Engineering represents a rich tradition of excellence in technology based education in a stimulating environment. From a modest beginning, with just three undergraduate programs, viz., B.E. programs in Civil, Mechanical and Electronics & Communication Engineering, with dedicated efforts for over 37 years, it has now grown into a mighty center of learning with excellent and well-developed infrastructural facilities, offering 6 undergraduate programs, viz., B.E. in Civil, Mechanical, Electrical & Electronics, Electronics & Communication Engineering, Computer Science & Engineering, and Information Technology. In addition to this 2-Year Postgraduate Programmes in CSE, ECE, EEE and Mechanical Engineering are also being offered.

All the six undergraduate (B.E) programs were accredited by National Board of Accreditation (NBA) for three years from 2017 onwards. Two PG programs in Engineering namely M.E (ECE- Embedded Systems & VLSI Design

and M.E (Advanced Design & Manufacturing- Mechanical) and MCA were also accredited by NBA for two years from 2017 onwards. The college has been recognized under 12(B) and 2(F) sections of the University Grants Commission (UGC) Act.

MISSION

To arm young brains with competitive technology and nurture holistic development of individuals for a better tomorrow

The college has been granted ***autonomy by the University Grants Commission***, New Delhi and Osmania University, Hyderabad for all the programs for a period of six years with effect from 2014-15.

Now, the college is implementing ***Choice Based Credit System (CBCS) w.e.f 2016-17 Academic Year for both UG and PG programmes offered by it.***

The College has 174 highly qualified and experienced faculty consisting of Professors, Associate Professors and Assistant Professors and around 154 technical and supporting staff. The college has very good infrastructural facilities which goes beyond the curriculum requirements. The college offers value-added courses in GIS, CAD/CAM, DSP, VLSI, Networking, J2EE and communication skills to bridge the gap between the curriculum and the requirements of the industry. Skill Development courses have been made part of the curriculum from the second year onwards to improve the skills of the students.

A Research & Development (R&D) Cell is established by personnel from industry / research organization to encourage the faculty and the students in acquiring additional qualifications and knowledge.

This Cell also facilitates the faculty for interaction with industry/research organizations in getting sponsored research projects. In addition, the

college extends Consultancy Services in various fields of engineering and technology.

The Center for Counseling and Placement at Vasavi College of Engineering provides personal and career-related support to its students. The educational experience at the college is enlivened and

QUALITY POLICY

Education without quality is like a flower without fragrance. It is our earnest resolve to strive towards high standards of teaching, training and developing human resources.

enriched by an array of extra-curricular activities to fulfill the cultural and emotional needs of students.

A good number of ranks in university examinations are secured by our students every year. The all-round development of a student is achieved by exposing him/her to the outside world in a systematic and well planned manner through internships and industry related projects. In keeping with our vision statement human values and professional ethics are infused in the curriculum. This blend of values and technology makes Vasavi a preferred place for learning.

VASAVI ACADEMY OF EDUCATION (VAE)

GOVERNING BODY MEMBERS

1	Sri G.V. Gunnayya Chetty	:	Patron
2	Sri V.V. Sayi	:	Patron
3	Sri K.V. Rangaiah	:	Patron
4	Sri P. Ramamohan Rao	:	President
5	Prof. T.V. Subba Rao	:	Vice-President
6	Sri M. Krishna Murthy	:	Secretary
7	Sri P.V. Ratnam	:	Joint-Secretary
8	Sri V.M. Parthasarathi	:	Treasurer
9	Sri K. Ashok Kumar	:	Member
10	Sri P. Balaji	:	Member
11	Smt. P. Indrani	:	Member
12	Sri Gouri Prasad	:	Member
13	Prof. T. Revathy	:	Member
14	Prof. V. Srinivasulu	:	Member
15	Sri Lagisetty Subbagurumurthi	:	Member

INSTITUTIONS SPONSORED BY VASAVI ACADEMY OF EDUCATION

INSTITUTION	ESTABLISHED
Vasavi College of Engineering	1981
Vasavi Public School	1983
Vasavi Polytechnic	1984
Pendekanti Law College	1990
Pendekanti Institute of Management	1991
Vasavi College of Music & Dance	1996

VASAVI COLLEGE OF ENGINEERING MANAGEMENT COMMITTEE

Sri G.V. Gunnayya Chetty	Patron
Sri V.V. Sayi	Patron
Sri K.V. Rangaiah	Patron
Sri P Ramamohan Rao	President
Prof. T.V. Subba Rao	Vice President
Sri M Krishna Murthy	Secretary
Sri P V Ratnam	Joint Secretary
Sri V.M. Parthasarathi	Treasurer
Sri D.B. Ramanatha Gupta	Member
Dr. S. V. Ramana	Principal & Ex-Officio Member

Principal : Prof. S.V. Ramana
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Fax : +91-40-23146090
Website : www.vce.ac.in
E-mail : principal@staff.vce.ac.in

VASAVI COLLEGE OF ENGINEERING (Autonomous)

BOARD OF GOVERNORS

1	Prof. D.N. Reddy, Director C R Rao Advanced Institute of Mathematics Statistics and Computer Science, University of Hyderabad Campus, Hyderabad Former Vice-Chancellor, JNTU-Hyderabad	: Chairman
2	Prof. Anup Singh Beniwal, Dean Guru Gobind Singh Indraprastha University, Delhi UGC nominee	: Member
3	Prof. Syeda Sameen Fatima, Principal Osmania University College of Engineering Univeristy Nominee	: Member
4	CTE Nominee O/O Commissioner Technical Education, Telangana	: Member
5	Dr. N. Venkat Reddy, Professor Department of Mechanical & Aerospace Engineering, IIT-Hyderabad	: Member
6	Sri G. Yoganand, Managing Director M/s Manjeera Constructions, Hyderabad	: Member
7	Sri P. Ramamohan Rao, President Vasavi Academy of Education (Management Nominee)	: Member
8	Prof. T.V. Subba Rao, Vice President, Vasavi Academy of Education (Management Nominee)	: Member
9	Sri M. Krishnamurthy, Secretary Vasavi Academy of Education (Management Nominee)	: Member
10	Sri V.M. Parthasarathi, Director Finance Vasavi Academy of Education (Management Nominee)	: Member
11	Sri P. Balaji, Member Vasavi Academy of Education (Management Nominee)	: Member
12	Dr. A.S. Saiprasad, Director (A & E), Professor HoD-Physics, Vasavi College of Engineering	: Member
13	Dr. G.V. Ramanamurty, Professor & HoD-Mech Director (A&A), Vasavi College of Engineering	: Member
14	Dr. S. V. Ramana, Principal Vasavi College of Engineering	: Member- Secretary

STUDENT PERSONAL DATA

Name :
Hall Ticket No. :
Class :
Branch :
Address :

PHOTO

Phone Nos. :
Home :
Mobile :
E-mail ID :
Bank A/c. No. :
Credit Card No. :
Passport No. :
Driving License :
Vehicle No :

Medical Information

Height :
Weight :
Blood Group :

In case of Emergency, Contact

Name :
Phone No. :

Name :
Phone No. :

COLLEGE PROFILE

Vasavi College of Engineering, established in 1981, is a self-financed institution, affiliated to Osmania University, Hyderabad and approved by AICTE, New Delhi, offers the following courses:

Branch	Starting Year	Intake (2018-19)
4-Year Undergraduate Programmes		
Civil Engineering	1981	60
Electronics & Communication Engineering	1981	120
Mechanical Engineering	1981	120
Computer Science & Engineering	1994	120
Electrical & Electronics Engineering	1999	60
Information Technology	2000	120
2-Year PG Programmes (Full-time 4 semesters)		
Embedded Systems & VLSI Design (ECE)	2003	18
Communication Engineering & Signal Processing (ECE)	2011	18
Advanced Design & Manufacturing (Mechanical)	2003	18
Computer Science & Engineering (CSE)	2011	18
Power Systems and Power Electronics (EEE)	2012	24

All the six U.G programmes are accredited by National Board of Accreditation (NBA) for two years upto 30.06.2020. The Departments Computer Science & Engineering (**CSE**), Electronics & Communication Engineering (**ECE**) and Mechanical Engineering (**ME**) have been recognized by the Osmania University, Hyderabad as **Research Centers**.

Some of the faculty members from various Departments, have been recognized as research supervisors by the Osmania University and JNTU-Hyderabad.

INFRASTRUCTURE

Vasavi, in its constant pursuit of offering quality education, has created excellent infrastructural facilities for all the programmes and established certain advanced laboratories such as, CISCO Networking Lab, VLSI Design Centre, Embedded Systems, DSP, CAD/CAM and GIS dealing with contemporary technologies. Common facilities for the academic support, like the Basic Science Laboratories, Central Computing Laboratory, Manufacturing Practice Laboratory and English Language and Communication Skills Laboratory were established for the first year courses. The Phonetics Laboratory, Interactive Communication Laboratory and reading room were set up, much before it was made mandatory by the university, to improve the communication skills of students. Recently, the English Language Laboratory has been upgraded to Multi-Media facilities. There are a total of 1159 computer systems in the college with latest configuration. The College main computer center houses 64 latest computer systems and 14 servers. All the systems in the college campus are networked through LAN. Well established intranet, supports the faculty and the administration for online data retrieval of student details, marks, attendance, faculty publications etc.

FACULTY

The college has 174 highly qualified and experienced faculty members including, 05 Adjunct Professors, 22 Professor, 29 Associate Professors.

With a view to strengthen the teaching-learning process and provide quality education the college conducts staff development programs regularly.

The classrooms are well ventilated, spacious and luminous located in architecturally styled buildings amidst lush green lawns which provide a pleasant ambience.

Supporting facilities such as buses for comfortable and safe transport, campus wide EPBAX telephone systems, 24X7 internet connectivity, Generators (500 KVA, 120 KVA) for uninterrupted power supply, bank and subsidized canteen, are provided to the students and staff. The college has installed roof top solar power plant of 200KWp capacity.

COMPUTER CENTER

The college has established a high-speed campus-wide network that connects all the computer systems located in the college campus. A fully distributed computing environment based on clusters of workstations and PC's facilitates the staff and students to have ready access to computing resources, services, software and applications. The environment is tailored to the specific teaching/learning needs of each Department. Full access is provided to, the Internet, e-mail, on-line journals, e-content, QEEE facilities, departmental intranet and other online sources of services and information through BSNL leased line Internet connectivity of 100 mbps, separate lines of 100Mbps and 1Gbps from ACT Fiber.

The server room houses Windows Server, LINUX Server, Oracle Database Server which are connected to the LAN, thereby providing diverse computing platforms to the students, across the campus. The Internet Gateway comprises a Web Server, Symantec Protection Suite Enterprise 12.1, Fortigate 510B UTM, Fortianalyzer 200C, CISCO Router 2800, CISCO Switch and the other networking components required for an efficient LAN.

FACILITIES

Particulars	Availability
No. of Servers	14
No. of Computers	64
No. of Learning Resources	NPTEL Courses (192 Web + 212 Video Courses)

SOFTWARE

SNo	Name of the Software	Make
1	MATLAB Image Processing Tool Box, Computer vision tool box Image acquisition tool box, Neural Network tool box Optimization tool box, Fuzz logic tool box Parallel computing tool box	Mathworks
2	Aneka, NET cloud computing software Enterprise edition 3.0	MANJRA Soft
3	Oracle 11G Standard Edition	Oracle
4	Services IBM Rational Seed Suit Enterprise Software	IBM
5	Adobe Acrobat 10.0 Professional	Adobe
6	Symantec Protection Suite Enterprise Edition 12.1	Symantec
7	Informatica Power center 8 standards edition on windows	Informatica
8	MS Office 2007/2013	Microsoft
9	VxWorks 5.5 OEM Development License, includes one Board Support Package and BSP Developers kit for X86 Or PPCXX Host PC Turnado 2.2.1 Standard IDE Package includes Core Tools.Code. Documentation – 5 Users Node Locked. Licenses	Mistral
10	Oracle 9i Developer, Internet Suite	Oracle
11	Embarcadero Network Code Gear C, C++ builder RAD XE STUDI ARCHT Academic	C, C++ builder
12	Developer 2000	Oracle
13	Red Hat Enterprise Linux 6.0	Red Hat
14	Grammarly EDU (Anti-Plagiarism Checker software)	
15	IBM SPSS Modeler 17.0	IBM
16	Primavera P6 EPPM 16.1	

DR. SARVEPALLI RADHAKRISHNAN
LEARNING RESOURCE CENTRE: CENTRAL LIBRARY

Dr. Sarvepalli Radhakrishnan Learning Resources Centre, the central library has a total built up area of 44,503.36 Sq. ft. It houses **12728** titles and **109482** volumes. The college subscribes online journals, that are made accessible to students. These journals are published by Professional Bodies like Institute of Electrical & Electronics Engineers (IEEE), American Society for Mechanical Engineers (ASME) and American Society for Civil Engineers (ASCE). The College is a member of Delhi Library Network (DELNET). A digital library is provided to the students in 415 sq.ft space.

E - JOURNALS & E-BOOKS SUBSCRIBED	
National Journal (Print)	51
Magazines (print)	36
International Journals (print)	19
ASCE	35
ASME	27
IEEE ASPP	155
DELNET CONSORTIUM (IESTC E-Journals-2016)	1152
DELNET E-Journals	817
DELNET MEMBERSHIP E-Books	335
Journals and magazines Print version	2186

The college provides a book-lending scheme to the students with a full set of textbooks for a nominal annual payment in addition to the provision of issuing **4** library cards per student. The Library is fully computerized and availability of any book in the library can be browsed by a click of mouse.

NPTEL Courses: To reinforce the technical knowledge of the students, college has purchased courseware from National Program on Technology Enabled Learning (NPTEL) developed by IITs and IISc and given free access through Intranet to all the students and faculty.

CO-CURRICULAR & EXTRA – CURRICULAR ACTIVITIES

Vasavi campus has a basket of co-curricular and extra curricular activities. Students' brains are sharpened by conducting various workshops, seminars, quizzes, debates, essay-writing, presentation of technical papers, working model exhibitions etc.

Every year college hosts National Technical Symposium entitled **ACUMEN**. Students from all over the country are invited to the campus to present the best technical papers. The college annual day, **EUPHORIA** is celebrated which showcases the cultural talents of students. To enhance the creative skills, the department of H&SS conducts competitions and activities through **Toastmasters, MuN, Arts, Vasavi Talkies, Dramatics Club and the like**. The College publishes, '**In-touch**', the Alumni Newsletter, and **Technocrats**, the Annual College Magazine. **Reminiscences** provides data about the B.E 4/4 students.

The Physical Education Department encourages and provides practice to the students to participate in sports & games at Inter Collegiate, Intra-University and National Level Tournaments. The college has facilities for indoor and outdoor games & sports.

NATIONAL SERVICE SCHEME (NSS)

The College has an NSS unit and the student volunteers take up socially useful activities. The unit has organized blood donation camps, service camps to orphanages, tree plantation camps, flood relief camps etc.

CAREER GUIDANCE, TRAINING AND PLACEMENT CELL

Human Resources (HR) Department provides career guidance and counselling for the budding engineers. It prepares students to meet industry requirements in the technical and soft skills domain thus enriching and enabling them to meet the corporate demands.

The department arranges personality development programmes as well as career guidance sessions to help the students explore the various career options in the fields of All India Civil Services, All India Engineering Services, Scientific, Research and Industrial Organizations, Defence Services in addition to arranging counselling sessions on higher education avenues in India and abroad.

THE ENTREPRENEURSHIP CELL (SWAYAM)

Swayam–The Entrepreneurship Cell of the college is established to develop and nourish the latent entrepreneurial spirit inherent in students, and help them to become Entrepreneurs. The vision of the cell is to develop entrepreneurs by creating an ecosystem that encourages and supports the entrepreneurial potential of students. The mission of the cell is to inculcate the spirit of entrepreneurship and to provide the students with the necessary support by mentoring and equipping them with the right skills and attitude to convert an idea into a business venture.

Swayam bagged the championship award given by NEN for the year 2017-18 for conducting different entrepreneurship activities .

INNOVATION AND ENTREPRENEURSHIP DEVELOPMENT CENTRE (IEDC)

The Government of India recognized that young technocrats are looking for opportunities to exploit their full potential by setting up their own ventures thus becoming "job generators". As part of this strategy **National Science & Technology Entrepreneurship Development Board (NSTEDB)**, Department of Science & Technology, Government of India, had set up Entrepreneurship Development Cells (EDCs) in educational institutions. The main objective of creating such cells is to *"Develop institutional mechanism to create entrepreneurial culture in academic institutions to foster growth, innovation and entrepreneurship among the faculty and students"*.

SAFETY NORMS & CHECKS

The safety measures and checks are followed in buildings, laboratories and in other critical installations as per the standard norms. The entire campus is equipped with a modern firefighting system. In addition, all the buildings are fitted with fire extinguishers.

EMERGENCY MEDICAL CARE AND FIRST-AID

The college provides first-aid and medical help at the centralized place with trained staff. The health center is equipped with four beds and general medicines. To meet emergency medical attention, college has appointed a doctor and a nurse. A special ambulance has been provided to meet critical medical needs.

TEACHING-LEARNING PROCESS

The members of faculty maintain course files, lesson plan and lesson record to conduct the classes and laboratory courses as per the curriculum requirement. The quality of assignments tests and semester examinations is maintained to meet the program education objectives. The tutorial classes/remedial classes are conducted as per the schedule in the timetable.

PROCTORIAL SYSTEM

To monitor academic progress and holistic development of students ,the **proctor system** (mentoring system) has been introduced in the college.

In this system, each student is assigned a faculty member who acts as a ***loco parentis***. Every faculty member is assigned twenty students whom they guide and mentor. The Proctor monitors the progress and welfare throughout the four years of his/her stay in college. Class Coordinators also are allotted for each section who monitor classwork schedule, attendance and discipline issues of every student regularly.

The college has introduced **Professional Practice School** for second year B.E. students so as to acquaint them with the industry needs.

The college has been building purposive partnership with the industry to provide practical learning experience and to expose the students with the emerging trends and contemporary technologies; the College has signed **Memorandum of Understandings (MOUs)** with various corporate houses and industries.

To further improve the skills of the students to face the campus placement interviews, new courses like soft skills and technical skills have been introduced in the curriculum from the second year onwards in the form of ***Skill Development***.

ALUMNI

The college has been interacting with the Alumni regularly with a view to providing career guidance and facilitate connectivity with industry through students' visits, projects, placements, consultancy etc. Alumni Meet 'REFLECTIONS' is organized every year. The alumni website is ***www.vcealumni.org***.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
ACADEMIC RULES AND REGULATIONS
FOR FOUR YEAR B.E DEGREE PROGRAMME
Under Choice Based Credit System (CBCS) w.e.f A.Y.2018-19

Academic Regulations VCE-2018-19

On the recommendations of Academic Council and Board of Governors of Vasavi College of Engineering (Autonomous), the following academic regulations will be in force and applicable to all the students admitted into B.E. program of the college with effect from Academic Year 2018-19 onwards. The B.E program is being offered under Choice based Credit System (CBCS). These regulations are called as *Academic Regulations VCE-2018-19*.

The above rules and regulations, specified herein after shall be read as whole for the purpose of interpretation. In case of arising a doubt, the interpretation of the Academic Council, the Statutory Body constituted as per UGC norms of the college is final. The Academic council has the power to make amendments to these regulations whenever necessary and shall be approved by Board of Governors (BoG).

1. 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 open or soft skill courses).
- Programme** : An educational programme leading to award of a Degree, diploma or certificate
- Semester** : Each semester will consist of 16-17 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from July to November and even semester from January to May.
- Discipline** : Is the branch or specialization of B.E. Degree programme, such as Civil, CSE, ECE, EEE, IT and Mechanical engineering etc.,

- Course** : Usually referred to, as 'papers' is a component of a programme. All courses need not carry the same weightage. The learning objectives and learning outcomes are defined for each course. A course is 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.
- Course Flexibility** : Course work of students is made flexible to enable fast, average and slow learners to plan and pace out their study during the Semester as necessary. They can register for more/average/less credits within limits (e.g., +/- 20%) from the prescribed value, based on their learning capacities as observed from CIE, SEE results of the coursework of the previous Semesters.
- Credit Based Semester System (CBSS):** : Under the CBCS, 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:** : 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.
- Credit Point:** : It is the product of grade point and number of credits for a course.
- Grading** : To be normally done using Letter Grades as qualitative measure of achievement in each Course like: A+ (Outstanding), A (Excellent), B+ (Very Good), B (Good), C (Average), D(Pass), F(Fail) based on the marks (%) scored in (CIE+SEE) of the course and conversion to grade done by relative/absolute grading.

- Grade Point (GP)** : It is a numerical weight allotted to each letter grade on a 10-point scale. A+ =10, A=9, B+=8, B=7, C=6, D=5 and F=0 and student passes a course only when he/she gets GP ≥ 04.5
- 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 theory and lab courses offered in each semester and the total course credits taken during that semester. It shall be expressed upto two decimal places.
- 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 of the program. It is expressed upto two decimal places.
- Passing Standards** : Student to be declared successful at the semester-end or programme-end only when she/he gets SGPA or CGPA ≥4.5, with none of the courses registered in the given semester or for the award of degree remaining with **F** grade.
- Credits Required for Award of Degree** : A student shall earn the prescribed number of credits recommended by the department concerned for the award of UG/PG Degree. Also, each student must pass in the mandatory courses to qualify for the degree and shall not have any pending disciplinary action.
- 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, credits, grade secured) along with SGPA of that semester and CGPA earned till that semester.

Course Load	Every student should register for a set of : courses in each semester, with the total number of credits specified by considering the permissible weekly contact hours.
Course Registration	Every student to formally register in each : Semester for courses (credits) on the advice of the faculty.
Course Evaluation	Continuous Internal Evaluation (CIE) in the : Semester & Semester End Examination (SEE) constitute the main assessment prescribed for each course. Only those students maintaining a minimum standard in CIE (to be fixed by the institution) will be permitted to appear in SEE of the course.
Continuous Internal Evaluation (CIE)	To be normally conducted by the course : instructor which includes class tests, homework, problem solving exercises, group discussions, assignments, quizzes, mini-projects & seminars which will be conducted either weekly/fortnightly or during mid-term, anytime throughout the semester, with weightage for the different components being fixed at the institutional level.
Semester End Examination (SEE)	: To be normally conducted at the institutional level which will cover the entire course syllabi. The syllabi are to be modularized and SEE questions to be set from each unit/module, with choice if any, to be confined to unit/module concerned only. The questions are to be based on knowledge, comprehension, application, analysis, synthesis and evaluation.
Revision of Regulations, Curriculum and Syllabi	: The institution, from time to time may revise, amend or change the regulations, scheme of examinations, curriculum and syllabi with the approval of the academic council.

College address : "Vasavi College of Engineering", (Autonomous), Ibrahimbagh, Hyderabad-500031, Telangana State.

Student : Student is a candidate who has taken admission into undergraduate and postgraduate programs of this college, as per the guidelines stipulated from time to time by the Government of Telangana for admissions into various courses of study and the affiliating university, i.e. Osmania University, Hyderabad.

Head of the Institution : The Principal is the head of the College

Controller of Examinations : Is a constituted body of the college that is responsible for all the examination activities of the autonomous College.

2. ADMISSION PROCEDURE

Admissions are done as per the norms issued from time to time by the Government of Telangana State.

2.1 Undergraduate Admissions

The admissions into undergraduate engineering programs (B.E) for all the branches of study are made as per the norms of State Council of Higher Education (TSCHE), Telangana State Government.

- 2.1**
- a. 70% of seats under Category-A (based on the rank obtained in state level entrance examination-TSEAMCET) will be filled by the Convener, TSEAMCET.
 - b. 30% of seats under Category-B (15% NRI and 15% management quota) will be filled by the management as per the guidelines issued through Government orders from time to time by the TSSCHE and State Government.

2.2 Spot Admission Procedure for B.E. 4-year Program

Any seats left vacant in the convener quota will be filled based on the guidelines given by Convener, TSEAMCET.

Procedure: The College issues an advertisement after necessary approvals. The spot admissions are made as per the guidelines issued from time to time by convener TSEAMCET.

2.3 Admission to the second year of Four Year B.E (Lateral Entry) Program

Students seeking admission into this category shall qualify in TSECET conducted by the Government of Telangana. Admissions are on the basis of merit ranks obtained by the students.

2.4 Spot Admission Procedure for B.E Lateral Entry

Admission are made based on the guidelines issued by the Convener, TSECET.

Procedure: The college issues an advertisement after necessary approvals. The spot admissions will be made as per the guidelines issued from time to time by the Convener, TSECET.

3. PROGRAMMES OFFERED

At present the college offers six UG programmes namely Civil, CSE, ECE, EEE, IT and Mechanical Engineering. A student may be admitted to any one of the programmes of study as per the admission rules. All the programs are offered under semester mode.

4. STRUCTURE OF THE PROGRAMME

4.1 Categorization of Courses

The curriculum of B.E. Programme is designed to have syllabi consisting of theory, laboratory courses and projects that shall be categorized as follows:

Humanities and Social Sciences (H&SS) courses include English language and Communication skills Technical writing and professional presentations, Economics and finance for Engineers and Management and accountancy.

Basic Sciences (BS) courses include Mathematics, Physics, Chemistry, Biology etc.

Engineering Sciences (ES) courses include Materials, Workshop, Basics of Electrical/ Electronics/ Mechanical/ Computer Science Engineering, Engineering Graphics, Instrumentation, Engineering Mechanics, Instrumentation etc.

Professional Core Subjects (PC) are core courses relevant to the chosen specialization/branch

Professional Elective Subjects (PE) are courses relevant to the chosen specialization/ branch offered as electives.

Open Elective subject (OE) courses from other technical and/or emerging subject areas offered in the College by the Departments of Engineering, Basic Sciences and Humanities.

Mandatory Course: Course work on peripheral subjects offered in a programme, wherein familiarity is considered mandatory. They are non-credit, mandatory courses, wherein a student needs to pass in each if he is to qualify for the award of degree from the concerned institution.

Project Work can be an internship with an industry or elsewhere or projects and seminars.

5. DURATION OF STUDY

- 5.1 The duration of the B.E program is four years. The eight semesters of four-year B.E program are consecutively numbered as I, II, III, IV, V, VI, VII and VIII. No readmission/admission/promotions/transfers can be made after 4 weeks of the commencement of instruction of semester in I, II, III and IV years. In case there is any court case consequent to which the Convener of Admissions/Principal is compelled to admit a student after the announced last date of admission, then the admission (seat) of such a student will be reserved for the subsequent year on a supernumerary basis.
- 5.2 Internal (Continuous Internal Assessment: CIE) examinations shall be conducted during the instruction period of the semester.
- 5.3 a) *As per the UGC Guidelines on determination of uniform span period (UGC Letter No. F-12-1/2015 (CPP-II) dated and 15.10.2015 and Osmania University letter No.336/M/Acad.I/2016 dated 21.03.2016) is N+2 students may be allowed to qualify for degree with effect from the Academic Year 2016-17. Where N is the normal or minimum duration prescribed for completion of the programme.*

Hence candidates of four-year degree program, who fail to fulfill all the requirements for the award of the degree as specified herein within ($N+2=4+2=6$) six academic years from the time of admission, will forfeit their seat and their admission will stand cancelled.

Diploma candidates admitted to the second year under lateral entry scheme shall fulfill all the requirements for the award of the degree as specified hereinafter within ($N+2=3+2=5$) five academic years from the time of admission failing which they will forfeit their seat and their admission will stand cancelled.

Lateral entry students shall also complete the bridge course subjects as required. The scheme and other guidelines will be intimated to the students.

6. REGISTRATION OF COURSES

- 6.1 Every admitted student shall be assigned to a Faculty advisor who shall advise and counsel the student about the details of the academic programme, rules and regulations and the choice of courses considering the students' academic background and career objectives.
- 6.2 Each student on admission shall register for all the courses prescribed in a semester of study including open electives.
- 6.3 Every student shall enrol for the courses of the succeeding semester at the end of the current semester. However, the student shall confirm the enrolment by registering for the courses before the three working days of the commencement of the concerned semester. Online registration of courses including open electives, extracurricular and co-curricular courses will be provided and students should visit the college website for details.
- 6.4 *The registration of the courses (such as professional electives, professional core, open electives etc) by the students in each semester as prescribed by the department concerned shall be completed within the stipulated period and on or before the due date prescribed. Change of professional electives and open electives will not be entertained after the due date.*

- 6.5 No course shall be offered by a Department unless a minimum of 30 students register for that core course and 20 students for elective course. After registering for a course, a student shall attend the classes, to satisfy the academic requirements for attending the semester end examinations.
- 6.6 The enrolment for all the courses of the even Semester will commence 10 working days prior to the last working day of odd Semester. The student shall confirm the enrolment by registering for the courses before the three working days of the commencement of the even semester. However, the student can register for courses for which the student has not enrolled, if these are the courses in which the student has failed. No change of course under any circumstances will be entertained once registration of courses is completed

7 AWARD OF DEGREE

- 7.1 The degree of Bachelor of Engineering will be conferred on a candidate who has pursued the "Regular Course of Study" for four academic years (three academic years for candidates admitted in II-Year under lateral entry scheme), as hereinafter prescribed in the scheme of instruction and has acquired all the credits prescribed in the scheme of examination by the department concerned.

7.2 ATTENDANCE REQUIREMENTS:

- (a) A regular course of study for eligibility to appear Semester End Examinations (SEE) of any semester shall mean putting in attendance of **not less than 75%** aggregate in lectures, practicals, drawing, workshops, field work, project, seminars, extension etc., in the courses listed in the scheme of instruction. The cumulative monthly attendance in each course and the aggregate attendance will be displayed on the notice board.
- (b) In special cases and for sufficient causes shown, the Principal/Academic Council on the recommendation of the concerned HOD, may condone the deficiency of attendance **not exceeding 10%** for ill-health when application made for such a condonation is supported by a valid medical certificate issued by an authorized Medical Officer and approved by the Principal of the college. Medical certificate along with the fitness to be submitted within 3 working days on returning to the class work.

(c) *A student can use medical condonation facility only 4 (four) times in the entire period of 8 semesters in the span of 4 years B.E program.*

(d) In any semester of the course if a candidate fails to secure the minimum percentage of attendance, he/she shall not be eligible to appear for the SEE of that semester and he/she shall have to enroll himself/herself to undergo afresh a "Regular Course of Study" of the corresponding semester in subsequent academic year by paying required tuition fee, to become eligible to appear for semester end examinations.

7.3 Attendance for N.C.C. Camps or Inter Collegiate or Inter University or Inter State or International matches or debates or Educational excursion or such other Inter University activities as approved by the authorities, involving journeys outside the city in which the college is situated will not be counted as absence. However, such absence should not exceed (4) weeks of the period of instruction, in a semester. Students participating in the above events shall take prior permission from the authorities. Absence not exceeding two weeks, for activities like N.S.S., Inter-University Competitions and debates will be condoned if the candidate is sponsored by the University for such activities. Proof should be provided.

7.4 The attendance shall be calculated from the date of admission into the course.

7.5 The candidates of I semester who were detained can seek readmission without appearing for the Entrance Test during subsequent year, and such admissions shall be treated as supernumerary.

7.6 If a candidate who has pursued a Regular Course of Study of any semester wishes to undergo the same course again, he/she may be permitted to enroll again as a regular student for the course of the semester, whenever it is offered, depending on the availability of seats. Such candidates shall forego the attendance secured for that semester previously. Further the candidate had not pursued a "Regular Course of Study" in any higher semester. For the award of division, however, he/she shall have the benefit of the higher of the aggregate SGPA secured in that semester.

- 7.7 The college working hours will be announced along with the time table and displayed on the department notice boards. To strengthen and augment the academic activities, college will work on extended hours with prior intimation to the students. All the parents are requested to cooperate in this regard.

8. SCHEME OF INSTRUCTION, EXAMINATION AND ASSESSMENT

- 8.1 Instruction in the various courses in each semester shall be provided by the college as per the scheme of instruction & examination and syllabus prescribed for the branch of study approved by the Academic Council and ratified by the BoG.
- 8.2 The students who have taken readmission (joined under the university regulations) due to transfer into the college shall be allowed to pursue their program of study under Autonomous/CBCS regulations of the college. They shall clear all the backlog subjects, if any, in the equivalent subjects as identified by the Board of Studies concerned under the Autonomous/CBCS system for the award of degree. All such students shall register the courses of study as mentioned earlier.
- 8.3 The distribution of marks based on the continuous internal assessment (CIE) assessment and Semester Examination (SEE) for **B.E** program shall be as follows:

Course		Marks	
		CIE	SEE
i)	Each theory course	40	60
ii)	Each practical or drawing course	30	50

- 8.4 There will be continuous and comprehensive evaluation (CIE) of students. The distribution of CIEs and semester examination marks for **B.E program** are given below:

CIE Exams (internals/ Sessional) Theory: 40 Marks

- **30** Marks each for two internal examinations in a semester and **10** marks for assignments (**5** marks) and quizzes (**5** Marks).
- Three quizzes and three assignments will be conducted in a semester each for **5** marks for every course.

-
- The internal exam question paper contains part-A, Part-B and Part-C. Internal Exam Duration: 90 minutes. The question Paper consists of
Part-A: Contains 6 Questions of 1 mark each (6 Marks)

Part-B: Contains 3 (or 4) Questions of 4 (or 3) marks each (12 Marks)

Part-C: Contains 2 (or 3) Questions of 6 (or 4) marks each (12 Marks)

- There is no choice in the question paper. All questions are to be answered.
- Blooms Taxonomy will be followed in the question Paper Setting.

Average of two tests will be considered for calculating internal exams marks to which average assignment/quiz marks will be added for obtaining total CIE marks.

8.5

Lab: 30 Marks

- **15** marks for day-to-day laboratory class work which will be awarded based on the average of assessment for each experiment considering at the end of the course.
- **15** marks for the internal examination.

SEMESTER END EXAMINATIONS (SEE)

- Semester theory examinations will be conducted for 60 marks. A student should secure a minimum of '**D**' grade in each course for a pass.
- Semester laboratory examinations will be conducted for 50 marks. A student should secure a minimum of '**C**' grade for a pass.
- In addition, a student shall secure a minimum '**D**' grade in a theory course and '**C**' grade in lab from CIEs and semester examinations put together for a pass in a subject.

The semester end examination question paper consists of Part-A and Part- B. Part -A is compulsory and should cover the entire syllabus, and carries 20 marks. A minimum number of 10 questions of Two (2) marks each will be given in Part-A. Part B will comprises of seven (7) questions and it carries 40 marks. A student shall answer any five questions. There shall be one question drawn from each unit of the syllabus and the remaining two questions may be drawn from the total syllabus of all 5 units. However, there should not be more than 2 questions from any unit. Blooms Taxonomy will be followed in the question Paper Setting.

- 8.6 The details of instruction, examination and vacations shall be notified by the Principal.
- 8.7 The semester end examinations prescribed may be conducted by means of written papers, practicals and oral tests, inspection of certified CIE work in drawing and laboratories and workshop or by means of any combination of these methods as may be deemed necessary.
- 8.8 All the general rules for examinations shall be adhered to.
- 8.9 A student who secures '**F**' grade in ***semester exam and sessional put together*** will be declared failed in that semester.

8.10 **B.E (Regular)**

The curriculum for any Branch of study of B.E program is designed to have total credits **160** for the award of regular B.E. A student is declared eligible to receive the B.E degree on attaining above credits and other courses/activities prescribed by the department concerned and the college.

B.E (Honors)

The curriculum for any Branch of study of B.E program is designed to have total credits **160** for regular degree. In addition, if the student is interested to obtain **B.E (Honors)** degree, he or she has to acquire additional 20 credits as prescribed by the college and the department concerned.

For the award of B.E (Honors) degree, in addition to above mentioned additional requirements, a student should also acquire any other courses/activities prescribed by the College.

9 OPEN ELECTIVE COURSES:

As part of CBCS, open electives are being offered by various departments from III to V semesters of B.E. program. A total of 11 credits are designated for open electives to be offered under CBCS.

9.1 The Engineering Departments and Physics, Chemistry, Mathematics and H&SS have been offering one and two credit open elective courses from III to VI semesters of B.E. programs under CBCS w.e.f., the academic year 2017-18.

- It is mandatory for the students to acquire **3 credits out of 11 credits** from the **open elective courses offered by the Departments of Physics and Chemistry** put together as mentioned by the college.
- Allocation of CIE & SEE marks for open elective are given below:

Year of admission	Duration of SEE	Marks	
2018-19		SEE	CIE
1 Credit Course:	2 Hrs.	40	30
2 Credit Course:	3 Hrs.	60	40

10. PARTICIPATION OF STUDENTS IN CO-CURRICULAR AND EXTRA-CURRICULAR ACTIVITIES:

The students of B.E. should complete the prescribed credit and mandatory courses offered under HS, BS, ES, PC, PE, OE, MC, and project work by the department concerned. To become eligible for the award of degree, students should also participate in co-curricular (CCA) and extra-curricular (ECA) activities as set by the individual departments by securing 75% of attendance separately in each activity.

10.1 To become eligible for the award of degree, students should also participate in the following activities:

- III Semester : CCA-1 and ECA-1
- IV- Semester : CCA-2 and Technical Skill/ Workshop/ RC/TC etc.
- V- Semester : CCA-3 (PP) and ECA-2 and Technical Skill-1 (prerequisites to additional Technical Skills of VI semester and /or any other technical skills prescribed by the Departments Concerned.
- VI- Semester : Additional Technical Skills
- VI Semester One Theme-based project report submission
- One online certificate course amongst courses prescribed by the Department concerned (between III and VIII semesters).

10.2 The extra-curricular activities are organized under various clubs includes the following clubs, but may not be limited to:

S. NO	NAME OF THE CLUBS
1	The Toastmasters Club-2
2	The Literary Club-MUN-1
3	The Writers club-2
4	The General Quiz Club-1
5	The Art Club-1
6	The Dramatics Club-1
7	The Math Quiz Club-1
8	The Chemistry Club-1
9	The Physics Club-1
10	The Photography Club-1
11	The Films Club-1

10.3 The above-mentioned activities come under audit courses with no credits attached. However, attendance to the activities is mandatory to encourage student participation and a student shall secure minimum of 75% attendance in these activities.

11. RULES OF PROMOTION FOR B.E	
Semester	Conditions to be fulfilled
I-SEM to II-SEM	Regular course of study of I-SEM and 40% aggregate CIE marks in I-SEM
II-SEM to III SEM	a. Regular course of study of II SEM and
	b. 40% aggregate CIE marks in II- SEM
	c. Must have secured at least 50% of total credits prescribed for I and II SEMs together
III-SEM to IV-SEM	a. Regular course of study of III-SEM and
	b. 40% aggregate CIE marks in III- SEM
IV-SEM to V- SEM	a. Regular course of study of IV SEM
	b. 40% aggregate CIE marks in IV- SEM
	c. Passed in all the courses of I and II SEMs
	d. Must have secured at least 50% of total credits prescribed for III and IV SEMs put together
V-SEM to VI-SEM	(a) Regular course of study V-SEM (b) 40% aggregate CIE marks in V- SEM
VI-SEM to VII-SEM	a. Regular course of study of VI-SEM
	b. 40% aggregate CIE marks in VI- SEM
	c. Passed in all the courses of III and IV SEMs.
	d. Must have secured at least 50% of total credits prescribed for V and VI SEMs put together
VII-SEM to VIII-SEM	(a) Regular course of study of VII-SEM (b) 40% aggregate CIE marks in VII-SEM
Eligibility to appear VIII-SEM exams	Regular course of study of VIII-SEM and 40% aggregate CIE marks in VIII-SEM

12.CREDITS AND GRADES:

- 12.1 Credit system will be implemented in each semester. The credit hours for each theory course, laboratory sessions, Skill Development courses and project work are clearly mentioned in the scheme of instruction.
- 12.2 Absolute/Relative grading system is adopted in awarding the letter grades. The marks are converted to grades based on pre-determined class interval. As per the UGC recommendations a 10-point grading system with the following letter grades are used:

Academic Performance(%)	Letter Grade		Grade Points
90 to 100	A+	Outstanding	10
80 to 89.99	A	Excellent	09
70 to 79.99	B+	Very Good	08
60 to 69.99	B	Good	07
50 to 59.99	C	Average	06
40 to 49.99	D	Pass	05
Below 40 (Theory).	F	Fail	0
Below 50(Laboratory)	F	Fail	0
	Ab	Absent	Ab

- 12.3 A Relative grading system will be implemented for computing semester grade point average (SGPA) and Cumulative grade point average (CGPA). The college will follow relative grading with flexibility given of ranges for grades.
- 12.4 For non-credit courses letter grade secured will not be considered while computation of SGPA/CGPA. No SGPA/CGPA is declared, if a candidate is failed in any one of the courses of a given semester.

12.5 **GRADES: THEORY AND LABORATORY COURSES**

The final grades in a semester will be computed based on aggregate marks of CIE and SEE in a course put together. A student who earns a minimum of 4.5 grade points and above in a theory course and 5.00 in a laboratory is declared to have successfully completed the course.

12.6 The Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) shall be computed considering the credits and grades secured by a student in CIE and semester examinations marks put together.

12.7 **COMPUTATION OF SGPA AND CGPA**

A. The **SGPA** is the ratio of sum of the product of the number of credits and the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student in a semester i.e.

$$\text{SGPA} (S_i) = \Sigma(C_i \times G_i) / \Sigma C_i$$

where C_i is the number of credits of the i^{th} course and G_i is the grade point scored by the student in the i^{th} course.

B. The **CGPA** is calculated in the same manner considering all the courses undergone by a student over all the semesters of a programme, i.e.

$$\text{CGPA} = \Sigma(C_i \times S_i) / \Sigma C_i$$

where S_i is the SGPA of the i^{th} semester and C_i is the total number of credits in that semester.

C. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

12.8 **CONVERSION OF GRADES INTO PERCENTAGE**

Conversion formula for the conversion of GPA into indicative percentage is

$[\text{CGPA Earned} - 0.50] \times 10 = \% \text{ of marks scored.}$

Illustration: $[\text{CGPA Earned } 7.5 - 0.50] \times 10 = 70.0\%$

13. **INDUSTRIAL TRAINING/INTERNSHIP**

The students may undergo Industrial Training for a period as specified in the curriculum during summer / winter vacation. The number of credits shall be assigned as detailed below. The students may undergo internship at research organization / university/ industry for the period prescribed in the curriculum. In such cases, Industrial Training / Internship needs to be undergone continuously from one organization only. The student can undergo maximum of 3 months during the entire duration of study.

14. ADD AND DROP CREDITS

- 14.1 A student should earn the total number of credits specified in the curriculum of the respective program of study to be eligible to obtain the degree.
- 14.2 If the student wishes, then he/she may be permitted to earn more than the total number of credits prescribed in the curriculum of program. However, the total number of additional credits registered cannot exceed six (6). Also, the number of courses registered by a student in a semester cannot exceed 28 credits.
- 14.3 The student has the option to register for additional courses or dropping existing courses from third semester onwards.

15. AWARD OF DEGREE/DIVISION

To obtain degree, the student shall have passed in all the courses and secured the number of credits as prescribed in the course structure of program offered by department concerned and should obtain a CGPA of at least 4.5 and shall not have any disciplinary actions pending against him/her. The award of division secured in the degree on 10-point scale is given below:

CGPA SCORE	DIVISION AWARDED
7.50 and above (10.00-7.50)	First Division with distinction
6.50 and below 7.50	First Division
5.50 and below 6.50	Second Division
4.50 and below 5.50	Pass division
Below 4.50	Fail

16. GENERAL RULES OF EXAMINATION

- 16.1 All examinations shall be held at such places as may be decided and at such other centers on such dates as may be notified.
- 16.2 Application for permission to appear at every examination shall be made on the prescribed form accompanied by three passport size full face photographs (not profile) which along with the necessary certificates regarding attendance, practical work, etc., and the prescribed fee, should be sent to the Controller of Examinations on or before the date fixed for this purpose.

- 16.3 When a candidate's application is found in order and he/she is eligible to appear for the examination, the Controller of Examinations, shall furnish the candidate with a Hall -Ticket affixing the photographs on it to enable the candidate to appear for the examination. Candidates shall have to produce Hall-Ticket for admission into the premises where the examination is being held or to a part of the said premises as well as to the Examination Hall.
- 16.4 A candidate who fails to attend the examination for any reason whatsoever under any circumstances shall not be entitled to claim refund of the whole or any part of the examination fee nor adjust it for subsequent examinations.
- 16.5 A candidate after declared successful in the whole examination, shall be given a certificate indicating the year of examination, the courses in which he/she was examined and the division in which he/she was placed.
- 16.6 No candidate shall be allowed to appear at examinations for different degrees and different faculties simultaneously.
- 16.7 Students, who have appeared once at any examination of the course, need not put in fresh attendance, if they want to reappear at the corresponding examination, not with standing the fact that new courses may have been introduced by the college. They will however, should appear at the examinations according to the scheme of examination and syllabus in force.

17. ADVANCE SUPPLEMENTARY AND MAKE-UP EXAMINATIONS

- 17.1 To decrease the backlog load on the students who failed to clear one or more courses in the even semester and to give equal chances for appearing examinations in odd and even semesters, Advance Supplementary examinations for even semester (II, IV and VI) will be conducted immediately after declaring the results of even semester by giving proper time for preparation.
- 17.2 Since the supplementary examinations of even semesters which are being held during the months of November/December are being advanced to June/July months, supplementary examinations for the even semesters henceforth will not be conducted.

- 17.3 If the candidate is declared to have passed in the revaluation of the main examination, then the result of Advanced Supplementary examinations shall not be considered even if the student appeared for the said exam.
- 17.3 Make- Up examinations will be conducted for the students having backlog courses at VIII semesters of 4th year B.E immediately after release of regular examinations results of VIII semester.

18. IMPROVEMENT OF DIVISION

- 18.1 A candidate who wishes to improve his/her division may do so within one academic year immediately after having passed all the examinations of BE Degree Program by reappearing at not more than two semesters (All courses pertaining to the semester taken together) examinations. For the award of the division, he/she will have the benefit of the higher SGPA secured in the corresponding semesters.
- 18.2 In case of candidates who have secured CGPA less than 4.5 of total aggregate of all eight semesters needed for a pass division, the candidate can appear for improvement in individual courses to become eligible for a PASS Division within one academic year in any two semesters.

19. TRANSITORY REGULATIONS

Whenever, course or scheme of instruction is changed in a particular year, two more examinations immediately following thereafter, shall be conducted according to the old syllabi/regulations. Candidates not appearing at the examinations or failed shall take the examination subsequently according to the revised syllabi/regulations.

20. SCHEDULE ON THE NATURE OF MALPRACTICE AND AWARD OF PUNISHMENT

S.No	TYPE OF MALPRACTICE	PUNISHMENT TO BE AWARDED
1	Possession of the prohibited (written or printed) papers, books, notes during the examination period but which were not used.	Shall be debarred from appearing at the subsequent papers of the examination apart from cancelling the result of the examination (" Examination ") in this context refers to all the papers taken by the candidate on the same Hall Ticket) in which he/she had indulged in malpractice.
2	Matter relevant to the examination being written on any part of the body or on the clothes worn, or in the instruments, wrappings, etc.	
3	Attempting to take help from any prohibited papers, notes, written or printed matter, writings on the walls, furniture, mobile phones / electronic gadgets and attempting to take help from or giving help to other regarding answer to any question or questions of the examination paper.	
4	Taking help from mobile phones / electronic gadgets or consulting of prohibited written or printed material; consulting and / or taking help from or helping other examinee during the examination period inside the examination hall or outside it with or without their consent, or helping other candidate to receive help from anyone else.	

5	An examinee who attempts to disclose his/her identity to the paper valuer by writing his/her Hall Ticket Number at a place other than the place prescribed for it, or by writing his/her name or any coded message or an examinee who makes an appeal to the paper valuer in the answer book.	Cancelling the result of that paper.
6	Using abusive and obscene language in the answer book.	
7	Refusing to obey instructions of the Chief Superintendent/ Invigilator.	
8	Writing on the question paper or other papers the answer to questions, rough work etc., with no intention of passing it on to another examinee.	To be warned not to do so.
9	Examinee swallowing or destroying prohibited material found in his/her possession or acting in any other manner with a view to destroy evidence.	Cancellation of the result of all examinations taken or proposed to be taken during that session and prohibiting his/her admission into or continuation in any course of the Institution for a period of one year.
10	Smuggling an answer book / additional answer book / matter into or out of the examination hall.	Cancellation of the result of all examinations taken or proposed to be taken during that session and prohibiting his/her admission into or continuation in any course of the Institution for a period of one year.
11	Inserting in or removing from the answer book / additional answer book of any sheet.	
12	Substituting wholly or partly an answer book / additional answer book.	
13	Cases of examinees when conspiring to interchange their Hall Ticket Numbers.	

14	Creation of disturbance or otherwise misbehaving in and around the examination hall during or before the examination.	Cancelling the results of all examinations taken or proposed to be taken during that session and prohibiting admission into or continuation in any course of study for a period of two years.
15	Guilty of assaulting / abusing, intimidating any person connected with the examination work any time-before, during or after the examination.	Cancelling the results of all examinations taken or proposed to be taken during that session and the next session and prohibiting admission into or continuation in any course for a period of two years.
16	Impersonation even at a single examination.	a) The case of impersonation to be dealt with as per law in respect of the candidate who has impersonated (Imposter) and the candidate who is impersonated (original candidate). b) The candidate who has impersonated (Imposter) shall be expelled from examination hall. He/She(Imposter) is also debarred and forfeits the seat. c) The performance of the original candidate shall be cancelled in all the examinations (including Practicals / Project work) if any appeared by him/her and shall not be allowed to write remaining subjects of that semester. He/She shall also forfeit the result(s) of other semester(s) registered along with the examination in which the offence was committed. d) The original candidate be debarred from two consecutive semesters from class work and all examinations conducted by

		the Institution. e) Continuation of the course by the original candidate shall be subject to the academic regulations in connection with forfeiture of seat. f) In case if the original candidate would like to discontinue the course immediately after the punishment is awarded, he/she shall be permitted to discontinue only after the completion of punishment period.
17	Any other malpractice not defined above.	As advised by the committee constituted to look into the cases of malpractices.

NOTE: ***"EXAMINATION"*** in this context refers to all the papers taken by the candidate on the same Hall Ticket.

AWARDS AND REWARDS

GOLD MEDALS

Vasavi Academy of Education has instituted Gold Medals for the toppers of each branch based on their cumulative performance in the University Examinations from 1st year to final year. Gold Medals have also been instituted by the industry partners, alumni, parents and individuals.

The members of Vasavi Academy, Alumnus of VCE, and reputed software organizations have instituted sixteen gold medals, in various branches of study for the best outgoing students (toppers) based on their performance in the Osmania university examinations.

- 1. *Sri.Pendekanti Venkata Subbaiah Memorial Gold Medal*** to the best student amongst all the branches of engineering put together.
- 2. *Sri P. Dharma Reddy Gold Medal*** to the best student amongst of all branches.
- 3. *Dr.K.V.Subba Rao Gold Medal*** to the best student amongst the outgoing students of all branches put together.
- 4. *Smt.Kanakamma Venkata Subbaiah Gold medal*** to best girl student amongst all branches put together
- 5. *Prof. G.Lakshmi Narayana Gold Medal*** to the student of Civil Engineering branch who secures highest marks in that branch.
- 6. *M/s SatNav Technologies Ltd Gold Medal*** to the best student of GIS among the Civil Engineering students
- 7. *Sri. G.Narayana Chetty, IAS (Retd) Gold Medal*** to the student who secures highest marks in Mechanical Engineering branch.
- 8. *Sri. A. Ravi Kiran Memorial Gold Medal*** to the student who scores highest marks in Mechanical Engineering branch.
- 9. *Prof. K.Venkataramaiah Memorial Gold Medal*** to the topper in Production Engineering.
- 10. *Sri.K.R.Krishnaiah Chetty Memorial Gold Medal*** to the academically best student in ECE branch.
- 11. *Sri.K.R.Gupta Gold Medal*** to the ***student*** who secures highest marks in CSE branch.

- 12. Dr.T.B.G.Tilak Memorial Gold Medal** to the student who gets highest marks in EEE branch.
- 13. Sri.SikakolluSubba Rao Memorial Gold Medal** to the student who scores highest marks in Information and Technology (IT) branch.
- 14. Sri. K. Rosaiah Gold Medal** to the top scorer in MCA.
- 15. Sri A. Venkata Ramana Memorial Gold Medal** to the best student who secures the highest marks in M.E (ES&VLSID) course.
- 16. Smt. & Sri. EskalaPeddaRatnaiah Memorial Gold Medal** to the best student who gets the highest marks in M.E (AD&M).
- 17. Dr. D. Chungal Raju Memorial Gold Medal** to the best student with highest marks in B.E, ECE branch.

YOUNG LEADER AWARD

In memory of Mr. Harshavardhan Podipi Reddy, an ex-student of Mechanical (Production) Engineering, an 'Award for Young Leader' has been instituted by his parents, with a cash prize. This prestigious award, is presented to one deserving student from every branch of engineering, in their final year.

The students are given an opportunity to apply for the award based on their achievement in 5 major areas viz.,-marks secured, attendance secured, participation in co-curricular and extracurricular activities, leadership initiatives. After evaluating the applications received and based on the outstanding contributions made by the applicants, the students are selected for the award.

MERIT AWARDS

To encourage meritorious students **Best Academic Performance Awards** are given to top 3 students from each section, for all the courses, based on their performance in the semester examination in the preceding year. Students securing first, second and third positions in their sections are awarded with cash prizes. The amount is to be given to the parent of the student in the form of a cheque.

BEST PROJECT AWARDS

Innovative, creative and research oriented projects are awarded suitably. These awards are given to the final year students. To encourage the students to carry out such projects in each branch, the management has decided to give the first and second best project prizes. The best project and second best project receive a cash prize.

BEST ATTENDANCE AWARDS

In order to encourage the regularity among the students, the best percentage attendance awards are given to those securing 100%, 99% and 98% attendance. They are given cash awards.

REWARDS

Cognizant Technology Solutions has instituted an award for the best outgoing student.

REIMBURSEMENT OF CONFERENCE REGISTRATION FEE

Students are encouraged to participate and present papers in National/ International Conferences / Seminars. College reimburses the conference/seminar registration fee to the students who present meritorious papers in the conferences.

MERIT-CUM-MEANS SCHOLARSHIPS

The Management of Vasavi College of Engineering provides Merit-cum-Means Scholarships to the needy students.

FINANCIAL ASSISTANCE

Financial assistance to the economically poor students is available on the basis of merit-cum means. The circulars are issued from time to time inviting the applications in every academic year.

Guidelines for Financial Assistance

1. Students who are economically weak are considered for financial assistance.
2. The financial assistance is be provided to the eligible students with a condition that the assistance received shall be paid back after getting employment in equal installments over a period of two years. The amount received is credited to a separate fund (financial assistance fund) in the college which is utilized for assistance given to subsequent batches of students. This account is operated for any contribution received from the staff and any other philanthropists for this good cause.
3. The needy students are identified by the "Department Financial Assistance Committee" that comprises the respective HODS, one senior faculty and two students from each branch. The short listed eligible students get the financial assistance.
- 4.

TRANSPORT FACILITIES- GENERAL MODE

All the students are eligible for the General Bus Pass. The APSRTC buses 120S, 120N, 220J, 220V ply from Mehdiapatnam 'X' roads to the college. For fresh bus passes, students should apply during 21st to 29th of every month and for renewal during 13th to 17th of every month at all APSRTC Bus Pass Centres and e-SevaCentres.

FIRST YEAR STUDENTS - HIRED BUS TRANSPORT

Private buses are under hire exclusively for I year B.E students of the college. More buses can be arranged in other routes, if the strength of the students in that particular route is 60. Presently the buses are operating to the college from various place of the Hyderabad-Secuderabad twin cities. The buses start at their respective destinations at 8.00 am. in the morning and leaves the college in the evening at 4.40 pm. The details of the routes are given below:

ROUTE	VIA
ECIL 'X' Roads - VCE	Naredmet 'x' Roads, Malkajigiri, Mettiguda, Sangeet, Patny, Paradise, Tankbund, Secretariat, Lakadikapool, Mehdiapatnam.
Vanasthalipuram Red Tank - VCE	Panama, L.B. Nagar, Kothapet, Dilsukhnagar, Malakpet, Koti, Abids, Nampally, Public Gardens, Lakadikapool, Mehdiapatnam.
Ramanthapur HPS - VCE	Uppal 'x' Roads, Habsiguda, Tarnaka, Adikmet, Vidyanagar, Shankermutt, NallakuntaNarayanaguda, Himayathnagar, Liberty, Lakadikapool, Mehdiapatnam, Nanalnagar
K.P.H.B. (JNTU) - VCE	Kukatpally, Moosapet 'x' Roads, Erragadda, S.R.Nagar, Punjagutta, NIMS, Erramanjil Colony, Banjara Hills, Masab Tank, NMDC, Mehdiapatnam, Nanalnagar
B.H.E.L. (Lingampally) - VCE	Chandanagar, Gangaram, Madinaguda, Alwyn 'x' Roads, Miyapur, Nizampet x Roads, JNTU, Malaysian Town ship, Hitech City, Mindspace, Gachibowli, Outer Ring Road, Narsing
Chilkaiguda (Sec'bad Station) - VCE	Musheerabad, RTC 'x' Roads, VST, Bagh Lingampally, Tourist Hotel, Kachiguda, YMCA, Old MLA Quarters, Basheerabagh, Lakadikapool, Mehdiapatnam

ALWAL (Indira Gandhi Statue) – VCE	Lothukunta, Tirumalgiri, Kharkhana, JBS, Patny, Begumpet, Punjagutta, Nagarjuna Circle, Banjara Hills, Masab Tank, NMDC, Mehdiapatnam, Pillar No.68, Langarhouse
Sagar Ring Road – VCE:	Karmanghat, Chempapet, Santoshnagar, Owaisi Hospital, Midhani 'x' Roads, Chandrayana Gutta, Aramghar 'x' Roads, Rajendranagar, Attapur, VCE

TRANSPORT FACILITY FOR SENIOR STUDENTS

Nine T.S.S.R.T.C exclusive buses are arranged for the senior students in the following routes

ROUTES	
1	Secunderabad (8.30 AM) to VCE Via. Bata, Tankbund, Secretariat, Lakdikapul, Mehdiapatnam.
2	Secunderabad (8.30 AM) to VCE Via. Paradise, Begumpet, Punjagutta, Banjara Hills, Mehdiapatnam.
3	RTC 'x' Roads (VST Bus Stop) to VCE Via. Sankarmutt, Nallalunta, Barkatpura, Narayanaguda, Himayathnagar, Lakdikapul, Mehdiapatnam.
4	RTC 'x' Roads (VST Bus Stop) to VCE Via. Sankarmutt, Nallalunta, Barkatpura, Narayanaguda, Old MIAQtrs, Control Room, Lakdikapul, Mehdiapatnam.
5	Taranaka to VCE Via. Adikmet, Nallalunta, Narayanaguda, Himayath Nagar, Liberty , Secreteriat, Lakdikapul, Mehdiapatnam.
6	Dilsukhnagar to VCE Via. Malakpet, Nalgonda 'x' Roads, Koti, Abids, Nampally, Lakdikapul, Mehdiapatnam.
7	Dilsukhnagar to VCE Via. Malakpet, Nalgonda 'x' Roads, Koti, Abids, Nampally, Lakdikapul, Mehdiapatnam.
8	A.G.Colony (ESI Bus Stop) to VCE Via. Ameerpet, Punjagutta, Lakdikapul, Mehdiapatnam.
9	A.G.Colony(ESI Bus Stop) to VCE Via. Ameerpet, Punjagutta, Banjara Hills, Mehdiapatnam.

STAFF BUSES (including Senior Students) 2017-18

Route	Name of the Route	Enroute Stages
I	Nagole 'x' Roads - VCE	Uppal 'x' Roads, Ramanthapur HPS, Amberpet 'x' Roads, 6 No., Shivam Road, Vidyanagar 'x' Roads. VST, RTC 'x' Roads, Ashok Nagar, Indira Park, Telugutalli Flyover, Lakdikapool, Mehdiapatnam, VCE
II	Uppal 'x' Roads - VCE	Survey of India, Habsiguda, Tarnaka, Adikmet, Vidyanagar, Shankermutt, Fever Hospital, Narayanguda, Himayathnagar, Liberty, Secretariat, Lakdikapool, Mehdiapatnam, VCE
III	ECIL 'x' Roads - VCE	Naredmet 'x' Roads, Vinayak Nagar, Anandbagh, Malkajigiri, Mettiguda, Chilkalguda 'x' Roads, Kawadiguda, Lower Tank Bund, Lakadikapool, Mehdiapatnam
IV	Bowenpally - VCE	Pardise, Patny, Sangeet, Bata, Tankbund, Secretariat, Lakadikapool, Mehdiapatnam, VCE.
V	Chinthalakuntha Check Post – VCE	L.B. Nagar, Kothapet 'x' Roads, Chaitanyapuri, Dilsukhnagar, Malakpet, Koti, Abids, Nampally, Public Gardens, Lakadikapool, Mehdiapatnam, VCE
VI	Vanasthalipuram Red Tank - VCE	L.B. Nagar, Kothapet 'x' Roads, Chaitanyapuri, Dilsukhnagar, Malakpet, Koti, Abids, Nampally, Public Gardens, Lakadikapool, Mehdiapatnam, VCE
VII	B.N.Reddy Nagar - VCE	Vanasthalipuram Red Tank, NGO'S Colony, B.N. Reddy Nagar, Hasthinapuram, Sagar Ring Road Karmanghat, Chempapet, Santhoshnagar, Owaisi Hospital, Midhani 'x' Roads, Chandrayangutta, Aramghar 'x' Roads, Rajendranagar, Attapur, VCE
VIII	KPHB(JNTU) - VCE	Vivekananadnagar Colony, Kukatpally, Moosapet 'x' Roads, Erragadda, ESI, S.R.Nagar, Ameerpet, Punjagutta, NIMS, Krishna Oberai, Banjara Hills, Pension Office, Masab Tank, NMDC,

		Mehdipatnam, VCE.
IX	BEERAMGUDA - VCE	Lingampally 'x' Roads, Chandanagar, Gangaram, Madinaguda, Alwyn 'x' Roads, Miyapur 'x' Roads, Hafeezpet, Kondapur, Kothaguda 'x' Roads, Gachibowli, Outer Ring Road, Narsing, VCE.
X	HYDERGUDA - VCE	Nizampet 'x' Roads, JNTU, Malasyan Town Ship, Hitech City, Mindspace, Gachibowli, Outer Ring Road, Narsing, VCE.
XI	ALWAL (Indira Gandhi Statue) – VCE	Lothukunta, Tirumalagiri, Kharkhana, JBS, Patny, Paradise, Begumpet, Punjagutta, NIMS, Erramanazil Colony, Taj Krishna, Pension Office, Masab Tank, NMDC, Mehdiapatnam, VCE
XII	Mehdipatnam – VCE	Humayun Nagar P.S., Mehdiapatnam, Retibowli, Pillar No.68, Olive Hospital, Langar House, VCE

RULES OF CONDUCT TO STUDENTS

1. The college premises and buildings shall be kept clean; writing and sticking posters and notices on the building walls is strictly prohibited.
2. Students are not permitted to resort to strikes and demonstrations within the college. Participation in any such activity shall automatically result in their dismissal from the college.
3. No student unions, except professional associations, are permitted in the college.
4. Any student responsible for bringing outsiders into the college campus for settling student disputes will be expelled from the college.
5. The students may go on Industrial Tours on their own expense. The college will not defray any expenses of the tour.
6. Smoking, consumption of alcoholic drinks, gambling of any kind is prohibited in the college premises. Any student found in the college premises in an intoxicated condition at any time will be summarily expelled from the college without any enquiry.
7. The students are expected to be regular in their class work and should conduct themselves in a disciplined manner. They should abide by

such rules of discipline and conduct as stipulated by the college from time to time.

8. Fees must be paid in one instalment within two weeks of 1st Semester in the College. Fine at Rs.20/- per day will be levied for delayed payment upto 2 weeks, after which name will be deleted from rolls. Later Readmission fee will be Rs.500/- in addition to fine dues. Fee once paid will not be returned under any circumstances. Non payment of fees will result in forfeiture of his/her seat in the college.
9. The principal of the college is the final authority as regards the discipline in the institution and has full powers to suspend, fine, rusticate and take any other action, which is deemed necessary.
10. The conduct of the students should be exemplary, not only within the premises of the college but also outside.
11. The students are informed that they should furnish the latest addresses of their parents/guardians in the Principal's Office. Any change of address of the parents/guardian should also be informed immediately, in the college office.
12. Ragging is prohibited. Any student participating in ragging is liable to be summarily expelled from the college without any enquiry. Ragging on campus and off campus is strictly prohibited and it is a cognizable offence. The college has constituted Anti-Ragging Committee, vigilance teams, anti-ragging squads involving the police officers, senior faculty, etc., as per the Act.

DEPARTMENT PROFILES

DEPARTMENT OF CIVIL ENGINEERING

The Civil Engineering Department was established in the year of college inception (1981). It offers B.E. civil engineering course with an annual intake of 60 students.

MISSION

To impart knowledge in the latest technologies to the students of civil engineering to fulfil the growing needs of the society."

FACULTY

Dr. B. Sridhar is Professor and Head of the Department. The department has 17 qualified faculty members. The Civil Engineering Department is actively engaged in research and consultancy activities in

the areas of cement and concrete technology and concrete structures. Research projects on Blended Cements, Concrete Composites like Fibers Reinforced Concrete with various types of fibers like steel, glass, polypropylene etc., GFRP, H.P.C., Light Weight Concrete, Non-Destructive Testing of Structures etc., are in progress and a few have been completed. To strengthen the knowledge beyond the curricula and to expose the students to the latest trends in the industry Professional Practice School is being implemented.

INFRASTRUCTURE

The Civil Engineering Department is spread in an area of 2,134 Sq. Mtrs. to cater to the needs of classrooms, laboratories and other common facilities. The department has 32 computer systems.

The various Civil Engineering Laboratories - the Concrete Lab, Soil Mechanics Lab, Transportation Engineering Lab, G.I.S Lab, Computer Lab, etc., are equipped with modern equipment. It has ideal facilities for research like concrete compression testing machine (Digital) of 300 KN capacity, permeability testing apparatus, non-destructive testing equipment, loading frame of 400 KN capacity, computerized triaxle testing equipment, standard penetration test apparatus, UV-spectra- photometer etc. The Computer center of the department has all the modern GIS, structural analysis and Design packages.

The Department has a good interaction with outside agencies and is carrying out consultancy activities for various public and private agencies on structural design, proof checking, quality testing of structures, cement

concrete roads, B.T roads, laboratory material testing of cement, concrete including mix design, highway materials, steel roads etc., Soil Testing of Field samples, Field Surveying GIS mapping, water analysis etc., are also being regularly carried out.

Many of our students have been placed in software, GIS and construction companies. Some of our students are pursuing higher education abroad and in India.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

The Department of Computer Science & Engineering was started in the year 1994 offering, a 4-year B.E. course and the present annual intake is 120 students and a 2-Year M.Tech course in the year 2011 with an annual intake of 18 students.

MISSION

To enable students to develop logic and problem-solving approach that will help build their careers in the innovative field of computing and provide creative solutions for the benefit of society.

FACULTY

Dr. T. Adilakshmi, Professor and Head of the Department, has 30 years of teaching experience. The department has 24 well-qualified & experienced faculty members. Osmania University has recognized the department as a Research Center and two professors are recognized as Research Supervisors. The faculty members have varied academic interests and some of their specialized fields include Data Mining, Artificial Intelligence, Grid Computing, Image Processing, Cloud Computing etc. The department has been associated with eminent industries to carry-out research/consultancy work.

INFRASTRUCTURE

The department has a carpet area of **1585**Sq.mtrs. to accommodate the needs of classrooms, laboratories and other common facilities. The laboratories are well equipped computers with latest configuration. There are five UG, one PG and one research labs consisting a total of 218 systems.

The various servers in the server room which includes, Oracle 11g Database Server, Intranet Server (TOMCAT), Oracle 11g Database Automation Server, NPTEL Video/Web Server, Mat Lab Server 2011 R2,

Proxy Server, Red Hat Linux 5.0 Server, Library Automation Server, Symantec Protection Enterprise Edition 3.02, Rational Rose Server, Informatica Server all connected to the LAN thereby providing diverse computing platforms to the students across the campus. The college has high speed internet connectivity throughout the campus through a leased line from BSNL with 100Mbps and Beam telecom with 100Mbps+1Gbps broadband. To facilitate research, the department also has

1. Aneka.NET Cloud computing software version 3.0 enterprise edition site user license
2. MATLAB Perpetual concurrent license academic version

INDUSTRY INSTITUTE INTERACTION

The College has signed MoUs with prominent IT-related organizations: Pega Systems, Infosys, Merxius Software Pvt Ltd, Navaratan Technologies. These partnerships help the students meet the highly competitive standards of the industry by keeping them abreast with the advances in technology through training programmes, student internship and projects, lectures by professionals/experts from the industry. The department in association with Infosys, conducts Infosys Campus Connect foundation programme for students placed in Infosys from our college.

CONTENT BEYOND SYLLABUS

CSE Department also offers content beyond the syllabus in the form of QEEE (Quality Enhancement in Engineering Education) under MHRD.

VALUE ADDED COURSES

CISCO Local Academy enables students to meet the contemporary market demands of Computer Networks. The department has a CSI Student chapter to facilitate students for interaction with the industry and academia through seminars/workshops/expert lectures.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Established in 1981, the department offers 4-year B.E. Degree Programme in Electronics & Communication Engineering, with an annual intake of 120 students. It also offers two M.E. Programmes, Embedded Systems & VLSI Design and Communication Engineering & Signal Processing of two years duration each. There are 167 computers located in various labs of the department.

MISSION

"To inculcate a spirit of scientific temper and analytical thinking and train the students in contemporary technologies in Electronics & Communication Engineering to meet the needs of the industry."

FACULTY

Dr. E. Sreenivasa Rao, is Professor and Head of the Department. The Department has 32 experienced faculty members comprising Professors, Associate Professors and Assistant Professors and industry professionals. The faculty has teaching expertise in various specializations like Signal Processing, Communications, Digital Systems, Embedded Systems, VLSI Design, Microwaves etc.

INFRASTRUCTURE

The ECE Department is spread in an area of 2,701 Sq. Mtrs. in a separate block to cater to the needs of classrooms, laboratories and other common facilities. The Department has 13 laboratories as per the curriculum which includes 4 advanced laboratories. The laboratories are as per the curriculum such as Basic Electronics, Analog Electronics Circuits, Digital & Integrated Circuits, Communication, Microwave Engineering, Signal Processing & Microprocessors and Interfacing.

The advanced labs are

- VLSI Lab with Mentor graphics and Cadence tools.
- Digital Signal Processing Lab with TMS320C6711 based DSP Kits, code composer studio and MATLAB modeling and simulation software.
- Communication Engineering Lab with Agilent make test and measurement bundle, WiComm-T Wireless communication trainer system SDR platforms, NI LabVIEW academy hardware and software bundles.

- Embedded Systems Lab with X86, 8051 and ARM based embedded system development platforms, Vivaldo SoC/Embedded System Development suite, Zynq 7020 based all programmable System on Chip (SoC) development platforms., Proteus Virtual System Modeling software.

The Department maintains a robust association with the industry for student training, student projects, faculty visits, expert lectures, and for collaboration in research and development in emerging technologies. The department is associated with the major industries like NVIDIA Graphics, Veda IIT, Cypress, AMS, ANURAG, National Instruments, DLRL, etc. The department has research projects funded by DLRL & RCI.

Osmania University accorded recognition to ECE department as a research center to carryout research leading to the award of Ph.D. degree. University also accorded recognition to 4 professors as Ph.D supervisors to supervise Ph.D scholars and currently about 25 Ph.D scholars are working with them in the department.

The Department has an IEEE student branch, IETE student Forum and IE(I) chapter to facilitate effective interaction with the industry and academia through seminars / symposia / workshops. The ECE students have been consistently securing top university honors among the affiliated colleges of Osmania University. A good number of ECE students have been offered employment both by IT and Core Electronics Engineering Companies in the campus selections.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

The department of EEE was established in 1999. It offers a 4-year B.E. Degree Programme in Electrical & Electronics Engineering (EEE) with an annual intake of 60 students and one M.E programme in power systems and power electronics.

FACULTY Dr. M. Chakravarthy is Professor and Head of the Department. The department has 17 qualified and dedicated faculty comprising Professor, Associate Professors and Assistant Professors and also Industry professionals. The faculty has teaching expertise in various specializations like Power Electronics & Drives, Power Systems & Electrical Machines, Renewable Energy Sources and Control Systems.

INFRASTRUCTURE

The EEE Department is spread in an area of 1,967 Sq. Mtrs. caters to classrooms, laboratories and other common facilities. The Department is equipped with 8 labs, a departmental library, classrooms, tutorial rooms, a seminar hall with modern teaching aids and staff rooms.

The laboratories are equipped to

suit the modern curriculum requirements. Some of laboratories in the department are Electrical Machinery Labs, Power Systems Lab, Power Electronics Lab and Control Systems Lab, Electrical Circuits & Measurements Lab and Electrical Simulation Lab. The Department has maintained a good ties with renowned organizations like Bharat Heavy Electricals Limited (BHEL), National Thermal Power Corporation (NTPC), Power Grid Corporation of India Limited, Central Power Research Institute (CPRI), Railway Loco Workshop, Vijay Electricals Limited, Medha Servo Drives, Siemens India Limited, GE Enterprises, etc. These links help students to equip themselves with latest trends in electrical and electronic industry. The department has 41 computer systems at its disposal.

MISSION

"To impart knowledge to electrical engineering students so that they have the skills to innovate, excel and lead in their professions with values for the benefit of the society."

DEPARTMENT OF INFORMATION TECHNOLOGY

The IT department was established in the year 2000. It offers a 4 year undergraduate programme B.E. in Information Technology with an annual intake of 120 students. The curriculum of I.T. emphasizes the ongoing *Convergence of Computers, Communications and Control Systems*. The programme ensures that the student effectively meets the

highest benchmarks of competence required by the industry. The unique feature of IT curriculum is 4 Mini projects (2nd yr. I & II Sem. & 3rd yr. I & II Sem.) which is included in the curriculum in addition to the Main Project in the final year. The students of our department have been selected by leading domestic and multinational companies like Microsoft, Teradata, CTS, Accenture, Capital IQ, Oracle, Pega systems, TCS, Infosys to name a few in the campus recruitment programmes.

MISSION

To enable the students, acquire outstanding competence and skills in latest IT related technologies through practice-oriented teaching and training.

FACULTY:

Dr. K. Ram Mohan Rao, Associate Professor is Head of the Department. The Department has 21 qualified and experienced faculty. The faculty has teaching expertise in C and Data Structures, Java, Web Technologies, Networking, Soft Engineering, Artificial Intelligence, Software Testing, Compiler Construction, Data and Mobile Communication, Cloud Computing, Data Mining, Microprocessors, VLSI Design, Embedded Systems and Signal Processing.

INFRASTRUCTURE:

The IT Department is spread in an area of 1,072 Sq. mtrs to cater to the needs of classrooms, laboratories and other common facilities. The department has 5 laboratories consisting of 216 computer systems equipped with C, C++, Java, Oracle 9i with D2K, Rational Suite software and MSDN subscription through academic alliance with Microsoft. These computers are networked through central servers with access to internet and various design tools.

With the balanced mix of Electronics, Communication and Computer related subjects, the IT curriculum provides an opportunity for the students to have hands-on experience on specific tools MATLAB, Vx Works, VLSI Simulation & Synthesis tools from Mentor Graphics, Xilinx Foundation series, Rational Rose, PSPICE, Microwind and Microprocessors and Microcontroller kits (8085, 8086 & 8051), CPLD/FPGA trainer kits. This is in addition to programming labs like C/C++, DBMS, Data Structures, OOSD, JAVA, Operating Systems, Web Technologies, Compiler Construction, Network Programming, Network Simulation using NS2, Middle Ware Technologies. Also, Cisco Lab is included in the curriculum for the students to improve their Networking knowledge.

The department has an exclusive well-stocked library. Apart from having a large number of books encompassing the entire spectrum of information technology, the library subscribes to several journals and periodicals pertaining to the discipline. The department has forged useful alliances with reputed IT-oriented organizations to facilitate student training, projects, internship and in arranging expert lectures.

DEPARTMENT OF MECHANICAL ENGINEERING

Established in the year 1981, the department offers 4-year B.E. program in Mechanical Engineering, with an annual intake of 120 students and a 2-year M.E. Program in Advanced Design & Manufacturing.

FACULTY

Dr. T. Ramamohan Rao is Professor and Head of the Department. The Department has 28 faculty members and one adjunct faculty member. The Department is one of the well-established Mechanical Engineering Departments in the State. Majority of staff have industrial experience. The Department has made a significant progress in research at the Master's and Doctoral levels. The faculty members of the Department are actively engaged in research publication and dissemination of knowledge through guest lectures at various prestigious institutions.

MISSION

To nurture an environment of research, innovation and knowledge through the latest teaching-learning practices in mechanical engineering.

INFRASTRUCTURE

The Mechanical Engineering Department is spread in an area of 3,465 Sq. meters to cater to the needs of classrooms, laboratories and other common facilities. The department has excellent infrastructural resources. The laboratories in the department are Applied Thermodynamics, Thermal Engineering, CAD/CAM, Metallurgy Lab, FMS, CNC, Automation & Robotics, Welding, Metal Forming Technology, Metal Cutting & Machine Tools engineering, Metal Casting, Metrology & Instrumentation and dynamics of Machine lab..

A Central Workshop with the facilities of Carpentry, House Wiring, Fitting, Plumbing and Smithy imparts necessary skills to the students.

The CAD/CAM Lab is equipped with advanced CAD and CAE software, viz., Unigraphics, ANSYS, Hyperworks, FLUENT, GIBBS-CAM, MATLAB for different tasks of part Modeling & Assembly, Analysis, and Simulation etc. Sophisticated equipment like Fast Fourier Transforming Analyzer (FFT), Vibrations, Sound level meters and under additive manufacturing three 3D printing machines are also available.

The department has established linkages with various renowned organizations for student interactions, training, internship, faculty visits and consultancy services. Some of the organizations are Mahindra & Mahindra,

Castrol India, Rane Engine Valves, DRDL, Bharat Heavy Electricals Limited (BHEL), Designtech Systems, APSRTC, Central Institute of Tool Design and Midhani.

The students of the Department have consistently bagged Gold Medals and University Ranks among the affiliated colleges and won several prizes in design and other contests at various levels. The Department has excellent track record in placements and higher education.

DEPARTMENT OF PHYSICS

Department of Physics was established in 1981.

FACULTY

Dr. A.S. Sai Prasad is professor and Head of the Department. All the 5 faculty members are well qualified and experienced. The specializations of the faculty members include electron paramagnetic resonance, materials science, condensed matter physics, luminescence, magnetic fluids, atmospheric sciences etc. The

MISSION

To imbibe the spirit of scientific temper and to instill logic and analytical approaching budding engineers.

members are actively involved in research work. Two sponsored research project funded by the Atomic Energy Research Board and UGC-MRP were successfully completed. The faculty members are actively engaged in research work. More than 40 research papers were published by the faculty in International and national journals of high repute.

INFRASTRUCTURE

The Department is spread in an area of 275 Sq. Mtrs to cater to the needs of classrooms, laboratories and other common facilities. It has two laboratories namely Mechanics lab and Optics lab having equipment. The instruments include CROs, Optical fibers, lasers, Hall apparatus etc.

RESEARCH LAB:

The department established a research lab that is equipped with high temperature microprocessor controlled electric furnace (1400°C), twin ball mill, microwave oven, single pan Keithly digital balance etc.

DEPARTMENT OF MATHEMATICS

MISSION

To impart in-depth knowledge of mathematics and its applications in various fields of engineering so as to enable the students to meet the challenges of the Engineering Problems with courage, confidence, conviction and competence.

FACULTY

The Department of Mathematics was established in year 1981. Dr.T.Sudhakar Rao is the Head of the Department. The Department has 7 faculty members and caters the teaching needs of the students in Mathematics. Two of them are doctorates. The department is actively engaged in the

promotions of mathematical applications through **MATHS CLUB**.

DEPARTMENT OF CHEMISTRY

Department of Chemistry was established in 1981.

FACULTY:

Dr. Ch.Gourishanker is Head of the Department. The department has 7 experienced faculty members. Four of them are doctorates. The other members are pursuing their Ph.D. One UGC sponsored minor project has been completed. The faculty members have published more than 30 research papers in International and National journals.

Infrastructure:

The department is spread in an area of 398 Sq. Meters including laboratories with latest equipments such as Potentiometers, Colorimeters, pH meters, Conductivity meters and Spectro-photometer etc.

MISSION

To infuse knowledge of chemical principles of engineering materials to the prospective engineers

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

MISSION

To nurture the budding professionals to face dynamic situations of the business world through training, mentoring, and counseling by creating a 'learning rich' environment."

The Department, at present, offers courses in English and Economics. It has carved a unique niche by offering various value-added courses.

FACULTY

Dr. Jacqueline Amaral is the Head of the Department. The department has seven faculty members who have a strong foundation in communication skills and phonetics.

INFRASTRUCTURE

The Department of English has comprehensive laboratories in an area of 173 Sq. meters. It provides training in communication and interpersonal skills, accent neutralization, soft skills and presentation skills to mention a few. The Phonetics & Interactive communication skills laboratories help students develop their communication as well as interpersonal skills thus enhancing their confidence levels and marginalizing their first language influence. The English Language Lab is upgraded to Multi media Lab with 34 computer systems containing Hi Class Software. The language software includes Sky pronunciation suite, Lets do business, and Connected speech from Young India. The total cost of major equipment/instruments in the Department is about Rs.31.00 lakhs.

DEPARTMENT OF PHYSICAL EDUCATION

Department of Physical Education plays a crucial role in encouraging the students to nurture the inherent talents in sports and games. Qualified and experienced faculty serves the needs of the students. The college has good indoor and outdoor sports & games facilities like table tennis, carom, chess, shuttle badminton, cricket, valley ball, basketball, etc. The college student teams have been consistently winning various prizes/medals at Inter-Collegiate, Inter-University and also at various National Level Tournaments.

DEPARTMENT OF HUMAN RESOURCES

Human Resources (HR) Department provides career guidance and counseling to the outgoing budding engineers. It prepares students to meet the industry's requirements and enrich them to suit the corporate world with excellent soft skills. The HR Department organizes personality development programs and looks after campus placements of the students. It takes care of pre-placement training & placements. It explores the various career options in the fields of All India Civil Services, All India Engineering Services, Scientific, Research and Industrial Organizations,

Army, Navy and Air force in addition to arranging counseling sessions on higher education avenues in India and abroad. Human Resources wing is headed by Prof. Kishore, Director, Training & Placement. Sri. K. Srinivasa Chakravarthy is Assistant Director.

ACADEMIC AND EXAMINATIONS BRANCH

Academic and Examinations Branch takes care of all the academic requirements of students starting from admission processes, collection of original certificates at the time of admission, issue of i.d cards, syllabus books, photo copies of original certificates deposited in the college, course completion certificates, custodian forms, and return original certificates at the time of leaving and also issue transfer and bona-fide certificates, migration certificate, provisional degree certificate, consolidate marks memos, etc.

DIRECTOR – STUDENT WELFARE

Sri K. Ramakrishna is the DSW. This wing of the college looks after the student facilities and addresses problems of students. The DSW takes care of the amenities, proctorial system, transport facilities, financial assistance, student bus passes, railway concessions, certification of scholarship applications and Student Bonafide certificates.

ACCOUNTS SECTION

The account section collects tuition fee, special fee, examination fee, medical condonation fee, process and disbursement of A.P. state social welfare scholarships, national merit scholarships, aicte stipends, prepares estimates to obtain education loan from banks, refund of caution deposits and issue of no due certificates.

STUDENT COUNSELLOR

The student counsellor services are provided to the students to give guidance on personal, social and psychological problems.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
ALMANAC FOR THE ACADEMIC YEAR 2018-19q

B.E –I SEMESTER (16+3 = 19 Weeks)

Particulars	Date
Induction Programe	30.07.2018 to 18.08.2018
Commencement of Instruction	20.08.2018
I Class Test	08.10.2018 to 11.10.2018
Dassehra Vacation	15.10.2018 to 20.10.2018
II Class Test	12.12.2018 to 15.12.2018
Last date of instruction	15.12.2018
Preparation holidays and practical Examinations	17.12.2018 to 29.12.2018
Semester End (theory) Examinations	31.12.2018 to 19.01.2019

B.E –II SEMESTER (16 Weeks)

Particulars	Date
Commencement of Instruction	21.01.2019
Euphoria and Tech Fest 2019	14-16 th March 2019
I Class Test	20.03.2019 to 23.03.2019
II Class Test	07.05.2019 to 10.05.2019
Last date of instruction	10.05.2019
Preparation holidays and practical Examinations	13.05.2019 to 25.05.2019
Semester End (theory) Examinations	27.05.2019 to 12.06.2019
Summer vacation	13.05.2019 to 06.07.2019
Commencement of B.E III Semester for the Academic year 2019-2020	15.07.2019

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

Ibrahimbagh, Hyderabad-500 031, Telangana State

SCHEME OF INSTRUCTION AND EXAMINATIONS (CBCS) FOR B.E. I - SEMESTER W.E. F 2018-19

B.E I Semester (CSE-ECE-IT BRANCHES)

B.E I Semester (CSE-ECE-IT BRANCHES)								
Course Code	Name of the Course	Scheme of Instruction			Scheme of Examination			
		Hours per Week			Exam Duration in Hrs	Maximum Marks		Credits
		L	T	P/D		SEE	CIE	
THEORY								
U18HS110EH	English language and communication-I	2	-	-	3	60	40	2
U18BS120MA	Engineering Mathematics-I	3	-	-	3	60	40	3
U18BS130PH	Semiconductor Physics (CSE & IT)	2	-	-	3	60	40	2
U18BS132PH	Waves and Optics (ECE)							
U18BS140CH	Chemistry-I	2	-	-	3	60	40	2
U18ES150CS	Programming for Problem Solving	3	-	-	3	60	40	3
U18ES160EE	Basic Electrical Engineering	2	-	-	3	60	40	2
U18ES170CE	Engineering Drawing-I	1	-	2	3	60	40	2
PRACTICALS								
U18HS111EH	English language and communication skills Lab- I	-	-	2	3	50	30	1
U18BS131PH	Physics Lab-I and	-	-	2	3	25	15	0.5
U18BS141CH	Chemistry Lab -I				3	25	15	0.5
U18ES151CS	Programming for Problem Solving lab	-	-	2	3	50	30	1
U18ES161EE	Basic Electrical Engineering lab	-	-	2	3	50	30	1
	TOTAL (CSE-ECE-IT)	15	0	10	-	620	400	20
	GRAND TOTAL	25				1020		

B.E I Semester (CIVIL- EEE-MECH BRANCHES)								
Course Code	Name of the Course	Scheme of Instruction				Scheme of Examination		
		Hours per Week			Exam Duration in Hrs	Maximum Marks		Credits
		L	T	P/D		SEE	CIE	
THEORY								
U18HS110EH	English language and communication-I	2	-	-	3	60	40	2
U18BS120MA	Engineering Mathematics-I	3		-	3	60	40	3
U18BS132PH	Waves and Optics (EEE)	2		-	3	60	40	2
U18BS133PH	Oscillations, Waves and Optics (Civil &Mech)							
U18BS140CH	Chemistry-I	2		-	3	60	40	2
U18ES150CS	Programming for Problem Solving	3	-	-	3	60	40	3
U18ES160CE	Basic Engineering Mechanics	3	-	-	3	60	40	3
U18ES180CE	Engineering Graphics-I	1	-	2	3	60	40	2
PRACTICALS								
U18HS111EH	English language and communication skills lab-I	-	-	2	3	50	30	1
U18BS131PH	Physics Lab-I and	-	-	2	3	25	15	0.5
U18BS141CH	Chemistry Lab -I				3	25	15	0.5
U18ES151CS	Programming for Problem Solving lab	-	-	2	3	50	30	1
U18ES171ME	Workshop-I	-	-	2	3	50	30	1
TOTAL (CIVIL-EEE-MECH)		16	0	10		620	400	21
GRAND TOTAL		26				1020		21

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

9-5-81, Ibrahimbagh, Hyderabad-500031, Telangana State

SYLLABUS FOR B.E –I SEMESTER ENGLISH LANGUAGE AND COMMUNICATION -I

Instruction: 2 Hrs /week	SEE Marks :60	Course Code : U18HS110EH
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

<i>Course objectives</i>	<i>Course outcomes</i>
The course will enable the learners to: 1. Understand the role and importance of communication skills 2. Realise the various features and functions and types of human language and communication, verbal and non- verbal. 3. Develop active listening skills and speaking strategies in order to understand various types of texts. 4. Develop the habit of listening effectively to various speakers and lectures. 5. Comprehend the use of words in different contexts and use them to write meaningfully.	At the end of the course the learners will be able to: 1. Greet and converse with friends, teachers, and strangers appropriately. 2. Listen and respond to lectures, talks and take notes. 3. Use language functionally and participate in classroom interactions and in simulated situations. 4. Read, comprehend, and answer different types of texts and make notes. 5. Write paragraphs on any given topic following the rules of grammar and using appropriate vocabulary.

UNIT-I

1.0 Effective communication

1.1 Role and Importance of language and Communication; Functions of communication; Process of Communication; Types of communication - formal and informal; verbal and non verbal; Styles of Communication; Channels of communication; Barriers to effective communication.

UNIT-II

2.0 Listening and Speaking skills

2.1 Importance of listening in effective communication; Active listening

2.2 Speaking skills:-Speaking strategies, Functions of oral communication-introducing a person and speaking about his/her achievements, situational dialogues; telephone etiquette; poster-presentations.

UNIT-III

3.0 Reading and Writing skills

3.1 Sub-skills of Reading; Understanding the functions of different texts, Reading Comprehension

3.2 Written Communication: Styles

- Describing events, people, places, objects
- Defining
- Providing examples or evidence
- Writing introduction and conclusion

3.2.1 Written Communication: Features of Writing:-

Importance of proper punctuation, Creating coherence, Organizing principles of paragraphs in documents, Techniques for writing precisely using appropriate phrases and clauses and linkers.

UNIT-IV

4.0 Vocabulary Building and Grammar (Basic Level)

4.1 Vocabulary Building: The concept of Word Formation; Root words. Prefixes and suffixes; Synonyms, antonyms, and standard abbreviations. Homonyms, Homophones, Synonyms, Antonyms

4.2 Remedial English: Articles, Prepositions; Tense and Aspect; Subject- Verb agreement; Connectives; Direct and Indirect Speech; Common errors

UNIT-V

5.0 Reading skills and Comprehension

5.1 Prose text- In love with Rocket Science- India's Missile Woman

5.2 Poem-A Psalm of Life. By Henry Wadsworth Longfellow.

Learning Resources:

1. Meenakshi Raman and Sangeeta Sharma, Technical communication - Principles and Practice, 2nd Edition, Oxford University Press, 2014.
2. E.SureshKumar, P. Sreehari and J. Savithri, Essential English.
3. Nuttal.J.C, Reading comprehension, Orient Blackswan
4. Sunitha Mishra and C. Murali Krishna, Communication Skills for Engineers, Pearson, 2004.
5. M. Ashraf Rizvi, Effective Technical Communication, Tata Mcgraw Hill. 2005.
6. Allen and Waters, How English Works.
7. Willis Jane, English through English
8. Michael Swan, Practical English Usage, OUP. 1995.
9. F.T. Wood, Remedial English Grammar, Macmillan. 2007
10. William Zinsser, On Writing Well, Harper Resource Book. 2001
11. Liz Hamp-Lyons and Ben Heasley, Study Writing, Cambridge University Press. 2006.
12. Sanjay Kumar and PushpLata, Communication Skills, Oxford University Press, 2011.

SYLLABUS FOR B.E I- SEMESTER
ENGLISH LANGUAGE AND COMMUNICATION SKILLS LAB-I

Instruction: 2Hrs /week	SEE Marks :50	Course Code :U18HS111EH
Credits :1	CIE Marks: 30	Duration of SEE : 3 Hrs

<i>Course objectives</i>	<i>Course outcomes</i>
The course will enable the learners to: 1. identify and describe phonemes in English with the help of the dictionary. 2. learn the speech sounds and distinguish between vowel and consonant sounds in the English language. 3. reduce mother tongue influence when speaking English. 4. understand and follow the rules in debates, group discussions and role plays. 5. develop reading skills and analyse various text types.	At the end of the course the learners will be able:- 1. use language with appropriate pronunciation. 2. modify language use as per the needs of peers. 3. take and make notes in a classroom lecture. 4. participate effectively in group discussions, debates, and role plays. 5. use language coherently using simple language. 7. use dictionary for pronunciation and transcription of words.

1.0 PHONETICS - Computer-aided language learning lab

- 1.1 Introduction to English Phonetics: Introductory to auditory, acoustic and articulatory phonetics. Organs of speech: the respiratory, articulatory and phonatory systems.
- 1.2 Sound System of English: Phonetic sounds, Introduction to International Phonetic Alphabet; The Syllable: Types of syllables Transcription.

2.0 INTERACTIVE COMMUNICATION SKILLS LAB-TOPICS

- 2.1 Group discussion: Objectives of GD, Types of GDs; Initiating, Continuing, and concluding a GD. (Basic Level)
- 2.2 Debate: understanding the difference between a debate and a group discussion, essentials of debate, concluding a debate. (Basic Level)
- 2.3 Role Plays: - Use of structured and semi-structured dialogues in a variety of situations and settings.
- 2.4 Interview Skills - Basic HR questions.

3.0 READING SKILLS LAB – TOPICS

3.1 Teaching different types of texts for comprehension

Viva questions will be asked in internal and external exams on all the components.

Learning Resources:

1. Jayshree Mohanraj, KandulaNirupa Rani and Indira Babbellapati: Speak Well, Orient BlackSwan.
2. T.Balasubramanian: A textbook of English Phonetics for Indian students, Macmillan, 2008.
3. Priyadarshi Patnaik : Group discussion and Interviews, Cambridge University Press India Private Limited 2011.
4. Daniel Jones: Cambridge English Pronouncing Dictionary - A definitive guide to contemporary English Pronunciation
5. Oxford Advanced Learner's Dictionary, 9th edition, Reading Cards (Eng400): Orient Blackswan.

SYLLABUS FOR B.E I-SEMESTER ENGINEERING MATHEMATICS-I

Instruction: 3Hrs /week	SEE Marks :60	Course Code :U18BS120MA
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
<i>The course will enable the students to:</i>	<i>At the end of the course students should be able to:</i>
1. Understand the Mean value theorems, concepts of curvature, radius of curvature evolutes and envelopes and to expand functions using Taylor's series. 2. Acquire knowledge of partial derivatives, and expand functions using Taylor's series functions of two real variables and, maxima- minima. 3. Study the concepts of vector differentiation, Gradient, Divergence and Curl. 4. Learn how to evaluate double and triple integrals, Change of order of integration and change of variables and vector integration and its applications.. 5. Understand infinite series, nature and various tests to check the nature of infinite series .	1. Compute radius of curvature, evolute and envelope of a given curve and also to expand given function using Taylor's series. 2. Expand a given function in terms of Taylor's series and find Maxima and minima of functions of several variables also using Lagrange's method of multipliers. 3. Calculate the gradient and directional derivatives and Curl. 4. Apply given double and triple integrals to evaluate area and volume and to use Green's theorem to evaluate line integrals, Stokes' theorem to give a physical interpretation of the curl of a vector field and the divergence theorem. 5. Identify the given series and apply an appropriate test to check its nature

UNIT-I: Differential Calculus(12 classes)

Introduction to Mean Value Theorems with Geometrical Interpretation(Without Proofs) - Taylor's Series – Expansion of functions on power series- Curvature- Radius of Curvature (Cartesian, Polar and Parametric co-ordinates) – Center of Curvature –Evolutes - Envelopes.

UNIT-II: Multivariable Calculus (10 classes)

Limits- Continuity -Partial Derivatives- Higher Order Partial Derivatives - Total Derivates - Derivatives of Composite and implicit functions - Taylor's series of functions of two variables - Applications of Taylor's series to linear and quadratic approximations - Maxima and Minima of functions of two variables with and without constraints - Lagrange's Method of multipliers.

UNIT–III: Vector Differential Calculus(8 classes)

Scalar and Vector point functions -Vector Differentiation-Level Surfaces- Gradient of a scalar point function- Normal to a level surface- Angle between the surfaces- Equation of Tangent plane- Directional Derivative – Divergence and Curl of a Vector field-Conservative vector field- Vector Identities(without Proofs).

UNIT–IV: Vector Integral Calculus(14 classes)

Multiple Integrals : Double and Triple integrals(Cartesian) - Change of order of integration-Change of variables from Cartesian to Polar Coordinates- Applications to evaluate area and volume.

Vector Integration: Line, Surface and Volume integrals- Green's Theorem – Gauss Divergence theorem - Stokes's Theorem. (all theorems without proof).

UNIT–V:Infinite Series(8 classes)

Sequences- Series – Convergence and Divergence- Series of positive terms-Geometric series- p-series test - Comparison tests - D'Alembert's Ratio Test – Raabe's Test – Cauchy's root test - Alternating Series – Leibnitz test – Absolute and Conditional convergence.

Learning Resources:

1. R. K. Jain and S. R. K. Iyengar, Advanced Engineering Mathematics, 3rd Edition, Narosa Publishing House.
2. B. S. Grewal, Higher Engineering Mathematics, 40th Edition, Khanna Publishers.
3. Erwin Kreyszig, Advanced Engineering Mathematics, 8th Edition, John Wiley & Sons.
4. Shanti Narayan, Differential Calculus, S. Chand & Co
5. B. V. Ramana, Higher Engineering Mathematics,, 11th Reprint 2010, Tata Mc-Graw Hill, New-Delhi
6. <http://mathworld.wolfram.com/topics>
7. <http://www.nptel.ac.in/course.php>

**SYLLABUS FOR B.E I-SEMESTER
SEMICONDUCTOR PHYSICS
(for CSE and IT branches)**

Instruction: 2Hrs /week	SEE Marks :60	Course Code : U18BS130PH
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
<i>The student will be able to</i> 1. aware of limits of classical free electron free theory and to apply band theory of solids 2. acquire knowledge on various properties of semiconductors. 3. grasp the intricacies in semiconductor-optical interaction	<i>At the end of the course, the student should at least be able:</i> 1. distinguish materials based on band theory of solids 2. classify semiconductors on the basis of doping and to estimate conductivity and learn transport phenomenon in semiconductors 3. appreciate use of optical absorption by semiconductors. 4. Selection of semiconductor for optoelectronic devices.

UNIT-I: FUNDAMENTALS OF CRYSTAL STRUCTURE (8 hours)

Introduction-Space lattice, Basis, Unit cell, Bravais lattices and crystal systems, X-ray diffraction, Bragg's law, powder x- ray diffraction-Miller Indices-types of solids: crystalline, polycrystalline and amorphous materials, point defects: Schottky, Frankel defects, compositional and substitutional impurities- NaCl, ZnS and diamond crystal structure.

UNIT-II: BAND THEORY OF SOLIDS (8 hours)

Classical free electron theory (Drude theory) and its limitations, Sommerfeld theory, Fermi-Dirac Statistics- Density of states, Schrodinger wave equation for a particle in a box, Kronig-Penny model (introduction to origin of band gap), Energy bands in solids, E-k diagram, Qualitative treatment of density of states for bulk, thin and nano materials, energy band diagrams. Types of electronic materials: metals, semiconductors, and insulators, effective mass, concept of hole, direct and indirect band gap semiconductors.

UNIT-III:INTRINSIC AND EXTRINSIC SEMICONDUCTORS(8hours)

Intrinsic semiconductors, extrinsic semiconductors-doping, acceptor and donor impurities, expression for intrinsic and extrinsic carrier concentration (equilibrium carrier statistics), conductivity of intrinsic and extrinsic semiconductor, dependence of Fermi level on carrier-concentration and temperature, mobility, current density, Hall effect

UNIT-IV:TRANSPORT PHENOMENON IN SEMICONDUCTORS (8hours)

continuity equation, diffusion and drift currents, law of mass action, diffusion coefficient, diffusion length, carrier life time, P-N junction diode formation, diode in equilibrium without bias, calculation of depletion layer width metal-semiconductor junction (Ohmic and Schottky).

UNIT-V: SEMICONDUCTOR INTERACTION WITH RADIATION (8hours)

Optical transitions in bulk semiconductors: induced absorption, spontaneous emission, and stimulated emission; transition probabilities and Fermi's golden rule, optical absorption, optical loss and gain; Photovoltaic effect, exciton, radiative and non-radiative recombination mechanisms in semiconductors (Shockley-Read-Hall (SRH) recombination),Semiconductor materials for optoelectronic devices.

Learning Resources:

1. S. M. Sze, Semiconductor Devices: Physics and Technology, Wiley (2008).
2. M.N. Avadhanulu and P.G. Kshirsagar, A Text Book Engineering Physics, S. Chand, 2014.
3. A.G. Guy, Physical Metallurgy for Engineers, Addison-Wesley Pub. Co.; International Ed edition (1962)
4. Streatman and Ben. G, Solid State Electronic Devices, PHI, 2006
5. Jasprit Singh, Semiconductor Devices Basic Principles, 2000, John Wiley & Sons

SYLLABUS FOR B.E I-SEMESTER
WAVES AND OPTICS
 (for **ECE** and **EEE** branches)

Instruction: 2Hrs /week	SEE Marks :60	Course Code : U18BS132PH
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
<i>The student will be able to</i> 1. learn mathematical formulations of oscillations 2. express the various wave phenomenon exhibited by light 3. gain insight on lasing action and lasers 4. acquire knowledge on optical fiber construction and signal losses in optical fibers. 5. grasp basic concepts of EM waves	<i>At the end of the course, the student should at least be able:</i> 1. solve differential equations that describe the behavior of mechanical oscillators under various conditions 2. apply the fundamental principles of wave optics in relevant fields of engineering. 3. List various types of lasers and their applications 4. Summarize various merits, demerits and applications of optical fibers. 5. Apply Maxwell's equation to derive EM wave equation for different media.

UNIT-I: OSCILLATIONS (8hours)

Definition of SHM, motion of mechanical simple harmonic oscillator, time period of physical pendulum, energy of simple harmonic oscillator, damped harmonic oscillator, logarithmic decrement, energy of damped oscillator, relaxation time, forced oscillator equation and its solution. Resonance, Q-factor, sharpness and electromechanical analogy and Lissajous figure

UNIT-II: WAVE OPTICS (9hours)

Light as an electromagnetic waves, Huygens principle, superposition of waves and interference of light by wavefront splitting and amplitude splitting, interference due to thin film, Newton's rings, interferometers: Michelson and Mach Zehnder.

Fraunhofer diffraction from a single slit- diffraction grating-Rayleigh criterion for limit of resolution, resolving power, dispersive power.

Polarization of light, Brewster angle and Brewster law, Malus law, double refraction.

UNIT-III: LASERS (8hours)

Review of laser physics: induced absorption, spontaneous and stimulate emissions, Einstein's theory of matter radiation interaction- A and B coefficients; amplification of light by population inversion, meta-stable states, pumping mechanisms, components of laser, rate equations for carrier and photon-density and their steady state solutions, different types of lasers: solid state laser (ruby laser, Nd: YAG) gas lasers (He-Ne, CO₂), dye lasers; Properties of laser beams, applications of lasers.

UNIT-IV: OPTICAL FIBRES (7hours)

Introduction, optical fibre as a dielectric wave guide, total internal reflection, numerical aperture, acceptance angle, propagation of light in optical fiber, types of optical fibers based on refractive index and modes of propagation, light sources for optical fibres, various signal losses in optical fibres, application of optical fibres. Block diagram of optical communication system.

UNIT-V: EM THEORY (8hours)

Introduction to electromagnetic waves, basic laws of electricity and magnetism, conduction and displacement currents, Maxwell electromagnetic equations in integral and differential forms, transverse nature of em waves, boundary conditions, electromagnetic wave equations in non-conducting (free space) and conducting medium, energy carried by electromagnetic waves (Poynting vector), skin depth

Learning Resources:

1. A. Ghatak, "Optics", McGraw Hill Education, 2012.
2. Senior, Optical Fiber Communications: Principles and Practice, 3e: Pearson, 2010
3. G. Keiser, Optical communications, Mc Graw Hill, (2010)
4. D. J. Griffiths, "electrodynamics", Pearson Education, 2014.
5. A. P. French, Vibration's and Waves, CRC Press, 2003
6. M.N. Avadhanulu and P.G. Kshirsagar, A Text Book Engineering Physics, S. Chand, 2014.

SYLLABUS FOR B.E I-SEMESTER
OSCILLATIONS, WAVES AND OPTICS
(for Civil and Mechanical branches)

Instruction: 2Hrs /week	SEE Marks :60	Course Code : U18BS133PH
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
The student will be able to 1. learn mathematical formulations of waves and oscillations 2. gain knowledge of ultrasonics 3. express the various wave phenomenon of light 4. grasp basic concepts of EM waves	At the end of the course, the student should at least be able: 1. solve differential equations that describe the behavior of mechanical oscillators under various conditions 2. narrate the production and application of ultrasonics 3. apply the fundamental principles of wave optics in relevant fields of engineering. 4. Apply Maxwell's equation to derive EM wave equation for different media

UNIT-I: OSCILLATIONS (8 hours)

Definition of SHM, motion of mechanical simple harmonic oscillator, time period of physical pendulum, energy of simple harmonic oscillator, damped harmonic oscillator, logarithmic decrement, energy of damped oscillator, relaxation time, forced oscillator equation and its solution. Resonance, Q-factor, sharpness and electromechanical analogy and Lissajous figure

UNIT-II: NON-DISPERSIVE TRANSVERSE AND LONGITUDINAL WAVES (9 hours)

General wave equation of a transverse wave on a string and its solution-velocity of transverse waves- reflection and transmission of waves at a boundary - modes of vibration of stretched string clamped at both ends, characteristics impedance of a string, standing waves equations.

Longitudinal wave equation and velocity-acoustics plane wave equation and speed of sound, Newton-Laplace formula, reflection and transmission of acoustic waves. Waves with dispersion, wave groups and group velocity.

UNIT-III: ULTRASONIC WAVES (7hours)

Introduction- properties of ultrasonics, types of ultrasonic waves, production of ultrasonics: piezoelectric and magnetostrictive methods- detection of ultrasonics: piezoelectric, Kundt's tube, flame test, thermal detector-acoustic grating: ultrasonic velocity measurements, applications of ultrasonics: SONAR, cavitation (cleaning), drilling, sonogram,

UNIT-IV: WAVE OPTICS (8hours)

Light as an electromagnetic waves, Huygens principle, superposition of waves and interference of light by wavefront splitting and amplitude splitting, interference due to thin film, Newton's rings, interferometers: Michelson and Mach Zehnder.

Fraunhofer diffraction from a single slit- diffraction grating-Rayleigh criterion for limit of resolution, resolving power, dispersive power.

Polarization of light, Brewster angle and Brewster law, Malus law, double refraction.

UNIT-V: EM THEORY (7hours)

Introduction to electromagnetic waves, basic laws of electricity and magnetism, conduction and displacement currents, Maxwell electromagnetic equations in integral and differential forms, transverse nature of em waves, boundary conditions, electromagnetic wave equations in non-conducting (free space) and conducting medium, energy carried by electromagnetic waves (Poynting vector), skin depth

Learning Resources:

1. A. Ghatak, "Optics", McGraw Hill Education, 2012
2. M.N. Avadhanulu and P.G. Kshirsagar, A Text Book Engineering Physics, S. Chand, 2014.
3. D. J. Griffiths, "Electrodynamics", Pearson Education, 2014.
4. A. P. French, Vibration's and Waves, CRC Press, 2003

SYLLABUS FOR B.E I-SEMESTER PHYSICS LABORATORY -I

Instruction: 2Hrs /week	SEE Marks :25	Course Code :U18BS131PH
Credits : 0.5	CIE Marks: 15	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
Students are able to 1. Make precise measurements using basic physical principles and acquire skills to handle the instruments 2. Relates the theoretical Knowledge to the behavior of Practical Physical world. 3. Analyze errors in the experimental data. 4. Plot graphs between various physical parameters.	The students acquire the ability to 1. Conduct experiments, take measurements independently. 2. Write appropriate laboratory reports. 3. Compute and compare the experimental results and draw relevant conclusions. 4. Use the graphical representation of data and estimate results from graphs.

LIST OF EXPERIMENTS

1. Determination of characteristics of given laser.
2. Study of I-V characteristics of P-N Junction diode
3. Calculation of numerical aperture, acceptance angle and power loss due to bending of an optical fiber & to study power loss.
4. Zener diode characteristics and voltages Regulation
5. Determination of wavelength of spectral lines of Mercury light source using diffraction grating under normal incidence.
6. Determination of energy gap of a given semiconductor
7. Study of V-I characteristics of solar cell & to calculate fill factor, efficiency & series resistance.
8. Determination of radius of curvature of a given Plano-convex lens by forming Newton's Rings.
9. Temperature Characteristics of thermistor
10. Fly Wheel –determination of moment of inertia.
11. Torsional Pendulum to calculate rigidity modulus of two different wires
12. Michelson's interferometer
13. Characteristics of Photodiode

• ***Students should perform a minimum of 6 experiments***

Learning Resources:

1. Worshnop B.L. and Flint H.T. Advanced Practical Physics, KPH
2. Gupta S. L. and Kumar. V Practical Physics, Pragati Prakashan
3. Chauhan & Singh, Advanced Practical Physics Vol.I& II, Pragati Prakashan.

SYLLABUS FOR B.E I-SEMESTER CHEMISTRY-I

Instruction: 2Hrs /week	SEE Marks :60	Course Code : U18BS140CH
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

LEARNING OUTCOMES

At the end of the course, students should be able to:

1. Construct a galvanic cell and calculate its EMF and pH wherever applicable
2. Diagonize the type of corrosion in a given corrosion problem and suggest a suitable method of corrosion control.
3. Rationalise the properties of refractories and suggest a suitable refractory for a given application
4. Discuss the mechanism of lubrication, properties of lubricants and suggest a suitable lubricant for a given application
5. Rate the fuels and suggest methods for enhancement of the quality of fuels for the required output.
6. Analyse microscopic chemistry in terms of atomic and molecular orbitals and construct molecular orbital diagrams for simple diatomic molecules
7. Interpret UV-Visible and Infrared spectra of simple organic molecules in order to understand their structure

UNIT-I: ELECTROCHEMISTRY (8Hours)

Introduction, electrolytic and galvanic cells. IUPAC convention of cell notation, cell reaction, concept of electrode potential, electro motive force (emf), electro chemical series – applications, Nernst equation-derivation and Numericals. Types of electrodes- Calomel electrode (CE), Quinhydrone electrode and Glass electrode (GE). Determination of p^H using glass electrode. Applications of Potentiometry in Quantitative Analysis: Neutralization titration, Redox titration ($Fe(II)$ Vs $KMnO_4$).

UNIT-II: CORROSION AND ITS CONTROL (8Hours)

Corrosion: Concept of corrosion, gravity of corrosion- Types of corrosion- Mechanism of Chemical & Electro chemical corrosion, Galvanic corrosion, Galvanic series, Formation of anodic and cathodic areas on a single metal- Differential aeration corrosion (Pitting, Water line corrosion), stress corrosion.

Factors affecting corrosion- i. Nature of metal: 1. Relative position of metal in galvanic series. 2. Relative areas of anode & cathode 3. Nature of corrosion product.

ii. Nature of environment: 1. Temperature 2. p^H 3. Humidity.

Corrosion control methods -Principle of cathodic protection- Sacrificial Anodic Protection (SAP), Impressed Current Cathodic Protection (ICCP) Metallic coatings-Anodic & Cathodic coatings- Coating techniques- Electroplating (Cu coating on Fe), Electroless plating (Ni coating on Insulators)

UNIT-III: ENGINEERING MATERIALS (8Hours)

a) Lubricants : Definition, Mechanism of lubrication: Hydro dynamic- Boundary-Extreme pressure lubrication, Classification: solid, semi solid and liquid lubricants, Properties of lubricants: Determination of Viscosity, viscosity index, Saponification number- and its significance, iodine value and its significance. Applications of Lubricants.

b) Refractories: Definition, requirements of a good refractory, classification and properties- Determination of Refractoriness and Refractoriness under load (RUL). Significance of Refractoriness, Refractoriness under load (RUL) Thermal spalling and Porosity. Applications of refractories.

UNIT-IV: CHEMICAL FUELS (8Hours)

Introduction-classification –comparison of solid, liquid and gaseous fuels. Calorific value (CV)-HCV, LCV (Definition and relationship), Dulong's formula-Numericals.

Chemistry of combustion-Numericals by weight-weight method and weight- volume method.

Liquid fuels - Petroleum refining-composition and rating of petrol and diesel (Octane number, cetane number) and its enhancement methods- Anti knocking agents and reforming.

Cracking and significance –Types of cracking- fixed bed catalytic cracking. Bio-Diesel: Source – trans-esterification and advantages.

UNIT-V: MOLECULAR STRUCTURE AND SPECTROSCOPY (8Hours)

a. Molecular orbital theory: Linear Combination of Atomic Orbitals (LCAO), Molecular orbital energy level diagrams of O_2 , N_2 , CO.

Crystal field theory- salient features- splitting of d orbitals of transition metal complexes in octahedral, tetrahedral and square planar complexes.

b. Spectroscopic techniques: Principle and selection rules - Vibrational and electronic transitions of molecules. Working principles - block diagrams of UV visible and IR spectrometers, Applications in structural elucidation. Interpretation of IR spectra of benzene, ethanol and ethylacetate, interpretation of UV visible spectra of benzene and propanone.

Learning Resources:

1. J D Lee, Concise inorganic chemistry, Blackwell science ltd, USA, Fifth edition.
2. PC Jain, M Jain Engineering Chemistry, Dhanapathi Rai & sons (16th edition), New Delhi.
3. Sashi Chawla, Text book of Engineering Chemistry, Dhanapathi Rai & sons, New Delhi.
4. O.G. PALANNA, Engineering Chemistry, TMH Edition.
5. C. N. Banwell, Fundamentals of Molecular Spectroscopy
6. S S Dara, S Chand & sons, Engineering Chemistry, New Delhi.
7. Puri, Sharma and Pathania Principles of physical chemistry, Vishal Publishing Co.
8. P.L Soni and op Dharmarha, S Chand & sons, Text book of Physical Chemistry, New Delhi.
9. NPTEL Polymer Chemistry Course, D. Dhara, IIT Kharagpur
10. B. H. Mahan, University chemistry
11. M. J. Sienko and R. A. Plane, Chemistry: Principles and Applications
12. B. L. Tembe, Kamaluddin and M. S. Krishnan, Engineering Chemistry (NPTEL Web-book),
13. P. W. Atkins, Physical Chemistry
14. K. P. C. Volhardt and N. E. Schore, Organic Chemistry: Structure and Function, 5th Edition

**SYLLABUS FOR B.E I SEMESTER
CHEMISTRY LAB-I**

Instruction: 2Hrs /week	SEE Marks :25	Course Code : U18BS141CH
Credits :0.5	CIE Marks: 15	Duration of SEE : 3 Hrs

LEARNING OUT COMES:

At the end of the course students should be able to:

1. Estimate the amount of the given acid by p^H metry.
2. Construct the galvanic cell and measure the variation of EMF of the cell with the change in concentration.
3. Assess the estimation of iron by instrumental and volumetric techniques.
4. Determine the rate constant of a chemical reaction.
5. Measure molecular/system properties such as viscosity, partition coefficient.

1. Estimation of acid in the test sample using p^H Metry
2. Potentiometric Analysis of the concentration of a given acid.
3. Potentiometric Analysis of the concentration of $FeSO_4$ in the given solution
4. Quantitative determination of ferrous iron in the given solution by permanganometry.
5. Determination of rate constant of acid catalysed hydrolysis of methyl acetate.
6. Determination of viscosity of the given oil using Ostwald viscometer
7. Determination of partition coefficient of acetic acid between butanol and water.
8. Synthesis of a drug namely Aspirin.

Leaning Resources:

1. G H Jeffery, J Bassett, J Mendham, R C Denney, Vogel's text book of quantitative chemical analysis, Fifth Edition.
2. M S Kaurav, Engineering chemistry with laboratory experiments, PHI learning (P) ltd, New Delhi.
3. Sunita rattan, Experimenta in applied chemistry, S K Kataria& Sons (2010)
4. A text book on experiments and calculation Engg. S.S. Dara.

Student shall perform atleast six experiments

**SYLLABI FOR B.E I-SEMESTER
PROGRAMMING FOR PROBLEM SOLVING**

Instruction: 3Hrs /week	SEE Marks :60	Course Code : U18ES150CS
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
Students should be able to	At the end of the course, students will be able to
• Acquire problem solving skills. • Develop flow charts. • Understand structured programming concepts. • Write programs in C Language.	1. Design flowcharts and algorithms for solving a given problem using the fundamentals of programming. 2. Apply decision making, looping constructs and functions to develop programs for a given problem. 3. Store data using arrays and perform searching and sorting operations on the data. 4. Design programs on string handling and operations on arrays using dynamic memory management techniques. 5. Develop programs to store data and perform operations using structures and files.

UNIT-I

Introduction to Computers: Computer Systems, Computing Environments, Computer Languages, Creating and Running Programs, Software Development, Flowcharts.

Number Systems (Binary, Octal, Decimal and Hexadecimal), Representation of Numbers (Fixed and Floating Point).

Introduction to C Language- Background, C Programs, Identifiers, Types, Variables, Constants, Input/Output, Expressions, Precedence and Associativity, Side Effects, Evaluating Expressions, Type Conversion, Statements, Bitwise Operators.

UNIT-II

Selection: Logical Data and Operators, if... else, switch Statements, Standard Functions.

Repetition: Loops, while, for, do-while Statements, Loop Examples, break, continue, goto.

Functions: Designing Structured Programs, Functions Basics, User Defined Functions, Inter-Function Communication, Standard Functions, Scope, Storage Classes-Auto, Register, Static, Extern, Scope Rules and Type Qualifiers.

UNIT-III

Recursion-Recursive Functions, Preprocessor Commands.

Arrays: Concepts, Using Arrays in C, Inter-Function Communication, Array Applications, Two-Dimensional Arrays, Multidimensional Arrays, Linear Search and Binary Search, Selection Sort and Bubble Sort.

UNIT-IV

Pointers: Introduction, Pointers for Inter-Function Communication, Pointers to Pointers, Compatibility, LValue and RValue, Arrays and Pointers, Pointer Arithmetic and Arrays, Passing on Array to a Function, Memory Allocation Functions, Array of Pointers, Programming Applications, Pointers to void, Pointers to Functions, Command Line Arguments.

Strings – Concepts, C Strings, String Input/Output, Functions, Arrays of Strings, String Manipulation Functions.

UNIT-V

Type Definition (typedef), Enumerated Types.

Structure: Definition and Initialization of Structures, Accessing Structures, Nested Structures, Arrays of Structures, Structures and Functions, Pointers to Structures, Self Referential Structures, Unions.

Input and Output: Files, Streams, Standard Library Input/Output Functions, Character Input/Output Functions.

Learning Resources:

1. Forouzan B.A & Richard F. Gilberg, A Structured Programming Approach using C, 3rd Edition (2013), Cengage Learning.
2. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, 2nd Edition (2006), Prentice-Hall.
3. Rajaraman V, The Fundamentals of Computer, 4th Edition (2006), Prentice-Hall of India
4. Steve Oualline, Practical C Programming, 3rd Ed, (2006), O'Reilly Press.
5. Jeri R. Hanly, Elliot B. Koffman, Problem Solving and Program Design in C, 5th Edition, (2007), Pearson Education.
6. Balagurusamy E, Programming in ANSI C, 4th Edition (2008), TMG.
7. Gottfried, Programming with C, 3rd Edition (2010), TMH.
8. RGDromey, How to Solve it by Computer, 1st Edition (2006), Pearson Education.
9. <https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-087-practical-programming-in-c-january-iap-2010/lecture-notes/>
10. <http://nptel.ac.in/syllabus/syllabus.php?subjectId=106104128>

**SYLLABI FOR B.E I-SEMESTER
PROGRAMMING FOR PROBLEM SOLVINGLAB**

Instruction: 2Hrs /week	SEE Marks :50	Course Code : U18ES151CS
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
Students should be able to	At the end of the course, students will be able to
• Understand the fundamentals of programming in C Language. • Write, compile and debug programs in C. • Formulate solution to problems and implement in C. • Effectively choose programming components to solve computing problems.	1. Choose appropriate data type for implementing programs in C language. 2. Design and implement modular programs involving input output operations, decision making and looping constructs. 3. Implement search and sort operations on arrays. 4. Apply the concept of pointers for implementing programs on dynamic memory management and string handling. 5. Design and implement programs to store data in structures and files.

Programming Exercise:

1. Finding maximum and minimum of given set of numbers, finding roots of quadratic equation.
2. Sin x and Cos x values using series expansion.
3. Conversion of binary to decimal, octal, hexadecimal and vice versa.
4. Generating Pascal triangle, pyramid of numbers.
5. Recursion: factorial, Fibonacci, GCD.
6. Matrix addition and multiplication using arrays, linear search and binary search using recursive and non-recursive procedures.
7. Bubble sort and selection sort.
8. Programs on pointers: pointer to arrays, pointer to functions.
9. Functions for string manipulations.

10. Programs on structures and unions.
11. Finding the number of characters, words and lines of given text file.
12. File handling programs.

Learning Resources:

1. Forouzan B.A & Richard F. Gilberg, A Structured Programming Approach using C, 3rd Edition (2013), Cengage Learning.
2. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, 2nd Edition, (2006), Prentice-Hall.
3. Steve Oualline, Practical C Programming, 3rd Edition (2006), O'Reilly Press.
4. Balagurusamy E, Programming in ANSI C, 4th Edition (2008), TMG.
5. <https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-087-practical-programming-in-c-january-iap-2010/lecture-notes/>
6. <http://nptel.ac.in/syllabus/syllabus.php?subjectId=106104128>

SYLLABI FOR B.E I-SEMESTER
BASIC ELECTRICAL ENGINEERING (BEE)
(I SEM: CSE-ECE-IT and II SEM: Civil-EEE-Mech Branches)

Instruction: 2Hrs /week	SEE Marks :60	Course Code : U18ES160EE
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

Course objectives	Course outcomes
The objectives of this course are - To provide an understanding of basics in Electrical circuits - To explain the working principles of Electrical Machines and single phase transformers.	The student will be able - To analyze Electrical circuits to compute and measure the parameters of Electrical Energy. - To comprehend the working principles of Electrical DC Machines. - To Identify and test various Electrical switchgear, single phase transformers and assess the ratings needed in given application. - To comprehend the working principles of electrical AC machines.

UNIT-I: D.C. Circuits

Electrical circuit elements (R, L and C), independent voltage and current sources, Kirchhoff current and voltage laws, Source transformation, Mesh Analysis, Nodal analysis.

UNIT-II: A.C. Circuits

Representation of sinusoidal waveform - peak and rms values, form factor, phasor representation, real power, reactive power, apparent power, power factor, Analysis of single-phase ac series combinations of R-L-C circuits, Three-phase balanced circuits, voltage and current relations in star and delta connections.

UNIT-III: Electrical DC Motors

Construction, Working principle, Types of DC motors, Torque in a DC motor, Characteristic of Series, Shunt and Compound motors, Speed control of DC shunt motors, Applications.

UNIT-IV: Single Phase Transformers and Electrical Installation

Principle of operation, Ideal and practical transformer on No-load and Load, Equivalent circuit, losses in transformers, efficiency, O.C and S.C tests.

Components of LT Switchgear: Switch fuse unit (SFU), MCB, ELCB, MCCB, Types of wires and cables, Earthing. Types of Batteries.

UNIT-V: Electrical AC Machines

Generation of rotating magnetic fields, Construction and working of a three-phase induction motor, Significance of torque-slip characteristic. Speed control of induction motor. Construction and working of synchronous generators.

Learning Resources:

1. D. P. Kothari and I. J. Nagrath, "Basic Electrical Engineering", Tata McGraw Hill, 2010.
2. D. C. Kulshreshtha, "Basic Electrical Engineering", McGraw Hill, 2009.
3. L. S. Bobrow, "Fundamentals of Electrical Engineering", Oxford University Press, 2011.
4. E. Hughes, "Electrical and Electronics Technology", Pearson, 2010.
5. V.K Mehta, Rohit Mehta, "Principles of Electrical Engineering and Electronics", S Chand & Company Ltd, 2006
6. J.B Gupta, A course in electrical installation estimating and costing, reprint 2013, published by S.K.Kataria& sons.
7. V. D. Toro, "Electrical Engineering Fundamentals", Prentice Hall India, 1989.

SYLLABI FOR B.E I-SEMESTER
BASIC ELECTRICAL ENGINEERING (BEE) LAB
(I SEM: CSE-ECE-IT and II SEM: Civil-EEE-Mech Branches)

Instruction: 2Hrs /week	SEE Marks :50	Course Code : U18ES161EE
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hrs

Course objectives	Course outcomes
To impart the practical knowledge on testing of DC and AC Machines and the usage of common electrical measuring instruments.	1. Get an exposure to common electrical components and their ratings. 2. Analyze the performance of DC and AC Machines. 3. Comprehend the usage of common electrical measuring instruments. 4. Test the basic characteristics of transformers and electrical machines.

List of laboratory Experiments/Demonstration:

1. Basic safety precautions and Introduction to use of measuring Instruments-Voltmeter, Ammeter, Multi-meter, Oscilloscope and Passive Elements – Resistors, Capacitors and Inductors.
2. Measuring the steady-state response of R-L-C circuits to a step input.
3. Verification of KCL and KVL.
4. Speed control of three-phase Induction Motor
5. Demonstration of cut-out sections of machines: Dc machine (commutator-brush arrangement), Induction machine (Squirrel cage rotor and Slip ring arrangement), Synchronous machine (cylindrical and salient-pole) and Single-Phase induction machine
6. Torque-Speed characteristics (Brake-Test) of DC Shunt Motor.
7. Torque-Speed characteristics (Brake-Test) of DC series motor.
8. Speed Control of DC shunt motor.
9. Loading of a transformer: measurement of primary and secondary voltages, currents and power.
10. O.C and S.C test on single-phase transformer.
11. Three-phase Induction motor direction reversal by change of phase sequence of connections and Torque-Slip characteristics of Squirrel cage Induction Motor.
12. Load Test on synchronous generator and maintain constant voltage across the load by changing field excitation.

SYLLABI FOR B.E I-SEMESTER
BASIC ENGINEERING MECHANICS (BEM)
(**I Sem**: Civil-EEE-Mech and **II SEM**:CSE-ECE-IT)

Instruction: 3Hrs /week	SEE Marks :60	Course Code : U18ES160CE
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	At the end of the course, students will be able to:
1. Explain the resolution of a system of forces (coplanar, spatial, concurrent, non-concurrent) and compute their resultant. 2. Solve particle equilibrium problem using equation of equilibrium 3. Determine forces in the members of a truss 4. Perform analysis of bodies lying on rough surfaces. 5. Locate the centroid of a body and also compute the area moment of inertia of standard and composite sections.	1. Determine resultant of forces acting on a body. 2. Analyse equilibrium of a body subjected to a system of forces. 3. Perform analysis of trusses using method of joints and method of sections. 4. Solve problem of bodies subjected to friction. 5. Find the location of centroid and calculate moment of inertia and polar moment of inertia of a given section.

UNIT-I: Force Systems:

Rectangular components, moment, couple and resultant of two dimensional and three dimensional force systems.

UNIT-II: Equilibrium of Force Systems:

Free body diagram, Equations of equilibrium, Equilibrium of planar and spatial system.

UNIT-III:Determinate Trusses:

Analysis of plane trusses like warren girder, Pratt truss, fink truss etc using method of joints and method of sections.

UNIT-IV: Friction: Laws of friction. Application to simple systems, Connected systems and belt friction, Wedge friction.

UNIT-V: Centroid and Moment of Inertia:

Centroids of lines, areas and volumes, Moment of inertia of areas, Composite areas, Polar moment of inertia, Radius of gyration.

Learning Resources:

1. Singer F.L "Engineering Mechanics", Harper & Collins, Singapore, 3rd Edition 2011.
2. Timoshenko S.P and Young D.H "Engineering Mechanics", McGraw Hill International Edition, 1983
3. Andrew Pytel., JaanKiusalaas., "Engineering Mechanics", Cengage Learning, 2014.
4. Beer F.P & Johnston E.R Jr. Vector "Mechanics for Engineers", TMH, 2004.
5. Hibbeler R.C & Ashok Gupta, "Engineering Mechanics", Pearson Education, 2010.
6. Tayal A.K., "*Engineering Mechanics – Statics & Dynamics*", Umesh Publications, 2011.
7. Basudeb Bhattacharyya., "Engineering Mechanics", Oxford University Press, 2008.
8. Meriam. J. L., "Engineering Mechanics", Volume-I Statics, John Wiley & Sons, 2008.
9. NPTEL Course (www.nptel.ac.in)
10. Virtual labs (www.vlab.co.in)

**SYLLABUS FOR B.E I-SEMESTER
ENGINEERING GRAPHICS-I
(For CIVIL, EEE AND MECH branches)**

Instruction: 1+2Hrs /week	SEE Marks :60	Course Code :U18ES180CE
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	At the end of the course, students will be able to:
1. Impart skills of drawing instruments and their use to convey exact and complete information of any object. 2. Explore various scales in Engineering practice 3. Construct engineering curves. 4. Prepare orthographic projections of points, lines, planes and solids	1. Identify the qualities of precision and accuracy. 2. Convey technical information effectively through sketches/drawings. 3. Construct engineering curves with different methods. 4. Develop the conics using different methods, cycloidal and involutes. 5. Draw the orthographic projection of points, lines, planes and solids.

UNIT-I:

Introduction: Instruments and their uses, lettering, types of lines and dimensioning methods.

Scales: Reduced and Enlarged scales, Representative fraction, Scales: plain, diagonal and vernier.

UNIT-II:

Engineering curves: Ellipse, Parabola, Hyperbola, Cycloid, Epicycloid, Hypocycloid and Involute.

UNIT-III:

Projections of points and straight lines: Orthographic projection, Projection of points placed in different quadrants, Projection of straight lines inclined to one and two reference planes placed in first quadrant only, Traces.

UNIT-IV:

Projections of planes: Projection of perpendicular planes, Oblique planes, Traces of planes, use of Auxiliary plane method.

UNIT-V:

Projection of solids: Polyhedra, Solids of revolution, Projections of solids in simple position (prisms, pyramids, cylinders and cone), axis inclined to one plane, Axis inclined to both the reference planes, Projection of solids using auxiliary plane method.

Learning Resources:

1. Bhatt N.D. "Elementary Engineering Drawing", Charotar Publishers, 2014.
2. Thomas E French, Charles J Vierck, Robert J. Foster, "Engineering Drawing and Graphic Technology", McGrawHill Education, 1993.
3. Gill P.S. "Engineering Drawing: Geometrical Drawing", S K Kataria & sons, 2012.
4. Venugopal.K "Engineering Drawing and Graphics Plus Autocad", NewAge International(P)Ltd., NewDelhi, 2010.
5. Siddiquee A. N "Engineering Drawing with a Primer on Autocad", Prentice Hall of India Ltd., New Delhi, 2004.
6. Basanth Agrawal, Agrawal C.M "Engineering Graphics" First Edition, TataMcGraw Hill, 2012
7. BVR Gupta, M. RajaRoy, "Engineering Drawing with AutoCad", IK Int Pvt Ltd, 2009
8. NPTEL Course and (www.nptel.ac.in)
9. Virtual labs (www.vlab.co.in)

**SYLLABUS FOR B.E I-SEMESTER
ENGINEERING DRAWING-I
(for CSE, ECE and IT branches)**

Instruction: 1+2Hrs /week	SEE Marks :60	Course Code :U18ES170CE
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	At the end of the course, students will be able to:
1. Impart skills of drawing instruments and their use to convey exact and complete information of any object.	1. Identify the qualities of precision and accuracy.
2. Explore various scales in Engineering practice	2. Convey technical information effectively through sketches/drawings.
3. Construct engineering curves and polygons.	3. Construct plain, diagonal and vernier scales
4. Prepare orthographic projections of points, lines, planes and solids	4. Construct engineering curves by general method and rectangular method.
	5. Draw the orthographic projection of points, lines, planes and solids.

UNIT-I:

Introduction: Instruments and their uses, lettering, types of lines and dimensioning methods.

Scales: Reduced and Enlarged scales, Representative fraction, Scales: plain, diagonal and vernier.

UNIT-II:

Engineering curves: Ellipse, Parabola, Hyperbola by general method and rectangular method their applications.

Polygons: Regular polygons using general method.

UNIT-III:

Projections of points and straightlines: Orthographic projection, Projection of points placed in different quadrants, Projection of straightlines inclined to one and two reference planes placed in first quadrant only, Traces.

UNIT-IV:

Projections of planes: Projection of perpendicular planes, Oblique planes, Traces of planes.

UNIT-V:

Projection of solids: Polyhedra, Solids of revolution, Projections of solids in simple position (prisms, pyramids, cylinders and cone), axis inclined to one plane only. Projection of solids using auxiliary plane method.

Learning Resources:

1. Bhatt N.D. "Elementary Engineering Drawing", Charotar Publishers, 2014.
2. Thomas E French, Charles J Vierck, Robert J. Foster, "Engineering Drawing and Graphic Technology", Mc Graw Hill Education, 1993.
3. Gill P.S. "Engineering Drawing: Geometrical Drawing", S K Kataria & sons, 2012.
4. Venugopal.K "Engineering Drawing and Graphics Plus Autocad", NewAge International(P)Ltd., NewDelhi, 2010.
5. Siddiquee A.N "Engineering Drawing with a Primer on Autocad", Prentice Hall of India Ltd., NewDelhi, 2004.
6. Basanth Agrawal, Agrawal C.M "Engineering Graphics" First Edition, TataMcGraw Hill, 2012
7. BVR Gupta, M RajaRoy, "Engineering Drawing with Auto Cad", IK Int PvtLtd, 2009
8. NPTEL Course and (www.nptel.ac.in)
9. Virtual labs (www.vlab.co.in)

SYLLABUS FOR WORKSHOP -I

(I Sem: Civil-EEE-Mech and II SEM: CSE-ECE-IT branches)

Instruction: 2Hrs /week	SEE Marks :50	Course Code :U18ES171ME
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hrs

Course Objective	Course Outcomes
The course will enable the students to:	At the end of the course, students will be able to:
- Know basic workshop processes, be able to read and interpret job drawings - Adopt safety practices while working with various tools - identify, select and use various marking, measuring, holding, striking and cutting tools & equipments. - Practice the correct use of hand tools - Manufacture items with intolerance and inspect the job for specified dimensions	- interpret and use marking and cutting tools in Carpentry, Fitting, Electrical & Electronics and Tin smithy trades for engineering applications. - create models in Carpentry, Fitting, Electrical & Electronics and Tin smithy trades by using the relevant tools. - measure and Inspect the finished components using suitable measuring instruments. - apply basic electrical and electronics engineering knowledge to make simple electrical circuits and check their functionality along with practice in soldering of electronic components.

FITTING (6 hrs.)

1. Templatefitting(squarefit)
2. V-groovefit
3. DrillingandTapping
4. Assembly of pulley on a shaft with key(demo)

ELECTRICAL & ELECTRONICS (6 hrs.)

1. Twolampsin(a)series(b) parallelwith 3 pin plug and switches
2. Staircasewiring and Tube lightwiring
3. (a) Identification of electronic components
(b) Soldering practice
4. LT Distribution with loads (Demo)

CARPENTRY (6 hrs.)

1. Half-lapjoint
2. Dove-tailjoint
3. Bridlejoint
4. Woodturningoperation(demo)

TIN SMITHY (6 hrs.)

1. Rectangular Box
2. Rectangularscoop with handle
3. MakingaFunnel with soldering
4. MakingaT-Joint.

**PLASTIC MOULDING
(2 hrs.)**

Injection moulding of plastic spoon (demo)

Learning Resources:

- 1.Hajra Choudhury S.K., Hajra Choudhury A.K., Nirjar Roy S.K. "Elements of Workshop Technology" Vol-I 2008 & Vol-II 2010 Media Promoters & Publishers Pvt. Limited, Mumbai.
- 2.Kalpakistan S. and Steven S. Schmid, "Manufacturing Engineering and Technology" 4th Edition, Pearson Education India Edition, 2002.
- 3.Gowri P., Hariharan and Suresh Babu A., "Manufacturing Technology-I", Pearson Education 2008.
- 4.P. Kannaiah& K. L. Narayana "Workshop manual" 2nd Ed., Scitech publications (I) Pvt. Ltd., Hyderabad.
- 5.B.L. Juneja, "Workshop Practice", Cengage Learning India Pvt. Limited, 2014.
- 6.www.technologystudent.com
- 7.www.mewelding.com

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

Ibrahimbagh, Hyderabad-500 031, Telangana State

SCHEME OF INSTRUCTION AND EXAMINATIONS FOR B.E IISEMESTER W.E. F 2018-19 (CBCS)

B.E II Semester (CSE-ECE-IT BRANCHES)								
Course Code	Name of the Course	Scheme of Instruction				Scheme of Examination		
		Hours per Week		Exam Duration in Hrs	Maximum Marks	Credits		
		L	T				P/D	
THEORY								
U18HS210EH	English language and communication-II	2		-	3	60	40	2
U18BS220MA	Engineering Mathematics-II	3		-	3	60	40	3
U18BS230PH	Optoelectronic Devices (CSE & IT)	2		-	3	60	40	2
U18BS232PH	Quantum Mechanics & Semiconductor Physics(ECE)							
U18BS240CH	Chemistry-II	2	-	-	3	60	40	2
U18ES250EC	Introduction to Electronics Engineering (CSE)	3			3	60	40	3
U18ES250CS	Object oriented programming through C++ (ECE)							
U18ES250IT	Data Structures (I.T)							
U18ES160CE	Basic Engineering Mechanics	3	-	-	3	60	40	3
U18ES270CE	Engineering Drawing-II	1	-	2	3	60	40	2

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SCHEME OF INSTRUCTION AND EXAMINATIONS (CBCS) FOR B.E IISEMESTER W.E. F 2018-19 (CBCS)

B.E II Semester (CSE-ECE-IT BRANCHES)								
Course Code	Name of the Course	Scheme of Instruction				Scheme of Examination		
		Hours per Week		Exam Duration in Hrs	Max Marks		Credits	
		L	T		P/D	SEE		CIE
PRACTICALS								
U18HS211EH	English language and communication skills lab-II	-	-	2	3	50	30	1
U18BS231PH	Physics Lab-II	-	-	2	3	25	15	0.5
U18BS241CH	Chemistry Lab -II	-	-		3	25	15	0.5
U18ES251EC	Introduction to Electronics Engineering Lab (CSE)	-	-	2	3	50	30	1
U18ES251CS	Object oriented programming using C++ Lab (ECE)							
U18ES251IT	Data Structures Lab (I.T)							
U18ES171ME	Workshop-I	-	-	2	3	50	30	1
TOTAL (CSE-ECE-IT)		16	0	10		620	400	21
GRAND TOTAL		26			1020			21

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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SCHEME OF INSTRUCTION AND EXAMINATIONS (CBCS) FOR B.E IISEMESTER W.E. F 2018-19

B.E II Semester (CIVIL- EEE-MECH BRANCHES)

B.E II Semester (CIVIL- EEE-MECH BRANCHES)									
Course Code	Name of the Course	Scheme of Instruction				Scheme of Examination			
		Hours per Week		Exam Duration in Hrs	Maximum Marks	Credits			
		L	T				P/D		
THEORY									
U18HS210EH	English language and communication-II	2	-	-	3	60	40	2	
U18BS220MA	Engineering Mathematics-II	3		-	3	60	40	3	
U18BS232PH	Quantum Mechanics & Semiconductor Physics (EEE)	2		-	3	60	40	2	
U18BS233PH	Applied Physics (CIVIL-MECH)								
U18BS240CH	Chemistry-II	2		-	3	60	40	2	
U18ES160EE	Basic Electrical Engineering	2	-	-	3	60	40	2	
U18ES250CE	Engineering Graphics-II	1	-	2	3	60	40	2	
U18ES260CE	Engineering Mechanics	3		-	3	60	40	3	
PRACTICALS									
U18HS211EH	English language and communication skills Lab-II	-	-	2	3	50	30	1	
U18BS231PH	Physics Lab-II	-	-	2	3	25	15	0.5	
U18BS241CH	Chemistry Lab -II				3	25	15	0.5	
U18ES161EE	Basic Electrical Engineering lab	-	-	2	3	50	30	1	
U18ES271ME	Workshop -II	-	-	2	3	50	30	1	
TOTAL (CIVIL-EEE-MECH)		15	0	10		620	400	20	
GRAND TOTAL		25				1020		20	

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

9-5-81, Ibrahimbagh, Hyderabad-500031, Telangana State

SYLLABUS OF B.E –II SEMESTER ENGLISH LANGUAGE AND COMMUNICATION-II

Instruction: 2Hrs /week	SEE Marks :60	Course Code : U18HS210EH
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objective	Course Outcomes
To enable the students to	At the end of the course, students will be able to:
1. Participate confidently in discussions both in the classroom and in the real world. 2. Work in teams, share ideas, agree and disagree politely. 4. Communicate in interpersonal and intrapersonal contexts. 5. Read and write letters independently. 6. Write sustained piece of texts exhibiting qualities of coherence and cohesion.	At the end of the course the:- 1. Adapt and cooperate with people in varied contexts to function effectively in teams. 2. Give and receive clear messages to communicate effectively, individually as well as in groups. 3. Compose coherent letters, essays and resumes for varied situations. 4. Interpret and write a piece of text with coherence and cohesion. 5. Identify words for use both in informal and formal contexts. 6. Construct sentences accurately for speaking and writing.

UNIT-1

1.0 Interpersonal Communication

- 1.1 Johari Window
- 1.2 Team building skills and team work
- 1.3 Persuasion techniques

UNIT-2

2.0 Speaking skills

- 2.1 Speaking strategies:- Making Power Point Presentations (research oriented topics)

UNIT-3

3.0 Writing Practices

- 3.1 Précis Writing
- 3.2 Essay Writing-General and Creative
- 3.3 Email-etiquette
- 3.4 Request letters
- 3.5 Application letters and resume

UNIT-4

4.0 Advanced Remedial English and Vocabulary:- (In context)

- 4.1 Grammar-Active and Passive Voice; Subject-Verb agreement
- 4.2 Vocabulary:- Words often confused; one-word substitutes; collocations; phrasal verbs; idiomatic usage.

UNIT-5

5.0 Reading skills and Comprehension

- 5.1 Getting acquainted with major type of questions
- 5.2 Prose text - The Inventor of the e-mail.
- 5.3 Poem by William Wordsworth - The world is too much with us.

Learning Resources:

1. Meenakshi Raman and Sangeeta Sharma, Technical Communication - Principles and Practice. Oxford University Press. (2nd Edition 2014)
2. P. Sreehari and J. Savithri, Essential English. E.Sureshkumar,
3. Nuttal.J.C., Reading comprehension Orient Blackswan
4. Sunitha Mishra and C. Murali Krishna, Communication Skills for Engineers. Pearson. 2004.
5. M. Ashraf Rizvi, Effective Technical Communication. Tata Mcgraw Hill. 2005.
6. Allen and Waters, How English Works.
7. Willis Jane, English through English.
8. Michael Swan, Practical English Usage.. OUP. 1995.
9. F.T. Wood, Remedial English Grammar, Macmillan.2007
10. William Zinsser, On Writing Well, Harper Resource Book. 2001
11. Liz Hamp-Lyons and Ben Heasley, Study Writing, Cambridge University Press. 2006.
12. Sanjay Kumar and PushpLata, Communication Skills, Oxford University Press. 2011.

SYLLABUS OF B.E –II SEMESTER
ENGLISH LANGUAGE AND COMMUNICATION SKILLS LAB-II

Instruction: 2Hrs /week	SEE Marks :50	Course Code : U18HS211EH
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hrs

Course Objective	Course Outcomes
To enable the students to	At the end of the course, students will be able to:
1. Use language effectively without mother tongue influence. 2. Converse in various situations. 3. Make poster and power point presentations. 4. Listen to audio clippings, exchange dialogues and write short texts. 5. Speak effectively using discourse markers. 6. Read and understand various forms of texts and review them.	1. Pronounce words in isolation as well as in spoken discourse. 2. Research and sift information to make presentations. 3. Comprehend the tone and tenor of various types of speeches from media and classroom lectures. 4. Listen for gist and make inferences from various speeches. 5. Identify connectives and transitions in various speeches. 6. Use connectives and make transitions effectively while speaking.

1.0 PHONETICS - Computer-aided language learning lab

- 1.1 Aspects of Connected Speech: Passages and dialogue reading.
- 1.2 Word Stress: Rules of Word stress and Sentence stress
- 1.3 Rhythm and Intonation: Introduction to rhythm and intonation; Major patterns of intonation in English with their semantic implications. Transcription.

2.0 INTERACTIVE COMMUNICATION SKILLS LAB-(Advanced Level)

- 2.1 Public Speaking: Advantages of public speaking, essentials of an effective speech, researching, planning and delivering a speech.
- 2.2 Presentation Skills: Making Effective Presentations, Expressions which can be used in Presentations, Use of Non-Verbal Communication, Coping with Stage Fright, Handling Question and Answer Session; Use of Audio-Visual Aids, PowerPoint Presentations.

- 2.3 Interview skills- Do's and Dont's, Handling difficult questions, dress code and code of conduct. Viva questions will be asked in internal and external exams.

3.0 READING SKILLS LAB

Study Skills: Use of Dictionary and the thesaurus for vocabulary building.
Teaching different types of texts for comprehension

Viva questions will be asked in internal and external exams on all the components.

Learning Resources:

1. Jayshree Mohanraj, KandulaNirupa Rani and Indira Babbellapati,Speak Well, Orient BlackSwan.
2. T.Balasubramanian: A textbook of English Phonetics for Indian students, Macmillan, 2008.
3. Priyadarshi Patnaik : Group discussion and Interviews, Cambridge University Press India Private Limited 2011.
4. Daniel Jones: Cambridge English Pronouncing Dictionary - A definitive guide to contemporary English Pronunciation
5. Oxford Advanced Learner's Dictionary, 9th edition
6. Reading Cards (Eng400): Orient Blackswan.

SYLLABUS OF B.E II-SEMESTER ENGINEERING MATHEMATICS-II

Instruction: 3Hrs /week	SEE Marks :60	Course Code : U18BS220MA
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
<i>The course will enable the students to :</i>	<i>At the end of the course students should be able to:</i>
1. Study the concepts of matrices, Eigen values and Eigen vectors, Diagonalization and canonical form of a quadratic form. 2. Solve various first order differential equations using various elementary techniques and learn its applications. 3. Solve various Higher order homogeneous and non-homogeneous differential equations with constant and variable coefficients and applications. 4. Understand the Analytic functions, conditions and harmonic functions. 5. Evaluate a line integral of a function of a complex variable using Cauchy's integral formula, and how to evaluate Taylor's and Laurent Series.	1. Find rank of a given matrix, diagonalize a given matrix and reduce a quadratic form to canonical form and find its nature. 2. Identify the differential equations and solve them, model the real time electrical engineering problems viz., RC Circuits into differential equations and solve. 3. Solve various higher order Linear Differential Equations, model the real time electrical engineering problems viz., LC and LCR circuits into differential equations and solve them by using the various applicable techniques learnt. 4. Apply the condition(s) for a complex variable function to be analytic and/or harmonic and to construct an Analytic function. 5. Apply Cauchy's theorem and Cauchy's Integral formula to evaluate complex integrals and define singularities of a function, know the different types of singularities and to expand a given function as a Taylor's / Laurent's series.

UNIT-I Matrices (12 Hours)

Rank of a Matrix- Linearly independence and dependence of Vectors - Eigen values and Eigenvectors- Characteristic equation- Cayley - Hamilton Theorem(without proof)- Diagonalization using Similarity Transformation- Reduction of Quadratic form to canonical form, Rank, Index, Signature and Nature of quadratic form

UNIT – II Ordinary Differential Equations of first order(12 Hours)

Exact first order differential equations - Integrating factors- Linear first order equations - Bernoulli's equation -Clairaut's Equation- Applications of

First Order Differential Equations -Orthogonal trajectories of a given family of curves(Cartesian and Polar families) – LR and RC Circuits.

UNIT – III Linear Differential equations(10 Hours)

Solutions of Homogeneous and Non Homogeneous equations with constant coefficients- Method of Variation of Parameters – Solution of Euler-Cauchy Equation –Applications of linear differential equations to LCR circuits

UNIT – IV Complex Variables (Differentiation) (10 Hours)

Limits and Continuity of function - Differentiability and Analyticity - Necessary & Sufficient Condition for a Function to be Analytic-Cauchy-Riemann Equations in Cartesian and polar Form - Milne-Thomson's method - Harmonic Functions.

UNIT – V Complex Integration(8 Hours)

Cauchy's Theorem - Extension of Cauchy's Theorem for multiply connected regions- Cauchy's Integral Formula - Power series - Taylor's Series - Laurent's Series (without proofs) .

Text Books:

1. Advanced Engineering Mathematics 3rd Edition, R.K.Jain&S.R.K.Iyengar, Narosa Publishing House.
2. Higher Engineering Mathematics 40th Edition Dr. B.S Grewal, Khanna Publishers.
3. A Text book of Engineering Mathematics, N.P.Bali& Manish Goyal, Laxmi Publications.

Learning Resources:

1. Wylie &Barrett,Advanced Engineering Mathematics, Tata Mc Graw Hill, New Delhi.
2. Erwin Kreyszig, Advanced Engineering Mathematics, 8th Edition John Wiley & Sons, Inc.
3. M.D.Raisinghania, Ordinary and Partial Differential equations, S.Chand& Company Ltd.,1997.
4. J.W.Brown and R.V.Churchill, Complex Variables and applications, 7th Edition, Tata Mc Graw Hill,2004.
5. <http://tutorial.math.lamar.edu/Classes/DE/DE.aspx>
6. <http://mathworld.wolfram.com/topics>
7. <http://www.nptel.ac.in/course.php>

**SYLLABUS OF B.E II-SEMESTER
OPTOELECTRONIC DEVICES**
(for **CSE** and **IT** Branches)

Instruction: 2Hrs /week	SEE Marks :60	Course Code :U18BS230PH
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
<i>The student will be able to</i> 7. gain insight on lasing action and lasers 8. learn working of optoelectronic devices 9. acquire knowledge on optical fiber construction and signal losses in optical fibers 10. acquaint with types of sensors and transducers.	<i>At the end of the course, the student should at least be able:</i> 1. acquaint with various types of lasers and their applications 2. apply semiconductor physics to optoelectronic devices 3. Summarize various merits, demerits and applications of optical fibers. 4. Classify various sensors and transducers for different applications

UNIT-I: LED AND PHOTO-DETECTORS (10 Hours)

LEDs: Electro-luminescence, device structure, materials, homo and hetero-junctions, characteristics, figure of merit, advantages and applications of LED. Visible and infrared LEDs.

Photo-detectors: photoconductivity, photodiode, Types of semiconductor photo-detectors: p-n junction, PIN, and Avalanche and their structure, materials, working principle, and characteristics, Noise limits on performance.

UNIT-II: SEMICONDUCTOR LASERS(8 Hours)

Review of laser physics: meta-stable states, population inversion, pumping, components of laser; condition for lasing, rate equations for carrier and photon-density, and their steady state solutions, Laser dynamics, characteristics of lasers. Semiconductor laser: materials, device characteristics, tuneable semiconductor lasers, applications of lasers.

UNIT-III: OPTICAL FIBRES (8Hours)

Introduction, optical fibre as a dielectric wave guide, total internal reflection, numerical aperture, acceptance angle, propagation of light in optical fiber, types of optical fibers based on refractive index and modes of propagation, evanescent field, light sources for optical fibres, various signal losses in optical fibres, application of optical fibres. Block diagram of optical communication system.

UNIT-IV: SOLAR CELLS (7 Hours)

Introduction, solar radiation spectra, construction and working of solar cell, V-I characteristics of solar cell, quantitative treatment of spectral response, conversion efficiency, fill factor, thin film solar cells.

UNIT-V: SENSOR AND TRANSDUCER (7Hours)

Definitions of sensor, actuator and transducer, Sensor/transducers specifications: range, span, error, accuracy, sensitivity, Classification of sensors, bimetallic strips, Resistance temperature detectors (RTDs), thermistors, Thermocouple, photo resistor, application of photo, electro and thermo chromic materials, Piezo electric and pyro-electric sensors and their applications.

Learning Resources:

1. Pallab Bhattacharya, Semiconductor Optoelectronic Devices, PHI, 2002
2. G. Keiser, Optical communications, Mc Graw Hill, (2010)
3. M.N. Avadhanulu and P.G. Kshirsagar, A Text Book Engineering Physics, S. Chand, 2014.
4. D. Patranabi, sensors and transducers, PHI, 2003

SYLLABUS OF B.E II-SEMESTER
QUANTUM MECHANICS AND SEMICONDUCTOR PHYSICS
(for ECE and EEE Branches)

Instruction: 2Hrs /week	SEE Marks :60	Course Code : U18BS232PH
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
The student will be able to 1. demarcate classical and quantum mechanics and gain knowledge on quantum mechanics 2. aware of limits of classical free electron free theory and to apply band theory of solids. 3. acquire knowledge on various properties of semiconductors.	At the end of the course, the student should at least be able: 1. solve quantum mechanical wave equation for particles 2. distinguish materials based on band theory of solids. 3. classify semiconductors on the basis doping and to estimate conductivity 4. explain transport phenomenon in semiconductors

UNIT-I: INTRODUCTION TO QUANTUM MECHANICS (8 hours)

Inadequacy of classical mechanics, photo electric effect, Compton effect, Wave - particle duality, de Broglie waves, Davisson and Germer's experiment, G.P. Thomson experiment, Gaussian wave packet, uncertainty principle, wave function and its physical significance, probability current, postulates of quantum mechanics.

UNIT-II: SOLUTION OF WAVE EQUATIONS (8hours)

Time-dependent and time-independent Schrodinger equation, Born interpretation, Free-particle wave function and solution of stationary-state Schrodinger equation for one dimensional problems: particle in infinite square-well potential, potential barrier and tunnelling (qualitative treatment); calculation of transmission and reflection coefficients, related examples like alpha decay.

UNIT-III: BAND THEORY OF SOLIDS (8hours)

Classical free electron theory (Drude theory) and its limitations, Sommerfeld theory, Fermi-Dirac Statistics- Density of states, Schrodinger wave equation for a particle in a box, Kronig-Penny model (introduction to origin of band gap), Energy bands in solids, E-k diagram, Qualitative treatment of density of states for bulk, thin and nano materials, energy band diagrams.

Types of electronic materials: metals, semiconductors, and insulators, effective mass, concept of hole, direct and indirect band gap semiconductors.

UNIT-IV: INTRINSIC AND EXTRINSIC SEMICONDUCTORS(8 hours)

Intrinsic semiconductors, extrinsic semiconductors-doping, acceptor and donor impurities, expression for intrinsic and extrinsic carrier concentration (equilibrium carrier statistics), conductivity of intrinsic and extrinsic semiconductor, dependence of Fermi level on carrier-concentration and temperature, mobility, current density, Hall effect

UNIT-V: TRANSPORT PHENOMENON IN SEMICONDUCTORS (8 hours)

continuity equation, diffusion and drift currents, law of mass action, diffusion coefficient, diffusion length, carrier life time, P-N junction diode formation, diode in equilibrium without bias, calculation of depletion layer width metal-semiconductor junction (Ohmic and Schottky).

Learning Resources:

1. S. M. Sze, Semiconductor Devices: Physics and Technology, Wiley (2008).
2. Elmer Anderson, Modern Physics and Quantum Mechanics 1e, Saunders College Pub
3. J. Griffiths, "quantum mechanics ", Pearson Education, 2012.
4. John Singleton, Band Theory and Electronic Properties of Solids, OUP, 2001
5. M.N. Avadhanulu and P.G. Kshirsagar, A Text Book Engineering Physics, S. Chand, 2014.

SYLLABUS OF B.E II-SEMESTER
APPLIED PHYSICS
 (for **Civil** and **Mechanical** Branches)

Instruction: 2Hrs /week	SEE Marks :60	Course Code : U18BS233PH
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
The student will be able to 1. gain insight on lasing action and lasers 2. acquire knowledge on optical fiber construction and signal losses in optical fibers 3. grasp the concepts of acoustics 4. learn liquefaction of gasses 5. enumerate properties of magnetic materials and superconductors	At the end of the course, the student should at least be able: 1. acquaint with various types of lasers and their applications 2. summarize various merits, demerits and applications of optical fibers 3. apply the principles of acoustics to minimize the reverberation 4. appreciate liquefaction of air & He and applications of low temperature 5. identify different properties and applications of magnetic and superconducting materials

UNIT-I: LASERS (8Hrs)

Review of laser physics: induced absorption, spontaneous and stimulate emissions, Einstein's theory of matter radiation interaction- A and B coefficients; amplification of light by population inversion, meta-stable states, pumping mechanisms, components of laser, rate equations for carrier and photon-density and their steady state solutions, different types of lasers: solid state laser (ruby laser, Nd: YAG) gas lasers (He-Ne, CO₂), dye lasers; Properties of laser beams, applications of lasers.

UNIT-II: OPTICAL FIBRES (8Hrs)

Introduction, optical fibre as a dielectric wave guide, total internal reflection, numerical aperture, acceptance angle, propagation of light in optical fiber, types of optical fibers based on refractive index and modes of propagation, light sources for optical fibres, various signal losses in optical fibres, application of optical fibres. Block diagram of optical communication system.

UNIT-III: ACOUSTICS (7Hrs)

Classification and Characteristics sound-expression for intensity of sound-reverberation-reverberation time-Sabine's formula-remedies to reverberation- sound absorbent materials-absorption coefficient-conditions for good acoustics of a building-acoustic quieting: effects and remedies

UNIT-IV: LOW TEMPERATURE PHYSICS(9Hrs)

Introduction to low temperature Physics- Porous plug experiment: Joule Thomson effect, Theory of porous plug experiment- J-K effect for a Van der Waal's gas. Relation between inversion temperature, Boyle temperature and critical temperature. Gas-Liquefaction-Regenerative cooling and cascade process- Liquefaction of air: Linde Process, Liquefaction of helium. Properties of cryogenic helium. Applications of cryogenic liquids

UNIT-V: MATERIALS SCIENCE (8Hrs)

Properties of ferro, antiferro and ferri-magnetic (ferrites) materials, Weiss molecular field theory of ferromagnetism- magnetic domains- hysteresis curve-Soft and hard magnetic Materials

General properties of superconductors – Meissner effect, Type I and Type II superconductors-Josephson's Junction-SQUIDS-Applications of superconductors

Learning Resources:

1. Zeemansky, Heat and thermodynamics, Mc Graw Hill, 7th Ed, 1981
2. B.K. Pandey and Chaturvedi, Engineering Physics, Cengage Learning, 2016
3. L. H. Van Vlack ,Elements of Materials Science and Engineering, Addison-Wesley, 1989

**SYLLABUS OF B.E II- SEMESTER
PHYSICS LAB-II**

Instruction: 2Hrs /week	SEE Marks :25	Course Code :U18BS231PH
Credits : 0.5	CIE Marks: 15	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
Students are able to 5. Make precise measurements using basic physical principles and acquire skills to handle the instruments 6. Relates the theoretical Knowledge to the behavior of Practical Physical world. 7. Analyze errors in the experimental data. 8. Plot graphs between various physical parameters.	The students acquire the ability to 5. Conduct experiments, take measurements independently. 6. Write appropriate laboratory reports. 7. Compute and compare the experimental results and draw relevant conclusions. 8. Use the graphical representation of data and estimate results from graphs.

List of Experiments

1. Study of resonance in LCR series & parallel circuits and to find resonant frequency & Q-factor
2. Determine the specific rotatory power of sugar solutions of different concentration by Lorent's half shade polarimeter
3. Physical Pendulum. Compound Pendulum
4. I-V Characteristics Photocell
5. e/m of electron-Thomson's method
6. B-H curve-Hysteresis loss
7. Melde's experiment
8. Cathode Ray Oscilloscope: Measurement of frequency, amplitude and phase
9. Characteristics of PIN diode
10. Seebeck Effect
11. Hall's effect- determination of Hall's coefficient
12. Gyroscope
13. Helmholtz coil

Student should perform any **6 (Six)** experiments in a semester

**SYLLABUS OF B.E II- SEMESTER
CHEMISTRY-II**

Instruction: 2Hrs /week	SEE Marks :60	Course Code :U18BS240CH
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

LEARNING OUTCOMES

At the end of the course students should be able to:

1. Describe the construction, functioning and applications of the selected primary, secondary batteries and the fuel cells
2. Categorise the polymers and discuss the synthesis of a few polymers and their applications.
3. Suggest appropriate treatment methods of water to make it fit for domestic and industrial applications.
4. Discuss the properties, synthesis and applications of nano materials and composite materials & properties and applications of liquid crystals.
5. Analyse a few materials by using instrumental methods namely Atomic Absorption Spectroscopy, Flame Photometry, Visible spectroscopy, Thermogravimetry and Differential Scanning Calorimetry.

UNIT-I: BATTERY TECHNOLOGY (8Hours)

Introduction, basic concepts of battery (power density and energy density), Primary and secondary cells, - Primary batteries: construction and electrochemistry of HgO-Zn battery, Ag₂O-Zn battery and lithium-V₂O₅ battery, secondary batteries: construction and electrochemistry of lead-acid, Ni-Cd and lithium ion battery - advantages and limitations.

Fuel cells: Concept, types of fuel cells and merits-Construction and working of Molten carbonate fuel cell, phosphoric acid fuel cell, electrochemical reactions in these cells and their applications.

UNIT-II: POLYMER CHEMISTRY (8Hours)

Introduction, Degree of polymerization, Functionality of monomers & its effect on the structure of polymers, Classification of polymers-a) Homo and Co-polymers, b) Homo chain and Hetero chain polymers. c) Plastics, Elastomers, Fibers & Resins d) Thermoplastics & Thermosets. Molecular weight- number average & weight average- numerical- - Glass transition temperature – factors affecting T_g. Types of Polymerization - Addition and Condensation polymerization.

Plastics: Preparation, properties and applications of A) Aramid (Kevlar)
B) phenol-formaldehyde (Bakelite)

Elastomers: Natural rubber- Structure – Vulcanization and advantages.

Artificial Rubbers: Preparation, properties and uses of Buna-S, and Silicone rubbers.

Biodegradable polymers: concept, preparation of poly lactic acid-significance

Conducting polymers: Definition- classification- intrinsic and extrinsic, mechanism of conduction in doped polyacetylene -Applications.

UNIT-III: WATER TECHNOLOGY (8Hours)

Hardness of water- types and its units (PPM, mg/liter). Calculation of degree of hardness of water-numericals. Determination of hardness of water by EDTA method -numericals. Alkalinity of water and its determination-Numericals. Boiler troubles- scales & sludges formation & prevention-Calgon method and phosphate conditioning. Softening of water by ion exchange and Reverse Osmosis. Specifications of potable water. Water treatment for drinking purpose- Coagulation, Sedimentation, Filtration, Sterilization by a) Chlorination b) Ozonolysis. Concept of Break Point Chlorination.

UNIT-IV: ADVANCED ENGINEERING MATERIALS (8 Hours)

A. Liquid Crystals:

Introduction, Classification: Thermotropic and Lyotropic liquid crystals. Chemical constitution & liquid crystalline behavior. Molecular ordering in liquid crystals. Nematic, Smectic and Cholesteric- Applications.

B. Nano Materials:

Introduction and properties (electrical, catalytic, magnetic) of nano materials. Synthesis- top down & bottom up approaches- chemical vapor deposition & sol-gel methods. Applications of nano materials.

C. Composites:

Introduction, characteristics, classification, preparation by hand lay up method and applications.

UNIT-V: MODERN ANALYTICAL /INSTRUMENTATION TECHNIQUES IN CHEMICAL ANALYSIS(8 Hours)

A. Visible Spectroscopy: Beer- Lamberts law- estimation of copper sulphate in the given sample

B. Atomic Absorption: Spectroscopy: Principle-working and applications.

C. Flame Photometer: Principle, working and applications

D. Thermal Analysis Techniques: Introduction, Thermogravimetry (TGA) and Differential Scanning Calorimetry (DSC) principles and applications.

Learning resources:

1. PC Jain, M Jain Engineering Chemistry, Dhanapathi Rai & sons (16th edition), New Delhi.
2. Sashi Chawla, Text book of Engineering Chemistry, Dhanapathi Rai & sons, New Delhi.
3. O.G. Palanna, Engineering Chemistry, TMH Edition.
4. SS Dara, S Chand & sons, Engineering Chemistry, New Delhi.
5. Puri, Sharma and Pathania Principles of physical chemistry, Vishal Publishing Co.
6. P. L Soni and op Dharmarha, S Chand & sons, Text book of Physical Chemistry, New Delhi.
7. B.H.Mahan, University Chemistry
8. D. Dhara, NPTEL Polymer Chemistry Course, IIT Kharagpur
9. M. G. Cowie, Stanley Thornes Polymer chemistry and Physics of Modern Materials, 2nd Ed., J, UK, 1998
10. S. M. Lindsay, Introduction to Nano science, Oxford University press.
11. P. C. Hiemenz and T. P. Lodge, Polymer Chemistry, 2nd Ed., CRC Press (2007)
12. P. J. Flory, Principles of Polymer Chemistry, Cornell University Press, 1953

**SYLLABUS OF B.E II- SEMESTER
CHEMISTRY LAB-II**

Instruction: 2Hrs /week	SEE Marks :25	Course Code :U18BS241CH
Credits : 0.5	CIE Marks: 15	Duration of SEE : 3 Hrs

LEARNING OUTCOMES:

At the end of the course, students should be able to:

1. Analyse the hardness and chloride content of a given water sample.
2. Determine the capacity of a given ion exchange resin
3. Measure the cell constant of any given conductivity cell and estimate the amount of acid in a given Solution by conductometry
4. Use the principle of colorimetry in the estimation of Copper(II) and Iron (II) in any given solution
5. Synthesize a polymer

Water Analysis:

1. Determination of total hardness of water by EDTA method.
2. Determination of Chloride content of water/determination of available chlorine in bleaching powder.
3. Ion exchange column for removal of hardness of water

Conductometry:

4. Determination of cell constant of the given conductivity cell.
5. Conductometric acid-base (HCl Vs NaOH & CH₃COOH Vs NaOH) titrations.

Colorimetric Analysis:

6. Estimation of copper(II) in the given test solution
7. Estimation of iron in steel or any other alloy
8. Synthesis of a polymer

**** A student should perform 6 experiments***

Learning Resources:

1. G H Jeffery, J Bassett, J Mendham, R C Denney, Vogel's text book of quantitative chemical analysis, 5th Ed.
2. M S Kaurav, Engineering chemistry with laboratory experiments, PHI learning (P) Ltd, New Delhi.
3. Sunita Rattan, Experimenta in applied chemistry, S K Kataria & Sons (2010)
4. S.S. Dara, A text book on experiments and calculation Engg.

SYLLABUS OF B.E II- SEMESTER
OBJECT ORIENTED PROGRAMMING THROUGH C++
(for ECE Branch)

Instruction: 3Hrs /week	SEE Marks :60	Course Code : U18ES250CS
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
Students should be able to	At the end of the course, students will be able to
• Understand basic notions of object oriented programming • Acquire object-oriented problem solving skills • Write programs in C++	1. Create classes and explain Object Oriented Programming (OOP) concepts 2. Design programs using functions, input/output operations, decision making and looping constructs 3. Implement static polymorphism through function overloading and operator overloading 4. Design programs using inheritance, polymorphism and exception handling 5. Develop the programs for basic data structures using OOP concepts

UNIT-I

Introduction to C++: Programming paradigms, Object Oriented Programming Concepts, Advantages and Applications of OOPs. Variables and Assignments, Input and Output, Data Types, Expressions, Simple Flow Control and Control Structures.

Defining Classes: Structures, Classes, Abstract Data Types.

UNIT-II

Functions: Call by Value, Call by Reference, Parameters using Procedural Abstraction, Testing and Debugging Functions.

I/O Streams as an introduction to Classes and Objects.

Arrays: Introduction to Arrays, Arrays in Functions, Programming with Arrays and Multidimensional Arrays.

UNIT-III

Strings, Pointers and Dynamic Arrays, Recursion, Constructors, Destructors, Copy Constructors.

Static Polymorphism: Function and Operator Overloading, Friend Functions.

UNIT-IV

Inheritance: The Notion of Inheritance, Derived Classes, Overriding, Virtual Base Class.

Runtime Polymorphism, Virtual Functions.

Function Templates and Class Templates.

UNIT-V

Exception Handling: Exception Handling Basics, Programming Techniques for Exception Handling

Linked Lists: Nodes and Linked Lists, Implementation of Stacks and Queues using Arrays and Linked Lists, Operations on Linked Lists- Inserting a Node, Deleting a Node, Searching for a Node.

Learning Resources:

1. Walter Savitch, "Problemsolving with C++", 6th Edition, Pearson Education, 2009.
2. Behrouz A. Forouzan, Richard F. Gilberg, "Computer Science, A Structured Approach using C++", 2nd Edition, Cengage Learning, 2010.
3. Balaguruswamy, "Object-Oriented Programming with C++", 6th Edition, Tata Mc-Graw Hill, 2013.
4. S.B. Lippman, J. Lajoie, "C++ Primer" 3rd Edition, AWPublishing Company, 2007.
5. Bjarne Stroustrup, "The C++ Programming Language", 4th Edition, Addison-Wesley, 2013.
6. <http://nptel.ac.in/courses/106105151/>
7. <https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-096-introduction-to-c-january-iap-2011/>

SYLLABUS OF B.E II- SEMESTER
OBJECT ORIENTED PROGRAMMING THROUGH C++ LAB
(for ECE Branch only)

Instruction: 2Hrs /week	SEE Marks :50	Course Code : U18ES251CS
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
Students should be able to	At the end of the course, students will be able to
• Write, compile and debug programs in C++. • Formulate problems and implement in C++. • Acquire skills to solve computing problems.	1. Design Classes for solving a problem 2. Choose appropriate data types, functions, decision and looping constructs to develop solutions 3. Develop solutions using polymorphism and inheritance 4. Implement dynamic memory allocation, file I/O, templates and exception handling techniques 5. Implement operations on basic data structures

1. Programs on matrix and complex numbers using classes.
2. Programs using constructors, destructors and copy constructors.
3. Programs on dynamic memory allocation for arrays.
4. Programs on static data members and string manipulations.
5. Programs on friend class.
6. Programs on function overloading and operator overloading.
7. Programs on inheritance.
8. Programs on virtual functions, dynamic polymorphism.
9. Programs on function templates, class templates and exception handling.
10. Programs on bubble sort, selection sort and insertion sort.
11. Program on operations in a singly linked list.
12. Program on implementation of stacks and queues using arrays and linked list.

Learning Resources:

1. Walter Savitch, "Problem solving with C++", 6th Edition, Pearson Education, 2009.
2. Behrouz A. Forouzan, Richard F. Gilberg, "Computer Science, A Structured Approach using C++", 2nd Edition, Cengage Learning, 2010.
3. E. Balaguruswamy, "Object-Oriented Programming with C++", 6th Edition, Tata Mc-Graw Hill, 2013.
4. S.B. Lippman, J. Lajoie, "C++ Primer" 3rd Edition, AW Publishing Company, 2007.
5. Bjarne Stroustrup, "The C++ Programming Language", 4th Edition, Addison-Wesley, 2013.
6. <http://nptel.ac.in/courses/106105151/>
7. <https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-096-introduction-to-c-january-iap-2011/>

SYLLABUS OF B.E II-SEMESTER
INTRODUCTION TO ELECTRONICS ENGINEERING
(For CSE Branch)

Instruction: 3Hrs /week	SEE Marks :60	Course Code :U18ES250EC
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
- To understand the characteristics and operation of different electronic devices. - To study the working of transistorised amplifiers and oscillators. - To gain the basic knowledge of digital logic circuits. - To study the working principle of different types of transducers.	At the end of the course students will be able to: - Employ different electronic devices to build electronic circuits such as rectifiers, voltage regulators. - Describe the functioning of electronic circuits such as amplifiers and oscillators. - Implement digital circuits such as adders and subtractors using logic gates. - Have the knowledge of certain electronic devices such as SCR, DIAC, TRIAC, UJT. - Convert real time electrical signals into corresponding signals using different types of transducers.

UNIT - I

Semiconductor Theory: Classification of semiconductors, Energy Levels, Conductivity, Mobility, Diffusion and Drift currents, Hall Effect, Characteristics of P-N Junction diode, Parameters and Applications.

Rectifiers: Half wave and Full wave Rectifiers (Bridge, center tapped), ripple factor and efficiency, comparison of rectifiers, Filters, types of filters, Rectifiers with and without filters

UNIT - II

Transistors: Bipolar Junction Transistor, Construction, Types, Working principle, Configurations, Transistor parameters, Transistor as an amplifier, Problems, h-parameter equivalent circuits. Field effect transistor, Construction and working of JFET, Parameters and applications of JFET, Types of MOSFET (depletion and enhancement), Comparison of BJTs with JFETs; **Regulators:** Characteristics of Zener Diode, Voltage Regulation, Zener diode as voltage regulator, IC voltage regulators.

UNIT - III

Feedback Concepts – Basic concept of feedback, Types of feedback, Feedback topologies, General characteristics of Negative feedback amplifiers; **Oscillators** – Classification of Oscillators, Types, LC Type and RC Type Oscillators and Crystal Oscillators (Qualitative treatment only)

UNIT - IV

Operational Amplifiers – Introduction, Characteristics of ideal Operational amplifier, Operational amplifier stages, Parameters, Open loop and closed loop configurations, Applications (Adder, Subtractor, Voltage follower, Integrator, Differentiator, Instrumentation Amplifier); **Digital circuits:** Boolean Algebra, Logic Gates, Combinational circuits such as half and full adders, half and full subtractors.

UNIT - V

Data Acquisition systems: Introduction, Classification of transducers, Capacitive transducer, Inductive transducer, LVDT, Electrical strain gauges, Temperature transducers (Thermocouple), Piezoelectric transducer, Photoelectric transducer; **Photo Electric Devices:** Photo diode, Photo Transistor, LED, LCD; **Industrial Devices:** SCR, TRIAC, DIAC, UJT - Construction, Working principle and Characteristics only; **Display Systems:** Constructional details of C.R.O and Applications.

Learning Resources:

1. S.Shalivahan, N. Suresh Kumar, A Vallavea Raj Electronic Devices and Circuits Tata McGraw Hill, 2003.
2. Jacob Milman& C., Halkias, Electronic devices Eighth Edition, Reprinted, Mc Graw Hill,1985.
3. Ramakanth A. Gayakwad, Op-AMPS and Linear Integrated Circuits, 3rd edition, Prentice Hall of India,1985.
4. Mooris Mano, Digital design, 3rd edition, Prentice Hall of India,2002.
5. Cooper, Electronic Measurement and Instrumentations.

SYLLABUS OF B.E II-SEMESTER
INTRODUCTION TO ELECTRONICS ENGINEERING LAB
(For CSE Branch)

Instruction: 2Hrs /week	SEE Marks :50	Course Code :U18ES251EC
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
• Verify the characteristics of various electronic devices. • Understand the functioning of voltage regulator and rectifiers. • Perform different arithmetic operations using operational amplifier. • Understand the working of logic gates to implement adder and subtractor.	At the end of the course students will be able to: 1. Verify input/output characteristics of active devices and to compute their parameters. 2. Analyse the functioning of voltage regulators, rectifiers and oscillators. 3. Perform operations such as addition, subtraction, comparison of voltage levels using operational amplifier. 4. Implement digital adders and subtractors using logic gates.

1. Characteristics of Semiconductor (Si and Ge) and Zener diodes
2. CRO Applications
3. Full wave rectifier with and without filter
4. Zener Voltage Regulator
5. Characteristics of BJT (CB and CE)
6. Characteristics of FET
7. Amplifier with and without feedback
8. RC Phase shift oscillator
9. Hartley oscillator and Calpitt's Oscillator
10. Applications of Operational Amplifier: Adder, Subtractor, Comparator.
11. Verifications of Logic gates
12. Realization of Half and Full adder

Learning Resources:

1. Paul B. Zbar, Albert P. Malvino , Michael A. Miller, Basic Electronics, A Text-Lab Manual, 7th Edition, TMH, 1994.
2. Paul B. Zbar, Industrial Electronics, A Text – Lab Manual, 3rd Edition, TMH, 1983.

General Note: There should not be more than 2 students per batch while performing any of the lab experiment.

1. Mini Project cum design exercise:
 - a) The students must design, rig-up, and test the circuits wherever possible and should carry out the experiments individually.
 - b) This exercise carries sessional marks of 10 out of 25, while the remaining 15 marks are for the remaining lab exercises.

SYLLABUS OF B.E II-SEMESTER
DATA STRUCTURES
(For IT Branch)

Instruction: 3Hrs /week	SEE Marks :60	Course Code : U18ES250IT
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
The course will enable the students to:	At the end of the course student will be able to:
Explore efficient storage mechanisms for easy access, design and implementation of various linear data structures.	1. Demonstrate the concepts of programming techniques such as pointers, dynamic memory allocation, structures and abstract data type. 2. Identify appropriate linear data structure to solve a problem. 3. Implement programs using linear data structures. 4. Illustrate the usage of linked lists for various applications. 5. Apply different sorting and searching to a given problem.

UNIT-I

Review C, Complexity Analysis: Time and Space complexity of algorithms, asymptotic analysis, big O and other notations, importance of efficient algorithms, program performance measurement, data structures and algorithms.

UNIT-II

Stacks: Stack Abstract Data Type, Representation of a Stack using Arrays –Implementation of Stack Operations - Stack Applications: Infix to postfix Transformation - Evaluating Arithmetic Expressions.

Queues: Queue Abstract Data Type- Representation of a Queue using array - Implementation of Queue Operations - Applications of Queues - Circular Queues.

UNIT-III

Linked List: Introduction – Singly Linked list -Operations on a singly linked list -Dynamically Linked Stacks and Queues

UNIT-IV

Doubly linked list-Operations on a doubly linked list, Circular Linked list,Polynomial manipulation- Operations,Sparse Matrices.

UNIT-V

Searching: Linear Search, Binary Search.

Sorting: Insertion sort – Quick sort – Merge Sort, Bin sort, Radix Sort.

Learning Resources:

1. Ellis Horowitz, Sartaj Sahni and Susan Anderson-Freed, Fundamentals of Data Structures in C, 2nd Ed, Universities Press, 2008
2. Mark Allen Weiss, Data Structures and Algorithm Analysis in C, Second Edition, Pearson Education, 1996
3. Seymour Lipschutz, Data Structures with C, McGraw Hill, 2011
4. Robert Kruse, C.L.Tondo, Bruce Leung, Shashi Mogalla , Data Structures and Program Design in C, Second Edition, Pearson Education, 2007
5. Jean-Paul Tremblay, Paul G. Sorenson,'An Introduction to Data Structures with Application', TMH, 2ndEdition.
6. Richard F, Gilberg, B.A. Forouzan, "Data Structures, A Pseudocode Approach with C", Cengage, 2ndEdition
7. <http://nptel.ac.in/courses/106106127/>

SYLLABUS OF B.E II-SEMESTER
DATA STRUCTURES LAB
(For IT Branch)

Instruction: 2Hrs /week	SEE Marks :50	Course Code : U18ES251IT
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
The course will enable the students to:	At the end of the course student will be able to:
Develop skills in design and implementation of abstractions of various linear structures and their practical applications.	1. Write programs using dynamic memory allocation. 2. Perform operations on data structures such as stack, queues, linked lists. 3. Implement various searching and sorting techniques. 4. Implement and analyze sorting algorithms.

1. Program using Arrays, Pointers & Dynamic Memory Allocation.
2. Menu driven program that implements Stacks using arrays for the following operations
 - a) create
 - b) push
 - c) pop
 - d) display
3. menu driven program that implements Queues using arrays for the following operations
 - a) create
 - b) insert
 - c) delete
 - d) display
4. menu driven program that implements Circular Queues for the following operations
 - a) create
 - b) Insert
 - c) delete
 - d) display
5. Implementation of Infix to Postfix Conversion
6. Implementation of evaluation of postfix expression.
7. Implementation of Single Linked List.
8. Implementation of Stacks using Single Linked List.
9. Implementation of Queues using Single Linked List.
10. Implementation of polynomial operations using Linked List
11. Implementation of Doubly Linked List.
12. Implementation of Circular Linked List.
13. Implementation of Binary Search.
14. Implementation of Quick Sort.
15. Implementation of Merge Sort.

**SYLLABUS OF B.E II-SEMESTER
ENGINEERING MECHANICS
(Common to Civil, Mech and EEE Branches)**

Instruction: 3Hrs /week	SEE Marks :60	Course Code :U18ES260CE
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to:	At the end of the course student will be able to:
1. Determine the mass moment of inertia and product of inertia of standard and composite sections. 2. Understand the concepts of dynamics and its principles. 3. Explain kinetics and kinematics of particles, projectiles, curvilinear motion, centroidal motion and plane motion of rigid bodies. 4. Impart the concepts of work-energy method and its applications to translation, rotation and plane motion. 5. Impart the concept of impulse momentum relation	1. Compute mass moment of inertia and product of inertia of standard and composite section. 2. Distinguish between statics and dynamics and differentiate between kinematics and kinetics. 3. Understand the kinetics and kinematics of a body undergoing rectilinear, curvilinear, rotatory motion and rigid body motion. 4. Solve problems using work energy equations for translation, fixed axis rotation and plane motion. 5. Solve problems using impulse momentum equation

UNIT-I

Product of Inertia & Mass moment of Inertia: Product of inertia , Mass moment of inertia for solid and composite bodies, Radius of gyration.

UNIT – II

Kinematics: Rectilinear motion, Curvilinear motion, Projectile motion, Velocity and acceleration, Types of rigid body motion, and its analysis in a plane.

UNIT-III

Kinetics: Analysis as a particle, Analysis as a rigidbody in translation, Fixed axis rotation. Rolling bodies, Plane motion.

UNIT –IV

Work Energy: Principles of work-energy and its application to translation, Fixed axis rotation and plane motion.

UNIT-V

Impulse and momentum: Introduction, linear impulse-momentum, principle of conservation of linear momentum, loss of kinetic energy.

Learning Resources:

1. Singer F.L "Engineering Mechanics", Harper & Collins, Singapore, 3rd Edition 2011.
2. Timoshenko S.P and Young D.H., "Engineering Mechanics", McGraw Hill International Edition, 1983.
3. Andrew Pytel, JaanKiusalaas, "Engineering Mechanics", Cengage Learning, 2014.
4. Beer F.P & Johnston E.R Jr. Vector, "Mechanics for Engineers", TMH, 2004.
5. Hibbeler R.C & Ashok Gupta, "Engineering Mechanics", Pearson Education, 2010.
6. Tayal A.K., "Engineering Mechanics – Statics & Dynamics", Umesh Publications, 2011.
7. Basudeb Bhattacharyya, "Engineering Mechanics", Oxford University Press, 2008.
8. Meriam. J. L., "Engineering Mechanics", Volume-II Dynamics, John Wiley & Sons, 2008.
9. NPTEL Course (www.nptel.ac.in)
10. Virtual labs (www.vlab.co.in)

**SYLLABUS OF B.E II-SEMESTER
ENGINEERING GRAPHICS-II
(Common to Civil, Mech & EEE)**

Instruction: 1+2 Hrs /week	SEE Marks :60	Course Code : U1ES250CE
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
The course will enable the students to:	At the end of the course student will be able to:
1. Explain the principles involved in Section of simple solids 2. Develop surfaces of simple solids 3. Explain intersection of cylinder with cylinder and cylinder with cone 4. Differentiate between isometric view and isometric projection 5. Draw orthographic views from pictorial views	1. Draw sectional views of simple solids 2. Develop the lateral surfaces of simple solids 3. Prepare orthographic views of intersection of solids. 4. Visualize isometric view of simple planes, solids and combined solids 5. Construct orthographic views of simple objects from their pictorial views

UNIT-I

Sections of Solids: True shape of sections, sections of prisms, pyramids, cylinders and cones.

UNIT – II

Development of Surfaces: Basic concepts of development of surfaces, Methods of development – Parallel line development and radial line development, Development of prisms, pyramids, Cylinders and cones.

UNIT-III

Intersection of Surfaces: Intersection of cylinder and cylinder, cylinder and cone.

UNIT –IV

Isometric Projections: Isometric scale, Isometric projections of prisms, pyramids, cylinders, cones, spheres, and combinations of two or three solids.

UNIT-V

Conversion of Isometric Views to Ortho-graphic views: Drawing orthographic views from Isometric views for simple objects.

Learning Resources:

1. Bhatt N.D. "Elementary Engineering Drawing", Charotar Publishers, 2014.
2. Thomas E French, Charles J Vierck, Robert J. Foster, "Engineering Drawing and Graphic Technology", Mc Graw Hill Education, 1993.
3. Gill P.S. "Engineering Drawing: Geometrical Drawing", S K Kataria & sons, 2012.
4. Venugopal.K "Engineering Drawing and Graphics Plus Autocad", New Age International(P)Ltd., New Delhi, 2010.
5. Siddiquee A.N "Engineering Drawing with a Primer on Autocad", Prentice Hall of India Ltd., New Delhi, 2004.
6. Basanth Agrawal, Agrawal C.M "Engineering Graphics" First Edition, Tata Mc Graw Hill, 2012
7. BVR Gupta, M.RajaRoy, "Engineering Drawing with AutoCad", IK Int Pvt Ltd, 2009
8. NPTEL Course and (www.nptel.ac.in)
9. Virtual labs (www.vlab.co.in)

**SYLLABUS OF B.E II-SEMESTER
ENGINEERING DRAWING - II
(Common to CSE, IT & ECE)**

Instruction: 1+2Hrs /week	SEE Marks :60	Course Code : U18ES270CE
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
The course will enable the students to:	At the end of the course student will be able to:
1. Explain the principles involved in Section of simple solids 2. Develop surfaces of simple solids 3. Explain intersection of prism with prism and cylinder with cylinder. 4. Differentiate between isometric view and isometric projection 5. Draw orthographic views from pictorial views	1. Draw sectional views of simple solids 2. Develop the lateral surfaces of simple solids 3. Prepare orthographic views of intersection of solids. 4. Visualize isometric view of simple planes, solids and combination of solids 5. Construct orthographic views of simple objects from their pictorial views

UNIT-I

Sections of Solids: True shape of sections, sections of prisms, pyramids, cylinders and cones in simple positions and axis inclined to one reference plane only.

UNIT – II

Development of Surfaces: Basic concepts of development of surfaces, Methods of development – Parallel line development and radial line development, Development of prisms, pyramids, Cylinders and cones.

UNIT-III

Intersection of Surfaces: Intersection of prism and prism, cylinder and cylinder. (With axes bisecting at right angles and axes coincident)

UNIT –IV

Isometric Projections: Isometric scale, Isometric projections of prisms, pyramids, cylinders, cones, spheres, and combinations of two solids.

UNIT-V

Conversion of Isometric Views to Ortho-graphic views: Drawing orthographic views from Isometric views for simple objects.

Learning Resources:

1. Bhatt N.D. "Elementary Engineering Drawing", Charotar Publishers, 2014.
2. Thomas E French, Charles J Vierck, Robert J. Foster, "Engineering Drawing and Graphic Technology", Mc Graw Hill Education, 1993.
3. Gill P.S. "Engineering Drawing: Geometrical Drawing", S K Kataria & sons, 2012.
4. Venugopal.K "Engineering Drawing and Graphics Plus Autocad", New Age International(P)Ltd., New Delhi, 2010.
5. Siddiquee A.N "Engineering Drawing with a Primer on Autocad", Prentice Hall of India Ltd., New Delhi, 2004.
6. Basanth Agrawal, Agrawal C.M "Engineering Graphics" First Edition, Tata Mc Graw Hill, 2012
7. BVR Gupta, M.RajaRoy, "Engineering Drawing with AutoCad", IK Int Pvt Ltd, 2009
8. NPTEL Course and (www.nptel.ac.in)
9. Virtual labs (www.vlab.co.in)

SYLLABUS OF B.E–II SEMESTER
WORKSHOP -II
(Common to Civil, EEEand Mech)

Instruction:2Hrs /week	SEE Marks :50	Course Code : U18ES271ME
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hrs

Course objectives	Course outcomes
The course will enable the students to: 1. adopt safety practices while working with various tools 2. identify, select and use various marking, measuring, holding, striking and cutting tools & equipments. 3. manufacture items with in tolerance and inspect the job for specified dimensions 4. demonstrate knowledge of welding process selection and capabilities. 5. to carry out exercises in metal removal process by using various machines.	At the end of the course students will be able to: 1. identify and apply suitable tools for Smithy, Welding, Plumbing and Machining trades for engineering applications. 2. create models in Smithy, Welding, and Plumbing and Machining trades by using the relevant tools. 3. measure and inspect the finished components using suitable measuring instruments.

LIST OF EXERCISES

I. BLACK SMITHY

1. Flattening (round to square cross section)
2. Bending Operation (U-shape)
3. S-shape hook
4. Fullering Operation (demo)

II. WELDING

1. Bead formation using arc welding
2. Butt joint & T joint using arc welding
3. Lap joint using gas welding
4. Spot welding (demo)

III. PLUMBING

1. Introduction of tools, joints, couplings and valves etc.
2. Pipe thread cutting and making single joint with coupling and tap connection.
3. Water shower connection with reducer coupling
4. Geyser connection(demo)

IV. MACHINING

1. Plain turning and step turning
2. Taper turning
3. Thread Cutting
4. Additive Manufacturing (demo)

Learning Resources:

1. Hajra Choudhury S.K., Hajra Choudhury A.K., Nirjar Roy S.K. "Elements of Workshop Technology" Vol-I 2008 & Vol-II 2010 Media Promoters & Publishers Pvt. Limited, Mumbai.
2. Kalpakjian S. and Steven S. Schmid, "Manufacturing Engineering and Technology" 4th Edition, Pearson Education India Edition, 2002.
4. Gowri P., Hariharan and Suresh Babu A., "Manufacturing Technology-I", Pearson Education 2008.
5. P. Kannaiah & K. L. Narayana "Workshop manual" 2nd Ed., Scitech publications (I) Pvt. Ltd., Hyderabad.
6. B.L. Juneja, "Workshop Practice", Cengage Learning India Pvt. Limited, 2014.
7. www.technologystudent.com

FACULTY MEMBERS

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9	C. Gireesh	Asst Professor	9948021558
10	B. Syamala	Asst Professor	8143006669
11	P. Narsaiah	Asst Professor	8885274002
12	I. Navakanth	Asst Professor	9550578779
13	T. Jalaja	Asst Professor	9949065580
14	T. Nishitha	Asst Professor	9618771043
15	ShanmugaSundari	Asst Professor	9100447815
16	Garima Jain	Asst Professor	7842132790
17	K B Bini	Asst Professor	9846816049
18	S. KomalKour	Asst Professor	9052224093
19	Sujana M	Asst Professor	9533149538
20	T. Saikanth	Asst Professor	9866178143
21	M. Akhila	Asst Professor	8885774756
22	K. Mamatha	Asst Professor	9701057918
23	S. Swetha	Asst Professor	9000874258
24	M. Sudha Rani	Asst Professor	7036367456

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01	Dr. K.Jaya Sankar	Prof.	9440162196
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04	Dr. N. Suryanarayanamurti	Prof.	9441029775
05	Dr. K. Dheerga Rao	Prof.	9705384743
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07	Dr. N.Siva Sankar Reddy	Assoc. Prof.	9440741623
08	Ms. G.R.Padmini	Assoc.Prof.	9440521840
09	Ms. A. Sri Lakshmi	Assoc.Prof.	9290878533
10	Mr. S.Sambaiah	Asst. Prof.	9849020415
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17	Ms. K. Deepthi	Asst. Prof.	9000240306
18	Mr. N. Abid Ali Khan	Asst. Prof.	8897727547
19	Ms. K.R. Deepthi	Asst. Prof.	9493550926
20	K. Rama Krishna Reddy	Asst. Prof.	8886939560
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22	Mr. O. Rajesh	Asst. Prof.	9951868527
23	Mr. R. Goutham	Asst. Prof.	9908433101
24	Mr. B. Uma Mahesh Babu	Asst. Prof.	9912616809
25	Ms. R. Leelavathi	Asst. Prof.	8143672172
26	Ms. Vibha D. Kulkarni	Asst. Prof.	9966208656
27	Mr. N. BalaThimmaiah	Asst. Prof.	8099524900
28	Mr. Khajavali Shaik	Asst. Prof.	9701973312

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5	Ms. G. Sandhya Rani	Asst. Prof. (SS)	9494771587
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7	Ms. PranavaGopu	Asst. Prof.	9966744474
8	Ms. K.V. DivyaSree	Asst. Prof.	9177213312
9	Mr. N. Uday Kumar	Asst.Prof.	8341560704
10	Mr. D. Harish Kumar	Asst.Prof.	9441677937
11	Mr. P. Ravi	Asst.Prof.	9989600881
12	Mr. P. RajasekharaReddy	Asst.Prof.	9177207976
13	Mr. U. Elisha	Asst.Prof.	9949632656
14	Mr. Dhaunjaya Rao	Asst.Prof.	9110583707

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1	Dr. K. Ram Mohan Rao	Assoc Prof. & HOD	9866670213
2	Dr. N. Vasantha	Prof.	9849590500
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4	Ms. S. Rajya Lakshmi	Asst. Prof.	9505430463
5	Mr. N. David Raju	Asst. Prof.	9948673250
6	Mrs. D. Kavitha	Asst. Prof.	9502127706
7	Mr. K. Shyam Sunder Reddy	Asst. Prof.	8978428852
8	Mr. G. Raja Shekhar	Asst. Prof.	9849871143
9	Mr. M. Vishnu Chaitnaya	Asst. Prof.	8686709187
10	Mrs. D.R.L. Prasanna	Asst. Prof.	8008527776
11	Mrs. L. Divya	Asst. Prof.	9866704851
12	Mrs. C. Swetha	Asst. Prof.	9160400975
13	Mrs. K. Madhuri	Asst.Prof.	9908180408
14	Mr. G. Srinivas Rao	Asst.Prof.	9966461156
15	Mrs. S.K. Chaya Devi	Asst.Prof.	9912021322
16	Mrs. J. Suneetha	Asst.Prof.	8686363901
17	Mrs. C. Sireesha	Asst.Prof.	9618258122
18	Mrs. B. Leelavathy	Asst.Prof.	9014165993
19	Mr. M. Krishna Kishore	Asst.Prof.	9848637090
20	Mrs. B.S. Mounika Yadav	Asst.Prof.	8498898457
21	Mrs. G K Pallavi	Asst.Prof.	9966078844
22	Dr. K. Raghavendra	Adjunct Prof	9640475876
23	Mr. Amar Sharma	Adjunct Prof	7674805500

DEPARTMENT OF MECHANICAL ENGINEERING

Department Phone: 040-23146060 and 6061

1	Dr. G.V. Ramana Murthy	Prof.&Director (A&A)	9985306522
2	Dr. K.Kishore	Prof. & Director (T&P)	9440868055
3	Dr. A.Srinivas	Prof.	9490935865
4	Dr. T.Ramamohan Rao	Prof. &HoD	9440886144
5	Mr. K.Srinivasa Rao	Assoc.Prof.	9908212224
6	Dr. S.Venkataiah	Assoc.Prof.	9985087394
7	Dr. P.Venkateshwara Rao	Assoc.Prof.	9247851119
8	Mr. K.Veladri	Assoc.Prof.	9490684448
9	Dr. P.V.Gopala Krishna	Assoc.Prof.	9985356822
10	Mr. VBS Rajendra Prasad	Assoc. Prof.	9866351886
11	Mr. B.Radha Krishna	Asst.Prof. (SG)	7702234605
12	Dr. J. Anjaneyulu	Asst. Prof. (SS)	9490925436
13	Mr. S. Sreekrishna	Asst. Prof.	9494872379
14	Mr. M. Sudhakar	Asst. Prof.	9290094197
15	Mr. K. Spurgeon	Asst. Prof.	9704822207
16	Mr. D. Govinda Rao	Asst. Prof.	97041667494
17	Mr. B. Naga Manohar	Asst. Prof.	9441368945
18	Dr. P.V.S. Subhashini	Asst. Prof.	9866802894
19	Mr. B. Sandeep	Asst. Prof.	9492427678
20	Mr. N. B. Samba Murthy	Asst. Prof.	9492036139
21	Mr. SudaVenkateswarulu	Asst. Prof.	8985639463
22	Mr. Venu Gopal Reddy	Asst. Prof.	9948129687
23	Ms.S. Keerthana	Asst. Prof.	9030031715
24	Mr. T. Krishna Chaitanya	Asst. Prof.	9704689575
25	Mr. Muhammad Lughman	Asst. Prof.	9553557869
26	Mr. V. Pramood	Asst. Prof.	7760953214
27	Ms. Ch. Amareshwari	Asst. Prof.	9491878147
28	Ms. VedulaAiswarya	Asst. Prof.	8333946038

DEPARTMENT OF H & SS

Department Phone: 040-23146094

1	Dr. Jacqueline Amaral	HoD	9493983343
2	Ms. G.Meena	Asst. Prof. (Sr. Scale)	9866557628
3	Ms. K. Jhansi Rani	Asst. Prof. (Sr. Scale)	9866331812
4	Ms. M.Jyothi	Asst. Prof. (Sr.Scale)	9247780569
5	Ms. B.Sheela Rani Simon	Asst. Prof.	9849721097
6	Mr. T.Sunand Emmanuel	Asst. Prof.	9849027278
7	Ms Ruby Lois	Asst. Prof.	9951719607

DEPARTMENT OF MATHEMATICS

Department Phone: 040-23146091

01	Dr. T.Sudhakara Rao	Associate Prof.&HoD	9441901731
02	Dr. G.Omprakasham	Associate Prof.	9849726189
03	Dr. N.Vasudha	Assoc. Prof.	9441779840
04	Mr. R. Hari Kishore	Asst. Prof.	9247553181
05	Ms. C. Naga Anuradha	Asst. Prof.	9949592116
06	Mr. M. Venkateshwar Rao	Asst. Prof.	9959924151
07	Ms. V. Sri Ramani	Asst. Prof.	9390991496

DEPARTMENT OF PHYSICS

Department Phone: 040-23146092

01	Dr. A.S.Sai Prasad	Prof. &HoD	9959418896
02	Dr. P.Venkateswara Rao	Assoc. Prof.	9885345663
03	Dr. V.Ravi Kumar	Assoc. Prof.	9866979357
04	Dr. G. Ramadevudu	Asst. Prof. (Sr. Scale)	9247802706
05	Mr. R. Nagaraju	Asst. Prof.	9849452878

DEPARTMENT OF CHEMISTRY

Department Phone: 040-23146093

01	Dr. Ch.Gouri Shankar	Assoc. Prof.& Head	8143033665
02	Prof. M. Satyanarayana Reddy	Professor	9849295357
03	Dr. P.Venu Gopal	Assoc. Prof.	9866723518
04	Ms. B.K.Rama Devi	Assoc. Prof	9948090017
05	Dr. (Ms.) P. Sukanya	Asst. Prof.	9948158437
06	Dr. K. Rajani Kumar	Asst. Prof.	9885584411
07	Ms. Velpula Angelina	Asst. Prof.	8977178719

SPORTS

2	Mr.G.VijayaAdityaReddy	Asst. Physical Director	9966057678
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CAMPUS PLACEMENTS

BE STUDENTS' PLACEMENT DETAILS - 2017 BATCH

Branch	CSE	ECE	EEE	IT	MECH	CIVIL	Total
No. of Students Eligible	137	132	60	124	122	53	628
Gross Selections	214	162	58	163	97	26	715
Net Selections	120	106	40	103	66	18	453
% of Selections	87.59	80.33	66.67	83.06	54.10	33.96	72.13

S.No.	Details	Total
1	No of students with 1 Offer(s)	259
2	No of students with 2 Offer(s)	136
3	No of students with 3 Offer(s)	54
4	No of students with 4 Offer(s)	05
5	No of students with 5 Offer(s)	01
Net Selections		457

STUDENTS PLACEMENT INFORMATION OF 2018 BATCH

S.No.	Organization	Package (Lakhs p.a. Rs.)	CSE	ECE	EEE	IT	Mech.	Civil
1	Adobe Systems	20.35	1	-	-	-	-	-
2	Microsoft (Through Employee referral)	15.00 + Stocks worth \$10000= 21.60	5	-	-	-	-	-
3	Amazon Development	Internship 20 K/month & 14.00 + Stocks worth 8 Lakhs	5	-	-	-	-	-
4	JPMorgan Chase & Co. (Through Code for Good Challenge)	7.5	6	-	-	5	-	-
5	Accolite Software India Pvt. Ltd	10	2	-	-	3	-	-
6	Oracle India Private Ltd., (Vertical: UGBU)	9	11	2	-	8	-	-
7	Deloitte Consulting (India) Private Limited (Vertical : Consulting)	6.2	11	14	-	12	-	-
8	Unistring Tech Solutions Pvt Ltd	Internship-10K /month	-	-	-	-	-	-
9	Pega Systems	8.2	12	4	-	6	-	-
10	Thomson Reuters	Internship 12K/month & 4.50	-	-	-	-	-	-
11	TEK Systems	6	1	-	-	1	-	-
12	Infosys (throughPega)	4.5	10	8	2	5	-	-
13	Zensar (Through Pega)	5	3	-	-	4	-	-
14	Open Text(Internship)	15K per month	9	-	-	4	-	-
15	TCS (Pega - Robotics &ProcessAutomation)	3.75	11	6	4	12	-	-
16	Areteans Tech (Through Pega)	4.5	1	2	-	-	-	-
17	Infosys	3.25	11	19	4	7	22	6
18	Accenture	3.5	24	31	17	17	29	9
19	GeP Solutions Pvt. Ltd	4.25	3	-	-	1	-	-

S.No.	Organization	Package(Lakhs p.a. Rs.)	CSE	ECE	EEE	IT	Mech	Civil
20	Service Now	11	2	-	-	-	-	-
21	NCR Corporation	5.5	6	9	-	-	-	-
22	Optum – United Health Group	3.6	12	-	-	13	-	-
23	Capgemini	3.5	16	27	7	18	14	5
24	EnergyTech Global Private Limited	Internship-15K/month) &Rs.4.50	2	-	-	1	-	-
25	Deloitte Consulting (India) Private Limited (Vertical : Advisory)	6.2	3	-	-	-	-	-
26	Hyundai Mobis India Limited	4	1	4	1	1	-	-
27	Qualcomm Technologies, Inc.	Internship-30K/month & 9.20	8	-	-	1	-	-
28	HCL (Through Pega)	4	-	1	-	4	-	-
29	FactSet	5.5	1	1	-	1	-	-
30	Genpact	1.8	-	1	1	1	7	-
31	AMD R&D Center India Pvt Ltd	Internship-25K & 9.00	-	-	-	-	-	-
32	ADP	4	1	-	3	3	-	-
33	Epam	6	3	-	-	-	-	-
34	DBS Asia Hub2Pvt ltd.	7	4	-	-	-	-	-
35	ADTRAN Networks India Pvt. Ltd.	Internship-20K/month & 5.50	6	3	-	2	-	-
36	Aaseya Technologies Limited (Through Pega)	3.8	-	2	2	2	-	-
37	Spoors Technology Solutions	2.4	1	1	-	-	-	-
38	Bank of America (Through Pega)	4.25	1	3	-	4	-	-
39	Microsoft (Through WISE Program)	10.6	-	-	-	2	-	-
40	Ivy Comptech Private Limited	Internship-25K/month & 8.00	1	1	-	-	-	-
41	Service Now (Internship)	Rs.25K/month	2	-	-	2	-	-

S.No.	Organization	Package (Lakhs p.a. Rs.)	CSE	ECE	EEE	IT	Mech.	Civil
42	West Agile Labs	Internship-12K/ month & 5.00	1	-	-	1	-	-
43	Salesforce	5.5	5	-	-	8	-	-
44	Copart India Private Limited	6	1	3	1	-	-	-
45	DEF Team Solutions Private Limited	Internship- 10K/month) & 3.5	-	-	-	-	-	-
46	Dolcera ITES (P) Ltd.	3.3	-	3	-	-	-	-
47	Cognizant Technology Solutions	6	-	-	-	1	1	-
48	Couponkosh	Internship- 5K/month & 1.8	-	1	-	-	-	-
49	Byju's (Think & Learn Pvt. Ltd)	Internship-25K/ month & 9.00	-	2	-	-	1	-
50	TechnipFMC Technologies India Private Limited	5.65	-	-	-	-	1	-
51	IESoft Technologies	Internship-10K/ month & 2.70	1	2	-	-	-	-
52	DispatchTrack Software Pvt Ltd,	2.5	-	-	2	-	2	-
53	Medha Servo Drives Pvt. Ltd.	3.25	-	-	-	-	-	-
54	Arcserve India Software Solutions (P) Limited	7	1	4	-	1	-	-
55	Qspiders : Training & Placements	2.4	1	1	4	2	-	-
56	Netcracker Technology	5.5	1	-	1	-	3	-
57	Aliens Space Station	2	-	-	5	-	-	-
58	AMD R&D Center India Pvt Ltd	7.5	1	-	-	-	-	-
59	United Online	2	1	-	-	-	-	-
60	Modak Analytics Software Pvt Ltd,	3	-	3	-	-	-	-
61	Aarvee Associates Architects Engineers & Consultants	3.6	-	-	-	-	-	1

S.No.	Organization	Package (Lakhs p.a. Rs.)	CSE	ECE	EEE	IT	Mech.	Civil
62	AIR Worldwide	4.5	-	-	-	-	-	3
63	Black Knight Financial Services	2.2	3	-	-	-	-	-
64	Host Analytics Software Pvt Ltd.	Internship- 15K/month	1	-	-	-	-	-
65	My Home Constructions Pvt Ltd.	2.4	-	-	-	-	-	2
66	Robert Bosch	4	-	1	1	-	-	-
67	Goldstone Infratech	2	-	-	2	-	-	-
68	Infor Global Solutions	4	-	-	-	1	-	-
69	Cognizant	-	1	1	1	5	-	-
70	DXC Technology	-	2	-	1	-	-	-
71	Arth Design Build - (Through BIM)	-	-	-	-	5	-	-
72	Hyundai Mobis Technical Center of India (MTCI)	-	-	-	-	5	-	-

PERSONAL NOTES

Telephone Numbers

[illegible]