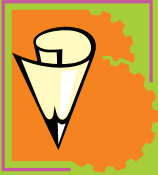


**A UGC Autonomous Institution**



# **VIGNANA BHARATHI** Institute of Technology

(Approved by AICTE, Accredited by NBA & NAAC-A Grade, Affiliated to JNTUH)

(Sponsored by Swamy Vivekananda Educational Trust)

**Recognised under 2(f) & 12(B) of UGC Act, 1956**

Aushapur (V), Ghatkesar (M), Medchal - 501 301, Telangana, India.

Website : [www.vbithyd.ac.in](http://www.vbithyd.ac.in) • Ph: 7993453628, 7993453629

## **Student Hand Book - 2023-2024**

**NAME** : .....

**ROLL NO** : .....

**CLASS** : .....

**BRANCH** : .....

## **ACADEMIC REGULATIONS COURSE STRUCTURE & DETAILED SYLLABUS**

**FOR**

**B.TECH. FOUR YEAR DEGREE COURSE**

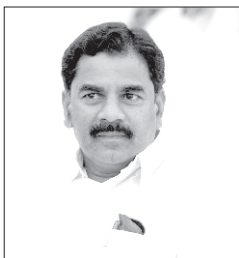
(Applicable for the batches admitted from 2023-2024)





### **VBIT Vision**

To emerge as a premier institution for technical education in the country through academic excellence and to be recognized as a Center for Excellence in Research & Development.



### **VBIT Mission**

To establish a strong institution by consistently maintaining state of the art infrastructure & a cohesive world class team by providing need based technical education.

## **From the Principal's Desk**

My Dear Freshman Engineering Students and their Parents,

On behalf of the entire VBIT family, I sincerely thank and appreciate all the students and their parents for placing their trust in the Institute. We humbly ask that you all continue to assist us in realizing our shared goal of turning VBIT into a university in the near future.

Let me use this opportunity to reflect on VBIT's exciting history, which dates back to 2004. Every member of the VBIT family is given the utmost attention in order to develop into a professional who is both marketable and socially conscious. With excellent academic environment, numerous value-added programs, industry certifications, internship opportunities, and entrepreneurship opportunities, along with carefully planned and monitored co-curricular and extracurricular activities, VBIT ensures the all-around development of every single student.

The Institute has high expectations for all of its students in terms of their commitment to their studies, punctuality, and discipline. All of us in this Institute sincerely expect that the new students will continue the legacy of their seniors. Additionally, the institute makes a sincere appeal to people not to abuse or misuse technology but rather to become tech-savvy and use their technological know-how to discover answers to challenges they encounter on a daily basis.

Again, I want to thank you all.

I sincerely wish all the freshman engineering students an exciting and fruitful 4-year journey ahead!



**Dr. P.V.S. Srinivas**  
**Principal**



## COURSES OFFERED

### UNDER GRADUATE COURSES

B.Tech

4-Year B.Tech – EAMCET Counseling Code: VBIT

S.NO	NAME OF THE COURSE	LEAD TO	COURSE DURATION	TOTAL INTAKE
1	Computer Science & Engineering	B.Tech CSE	4 Years	240
2	CSE (Artificial Intelligence & Machine Learning)	B.Tech CSE (AI&ML)	4 Years	180
3	CSE (Data Science)	B.Tech CSE (DS)	4 Years	180
4	CSE (Cyber Security)	B.Tech CSE (CS)	4 Years	120
5	Computer Science and Business System	B.Tech CSBS	4 Years	60
6	Electronics and Communication Engineering	B.Tech ECE	4 Years	180
7	Electrical and Electronics Engineering	B.Tech EEE	4 Years	60
8	Civil Engineering	B.Tech Civil	4 Years	60
9	Mechanical Engineering	B.Tech Mechanical	4 Years	60
10	Information Technology	B.Tech IT	4 Years	120

### POST GRADUATE COURSES

M.Tech

PGECET/GATE Counseling Code: VBIT

S.NO	NAME OF THE COURSE	LEAD TO	COURSE DURATION	TOTAL INTAKE
1	Communication Systems	M.Tech (CS)	2 Years	30
2	Computer Science & Engineering	M.Tech (CSE)	2 Years	30
3	Electrical Power Systems	M.Tech (EPS)	2 Years	18
4	Power Electronics & Electrical Drives	M.Tech (PEED)	2 Years	30
5	Structural Engineering	M.Tech (SE)	2 Years	18

MBA

ICET Counseling Code: VBIT

S.NO	NAME OF THE COURSE	LEAD TO	COURSE DURATION	TOTAL INTAKE
1	Master of Business Administration (MBA)	MBA	2 Years	120

Counselling Code : VBIT<sup>®</sup>

# VIGNANA BHARATHI

## Institute of Technology

(A UGC Autonomous Institution, Approved by AICTE, Accredited by NBA &amp; NAAC-A Grade, Affiliated to JNTUH)

### MEMBERS OF GOVERNING BODY

S. No.	Name	Designation	Category
1.	<b>Dr. N. Goutham Rao</b>	Chairman Swamy Vivekananda Educational Trust (SVET)	Management Nominee
2.	<b>Prof. S.K. Singh</b>	Vice Chancellor Rajasthan Technical University, Kota	UGC Nominee
3.	<b>Dr. G. Satheesh Reddy</b>	Scientific Adviser to Minister of Defence Govt. of India	Management Nominee
4.	<b>Dr. E. Sai Baba Reddy</b>	Principal VJIT, Hyderabad.	State Govt. Nominee
5.	<b>Dr. Sudheer Prem Kumar</b>	Professor of ME JNTUH, Hyderabad	University Nominee
6.	<b>Dr. N.V. Ramana Rao</b>	Director NIT-Raipur	Management Nominee
7.	<b>Dr. V. Kamakshi Prasad</b>	Professor of CSE JNTUH, Hyderabad	Management Nominee
8.	<b>Dr. G. Manohar Reddy</b>	Secretary Swamy Vivekananda Educational Trust (SVET)	Management Nominee
9.	<b>Mr. Bhanu Prakash Varla</b>	Founder & CEO Benfield Consulting, Hyderabad	Industrialist
10.	<b>Dr. P.V.S. Srinivas</b>	Principal Professor, Dept. of CSE, VBIT	Member Secretary
11.	<b>Dr. Jayant Kulkarni</b>	Professor of Physics & Director, IQAC	Faculty Nominee
12.	<b>Dr. K. Neelima</b>	Professor & HOD, Dept. of EEE, VBIT	Faculty Nominee



## ACADEMIC COUNCIL

S NO.	NAME	CATEGORY
1.	Dr. P. V. S. Srinivas, Professor of CSE and Principal, VBIT	Chairman
2.	Dr. A. Jaya Shree, Professor, Chemistry, CCST, IST JNTUH, Hyderabad.	JNTUH Nominee
3.	Dr. A. Jaya Lakshmi Professor and Head, EEE, JNTUH College of Engineering, JNTUH, Hyderabad	JNTUH Nominee
4.	Dr. A. Prabhu Kumar, Professor, ME, JNTUHCE, JNTUH, Hyderabad.	JNTUH Nominee
5.	Prof. RBV Subramanyam, Professor, ME, NIT, Warangal.	Expert Invitee from Academics
6.	Dr. C. Raghavendra Rao Senior Professor, School of Computer & Information Sciences University of Hyderabad (HCU), Gachibowli, Hyderabad	Expert Invitee from Academics
7.	Mr. Phani Patamata Executive Director, The IndUS Entrepreneurs, Hyderabad.	Expert Invitee from Industry
8.	Dr. G. Mallikarjuna Rao, Scientist-G, RCI	Expert Invitee from Industry
9.	Dr. Shanta T Chief Innovation Office, TSIC, Government of Telangana	Expert Invitee from Industry
10.	Prof. Prasada Rao YVSSSV, Professor of ME & Director	Member
11.	Dr. B Satish Kumar, Associate Professor & HOD, Dept. of ME	Member
12.	Dr. U. Rama Krishna, Associate Professor & HOD, Dept. of CE	Member
13.	Dr. K. Neelima, Professor & HOD, Dept. of EEE	Member
14.	Dr. U. Poorna Lakshmi, Professor & HOD, Dept. of ECE	Member
15.	Dr. M. Venkateshwara Rao, Associate Professor & HOD, Dept. of CSE	Member
16.	Dr. K. Kalaivani, Associate Professor & HOD, Dept. of IT	Member
17.	Dr. K. Shirisha Reddy, Associate Professor & HOD, Dept. of CSE(AI&ML)	Member
18.	Dr. Y. Raju, Associate Professor & HOD, Dept. of CSE(DS)	Member
19.	Dr. Dr. P. Sushma, Professor & HOD, Dept. of CSE (CS)	Member
20.	Dr. G. Swamy, Associate Professor & HOD, Dept. of CSBS	Member
21.	Dr. Ch. Venkata Ramana Reddy, Director, Freshman Engineering	Member
22.	Dr. K. Sharath Babu, Associate Professor & HOD, Dept. of MBA	Member
23.	Dr. G. Amarendar Rao, Professor of ME, Director, PG Studies	Member
24.	Dr. V. Sridhar Reddy Associate Professor, Dept. of IT & Controller of Examinations	Member
25.	Dr. P. Kishore Kumar Associate Professor, Dept. of ME & Officer-in-charge Decentralized Governance	Member
26.	Dr. Dara Raju Associate Professor, Dept. of CSE & Coordinator for Honors & Minor Degree Programs	Member
27.	Dr. J. Kulkarni, Professor & Director, IQAC	Senior Faculty
28.	Mr. G. Anil Kumar, Director, IIC	Senior Faculty
29.	Dr. N. Satyanarayana, Professor & Registrar	Senior Faculty
30.	Dr. S. Sundeep, Associate Professor, Dept. of EEE & Director R&D	Senior Faculty
31.	Dr. T. Swaroopa Rani Associate Professor, Dept. of FME, Director (Student Affairs)	Senior Faculty
32.	Dr. P. Kalyani, Professor, Dept. of FME	Senior Faculty
33.	Dr. G. Sreeram, Professor of CSE	Senior Faculty
34.	Dr. S. Pothalaiah, Professor, ECE & Director, Academic Planning	Member Secretary



## LIST OF IMPORTANT PHONE NUMBERS

S NO.	NAME OF THE OFFICIAL	DESIGNATION	PHONE NO.
1.	Dr. P.V.S. Srinivas	Principal	7993453633
2.	Dr. YVSSV Prasada Rao	Director	9866302148
3.	Dr. G. Amarendar Rao	Director, PG Studies	9948524535
4.	Dr. N. Satyanarayana	Registrar	8297489322
5.	Dr. S. Pothalaiah	Director, Academic Planning	9966933132
6.	Dr. V. Sridhar Reddy	Controller of Examinations	9966237981
7.	Dr. S. Sundeeep	Director, R&D	9000422333
8.	Mr. G. Anil Kumar	Director, IIC	9966098765
9.	Dr. Ch. Venkata Ramana Reddy	Director, Freshman Engineering	9885827579
10.	Dr. T. Swarupa Rani	Director, Student Affairs	9908264477
11.	Dr. K. Neelima	HOD, EEE	8374024567
12.	Dr. M. Venkateswara Rao	HOD, CSE	9912868581
13.	Dr. K. Kalaivani	HOD, IT	8148731972
14.	Dr. U. Poornalakshmi	HOD, ECE	9908034124
15.	Dr. B.Satish Kumar	HOD, ME	9849429109
16.	Dr. U Rama Krishna	HOD, CE	9573901512
17.	Dr. G. Swamy	HOD, CSBS	9581155577
18.	Dr. Y. Raju	HOD, CSD	9295806674
19.	Dr. K. Shirisha	HOD, CSM	9502958413
20.	Dr. S. Sushma	HOD, CSC	9949017270
21.	Dr. K. Sharath Babu	HOD, MBA	9959771054
22.	Dr. S. Hari Krishna	Finance Officer	9849427591
23.	Dr. M. Srinivasa Reddy	Physical Director	9640105916
24.	Mr. K. Naresh Kumar	Coordinator, IQAC	9966872351
25.	Mr. DKM Sharma	Central Coordinator, Media & Public Relations	8885278037
26.	Mr. Poorna Chandra Rao	Coordinator, Academic Planning	9912326987
27.	Mr. D. Sreenivas	Officer I/C, Exam Branch	9440828489
28.	Mr. P. Praveen	I/C Common Facilities	9849239588
29.	Mr. N. Amba Shankar	Senior Librarian	9848963653
30.	Mr. M. Dhruva Kumar Reddy	I/C Admissions	9989353766
31.	Mr. K. Thukaram	I/C Scholarships	7702724498
32.	Mr. G. Ramesh	I/C Transport	7993453635
33.	Mr. Rajamouli	I/C Boys' Hostel	7993453631
34.	Ms. N. Pushpa	I/C Girls' Hostel	7993453632



## GENERAL INFORMATION

### A. Location:

Established in 2004-05, by Swamy Vivekananda Educational Trust, this Institute is located on a sprawling campus situated in Aushapur (V), Ghatkesar (M), Medchal (D), Hyderabad - 501 301. It is 18 kilometers from Uppal Bus Depot, Hyderabad.

### B. Growth of the Institution:

It has been an exhilarating journey for this Institution which has unfolded itself into an era of all-round development over a period of 18 years, crossing milestones year after year. Started in the year 2004 with two academic programmes in ECE and CSE each with an intake of 60, it has gradually expanded its academic programmes. In highly encouraging response from the aspiring youth of the society, it now runs Engineering courses besides PG. programmes in ECE, CSE, EEE, CE and Professional courses of MBA. The institution has come a long way since its inception in 2004. In the last two years all the B.Tech programmes have been accredited by the National Board of Accreditation, the college received accreditation by the National Assessment and Accreditation Council (NAAC) with 'A' Grade and Autonomous status by UGC.

Commensurate with the gradually enhancing academic programmes, there has been spectacular improvement in infrastructural facilities in terms of total space (academic, administrative and amenity space), laboratories, adequately equipped with the state-of-the-art equipment, advanced software of latest version, well stacked Library and Information Centre and computing facilities. In addition we have qualified and competent faculty at all levels. The Institute has been making sincere endeavors to impart holistic and quality engineering and professional education and training.

### C. Future Plans:

This Institute, true to its progressive views and vision, has plans for continuous and sustained growth, as detailed below and gain the Numero uno status in all aspects.

1. To achieve University Status in the near future.
2. To establish more no. of centers of excellence in applied engineering areas such as Robotics, solar engg., artificial intelligence, Machine Learning etc.,
3. To further strengthen and augment the infrastructural facilities to meet the expanded academic activities.
4. To strive vigorously to consolidate the industry-institute symbiosis through internship and other programmes.
5. To make unceasing efforts to take up external project consultancy and R&D activities by way of strengthening core competency in emergent and thrust areas and establishing Technology Development and Testing Centre.
6. To have a very pragmatically designed roadmap for transforming this institute as a centre and vital citadel of quality engineering and professional education and a happening and performing platform of activity to make a difference for our students and all other stake holders.



### D. Admissions

Under the overall control and supervision of Chairman, Telangana State Council for Higher Education (TSCHE), the Convenor (EAMCET) conducts the qualifying Entrance Test (EAMCET) for entry/ admission into various Engineering Degree programmes. Candidates with Intermediate qualification or its equivalent are eligible to appear for the above entrance test. It is under overall control and supervision of the Chairman, TSCHE.

The Convener is responsible for conduct of counseling and allotment of the qualified candidates to various universities and private engineering colleges against the 70% of the sanctioned intake. The remaining 30% seats are to be filled by the management, scrupulously adhering to the rules and procedures, stipulated by Government of Telangana.

Entrance Test is conducted for diploma holders (ECET). ECET qualified candidates are admitted directly at the 2nd year level of engineering degree programmes, under Lateral Entry Scheme. The seats for ECET qualified diploma holders are limited to 10% of the sanctioned intake, over and above the sanctioned intake. After the final counseling round by Convener (Admissions) and the cut-off date, thereto, the left over seats shall be filled up during spot admissions by the managements strictly in accordance with the procedures, practices and norms fixed by the Convenor (Admissions).

Category	Admission Procedure	
Category A	EAMCET	70%
Category B	Management quota	30%
II year entry	Under Lateral Entry Scheme	10%

### M.B.A.

Admissions for 70% of the seats into M.B.A. are through ICET. For more information ICET prospectus may be referred. Admissions for the balance 30% seats are under Management Quota.



***Fully equipped State-of-the-art Laboratories***



## RULES AND REGULATIONS

### 1. IDENTITY CARDS

- ❖ An Identity card is issued to every student on admission. It should be produced for getting access to
  1. Class Rooms
  2. Library
  3. Sports Room
  4. College Laboratories
  5. Examination Hall
  6. College or University Programmes
- ❖ Identity card is for student protection in a situation where his/her identity is challenged and should be produced on demand
- ❖ If the ID Card is lost, the loss should immediately be reported to the Principal's office. Store I/C will issue duplicate ID card after completing formal procedure.

Note: No student is allowed into the College Campus without wearing ID card.



**VIGNANA BHARATHI**  
Institute of Technology

Counselling Code: VBITH  
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An Awareness Programme on

# Cyber Safety & Wellbeing Essential Tips & Techniques

📍 Nalanda Auditorium

📅 2<sup>nd</sup> August, 2023

🕒 11:00 AM



*Chief Guest*  
**Ms. B ANURADHA, IPS**  
Deputy Commissioner of Police  
Cyber Crime  
Rachakonda Police Commissionerate  
Telangana

☎ +91 99496 05992

🌐 [www.vbithyd.ac.in](http://www.vbithyd.ac.in)



## 2. ATTENDANCE

- As per the rules of the State Govt. and JNUH Bio-matric attendance is implemented for all the students. They will have to give their thumb impression twice a day on all working days.
- Period wise attendance will be sent to parents mobile everyday.
- Monthly attendance report will be displayed on the Departmental notice board in the first week of every month. Students can also see their attendance through E-cap portal. Parents will be informed through SMS if attendance of their ward is less than 75%
- A student has to put in a minimum of 75% of attendance in aggregate of all the subjects for acquiring credits in each semester.
- Shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each Semester to be condoned by the Institute / Principal on the recommendations of the sub Committee of the Academic Senate on valid and genuine grounds.
- A student will not be promoted to the next semester unless he satisfies the attendance requirement of the present semester.
- Shortage of Attendance below 65% in aggregate shall in no case be condoned.
- Students whose shortage of attendance is not condoned in any semester / 1 year are not eligible to take their end examination of that class and their registration shall stand cancelled. They may seek re-admission for that semester / 1 year when offered next.
- Condonation of shortage of attendance as stipulated in 6 (ii) above shall be granted on genuine and valid grounds with supporting evidence.
- A stipulated fee shall be payable towards condonation of shortage of attendance.





### 3. DISCIPLINE / PUNCTUALITY

- ▲ Students are expected to abide by the rules of the College and refrain from any activity that harms the dignity of the individual or casts a slur on the image of the institution. Any violation of the College norms shall be dealt with stringently and penal action shall be invoked accordingly. The cooperation of parents and guardians is essential in this regard.
- ▲ All the students shall strictly observe the College time. If any student comes late, he / she shall not be sent to the class and attendance will not be marked for that hour.
- ▲ If any one is found regularly late, administrative action shall be initiated, including suspension from classes.
- ▲ If any student wants to leave the campus before the schedule time then he / she has to fill up a gate pass mentioning genuine reasons and should obtain the signature of the H.O.D concerned.
- ▲ All the students should strictly adhere to the schedules specified for the submission of assignments, Laboratory reports, Seminar reports, Project reports etc. failing which students will be awarded academic punishments.
- ▲ Schedule for payment of college fees should be strictly adhered to.

#### **The following acts of indiscipline are seriously viewed and call for disciplinary action.**

- i) Disorderly and obnoxious behaviour with fellow students and the staff of the College.
- ii) Resorting to unfair means in Examinations / Tests
- iii) Inviting outside persons to the College without appropriate permission.
- iv) Default in payment of tuition fee, transportation charges.
- v) Irregular attendance in class and internal exams.
- vi) Boycotting Classes / Tests / Examinations or demanding postponement of Classes / Examinations / Tests.
- vii) Damaging or tampering with properties and fittings or other installations in the College.
- viii) Mutilating / Stealing Library materials
- ix) Indulging in the activities which are termed as ragging.



## 4. CODE OF CONDUCT

### I. BEHAVIOUR

- A. Behave always in a dignified way so as to uphold the prestige and fair name of our college. Remember that your behaviour both within and outside the campus reflects on the Prestige of the College.
- B. Maintain decency and decorum in your dealings with others.
- C. Greet your teachers the first time you meet them in a day. Observe the same with your classmates and seniors.

### II. CLASSROOM

- A. After the five-minute recess between periods is over, wait for your teacher inside the class room and maintain silence; otherwise you may disturb adjacent classes.
- B. Avoid standing or loitering in the corridors since they are essential passages.
- C. While standing in the verandahs/corridors for any reason, leave space for others to walk freely and give way to teachers without their having to ask for it.
- D. Do not write on the black board without the permission of the teacher.
- E. Do not allow your friends to disturb you in the classroom except in emergency, unavoidable circumstances.

### III. DRESS

- A. Tuck in your shirt or slack into your trousers in the college premises.
- B. Wear shoes while attending College.
- C. Wear the prescribed dress in the workshop / laboratory classes.
- D. Do not wear fancy or gaudy dress while attending college. Bear in mind the Shakespearean maxim that the apparel (dress) oft proclaims the man.



## 5. RAGGING

Ragging is a cognizable and punishable offence. Any student found indulging in ragging will be dealt with severely as per the existing orders. It is to be noted that ragging in professional Colleges has been banned with in (or) outside the College Campus by the Govt. of T.S. Vide prohibition act, 1997. An extract of the ragging act is given below.

Ragging Act includes words either spoken / written (or) Sign / sounds gestures / Visible representation. Ragging means doing an act which causes or likely to cause insult, annoyance or fear apprehension / threat / intimidation/outrage of modesty or injury to a student.

A student against whom there is a prima facie evidence of ragging in any form will be suspended from the College immediately.



## Prohibition of Ragging in Educational Institutions Act 26 of 1997

### Nature of Ragging

1. Teasing, embarrassing and humiliating
2. Assaulting or using criminal force or criminal intimidation
3. Wrongfully restraining or confining or causing hurt
4. Causing grievous hurt, kidnapping or rape or committing unnatural offence
5. Causing death or abetting Suicide

### Punishment

1. Imprisonment upto 6 months or fine upto Rs.1,000/- or Both
2. Imprisonment upto 1 year or fine upto Rs.2,000/- or Both
3. Imprisonment upto 2 years or fine upto Rs.5,000/- or Both
4. Imprisonment upto 5 years or fine upto Rs.10,000/- or Both
5. Imprisonment upto 10 years or fine upto Rs.50,000/- or Both



## **GUIDELINES - FACILITIES & OTHER FUNCTIONAL UNITS**

### **I. Examinations**

#### **Internal evaluation tests Guidelines**

- A. Students should carry their identity cards to the examination hall and produce the same when asked.
- B. Students should be seated in the examination hall five minutes before the commencement of the internal evaluation test.
- C. No student shall be allowed to leave the examination hall in the first ten minutes of the examination.
- D. They should ensure that they are answering the authorized question paper cum answer script by checking for the signature of the invigilator on the same.
- E. Students should personally hand over the answer scripts to the invigilator before leaving the examination hall.
- F. Students should not indulge in any malpractice in the examination.
- G. Students may note that one objective and one descriptive quiz examination of the same subject will be conducted in one day.
- H. Students are advised to verify their valued internal evaluation answer scripts for any discrepancies after their valuation, on or before the date announced by the teacher.
- I. Students should also check up the internal evaluation marks statements displayed on the notice board or on E-CAP portal regarding the correctness of the entries.
- J. Internal evaluation marks to be sent to the University are entered in a single statement in the same order as given in the registration forms and a copy of it will be displayed on the notice board and students should verify it and point out any discrepancies immediately through the head of the department for incorporation in the internal evaluation marks statement to be sent to the University.



## II. Computer Centre

- a. Internet facility will be available for all the students during & beyond college hours in computer centre. They can utilize this facility during free periods.
- b. Students should leave their footwear outside before entering the computer centre.
- c. Students should not enter the computer center with the personal belongings, like bags.
- d. They should maintain strict silence and cleanliness in the computer centre.



## III. Laboratories

1. Students are expected to be punctual and regular to lab classes.
2. Students are expected to carry out all the experiments prescribed by the University.
3. They will not be permitted to attend the end practical examinations unless they carry out the minimum number of experiments prescribed by the University.
4. They should attend the lab fully prepared, with clear concept of the theory underlying the experiment and other experimental details with a pre-plan on how to carry out the experiment, after consulting the lab manual.
5. Observation notebooks should be neatly maintained.
6. Experiments must be recorded only in the books approved by the departments / college.



7. Observation notebook should be compulsorily shown to the teacher incharge of the lab and got signed by the teacher at the end of the experiment.
8. Records must be submitted as per the schedule prescribed by the teacher incharge of the lab.
9. Records must be got certified before appearing for the end examinations.
10. Student should not move from one table to another.
11. Student should handover the equipment to the technical staff in good condition before leaving the lab.
12. Students should maintain utmost cleanliness in the lab.
13. Breakages / damages to equipment should be reported immediately to the lab incharge.
14. Students are advised to clear all dues to the lab before taking end practical examinations and avoid complications at a later date.
15. Laboratory sessional marks will be awarded on the basis of continuous evaluation.
16. They should clear the work bench soon after the experiment is over.
17. Waste material, if any, should not be strewn on the floor of the laboratory. Students should use the waste material baskets kept for the purpose.
18. Experiments should be carried out following all the instructions meticulously and observing all the precautions to avoid personal injuries and damage to equipment.



#### IV. Tuition Fee

1. Students shall pay their tuition fee before the commencement of the class work for the corresponding academic year.
2. Fine shall be levied on students who have not paid the fee before the due date.
3. Student's name shall be removed from the rolls if he/she fails to pay the fee along with fine before the last date fixed for the same.
4. Fee once paid shall not be refunded.



## V. College Timings

College works for six days in a week with seven periods a day each of 50minutes duration. Every Second Saturday is a holiday.

For I B.Tech & MBA	Forenoon Session	Afternoon Session
	9.50am to 12.20pm	1.00pm to 4.20pm
For II, III, IV B.Tech and M.Tech	9.50am to 1.10pm	1.50pm to 4.20pm

## VI. Communication with Parents

Parents will be communicated of the performance of their son / daughter / ward in attendance and examinations through SMS. Parents are advised to take follow up action and approach the college for any information / suggestions regarding their ward's conduct and performance in the college. In case of poor academic performance and / or attendance, the student and the parent / guardian should promptly respond to and comply with the reports and suggestions for improvement as and when informed.

## VII. Counseling & Mentoring to the students

The counseling cell consistently keeps track of three parameters (attendance, behaviour and performance) to identify the weak candidates for whom certain kind of counseling is needed. Mentoring is done (A teacher mentor for 20 students) based on percentage of attendance, performance in internal examinations and overall behaviour. Students are counseled and if necessary parents are also called for interaction.

## VIII. Mode of Transport to reach the institute

Ever since the inception of the Institution, the Management has been providing transport facilities to the staff and students of this college. Commensurating with the growth and development of this institution, the transport facilities have been strengthened and expanded. At present a fleet of 27 buses have been engaged to commute staff and students of this Institution in 27 routes starting from the Institute to various locations in and around the twin cities.

## IX. Library

VBIT library is truly a learning center built with 2018.50 Sq.m. of carpet area spreading over two floors to accommodate more than 500 students at a time. The library stocks textbooks, reference books, journals, audio video lectures and project reports. The library subscribes to more than 125 national and international journals and has a very large collection of reference books on advanced disciplines that are aimed at developing students beyond their normal curriculum. In all, the college library has more than 50000 volumes and around 8050 titles and 145 print journals covering various advanced disciplines pertaining to all the branches of engineering and management courses.

Digital Library is well equipped with 60 multimedia systems and server and uninterrupted power backup to access e-journals and e-books like IEEE digital library, DELNET and Cengage Learning InfoTrat Databases latest developments in the respective subjects.



The Library is equipped with four multimedia classrooms for conducting video lectures from eminent professors through NPTEL program. In accordance with the objectives of the Vignana Bharathi Institute of Technology, the library aims to develop a comprehensive collection of documents useful for the students, faculty and Research Community of the institution.

## X. Value Added Programmes

Apart from delivering high quality academics, VBIT believes in training its students in the technologies currently in demand in the industry in various branches of engineering. Intensive and hands-on training is provided to the interested students to make them industry-ready. Following are the various value-added Training Programmes currently offered to the students.

1. VBIT signed a Memorandum of Understanding (MOU) with SAP Education Partners to provide intensive hands-on training on SAP ABAP & MM modules for final B.Tech. students. VBIT is among the 10 organisations selected by Telangana Academy for Skill and Knowledge (TASK), Govt., of Telangana.
2. VBIT has partnered with CISCO to form NETACAD to provide certified training to the interested III & final B.Tech. students in various emerging technologies like Big Data, Cyber Security, Networks etc.
3. Intensive training is provided to all the interested III B. Tech. Civil Engineering students in StadPro software to facilitate a better understanding of analysis and design of structures. A good knowledge of this software will provide better career opportunities for the students.
4. As part of Makerspace programme, interested III B.Tech. students are trained in emerging IoT Technologies. As part of the training students are provided intensive hands-on training enabling them to participate in Hackathon competitions where they are provided opportunities to prepare and exhibit prototypes/working models prepared based on their original ideas.
5. Interested III B.Tech. Mechanical Engineering students are intensively trained providing the required hands-on experience in the Solid Works software to facilitate a comprehensive understanding of the digital manufacturing process. Knowledge of this software will not only be very useful for the students in carrying out their mini and major projects but also enhances their career opportunities.
6. All the IV B.Tech students of Dept. of EEE were provided intensive training on Embedded System Design in association with C-DAC, Hyderabad as part of the workshop conducted from 08-01-2017 to 23-02-2017.
7. Campus Recruitment Training classes are conducted for the students of III B.Tech. II Sem. & IV B.Tech. I Sem. Followed by assessment tests by Co-Cubes.



## IEEE VBIT Student Branch

### About IEEE

The IEEE (Institute of Electrical and Electronics Engineers, Inc.), a non-profit organization, is the world's leading professional association for the advancement of technology.

### Who the IEEE Serves

Through its global membership, the IEEE is a leading authority on areas of engineering and emerging technologies. Members rely on the IEEE as a source of technical and professional information, resources and services. To foster an interest in the engineering profession, the IEEE also serves student members in colleges and universities around the world.

Other important constituencies include prospective members and organizations that purchase IEEE products and participate in conferences or other IEEE programs. The IEEE student branch at VBIT, under IEEE Hyderabad section was inaugurated in December 2006 with a membership of 67 students, two faculty advisors and branch counselor. The branch has been assigned a branch code STB 65451 and school code 45893584.

### Exemplary Student Branch Prize

IEEE – VBIT SB has been awarded the Exemplary Student Branch Prize in the entire Region 10 of the Asia-Pacific. This was announced during the IEEE Region 10 Congress held in Sri Lanka during 10-15 July 2015. It was a well deserved honour for the VBIT Student Branch, as it has finally bagged the prestigious prize the fifth time it has been nominated for it since its inception in December 2006. From the alumni to the present volunteers, everyone has played a part in this coveted achievement as it is apparent that team work has played a crucial role in this success story. The constant support by the college management and the direction given by the Branch Counselors Dr. P.S. Subramanyam, C.R.N. Sarma and Mrs. Ch. Sunita have proved to be detrimental in this success. It certainly is a proud moment for the Vignana Bharathi Institute of Technology (VBIT), as it went global in its achievements. Dr. N. Goutham Rao, Chairman, Dr G. Manohar Reddy, Secretary and Principal Dr. G. Amarendra Rao have lauded the efforts of the IEEE-Student Branch and wished the team many more successes in the time to come.

### Previous Achievements of IEEE – VBIT SB at International Level

- Exemplary Student Branch Award in Asia Pacific Region
- Richard E. Merwin International Scholarship Award from IEEE Computer Society (2009-11), (2012-13)
- Darrel Chong Student Activity International Award (Gold Prize) (2012)
- Larry K. Wilson International Award in Asia Pacific Region (2013)
- Outstanding Branch Counselor Award (2012-13) in Asia-Pacific Region (R-10) to Dr. C.R.N. Sarma
- Special feature on VBIT-SB in IEEE-International Publication "IEEE-Potential" (Volume-32, Issue-4, August 2013)
- WIE VBIT Student Branch Affinity Group has been declared as the recipient of an "Honorable Mention for the 2015 WIE Student Branch Affinity Group of the Year Award".



## XI. Tutorials and Seminars

The prescribed syllabus of the University is taught in the regular scheduled classes. In order to provide wider scope and the application of a given module / topic, the students are taught in a separate open forum generally described as tutorial. The tutorial classes are expected to deal with the analytical and material strengths for a given module / topic and essentially the thorough understanding in the form of applications should be the output. This requires the appropriate subject strengths, planning and the deep concentration from both student and faculty. The student should also be able to work for various approaches to verify the outputs from a given unit / module. Conceptually tutorials were introduced to promote and cultivate the research approaches in student as well as faculty. Therefore, each faculty is required to work precisely with advance preparation to enforce the above concepts in an effective manner.

- ☐ Each class will have 1 tutorial hour per week (per subject).
- ☐ Separate tutorial sheets will be provided to the students.
- ☐ Students should solve the tutorial problems only on these sheets.
- ☐ Each tutorial will be assessed and graded by faculty based on performance. Proportionally the weightage will be added in internal marks.
- ☐ At least one Assignment will be given based on 4 units which has to be submitted on the separate sheets provided to the students. Maximum of 5 marks will be given for these assignments.

## XII. Industry Interaction and Innovation Cell (IIIC)

IIIC of VBIT, with its state-of-the-art infrastructure and dynamic and innovative team, takes care of all the training and placement needs of ambitious student community. The Cell is also responsible for interacting with the industry experts in order to cater to the mutual needs of the industry and the institute leading to 'Industry Collaborated Academics'. To enable this, industry experts are invited to the institute to interact with the faculty and the students and very often the students are also taken to various industries to provide them with a glimpse the latest industry practices.

The IIIC has a four-fold objective:

- Providing quality placements
- Catering to the skills development of the students
- Establishing Innovation Cells
- Facilitating higher education opportunities



### Major Developments in the Recent Years

- Signed MoUs with AmazonWeb Services (AWS), UiPath & Servicenow and established global certification programmes in AWS Fundamentals and Architecture, Robotics Process Automation, Business Application Development respectively
- Established Centers of Excellence (CoE) with DellEMC, Bentley, AutoDesk Fusion 360 & AutoDesk REVIT Architecture as Industry Partners
- Established Industry Sponsored Academies such as SAP-ABAP StudentAcademy Program, Cisco NetAcad, Salesforce Academy, Microchip Academic Program (in Embedded and IoT technologies) etc.
- Established incubation Centers and Start-up Ecosystem in Collaboration with MHRD, Government of India, Indian School of Business – Technology Entrepreneurship Program (ISB-TEP), TiE Hyderabad – EDUCATION & STARTUP LEARNING, JNTUH Innovation Hub (J-HUB)



VBIT

**Team Sama Sangathan (WPC) organised  
Women's Day Celebrations**



### XIII. Student Activities:

#### Professional Societies / Student Chapters

- 1) The IEEE student branch at VBIT, under IEEE Hyderabad section was inaugurated in December 2006 with a membership of 67 students, two faculty advisors and a branch counselor. Through its global membership, the IEEE is a leading authority on areas ranging from aerospace systems, computers and telecommunications to biomedical engineering, electric power and consumer electronics among others. Members rely on the IEEE as a source of technical and professional information, resources and services. To foster an interest in the engineering profession, the IEEE also serves student members in colleges and universities around the world. About 150 students enrolled as members for the academic year 2014-15.

IEEE Student Branch has established following forums and chapters in the institute:

- |                               |                              |
|-------------------------------|------------------------------|
| A) Computer society           | B) Communication society     |
| C) WIE (Women in Engineering) | D) Power Electronics Chapter |

- 2) IETE STUDENT FORUM was established in 2007-08.
- 3) A student chapter of AUTOMAAC for the Professional Society of Mech Engg was established in 2012-13.
- 4) SAE - Society for Automotive Engineers was established in the year 2010.
- 5) Ganith Exclusive Mathematics Forum.

#### Student Activity Centre (SAC)

College has established an active and efficient student activity centre, which is undertaking following activities throughout the academic year.

S.No.	Activity	Details
1.	<i>Stutalk</i>	Campus news letter
2.	<i>Dyuthi (NSS), Street Cause</i>	Social activity forums
3.	<i>Branch Associations</i>	8 active branch associations
4.	<i>Virinchi</i>	Forum for performing arts
5.	<i>Harith</i>	An Eco club
6.	<i>Sports Club</i>	Excellent Indoor & Outdoor games facilities
7.	<i>VBIT MUN</i>	<i>Model United Nations</i>
8.	<i>Chitrika</i>	<i>The Photographic Club</i>
9.	<i>Aashay</i>	Film club
10.	<i>Srishti</i>	Literary club
11.	<i>Robotics club</i>	Forum of creative Technocrats
12.	<i>Alumini Association</i>	Network of Alumni
13.	<i>Swayam</i>	Forum for residential VBITians
14.	<i>ISE</i>	Institute of Student Engineers
15.	Coding Studio	Forum for Coding Freaks
16.	EpsilonPi	AI&ML Club
17.	Dhrona	Civil Services aspirants club
18.	eVartha	Digital current affairs news letter
19.	Abhetya	Cyber security club
20.	Datavedi	Data Science Club



## Sports and Games

Physical Education Department is manned by a well qualified and experienced Physical Director. The Institute has excellent Games and Sports facilities including well laid play grounds for out-door games of cricket, volleyball, badminton, basketball etc. Students participated in various sports events and won many medals and prizes at University, State, National and International level in the recent years.

### Games and Sports policy

The Institute makes prompt efforts:

- ☼ To identify talents of the students at the very first year level.
- ☼ To provide opportunity to develop their talent
- ☼ To encourage and support the students to participate at state, national and international level.

## National Service Scheme (NSS)-DHYUTHI

DHYUTHI NSS Unit: NSS Unit has been introduced in 2007-08 academic year under the approval of JNTU.

Following Programmes are conducted under this unit:

- ☼ Blood Donation Camps
- ☼ Aids Awareness Camps
- ☼ Village Survey
- ☼ Free Medical camps
- ☼ Hygeine & Cleanliness Awareness programme in nearby villages.

## Student Welfare Activities

- ☼ Student Welfare Fund is earmarked and set apart to meet the following student friendly objectives.
- ☼ To help the needy students in pursuit of their Education and career development through an SC/ST Book Bank
- ☼ Concession and transport facility for poor and deserving students.
- ☼ DA/TA for students participating in inter University and interstate sports and games, paper presentations and technical conferences.

## Awards

- ☼ Awards for Toppers in Attendance & Academics.
- ☼ Best outgoing student from each final year branch.
- ☼ Best student organizer
- ☼ Toppers in GATE, GRE, TOEFL, CAT etc.
- ☼ Sports and Games
- ☼ Cultural events



## **XV. Academic Certificates**

The following academic certificates will be issued by the college at the time of the student leaving the institution.

1. Course completion/Study certificate (as applicable)
2. Transfer cum Conduct Certificate
3. Provisional Certificate and Consolidated Marks Memo
4. Degree Certificate

University issues consolidated marks memo and provisional certificate to students through the college. After completion of the course, students should apply for Provisional Certificate through the college. Soon after their receipt from the University, they will be given to the candidates. Degree certificate(original) will be issued by University of receiving the application from students.

## **XVI. Auditorium and Seminar Halls**

The College is well facilitated with six state of the art Seminar Halls with advanced audio systems and LCD Projectors. Each has a different capacity.

- ❖ Chethana Auditorium-200
- ❖ Sadhana Seminar Hall-60
- ❖ Drishti-Board Room-50
- ❖ Disha Seminar Hall -120
- ❖ Sumedha Seminar Hall-60
- ❖ SAC Seminar Hall-25
- ❖ Prerana Seminar Hall-250
- ❖ Nalanda Auditorium-1200
- ❖ Auditorium in new block (Under constructions)

## **XVII. Canteen**

The College is facilitated with a separate building for canteen with 6000 Sq.ft. Fresh snacks, beverages, and baked goodies are always available. While using the Canteen the students are expected to handle the furniture and other equipment with utmost care. Students, found idling away their time in the canteen during class hours, are liable to be punished.

## **XVIII. Website**

Our website, [www.vbithyd.ac.in](http://www.vbithyd.ac.in) is designed and maintained in the most interactive manner, it helps in establishing a virtual family of students, faculty, and parents.



## EXPECTATIONS FROM PARENTS

Parents should :

1. Be in regular contact with the Institute / Department regarding the progress of their wards and attend parents meetings without fail.
2. Please update the information regarding change in the phone number, residential address etc. by communicating it to the office / student counsellor.
3. At the end of every month attendance is updated. SMS is sent to the parents of the students falling short of 75% attendance. Instructions given in the report must be followed strictly.
4. **Students are prohibited from using cell phones in the class rooms. Strict disciplinary action is initiated against the students who misuse cell phones.**
5. Parents are advised to opt for college transport facility to avoid their ward coming late to the college.
6. Advise their ward not to indulge in any sort of mis-behaviour / ragging within or outside the college campus.



VBIT

**Industrial Tour to ICMR-NIN on National Science Day  
in association with Samskruti Foundation**



## EVENTS CONDUCTED DURING 2022-2023

- 04.06.2022** The team of coding.Studio(); has launched their latest project A.R.M.A in Chethana Auditorium. Here are a few glimpses from the event.
- 04.06.2022** Department of EEE organised an industrial visit to “210kW Solar Plant- VBIT” for II BTech students on 4th June 2022. The event was addressed by Mr.A.Gopala Krushna, Associate Professor, VBIT, Hyderabad.
- 16.06.2022** I BTech students are presented with “Best PRA Award” from each subject i.e., English, Physics, Chemistry and Mathematics I. Best PRA in each subject is selected from the respective subject teachers from all the sections and another round of evaluation is conducted by the subjects expert to select the Best PRA.
- 17.06.2022** Department of Electrical and Electronics Engineering organised an industrial visit to BHEL on 17th June 2022. The event was addressed by Mr. Suresh, Senior Engineer, BHEL.
- 21.06.2022** On the occasion of 8th International Yoga Day, a Yoga Mohatsav program was organised at Parade Grounds and was led by Vice President M Venkaiah Naidu. Here are a few glimpses of VBIT students that participated in the program.
- 20.06.2022** 20.06.2022 VBIT in association with JHUB-JNTUH organised a regional level HACKTHON on 20th & 21st June 2022 on the them “Seventeen Sustainable Development Goas of the World”. Here are a few glimpses of the Valedictory function.
- 22.06.2022** Department of CSE organised an international webinar on “Decidable and undecidable problems in theory of computation” on 22nd June 2022. The event was addressed by Prof Prasad Chetti, Northwest Missouri State University, Maryville, USA
- 25.06.2022** Greetings from IEEE – VBIT SB, “Design is rumination made visual.” IEEE – VBIT SB conducted a Design Workshop and Competition, ‘DesignX’ exclusively for the students of 1st & 2nd year. This Workshop got the students acquainted with the core concepts and making significant contributions in the journey to creating seamless designs,
- 28.06.2022** The Team of Z.A.R.C from VBIT college have been a part of T-HUB Team for the launch of the THUB PHASE 2 (World’s largest Innovation Campus) Innovation Summit, inaugurated by Chief minister KCR and IT minster.
- 01.07.2022** Department of Business Management conducted Aarambh on the 1st & 2nd of July at Chethana Auditorium. The event was graced by chief guest Dr. Nandita Sethi, Founder & MD, The Entrepreneur Zone (TEZ)
- 02.07.2022** Department of MBA organised Valedictory Ceremony of AARAMBH, Start for startups on 2nd July 2022 at Chethana Auditorium. The event was graced by Chief Guest, Mr. Regalla Ravikanth, MD, Psychologist’s Consulting Group (PCG), Social Entrepreneur.
- 02.07.2022** Student Activity Centre organised an appreciation meet for all the outgoing students who have substantially contributed to their respective clubs and forums. Dr. Swarupa, Students Affairs Coordinator initiated the program while Principal Dr. P.V.S. Srinivas, Director IQAC Dr. Jayant Kulkarni and Director of PG studies Dr. G. Amarendar Rao commended the efforts of the students. The faculty coordinators of all the forums were also present at the event.



A 15-day Industry oriented Internship Training in association with Central Institute of Petrochemicals Engineering & Technology (CIPET) (formerly known as Central Institute of Plastics Engineering & Technology) was conducted for the students of II B Tech Mechanical Engineering. The training has been provided by Mr. A.K. Rao, Chief Manager (Technical) with the support from the faculty of the institute. Students were sent to the industry for 2 days on every Friday and Saturday (about 8 week). The students were divided into 4 different groups to go through the four departments namely CAD/CAM, Processing, Testing and Tool Design departments. The visits to all the departments and the observation of the proceedings provided significant exposure to all the students. The trainers facilitated an exposure to the automated machine-like Wire EDM, CNC Lathe etc.

- 10.06.2022** Department of ECE organised an Industrial visit to NRSC (National Remote Sensing Centre), one of the primary centre's of Indian space Research organization (ISRO), Department of space (DOS) on 10th June 2022 at NRSC, JEEDIMETLA. The event was addressed by Dr. Prasad, NRSC coordinator
- 21.07.2022** Dr. N. Goutham Rao, honourable Chairman, distributed notebooks to the students of Govt. School, Aushapur village. Dhyuthi – the NSS unit of VBIT conducted the programme. Dr. PVS Srinivas, Principal also participated in the programme.
- 30.07.2022** The memories of the days spent by the students of Business Management were gathered to share again before they cast away from the campus to start a promising career. Here are a few glimpses of it.
- 30.07.2022** Department of Physics (H&S) organised a guest lecture on "Electronic Materials and Processing Technologies" on 30th July 2022. The event was addressed by Dr. Y. Purushotham, Scientist E, C-MET, Hyderabad.
- 02.08.2022** An interactive guest lecture entitled "Simple – Yet Practical Tips for Enriching Communication Skills!" was delivered by Mr. Kiran Chandar, Director and Chief Facilitator, Confidemy and an accomplished Corporate Trainer on 2nd August, 2022. About 200 I B.Tech students attended the session, participated enthusiastically and interacted with the speaker leading to a lively discussion and useful takeaways for all the participants.
- 06.08.2022** The Department of Humanities & Sciences, (Chemistry) organised a Student Development Program on "An Overview of Batteries" by Dr. Naresh Kumar Katari, Assistant Professor of Chemistry, GITAM University, Hyderabad, for I B.Tech students (CSD, IT, ECE, CIVIL & MECH) on 6th August 2022 at Nalanda Auditorium.
- 12.08.2022** 50 of VBIT students tied Rakhi's to the beloved soldiers in the Yaprul Containment area on the occasion of Rakshabandhan as part the initiative "Rakhi for Soldiers" conducted in association with Samskrihi Foundation.
- 15.08.2022** The auspicious occasion of the #IndependenceDay was celebrated with great zeal at VBIT. The event began with hoisting of the National Flag in the presence of Principal, Directorates HoDs and many other dignitaries.
- 16.08.2022** A Seminar on "How to Apply for the newly launched SERB-SURE Project Funding Scheme" was organized by Research & Development Cell to all the Doctorates in the areas of Science & Engineering. Dr.S.Sundeeep, Director-R&D Cell, Explained about the newly launched funding scheme by Science and Engineering Research Board (SERB) entitled "State University Research Excellence (SURE) scheme. He explained about the objective of the scheme, eligibility, how to apply for the scheme, suitable budget allocation, other related data need to be prepare and submit.



- 18.08.2022** Dyuthi the NSS unit of VBIT conducted Vajrotsava Vanamahotsavam Program as part of 'Swathantra Bharatha Vajrotsavalu' and planted 79 saplings in college premises
- 28.05.2022** Task taken up by: Rishab Tej (President), Harsha Vardhini (Vice President), Sravya (Vice President), Mujahid (EB Member), Nikhitha (EB Member), Yashwanth (Treasurer), Manish (Coordinator), Phaneeshwar (Coordinator), Akshay (Coordinator). Task Venue: Nellipakabanjara Village, Ashwapuram mandal, Bhadradi Kothagudem district, Telangana state. Event summary: "A kind gesture can reach a wound that only compassion can heal." A team of women from Nellipakabanjara Village started their occupation by preparing sanitary napkins with the main motto of appraising the awareness of menstrual hygiene among women using natural and biodegradable materials. They used to distribute these prepared napkins in schools to promote awareness of sanitary napkins usage and menstrual hygiene. Producing these napkins requires a lot of raw materials like cotton and tree gums. But because of insufficient funds, they find it difficult to purchase this raw material. Due to this, the production of sanitary napkins has been reduced immensely, directly affecting menstrual health and hygiene. Street Cause – VBIT, have provided them
- 27.08.2022** "Dhrona", a new club to motivate and enable the students to prepare for Civil Services and other related competitive examinations, has been launched.
- 27.08.2022** coding.Studio(), the official programming club of VBIT has begun it's fourth tenure on 27th August, 2022. A new team of 20 programmers was selected for the tenure with Pranchal Agarwal and Srija Nakirakommula as the leads of the forum.
- 26.08.2022** ICT Academy in association with Honeywell launched the 1st edition of Digital Youth Summit Exclusive for the students who was part of the Honeywell Students Empowerment program on 26th Aug 2022 from 10 am to 12 pm (Virtually).
- 30.08.2022** "You can't use up creativity. The more you use, the more you have." EcoClub – VBIT conducted Nirvighna 2K22 clay idol-making competition for all the students of the college. Participants turned up in large numbers and made beautiful eco-friendly clay idols using their utmost creative skills to promote eco-friendly way of celebrating the festival.
- 13.08.2022** Parent-Teacher Meeting for I BTech students was held on 13th August, 2022. Parents/guardians of about 75 students turned up for the meet and interacted with the class teachers and mentors about the attendance and academic progress of their respective students
- 08.09.2022** Department of Electronics and Communications Engineering is organised a one-day seminar on "Machine Learning and Applications" on 8th September 2022. The seminar was addressed by Dr. Ravi Kumar Jatoth, Professor, NIT Warangal.
- 28.05.2022** "Selfless giving is the art of living." Rural areas have been the backbone of Indian economy from centuries but the employment opportunities in the rural areas still remain poor. A recent survey was conducted in Mamillavai village of Bhadradi District, where they don't have any permanent basis for income other than farming and cattle, which doesn't provide them adequate income. Due to deficient infrastructure and lack of literacy, they cannot find permanent employment and can't make their ends meet. The team Street Cause – VBIT, have provided the residents of Mamillavai village with a Chilli powder making machine, which will help them as an additional permanent source of income and employment. Thereby enabling them to improve their livelihood and living standards.



- 31.05.2022** Event Summary: Computers have become an inevitable part of human life. This technology allows students to extend their learning and connect them to the real world. But in rural areas, it is not feasible to provide computer knowledge due to the lack of needed essentials (Computing Resources and skilled personalities). Colorsky organization in Ashwapuram started providing accessible computer-related courses and soft skills to the people (prior female) from the past three years. As the need for employment and interest among students in the village is gradually increasing, the organization's equipment availability is becoming insufficient. So, the team Street Cause VBIT, came up to provide them with three computer systems and a projector that can help the organization impart their knowledge to more people, which will benefit the village's students, farmers, and civilians to gain digital literacy and employment. Task Date: 31st May 2022. Division name: Street Cause – VBIT. Event Name: Project ADHYAPANA. Task Number: 08. Task taken up by: Rishab Tej (President), Harsha Vardhini (Vice President), Sravya (Vice President), Mujahid (EB Member), Nikhitha (EB Member), Yashwanth (Treasurer), Manish (Coordinator), Phaneeshwar (Coordinator), Akshay (Coordinator). Task Venue: Colorsky Organization, Ashwapuram Mandal, Badradri District, Telangana
- 15.09.2022** Student Activity Center (SAC) organised Engineers' Day Celebrations in the Institute on 15th September to commemorate the birth anniversary of Sir Mokshagundam Vishveshvarayya. Celebrating India's greatest engineer's birth anniversary indeed provided the right amount of inspiration for all the young engineering undergraduates who are going to be the ambassadors of our institution. Dr.Swarupa, Director, Student Affairs, briefed about each of the student clubs and forums along with the faculty co-ordinators and the students leads. It is followed by Plan of Action presentations of the respective clubs for the ongoing academic year.Dr.Jayanth Kulkarni, Director, IQAC and Dr.Amrender Rao, Director, PG Studies addressed the gathering and commended the efforts of the Student Activity Center in creating a positive and vibrant atmosphere to nurture the all-round skills of the students.
- 16.09.2022** Department of Computer Science & Engineering organised a guest lecture on "Neural Networks & Its Applications" on 16th September 2022 at Nalanda Auditorium. The event was addressed by Mr. Aditya K, M.Tech, BITS Pilani, Senior Technical Lead, ZF India, Pvt. Ltd.
- 20.09.2022** India will emerge as the Global Knowledge and Education Capital and the Technology Leader in the next few years thanks to all the dynamic measures being implemented by the Government of India under the visionary leadership of the honorable Prime Minister Narendra Modiji, said Dr. Chandrasekhar Buddha, Chief Coordinating Officer, AICTE, Ministry of Education, Government of India. Dr. Buddha, was the Chief Guest at the grand inaugural of the Mega Placement Drive hosted by Vignana Bharathi Institute of Technology (VBIT), Ghatkesar on 20th September, 2022. He said that the new start-up ecosystem being created by the dynamic initiatives of the Government of India has led to the creation of over 6 lakh Start-ups and several Unicorns among them. He also said that it is a great career opportunity for the BTech graduates of 2022 & 2023 from VBIT and many other colleges from Telangana and Andhra Pradesh. Mr. Shubhajit Jagadev, Co-Founder & CEO, EduSkills and Mr. Lokesh Mehra, Sr. Biz Lead – Learner Engagement, South Asia are also part of the inaugural. They commended the efforts of VBIT, its Management and Principal for all the infrastructural excellence in the Institution and thanked them for facilitating this mega Placement Drive offering placement opportunities.



- 21.09.2022** Department of Electrical and Electronics Engineering conducted a guest lecture on "Overview of IC Engines" on 21st September 2022 at Chethana Auditorium. The event was addressed by Dr. G. Amarendar Rao, Director Academic Audit & PG Studies.
- 22.09.2022** Department of Civil Engineering conducted a guest lecture for all final year students on "HVAC in Buildings" on 22nd September 2022 at Akash Block. The event was addressed by Dr. G. Amarendar Rao, Director Academic Audit & PG Studies.
- 22.09.2022** Department of Electrical and Electronics Engineering conducted a guest lecture on "Electric Vehicles for eMobility – the Future" on 22nd September 2022 at Chethana Auditorium. The event was addressed by Dr. P V Rajgopal, General Manager (Retired), BHEL/ Corporate R&D
- 23.09.2022** A guest Lecture was organised on "The Career opportunities after B.Tech". It was addressed by Mr P. Ramesh, Senior Faculty in ACE Engineering Academy. The main points of focus were: • How to Crack the GATE Exam, Exam Pattern. • Cut-Offs of IISC/IIT's/NIT's and various Reputed Universities. • How to crack Engineering Services Exam, Selection process & Exam Pattern • Job opportunities through Engineering Services Exam. • Higher Studies options Abroad after B.Tech. • About Research Programs in BARC & CSIR. • Public Sector Undertaking Companies selection process & eligibility criteria.
- 26.09.2022** Department of Civil Engineering organised an industrial visit to CSIR-NGRI Observatory and Labs for 3rd and 4th Year students on 26th September 2022.
- 26.09.2022** Department of ECE organised a Seminar on Introduction to Cloud Computing on 26th September 2022. The event was addressed by Dr. G Sreeram, Professor & Head CSE Department at Prerna Hall.
- 26.09.2022** Department of Mechanical Engineering organised an industrial visit to CSIR-NGRI Observatory and Labs for 3rd and 4th Year students on 26th September 2022
- 26.09.2022** Greetings from IEEE – VBIT SB, On September 26, 2022, IEEE – VBIT SB presented the Plan of Action for the tenure 2022–2023. The dignitaries were elaborated the Teams, Societies, Groups under IEEE – VBIT SB and the events planned for the tenure and their outcomes. On September 26, 2022, IEEE – VBIT SB presented the Plan of Action for the tenure 2022–2023.
- 29.09.2022** Department of Mechanical engineering conducted a book distribution scheme for the needy and deserving students on 29th September 2022. Spear headed by Dr. N. Goutham Rao, Chairman VBIT and Dr. G. Amarendar Rao, Director academic audit & PG studies provided 24 books to the students on different subjects. Reason of this scheme: To provide free and quality books to deserving students who are financially struggling. Accessing them the information related to the spectrum of competitive examinations. To continue the legacy of the VBIT alumni by passing down the knowledge they possessed. Dignitaries appreciated this humble initiative taken by the donor Mr. Dhruva Rathode alumni of VBIT currently pursuing his Master's in Human Computer Integration (HCI) in Chicago University, USA
- 01.10.2022** VBIT celebrated AYUDHAPOOJA, on the Occasion of Navaratri Celebrations on 1st October, 2022 at Machine Tools Laboratory, Nirmithi Block. here are a few glimpses from the celebrations



- 02.10.2022** Street Cause – VBIT, on the occasion of Navaratri, has organized one of their biggest fund-raisers, “FUSION D<sup>3</sup> – CHAPTER 2,” on 2nd October 2022. Fusion D<sup>3</sup> was a celebration to experience the ever-lasting joy with the melody of music and dance and the most delightful night of the year with Dandiya, Dhol, and DJ. The fest was energetic, sparkling and gratifying in the rhythm of Dandiya, Dhol, and DJ.
- 11.10.2022** Department of Civil Engineering organised an Interactive Session for Civil Engineering Students on “Should Education Decide One’s Future Life?” on 11th October 2022 at Chethana Auditorium. The event was addressed by Dr. SR. Parimi, Retired Professor, Chief Structural Engineer, Parimi Consultants.
- 12.10.2022** VBIT is organised a guest lecture on “World Mental Health Week” on the topic “Mental Health Awareness – Adolescent Issues and needs” on 12th October 2022 at Nalanda Auditorium. The event was addressed by Dr. G Padmaja, Associate Professor and Head, Centre of Health Psychology.
- 20.10.2022** Inauguration of e-vaartha Club, VBIT
- 14.10.2022** “We keep moving forward, opening new doors, and doing new things, because we are curious and curiosity keeps leading us down new paths.” We believe Induction Day is essential to anyone for the successful transition to the organisation. It is an opportunity to become more familiar the new work environment and learn about involvement opportunities that will enhance one’s experience. Hence a Coordinator Induction was held on 14th October, 2022. A brief introduction of DHRONA VBIT was given and the work roles of Coordinators was explained. By the end of this induction our coordinators had a good interactive session and now we are ready to achieve our goals.
- 21.10.2022** Greetings from IETE-ISF VBIT...! “Space is an inspirational concept that allows you to dream big.” IETE-ISF VBIT presents “THE SPACE FEST” under Space Sciences and Technology wing. This event is conducted on two consecutive days. The main aim of this event is to provide knowledge about space and it’s mysteries. On day 1, SPACE FILM started with lightning of lamp by our respected principal Dr. P. V. S. Srinivas Rao. Director of PG studies Dr. Amerander Rao, HOD of ECE department Dr. U. Poorna Lakshmi, and Faculty coordinator Mr. T. V. Chandra Shekhar addressed the event. We interacted with all the participants and we called up Participants randomly on to the dais to share their knowledge about space. Participants further took part in documentary film on space, Rocket Launch and about mars and it’s nature. Experience as twenty-five-and-a-half-day mission from roll-out to recovery of the first integrated flight test of NASA’s Orion spacecraft and the Space Launch System rocket, launching from the agency’s Kennedy Space Center in Florida. NASA launches the Mars 2020 Mission, perhaps the most ambitious hunt yet for signs of ancient life on Mars. We hope that this was an amazing experience ever!
- 28.10.2022** Department of ECE organised a guest lecture on “Overview on Electronic Product Design” on 28th October 2022 at Nalanda Auditorium. The event was addressed by Yashwanth Pobala, Electronics R&D Engineer, Belden Engineering Center, Belden Inc.
- 28.10.2022** II B.Tech Students Orientation Programme
- 29.10.2022** Department of CBS & DS organised a one-day workshop on “A Practicum on Data Science Family” on 29th October 2022 at Common Computer Lab. The event was addressed by Mr. K.Sri Krishna Karthik, Operations Chief – Cryptua Solutions Pvt. Ltd.



- 28.10.2022** Greetings from Team IGBC – VBIT SC. Here are the glimpses for the First Day of the Nirmaan Workshop which enhances the skills set of civil engineering student of our college. In the forenoon session it started with the inaugural ceremony and some basic concepts in the AutoCAD are explained by the resource person. And in the Afternoon session Hands-on experience is carried out for the participants to enhance their scope in AutoCAD.
- 27.10.2022** Greetings from IEEE – VBIT SB! "Expedition towards erudition leads to the path of prosperity." On the Day -1 of .NET Workshop the basics of C# (C-Sharp), a programming language which runs on .NET workshop were taught by our speaker. Also, the development of a basic application was implemented. Students were able to learn how .NET works and had a great time learning from our speaker. Here are the glimpses of Day – 1 of the Workshop.
- 28.10.2022** Greetings from IEEE – VBIT SB! "Contrive an itinerary to cognize your interest" On the day -2 of .NET Workshop students could develop one console application and one desktop which are BMI calculator and User proficiency level. Students were able to learn how to build websites using .NET framework and architecture. Here are the glimpses of Day – 2 of the Workshop.
- 29.10.2022** Greetings from Team IGBC – VBIT SC. Here are the glimpses for the second day of the NIRMAAN Workshop that procure the enlightenment in the software-based application related to Civil Engineering Field. In the morning session the workshop started with the competition in designing the basic 2D plan with all specifications given by NBC with a time limit of one hour. A panel of faculty of Civil Engineering Department scrutinized the plans and evaluated the participants. And in the afternoon session the resource person along with the winners are felicitated. Our event created a new vibe in the department of civil engineering.
- 31.10.2022** The inauguration of "Data Vedi" the Data Science Club of VBIT has done on the hands of Dr. D. V. Ramana and Principal Dr. P. V. S. Srinivas on 31-10-2022
- 31.10.2022** A guest lecture on "Recent Trends in Data Science Applications Using Machine Learning techniques and tools" by Dr. D. V. Ramana, program manager- Empiezo IT solutions PVT LTD, Acedemic Adviser – Pallavi Engineering college organized by the Department of Data Science on 31-10-2022.
- 31.10.2022** Dyuthi the Nss unit of VBIT conducted unity run and pledge taking ceremony on "Rashtriya Ekta Diwas" (National Unity Day) to commemorate the birth anniversary of Sardar Vallabhbhai Patel the architect national integration of independent India
- 01-05.11.2022** Department Of ME, VBIT are organising DESIGN NOW WORKSHOP from 1st – 5th November 2022 at lab 13, 14 Computational Centre. The workshop is intended to inculcate designing knowledge using FUSION 360 software into the young minds. We as the CENTRE OF EXCELLENCE FOR DESIGN under ICT ACADEMY are hosting this Workshop which provides an excellent overview of the mentioned software.
- 04.11.2022** Inauguration of Centre of Excellence in "Machine & Deep Learning" in association with NIT, Warangal was held on 4th November 2022. The event was graced by chief guest, Prof D V L N Somayajulu, Director, IITDM Kurnool.
- 04.11.2022** VBIT conducted Induction Program for its 1st year students & their Parents on 4th November 2022. It was a grand event with all dignitaries present. Here are a few glimpses of it.



- 04.11.2022** Department of IT organised a one-day workshop on “Machine Learning & its Applications” on 4th November 2022 at IT Computer Lab, Srujan Block (2nd Floor). The event was addressed by K. Venkata Ramana, Quality Matrix, NTT Data
- 04.11.2022** Department of Electrical and Electronics Engineering is organising a workshop on “PCB Design using proteus software” on 4th & 5th November 2022 at Power System Simulation Lab. The event was addressed by Dr. K. Surya, Head Operations, SAMAR TECH TRAINING & SOLUTIONS. Here are glimpses of Day 1
- 05.11.2022** Department of Electrical and Electronics Engineering is organising a workshop on “PCB Design using proteus software” on 4th & 5th November 2022 at Power System Simulation Lab. The event was addressed by Dr. K. Surya, Head Operations, SAMAR TECH TRAINING & SOLUTIONS. Here are glimpses of Day 2
- 05.11.2022** Department Of ME, VBIT organised DESIGN NOW WORKSHOP from 1st – 5th November 2022 at lab 13, 14 Computational Centre. The workshop is intended to inculcate designing knowledge using FUSION 360 software into the young minds. We as the CENTRE OF EXCELLENCE FOR DESIGN under ICT ACADEMY hosted this Workshop which provides an excellent overview of the mentioned software. Here are the glimpses of valedictory function
- 05.11.2022** Orientation programme Day 1: Session 1 - Aspirations and Concerns – Holistic Perspective- Mr.Raghu Dutt, Soft Skill Trainer; Session2 - Building Fitness & Team Spirit through Sports - Mr. Kiran Reddy, National Volley Ball Player & PRO, TSRTC; Session: SAC Presentation - Dr. T. Swarupa, Director, SAC; Session 4 - Student Activities by IEEE & IETE, SAE, ZARC
- 07.11.2022** Orientation programme Day2, Session1- Innovative Engineering by Dr. PVS Srinivas, Principal, VBIT Session2- Value Added Programmes, Entrepreneurship & Start-ups- Mr. G. Anil Kumar, Director, IIIC Session3- R21 Regulations: Academic Practices-Guidelines- Dr. S. Krishna Rao & Dr. V. Sridhar Reddy Session 4 - Student Activities of IGBC, Coding Studio, EpsilonPi, Abhedhya, Datavedi, Dyuthi – VBIT NSS Unit
- 09.11.2022** Orientation Programme Day 3 Session1 - Dr.Vivek Modi, Wellness Educator and Professional Speaker, delivered an engaging lecture on “Goal Setting – the Roadmap to Success. Dr. Modi enlightened our I B.Tech students on “How to Distinguish Between What is Good And What is Not for Oneself” in order to alter the thought process to become successful in their endeavors. He also created awareness on practical goal setting and elaborated on how to achieve them. Session2 - Guidelines to Participatory Reporting Assessment of Theme Based Harmonic Activity (PRATIBHA) PRA- Dr. Ashwini Session3- Dr. Shrmila Asthana, Paediatrician and Nutritionist, delivered an engrossing session in the post lunch session on the topic “Physical Well-Being & the Ways of Nurturing the Body”. Session 4 - Student Activities- ROBOTICS, SRISHTI, ISE, Ganith, Dhrona, eVaartha, EcoClub
- 10.11.2022** Orientation Programme Day 4 Session1: S. Mousami, Yoga Teacher in Yoga Consciousness Trust, Hyderabad Branch, delivered an inspiring interactive lecture on the topic “Yoga for a Better Life”. The lecture focused on the importance of practicing Yoga for a healthy and wholesome life. Session 2 Dr. N. Sathyanarayana, Professor of Physics and Registrar of the Institute has delivered a lecture on “Research and Career Opportunities in Science and



Technology". He has given the glimpse of the role of Science and Technoogy in engineering studies. He has also given the road map to engineers to get into the national research laboratories like DRDO, BARC, CSIR, ISRO, DMRL, TIFR and etc. Sir has shown the opportunities and scope of engineers to get into government sectors with research in engineering courses along with Science and Technology. Session3 H&S department presentation, Dr. P. Kalyani, HoD, H&S Session 4 Students Activities VBIT MUN, TEDx VBIT, Aashay, Chitrika, StreetCause VBIT, Stutalk

#### **11.11.2022** Orientation Programme, Day 5

Session 1 - "Dreaming Big and Realising One's Dreams" by Ms. Srilatha, Associate Professor of English and the Coordinator, Wellness Center

Session 2 - "Emotional Intelligence" by - Dr. Anjali, Rajyoga Teacher, Brahmakumaris

Session 3 - The Process and the Purpose of Research & Research Culture at VBIT-Dr.Sundeeep-Director-R&D

Sessions 4 - Career Opportunities for Engineering Graduates - Dr. Amarendra Rao, Director, Academic Audit

Session 5 - Department Visits are scheduled for the afternoon session where the HoDs and senior faculty of the Departments exposed the students to the department faculty, labs and other facilities. They also enlightened the freshmen about the practices in their respective departments and the prospects available in various fields of engineering.

#### **12.11.2022** Department of Mechanical Engineering organised a guest lecture on "Solving Mechanical Problems using SIMULINK" on 12th November 2022. The event was addressed by Dr. P. Anil Kumar, Scientist 'F', RCI, DRDO at Prerana Hall, Aakash Block.

#### **12.11.2022** Orientation Programme Day 6

Session 1 – Dr. Mrudula Lakkaraju, Faculty of English, Osmania University delivered an enthralling session on the topic "Visual Intelligence" providing insights into the interpretation of various visuals that are found around us. Dr. Lakkaraju threw light on various parameters involved in the process of interpreting the impactful and powerful media especially the films and advertisements. Session 2 – Dr. Padmaja, Professor of Psychology, University of Hyderabad, had a highly interactive session on the Topic "Relationships, Interactions, Ragging and Peer Pressure". Dr. Padmaja related these critical issues to Freshmen Engineering Students and provided them with practical and effective ways of dealing with these challenges and successfully overcoming them. Post lunch, a formal Valedictory Programme was conducted where Principal Dr. PVS Srinivas, Director, Academic Audit Dr. G. Amarendra Rao, HoD-H&S Dept. Dr.Kalyani, UHV Cell Coordinator Dr. Ashwini and Coordinator, Digital Media and Public Relations Mr. DKM Sharma addressed the Freshmen Engineering Students and put the entire Orientation Programme into perspective. It is followed by Cultural Programmes by members of the College Cultural Club "Virinchi"

#### **14.11.2022** Orientation Programme of MBA 1st Year was held on 14th November 2022 at Chethana Auditorium. The event was graced by the chief guest Mr. Amarnath Rao, Serial Entrepreneur, Training Coach & Independent Consultant



- 16.11.2022** Glimpses of the first event of Data Vedhi Club : 'Vaidushi' – Bootcamp on R programming and Data Mining techniques.
- 15.11.2022** Inauguration of Center of Excellence For Women Empowerment by Honeywell
- 17.11.2022** Team ISE VBIT-SS has successfully completed its event "PERSPECTIVE" while speakers like Padmaja Penemetsa founder of Align joy LLP, G. Nikhil founder of Gear head Motors and other student entrepreneurs have imbibed the knowledge of entrepreneurial skills into our students.
- 18.11.2022** Department of IT organised a one day workshop on "Cybersecurity" on 18th November 2022 at Chethana Auditorium. The event was addressed by Mr. Hari Krishna, Offensive Security Consultant, Siemba and Krishit Goud, Security Analyst, Infor.
- 28.11.2022** Guest Lecture on "EMF Applications in Electrical Machines" – Department of EEE in association with OHM Institute, Hyderabad. The event was addressed by Mr. B. Surendra Reddy, Subject Expert at OHM Institute, M.Tech from IITB on 28th November 2022.
- 26.11.2022** Dhrona – VBIT, It's a moment of gratitude for earning an opportunity to host the national youth parliament, in 2022. The presentations of our participants in the program were impacted. National youth parliament, by the name, is the creation of a holistic environment that resembles Parliamentary proceedings, where the youth includes learning different aspects of concern. This youthful session provides a possible platform to promote peaceful parliamentary proceedings as well.
- 29.11.2022** Department of MBA organised a Guest Lecture on "Career & Entrepreneurship Development Advanced Program (CEDAP) in collaboration with Zaprald Ltd., London, UK, Tekbizsoft Solutions India on 29th November 2022 at Chethana Auditorium. The event was addressed by Mr. Prem Sandri, MBA, Ph.D, Product Director, Zaprald Ltd., London, UK.
- 25.11.2022** Greetings from AASHAY x Cast. The team of AASHAY x Cast, conducted FILMOTSAV which is an inter college short film contest. The contestants were given genres on the 25th November for the contest. The team of upcoming short film "Pattukondoni chudam" briefed about making a short film and the important factors for it. The contending teams then were given 48 hours of time to make their short film.
- 28.11.2022** Filmotsav – Short Film Fest The screening event was conducted on 28th November in Nalanda auditorium where short films of different genres were screened for the audience. The team of "Rajamundry rose milk" and various directors enlightened the event with their experiences. The best three films were selected on the basis of audience pole and were awarded with cash prizes. First Prize: Team vinthanatakam for "Aakali" Second Prize: Team Vsr for "Dream" Third Prize: Team Infinity for "Oke Jeevitham"
- 11.11.2022** The Innovation Club of our VBIT named SHODH – 3 was inaugurated on 11th November, 2022 in association with The Entrepreneur Zone.
- 23.11.2022** VBIT & Samskruti Foundation appreciates and congratulates the Essay Writing competition winners conducted on 23rd November, 2022 on the eve of Jhansi Lakshmi Bhai's Birth Anniversary (19th November) in Avishkar Block. Winners V Charan Tej – 22P61A6260 – CSC M Rohini – 22P61A67A6 – CSD-B G Sai Sravanthi – 22P61A0462 – ECE-AB Navya – 22P61A1221 – IT-A



- 20.12.2022** Telangana State police Women safety wing conducted a virtual program called Unite for Her Youth Conclave-2022 in all the engineering institutions across Telangana on 20th Dec 2022 at 11:30 AM through virtual mode. Women's Protection cell, VBIT organized this virtual talk in a grand way in its campus with a huge gathering of 400 first year students at Nalanda Auditorium. In this program, dignitaries addressed the students on Drug Addicts and Women's Safety and all the necessary steps to be taken to curb women and child abuse. The event coordinators made it impressive with quizzes and goodies for the winners. The college Principal, Dr. PVS Srinivas, Director, Students affairs, Dr. Swarupa, Dr Dharmendra, Mr. DKM Sharma, Convenor, WPC, VBIT Dr. Ashwini, the technical support team and Sama Sangathan, the student volunteers, WPC, ensured the virtual event to be a grand success.
- 23.12.2022** Our strides let us place in the Hall of Fame AICTE – Eduskills Connect 2022 NextGen Conclave
- 30.12.2022** Our MBA – II organised a delightful event Freshers Fiesta to welcome the new juniors of MBA in Chethana Auditorium. The event went well with vibrant presence of staff and management, amusement with a variety of fun and exciting activities along with delicious food. Thank you everyone for the great support
- 04-12.01.2023** Two weeks Faculty Development Program on AI/ML for Computer Vision Applications Organised by Center of Excellence in Machine & Deep Learning, VBIT in Association with Electronics & ICT Academy, NIT Warangal from 4th January to 12th January 2023.
- 24.01.2023** Greetings from Team Avishkar 2K23! We, the team Avishkar 2K23, took the initiative to conduct Plan of Action of Avishkar 2K23, the flagship event of IEEE – VBIT SB. The Plan of Action is a strategic approach for efficient planning of the event. Stay tuned for further updates of Avishkar 2K23!
- 25.01.2023** Professor ML Sai Kumar, Former Dean of Institute of Public Enterprise (IPE) – Hyderabad gave a seminar on the Role of Faculty in Mentoring on 25th January, 2023 at Chethana Auditorium.
- 26.01.2023** Republic Day Celebrations – 2023 in VBIT
- 24.01.2023** In view of providing industrial exposure to the students, the department of Mechanical Engineering has planned a one-day visit to M/s. Jain Irrigation Systems, Kondamadugu, Hyd. This tour has been successfully executed under the coordination of faculty for the II B Tech students on 24/01/2023. This is the very first trip to an industry as far as students are concerned which made them enthusiastic in exploring the environment. Jain Irrigation Systems Ltd. (JISL) derives its name from the pioneering work it did for the Micro Irrigation Industry in India. However, there is more to Jain Irrigation than Irrigation. The Corporation has multi product industrial profile and manufacturers of Drip and Sprinkler Irrigation Systems. Each of their products is an outcome of an effort to conserve nature's precious resources through substitution or value addition. This is the legacy of a deliberate and conscious endeavor that stems from a deep-rooted concern for nature. On the day of visit, the students were given an AV presentation by Mr. Dileep Gujarathi, Senior Manager which described the success story of the company and its wonderful outcomes. Later the students were accompanied by the production team by dividing them into groups. They were taken to various sections of depts. Like raw material storage, mixing chamber, quality check area etc. They explained the process involved in the production system of PE Pipe, HDPE pipes etc. The students were immensely



satisfied with this visit by resolving their queries regarding manufacturing system and its operations. They had experienced a practical exposure to industrial Environment in this trip which gave knowledge-based outcome to the students.

- 26.01.2023** Greetings from Team Avishkar 2K23! The journey of Avishkar 2K23 has officially commenced. We are elated to introduce you to the 15th edition of Avishkar. The idea of Avishkar 2K23 has been amended and is now here with an innovative view. Mark your calendars and be ready for something astonishing.
- 27.01.2023** Department of Business Management has organised the Students Visit to Coca-Cola Ameenpur, HYD on 27th January, 2023. Our MBA students gained insight into the processes of the industry, including management roles and responsibilities, as well as how to effectively lead a large team.
- 27.01.2023** Department of Electrical and Electronics Engineering organised a Faculty Development Program in Design of Solar Photo Voltaic Systems on 27th Jan, 2023 as Day-1.
- 28.01.2023** Department of Electrical and Electronics Engineering organised a Faculty Development Program in Design of Solar Photo Voltaic Systems on 28th Jan, 2023 as Day-2.
- 02.02.2023** Empowering Girls on Cloud Tech event inaugurated by Deepthi Chimalurthy, Senior Program Manager, AWS Training and Certification – India on 2nd of February, 2023 supported by AWS and EduSkills.
- 03.02.2023** VBIT is hosting the Empowering Girls on Cloud Tech which is being supported by AWS and EduSkills. Here is the glimpse of Day 2 of 3 days program on 3rd of Feb, 2023.
- 03.02.2023** The 6th Academic Council Meeting held on 3rd February, 2023 at VBIT.
- 04.02.2023** Empowering girls in cloud technology is not just a matter of equity, but a smart initiative for the development future of our digital economy and society. To enrich the Cloud Tech Awareness in girls, VBIT launched a training program named as Empowering Girls on Cloud Tech. Here is the glimpse of Day 3 of Empowering Girls on Cloud Tech Training, which is propelled by AWS and EduSkills on 4th February, 2023.
- 04.02.2023** An event to enhance the Skills on Financial, Economical and Managerial Strategies of Stock Market, our Elite Club of Department of Business Management is going to organise Finanza – The League of 360° Finance. The Finanza poster was launched by Dr. P. V. S. Srinivas, Principal of VBIT on 4th Feb, 2023. It's a two day program on at 10:00 am on 6th and 7th of February at Chethana Auditorium with Arthgyan Quiz and Mulyakan – Financial Analysis on Day 1 and CoinUp and Bulls&Bears on Day 2. Dr. G Padmaja will host the event as Faculty Coordinator along with Kajol Yadav, K Prerana, J Soumya and V Govvind as Student Coordinators.
- 04.02.2023** Department of Information Technology successfully organised a huge Workshop on Microsoft SQL Server for the II Year students. Ms Katepally Jyothsna Devi, Project Manager, Tag World Wide as a resource person addressed the workshop at Chethana Auditorium on 4th Feb, 2023 from 10:00 am to 04:20 pm. The workshop went great with Convenor Dr. K Kalaivani – HOD-IT, Co-Convenor Dr. V Sridhar Reddy – Assoc Prof & COE, Coordinators Mr. N Indira Priyadarsini - Asst Prof, Ms V Ambica – Asst Prof; Chief Patrons Dr. N Goutham Rao – Chairman & Dr. Manohar Reddy – Secretary and Patron Dr PVS Srinivas – Principal.



- 04.02.2023** On February 4th, 2023, VBIT successfully concluded the Empowering Girls on Cloud Tech training program, in partnership with AWS and EduSkills, aimed at enhancing the technical knowledge and skills of girls in the field of cloud technology. The valedictory ceremony marked the end of this empowering initiative.
- 04.02.2023** The wait is over! Presenting the official logo for the TechFiesta-2K23. A perfect blend of technology and innovation, just like the college!
- 06.02.2023** The Department of Business Management's Elite Club is organizing "Finanza – The League of 360° Finance" to improve financial, economic and managerial strategies related to the stock market. Here is the glimpse of Finanza – The league of 360° Finance with Arthgyan Quiz and Mulyakan Financial Analysis at Chethana Auditorium.
- 07.02.2023** Day 2 of "Finanza – The League of 360° Finance" organized by the Department of Business Management's Elite Club was an exciting showcase with CoinUp Stock Market Workshop and Bulls & Bears Mock Stock at the Chethana Auditorium. Students enhanced their knowledge in financial, economic and managerial strategies related to the stock market.
- 08.02.2023** Greetings from Team Avishkar 2K23! "Delineate your avenue to alleviate your cognizance." Avishkar 2K23, the flagship event of IEEEVBIT SB Day 1 of Avishkar, a Technical Paper Presentation competition conducted every year exclusively for the freshmen of VBIT, is being held today i. e. 8th February, 2023.\* As this year's student presentations are theme based and covering specific technical problem statements given to them, faculty of the Engineering Departments are requested to make themselves available to motivate and guide our Freshmen Engineering Students. Regards, Team Avishkar 2K23.
- 08.02.2023** Empowering women, one step at a time! We're proud to have been a part of the Women Empowerment Program organized by Cognizant Foundation at our college
- 09.02.2023** Greetings from team Avishkar 2K23! We would like to express our sincere appreciation to all of the participants for their engaging presentations. We are glad to all of the participants who have chosen to work with Avishkar to improve their research skills and soft skills. Here are a few glimpses from the Day 2 of Avishkar 2K23 on 9th February.
- 10.02.2023** Our Mechanical Department has organized an Industrial Visit to Prathiraj Metal Masters on 10th Feb, 2023. Our students advantaged with hands-on experience in metal manufacturing and enhanced the knowledge in high performance moulds that produce high quality components.
- 10.02.2023** "Connect the dots in line with your thoughts" Eloquence is a one-day event organised by the team StuTalk under our Broadcast Journalism division that evaluates participants' creative, listening, speaking, and writing abilities through case studies and pictorials. The event included various activities such as solving cases, a game of Pictionary, unravelling mysteries, and ice-breaker sessions
- 13.02.2023** Greetings from TechFiesta2K23, We, the team of TechFiesta2K23, wholeheartedly appreciate all the students who attended Day 1 of the TechFiesta2K23 Bootcamp and had chosen to take away various learnings from our platform. Special thanks to Denaurlen Pvt. Ltd. team for creating an amazing environment with their professional and lively presence. Get ready to code, collaborate, and innovate! The Hackathon next weekend is the perfect opportunity to showcase your skills, connect with like-minded individuals, and work towards creating something truly amazing!



- 14.02.2023** The team of TechFiesta2K23, wholeheartedly appreciate all the students who attended Day 2 of the TechFiesta2K23 Bootcamp and had chosen to take away various learnings from our platform. The insights of our students into the struggles of the initial stages of a startup, and the technical resources of building your prototype were explained and of course who could forget the fun sessions which filled the auditorium with energy. Get ready to code, collaborate, and innovate! The TechFiesta2K23 next week is the perfect opportunity to showcase your skills, connect with like-minded individuals, and work towards creating something truly amazing!
- 20.02.2023** We were thrilled to host an Ethical Hacking workshop on 20th Feb, 2023 by Hari Krishna Bandlamudi! It was an incredible opportunity for students to learn about cybersecurity and how to secure their systems from cyber threats.
- 21.02.2023** Enigma – A machine learning model building competition was conducted by EpsilonPi – The machine learning club of VBIT on 21st Feb, 2023. 75+ people participated in this competition and built machine learning models using provided datasets.
- 22.02.2023** It marks the end of an amazing journey as we celebrate the valedictory of our Women Empowerment Program on 22nd Feb, 2023! Congratulations to all the women who participated and committed to empowering themselves and others!
- 22.02.2023** coding.Studio( ) conducted Day – 1 of their flagship event “codeCraft”. codeCraft is a step to foster a strong programming culture in VBIT. On the first day of the event, they taught the students about the importance of competitive programming and helped beginners start their CP journey. They also conducted a mock contest to give the participants an idea about how the main contest is going to be. There were 50+ teams who benefited from the event and scored really well in the mock contest.
- 23.02.2023** The coding.Studio( ), has successfully organized the second day of the CodeCraft 4.0 competition. The event saw enthusiastic participation from the brightest minds, who put their best foot forward to showcase their prowess in competitive programming. We are delighted to announce that after a closely contested event, three teams emerged as winners of the competition. Here are the glimpse from the day 2 of codeCraft 4.0 which was held on 23rd February.
- 24.02.2023** VBIT hosted a workshop on “Disassembly and Assembly of IC Engines” at SAE-VBIT SB, led by experienced technicians who guided participants through every step of the process and answered their questions. The workshop was open to newcomers and those with a fundamental understanding of IC engines, and it provided hands-on experience and new skills for anyone interested in mechanics or engineering.
- 24.02.2023** On 24th Feb, 2023 kicked off with the inauguration of Hacknovation held by TechFiesta-2k23 at VBIT, where teams from different colleges participated to bring innovative ideas. The event started off with a keynote speech from higher dignitaries of the event followed by briefing on the hackathon’s theme and rules. As the guest of honor, Mr. Siddarth Pilli and chief guest Mr. Sajeed Kalam shared their experience and expertise with the participants. They emphasized the importance of collaboration, innovation, and creativity in solving real-world problems. The judges who are experts in various technical as well as managerial fields, listened carefully to each team’s presentation, evaluating the solutions proposed based on their level of innovation, functionality, potential impact, and feasibility.



- 24.02.2023** The jury round of Hacknovation on 24th Feb, held by TechFiesta-2k23 at VBIT was an intense and exciting event. The judges were experts in various fields, including technology, business, and innovation. They listened carefully to each team's presentation, evaluating the solutions proposed based on their level of innovation, functionality, potential impact, and feasibility. The judges asked insightful questions, challenged assumptions, and provided feedback to help the teams improve their ideas. It was clear that the participants had put in a great deal of effort and thought into their projects, and the judges were impressed by the high quality of the solutions presented. The jury round was a great learning opportunity for all involved and provided valuable feedback to help the teams refine and improve their idea.
- 25.02.2023** The day 2 of Hacknovation marked the final day of the hackathon, and participants were hard at work trying to finish their projects before the deadline. The energy was high as teams rushed to add those final touches to their code and put the finishing touches on their presentations. Despite the fatigue that had set in after long hours of work, everyone remained focused and determined. Judges and mentors were on hand to provide guidance and feedback, ensuring that every team had a fair shot at winning. As the day drew to a close, the tension mounted, and excitement filled the air as teams presented their final projects. Overall, it was a successful event that showcased the power of collaboration and innovation.
- 28.02.2023** On the occasion of "National Science Day" VBIT, in association with Samskruti Foundation organized an Industrial Tour to ICMR-NIN for select I B.Tech students to familiarise them with the importance of Science in various Technological areas. Dr. K. Sirish Kumar, faculty of Chemistry and Mr. Naresh Kumar, faculty of Mathematics accompanied the students.
- 28.02.2023** Happy National Science Day! On 28th Feb, 2023, the Department of Humanities hosted a guest lecture on the application of Differential Equations, which was presented by Prof. D. Srinivasacharya from the Department of Mathematics at National Institute of Technology, Warangal. Prof. Srinivasacharya highlighted how important Differential Equations are in engineering and real-life situations.
- 04.03.2023** Greetings from IETE – ISF VBIT..!!! "The greatest glory in living lies not in never falling, but in rising every time we fall." We are delighted to report that Sowparnika 2K23, the flagship event of the IETE-ISF VBIT in collaboration with the Physics and Chemistry Club under the Department of Humanities and Sciences, was held on March 4, 2023. Respected Secretary Dr. G. Manohar Reddy, Dr. G. Anuradha, Principal Dr. P.V.S. Srinivas, as well as the H&S HOD and faculty, cut the ribbon to officially launch the event. Prototypes and posters were on display when the event started, and respected judges Ch. Lavanya madam and S. Drakshayini madam evaluated the performances. Ended the event with a fantastic crew, plenty of memories, and a beautiful experience. Regards, Team IETE – ISF VBIT
- 08.03.2023** Greetings from Team Sama Sangathan Under Women Protection Cell. On 8th March, we hosted an event for all female faculty members to celebrate International Women's Day. It was a day when women were recognized for their achievements without regard to divisions, whether national, ethnic, linguistic, cultural, economic or political. We hope the event was enjoyed by all who attended.



- 11.08.2023** We're excited to share that our Student Mentoring and Counselling Cell organized a guest lecture on the Art of Anger Management, Attitude, and Behavior by Professor M L Sai Kumar, Former Dean, Institute of Public Enterprise (IPE), Hyderabad at Chethana Auditorium on 11th March, 2023. The lecture was truly insightful and gave students valuable tips on how to manage their anger and maintain a positive attitude in all situations. Professor Sai Kumar shared his expertise and experience with the audience, providing practical advice and real-life examples that resonated with everyone present. The event was a huge success, and we're grateful to Professor Sai Kumar for sharing his time and knowledge with us. We hope to organize more such events in the future and help our students develop important life skills that will benefit them in their personal and professional lives.
- 04.03.2023** A Parent-Teacher Meeting was held for the I BTech I Sem students on Saturday, 4th March 2023. Elaborate arrangements were made for the PTM with all the Class Teachers, Mentors and Teachers from the other Departments interacting with the parents about the academic performance, regularity and various other issues concerning their respective wards. Parents of 225 students attended the Meeting and actively interacted with the HoD, respective class teachers & mentors and the other teachers. They also visited the working models and poster presentations displayed as part of the Sowparnika event conducted by the Physics and Chemistry departments in association with IETE.
- 18.03.2023** 5 students of Ist B.Tech accompanied by Mr. P Naresh Kumar, Asst. Professor of Mathematics attended a National Science Day Workshop on "Science, Culture and Leadership held on 18th March 2023 by Samskruti Foundation at CCRT, HiTech City.
- 25.03.2023** Greetings from Eco-Club VBIT,  
 "We won't have a society if we destroy the environment."  
 Earth Hour is a special global event, initiated by the World Wildlife Fund (WWF). It is held every year to spread awareness of the value of safeguarding the environment. The event serves as a necessary reminder of the seriousness of preventing climate change.  
 The purpose of Earth Hour is to demonstrate that we all can make a difference in the fight against climate change by using less energy for one hour.  
 To voice our support for our planet, we installed a photo booth on the college premises to create awareness among the students. We observed students turning up in huge numbers to reinforce the movement.  
 We are for our plant and shall save it because we love it.
- 31.03.2023** Greetings from IEEE – VBIT SB!  
 On the Day-1 of Neuro Robotics the basics of microprocessors, micro controllers, LED blinking and mini robot construction were taught by the instructor of the workshop.  
 Students were able to learn Embedded C programming and its use in various applications such as buzzers, LED's. Students were able to gain insights on NODE MCU and gain deep understanding of hardware interfacing.  
 Here are the glimpses of Day-1 of the Workshop.



- 01.04.2023** Greetings from IEEE – VBIT SB! On the Day-2 of Neuro Robotics students enthusiastically participated in both the sessions .Students demonstrated and gained insights about the zero robot and Arduino voice control robot. Here are the glimpses of Day-2 of the Workshop.
- 01.04.2023** Greetings from Team VIBHA 2K23 – The cultural fest of VBIT...! The energy, the excitement, the sense of community that we've been waiting for is here now. Vibha 2K23's logo is finally here, and we couldn't be more thrilled to share it with you. With its captivating design, it encapsulates the essence of our unforgettable experience. Keep an eye out for more exciting announcements and surprises as we approach the big day.
- 08.04.2023** Conflict management is a crucial skill in today's fast-paced world. To make the students aware of this, a seminar on Conflict management was conducted for 2nd year students by Student Mentoring & Counselling Cell hosted by Prof M L Sai Kumar on 8th April, 2023 at Chethana Auditorium.
- 18.04.2023** Greetings from IETE-ISF VBIT....!  
 "Inspiration does exist, but it must find you working."  
 Respected principal sir Dr. P. V. S. Srinivas. HOD of ECE department Dr. U. Poorna Lakshmi, Event Head Mr. P. Sandeep and Faculty coordinator Mr. G. Narsimhulu addressed the event.  
 IETE collaboration with the department of Electronics and Communication Engineering hosted a webinar on the Internet of Things and open hardware. Innagurated the event and, the speaker Dr. Rajashekhar, a member of the Swecha developer chapter, followed. The Internet of Things (IoT) the network of physical objects "things" that are embedded with sensors, software, and other technologies. The speaker discussed about summer internship as well as certification on IoT and open hardware. At last event ended with vote of thanks.  
 Regards, IETE –ISF VBIT.
- 25.04.2023** We would like to extend a big thank you to everyone who joined us for the guest lectures on Career Opportunities in Project Management by Mrs. Vijayeta Malla and Logistics and Supply Chain Sector by Dr. Amit Hedau, organized by the Department of Business Management at VBIT on 25th April, 2023.  
 The event was a great success and we appreciate the valuable insights shared by the speakers. We also thank all the attendees who participated and made the event even more enriching.  
 We hope that the knowledge gained from the lectures will be useful in advancing your careers in the respective fields. Stay tuned for more such informative events in the future!
- 27.04.2023** Our civil engineering students truly outdid themselves at Project Expo 2K23! We saw amazing poster and model presentations that showcased the creativity and innovation of our department. Congratulations to everyone involved!
- 01.05.2023** The Department of Computer Science Engineering's Project Expo 2K23 was a resounding success! We saw some incredible projects from our students, who truly pushed the boundaries of innovation. Congratulations to everyone involved!
- 09.05.2023** VBIT extends the heartfelt gratitude to Dr. V Venkata Ramana, Incharge of the Centre for Excellence in Intelligence & Deep Learning at SR University, for delivering an insightful guest lecture on Microsoft Azure AI Fundamentals. The lecture was organized by the Department of Mechanical Engineering & CSE (AI&ML), and it proved to be a valuable learning experience for all attendees. The session was truly enlightening!



- 11.05.2023** Our Faculty Development Program (FDP) by Prof M L Kumar, organized by the Student Mentoring & Counselling Cell, was an incredible success on 11th May, 2023. The program delved into the fascinating realm of student behavior and academic challenges in the 21st Century, providing valuable insights and strategies for educators. Thank you to everyone who participated and contributed to this enriching event. Together, we are nurturing a brighter future for students and promoting excellence in education.
- 12.05.2023** Thank you to everyone who attended the successful Project Expo 2K23 organized by the Department of Mechanical Engineering! We were thrilled to see the incredible poster and model presentations that showcased innovative ideas. A special thanks to all the participants for their hard work and dedication. The event took place on May 12th, from 10:30 am to 04:20 pm at the Machine Tools Lab and Thermal Engineering Lab in Nirmal. Congratulations to all the participants for their outstanding contributions! Stay tuned for more exciting events and initiatives from the Department of Mechanical Engineering.
- 05.05.2023** VBITMUN 3.0 This conference has been organised by the students of VBITMUN SOC at the Hotel Abode during the dates May 5,6,7 of 2023. Delegates from various colleges and states have attended the conference and made the conference a successful one.
- 07.05.2023** VBITMUN – DAY 3 After successfully completing the conference sessions, we had a closing ceremony with all the dignitaries from our college and sponsors. In the closing ceremony we announced winners of each committee and concluded the conference.
- 28.04.2023** The annual cultural festival VIBHA-2K23 was held by the institute on April 28th and 29th, 2023. Our talented team made it happen with their hard work and dedication. From organizing events to managing the crowd, they did it all with grace and enthusiasm. Kudos to all the team members who made Vibha 2K23 a grand success!
- 28.04.2023** VBIT proudly congratulates our brilliant academic toppers on their remarkable achievements at VIBHA 2K23! We are thrilled to honor these exceptional individuals who have showcased unwavering dedication, perseverance, and academic excellence throughout their journey. Let's give a big round of applause to our Academic Toppers for their stellar achievements and setting new benchmarks in education! Your relentless pursuit of excellence inspires us all.
- 28.04.2023** What an incredible day of FLASHMOBS at VBIT Vibha 2K23! A big round of applause to all the departments who rocked the stage with their mesmerizing dance performances. You all truly set the campus on fire! The energy and enthusiasm displayed by each participant were simply infectious. You brought your A-game and made the event a roaring success. Kudos to all the dancers for their dedication and passion!
- 28.04.2023** Spectacular Skit Performances Unleashed at VIBHA 2K23! The event was a spectacular showcase of talent, creativity, and storytelling. We were mesmerized by the outstanding performances that left us entertained and inspired. We extend our heartfelt gratitude to all the participants who brought their passion and dedication to the stage, creating unforgettable moments for everyone in attendance. Thank you to our incredible audience for being part of this memorable event and for supporting the art of skit performances



- 28.04.2023** The singing performances at VIBHA 2K23 were simply remarkable! The participants showcased exceptional talent, leaving the audience in awe. Witness the exclusive photos capturing the magical moments of these melodious performances. Stay tuned for more updates and behind-the-scenes glimpses of this unforgettable musical extravaganza!
- 28.04.2023** VIBHA 2K23 Dance Extravaganza Completed! We're thrilled to announce the successful completion of VIBHA 2K23 Dance Extravaganza! It was an extraordinary event filled with mesmerizing solo and duo performances that left the audience spellbound. The talented dancers showcased their passion and skill, creating moments of pure magic on stage. A big thank you to everyone who attended and made this event a memorable success.
- 28.04.2023** Ramp Walk Extravaganza at VIBHA 2K23 – A Phenomenal Showcase! The ramp came alive with captivating Ramp Walk performances that left the audience mesmerized at VIBHA 2K23! Models showcased their exceptional style, confidence, and grace, creating an unforgettable experience. A heartfelt thank you to all the participants and attendees who made this event a tremendous success!
- 29.04.2023** Relive the electrifying beats of Ravator's mind-blowing performance at Vibha 2k23! We were blown away by his incredible talent and infectious energy that lit up VBIT College on 29th April. Check out this epic video capturing the unforgettable moments from his DJ set. Thank you, Ravator, for making our cultural festival an absolute blast!
- 29.04.2023** Celebrating Sports Excellence at Vibha 2K23! Witness the electrifying atmosphere and the triumphs of athletic prowess at the Award Ceremony of Sports. VBIT honored the champions who have pushed their limits, inspiring us all with their dedication and sportsmanship. Let's applaud their remarkable achievements and celebrate the spirit of sports that unites us all!
- 29.04.2023** Vibha 2K23 has concluded with great triumph. We extend our heartfelt gratitude to everyone who joined us in celebrating the excellence of the best performers. The stage came alive with awe-inspiring acts, showcasing remarkable talents and the spirit of sportsmanship. Let's cherish the memories created and look forward to more incredible events in the future. Thank you for being a part of this unforgettable journey!
- 29.04.2023** The unforgettable performance by Jammers@Band at VIBHA 2K23 has left us speechless! Their electrifying energy, mesmerizing vocals, and mind-blowing guitar riffs created an atmosphere of pure rock 'n' roll. We want to thank Jammers@Band for gracing our event and giving us a night to remember! Relive the epic moments and celebrate the incredible talent that made VIBHA 2K23 an event to cherish.
- 29.04.2023** Vibha 2k23 at VBIT was an absolute blast with the incredible movie team of "Anni Manchi Sakunamule" and the sensational rappers! Their electrifying performances and mind-blowing talent took entertainment and fun to new heights. From the captivating storytelling of the movie team to the mesmerizing rhymes of the rappers, they left us in awe and wanting more. Witness the glimpse of unforgettable experience they brought to the stage!
- 05.06.2023** Greetings from IEEE – VBIT SB! □□□□□□□□□□ □□□□□ to □□□□ gave an opportunity for the students of ECE and EEE to deeply engage in the world of electronics materials technology. From exploring advanced research facilities to engaging with industry experts, it was a journey of knowledge and inspiration. The students witnessed the practical applications of electronics and left with a profound understanding of the future possibilities.



- 07.06.2023** We successfully concluded our Department of Mechanical Engineering's industrial visit to Bharath Heavy Electricals Limited (BHEL), Hyderabad. It was an incredible experience witnessing the advanced manufacturing processes and technological innovations at BHEL. Our students gained valuable insights into the world of industrial engineering and had the opportunity to interact with industry experts. We would like to extend our heartfelt gratitude to BHEL for hosting us and providing such an enriching learning experience for our students. Your support is greatly appreciated!
- 07.06.2023** Crowdsourcing VBIT presents "Google Crowdsourcing Connect 1.0" is an event designed to bring together Google Crowdsourcing Class Ambassadors, to discuss Google Crowdsourcing projects, learn about Google's crowdsourcing efforts and make real contributions to projects on the platform. Google Crowdsourcing is a platform that hosts projects powered by volunteer contributions. It's free and open to everyone. Using the platform, people can contribute translations, transcription, and more to projects. Google Crowdsourcing also makes it easy to recognize the contributions of volunteers by awarding points for completed tasks. Google Crowdsourcing Class Ambassadors form a key part of the platform, and we'll use the event to strengthen our Ambassador program. By participating in the event, Ambassadors can stay up to date on the platform, understand how Google is making improvements based on the feedback they provide
- 10.06.2023** The Department of Information Technology successfully organised the One Day Workshop on Azure Cloud Computing for 3rd year IT Students! It was an enriching event where students had the opportunity to delve into the world of cloud technology. We extend our gratitude to Mr. Bala Thimma Reddy, a renowned cloud architect from Microsoft Hyderabad, for sharing his valuable insights and expertise. Thank you to all the participants for making this workshop a resounding success!
- 10.06.2023** The Department of computer science and Engineering successfully organized one day workshop on " ReactJS " for III-year CSE students on 10th June at computer labs 9,10,11&12. React JS is a popular JavaScript library used for building user interfaces. The workshop covered the basics of React JS, including components, lifecycle methods, and state management. Participants also learned how to build a simple React application from scratch. Overall, it was a great learning experience for the students
- 12.06.2023** The Department of IT, in association with the Industry Interaction & Innovation Cell, successfully concluded the Exclusive Motivational & Awareness Program featuring Dr. A Chiranjeevi, D.Litt, an esteemed English Language Specialist!! It was an enlightening session filled with motivation, insights, and invaluable knowledge. Thank you to all the participants for making this event a memorable success.
- 17.06.2023** We had an incredible industry visit to the RTTC "Regional Telecom Training Centre" in BSNL Hyderabad! Our second-year Cybersecurity students delved into the fascinating world of Computer Networks on 17th June 2023. It was a privilege to witness our students' enthusiasm and engagement throughout the day. We hope this experience propels them towards the networking technologies.
- 17.06.2023** We concluded the immensely enlightening Industry Visit to KNR Infra Projects RMC Keesara for our enthusiastic 2nd Year Civil Engineering Students! A sincere appreciation goes out to all the participants who contributed to the success of this remarkable event. Throughout the visit, attendees had the privilege of immersing themselves in the realm of infrastructure projects, gaining firsthand exposure to state-of-the-art technologies and invaluable insights from industry experts.



- 19.06.2023** We successfully concluded the captivating FDP on Platform Developer 1 organized by Computer Science & Engineering in association with IIIC, VBIT! A heartfelt thank you to all the participants who made this event a resounding success! Throughout the FDP, our esteemed industry experts shared their knowledge, guiding attendees through the latest techniques, best practices, and cutting-edge tools in platform development. We hope you had an enriching experience, gaining valuable insights and expanding your skill set. Stay connected for more exciting opportunities and events that will further enhance your professional growth
- 19.06.2023** The captivating One Day Industry Visit, organized in collaboration with AICTE, Juniper Networks, and EduSkills, reached a successful conclusion! We extend our sincere appreciation to all the enthusiastic participants whose active involvement contributed to the phenomenal success of this event! Our utmost desire is that you encountered an enlightening and immersive experience, allowing you to delve into the forefront of technological advancements and acquire priceless insights from industry leaders.
- 19.06.2023** The highly enriching One Day Workshop on Computerized Accounting System using Tally-ERP, held at Chethana Auditorium, has successfully concluded! We extend our heartfelt gratitude to Dr. Rajkumar Boora, a distinguished Finance Faculty from the esteemed School of Management at the National Institute of Technology, Warangal, for gracing us with his invaluable expertise and making this event an outstanding success. Participants had the privilege of delving into the intricacies of Tally-ERP, a cutting-edge computerized accounting system widely embraced by businesses worldwide. Throughout the workshop, attendees gained practical insights on streamlining financial processes, optimizing accounting procedures, and harnessing the power of accurate reporting.
- 20.06.2023** The exhilarating journey continues as we wrap up an incredible Day 2 of the immersive FDP on Platform Developer 1, brought to you by Computer Science & Engineering in association with IIIC, VBIT! We extend our heartfelt gratitude to all the participants who made this day an astounding success! Day 2 was filled with captivating sessions led by our esteemed industry experts, who delved deeper into advanced concepts, industry trends, and real-world applications in platform development. Their expertise and insights provided attendees with invaluable knowledge and practical skills to excel in their professional journeys.
- 20.06.2023** On the Occasion of Telangana Rashtra Avatarana Utsavalu, the Literary Club of VBIT, celebrated Education day on 20th June. On this occasion, essay writing, Elocution and Poster presentation competitions are conducted.
- 21.06.2023** We reached new heights of knowledge and collaboration as we concluded an exceptional Day 3 of the transformative FDP on Platform Developer 1, organized by Computer Science & Engineering in association with IIIC, VBIT! We extend our heartfelt appreciation to all the participants whose active involvement made this day an outstanding success. Day 3 witnessed captivating sessions led by industry experts, exploring advanced concepts, emerging technologies, and practical insights in platform development. The engaging discussions, hands-on exercises, and interactive workshops enriched attendees' skill set, enabling them to excel in this dynamic field.
- 21.06.2023** We were honored to have Girija Bai, an esteemed Bio Science teacher with over 28 years of teaching experience, as our guest speaker for today's Yoga Day celebration. The Department of Cybersecurity successfully organized this event,



bringing together students from different disciplines to embrace the power of yoga. Girija Bai, with her expertise and passion for yoga, shared invaluable insights and led the participants through transformative sessions. Her presence and guidance made this event a resounding success, leaving a lasting impact on all who attended.

- 21.06.2023** VBIT proudly hosted a remarkable celebration of International Yoga Day at Ghatkesar on 21st June, 2023! It was a joyous occasion filled with serenity and wellness. Participants immersed themselves in the ancient art of yoga, experiencing rejuvenation of mind, body, and spirit. We extend our gratitude to all who joined us in this inspiring event, spreading the message of health and harmony.
- 22.06.2023** As we continue our transformative FDP on Platform Developer 1, organized by Computer Science & Engineering in association with IIIC, VBIT, we eagerly embark on another enlightening day of learning and collaboration. Day 4 holds the promise of new horizons as we delve deeper into the realm of platform development. Join us for captivating sessions led by industry experts, as they share their insights on advanced concepts and emerging technologies. Engage in hands-on exercises and interactive workshops that will further enrich your skill set, equipping you to navigate the ever-evolving landscape of platform development. Let's seize the opportunities that await us and make this day another milestone in our quest for knowledge and professional growth.
- 23.06.2023** The transformative FDP on Platform Developer 1, organized by Computer Science & Engineering in association with IIIC, VBIT, concluded successfully after five enlightening days. On Day 5, participants delved deeper into advanced concepts and emerging technologies, guided by industry experts who shared their invaluable insights. Engaging in hands-on exercises and interactive workshops, attendees further enriched their skill sets, gaining practical experience in navigating the ever-evolving landscape of platform development. Day 5 marked a significant milestone in their journey of knowledge and professional growth, leaving participants inspired and empowered to excel in their future endeavors.
- 24.06.2023** We are happy to announce the successful completion of our transformative One-Day FDP on "Effective Learning Practices to Improve Success Index in Techno-Managerial Education – A Practical Approach." The event, organized by the Internal Quality Assurance Cell (IQAC), took place on 24th June 2023. We extend our heartfelt gratitude to Professor YVSSSV Prasada Rao, our esteemed Resource Person, for sharing valuable insights and strategies to enhance learning outcomes in the ever-evolving techno-managerial education landscape. A big thank you to all the participants who made this event a resounding success. Your enthusiasm and active engagement contributed to the overall enriching experience.
- 15.07.2023** We thank everyone who attended our incredible Guest Lecture on "Awareness of Trends in VLSI Industry" featuring Mr. V B S S Senthnan, a Physical Design Engineer at Smart SOC! It was an enlightening session where we explored the latest advancements in Very Large Scale Integration (VLSI) and its impact on robotics. We extend our gratitude to Mr. Senthnan for sharing his invaluable expertise, and to the Department of ECE and the Robotics Club for organizing this inspiring event. Special thanks to all the participants for their active engagement and enthusiasm.



- 15.07.2023** Our 2nd Year IT Students' Industrial Visit to BSNL was a resounding success! A huge thanks to BSNL for hosting us and providing valuable insights into the world of telecommunications. Witnessing cutting-edge technologies, live demonstrations, and engaging with industry professionals left our students inspired and motivated. The event fostered meaningful connections among peers and offered a glimpse into the future of IT and telecom. A big shoutout to our enthusiastic students whose active participation made this experience unforgettable.
- 19.07.2023** To all the enthusiastic 2nd-year IT students who attended the "JDBC Connectivity" lecture by Dr. M Venkateswara Rao, Associate Professor & HOD, CSE, we applaud your active participation and eagerness to learn! The session on JDBC, a fundamental concept in databases, must have been insightful with an expert like Dr. Rao guiding you. Let's keep the spirit of learning alive, continue exploring technology together, and stay curious as we delve deeper into the wonders of IT.
- 02.08.2023** An awareness programme on "Cyber Safety and Wellbeing – Essential Tips and Techniques" was conducted for all the IBTech Students on 2nd August, 2023 at 11 am. Ms. B. Anuradha, IPS, DCP, Cybercrime, Rachakonda Police Commissionerate, Ms. D. Janaki, IPS, DCP, Malkajgiri Zone, Mr. P. Naresh Reddy, ACP, Malkajgiri, Mr. S. Venkat Reddy, ACP, Cyber Crimes, Mr. Venkatesam, ACP, Cybercrimes, Mr. J. Narendra Goud, ACP, SHE Teams, Mr. Mahender Reddy, CI, ghatkesar and Ms P Suneetha, Chief Coordinator security Council addressed and interacted with the students and provided guidelines and tips for being safe and secure in the Cyber World. Chairman VBIT Dr. N. Goutham Rao, Secretary Dr. G. Maanohar Reddy, Principal Dr. PVS Srinivas, Director Dr. YVSSSV Prasada Rao, Director Freshmen Engineering Dr Ch. Venkata Ramana Reddy, Director Students Affairs Dr. T. Swaroopa were present
- 03.08.2023** Embrace the Green Revolution! Greetings from Eco-Club VBIT, Join us in our mission to make the world a greener place! Our plantation program is in full swing, and we are greatful about the positive impact it's making on the environment. Check out these heartwarming pictures of our team planting saplings and nurturing young trees. Together, we're sowing the seeds of change and cultivating a brighter future for our planet! Every tree we plant contributes to fighting climate change, conserving biodiversity, and improving the air we breathe. A big shoutout to our amazing team in collaboration with NSS VBIT, who poured their heart and soul into this initiative. We thank our faculty members for joining us. Spread the word and encourage your friends and family to get involved. Together, we can create a greener, cleaner, and more sustainable world for all living beings.
- 05.08.2023** Exploring the Future of Engineering! Final year Mechanical Engineering students embarked on an enlightening journey to the Centre for Product Design, Development, and Additive Management at Osmania University on August 5th, 2023. Organized by the Department of Mechanical Engineering at VBIT, this visit opened doors to cutting-edge innovation and hands-on learning.
- 05.08.2023** A Parent-Teacher Meeting was held for the IBTech II Semester students on Saturday, 5th August 2023. Arrangements were made for the PTM with all the Class Teachers, Mentors and Teachers from the other Departments interacting with the parents about the academic performance, regularity and various other issues concerning their respective wards. Parents of about 75 students attended the Meeting and actively interacted with the Director, Freshmen Engineering, respective class teachers & mentors and the principal.



“An effort made for the happiness of others lifts us above ourselves.” Task 1 Street Cause—VBIT contributed the following to the MPH School, Aushapur, Ghatkesar Mandal: Essential sports equipment, a 500-litre water tank and vital plumbing repairs. Additionally, the damaged and broken doors and windows were restored and replaced ensuring safety and security for the schools. Task 2 Contributed Computer, Projector and Sports Equipment to the MPP School in Pratapasingaram Village in Ghatkesar Mandal. With these concerted efforts, we sincerely hope that both the schools will be transformed into havens of knowledge, activity and inspiration for the young and aspiring students.

- 12.08.2023** The Department of Information Technology successfully organized a Guest Lecture on Career Awareness featuring Ms. S Vinitha Reddy, Business Development Leader and Student Entrepreneur, at Chethana Auditorium on August 12th, 2023. Final year IT students had the privilege of gaining insights from Ms. Reddy's experiences and expertise, setting the stage for their own career journeys. The event proved to be a resounding success, fostering inspiration and motivation among attendees as they look ahead to their future careers.
- 12.08.2023** International Youth Day Celebrations @ Silent Retreat Centre, Brahma Kumaris, Mahadevapura, Bibi Nagar. 'Prajapita Brahma Kumaris Ishwariya Vishwa Vidyalaya organized International Youth Day on 12.08.2023 at their Silent Retreat Centre, Bibi Nagar. As part of this event, lectures on 'Digital Wellness' were organized for the youth of various engineering colleges situated in and around Ghatkesar. Resource Persons: Mr. Bala Kishore- Vice-President- Better Living- Searce Technology Mr. Deepak Talreja- Certified Spiritual Counsellor, Founder of 4D Meditatio Mr. Ravi Kumar Sagar- Young Entrepreneur- Founder of RKs Inno Group 67 students from I B. Tech accompanied by 2 Faculty members Mrs. Alle Shirisha, Assistant Professor of English Mrs. P. Joy Naomi, Assistant Professor of English attended the programme. The primary goal of the programme is to raise awareness about issues including transforming anxieties and stress into super success, reducing digital distractions, improving sleep quality, creative 4D meditation, and fun fest.
- 14.08.2023** Our Swavalambi Bharat Entrepreneurship Promotion Programme at VBIT was a success! We were honored to have insightful talks from Sri Satish Kumar, Dr. S Lingamurthy, and Dr. PVS Srinivas, shedding light on entrepreneurship and self-reliance. A big thank you to all who attended this grand event.
- 12.08.2023** Our Students Jalli Radhika(EEE), M veena(ECE), Gadem Sai Ram(ECE) were received Appreciation certificate from Director- National Institute of Urban Affairs for successful completion of their funded project under the scheme Namami Gange funded by NIUA- Delhi on 11th August 2023 at CEPT University, Ahmedabad.
- 16.08.2023** From Learning to Memories: Final Year IT Students Conclude Their Inspiring Visit to AIC – IIITH. An engaging exploration of innovation and technology that will surely leave a lasting impact. Stay tuned for more exciting ventures ahead!
- 18.08.2023** The curtains have fallen on an electrifying MBA farewell bash at VBIT, August 18th, 2023! A whirlwind of excitement, laughter, and heartwarming moments made it a night to remember. Huge thanks to all who joined us – your enthusiasm lit up the event!
- 19.08.2023** Dive into the world of financial wisdom! Our honored guest, Mr. Jayanth Kumar, lit up the Investors Awareness Program with priceless insights on investments and financial strategies, paving the way for a brighter financial future. #InvestorsAwareness #FinancialWisdom #BrighterFuture.

**19.08.2023**

Experience the brilliance of our students as they unveiled their ingenious working models, illuminating the marvels of physics and chemistry during the captivating SOWPARNIKA2K23 event at VBIT.



## SPORTS ACHIEVEMENTS - 2022-2023

VBIT secured 2nd place in State Level Intercollegiate Cricket Tournament conducted by Chaitanya Bharathi Institute of Technology (CBIT), Gandipet, from 1st November, 2022 to 8th November, 2022.

VBIT secured 2nd place in Padma Bhushan Dr. B.V Raju Memorial State Level Volley Ball (Women) Tournament 2022 conducted by B.V.R.I.T., Narsapur (V), Narsapur (M), Medak District from 16th & 17th November, 2022.

VBIT secured 2nd place ASHWATTHAMA 2K22 National Level Sports Fest Volley Ball Tournament (W) held at SNIST, Yamnampet (V), Ghatkesar (M), Medchal (D) on 21st – 24th November, 2022.

VBIT Secured 1st Place ARENA 2023 National Level Volley Ball (M) Championship held at BITS-Pilani, Hyderabad Campus, Thumkunta, Shamirpet(M), Medchal (D) 2nd – 5th February, 2023.

VBIT Secured 2nd Place ARENA 2023 National Level Kabaddi (W) Championship held at BITS-Pilani, Hyderabad Campus, Thumkunta, Shamirpet(M), MEDchal (D) 2nd – 5th February, 2023.

VBIT Secured 1st Place 14th Indian Open Inter Engineering Collegiate Volley Ball (M) Championship held at VNRVJIT, Hyderabad Campus, Bachupally, Medchal (D) 9th – 10th February, 2023.

VBIT Secured 2nd place 1st Vice-Chancellor Volley Ball (M) Champion Trophy held at JNTUH, Hyderabad Campus, Kukatpally, Hyderabad (D) 13th–14th February, 2023.

VBIT Secured 1st Place MILAN 2023 KRITANSH 5.0 National Level Volley Ball (M) Championship held at VJIM, Hyderabad Campus, Bachupally, Medchal (D) 23rd–24th February, 2023.

VBIT Secured 1st Place UTKARSH 2023 National Level Volley Ball (M) Championship, 2023 held at Aurora's Technological and Research Institute (ATRI), Hyderabad Campus, Parvathapur, Medchal (D) 27th-28th February, 2023.

VBIT Secured 2nd Place PHOENIX 2023 National Level Volley Ball (W) Championship, 2023 held at Vidya Jyothi Institute of Technology (VJIT), Hyderabad Campus, Moinabad, Moinabad (M), R.R.Dist from 2nd And 3rd March, 2023.

VBIT Secured 2nd Place SPORTS BOUT 10.0 National Level Volley Ball (W) Championship, 2023 held at Anurag University Venkatapur, Ghatkesar (M), Medchal-Malkajiri Dt. from 3rd-10th March, 2023.

VBIT Secured 2nd Place International Women's Day Intercollegiate Volley Ball (W) Championship, 2023 held at St. Francis College for Women, Begumpet, Hyderabad on 13th Marc, 2023.

VBIT Secured 2nd Place Spectrum, 23 State Level Volley Ball (M) Championship, 2023 held at National Institute of Fine Arts and Technology (NIFT), Madhapur, Hightech City, Hyderabad. from 24th-25th March, 2023.



VBIT Secured 1st Place Invicta 23 State Level Volley Ball (M) Championship, 2023 held at KG Reddy College of Engineering and Technology, Moinabad, Hyderabad. from 17th To 18th April, 2023.

VBIT Secured 2nd Place in Ranarangam Inter College Sports Meet Volley Ball (M) Championship, 2023 held at Institute of Public Enterprises (IPE), Shamirpet, Medchal Dist, Hyderabad. from 24th To 25th April, 2023.

VBIT Secured 2nd Place Sangram Inter College Sports Meet Volley Ball (M) Championship, 2023 held at Hitam College, Gandimysamma, Medchal Dist, Hyderabad. from 25th To 26th April, 2023.

VBIT Secured 2nd Place Sangram Inter College Sports Meet Kabaddi (W) Championship, 2023 held at Hitam College, Gandimysamma, Medchal Dist, Hyderabad. from 25th To 26th April, 2023.

VBIT Secured 2nd Place Sangram Inter College Sports Meet Kho-Kho (M) Championship, 2023 held at Hitam College, Gandimysamma, Medchal Dist, Hyderabad. from 25th To 26th April, 2023.

VBIT Secured 1st Place AARAMBH'23 State Level Sports Fest Volley Ball (M) Championship, 2023 held at JBIET College, Yenkapalli(V), Moinabad (M), Hyderabad. from 9th To 10th June, 2023.

VBIT Secured 2nd Place SPEC, 2023 Rojamma Memorial State Level Sports Fest Volley Ball (M) Championship, 2023 held at St. Peter's Engineering College, Dullapally, Mysammaguds, Medchal Dist, Hyderabad. from 19th To 20th June, 2023.

VBIT Secured 2nd Place SPEC, 2023 Rojamma Memorial State Level Sports Fest Kabaddi (M) Championship, 2023 held at St. Peter's Engineering College, Dullapally, Mysammaguda, Medchal Dist, Hyderabad. from 19th To 20th June, 2023.

### **VBIT STUDENTS SELECTED AS INTER-UNIVERSITY PLAYERS DURING 2022 – 2023**

Mr. M. Raju (2nd MBA), Mr. N. Harish (C) (2nd MBA) and Mr. S. Srinath (2nd MBA) of this College represented by JNTUH South Zone Inter University Volley Ball Championship conducted by SRM University, Chennai, Tamil Nadu State from 21th to 27th December, 2022.

Ms. M. Leela Madhuree (3rd B.Tech CSE) of this College represented by Telangana State for Youth National Volley Ball Championship conducted by Panna, Madhya Pradesh State from 16th to 22nd December, 2022.

Ms. M. Leela Madhuree (3rd B.Tech CSE) of this College represented by JNTUH South Zone Inter University Volley Ball Championship conducted by Mahatma Gandhi University, Kerala State from 27th to 31th December, 2022.



Mr. D. Sai Lalith (2nd MBA), Mr. Immanuel (2nd MBA) of this College represented by JNTUH South Zone Inter University Foot Ball Championship conducted by University of Calicut, Kerala State from 23rd to 31st December, 2022.

Mr. Suman (3rd B.Tech CSD) of this College represented by JNTUH All India Inter University Karate Championship conducted by Atal Bihari Vajpayee Viswavidyalaya, Bilaspur, Chhattisgarh from 17th to 22nd January, 2023.

Mr. M. Krishna Srinivas (2nd B.Tech CS) of this College represented by JNTUH All India Inter University Taekwondo Tournament conducted by Gurunanak Dev University, Amritsar, Punjab State from 3rd-6th January, 2023.

Ms. Ranabothu Anusha (2nd B.Tech Civil) of this College represented by JNTUH South Zone Inter University Kho Kho Championship conducted by Alliance University, Bangalore, Karnataka State from 23rd-26th January, 2023.

Mr. Y.V.Ramana Reddy (2nd MBA), Ganesh (1st MBA) and Arun (1st MBA) of this College represented by JNTUH South Zone Inter University Athletics Championship conducted by Physical Education University, Chennai, Tamilnadu State from 08th-12th January, 2023.

Mr. S. Sreenadh (2nd MBA) of this College represented by Telangana State for Senior National Volley Ball Championship conducted held in Guwahati, Assam State from 2nd-9th February, 2023.

Ms. Ignasi Raj Mary Smitha II MBA, Ms. Ch. Ashwini II MBA of this College represented by JNTUH South Zone Inter University Hand Ball Championship conducted by Mahatma Gandhi University, Kerala State from 13th-18th February, 2023.

Mr. Sai Kiran Reddy II MBA of this College represented by JNTUH All India Inter University Baseball Championship conducted by The Assam Royal Global University, Assam State from 14th-18th February, 2023.

### **ACHIEVEMENTS OF THE PHYSICAL DIRECTOR 2022-23**

Held responsibilities as Referee of 07th Telangana State Senior Inter-District Volleyball Championship 2022-23 for Boys & Girls held at Z.P.H.S School, Vemulawada Village, Sirisilla District conducted by Karimnagar Volley Ball Association from 27th to 30th November, 2022.



## RESEARCH AND CONSULTANCY CELL

Conceptual teaching along with Research and Development makes the Institute unique and provides an opportunity to produce competent and employable engineers with broader a outlook. VBIT has been following this novel model and exposing the students to the current technological and industrial trends. The faculty members are also trained in the current technological and research trends. R&C Cell is forging ahead with several projects funded by agencies like DST, DBT and MOES. Dr. S. Sundeeep, Assoc. Professor, EEE is the Coordinator.

### Completed Projects

1. A Campaign to investigate atmospheric dynamics including exchange processes over Indian tropical region (8.50 N, 8.70 N, 13.50 N, 17.40N), using high altitude balloon data, radar and lidar observations. The project was funded by ISRO under CAWSES Program. 2. Long term trends of atmospheric oscillations and their relationships with solar variability

ISRO (under CAWSES-II Program) 16 lakhs

### Ongoing Projects

1. Stratosphere-Troposphere coupling through observations of ozone and water vapor: transport effects on the vertical distribution of ozone Dept. of Science & Technology, Govt. of India

2. ISRO has evolved a programme through which financial support is provided for conducting research and development activities related to Space Science, Space Technology and Space Application to academia in India. This programme of Research Sponsored by ISRO is called RESPOND. The aim of RESPOND is to encourage quality research in areas of relevance to the Indian space programme. RESPOND (Sponsored Research) programme started in the 1970s aims at encouraging academia to participate and contribute in various space related activities. Under RESPOND; projects are taken up by universities/academic institutions in the areas of relevance to Space Programme..

3. The Research & Development (R&C) Cell of Vignana Bharathi Institute of Technology (VBIT), Hyderabad has been sanctioned a grant of Rs. 30 lakhs under the FIST (Funds for Improvement of Science & Technology infrastructure) program of DST (Department of Science and Technology), Govt. of India. Faculty members and M. Tech. students are using this center for their research and project work. VBIT is one among only three colleges within Telangana and AP which received the grant under "FIST-2014" program of DST.

### Collaborative Studies

A Mini Boundary Layer Mast (MAST) has been erected in association with (Indian Space Research Organisation (ISRO) on the VBIT Campus to collect the atmospheric data which is sent to a receiving station at ISRO at regular intervals.

VBIT has collaborated with the National Atmospheric Research Laboratory (NARL), Gadanki, to carry out a joint study on ionospheric delay of satellite signals measured by GPS Receiver System.



## ACADEMIC CALENDAR (2023-24)

Autonomous Batch - IB.Tech I&II Semesters

### B.Tech. I YEAR I & II SEMESTER

#### I SEM

Description	Period	Duration
Induction Programme	04.9.2023-09.09.2023	1 week
Commencement of I Semester Class Work	11.09.2023	
I Spell of Instructions	11.09.2023-18.11.2023	9 Weeks
<b>*Dushara Vacation</b>	<b>23.10.2023-28.10.2023</b>	1 Week
I Mid-Term Examinations	20.11.2023-22.11.2023	3 Days
Parent Teacher Meeting	02.12.2023	1 Day
II Spell of Instructions	23.11.2023-13.01.2024	8 Weeks
II Mid-Term Examinations	17.01.2024-19.01.2024	3 Days
Preparation Holidays and Practical Examinations	20.01.2024-27.01.2024	1 Week
End Semester Examinations	29.01.2024-10.02.2024	2 Weeks

Note: No of Working Days/ Instructional Days: 91

#### II SEM

Description	Period	Duration
Commencement of II Semester Class Work	12.02.2024	
I Spell of Instructions	12.02.2024-13.04.2024	9 Weeks
I Mid-Term Examinations	15.04.2024-18.04.2024	3 Days
Parent Teacher Meeting	27.04.2024	1 Day
II Spell of Instructions	19.04.2024-22.06.2024	8 Weeks
<b>*Summer Vacation</b>	<b>13.5.2024-25.5.2024</b>	2 Weeks
II Mid-Term Examinations	24.06.2024-26.06.2024	3 Days
Preparation Holidays and Practical Examinations	27.06.2024-03.07.2024	1 Week
End Semester Examinations	04.07.2024-17.07.2024	2 Weeks

Note: No of Working Days/ Instructional Days: 90

\*Subject to the instructions from JNTUH & Govt. of Telangana



*Handwritten signature and date: 30/08/2023*

Dr. P.V.S. Srinivas  
Principal  
**PRINCIPAL**

Vignana Bharathi Institute of Technology  
Aushapur (V), Ghatkesar (M), Medchal Dist.



# Academic Regulations



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

For pursuing four year under graduate Bachelor of Technology degree program of study in Engineering (B.Tech) offered by Vignana Bharathi Institute of Technology under Autonomous status and herein after referred to as VBIT.

#### **1.0 Under-Graduate Degree Program in Engineering & Technology (UGP in E&T)**

VBIT offers a 4-year (8 semesters) Bachelor of Technology (B.Tech.) degree program, under Choice Based Credit System (CBCS) with effect from the academic year 2022-23. Presently, the institute is offering Bachelor of Technology (B.Tech) degree programs in the following disciplines as shown in Table 1.

**Table 1 B.Tech. Programs of study**

S.No	Name of the Program	Program Code
1	Civil Engineering-CE	01
2	Electrical and Electronics Engineering-EEE	02
3	Mechanical Engineering-ME	03
4	Electronics and Communication Engineering-ECE	04
5	Computer Science & Engineering-CSE	05
6	Information Technology-IT	12
7	Computer Science and Business System-CSB	32
8	Computer Science & Engineering(Cyber Security)-CSC	62
9	Computer Science & Engineering(AI&ML)-CSM	66
10	Computer Science & Engineering(Data Science)-CSD	67

#### **2.0 Eligibility for Admission**

- 2.1** Admission to the undergraduate (UG) program shall be made either on the basis of the merit rank obtained by the qualified student in entrance test conducted by the Telangana State Government (EAMCET) or the University or on the basis of any other order of merit approved by the University, subject to reservations as prescribed by the government from time to time.
- 2.2** The medium of instructions for the entire undergraduate program in Engineering & Technology will be **English** only.



### 3.0 B.Tech. Program Structure

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

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

#### 3.2.1 Semester Scheme

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

#### 3.2.2 Credit Courses

All subjects/ courses are to be registered by the student in a semester to earn credits which shall be assigned to each subject/ course in an L: T: P: C (lecture periods: tutorial periods: practical periods: credits) structure based on the following general pattern.

- One credit for one hour/ week/ semester for Theory/ Lecture (L) courses or Tutorials.
- One credit for two hours/ week/ semester for Laboratory/ Practical (P) courses.

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

#### 3.2.3 Subject Course Classification

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

S. No.	Broad Course Classification	Course Group/Category	Course Description
1	Foundation Courses (FnC)	BS – Basic Sciences	Includes Mathematics, Physics and Chemistry subjects
2		ES–Engineering Sciences	Includes Fundamental Engineering Subjects
3		HS–Humanities and Social Sciences	Includes subjects related to Humanities, Social Sciences and Management
4	Core Courses (CoC)	PC – Professional Core	Includes core subjects related to the parent discipline/ department/ branch of Engineering
5		PE Professional Electives	Includes elective subjects related to the parent discipline/ department/ branch of



	Elective Courses (E&C)		Engineering.
6		OE – Open Electives	Elective subjects which include interdisciplinary subjects or subjects in an area outside the parent discipline/ department/ branch of Engineering.
7	Core Courses	Project Work	B Tech. Project or UG Project or UG Major Project or Project Stage I & II
8		Industry Training/ Internship/ Industry Oriented Mini- project/ Mini- Project/ Skill Development Courses	Industry Training/ Internship/ Industry Oriented Mini-Project/ Mini-Project/ Skill Development Courses
9		Seminar	Seminar/ Colloquium based on core contents related to parent discipline/ department/ branch of Engineering.
10	Minor Courses	-	1 or 2 Credit Courses (subset of IIS)
11	Mandatory Courses (MC)	-	Mandatory Courses (non-credit)

#### 4.0 Course Registration

- 4.1 A 'faculty advisor or counselor' shall be assigned to a group of 20 students, who will advise the students about the undergraduate program, its course structure and curriculum, choice/option for subjects/ courses, based on their competence, progress, pre-requisites and interest.
- 4.2 The academic section of the college invites 'registration forms' from students before the beginning of the semester through 'on-line registration', ensuring 'date and time stamping'. The on-line registration requests for any 'current semester' shall be **completed before the commencement of SEE's (Semester End Examinations) of the 'preceding semester'**
- 4.3 A student can apply for **on-line** registration, **only after** obtaining the '**written approval**' from faculty advisor/counselor, which should be submitted to the college academic section through the **Head of the Department**. A copy of it shall be retained with the Head of the Department, Faculty Advisor/ Counselor and the student.
- 4.4 A student may be permitted to register for all the subjects/ courses in a semester as specified in the course structure with maximum additional subject(s)/course(s) limited to 6 Credits (any 2 elective subjects), based on **progress** and SGPA/ CGPA, and completion of the '**pre-requisites**' as indicated for various subjects/ courses, in the department course structure and syllabus contents.
- 4.5 Choice for '**additional subjects/ courses**', not more than any 2 elective subjects in any Semester, must be clearly indicated, which needs the specific approval and signature of the Faculty Advisor/Mentor/HOD.
- 4.6 If the student submits ambiguous choices or multiple options or erroneous entries during **on-line** registration for the subject(s) / course(s) under a given/ specified course group/ category as listed in the course structure, only the first mentioned subject/ course in that category will be taken into consideration.



- 4.7 Subject/ course options exercised through **on-line** registration are final and **cannot** be changed or inter-changed; further, alternate choices also will not be considered. However, if the subject/ course that has already been listed for registration by the Head of the Department in a semester could not be offered due to any inevitable or unexpected reasons, then the student shall be allowed to have alternate choice either for a new subject (subject to offering of such a subject), or for another existing subject (subject to availability of seats). Such alternate arrangements will be made by the Head of the Department, with due notification and time-framed schedule, within **a week** after the commencement of class-work for that semester.
- 4.8 Dropping of subjects/ courses may be permitted, only after obtaining prior approval from the faculty advisor/ counselor 'within a period of 15 days' from the beginning of the current semester.
- 4.9 **Open Electives:** The students have to choose three Open Electives (OE-I, II & III) from the list of Open Electives given by other departments. However, the student can opt for an Open Elective subject offered by his own (parent) department, if the student has not registered and not studied that subject under any category (Professional Core, Professional Electives, Mandatory Courses etc.) offered by parent department in any semester. Open Elective subjects already studied should not repeat/should not match with any category (Professional Core, Professional Electives, and Mandatory Courses etc.) of subjects even in the forthcoming semesters.
- 4.10 **Professional Electives:** The students have to choose six Professional Electives (PE-I to VI) from the list of professional electives given.
- 5.0 **Subjects/ courses to be offered**
- 5.1 A subject/ course may be offered to the students, **only if** a minimum of 15 students opt for it.
- 5.2 More than **one faculty member** may offer the **same subject** (lab/ practical may be included with the corresponding theory subject in the same semester) in any semester. However, selection of choice for students will be based on - '**first come first serve** basis and CGPA criterion' (i.e. the first focus shall be on early **on-line entry** from the student for registration in that semester, and the second focus, if needed, will be on CGPA of the student).
- 5.3 If more entries for registration of a subject come into picture, then the Head of the Department concerned shall decide, whether or not to offer such a subject/ course for **two (or multiple) sections**.
- 5.4 In case of options coming from students of other departments/ branches/ disciplines (not considering **open electives**), first **priority** shall be given to the student of the '**parent department**'.
- 6.0 **Attendance requirements:**
- 6.1 A student shall be eligible to appear for the semester end examinations, if the student acquires a minimum of 75% of attendance in aggregate of all the subjects/ courses (including attendance in mandatory courses like Environmental Science, Constitution of



India, Intellectual Property Rights, and Gender Sensitization Lab) for that semester. **Two periods** of attendance for each theory subject shall be considered, if the student appears for the mid-term examination of that subject. **This attendance should also be included in the attendance uploaded every fortnight in the University Website.**

- 6.2 Shortage of attendance in aggregate upto 10% (65% and above, and below 75%) in each semester may be condoned by the college academic committee on genuine and valid grounds, based on the student's representation with supporting evidence.
- 6.3 A stipulated fee shall be payable for condoning of shortage of attendance.
- 6.4 Shortage of attendance below 65% in aggregate shall in **NO** case be condoned.
- 6.5 **Students whose shortage of attendance is not condoned in any semester are not eligible to take their end examinations of that semester. They get detained and their registration for that semester shall stand cancelled**, including all academic credentials (internal marks etc.) of that semester. **They will not be promoted to the next semester.** They may seek re-registration for all those subjects registered in that semester in which the student is detained, by seeking re-admission into that semester as and when offered; if there are any professional electives and/ or open electives, the same may also be re-registered if offered. However, if those electives are not offered in later semesters, then alternate electives may be chosen from the **same** set of elective subjects offered under that category.
- 6.6 A student fulfilling the attendance requirement in the present semester shall not be eligible for readmission into the same class.

#### 7.0 Academic Requirements

The following academic requirements have to be satisfied, in addition to the attendance requirements mentioned in Item No. 6.

- 7.1 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course, if student secures not less than 35% (14 MARKS out of 40 marks) in the Continuous Internal Evaluation (CIE), not less than 35% (21 marks out of 60 marks) in the semester end examinations (SEE), and a minimum of 40% (40 marks out of 100 marks) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together; in terms of letter grades, this implies securing 'C' grade or above in that subject/ course.
- 7.2 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to Real-time Research Project (or) Field Based Research Project (or) Industry Oriented Mini Project (or) Internship (or) Seminar, if the student secures not less than 40% marks (i.e. 40 out of 100 allotted marks) in each of them. The student is deemed to have failed, if he (i) does not submit a report on Industry Oriented Mini Project/Internship, or (ii) not make a presentation of the same before the evaluation committee as per schedule, or (iii) secures less than 40% marks in Real-time Research Project (or) Field Based Research Project (or) Industry Oriented Mini Project (or) Internship evaluations.

A student may reappear once for each of the above evaluations, when they are scheduled again; if the student fails in such 'once reappearances' evaluation also, the student has to



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

### 7.3 Promotion Rules

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

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



- 7.5 If a student registers for '**extra subjects**' (in the parent department or other departments/branches of Engg ) other than those listed subjects totaling to 160 credits as specified in the course structure of his department, the performances in those '**extra subjects**' (although evaluated and graded using the same procedure as that of the required 160 credits) will not be considered while calculating the SGPA and CGPA. For such '**extra subjects**' registered, percentage of marks and letter grade alone will be indicated in the grade card / marks memo as a performance measure, subject to completion of the attendance and academic requirements as stated in regulations Items 6 and 7.1 – 7.4 above.
- 7.6 A student eligible to appear in the semester end examination for any subject/ course, but absent from it or failed (thereby failing to secure '**C**' grade or above) may reappear for that subject/ course in the supplementary examination as and when conducted. In such cases, internal marks (CIE) assessed earlier for that subject/ course will be carried over, and added to the marks to be obtained in the SEE supplementary examination for evaluating performance in that subject.
- 7.7 A student **detained in a semester due to shortage of attendance may be re-admitted in the same semester in the next academic year for fulfillment of academic requirements.** The academic regulations under which a student has been re-admitted shall be applicable. Further, no grade allotments or SGPA/ CGPA calculations will be done for the entire semester in which the student has been detained.
- 7.8 A student **detained due to lack of credits, shall be promoted to the next academic year only after acquiring the required number of academic credits.** The academic regulations under which the student has been readmitted shall be applicable to him.
- 8.0 Evaluation - Distribution and Weightage of Marks**
- 8.1 The performance of a student in every subject/course (including practicals and Project Stage – I & II) will be evaluated for 100 marks each, with 40 marks allotted for CIE (Continuous Internal Evaluation) and 60 marks for SEE (Semester End-Examination).
- 8.2 In CIE, for theory subjects, during a semester, there shall be two mid-term examinations. Each Mid-Term examination consists of two parts i) Part – A for 10 marks, ii) Part – B for 20 marks with a total duration of 2 hours as follows:

1. Mid Term Examination for 30 marks:

- a. Part - A: Objective/quiz paper for 10 marks.
- b. Part - B: Descriptive paper for 20 marks.

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

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

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



- While the first mid-term examination shall be conducted on 50% of the syllabus, the second mid-term examination shall be conducted on the remaining 50% of the syllabus.
- Five (5) marks are allocated for assignments (as specified by the subject teacher concerned). The first assignment should be submitted before the conduct of the first mid-term examination, and the second assignment should be submitted before the conduct of the second mid-term examination. The average of the two assignments shall be taken as the final marks for assignment (for 5 marks).
- Subject Viva-Voce/PPT/Poster Presentation/ Case Study on a topic in the subject concerned for 5 marks before II Mid-Term Examination.
- ❖ The Student, in each subject, shall have to earn 35% of marks (i.e. 14 marks out of 40 marks) in CIE, 35% of marks (i.e. 21 marks out of 60) in SEE and Overall 40% of marks (i.e. 40 marks out of 100 marks) both CIE and SEE marks put together.

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

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

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

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

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

- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of five questions (numbered from 2 to 6) carrying 10 marks each. Each of these questions is from each unit and may contain sub-questions. For each question there will be an “either” “or” choice, which means that there will be two questions from each unit and the student should answer either of the two questions.
- The duration of Semester End Examination is 3 hours.

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

1. A write-up on day-to-day experiment in the laboratory (in terms of aim,



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

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

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

1. 10 marks for write-up
  2. 15 for experiment/program
  3. 15 for evaluation of results
  4. 10 marks for presentation on another experiment/program in the same laboratory course and
  5. 10 marks for viva-voce on concerned laboratory course
- ❖ The Student, in each subject, shall have to earn 35% of marks (i.e. 14 marks out of 40 marks) in CIE, 35% of marks (i.e. 21 marks out of 60) in SEE and Overall 40% of marks (i.e. 40 marks out of 100 marks) both CIE and SEE marks put together.

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

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

- 8.4** The evaluation of courses having ONLY internal marks in I-Year I Semester and II-Year II Semester is as follows:

1. I Year I Semester course (ex., *Elements of CE/ME/EEE/ECE/CSE etc*): The internal evaluation is for 50 marks and it shall take place during I Mid-Term examination and II Mid-Term examination. The average marks of two Mid-Term examinations is the final for 50 marks. Student shall have to earn 40%, i.e 20 marks out of 50 marks from average of the two examinations. There shall be NO external evaluation. The student is deemed to have failed, if he (i) is absent as per schedule, or (ii) secures less than 40% marks in this course.



2. II Year II Semester *Real-Time (or) Field-based Research Project* course: The internal evaluation is for 50 marks and it shall take place during I Mid-Term examination and II Mid-Term examination. The average marks of two Mid-Term examinations is the final for 50 marks. Student shall have to earn 40%, i.e. 20 marks out of 50 marks from average of the two examinations. There shall be NO external evaluation. The student is deemed to have failed, if he (i) does not submit a report on the Project, or (ii) does not make a presentation of the same before the internal committee as per schedule, or (iii) secures less than 40% marks in this course.
- 8.5 There shall be an Industry training (or) Internship (or) Industry oriented Mini-project (or) Skill Development Courses (or) Paper presentation in reputed journal (or) Industry Oriented Mini Project in collaboration with an industry of their specialization. Students shall register for this immediately after II-Year II Semester Examinations and pursue it during summer vacation/semester break & during III Year without effecting regular course work. Internship at reputed organization (or) Skill development courses (or) Paper presentation in reputed journal (or) Industry Oriented Mini Project shall be submitted in a report form and presented before the committee in III-year II semester before end semester examination. It shall be evaluated for 100 external marks. The committee consists of an External Examiner, Head of the Department, Supervisor of the Industry Oriented Mini Project (or) Internship etc., Internal Supervisor and a Senior Faculty Member of the Department. There shall be **NO internal marks** for Industry Training (or) Internship (or) Mini-Project (or) Skill Development Courses (or) Paper Presentation in reputed journal (or) Industry Oriented Mini Project.
- 8.6 The UG project shall be initiated at the end of the IV Year I Semester and the duration of the project work is one semester. The student must present Project Stage – I during IV Year I Semester before II Mid examinations, in consultation with his Supervisor, the title, objective and plan of action of his Project work to the departmental committee for approval before commencement of IV Year II Semester. Only after obtaining the approval of the departmental committee, the student can start his project work.
- 8.7 UG project work shall be carried out in two stages: Project Stage – I for approval of project before Mid-II examinations in IV Year I Semester and Project Stage – II during IV Year II Semester. Student has to submit project work report at the end of IV Year II Semester. The project shall be evaluated for 100 marks before commencement of SEE Theory examinations.
- 8.8 For Project Stage – I, the departmental committee consisting of Head of the Department, project supervisor and a senior faculty member shall approve the project work to begin before II Mid-Term examination of IV Year I Semester. The student is deemed to be not eligible to register for the Project work, if he does not submit a report on Project Stage – I or does not make a presentation of the same before the evaluation committee as per schedule.

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

- 8.9 For Project Stage – II, the external examiner shall evaluate the project work for 60 marks and the internal project committee shall evaluate it for 40 marks. Out of 40



internal marks, the departmental committee consisting of Head of the Department, Project Supervisor and a Senior Faculty Member shall evaluate the project work for 20 marks and Project Supervisor shall evaluate for 20 marks. The topics for Industry Oriented Mini Project/ Internship/SDC etc. and the main Project shall be different from the topic already taken. The student is deemed to have failed, if he (i) does not submit a report on the Project, or (ii) does not make a presentation of the same before the External Examiner as per schedule, or (iii) secures less than 40% marks in the sum total of the CIE and SEE taken together.

For conducting viva-voce of project, Institute selects an external examiner from the list of experts in the relevant branch submitted by the Head of the department through college examination section.

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

- 8.10** A student shall be given one time chance to re-register for a maximum of two subjects in a semester:

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

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

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

## **9.0 Grading Procedure**

- 9.1** Grades will be awarded to indicate the performance of students in each Theory Subject, Laboratory/Practicals/ Industry-Oriented Mini Project/Internship/SDC and Project Stage. Based on the percentage of marks obtained (Continuous Internal Evaluation plus Semester End Examination, both taken together) as specified in item 8 above, a corresponding letter grade shall be given.
- 9.2** As a measure of the performance of a student, a 10-point absolute grading system using the following letter grades (as per UGC/AICTE guidelines) and corresponding percentage of marks shall be followed:

% of Marks Secured in a Subject/Course (Class Intervals)	Letter Grade (UGC Guidelines)	Grade Points
Greater than or equal to 90%	O (Outstanding)	10
80 and less than 90%	A <sup>+</sup> (Excellent)	9



70 and less than 80%	<b>A (Very Good)</b>	8
60 and less than 70%	<b>B<sup>+</sup> (Good)</b>	7
50 and less than 60%	<b>B (Average)</b>	6
40 and less than 50%	<b>C (Pass)</b>	5
Below 40%	<b>F (FAIL)</b>	0
Absent	<b>Ab</b>	0

- 9.3 A student who has obtained an 'F' grade in any subject shall be deemed to have 'failed' and is required to reappear as a 'supplementary student' in the semester end examination, as and when offered. In such cases, internal marks in those subjects will remain the same as those obtained earlier.
- 9.4 To a student who has not appeared for an examination in any subject, 'Ab' grade will be allocated in that subject, and he is deemed to have 'Failed'. A student will be required to reappear as a 'supplementary student' in the semester end examination, as and when offered next. In this case also, the internal marks in those subjects will remain the same as those obtained earlier.
- 9.5 A letter grade does not indicate any specific percentage of marks secured by the student, but it indicates only the range of percentage of marks.
- 9.6 A student earns Grade Point (GP) in each subject/ course, on the basis of the letter grade secured in that subject/ course. The corresponding 'Credit Points' (CP) are computed by multiplying the grade point with credits for that particular subject/ course.

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

- 9.7 A student passes the subject/ course only when GP  $\geq 5$  ('C' grade or above)
- 9.8 The Semester Grade Point Average (SGPA) is calculated by dividing the sum of credit points ( $\sum CP$ ) secured from all subjects/ courses registered in a semester, by the total number of credits registered during that semester. SGPA is rounded off to **two** decimal places. SGPA is thus computed as

$$SGPA = \{ \sum_{i=1}^N C_i G_i \} / \{ \sum_{i=1}^N C_i \} \dots \text{For each semester,}$$

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

- 9.9 The Cumulative Grade Point Average (CGPA) is a measure of the overall cumulative performance of a student in all semesters considered for registration. The CGPA is the ratio of the total credit points secured by a student in all registered courses (of 160) in all semesters, and the total number of credits registered in all the semesters. CGPA is



rounded off to two decimal places. CGPA is thus computed from the I year II semester onwards at the end of each semester as per the formula.

$$\text{CGPA} = \{ \sum_{j=1}^M C_j G_j \} / \{ \sum_{j=1}^M C_j \} \dots \text{for all S semesters registered}$$

(i.e., up to and inclusive of S semesters,  $S \geq 2$ ),

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

#### Illustration of calculation of SGPA:

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

$$\text{SGPA} = 152/21 = 7.24$$

#### Illustration of calculation of CGPA up to 3<sup>rd</sup> semester:

Semester	Course/Subject Title	Credits Allotted	Letter Grade Secured	Corresponding Grade Point (GP)	Credit Points(CP)
I	Course 1	3	A	8	24
I	Course 2	3	O	10	30
I	Course 3	3	B	6	18
I	Course 4	4	A	8	32
I	Course 5	3	A+	9	27
I	Course 6	4	C	5	20
II	Course 7	4	B	6	24
II	Course 8	4	A	8	32
II	Course 9	3	C	5	15
II	Course 10	3	O	10	30
II	Course 11	3	B+	7	21
II	Course 12	4	B	6	24
II	Course 13	4	A	8	32
II	Course 14	3	O	10	30
III	Course 15	2	A	8	16
III	Course 16	1	C	5	5
III	Course 17	4	O	10	40
III	Course 18	3	B+	7	21
III	Course 19	4	B	6	24



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

$$\text{CGPA} = 518/69 = 7.51$$

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

- 9.10** For merit ranking or comparison purposes or any other listing, **only** the '**rounded off**' values of the CGPAs will be used.
- 9.11** SGPA and CGPA of a semester will be mentioned in the semester Memorandum of Grades if all subjects of that semester are passed in first attempt. Otherwise the SGPA and CGPA shall be mentioned only on the Memorandum of Grades in which sitting he passed his last exam in that semester. However, mandatory courses will not be taken into consideration.

#### **10.0 Passing Standards**

- 10.1** A student shall be declared successful or 'passed' in a semester, if he secures a GP  $\geq 5$  ('C' grade or above) in every subject/course in that semester (i.e. when the student gets an SGPA  $\geq 5.0$  at the end of that particular semester); and he shall be declared successful or 'passed' in the entire undergraduate program, only when gets a CGPA  $\geq 5.00$  ('C' grade or above) for the award of the degree as required.
- 10.2** After the completion of each semester, a grade card or grade sheet shall be issued to all the registered students of that semester, indicating the letter grades and credits earned. It will show the details of the courses registered (course code, title, no. of credits, grade earned, etc.) and credits earned. **There is NO exemption of credits in any case.**

#### **11.0 Declaration of results**

- 11.1** Computation of SGPA and CGPA are done using the procedure listed in 9.6 to 9.9.
- 11.2** For final percentage of marks equivalent to the computed final CGPA, the following formula may be used.

$$\% \text{ of Marks} = (\text{final CGPA} - 0.5) \times 10$$

#### **12.0 Award of Degree**

- 12.1** A student who registers for all the specified subjects/ courses as listed in the course structure and secures the required number of 160 credits (with CGPA  $\geq 5.0$ ), within 8 academic years from the date of commencement of the first academic year, shall be declared to have '**qualified**' for the award of B.Tech. Degree in the branch of Engineering selected at the time of admission.
- 12.2** A student who qualifies for the award of the degree as listed in item 12.1 shall be placed in the following classes.
- 12.3** A student with final CGPA (at the end of the undergraduate program)  $> 8.00$ , and fulfilling the following conditions - shall be placed in '**First Class with Distinction**'.  
However, he



- (i) Should have passed all the subjects/courses in '**First Appearance**' within the first 4 academic years (or 8 sequential semesters) from the date of commencement of first year first semester.
- (ii) Should not have been detained or prevented from writing the semester end examinations in any semester due to shortage of attendance or any other reason.

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

- 12.4 Students with final CGPA (at the end of the undergraduate program)  $\geq 7.0$  but  $< 8.00$  shall be placed in '**First Class**'.
- 12.5 Students with final CGPA (at the end of the undergraduate program)  $\geq 6.00$  but  $< 7.00$ , shall be placed in '**Second Class**'.
- 12.6 All other students who qualify for the award of the degree (as per item 12.1), with final CGPA (at the end of the undergraduate program)  $\geq 5.00$  but  $< 6$ , shall be placed in '**pass class**'.
- 12.7 A student with final CGPA (at the end of the undergraduate program)  $< 5.00$  will not be eligible for the award of the degree.
- 12.8 Students fulfilling the conditions listed under item 12.3 alone will be eligible for award of '**Gold Medal**'.
- 12.9 **Award of 2-Year B.Tech. Diploma Certificate**

- 1. A student is awarded 2-Year UG Diploma Certificate in the concerned engineering branch on completion of all the academic requirements and earned all the 80 credits (within 4 years from the date of admission) upto B.Tech. II Year II Semester, if the student wants to exit the 4-Year B.Tech. program and requests for the 2-Year B.Tech. (UG) Diploma Certificate.
- 2. The student once opted and awarded 2-Year UG Diploma Certificate, the student will be permitted to join in B. Tech. III Year I Semester and continue for completion of remaining years of study for 4-Year B. Tech. Degree ONLY in the next academic year along with next batch students. However, if any student wishes to continue the study after opting for exit, he/she should register for the subjects/courses in III Year I Semester before commencement of classwork for that semester.
- 3. The students, who exit the 4-Year B. Tech. program after II Year of study and wish to re-join the B.Tech. Program, must submit the 2-Year B. Tech. (UG) Diploma Certificate awarded to him, subject to the eligibility for completion of Course/Degree.
- 4. A student may be permitted to take one year break after completion of II Year II Semester or B. Tech. III Year II Semester (with university permission through the principal of the college well in advance) and can re-enter the course in next Academic Year in the same college and complete the course on fulfilling all the academic credentials within a stipulated duration i.e. double the duration of the course (Ex. within 8 Years for 4-Year program).



### 13.0 Withholding of results

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

### 14.0 Transitory Regulations

#### A. For students detained due to shortage of attendance:

1. A Student who has been detained in 1 year of R21 Regulations due to lack of attendance, shall be permitted to join 1 year I Semester of R22 Regulations and he is required to complete the study of B.Tech program within the stipulated period of eight academic years from the date of first admission in I Year.
2. A student who has been detained in any semester of II, III and IV years of R21 regulations for want of attendance, shall be permitted to join the corresponding semester of R22 Regulations and is required to complete the study of B.Tech/B. Pharmacy within the stipulated period of eight academic years from the date of first admission in I Year. The R22 Academic Regulations under which a student has been readmitted shall be applicable to that student from that semester. See rule (C) for further Transitory Regulations.

#### B. For students detained due to shortage of credits:

3. A student of R21 Regulations who has been detained due to lack of credits, shall be promoted to the next semester of R22 Regulations only after acquiring the required number of credits as per the corresponding regulations of his/her first admission. The total credits required are 160 including both R21 & R22 regulations. The student is required to complete the study of B.Tech within the stipulated period of eight academic years from the year of first admission. The R22 Academic Regulations are applicable to a student from the year of readmission. See rule (C) for further Transitory Regulations.

#### C. For readmitted students in R22 Regulations:

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

Note: If a student readmitted to R22 Regulations and has not studied any subjects/topics in his/her earlier regulations of study which is prerequisite for further subjects in R22 Regulations, the College Principals concerned shall conduct remedial classes to cover those subjects/topics for the benefit of the students



### 15.0 Student Transfers

- 15.1 There shall be no branch transfers after the completion of admission process.
- 15.2 There shall be no transfers from one college/stream to another within the constituent colleges and units of Jawaharlal Nehru Technological University Hyderabad.
- 15.3 The students seeking transfer to colleges affiliated to JNTUH from various other Universities/institutions have to pass the failed subjects which are equivalent to the subjects of JNTUH, and also pass the subjects of JNTUH which the students have not studied at the earlier institution. Further, though the students have passed some of the subjects at the earlier institutions, if the same subjects are prescribed in different semesters of JNTUH, the students have to study those subjects in JNTUH in spite of the fact that those subjects are repeated.
- 15.4 The transferred students from other Universities/Institutions to JNTUH affiliated colleges who are on rolls are to be provided one chance to write the CBT (for internal marks) in the **equivalent subject(s)** as per the clearance letter issued by the University.
- 15.5 The autonomous affiliated colleges have to provide one chance to write the internal examinations in the **equivalent subject(s)** to the students transferred from other universities/institutions to JNTUH autonomous affiliated colleges who are on rolls, as per the clearance (equivalence) letter issued by the University

### 16.0 Scope

- 16.1 The academic regulations should be read as a whole, for the purpose of any interpretation.
- 16.2 In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Vice-Chancellor is final.
- 16.3 The University may change or amend the academic regulations, course structure or syllabi at any time, and the changes or amendments made shall be applicable to all students with effect from the dates notified by the University authorities.
- 16.4 Where the words “he”, “him”, “his”, occur in the regulations, they include “she”, “her”, “hers”.

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## VIGNANA BHARATHI INSTITUTE OF TECHNOLOGY (AUTONOMOUS)

Aushapur (V), Ghatkesar (M), Medchal – Dist. Telangana State – 501 301.

### Academic Regulations for B.Tech (Lateral Entry Scheme) from the AY 2023-24

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

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

2. The student shall register for 120 credits and secure 120 credits with CGPA  $\geq 5$  from II year to IV-year B.Tech. program (LES) for the award of B.Tech. Degree.
3. The students, who fail to fulfil the requirement for the award of the degree in six academic years from the year of admission, shall forfeit their seat in B.Tech.
4. The attendance requirements of B. Tech. (Regular) shall be applicable to B.Tech.(LES).

**5. Promotion rule**

S. No	Promotion	Conditions to be fulfilled
1	Second year first semester to second year second semester	Regular course of study of second year first semester.
2	Second year second semester to third year first semester	(i) Regular course of study of second year second semester. (ii) Must have secured at least 24 credits out of 40 credits i.e., 60% credits up to second year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
3	Third year first semester to third year second semester	Regular course of study of third year first semester.
4	Third year second semester to fourth year first semester	(i) Regular course of study of third year second semester. (ii) Must have secured at least 48 credits out of 80 credits i.e., 60% credits up to third year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
5	Fourth year first semester to fourth year second semester	Regular course of study of fourth year first semester.

6. All the other regulations as applicable to B. Tech. 4-year degree course (Regular) will hold good for B. Tech. (Lateral Entry Scheme).
7. LES students are not eligible for 2-Year B. Tech. Diploma Certificate.

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### Malpractices Rules

#### Disciplinary Action For / Improper Conduct in Examinations

S. No	Nature of Malpractices/Improperconduct	Punishment
<b>If the student:</b>		
1. (a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which student is appearing but has not made use of (material shall include any marks on the body of the student which can be used as an aid in the subject of the examination)	<b>Expulsion from the examination hall and cancellation of the performance in that subject only.</b>
(b)	Gives assistance or guidance or receives it from any other student orally or by any other body language methods or communicates through cell phones with any student or persons in or outside the exam hall in respect of any matter.	<b>Expulsion from the examination hall and cancellation of the performance in that subject only of all the students involved. In case of an outsider, he will be handed over to the police and a case is registered against him.</b>
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or practical) in which the student is appearing.	<b>Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and project work and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year.</b>  <b>The hall ticket of the student is to be cancelled and sent to the University.</b>
3.	Impersonates any other student in connection with the examination.	<b>The student who has impersonated shall be expelled from examination hall. The student is also debarred and forfeits the seat. The performance of the original student who has been impersonated, shall be cancelled in all the subjects of the examination (including practicals and project work) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The student is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the student is</b>



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



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



11	Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.	<b>Cancellation of the performance in that subject and all other subjects the student has appeared for including practical examinations and project work of that semester/year examinations.</b>
12	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the University for further action to award a suitable punishment.	

#### **Malpractices identified by squad or special invigilators**

1. Punishments to the students as per the above guidelines.
2. Punishment for Institutions: (if the squad reports that the college is also involved in encouraging malpractices)
  - a. A show-cause notice shall be issued to the college.
  - b. Impose a suitable fine on the college.
  - c. Shifting the examination center from one college to another college for a specific period of not less than one year.

**\*\*\* End of Regulations \*\*\***



# Course Structure



**B.TECH. CIVIL ENGINEERING  
EFFECTIVE FROM ACADEMIC YEAR 2023-24 ADMITTED BATCH  
R22 COURSE STRUCTURE AND SYLLABUS**

**I YEAR I – SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1.	22BS1111	Matrices and Calculus	3	1	0	4
2.	22BS1113	Applied Physics	3	1	0	4
3.	22CS1114	C Programming and Data Structures	3	0	0	3
4.	22HS1112	English for Skill Enhancement	2	0	0	2
5.	22CE1155	Elements of Civil Engineering	0	0	2	1
6.	22BS1153	Applied Physics Laboratory	0	0	3	1.5
7.	22CS1154	C Programming and Data Structures Laboratory	0	0	2	1
8.	22HS1152	English Language and Communication Skills Laboratory	0	0	2	1
9.	22ME1156	Engineering Workshop	0	1	3	2.5
10.	22MC0002	Environmental Science	3	0	0	0
11.	22MC0001	Induction Program				
		<b>Total</b>	<b>14</b>	<b>3</b>	<b>12</b>	<b>20</b>

**I YEAR II – SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1.	22BS1211	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2.	22BS1212	Engineering Chemistry	3	1	0	4
3.	22CE1214	Applied Mechanics	3	0	0	3
4.	22CE1215	Surveying	2	0	0	2
5.	22ME1255	Computer Aided Engineering Graphics	1	0	4	3
6.	22BS1252	Engineering Chemistry Laboratory	0	0	2	1
7.	22CS1251	Python Programming Laboratory	0	1	2	2
8.	22CE1253	Surveying Laboratory -I	0	0	2	1
		<b>Total</b>	<b>12</b>	<b>3</b>	<b>10</b>	<b>20</b>



**B.TECH. ELECTRICAL AND ELECTRONICS ENGINEERING  
EFFECTIVE FROM ACADEMIC YEAR 2023 - 24 ADMITTED BATCH  
R22 COURSE STRUCTURE AND SYLLABUS**

**I YEAR I – SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1	22BS1111	Matrices and Calculus	3	1	0	4
2	22BS1112	Applied Physics	3	1	0	4
3	22CS1114	C Programming and Data Structures	3	0	0	3
4	22EE1113	Electrical Circuit Analysis – I	3	0	0	3
5	22ME1155	Engineering Workshop	1	0	4	3
6	22EE1153	Elements of Electrical and Electronics Engineering	0	0	2	1
7	22BS1152	Applied Physics Laboratory	0	0	2	1
8	22CS1154	C Programming and Data Structures Laboratory	0	0	2	1
9	22MC0001	Induction Program				
<b>Total Credits</b>			<b>13</b>	<b>2</b>	<b>10</b>	<b>20</b>

**I Year II Semester**

S. No.	Course Code	Course Title	L	T	P	Credits
1	22BS1211	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2	22BS1213	Engineering Chemistry	3	1	0	4
3	22ME1256	Computer Aided Engineering Graphics	0	1	4	3
4	22HS1212	English for Skill Enhancement	2	0	0	2
5	22EE1215	Electrical Circuit Analysis - II	2	0	0	2
6	22BS1253	Engineering Chemistry Laboratory	0	0	3	1
7	22HS1252	English Language and Communication Skills Laboratory	0	0	2	1
8	22CS1253	Applied Python Programming Laboratory	0	1	2	2
9	22EE1255	Electrical Circuit Analysis Laboratory	0	0	2	1
10	22MC0002	Environmental Science	3	0	0	0
<b>Total Credits</b>			<b>13</b>	<b>2</b>	<b>14</b>	<b>20</b>



**B.TECH. MECHANICAL ENGINEERING  
EFFECTIVE FROM ACADEMIC YEAR 2023 - 24 ADMITTED BATCH  
R22 COURSE STRUCTURE AND SYLLABUS**

**I YEAR I – SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1	22BS1111	Matrices and Calculus	3	1	0	4
2	22BS1113	Applied Physics	3	1	0	4
3	22CS1114	C Programming and Data Structures	3	0	0	3
4	22ME1156	Engineering Workshop	0	1	3	2.5
5	22HS1112	English for Skill Enhancement	2	0	0	2
6	22ME1155	Elements of Mechanical Engineering	0	0	2	1
7	22BS1153	Applied Physics Laboratory	0	0	3	1.5
8	22CS1154	C Programming and Data Structures Laboratory	0	0	2	1
9	22HS1152	English Language and Communication Skills Laboratory	0	0	2	1
10	22MC0002	Environmental Science	3	0	0	0
11	22MC0001	Induction Programme				
		<b>Total</b>	<b>14</b>	<b>3</b>	<b>12</b>	<b>20</b>

**I YEAR II – SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1	22BS1211	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2	22BS1212	Engineering Chemistry	3	1	0	4
3	22ME1255	Computer Aided Engineering Graphics	1	0	4	3
4	22ME1214	Engineering Mechanics	3	0	0	3
5	22ME1215	Engineering Materials	2	0	0	2
6	22CS1251	Python Programming Laboratory	0	1	2	2
7	22BS1252	Engineering Chemistry Laboratory	0	0	2	1
8	22ME1253	Fuels & Lubricants Laboratory	0	0	2	1
		<b>Total</b>	<b>12</b>	<b>3</b>	<b>10</b>	<b>20</b>



**B.TECH. ELECTRONICS AND COMMUNICATION ENGINEERING  
EFFECTIVE FROM ACADEMIC YEAR 2023 - 24 ADMITTED BATCH  
R22 COURSE STRUCTURE AND SYLLABUS**

**I YEAR I – SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1.	22BS1111	Matrices and Calculus	3	1	0	4
2.	22BS1113	Applied Physics	3	1	0	4
3.	22CS1115	C Programming for Engineers	3	0	0	3
4.	22ME1156	Engineering Workshop	0	1	3	2.5
5.	22HS1112	English for Skill Enhancement	2	0	0	2
6.	22EC1155	Elements of Electronics and Communication Engineering	0	0	2	1
7.	22BS1153	Applied Physics Laboratory	0	0	3	1.5
8.	22CS1155	C Programming for Engineers Laboratory	0	0	2	1
9.	22HS1152	English Language and Communication Skills Laboratory	0	0	2	1
10.	22MC0002	Environmental Science	3	0	0	0
11.	22MC0001	Induction Program				
		<b>Total</b>	<b>14</b>	<b>3</b>	<b>12</b>	<b>20</b>

**I YEAR II – SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1.	22BS1211	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2.	22BS1212	Engineering Chemistry	3	1	0	4
3.	22ME1255	Computer Aided Engineering Graphics	1	0	4	3
4.	22EE1214	Basic Electrical Engineering	2	0	0	2
5.	22EC1215	Electronic Devices and Circuits	2	0	0	2
6.	22CS1253	Applied Python Programming Laboratory	0	1	2	2
7.	22BS1252	Engineering Chemistry Laboratory	0	0	2	1
8.	22EE1254	Basic Electrical Engineering Laboratory	0	0	2	1
9.	22EC1255	Electronic Devices and Circuits Laboratory	0	0	2	1
		<b>Total</b>	<b>11</b>	<b>3</b>	<b>12</b>	<b>20</b>



**B.TECH. INFORMATION TECHNOLOGY  
EFFECTIVE FROM ACADEMIC YEAR 2023 - 24 ADMITTED BATCH  
R22 COURSE STRUCTURE AND SYLLABUS**

**I YEAR I – SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1	22BS111	Matrices and Calculus	3	1	0	4
2	22BS1113	Applied Physics	3	1	0	4
3	22CS1113	Programming for Problem Solving	3	0	0	3
4	22ME1156	Engineering Workshop	0	1	3	2.5
5	22HS1112	English for Skill Enhancement	2	0	0	2
6	22CS1156	Elements of Computer Science & Engineering	0	0	2	1
7	22BS1153	Applied Physics Laboratory	0	0	3	1.5
8	22CS1153	Programming for Problem Solving Laboratory	0	0	2	1
9	22HS1152	English Language and Communication Skills Laboratory	0	0	2	1
10	22MC0002	Environmental Science	3	0	0	0
11	22MC0001	Induction Program				
		<b>Total</b>	<b>14</b>	<b>3</b>	<b>12</b>	<b>20</b>

**I YEAR II – SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1	22BS1211	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2	22BS1212	Engineering Chemistry	3	1	0	4
3	22ME1255	Computer Aided Engineering Graphics	1	0	4	3
4	22EE1214	Basic Electrical Engineering	2	0	0	2
5	22EC1215	Electronic Devices and Circuits	2	0	0	2
6	22CS1251	Python Programming Laboratory	0	1	2	2
7	22BS1252	Engineering Chemistry Laboratory	0	0	2	1
8	22EE1254	Basic Electrical Engineering Laboratory	0	0	2	1
9	22IT1255	IT Workshop	0	0	2	1
		<b>Total</b>	<b>11</b>	<b>3</b>	<b>12</b>	<b>20</b>



**B.TECH. COMPUTER SCIENCE & ENGINEERING (AI&ML)  
EFFECTIVE FROM ACADEMIC YEAR 2023 - 24 ADMITTED BATCH  
R22 COURSE STRUCTURE AND SYLLABUS**

**I YEAR I – SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1	22BS1111	Matrices and Calculus	3	1	0	4
2	22BS1113	Applied Physics	3	1	0	4
3	22CS1113	Programming for Problem Solving	3	0	0	3
4	22ME1156	Engineering Workshop	0	1	3	2.5
5	22HS1112	English for Skill Enhancement	2	0	0	2
6	22CS1156	Elements of Computer Science & Engineering	0	0	2	1
7	22BS1153	Applied Physics Laboratory	0	0	3	1.5
8	22CS1153	Programming for Problem Solving Laboratory	0	0	2	1
9	22HS1152	English Language and Communication Skills Laboratory	0	0	2	1
10	22MC0002	Environmental Science	3	0	0	0
11	22MC0001	Induction Program				
		<b>Total</b>	<b>14</b>	<b>3</b>	<b>12</b>	<b>20</b>

**I YEAR II – SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1	22BS1211	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2	22BS1212	Engineering Chemistry	3	1	0	4
3	22ME1255	Computer Aided Engineering Graphics	1	0	4	3
4	22EE1214	Basic Electrical Engineering	2	0	0	2
5	22EC1215	Electronic Devices and Circuits	2	0	0	2
6	22CS1251	Python Programming Laboratory	0	1	2	2
7	22BS1252	Engineering Chemistry Laboratory	0	0	2	1
8	22EE1254	Basic Electrical Engineering Laboratory	0	0	2	1
9	22IT1255	IT Workshop	0	0	2	1
		<b>Total</b>	<b>11</b>	<b>3</b>	<b>12</b>	<b>20</b>



**B.TECH. COMPUTER SCIENCE AND ENGINEERING  
EFFECTIVE FROM ACADEMIC YEAR 2023 - 24 ADMITTED BATCH  
R22 COURSE STRUCTURE AND SYLLABUS**

**I YEAR I – SEMESTER**

S.No.	Course Code	Course	Category	L	T	P	Credits
1.	22BS1111	Matrices and Calculus	BS	3	1	0	4
2.	22BS1112	Engineering Chemistry	BS	3	1	0	4
3.	22CS1113	Programming for Problem Solving	ES	3	0	0	3
4.	22EE1114	Basic Electrical Engineering	ES	2	0	0	2
5.	22ME1155	Computer Aided Engineering Graphics	ES	1	0	4	3
6.	22CS1156	Elements of Computer Science & Engineering	BS	0	0	2	1
7.	22BS1152	Engineering Chemistry Laboratory	ES	0	0	2	1
8.	22CS1153	Programming for Problem Solving Laboratory	ES	0	0	2	1
9.	22EE1154	Basic Electrical Engineering Laboratory	ES	0	0	2	1
10.	22MC0001	Induction Program	BS				
<b>Total</b>				<b>12</b>	<b>2</b>	<b>12</b>	<b>20</b>

**I YEAR II – SEMESTER**

S.No.	Course Code	Course	Category	L	T	P	Credits
1.	22BS1211	Ordinary Differential Equations and Vector Calculus	BS	3	1	0	4
2.	22BS1213	Applied Physics	BS	3	1	0	4
3.	22ME1256	Engineering Workshop	ES	0	1	3	2.5
4.	22HS1212	English for Skill Enhancement	HS	2	0	0	2
5.	22EC1215	Electronic Devices and Circuits	ES	2	0	0	2
6.	22BS1253	Applied Physics Laboratory	BS	0	0	3	1.5
7.	22CS1251	Python Programming Laboratory	ES	0	1	2	2
8.	22HS1252	English Language and Communication Skills Laboratory	HS	0	0	2	1
9.	22IT1255	IT Workshop	ES	0	0	2	1
10.	22MC0002	Environmental Science	BS	3	0	0	0
<b>Total</b>				<b>13</b>	<b>4</b>	<b>12</b>	<b>20</b>



**B.TECH. COMPUTER SCIENCE AND BUSINESS SYSTEM  
EFFECTIVE FROM ACADEMIC YEAR 2023 - 24 ADMITTED BATCH  
R22 COURSE STRUCTURE AND SYLLABUS**

**I YEAR I – SEMESTER**

S.No.	Course Code	Course	Category	L	T	P	Credits
1.	22BS1111	Matrices and Calculus	BS	3	1	0	4
2.	22BS1112	Engineering Chemistry	BS	3	1	0	4
3.	22CS1113	Programming for Problem Solving	ES	3	0	0	3
4.	22EE1114	Basic Electrical Engineering	ES	2	0	0	2
5.	22ME1155	Computer Aided Engineering Graphics	ES	1	0	4	3
6.	22CS1156	Elements of Computer Science & Engineering	BS	0	0	2	1
7.	22BS1152	Engineering Chemistry Laboratory	ES	0	0	2	1
8.	22CS1153	Programming for Problem Solving Laboratory	ES	0	0	2	1
9.	22EE1154	Basic Electrical Engineering Laboratory	ES	0	0	2	1
10.	22MC0001	Induction Program	BS				
		<b>Total</b>		<b>12</b>	<b>2</b>	<b>12</b>	<b>20</b>

**I YEAR II – SEMESTER**

S.No.	Course Code	Course	Category	L	T	P	Credits
1.	22BS1211	Ordinary Differential Equations and Vector Calculus	BS	3	1	0	4
2.	22BS1213	Applied Physics	BS	3	1	0	4
3.	22ME1256	Engineering Workshop	ES	0	1	3	2.5
4.	22HS1212	English for Skill Enhancement	HS	2	0	0	2
5.	22EC1215	Electronic Devices and Circuits	ES	2	0	0	2
6.	22BS1253	Applied Physics Laboratory	BS	0	0	3	1.5
7.	22CS1251	Python Programming Laboratory	ES	0	1	2	2
8.	22HS1252	English Language and Communication Skills Laboratory	HS	0	0	2	1
9.	22IT1255	IT Workshop	ES	0	0	2	1
10.	22MC0002	Environmental Science	BS	3	0	0	0
		<b>Total</b>		<b>13</b>	<b>4</b>	<b>12</b>	<b>20</b>



**B.TECH. COMPUTER SCIENCE & ENGINEERING  
(CYBER SECURITY)  
EFFECTIVE FROM ACADEMIC YEAR 2023 - 24 ADMITTED BATCH  
R22 COURSE STRUCTURE AND SYLLABUS**

**I YEAR I – SEMESTER**

S.No.	Course Code	Course	Category	L	T	P	Credits
1.	22BS1111	Matrices and Calculus	BS	3	1	0	4
2.	22BS1112	Engineering Chemistry	BS	3	1	0	4
3.	22CS1113	Programming for Problem Solving	ES	3	0	0	3
4.	22EE1114	Basic Electrical Engineering	ES	2	0	0	2
5.	22ME1155	Computer Aided Engineering Graphics	ES	1	0	4	3
6.	22CS1156	Elements of Computer Science & Engineering	BS	0	0	2	1
7.	22BS1152	Engineering Chemistry Laboratory	ES	0	0	2	1
8.	22CS1153	Programming for Problem Solving Laboratory	ES	0	0	2	1
9.	22EE1154	Basic Electrical Engineering Laboratory	ES	0	0	2	1
10.	22MC0001	Induction Program	BS				
		<b>Total</b>		<b>12</b>	<b>2</b>	<b>12</b>	<b>20</b>

**I YEAR II – SEMESTER**

S.No.	Course Code	Course	Category	L	T	P	Credits
1.	22BS1211	Ordinary Differential Equations and Vector Calculus	BS	3	1	0	4
2.	22BS1213	Applied Physics	BS	3	1	0	4
3.	22ME1256	Engineering Workshop	ES	0	1	3	2.5
4.	22HS1212	English for Skill Enhancement	HS	2	0	0	2
5.	22EC1215	Electronic Devices and Circuits	ES	2	0	0	2
6.	22BS1253	Applied Physics Laboratory	BS	0	0	3	1.5
7.	22CS1251	Python Programming Laboratory	ES	0	1	2	2
8.	22HS1252	English Language and Communication Skills Laboratory	HS	0	0	2	1
9.	22IT1255	IT Workshop	ES	0	0	2	1
10.	22MC0002	Environmental Science	BS	3	0	0	0
		<b>Total</b>		<b>13</b>	<b>4</b>	<b>12</b>	<b>20</b>



**B.TECH. COMPUTER SCIENCE & ENGINEERING  
(DATA SCIENCE)  
EFFECTIVE FROM ACADEMIC YEAR 2023 - 24 ADMITTED BATCH  
R22 COURSE STRUCTURE AND SYLLABUS**

**I YEAR I – SEMESTER**

S.No.	Course Code	Course	Category	L	T	P	Credits
1.	22BS1111	Matrices and Calculus	BS	3	1	0	4
2.	22BS1112	Engineering Chemistry	BS	3	1	0	4
3.	22CS1113	Programming for Problem Solving	ES	3	0	0	3
4.	22EE1114	Basic Electrical Engineering	ES	2	0	0	2
5.	22ME1155	Computer Aided Engineering Graphics	ES	1	0	4	3
6.	22CS1156	Elements of Computer Science & Engineering	BS	0	0	2	1
7.	22BS1152	Engineering Chemistry Laboratory	ES	0	0	2	1
8.	22CS1153	Programming for Problem Solving Laboratory	ES	0	0	2	1
9.	22EE1154	Basic Electrical Engineering Laboratory	ES	0	0	2	1
10.	22MC0001	Induction Program	BS				
		<b>Total</b>		<b>12</b>	<b>2</b>	<b>12</b>	<b>20</b>

**I YEAR II – SEMESTER**

S.No.	Course Code	Course	Category	L	T	P	Credits
1.	22BS1211	Ordinary Differential Equations and Vector Calculus	BS	3	1	0	4
2.	22BS1213	Applied Physics	BS	3	1	0	4
3.	22ME1256	Engineering Workshop	ES	0	1	3	2.5
4.	22HS1212	English for Skill Enhancement	HS	2	0	0	2
5.	22EC1215	Electronic Devices and Circuits	ES	2	0	0	2
6.	22BS1253	Applied Physics Laboratory	BS	0	0	3	1.5
7.	22CS1251	Python Programming Laboratory	ES	0	1	2	2
8.	22HS1252	English Language and Communication Skills Laboratory	HS	0	0	2	1
9.	22IT1255	IT Workshop	ES	0	0	2	1
10.	22MC0002	Environmental Science	BS	3	0	0	0
		<b>Total</b>		<b>13</b>	<b>4</b>	<b>12</b>	<b>20</b>



# Detailed Syllabus



## 22BS1111: MATRICES AND CALCULUS

I B Tech. I Semester

L T P C  
3 1 - 4

**Prerequisite(s):** Mathematical knowledge at Pre university level.

**Course Objectives:** Develop ability to learn the concept of

1. Rank of the matrix and apply the same to know the consistency for the linear system of equations.
2. Eigen values and Eigen vectors to reduce the quadratic form to canonical form.
3. Geometrical approach to the mean value theorems and their application to the mathematical problems, Evaluation of surface areas and volumes of revolutions of curves and evaluation of improper integrals using Beta and Gamma functions.
4. Partial differentiation and Finding maxima and minima of function of two and three variables.
5. Evaluation of multiple integrals and their applications.

**Course Outcomes:** After successful completion of this course, the student should be able to

1. Write the matrix representation of a set of linear equations, find the rank and apply the same to analyse the solution of the system of equations.
2. Reduce the quadratic form to canonical form using orthogonal transformations by finding Eigenvalues and Eigen vectors.
3. Solve the applications on the mean value theorems, Evaluate the improper integrals using Beta and Gamma functions
4. Find the extreme values of functions of two variables with/ without constraints using partial differentiation.
5. Evaluate the multiple integrals and apply the concept to find areas and volumes.

### UNIT - I: Matrices

Rank of a matrix by Echelon form and Normal form, Inverse of Non-singular matrices by Gauss-Jordan method, System of linear equations: Solving system of Homogeneous and Non-Homogeneous equations by Gauss elimination method, Gauss Seidel Iteration Method.

### UNIT - II: Eigen values and Eigen vectors

Linear Transformation and Orthogonal Transformation: Eigenvalues, Eigenvectors and their properties, Diagonalization of a matrix, Cayley-Hamilton Theorem (without proof), finding inverse and power of a matrix by Cayley-Hamilton Theorem, Quadratic forms and Nature of the Quadratic Forms, Reduction of Quadratic form to canonical forms by Orthogonal Transformation.

### UNIT - III: Calculus

Mean value theorems: Rolle's theorem, Lagrange's Mean value theorem with their Geometrical Interpretation and applications, Cauchy's Mean value Theorem, Taylor's Series (without proof). Applications of definite integrals to evaluate surface areas and volumes of revolutions of curves (Only in Cartesian coordinates for known curves (circle, parabola, ellipse), Definition of Improper Integral: Beta and Gamma functions and their applications.

### UNIT - IV: Multivariable Calculus (Partial Differentiation and applications)

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

### UNIT-V: Multivariable Calculus (Integration)

Evaluation of Double Integrals (Cartesian and polar coordinates), change of order of integration (only Cartesian form for known curves (circle, parabola, ellipse), Evaluation of Triple Integrals: Change of variables (Cartesian to polar) for double and (Cartesian to Spherical and Cylindrical polar coordinates) for triple integrals. Applications: Areas (by double integrals) and volumes (by double integrals and triple integrals).

**TEXT BOOKS:**

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 44<sup>th</sup> Edition, 2010.
2. R.K. Jain and S.R.K. Iyengar, Advanced Engineering Mathematics, Narosa Publications, 5<sup>th</sup> Edition, 2016.

**REFERENCE BOOKS:**

1. Erwin Kreyszig, Advanced Engineering Mathematics, 9<sup>th</sup> Edition, John Wiley & Sons, 2006.
2. G.B. Thomas and R.L. Finney, Calculus and Analytic geometry, 9<sup>th</sup> Edition, Pearson, Reprint, 2002.
3. N.P. Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications, Reprint, 2008.
4. H. K. Dass and Er. Rajnish Verma, Higher Engineering Mathematics, S Chand and Company Limited, New Delhi.



## 22BS1113: APPLIED PHYSICS

### B. Tech. I Year I SEM

L T P C  
3 1 0 4

#### Course Objectives:

The objectives of this course for the student are to:

1. Understand the basic principles of quantum physics and band theory of solids.
2. Understand the underlying mechanism involved in construction and working principles of various semiconductor devices.
3. Study the fundamental concepts related to the dielectric, magnetic and energy materials.
4. Identify the importance of Nano scale, quantum confinement and various fabrication techniques.
5. Study the characteristics of lasers and optical fibers.

#### Course Outcomes:

At the end of the course the student will be able to:

1. Understand physical world from fundamental point of view by the concepts of Quantum mechanics and visualize the difference between conductor, semiconductor, and an insulator by classification of solids.
2. Identify the role of semiconductor devices in science and engineering Applications.
3. Explore the fundamental properties of dielectric, magnetic and energy materials for their applications.
4. Appreciate the features and applications of Nano materials.
5. Understand various aspects of Lasers and Optical fiber and their applications in diverse fields.

### UNIT - I: QUANTUM PHYSICS AND SOLIDS

**Quantum Mechanics:** Introduction to quantum physics, blackbody radiation, Wein's and Rayleigh- Jean's law, Planck's radiation law (Qualitative) - photoelectric effect de-Broglie hypothesis and matter waves- Davisson and Germer experiment –Heisenberg uncertainty principle - Born interpretation of the wave function – time independent Schrodinger wave equation - particle in one dimensional potential box.

Solids: Free electron theory (Drude & Lorentz, Sommerfeld) (Qualitative) Bloch's theorem -Kronig- Penney model (Qualitative) origin of energy bands- classification of solids.

### UNIT - II: SEMICONDUCTORS AND DEVICES

Intrinsic and extrinsic semiconductors – Hall effect - direct and indirect band gap semiconductors - construction, principle of operation and characteristics of P-N Junction diode, Zener diode and bipolar junction transistor (BJT)–LED, PIN diode, avalanche photo diode (APD) and solar cells, their structure, materials, working principle and characteristics.

### UNIT - III: DIELECTRIC, AND MAGNETIC AND ENERGY MATERIALS

**Dielectric Materials:** Basic definitions- types of polarizations (qualitative) - ferroelectric, piezoelectric, and pyroelectric materials.

**Magnetic Materials:** Basic definitions – classification of Magnetic materials – Domain theory of ferromagnetism in hysteresis - soft and hard magnetic materials - magnetostriction, magnetoresistance.

**Energy Materials:** Conductivity of liquid and solid electrolytes- superionic conductors - materials and electrolytes for super capacitors.

### UNIT - IV: NANOTECHNOLOGY

Nanoscale, quantum confinement, surface to volume ratio, **bottom-up fabrication:** sol-gel, precipitation, combustion methods – **top-down fabrication:** ball milling - physical vapor deposition (PVD) - chemical vapor deposition (CVD) - characterization techniques - XRD, SEM & TEM - applications of nanomaterials.

### UNIT - V: LASER AND FIBER OPTICS

**Lasers:** Laser beam characteristics-three quantum processes-Einstein coefficients and their relations- lasing action - pumping methods, CO<sub>2</sub> laser, Nd: YAG laser- semiconductor laser-applications of laser.

**Fiber Optics:** Introduction to optical fiber- advantages of optical Fibers - total internal reflection- construction of optical fiber - acceptance angle - numerical aperture- classification of optical fibers- losses in optical fiber - optical fiber for communication system - applications.

**TEXT BOOKS:**

1. M. N. Avadhanulu, P.G. Kshirsagar & TVS Arun Murthy” A Text book of Engineering Physics”- S. Chand Publications, 11<sup>th</sup> Edition 2019.
2. Engineering Physics by Shatendra Sharma and Jyotsna Sharma, Pearson Publication, 2019
3. Semiconductor Physics and Devices- Basic Principle – Donald A. Neamen, Mc Graw Hill, 4<sup>th</sup> Edition, 2021.
4. B.K. Pandey and S. Chaturvedi, Engineering Physics, Cengage Learning, 2<sup>nd</sup> Edition, 2022.
5. Essentials of Nanoscience & Nanotechnology by Narasimha Reddy Katta, Typical Creatives NANO DIGEST, 1<sup>st</sup> Edition, 2021

**REFERENCE BOOKS:**

1. Quantum Physics, H.C. Verma, TBS Publication, 2<sup>nd</sup> Edition 2012.
2. Fundamentals of Physics – Halliday, Resnick and Walker, John Wiley & Sons, 11<sup>th</sup> Edition, 2018.
3. Introduction to Solid State Physics, Charles Kittel, Wiley Eastern, 2019.
4. Elementary Solid-State Physics, S.L. Gupta and V. Kumar, Pragathi Prakashan, 2019.
5. A.K. Bhandhopadhyaya - Nano Materials, New Age International, 1<sup>st</sup> Edition, 2007.
6. Energy Materials a Short Introduction to Functional Materials for Energy Conversion and Storage Aliaksandr S. Bandarenka, CRC Press Taylor & Francis Group
7. Energy Materials, Taylor & Francis Group, 1<sup>st</sup> Edition, 2022.



## 22BS1112: ENGINEERING CHEMISTRY

B.Tech. I Year I Sem.

L T P C  
3 1 0 4

1. To acquire knowledge about desalination of brackish water and treatment of municipal water.
2. To include the fundamental aspects of battery chemistry, significance of corrosion and its control to protect the structures.
3. To gain the knowledge of conducting polymers, bio-degradable polymers and fiber reinforced plastics.
4. To understand the significance of green chemistry and green synthesis and to imbibe the green chemistry principles.
5. To acquire required knowledge about engineering materials like smart materials, lubricants, and biodiesel.

### Course Outcomes:

1. Students will acquire the basic knowledge of electrochemical procedures related to corrosion and its control.
2. The students are able to understand the basic properties of water and its usage in domestic and industrial purposes.
3. They can substitute metals with conducting polymers and also produce cheaper biodegradable polymers to reduce environmental pollution.
4. The student can use real examples to illustrate how the principles of *r str* can be applied to chemical process in engineering.
5. They can predict potential applications of engineering materials and practical utility in order to become good engineers and entrepreneurs.

### UNIT - I: Water and its treatment:

Introduction to hardness of water – Estimation of hardness of water by complexometric method and related numerical problems. Potable water and its specifications - Steps involved in the treatment of potable water - Disinfection of potable water by chlorination and break - point chlorination. Defluoridation - Determination of  $F^-$  ion by ion-selective electrode method.

Boiler troubles: Sludges, Scales and Caustic embrittlement. Internal treatment of Boiler feed water - Calgon conditioning - Phosphate conditioning - Colloidal conditioning, External treatment methods - Softening of water by ion-exchange processes. Desalination of water – Reverse osmosis.

### UNIT – II Battery Chemistry & Corrosion

Introduction - Classification of batteries- primary, secondary and reserve batteries with examples. Basic requirements for commercial batteries. Construction, working and applications of: Zn-air and Lithium ion battery, Applications of Li-ion battery to electrical vehicles. Fuel Cells- Differences between battery and a fuel cell, Construction and applications of Methanol Oxygen fuel cell and Solid oxide fuel cell. Solar cells - Introduction and applications of Solar cells.

**Corrosion:** Causes and effects of corrosion – theories of chemical and electrochemical corrosion – mechanism of electrochemical corrosion, Types of corrosion: Galvanic, water-line and pitting corrosion. Factors affecting rate of corrosion, Corrosion control methods- Cathodic protection – Sacrificial anode and impressed current methods.

### UNIT - III: Polymeric materials:

Definition – Classification of polymers with examples – Types of polymerization – addition (free radical addition) and condensation polymerization with examples – Nylon 6:6, Terylene **Plastics:** Definition and characteristics- thermoplastic and thermosetting plastics, Preparation, Properties and engineering applications of PVC and Bakelite, Teflon, Fiber reinforced plastics (FRP). **Rubbers:** Natural rubber and its vulcanization.

**Elastomers:** Characteristics –preparation – properties and applications of Buna-S, Butyl and Thiokol rubber.

**Conducting polymers:** Characteristics and Classification with examples-mechanism of conduction in trans-polyacetylene and applications of conducting polymers.

**Biodegradable polymers:** Concept and advantages - Polylactic acid and poly vinyl alcohol and their applications.

### UNIT - IV: Green Chemistry and Engineering for sustainable Development

Definition and history of Green chemistry, Concept and principles (Prevention, Atom Economy, Less Hazardous Chemical Syntheses, Designing Safer Chemicals, Safer Solvents and Auxiliaries, Design for Energy Efficiency, Use of Renewable Feedstock, Reduce, Derivatives, Catalysis, Design for Degradation, Real-time Analysis for Pollution Prevention, Inherently Safer Chemistry for Accident Prevention) of Green Chemistry with suitable examples.

**UNIT - V: Engineering Materials:****Smart materials and their engineering applications**

Shape memory materials- Poly L- Lactic acid. Thermoresponse materials- Polyacryl amides, Poly vinylamides

**Lubricants:** Classification of lubricants with examples-characteristics of a good lubricants - mechanism of lubrication (thick film, thin film and extreme pressure)- properties of lubricants: viscosity, cloud point, pour point, flash point and fire point. **Bio Diesel:** Sources and applications of Biodiesel

**TEXT BOOKS:**

1. Engineering Chemistry by P.C. Jain and M. Jain, Dhanpatrai Publishing Company, 2010
2. Engineering Chemistry by Rama Devi, Venkata Ramana Reddy and Rath, Cengage learning, 2016
3. Textbook of Engineering Chemistry by Jaya Shree Anireddy, Wiley Publications.
4. A text book of Engineering Chemistry by M. Thirumala Chary, E. Laxminarayana and K. Shashikala, Pearson Publications, 2021.
5. Engineering Chemistry by K Sesha Maheswaramma and Mridula Chugh, Pearson Publications.

**REFERENCE BOOKS:**

1. Engineering Chemistry by Shikha Agarwal, Cambridge University Press, Delhi (2015)
  2. Engineering Chemistry by Shashi Chawla, Dhanpatrai and Company (P) Ltd. Delhi (2011)
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## 22HS1112 : ENGLISH FOR SKILL ENHANCEMENT

B.Tech. I Year I Sem.

L T P C  
2 0 0 2

**Course Objectives:** This course will enable the students to:

1. Improve the language proficiency of students in English with an emphasis on Vocabulary, Grammar, Reading and Writing skills.
2. Develop study skills and communication skills in various professional situations.
3. Learn remedial and functional grammar related to various grammar items.
4. Prepare the students for examinations such as IELTS and TOEFL by sharpening their reading and writing skills.
5. Equip students to study engineering subjects more effectively and critically using the theoretical and practical components of the syllabus.

**Course Outcomes:** Students will be able to:

1. Use a wide range of vocabulary and sentence structures and also acquire basic proficiency in reading and writing modules of English.
2. Choose appropriate vocabulary and sentence structures for their oral and written communication.
3. Demonstrate their understanding of the rules of functional grammar.
4. Develop comprehension skills from the known and unknown passages.
5. Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various contexts.

### UNIT-I

Chapter entitled '*Toasted English*' by R.K. Narayan from "*English: Language, Context and Culture*" published by Orient Black Swan, Hyderabad.

**Vocabulary:** The Concept of Word Formation – The Use of Prefixes and Suffixes- Acquaintance with Prefixes and Suffixes from Foreign Languages to form Derivatives - Synonyms and Antonyms

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

**Reading:** Reading and Its Importance – Techniques for Effective Reading.

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

### UNIT-II

Chapter entitled '*Appro JRD*' by Sudha Murthy from "*English: Language, Context and Culture*" published by Orient Black Swan, Hyderabad.

**Vocabulary:** Words Often Misspelt - Homophones, Homonyms and Homographs

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

**Reading:** Sub-Skills of Reading – Skimming and Scanning – Exercises for Practice

**Writing:** Nature and Style of Writing - Defining/Describing People, Objects, Places and Events – Classifying – Providing Examples or Evidence.

### UNIT-III

Chapter entitled '*Lessons from Online Learning*' by F.Haider Alvi, Deborah Hurst et al from "*English: Language, Context and Culture*" published by Orient Black Swan, Hyderabad.

**Vocabulary:** Words Often Confused – Words from Foreign Languages and their Use in English.

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

**Reading:** Sub-Skills of Reading – Intensive Reading and Extensive Reading – Exercises for Practice.

**Writing:** Format of a Formal Letter – Writing Formal Letters e.g. Letter of Complaint, Letter of Requisition, Email Etiquette, Job Application with CV/Resume.



#### UNIT-IV

Chapter entitled ‘Art and Literature’ by Abdul Kalam from “*English: Language, Context and Culture*” published by Orient Black Swan, Hyderabad.

**Vocabulary:** Standard Abbreviations in English

**Grammar:** Redundancies and Clichés in Oral and Written Communication.

**Reading:** Survey, Question, Read, Recite and Review (SQ3R Method) – Exercises for Practice

**Writing:** Writing Practices – Essay Writing – Writing Introduction and Conclusion – Précis Writing.

#### UNIT-V

Chapter entitled ‘Go, Kiss the World’ by Subroto Bagchi from “*English: Language, Context and Culture*” published by Orient Black Swan, Hyderabad.

**Vocabulary:** Technical Vocabulary and their Usage

**Grammar:** Common Errors in English ( *r*      *t*      *tr*      *sts*      *rr*      *r*      *t r*      *t* )

**Reading:** Reading Comprehension – Exercises for Practice

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

**Note:** Listening and Speaking Skills which are given under Unit -6 in AICTE Model Curriculum are covered in the syllabus of ELCS Lab Course.

➤ **Note: 1.** As the syllabus of English given in AICTE *rr*      *2 r*      *rst r s* **Open-ended** besides following the prescribed textbook, it is required to prepare teaching/learning materials **by the teachers collectively** in the form of handouts based on the needs of the students in their respective colleges for effective teaching/learning in the class.

➤ **Note: 2.** Based on the recommendations of NEP2020, teachers are requested to be flexible to adopt Blended Learning in dealing with the course contents. They are advised to teach 40 percent of each topic from the syllabus in blended mode.

#### TEXTBOOK:

1. “English: Language, Context and Culture” by Orient Black Swan Pvt. Ltd, Hyderabad.2022. Print.

#### REFERENCEBOOKS:

1. Effective Academic Writing by Liss and Davis (OUP)
2. Richards, Jack C. (2022) Interchange Series. Introduction,1,2,3. Cambridge University Press
3. Wood, F. T. (2007). Remedial English Grammar. Macmillan.
4. Chaudhuri, Santanu Sinha. (2018). Learn English: A Fun Book of Functional Language, Grammar and Vocabulary. (2<sup>nd</sup> ed.,). Sage Publications India Pvt. Ltd.
5. (2019). Technical Communication. Wiley India Pvt. Ltd.
6. Vishwamohan, Aysha.(2013). English for Technical Communication for Engineering Students. Mc Graw-Hill Education India Pvt. Ltd.
7. Swan, Michael. (2016). Practical English Usage. Oxford University Press. Fourth Edition

**22CS1115- C PROGRAMMING FOR ENGINEERS****I B Tech. I Semester****L T P C  
3 0 0 3****Course Objectives:**

1. To learn the fundamentals of computers.
2. To understand the various steps in Program development.
3. To learn the syntax and semantics of C Programming Language.
4. To learn how to use arrays and pointers to solve problems.
5. To learn the usage of structured programming approach in solving problems.

**Course Outcomes:** Upon completing this course, the students will be able to

1. Draw flowcharts for solving arithmetic and logical problems
2. Develop modular reusable code by understanding concepts of functions.
3. Formulate algorithms and programs using arrays, pointers, strings and structures.
4. Able to develop applications on Files
5. Write a programs using Searching and sorting algorithms

**UNIT- I: INTRODUCTION TO COMPUTER ALGORITHMS AND PROGRAMMING****Components of a computer system:** Memory, processor, I/O devices, storage, operating system, the concept of assembler, compiler, interpreter, loader, and linker.**From algorithm to program:** Representation of an algorithm, flowchart, Pseudocode with examples, converting algorithms to programs.**Programming Basics:** Structure of C program, writing and executing the first C program, Syntax and logical errors in compilation, object, and executable code. Components of C language, standard I/O in C, data types, variables and constants, memory storage, and storage classes.**UNIT – II: EXPRESSIONS AND STATEMENTS****Expressions and their evaluation:** Operands and Operators, formation of expressions using arithmetic, relational, logical, and bitwise operators, precedence and associativity rules, mixed operands, type conversion, and evaluation of expressions.**Statements:** Simple and compound statements, Conditional Branching: if and switch statements, nested if-else, dangling else problem, use of break and default with switch. Iteration and loops: use of while, do-while and for loops, nested loops, use of break and continue statements.**UNIT – III: FUNCTIONS AND ARRAYS****Designing Structured Programs:** Introduction to functions, advantages of modularizing a program into functions, types of functions, passing parameters to functions: call by value; call by reference, passing arrays to functions, recursion with example programs.**Arrays:** Array notation and representation, manipulating array elements, using multi-dimensional arrays, character arrays.**C strings:** string input/output functions, Array of strings, string manipulation functions with example programs.**UNIT – IV: POINTERS AND FILE HANDLING****Pointers:** Introduction, declaration of pointer, pointer arithmetic, void pointer, applications, dynamic memory allocation (malloc(), calloc(), realloc(), free()), use of pointers in self-referential structures.**File handling:** File I/O functions, standard C pre-processors, defining and calling macros, command- line arguments.**UNIT – V: DERIVED TYPES AND BASIC ALGORITHMS:****Structures, Union, Enums and Bit-fields:** Defining, declaring, and usage of structures, unions, and their arrays, passing structures, and unions to functions, introduction to enums and bit-fields.**Basic Algorithms:** Searching ((linear and binary search techniques) and Sorting Algorithms (Bubble, Insertion, and Selection), finding roots of equations.

**TEXT BOOKS:**

1. B. A. Forouzan and R. F. Gilberg -Programming & Data Structures, 3<sup>rd</sup> Ed., Cengage Learning`
2. Byron Gottfried - Schaum's Outline of Programming with C, McGraw-Hill

**REFERENCE BOOKS:**

1. Ajay Mittal - Programming in C: A practical approach, Pearson Education, 2010
2. Kernighan Brian W. and Ritchie Dennis M.- The C programming, Pearson Education.
3. J. R. Hanlyand, E. B. Koffman -Problem Solving and Program Design, 5<sup>th</sup> Ed., PearsonEducation.
4. H. Cheng - C for Engineers and Scientists, McGraw-Hill International Edition
5. V. Rajaraman - Computer Basics and C Programming, PHI Learning, 2015.



## 22CS1114: C PROGRAMMING AND DATA STRUCTURES

B.Tech. I Year I Sem

L T P C

3 0 0 3

### Course Objectives:

1. Learn adequate knowledge by problem solving techniques.
2. Understand programming skills using the fundamentals and basics of C Language.
3. Improve problem solving skills using arrays, strings, and functions.
4. Understand the dynamics of memory by pointers.
5. Study files creation process with access permissions.

### Course Outcomes:

1. Explore the basic concepts in C Programming Language.
2. Develop modular and readable C Programs
3. Understand the basic concepts such as Abstract Data Types, Linear and Non-Linear Datastructures.
4. Apply data structures such as stacks, queues in problem solving
5. To understand and analyze various searching and sorting algorithms.

### UNIT – I

**Introduction to Computers** – Computer Systems, Computing Environments, Computer Languages, Creating and running programs, Software Development

**Introduction to C Language** – Background, Simple C programs, Identifiers, Basic data types, Variables, Constants, Input / Output

**Structure of a C Program** – Operators, Bit-wise operators, Expressions, Precedence and Associativity, Expression Evaluation, Type conversions, Statements.

### UNIT – II

**Statements** – if and switch statements, Repetition statements – while, for, do-while statements, Loop examples, other statements related to looping – break, continue, go to, Recursion.

**Designing Structured Programs** – Functions, basics, user defined functions, inter function communication, standard functions.

**Arrays** – Concepts, using arrays in C, inter function communication, array applications, two – dimensional arrays, multidimensional arrays.

### UNIT – III

**Pointers** – Introduction, Pointers for inter function communication, pointers to pointers, compatibility.

**Pointer Applications** – Passing an array to a function, Memory allocation functions: malloc(), calloc(), realloc(), free(), array of pointers

**Strings** – Concepts, C Strings, String Input / Output functions, arrays of strings, string manipulation functions, string / data conversion.

### UNIT – IV

**Derived types** – The Typedef, enumerated types, Structures – Declaration, definition and initialization of structures, accessing structures, operations on structures, complex structures. Unions – Referencing unions, initializers, unions and structures.

**Input and Output** – Text vs Binary streams, standard library functions for files, converting file types, File programs – copy, merge files.

### UNIT – V:

**Searching and Sorting Techniques** – Basic searching in an array of elements (linear and binary search techniques), Basic algorithms to sort array of elements (Bubble, Insertion and Selection sort algorithms)

**Data Structures** – Introduction to Data Structures, abstract data types, Linear list – singly linked list implementation, insertion, deletion and searching operations on linear list, Stacks – Operations, array and linked representations of stacks, stack applications, Queues – operations, array and linked representations.

**TEXT BOOKS:**

1. C Programming & Data Structures, B.A.Forouzan and R.F. Gilberg, Third Edition, CengageLearning.
2. Problem Solving and Program Design in C, J.R. Hanly and E.B. Koffman, Fifth Edition, PearsonEducation.
3. The C Programming Language, B.W. Kernighan and Dennis M.Ritchie, PHI/Pearson Education

**REFERENCE BOOKS:**

1. C & Data structures – P. Padmanabham, 3rd Edition, B.S. Publications.
2. C Programming with problem solving, J.A. Jones & K. Harrow, Dreamtech Press
3. Programming in C – Stephen G. Kochan, III Edition, Pearson Education.
4. C for Engineers and Scientists, H. Cheng, McGraw-Hill International Edition
5. Data Structures using C – A. M. Tanenbaum, Y. Langsam, and M.J. Augenstein, PearsonEducation / PHI
6. C Programming & Data Structures, E. Balagurusamy, TMH.
7. C Programming & Data Structures, P. Dey, M Ghosh R Thereja, Oxford University Press
8. C & Data structures – E V Prasad and N B Venkateswarlu, S. Chand & Co.



## 22CS1113: PROGRAMMING FOR PROBLEM SOLVING

I B.Tech. I Semester

L T P C  
3 0 0 3

### Course Objectives:

1. To learn the fundamentals of computers.
2. To understand the various steps in program development.
3. To learn the syntax and semantics of the C programming language.
4. To learn the usage of structured programming approaches in solving problems.
5. To learn the fundamentals of searching and sorting.

### Course Outcomes: The student will learn

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

### UNIT - I: INTRODUCTION TO PROGRAMMING

Compilers, compiling and executing a program.

**Representation of Algorithm** - Algorithms for finding roots of a quadratic equations, finding minimum and maximum numbers of a given set, finding if a number is prime number Flowchart/Pseudo code with examples, Program design and structured programming

**Introduction to C Programming Language:** variables (with data types and space requirements), Syntax and Logical Errors in compilation, object and executable code, **Operators:** Ternary operator, Bitwise operations: Bitwise AND, OR, XOR and NOT operators, expressions and precedence, Expression evaluation, type conversion.

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

**I/O:** Simple input and output with scanf() and printf(), formatted I/O.

### UNIT - II: ARRAYS AND FUNCTIONS

**Arrays:** one and two dimensional arrays, creating, accessing and manipulating elements of arrays. **Functions:** Designing structured programs, Declaring a function, Signature of a function, Parameters and return type of a function, passing parameters to functions, call by value, Passing arrays to functions. **Storage classes:** auto, extern, static and register.

**Recursion:** Simple programs, such as Finding Factorial, Fibonacci series etc., Limitations of Recursive functions Some C standard functions and libraries.

### UNIT - III: POINTERS, STRINGS & STRUCTURES.

**Pointers:** Idea of pointers, Defining pointers, usage of self-referential structures in linked list (no implementation), passing pointers to functions, idea of call by reference.

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

**Structures:** Defining structures, initializing structures, unions, Array of structures Pointers to Arrays and Structures, Use of Pointers in self-referential structures, Enumeration data type.

### UNIT - IV: FILE HANDLING IN C, PREPROCESSOR COMMANDS

**Files:** Text and Binary files, Creating and Reading and writing text and binary files, appending data to existing files, Writing and reading structures using binary files, Random access using fseek( ), ftell( ) and rewind( ) functions.

**Preprocessor Commands:** Commonly used Preprocessor commands like File inclusion, macros substitution, conditional compilation (include, define, undef, if, ifdef, ifndef)

Introduction to stdin, stdout and stderr. Command line arguments

**UNIT - V: SEARCHING AND SORTING TECHNIQUES:**

Basic searching in an array of elements (linear and binary search techniques), Basic algorithms to sort array of elements (Bubble, Insertion and Selection sort algorithms).

**TEXT BOOKS:**

1. Jeri R. Hanly and Elliot B.Koffman, Problem solving and Program Design in C 7thEdition,Pearson
2. B.A. Forouzan and R.F. Gilberg C Programming and Data Structures, Cengage Learning,(3rdEdition)

**REFERENCE BOOKS:**

1. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hall ofIndia
2. E. Balagurusamy, Computer fundamentals and C, 2nd Edition, McGraw-Hill
3. Yashavant Kanetkar, Let Us C, 18th Edition, BPB
4. R.G. Dromey, How to solve it by Computer, Pearson (16th Impression)
5. Programming in C, Stephen G. Kochan, Fourth Edition, Pearson Education.
6. Herbert Schildt, C: The Complete Reference, Mc Graw Hill, 4th Edition
7. Byron Gottfried, Schaum's Outline of Programming



## 22EE1114: BASIC ELECTRICAL ENGINEERING

I B.Tech. I Semester

L T P C

2 0 0 2

**Prerequisites:** Mathematics

### *Course Objectives:*

1. To study and understand DC circuits.
2. To study and understand Single & Three phase AC circuits.
3. To study and understand the Single Phase Transformers.
4. To study and understand the different types of DC and AC machines.
5. To have the knowledge of various electrical installations and the concept of power factor improvement.

**Course Outcomes:** After completion of this course, students will be able to

1. Analyze DC circuits using various techniques
2. Analyze Single & Three phase AC circuits
3. Discuss the working principles and estimate the performance of Single Phase Transformers
4. Discuss the Construction and working principle of different types of DC and AC machines.
5. Classify various components of Low Voltage Electrical Installations and identify the importance of power factor improvement

**UNIT-I: D.C. CIRCUITS:** Electrical circuit elements (R, L and C), voltage and current sources, KVL & KCL, analysis of simple circuits with dc excitation (Series, Parallel, Series and Parallel circuits, Nodal Analysis and Mesh Analysis). Superposition, Thevenin's and Norton's Theorems. Time-domain analysis of first-order RL and RC circuits.

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

**UNIT-III: SINGLE PHASE TRANSFORMERS:** Working Principle and construction of Transformer, Types, Ideal and practical transformer, EMF Equation, equivalent circuit, losses in transformers, regulation and efficiency.

### **UNIT-IV: ELECTRICAL MACHINES**

**D. C. Generator:** Constructional details of D C Machine, Working Principle of D C Generator, EMF Equation, Types, Numerical Problems.

**D. C. Motor:** Working Principle of D C Motor, Types, Torque Equation, Numerical Problems Performance Characteristics of dc shunt motor.

**Three Phase Induction Motor:** Generation of rotating magnetic field, Construction and working of a three-phase induction motor, Significance of torque-slip characteristics.

**Synchronous Generator:** Construction and working of synchronous generator.

**UNIT-V: ELECTRICAL INSTALLATIONS:** Components of LT Switchgear: Switch Fuse Unit (SFU), MCB, ELCB, MCCB, Types of Wires and Cables, Earthing. Elementary calculations for energy consumption, power factor improvement.

**TEXT BOOKS:**

1. D.P. Kothari and I. J. Nagrath, “Basic Electrical Engineering”, Tata McGraw Hill, 4<sup>th</sup> Edition, 2019.
2. MS Naidu and S Kamakshaiah, “Basic Electrical Engineering”, Tata McGraw Hill, 2<sup>nd</sup> Edition, 2008.

**REFERENCE BOOKS:**

1. P. Ramana, M. Suryakalavathi, G.T. Chandrashekar, “Basic Electrical Engineering” S. Chand, 2<sup>nd</sup> Edition, 2019.
2. D. C. Kulshreshtha, “Basic Electrical Engineering”, McGraw Hill, 2009
3. M. S. Sukhija, T. K. Nagsarkar, “Basic Electrical and Electronics Engineering”, Oxford, 1<sup>st</sup> Edition, 2012.
4. Abhijit Chakrabarthy, Sudipta Debnath, Chandan Kumar Chanda, “Basic Electrical Engineering”, 2<sup>nd</sup> Edition, McGraw Hill, 2021.
5. L. S. Bobrow, “Fundamentals of Electrical Engineering”, Oxford University Press, 2011.
6. E. Hughes, “Electrical and Electronics Technology”, Pearson, 2010.
7. V. D. Toro, “Electrical Engineering Fundamentals”, Prentice Hall India, 1989



## 22EE1113: ELECTRICAL CIRCUIT ANALYSIS –I

B.Tech. I Year I Sem.

L T P C  
3 0 0 3

**Prerequisites:** Mathematics

**Course Objectives:**

1. To gain knowledge in circuits and to understand the fundamentals of derived circuit laws.
2. To study and understand the analysis of single phase circuits.
3. To study and understand the different theorems.
4. To study and understand the analysis of Three-phase circuits.
5. To study and understand the concept of coupled circuits and network topology.

**Course Outcomes:** After completion of this course, students will be able to

1. Summarize basic laws and various techniques used in electrical circuits analysis
2. Evaluate steady state behavior of circuits for AC excitations.
3. Analyze electric circuits using network theorems.
4. Analyze the three phase balanced and unbalanced circuits.
5. Discuss the concepts of coupled circuits and network topology

**UNIT-I:**

**Network Elements & Laws:** Active elements, Independent and dependent sources. Passive elements — R, L and C, Energy stored in inductance and capacitance, Kirchhoff's laws, Source transformations, Star-delta transformations, Node voltage method, Mesh current method including super node and supermesh analysis.

**UNIT-II:**

**Single-Phase Circuits:** RMS and average values of periodic sinusoidal and non- sinusoidal waveforms, Phasor representation, Steady-state response of series, parallel and series-parallel circuits. Impedance, Admittance, Current locus diagrams of RL and RC series and parallel circuits with variation of various parameters. Resonance: Series and parallel circuits, Bandwidth and Q-factor.

**UNIT-III:**

**Network theorems:** Superposition theorem, Thevenin's theorem, Norton's theorems, Maximum power transfer theorem, Tellegen's theorem, Compensation theorem, Millman's theorem and Reciprocity theorem. (AC & DC).

**UNIT-IV:**

**Poly-phase Circuits:** Analysis of balanced and unbalanced 3-phase circuits, Star and delta connections, Measurement of three-phase power for balanced and unbalanced loads.

**UNIT-V:**

**Coupled circuits:** Concept of self and mutual inductance, Dot convention, Coefficient of coupling, Analysis of circuits with mutual inductance.

**Topological Description of Networks:** Graph, tree, chord, cut-set, incident matrix, circuit matrix and cut-set matrix,

**TEXTBOOKS:**

1. Van Valkenburg M.E., "Network Analysis", Prentice Hall of India, 3<sup>rd</sup> Edition, 2000.
2. Ravish R Singh, "Network Analysis and Synthesis", McGrawHill, 2<sup>nd</sup> Edition, 2019.

**REFERENCE BOOKS:**

1. B. Subramanyam, "Electric Circuit Analysis", Dreamtech Press & Wiley, 2021.
2. James W. Nilsson, Susan A. Riedel, "Electric Circuits", Pearson, 11<sup>th</sup> Edition, 2020.
3. A Sudhakar, Shyamamohan S Palli, "Circuits and Networks: Analysis and Synthesis", McGrawHill, 5<sup>th</sup> Edition, 2017.
4. Jagan N.C, Lakshminarayana C., "Network Analysis", B.S. Publications, 3<sup>rd</sup> Edition, 2014.
5. William Hayt H, Kimmerly
6. Jack E. and Steven Durbin M, "Engineering Circuit Analysis", McGrawHill, 6<sup>th</sup> Edition, 2002.
7. Chakravorthy A., "Circuit Theory", Dhanpat Rai & Co., First Edition, 1999.



## 22MC0002 - ENVIRONMENTAL SCIENCE

B.Tech. I Year I Sem.

L T P C  
3 0 0 0

### Course Objectives:

- Understanding the importance of ecological balance for sustainable development.
- Understanding the impacts of developmental activities and mitigation measures.
- Understanding the environmental policies and regulations

### Course Outcomes:

- Based on this course, the Engineering graduate will understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development

### UNIT - I : ECOSYSTEMS

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

### UNIT - II : NATURAL RESOURCES: CLASSIFICATION OF RESOURCES

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

### UNIT - III : BIODIVERSITY AND BIOTIC RESOURCES

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

### UNIT - IV : ENVIRONMENTAL POLLUTION AND CONTROL TECHNOLOGIES : ENVIRONMENTAL POLLUTION

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

### UNIT - V : ENVIRONMENTAL POLICY, LEGISLATION & EIA

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

**TEXT BOOKS:**

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

**REFERENCE BOOKS:**

1. Environmental Science: towards a sustainable future by Richard T. Wright. 2008 PHL Learning Private Ltd. New Delhi.
2. Environmental Engineering and science by Gilbert M. Masters and Wendell P. Ela. 2008 PHI Learning Pvt. Ltd.
3. Environmental Science by Daniel B. Botkin & Edward A. Keller, Wiley INDIA edition.
4. Environmental Studies by Anubha Kaushik, 4<sup>th</sup> Edition, New age international publishers.
5. Text book of Environmental Science and Technology - Dr. M. Anji Reddy 2007, BS Publications.
6. Introduction to Environmental Science by Y. Anjaneyulu, BS. Publications.



## 22ME1156: ENGINEERING WORKSHOP

**B.Tech. I Year I Sem.**

**L T P C**  
**0 1 3 2.5**

**Pre-requisites:** Practical skill

### Course Objectives:

1. To Study about different hand operated power tools, uses and their demonstration.
2. To gain a good basic working knowledge required for the production of various engineering products.
3. To provide hands on experience about use of different engineering materials, tools, equipment's and processes those are common in the engineering field.
4. To develop a right attitude, team working, precision and safety at workplace.
5. It explains the construction, function, use and application of different working tools, equipment and machines.

**Course Outcomes:** At the end of the course, the student will be able to:

1. CO1: Study and practice on machine tools and their operations
2. CO2: Practice on manufacturing of components using work shop trades including plumbing, fitting, carpentry, foundry, house wiring and welding.
3. CO3: Identify and apply suitable tools for different trades of Engineering processes including drilling, material removing, measuring, chiseling.
4. CO4: Apply basic electrical engineering knowledge for house wiring practice.
5. CO 5: Study and Practice of arc welding process

### TRADES FOR EXERCISES:

**At least two exercises from each trade:**

- I. Carpentry – (T-Lap Joint, Dovetail Joint, Mortise & Tenon Joint)
- II. Fitting – (V-Fit, Dovetail Fit & Semi-circular fit)
- III. Tin-Smithy – (Square Tin, Rectangular Tray & Conical Funnel)
- IV. Foundry – (Preparation of Green Sand Mould using Single Piece and Split Pattern)
- V. Welding Practice – (Arc Welding & Gas Welding)
- VI. House-wiring – (Parallel & Series, Two-way Switch and Tube Light)
- VII. Black Smithy – (Round to Square, Fan Hook and S-Hook)

### TRADES FOR DEMONSTRATION & EXPOSURE:

Plumbing, Machine Shop, Metal Cutting (Water Plasma), Power tools in construction and Wood Working

### TEXT BOOKS:

1. Workshop Practice / B. L. Juneja / Cengage
2. Workshop Manual / K. Venugopal / Anuradha.

### REFERENCE BOOKS:

1. Workshop Manual - P. Kanniah/ K.L. Narayana/ Scitech
2. Workshop Manual / Venkat Reddy/ BSP



## 22ME1155: COMPUTER AIDED ENGINEERING GRAPHICS

B.Tech. I Year I Sem.

L T P C  
10 4 3

### Course Objectives:

1. To develop the ability of visualization of different objects through technical drawings
2. To acquire computer drafting skill for communication of concepts, ideas in the design of engineering products
3. To draw sectional views and pictorial views for various types of solids.
4. To develop the lateral surfaces of basic engineering objects
5. To impart knowledge about standard principles of orthographic projection and isometric views of different objects.

**Course Outcomes:** At the end of the course, the student will be able to

1. Apply computer aided drafting tools to create 2D and 3D objects
2. sketch conics and different types of solids
3. Appreciate the need of Sectional views of solids and Development of surfaces of solids
4. Read and interpret engineering drawings
5. Conversion of orthographic projection into isometric view and vice versa manually and by using computer aided drafting

### UNIT-I:

**Introduction to Engineering Graphics:** Principles of Engineering Graphics and their Significance, Scales–Plain & Diagonal, Conic Sections including the Rectangular Hyperbola

–General method only. Cycloid, Epi cycloid and Hypo cycloid, Introduction to Computer aided drafting–views, commands and conics

### UNIT-II:

**Orthographic Projections:** Principles of Orthographic Projections–Conventions–Projections of Points and Lines, Projections of Plane regular geometric figures. Auxiliary Planes. Computer aided orthographic projections–points, lines and planes

### UNIT-III:

Projections of Regular Solids–Auxiliary Views–Sections or Sectional views of Right Regular Solids –Prism, Cylinder, Pyramid, Cone – Auxiliary views, Computer aided projections of solids– sectional views

### UNIT-IV:

Development of Surfaces of Right Regular Solids – Prism, Cylinder, Pyramid and Cone, Development of surfaces using computer aided drafting

### UNIT-V:

**Isometric Projections:** Principles of Isometric Projection–Isometric Scale–Isometric Views

– Conventions – Isometric Views of Lines, Plane Figures, Simple and Compound Solids – Isometric Projection of objects having non- isometric lines. Isometric Projection of Spherical Parts. Conversion of Isometric Views to Orthographic Views and Vice-versa –Conventions. Conversion of orthographic projection into isometric view using computer aided drafting.

**TEXTBOOKS:**

1. Engineering Drawing N. D. Bhatt /Charotar
2. Engineering Drawing and graphics Using Auto CAD Third Edition,T. Jeyapoovan, Vikas: S. Chand and company Ltd.

**REFERENCEBOOKS:**

1. Engineering Drawing, Basant Agrawal and C M Agrawal, Third Edition Mc Graw Hill
2. Engineering Graphics and Design, WILEY, Edition 2020
3. Engineering Drawing, M. B. Shah, B. C. Rane/Pearson.
4. Engineering Drawing, N. S. Parthasarathy and Vela Murali, Oxford
5. Computer Aided Engineering Drawing—K Balaveera Reddy et al —CBS Publishers **Note:** - External examination is conducted in conventional mode and internal evaluation to be done by both conventional as well as using computer aided drafting.



## 22EE1154: BASIC ELECTRICAL ENGINEERING LABORATORY

I B.Tech. I Semester

L T P C  
0 0 2 1

**Prerequisites:** Basic Electrical Engineering

### *Course Objectives:*

1. To measure the electrical parameters for different types of DC circuits using conventional and theorems approach.
2. To measure the electrical parameters for different types of AC circuits
3. To study the transient response of various R, L and C circuits using different excitations.
4. To determine the performance of Single Phase Transformers.
5. To determine the performance of different types of DC and AC machines.

### *Course Outcomes: After completion of this course, students will be able to*

1. Verify the basic conventional approach and theorems for Electrical circuits through different experiments.
2. Calculate the electrical parameters for different types of AC circuits
3. Analyze the transient responses of R, L and C circuits for different input conditions.
4. Evaluate the performance calculations of Single Phase Transformers through various testing methods.
5. Evaluate the performance calculations of DC and AC machines through various testing methods.

### *List of experiments/demonstrations:*

#### **PART- A (compulsory)**

1. Verification of KVL and KCL
2. Verification of Thevenin's theorem
3. Verification of Norton's theorem
4. Resonance in series RLC circuit
5. Calculations and Verification of Impedance and Current of RL, RC and RLC series circuits
6. Measurement of Voltage, Current and Real Power in primary and Secondary Circuits of a Single-Phase Transformer
7. Performance Characteristics of a DC Shunt Motor
8. Torque-Speed Characteristics of a Three-phase Induction Motor.

#### **PART-B (any two experiments from the given list)**

1. Verification of Superposition theorem
2. Transient Response of Series RL and RC circuits for DC excitation
3. Load Test on Single Phase Transformer (Calculate Efficiency)
4. Measurement of Active and Reactive Power in a balanced Three-phase circuit
5. No-Load Characteristics of a Three-phase Alternator

### **TEXT BOOKS:**

1. D.P. Kothari and I. J. Nagrath, "Basic Electrical Engineering", Tata McGraw Hill, 4<sup>th</sup> Edition, 2019.
2. MS Naidu and S Kamakshiah, "Basic Electrical Engineering", Tata McGraw Hill, 2<sup>nd</sup> Edition, 2008.

### **REFERENCE BOOKS:**

1. P. Ramana, M. Suryakalavathi, G.T.Chandrashekar, "Basic Electrical Engineering" S. Chand, 2<sup>nd</sup> Edition, 2019.
2. D. C. Kulshreshtha, "Basic Electrical Engineering", McGraw Hill, 2009
3. M. S. Sukhija, T. K. Nagsarkar, "Basic Electrical and Electronics Engineering", Oxford, 1<sup>st</sup> Edition, 2012.
4. Abhijit Chakrabarthy, Sudipta Debnath, Chandan Kumar Chanda, "Basic Electrical Engineering", 2<sup>nd</sup> Edition, McGraw Hill, 2021.
5. L. S. Bobrow, "Fundamentals of Electrical Engineering", Oxford University Press, 2011.
6. E. Hughes, "Electrical and Electronics Technology", Pearson, 2010.
7. V. D. Toro, "Electrical Engineering Fundamentals", Prentice Hall India, 1989.



## 22BS1252 - ENGINEERING CHEMISTRY LABORATORY

**B.Tech. I Year I Sem.**

**L T P C**  
**0 0 2 1**

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

1. Estimation of hardness of water to check its suitability for drinking purpose.
2. Students are able to perform estimations of acids and bases using conductometry, potentiometry and pH metry methods.
3. Students will learn to prepare polymers such as Bakelite and nylon-6 in the laboratory.
4. Students will learn skills related to the lubricant properties such as saponification value, surface tension and viscosity of oils.

**Course Outcomes:** The experiments will make the student gain skills on:

1. Determination of parameters like hardness of water and rate of corrosion of mild steel in various conditions.
2. Able to perform methods such as conductometry, potentiometry and pH metry in order to find out the concentrations or equivalence points of acids and bases.
3. Students are able to prepare polymers like bakelite and nylon-6.
4. Estimations saponification value, surface tension and viscosity of lubricant oils.

### List of Experiments:

- I. **Volumetric Analysis:** Estimation of Hardness of water by EDTA Complexometry method.
- II. **Conductometry:** Estimation of the concentration of an acid by Conductometry.
- III. **Potentiometry:** Estimation of the amount of  $\text{Fe}^{+2}$  by Potentiometry.
- IV. **pH Metry:** Determination of an acid concentration using pH meter.
  - I. Preparations:
    1. Preparation of Bakelite.
    2. Preparation Nylon – 6.
- II. **Lubricants:**
  1. Estimation of acid value of given lubricant oil.
  2. Estimation of Viscosity of lubricant oil using Ostwald's Viscometer.
- III. **Corrosion:** Determination of rate of corrosion of mild steel in the presence and absence of inhibitor.
- IV. Virtual lab experiments
  1. Construction of Fuel cell and its working.
  2. Smart materials for Biomedical applications
  3. Batteries for electrical vehicles.
  4. Functioning of solar cell and its applications.

### REFERENCE BOOKS:

1. Lab manual for Engineering chemistry by B. Ramadevi and P. Aparna, S Chand Publications, New Delhi (2022)
2. Vogel's text book of practical organic chemistry 5th edition
3. Inorganic Quantitative analysis by A.I. Vogel, ELBS Publications. College Practical Chemistry by V.K. Ahluwalia, Narosa Publications Ltd. New Delhi (2007).



## 22BS1153: APPLIED PHYSICS LAB0RATORY

**B. Tech. I Year I SEM**

**L T P C**  
**0 0 3 1.5**

### Course Objectives:

The objectives of this course for the student to

1. Capable of handling instruments related to the Hall effect and photoelectric effect experiments and their measurements.
2. Understand the characteristics of various devices such as PN junction diode, Zener diode, BJT, LED, solar cell, lasers and optical fiber and measurement of energy gap and resistivity of semiconductor materials.
3. Understand the method of least square fitting
4. Study the behavior of B-H curve of ferromagnetic materials.
5. Study the behavior of passive components.

### Course Outcomes:

The students will be able to:

1. Know the determination of the Planck's constant using Photo electric effect and identify the material whether it is n-type or p-type by Hall experiment.
2. Appreciate quantum physics in semiconductor devices and optoelectronics.
3. Carried out data analysis
4. Understand the variation of magnetic field and behavior of hysteresis curve.
5. Learn the characteristics of passive components like L, C and R and their applications.

### LIST OF EXPERIMENTS:

1. Understanding the method of least squares – torsional pendulum as an example.
2. Determination of work function and Planck's constant using photoelectric effect.
3. Determination of Hall co-efficient and carrier concentration of a given semiconductor.
4. Characteristics of series and parallel LCR circuits.
5. V-I characteristics of a p-n junction diode and Zener diode
6. Input and output characteristics of BJT (CE, CB & CC configurations)
7. a). V-I and L-I characteristics of light emitting diode (LED) b). V-I characteristics of a Laser diode
8. V-I Characteristics of solar cell
9. a). Determination of the beam divergence of the given LASER beam  
b). Determination of Acceptance Angle and Numerical Aperture of an optical fiber.
10. Determination of Energy gap of a semiconductor.
11. Determination of time constant of RC Circuit.
12. Study B-H curve of a magnetic material.

*Note: Any 8 experiments are to be performed.*

### REFERENCE BOOK:

1. S. Balasubramanian, M.N. Srinivasan "A Text book of Practical Physics"- S Chand Publishers, 2017.



## 22HS1152 - ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY

B.Tech. I Year I Sem.

L T P C  
0 0 2 1

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

### Course Objectives:

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

**Course Outcomes:** Students will be able to:

1. Make use of various online and web resources for independent language learning.
2. Understand the nuances of English language through audio-visual experience and group activities.
3. Neutralize their accent for intelligibility for enabling them to communicate with a global audience.
4. Speak with clarity and confidence which in turn improves their academic performance in the other courses.
5. Face and interact with various stakeholders leading to the enhancement of their employability skills.

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

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

### Listening Skills:

Objectives

1. To enable students develop their listening skills so that they may appreciate the role in the LSRW skills approach to language and improve their pronunciation
2. To equip students with necessary training in listening, so that they can comprehend the speech of people of different backgrounds and regions

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*stt t rt ss t t r str ss r s t rt tt sts*

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

### Speaking Skills:

Objectives

1. To involve students in speaking activities in various contexts
  2. To enable students express themselves fluently and appropriately in social and professional contexts
- Oral practice
  - Describing objects/situations/people
  - Roleplay – Individual/Group activities
  - Just A Mine (JAM) Sessions

The following course contents prescribed for the **English Language and Communication Skills Lab Exercise-I**

**CALL Lab:**

Understand: Listening Skill- Its importance – Purpose - Process - Types - Barriers - Effective Listening. Practice: Introduction to Phonetics – Speech Sounds – Vowels and Consonants – Minimal Pairs - Consonant Clusters - Past Tense Marker and Plural Marker - Testing Exercises

**ICS Lab:**

Understand: Spoken vs. Written language – Formal and Informal English.

Practice: Ice-Breaking Activity and JAM Session- Situational Dialogues – Greetings – Taking Leave – Introducing Oneself and Others.

**Exercise-II CALL Lab:**

Understand: Structure of Syllables–Word Stress–Weak Forms and Strong Forms– Stress pattern in sentences – Intonation.

Practice: Basic Rules of Word Accent – Stress Shift - Weak Forms and Strong Forms – Stress pattern in sentences – Intonation - Testing Exercises

**ICS Lab:**

Understand: Features of Good Conversation – Strategies for Effective Communication.

Practice: Situational Dialogues – Role Play – Expressions in Various Situations – Making Requests and Seeking Permissions - Telephone Etiquette.

**Exercise-III CALL Lab:**

Understand: Errors in Pronunciation – Neutralising Mother Tongue Interference (MTI).

Practice: Common Indian Variants in Pronunciation – Differences between British and American Pronunciation - Testing Exercises

**ICS Lab:**

Understand: Descriptions – Narrations – Giving Directions and Guidelines – Blog Writing

Practice: Giving Instructions – Seeking Clarifications – Asking for and Giving Directions – Thanking and Responding – Agreeing and Disagreeing – Seeking and Giving Advice – Making Suggestions.

**Exercise-IV CALL Lab:**

Understand: Listening for General Details.

Practice: Listening Comprehension Tests - Testing Exercises

**ICS Lab:**

Understand: Public Speaking – Exposure to Structured Talks - Non-verbal Communication - Presentation Skills.

Practice: Making a Short Speech – Extempore – Making a Presentation.

**Exercise-V CALL Lab:**

Understand: Listening for Specific Details.

Practice: Listening Comprehension Tests – Testing Exercises

**ICS Lab:**

Understand: Group Discussion Practice: Group Discussion

**Minimum Requirement of infrastructural facilities for ELCS Lab:****1. Computer Assisted Language Learning (CALL) Lab:**

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

**System Requirement (Hardware component):**

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i. Computers with Suitable Configuration

ii. High Fidelity Headphones



### 1. *Interactive Communication Skills (ICS) Lab:*

**The Interactive Communication Skills Lab:** A Spacious room with movable chairs and audio-visual aids with a Public Address System, a T. V. or LCD, a digital stereo – audio & video system and camcorder etc.

#### **Source of Material (Master Copy):**

- *rss s rt 2*. CIEFL and Oxford University Press

**Note:** Teachers are requested to make use of the master copy and get it tailor-made to suit the contents of the syllabus.

#### **Suggested Software:**

- Cambridge Advanced Learners' English Dictionary with CD.
- Grammar Made Easy by Darling Kindersley.
- Punctuation Made Easy by Darling Kindersley.
- Oxford Advanced Learner's Compass, 10<sup>th</sup> Edition.
- English in Mind (Series 1-4), Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge.
- English Pronunciation in Use (Elementary, Intermediate, Advanced) Cambridge University Press.
- English Vocabulary in Use (Elementary, Intermediate, Advanced) Cambridge University Press.
- TOEFL&GRE (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS).
- Digital All
- Orell Digital Language Lab (Licensed Version)

#### **REFERENCE BOOKS:**

1. (2022). *s ts* *r* Cengage Learning India Pvt. Ltd.
2. Shobha, KN & Rayen, J. Lourdes. (2019). *ts* *r* Cambridge University Press
3. Kumar, Sanjay & Lata, Pushp. (2019). *ts r* Oxford University Press
- Board of Editors. (2016). *r r* *tts*
- Orient Black Swan Pvt. Ltd.
5. Mishra, Veerendra et al. (2020). *s s rt r* Cambridge University Press.



## 22CS1155 - C PROGRAMMING FOR ENGINEERS LABORATORY

**B.Tech. I Year I Sem.**

**L T P C**  
**0 0 2 1**

### Course Objectives:

1. To learn C-language Programs using the data types, input/ output statements and control statements.
2. Describe the importance of modular programming and arrays using C-Language Program.
3. Understand the concept and use of pointers for memory management techniques
4. Understand structure, union, and enumerated types.
5. Understand the basic characteristics of text, binary files and C implementation of file I/O using streams.

### Course Outcomes:

1. Ability to design and test programs to solve mathematical and scientific problems.
2. Ability to write structured programs using control structures and functions.
3. Able to Implement C programs using arrays & pointers.
4. Able to Use the type definition, enumerated types, define and use structures, unions in programs using C language.
5. Able to execute programs that read and write text, binary files using the formatting and character I/O functions.

### List of Experiments:

#### WEEK-1:

- a. Write a C program to find simple interest and compound interest.
- b. Write a C program to convert Celsius to Fahrenheit.
- c. Write a C Program to swap two numbers.
- d. Write a C program to perform all arithmetic operations (+, -, \*, /, %).
- e. Write a simple program that prints the results of all the operators available in C (Including pre/ post increment, bitwise and/or/not, etc.). Read required operand Values from standard input.

#### WEEK-2:

- a. Write a C program to find the sum of individual digits of a positive integer.
- b. Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence.
- c. Write a C program to generate the first n terms of the sequence.

#### WEEK-3:

- a. Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
- b. Write a C program to find the roots of a quadratic equation.

#### WEEK-4:

- a. Write a C program to find the factorial of a given integer.
- b. Write a C program to find the GCD (greatest common divisor) of two given integers.

#### WEEK-5:

- a. Write a C program to solve Towers of Hanoi problem.
- b. Write a C program, which takes two integer operands and one operator from the user, performs the operation and then prints the result. (Consider the operators +, -, \*, /, % and use Switch Statement).

#### WEEK-6:

- a. Write a C program to find both the largest and smallest number in a list of integers.
- b. Write a C program that uses functions to perform the following:
  - i) Addition of Two Matrices
  - ii) Multiplication of Two Matrices

**WEEK-7:**

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

- i) To insert a sub-string in to a given main string from a given position.
- ii) To delete n Characters from a given position in a given string.

**WEEK-8:**

- a. Write a C program to determine if the given string is a palindrome or not.
- b. Write a C program that displays the position or index in the string S where the string T begins, or – 1 if S doesn't contain T.

**WEEK-9:**

- a. Write a C program to count the lines, words and characters in a given text.
- b. Write a C program to generate Pascal's triangle.
- c. Write a C program to construct a pyramid of numbers

**WEEK-10:**

- a. Write a C program to read in two numbers, x and n, and then compute the sum of this geometric progression:  $1+x+x^2+x^3+\dots+x^n$   
For example: if n is 3 and x is 5, then the program computes  $1+5+25+125$ . Print sum and Perform error checking.  
For example, the formula does not make sense for negative exponents – if n is less than 0.  
Have your program print an error message if  $n < 0$ , then go back and read in the next pair of numbers without computing the sum. Are any values of x also illegal? If so, test for them too.
- b. 2's complement of a number is obtained by scanning it from right to left and complementing all the bits after the first appearance of a 1. Thus 2's complement of 11100 is 00100. Write a C program to find the 2's complement of a binary number.

**WEEK-11:**

- a. Write a C program to convert a Roman numeral to its decimal equivalent.
- b. Write a C program that uses functions to perform the following operations:
  - i. Reading a complex number
  - ii. Writing a complex number
  - iii. Addition of two complex numbers
  - iv. Multiplication of two complex numbers (Note: represent complex number using a structure.)

**WEEK-12:**

- a. Write a C program which copies one file to another.
- b. Write a C program to reverse the first n characters in a file. (Note: The file name and n are specified on the command line.)

**WEEK-13:**

- a. Write a C program to display the contents of a file.
- b. Write a C program to merge two files into a third file (i.e., the contents of the first file followed by those of the second are put in the third file).

**WEEK-14:**

Write a C program that implements the following sorting methods to sort a given list of integers in ascending order

- i) Bubble sort
- ii) Selection sort
- iii) Insertion sort

**WEEK-15:**

Write C programs that use both recursive and non-recursive functions to perform the following searching operations for a Key value in a given list of integers:

- i) Linear search
- ii) Binary search



## 22CS1154: C PROGRAMMING AND DATA STRUCTURES LABORATORY

B.Tech. I Year I Sem

L T P C  
0 0 2 1

### Course Objectives:

1. To learn C-language Programs using the data types, input/ output statements and control statements.
2. Describe the importance of modular programming and arrays using C-Language Program.
3. Understand the concept and use of pointers for memory management techniques, structure, union, and enumerated types.
4. Understand the type definition, enumerated types, define and use structures, unions in programs using C language.
5. Understand the basic characteristics of text, binary files and C implementation of file I/O using streams.

### Course Outcomes:

1. Ability to design and test programs to solve mathematical and scientific problems.
2. Ability to write structured programs using control structures and functions.
3. Able to Implement C programs using arrays & pointers.
4. Able to Use the type definition, enumerated types, define and use structures, unions in programs using C language.
5. Able to execute programs that read and write text, binary files using the formatting and character I/O functions.

### List of Experiments:

#### WEEK-1:

- a. Write a C program to find simple interest and compound interest.
- b. Write a C program to convert Celsius to Fahrenheit.
- c. Write a C Program to swap two numbers.
- d. Write a C program to perform all arithmetic operations (+, -, \*, /, %).
- e. Write a simple program that prints the results of all the operators available in C (Including pre/ post increment, bitwise and/or/not, etc.). Read required operand values from standard input.

#### WEEK-2:

- a. Write a C program to find the sum of individual digits of a positive integer.
- b. Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence.
- c. Write a C program to generate the first n terms of the sequence.

#### WEEK-3:

- a. Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
- b. Write a C program to find the roots of a quadratic equation.
- c. Write a C program to find the factorial of a given integer.

#### WEEK-4:

- a. Write a C program to find the GCD (greatest common divisor) of two given integers.
- b. Write a C program, which takes two integer operands and one operator from the user, performs the operation and then prints the result. (Consider the operators +, -, \*, /, % and use Switch Statement)
- c. Write a C program to solve Towers of Hanoi problem.

#### WEEK-5:

- a. Write a C program to find both the largest and smallest number in a list of integers.
- b. Write a C program that uses functions to perform the following:
  - i) Addition of Two Matrices
  - ii) Multiplication of Two Matrices

**WEEK-6:**

- a. Write a C program that uses functions to perform the following operations:
- b. To insert a sub-string in to a given main string from a given position.
- c. To delete n Characters from a given position in a given string.

**WEEK-7:**

- a. Write a C program to determine if the given string is a palindrome or not
- b. Write a C program that displays the position or index in the string S where the string T begins, or - 1 if S doesn't contain T.

**WEEK-8:**

- a. Write a C program to count the lines, words and characters in a given text.
- b. Write a C program to generate Pascal's triangle.
- c. Write a C program to construct a pyramid of numbers

**WEEK-9:**

- a. Write a C program to read in two numbers, x and n, and then compute the sum of this geometric progression:  $1+x+x^2+x^3+\dots+x^n$

For example: if n is 3 and x is 5, then the program computes  $1+5+25+125$ . Print x, n, the sum. Perform error checking.

For example, the formula does not make sense for negative exponents – if n is less than 0.

Have your program print an error message if  $n < 0$ , then go back and read in the next pair of numbers without computing the sum. Are any values of x also illegal? If so, test for them too.

- b. 2's complement of a number is obtained by scanning it from right to left and complementing all the bits after the first appearance of a 1. Thus 2's complement of 11100 is 00100. Write a C program to find the 2's complement of a binary number.

**WEEK-10:**

- a. Write a C program to convert a Roman numeral to its decimal equivalent.
- b. Write a C program that uses functions to perform the following operations:
  - i) Reading a complex number
  - ii) Writing a complex number
  - iii) Addition of two complex numbers
  - iv) Multiplication of two complex numbers

(Note: represent complex number using a structure.)

**WEEK-11:**

- a. Write a C program which copies one file to another.
- b. Write a C program to reverse the first n characters in a file. (Note: The file name and n are specified on the command line.)
- c. Write a C program to display the contents of a file.
- d. Write a C program to merge two files into a third file (i.e., the contents of the first file followed by those of the second are put in the third file)

**WEEK-12:**

Write a C program that implements the following sorting methods to sort a given list of integers in ascending order

- i) Bubble sort
- ii) Selection sort
- iii) Insertion sort

**WEEK-13:**

Write C programs that use both recursive and non-recursive functions to perform the following searching operations for a Key value in a given list of integers:

- i) Linear search
- ii) Binary search

**WEEK 14:**

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

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

Write C programs that implements the following data structures

1. C programming and Data Structures, P. Padmanabham, Third Edition, BS Publications

2. Computer Programming in C, V. Rajaraman, PHI Publishers.
3. C Programming, E. Balagurusamy, 3rd edition, TMH Publishers.
4. C Programming, M. V. S. S. N. Prasad, ACME Learning Pvt. Ltd.
5. C and Data Structures, N. B. Venkateswarlu and E. V. Prasad, S. Chand Publishers
6. Mastering C, K. R. Venugopal and S. R. Prasad, TMH Publishers.



## 22CS1153: PROGRAMMING FOR PROBLEM SOLVING LAB

I B.Tech. I Semester

L T P C  
0 0 2 1

### Course Objectives:

1. To learn C-language Programs using the data types, input/ output statements and control statements.
2. Describe the importance of modular programming and arrays using C-Language Program.
3. Understand the concept and use of pointers for memory management techniques
4. Understand structure, union, and enumerated types.
5. Understand the basic characteristics of text, binary files and C implementation of file I/O using streams.

### Course Outcomes:

1. Ability to design and test programs to solve mathematical and scientific problems.
2. Ability to write structured programs using control structures and functions.
3. Able to Implement C programs using arrays & pointers.
4. Able to Use the type definition, enumerated types, define and use structures, unions in programs using C language.
5. Able to execute programs that read and write text, binary files using the formatting and character I/O functions.

### EXPERIMENTS WEEK-1:

- a. Write a C program to find simple interest and compound interest.
- b. Write a C program to convert Celsius to Fahrenheit.
- c. Write a C Program to swap two numbers.
- d. Write a C program to perform all arithmetic operations (+, -, \*, / , %).
- e. Write a simple program that prints the results of all the operators available in C (Including pre/ post increment, bitwise and/or/not , etc.). Read required operand Values from standard input.

### WEEK-2:

- a. Write a simple program that converts one given data type to another using auto Conversion and casting. Take the values from standard input.
- b. Write a C program to check whether the given number is even or odd using Conditional Operator.
- c. Write a C program to find the Largest of two numbers.
- d. Write a C program to print ascending order of three given integers.

### WEEK-3:

- a. Write a C program to Check the given year is leap year or not.
- b. Write a C program to find the roots of quadratic equation.
- c. Write a C Program to implement arithmetic calculator using switch case.
- d. . Write a program that declares Class awarded for a given percentage of marks, where (use else if ladder and switch) <40%= Failed, 40% to <60% = Second class, 60% to <70%=First class, >= 70% = Distinction. Read percentage from standard input.

### WEEK-4:

- a. Write a program that prints a multiplication table for a given number and the number of rows in the table. For example, for a number 5 and rows = 3, the output should be:  
 $5 \times 1 = 5$   
 $5 \times 2 = 10$   
 $5 \times 3 = 15$
- b. Write a program that shows the binary equivalent of a given positive number between 0 and 255.
- c. Write a C program to find sum of individual digits of the given integer.
- d. Write a C program to find factorial of a given number.

**WEEK-5:**

- Write a program that finds if a given number is a prime number
- Write a C program to check whether the given number is palindrome or not.
- Write a C program to print Fibonacci series.
- Write a C program to read in two numbers,  $x$  and  $n$ , and then compute the sum of this geometric progression:  
 $1+x+x^2+x^3+\dots+x^n$

For example: if  $n$  is 3 and  $x$  is 5, then the program computes  $1+5+25+125$ .

**WEEK-6:**

- Write a C program to calculate the following, where  $x$  is a fractional value.  $1-x/2+x^2/4-x^3/6$ .
- Write a C program to display the prime numbers from 1 to  $n$  (where  $n$  value is Given by user)
- Write a C program to construct a pyramid of numbers as follows:

```

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

```

- Write a C program to construct the Pascal triangle

**WEEK-7:**

- Write a C program to find largest, smallest numbers and average in a list of array elements.
- Write a C program to find mean, variance, standard deviation for a given list of elements.
- Write a menu driven C program that allows a user to enter  $n$  numbers and then choose between finding the smallest, largest, sum, or average. The menu and all the choices are to be functions. Use a switch statement to determine what action to take. Display an error message if an invalid choice is entered.

**WEEK-8:**

- Write a C program to transpose a matrix.
- Write a C program to perform the Addition of Two Matrices.
- Write a C program to perform the Multiplication of Two Matrices.

**WEEK-9:**

Write programs using non recursive and recursive functions for the following

- Find GCD.
- Find the factorial of a given number.
- Generate the Fibonacci series.
- Find  $x^n$

**WEEK-10:**

- Write a C program to swap two integers using following methods.
  - call by value
  - call by reference
- Write a program for reading elements using a pointer into an array and display the Values using array.
- Write a program for display values reverse order from an array using a pointer.
- Write a program through a pointer variable to sum of  $n$  elements from an array.

**WEEK-11:**

- Write a C program to insert a sub-string into a given main string from a given position.
- Write a C program to delete  $n$  characters from a given position in a given string.
- Write a C program to arrange given  $n$  strings in alphabetical order.
- Write a C program to convert a Roman numeral ranging from I to L to its decimal equivalent.

**WEEK-12:**

- a. Write a C program that converts a number ranging from 1 to 50 to Roman equivalent
- b. Write a C program to determine if the given string is a palindrome or not (Spelled same in both directions with or without a meaning like madam, civic, noon, abcbatc.)
- c. Write a C program that displays the position of a character ch in the string S or – If S doesn't contain ch.
- d. Write a C program to count the lines, words and characters in a given text.

**WEEK-13:**

- a. Write a C program to find total and average marks for five subjects of three students using structures.
- b. Write a C program to demonstrate nested structures.
- c. Write a C program to display the contents of a file to standard output device.
- d. Write a C program which copies one file to another into another file.
- e. Write a C program to merge two files into a third file.  
(i.e., the contents of the first file followed by those of the second are put in the third file)

**WEEK-14:**

- a. Write a C program to reverse the contents of a file.
- b. Write a C program that does the following:  
It should first create a binary file and store 10 integers, where the file name and 10 values are given in the command line. (hint: convert the strings using atoi function)  
Now the program asks for an index and a value from the user and the value at that index should be changed to the new value in the file. (hint: use fseek () function)  
The program should then read all 10 values and print them back.
- c. Write a C program to count the number of times a character occurs in a text file. The file name and the character are supplied as command line arguments.
- d. Write a C program that uses non recursive function to search for a Key value in a Given list of integers using linear search method.
- e. Write a C program that uses non recursive function to search for a Key value in a given sorted list of integers using binary search method.

**WEEK-15:**

- a. Write a C program that implements the Bubble sort method to sort a given list of integers in ascending order.
- b. Write a C program that sorts the given array of integers using selection sort in
- c. descending order Write a C program that sorts the given array of integers using insertion sort in ascending order

**TEXT BOOKS:**

2. C programming and Data Structures, P. Padmanabham, Third Edition, BS Publications
3. Computer Programming in C, V. Rajaraman, PHI Publishers.
4. C Programming, E. Balagurusamy, 3rd edition, TMH Publishers.
5. C Programming, M.V.S.N. Prasad, ACME Learning Pvt. Ltd.
6. C and Data Structures, N.B. Venkateswarlu and E.V. Prasad, S. Chand Publishers
7. Mastering C, K.R. Venugopal and S.R. Prasad, TMH Publishers.



## 22CS1156: ELEMENTS OF COMPUTER SCIENCE AND ENGINEERING

I B.Tech. I Semester

L T P C  
0 0 2 1

### Course Objectives:

1. To learn the fundamentals of computers.
2. To provide an overview of the subjects of computer science and engineering.
3. To learn the operating system, database management system, computer networks.
4. To understand the software development process.
5. To learn the various autonomous system

### Course Outcomes:

1. Know the working principles of functional units of a basic Computer
2. Understand program development, the use of data structures and algorithms in problem solving.
3. Know the need and types of operating system, data base systems.
4. Understand the significance of networks, internet, WWW and cyber security.
5. Understand Autonomous systems, the application of artificial intelligence.

### UNIT-I

**BASICS OF A COMPUTER** – Hardware, Software, Generations of computers. Hardware - functional units, Components of CPU, Memory – hierarchy, types of memory, Input and output devices. Software – system software, application software, packages, frameworks, IDEs.

### UNIT-II

**SOFTWARE DEVELOPMENT** – waterfall model, Agile, Types of computer languages – Programming, markup, scripting, Program development steps, flowcharts, algorithms, data structures– definition, types of data structures

### UNIT-III

**OPERATING SYSTEMS:** Functions of operating systems, types of operating systems, Device & Resource management  
**Database Management Systems:** Data models, RDBMS, SQL, Database Transactions, data centers, cloud services

### UNIT-IV

**COMPUTER NETWORKS:** Advantages of computer networks, LAN, WAN, MAN, internet, WiFi, sensor networks, vehicular networks, 5G communications.

WorldWideWeb–Basics, role of HTML, CSS, XML, Tools for web designing, social media, online social networks.  
 Security–information security, cyber security, cyber laws

### UNIT-V

**AUTONOMOUS SYSTEMS:** IoT, Robotics, Drones, Artificial Intelligence–Learning, Game Development, natural language processing, image and video processing, Cloud Basics.

### TEXTBOOK:

1. Invitation to Computer Science, G. Michael Schneider, Macalester College, Judith L. Gersting University of Hawaii, Hilo, Contributing author: Keith Miller University of Illinois, Springfield.

### REFERENCE BOOKS:

1. Fundamentals of Computers, Reema Thareja, Oxford Higher Education, Oxford University Press.
2. Introduction to computers, Peter Norton, 8th Edition, Tata McGraw Hill.
3. Computer Fundamentals, Anita Goel, Pearson Education India, 2010.
4. Elements of computer science, Cengage.



## 22EC1155 - ELEMENTS OF ELECTRONICS AND COMMUNICATION ENGINEERING

**B.Tech. I Year I Sem.**

**L T P C**

**0 0 2 1**

### **Course Objectives:**

1. To introduce different active and passive components.
2. To familiarize various measuring instruments.
3. To be aware of the usage of electronic equipment.
4. To introduce the concepts of Analog and Digital ICs.
5. To have the knowledge of the supported software for various applications.

### **Course outcomes:** Students will be able to:

1. Identify the different components used for electronics applications
2. Measure different parameters using various measuring instruments
3. Distinguish various signal used for analog and digital communications.
4. Acquire the knowledge of various software tools for electronics and communication applications.
5. Know the functionality and importance of various generating and display equipments.

### **List of Experiments:**

1. Understand the significance of Electronics and communications subjects
2. Identify the different passive and active components
3. Color code of resistors, finding the types and values of capacitors
4. Measure the voltage and current using voltmeter and ammeter
5. Measure the voltage, current with Multimeter and study the other measurements using Multimeter
6. Study the CRO and measure the frequency and phase of given signal
7. Draw the various Lissajous figures using CRO
8. Study the function generator for various signal generations
9. Study of Spectrum analyzer and measure the spectrum
10. Operate Regulated power supply for different supply voltages
11. Study the various gates module and write down the truth table of them
12. Identify various Digital and Analog ICs
13. Observe the various types of modulated signals.
14. Know the available Softwares for Electronics and communication applications



## 22ME1155: ELEMENTS OF MECHANICAL ENGINEERING

**B.Tech. I Year I Sem.**

**L T P C**

**0 0 2 1**

**Course Objectives:** The objectives of this course are to

1. Make the student to experimentally measure the common geometric properties like length, diameter, flatness, curvature, volume and moment of inertia etc.
2. Give a practical knowledge to evaluate the friction between surfaces and also to evaluate the natural frequency of the system.
3. Correlate between theory and experimental results, directly observe the proof of principles and theories through practical knowledge
4. Introduce students to the basic concepts of manufacturing through the demonstration of various processes.
5. Understand the commonly used mechanical components like gear box, working of boilers and IC engine etc.

**Course Outcomes:** At the end of the course, students will be able to:

1. Understand the operation, usage and applications of different measuring instruments and tools.
2. Examine the different characteristics of instruments like accuracy, precision etc.
3. Prepare simple composite components and joining different materials using soldering process.
4. Identify tools & learn practically the process of turning, milling, grinding on mild steel pieces.
5. Understand the basic components of IC engine, Gear box and boiler

**List of Experiments to be performed:**

1. Measurement of length, height, diameter by vernier calipers.
2. To measure diameter of a given wire and sphere, thickness of a given sheet and volume of an irregular lamina using micrometer screw gauge.
3. Use of straight edge and spirit level in finding the flatness of surface plate.
4. Determination of time period and natural frequency of simple pendulum.
5. Determination of time period and natural frequency of compound pendulum.
6. To measure the coefficients of static and kinetic friction between a block and a plane using various combination of materials.
7. To determine the radius of curvature of a given spherical surface.
8. The experimental determination of the Moment of Inertia of regular and irregular solids.
9. Metal joining process–soldering of metal alloys to any PCB board
10. A simple composite geometry preparation by hand layout method.
11. Grouping of Dry cells for a specified voltage and current and its measurement using ammeters and voltmeters etc.
12. Demonstration of lathe, milling, drilling, grinding machine operations.
13. Study of transmission system –gear box
14. Assembly /disassembly of Engines
15. Study of Boilers

**Note: Perform any 10 out of the 15 Exercises.**



## 22EE1153: ELEMENTS OF ELECTRICAL AND ELECTRONICS ENGINEERING

**B.Tech. I Year I Sem.**

**L T P C**  
**0 0 2 1**

**Prerequisites:** Elements of Electrical Engineering

**Course Objectives:**

1. To measure the electrical parameters for different types of DC circuits using conventional approaches.
2. To measure the electrical parameters for different types of DC circuits using theorems approach.
3. To measure the electrical parameters for different types of AC circuits
4. To study the transient response of various R, L and C circuits using DC excitation.
5. To determine form factor for non-sinusoidal waveform

**Course Outcomes:** After completion of this course, students will be able to

1. Verify the basic conventional approaches for D C electrical circuits
2. Verify the various theorems for D.C electrical circuits
3. Calculate the electrical parameters for different types of AC circuits
4. Analyze the transient responses of R, L and C circuits for different input conditions.
5. Estimate form factor for non-sinusoidal waveform

**List of experiments/demonstrations: PART-A (compulsory)**

1. Verification Ohm's Law
2. Verification of KVL
3. Verification of KCL
4. Verification of Thevenin's theorem
5. Verification of Norton's theorem
6. Verification of Superposition theorem
7. Verification of Reciprocity Theorem
8. Calculations and Verification of Impedance and Current of RL, RC and RLC series circuits

**PART-B (any two experiments from the given list)**

1. Verification of Millman's Theorem.
2. Verification of Maximum Power Transfer Theorem.
3. Determination of form factor for non-sinusoidal waveform
4. Transient Response of Series RL circuit for DC excitation
5. Transient Response of Series RC circuit for DC excitation

**TEXTBOOKS:**

1. D.P. Kothari and I. J. Nagrath, "Basic Electrical Engineering", Tata McGraw Hill, 4<sup>th</sup> Edition, 2019.
2. MS Naidu and S Kamakshiah, "Basic Electrical Engineering", Tata McGraw Hill, 2<sup>nd</sup> Edition, 2008.

**REFERENCE BOOKS:**

1. P.Ramana, M.Suryakalavathi, G.T.Chandrashekar, "Basic Electrical Engineering", S.Chand, 2<sup>nd</sup> Edition, 2019.
2. D. C. Kulshreshtha, "Basic Electrical Engineering", McGraw Hill, 2009
3. M.S.Sukhija, T.K.Nagsarkar, "Basic Electrical and Electronics Engineering", Oxford, 1<sup>st</sup> Edition, 2012.
4. Abhijit Chakrabarti, Sudipta Debnath, Chandan Kumar Chanda, "Basic Electrical Engineering", 2<sup>nd</sup> Edition, McGraw Hill, 2021.
5. L. S. Bobrow, "Fundamentals of Electrical Engineering", Oxford University Press, 2011.
6. E. Hughes, "Electrical and Electronics Technology", Pearson, 2010.
7. V. D. Toro, "Electrical Engineering Fundamentals", Prentice Hall India, 1989.



## 22CE1155: ELEMENTS OF CIVIL ENGINEERING

B.Tech. I Year I Sem.

L T P C

0 2 1 0

Pre-requisites: Nil

### Course objectives:

1. To provide practical knowledge about physical properties of minerals.
2. To provide practical knowledge about physical properties of rocks.
3. To determine the characteristics of cement.
4. To determine the characteristics of Fine aggregates.
5. To determine the characteristics of coarse aggregates.

**Course Outcomes:** At the end of the course, the student will be able to:

1. Understands the method and ways of investigations required for Civil Engineering projects
2. Identify the various rocks, minerals depending on geological classifications
3. Evaluate the properties of cement its suitability for construction
4. Evaluate the properties of fine aggregates and determine its suitability for construction.
5. Evaluate the properties of coarse aggregates and determine its suitability for construction.

### List of Experiments:

1. **Identification of Minerals** – Silica Group, Feldspar Group, Crystalline Group, Carbonate Group, Pyroxene Group, Mica Group, Amphibole Group.
2. **Identification of Rocks** – Igneous Petrology, Sedimentary Petrology, Metamorphic Petrology.
3. 1. Study of topographical features from Geological maps. Identification of symbols in maps.  
2. Simple structural Geology Problems (Folds, Faults & Unconformities)
4. **Tests on Cement**
  - a. Fineness test & Normal Consistency test.
  - b. Specific gravity test, Initial and Final setting time of cement.
5. **Tests on Fine Aggregates**
  - a. Specific Gravity test.
  - b. Bulking of sand & Fineness modulus of Fine aggregate.
6. **Tests on Coarse Aggregate**
  - a. Specific Gravity test.
  - b. Fineness modulus of Coarse aggregate.

### TEXT BOOK:

1. IS 383 :1993 “Specification for Coarse and Fine Aggregates from Natural Sources for Concrete”.



## 22BS1211- ORDINARY DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS

I B.Tech. II Semester

L T P C  
3 1 - 4

**Pre-requisites:** Mathematical Knowledge at pre-university level

**Course Objectives:** Develop ability to learn

1. Methods of solving the Ordinary Differential Equations of first order.
2. Methods of solving the higher order Ordinary Differential Equations.
3. Concept, properties of Laplace transforms & using the same to solve ordinary differentialequations.
4. The physical quantities involved in engineering field related to vector valued functions
5. The basic properties of vector valued functions and their applications to vectorintegration.

**Course outcomes:** After successful completion of this course, student should be able to

1. Identify the type of first order Ordinary Differential Equation and solve them by appropriate method.
2. Apply the concept of higher order Ordinary Differential Equations to solve real world problems.
3. Solve ordinary differential equations by using Laplace transform techniques.
4. Calculate scalar potential for a vector and directional derivative of a scalar point function using vector differentiation.
5. Evaluate the line, surface and volume integrals and converting them from one to another.

### UNIT-I: FIRST ORDER ODE

Exact differential equations, Equations reducible to exact differential equations, linear and Bernoulli's equations, Orthogonal Trajectories (only in Cartesian Coordinates). Applications: Newton's law of cooling, Law of natural growth and decay.

### UNIT-II: ORDINARY DIFFERENTIAL EQUATIONS OF HIGHER ORDER

Second and higher order linear differential equations with constant coefficients: non-Homogeneous terms of the type  $e^{ax}$ ,  $\sin bx$ ,  $\cos$  polynomials in  $x$  and  $y$  method of variation of parameters, Equations reducible to linear ODE with constant coefficients: Legendre's equation, Cauchy-Euler equation. Applications: Electric Circuits

### UNIT-III: LAPLACE TRANSFORMS

Laplace Transforms: Laplace Transform of standard functions, First shifting theorem, second shifting theorem (without proof), Unit step function, Dirac delta function, Laplace transforms of functions when they are multiplied and divided by 't', Laplace transforms of derivatives and integrals of function, Evaluation of integrals by Laplace transforms, Laplace transform of periodic functions, Inverse Laplace transform by different methods, convolution theorem (without proof). Applications: solving Initial value problems by Laplace Transform method.

### UNIT-IV: VECTOR DIFFERENTIATION

Vector point functions and scalar point functions, Gradient, Divergence and Curl, Directional derivatives, Tangent plane and normal line, Vector Identities, Scalar potential functions, Solenoidal and Irrotational vectors.

### UNIT-V: VECTOR INTEGRATION

Line, Surface and Volume Integrals, Theorems of Green, Gauss and Stokes (without proofs) and their applications.

### TEXT BOOKS:

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 44<sup>th</sup> Edition,
2. R.K. Jain and S.R.K. Iyengar, Advanced Engineering Mathematics, Narosa Publications, 5<sup>th</sup> Edition, 2016.

### REFERENCE BOOKS:

1. Erwin Kreyszig, Advanced Engineering Mathematics, 9<sup>th</sup> Edition, John Wiley & Sons, 2006.
2. G.B. Thomas and R.L. Finney, Calculus and Analytic geometry, 9<sup>th</sup> Edition, Pearson, Reprint, 2002.
3. H. K. Dass and Er. Rajnish Verma, Higher Engineering Mathematics, S Chand and Company Limited, New Delhi.
4. N.P. Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications, Reprint, 2008



## 22BS1113- APPLIED PHYSICS

I B Tech. I Semester

L T P C  
3 1 0 4

### Course Objectives:

The objectives of this course for the student are to:

1. Understand the basic principles of quantum physics and band theory of solids.
2. Understand the underlying mechanism involved in construction and working principles of various semiconductor devices.
3. Study the fundamental concepts related to the dielectric, magnetic and energy materials.
4. Identify the importance of nanoscale, quantum confinement and various fabrication techniques.
5. Study the characteristics of lasers and optical fibers.

### Course Outcomes:

At the end of the course the student will be able to:

1. Understand physical world from fundamental point of view by the concepts of Quantum mechanics and visualize the difference between conductor, semiconductor, and insulator by classification of solids.
2. Identify the role of semiconductor devices in science and engineering Applications.
3. Explore the fundamental properties of dielectric, magnetic and energy materials for their applications.
4. Appreciate the features and applications of Nanomaterials.
5. Understand various aspects of Lasers and Optical fiber and their applications in diverse fields.

### UNIT - I: QUANTUM PHYSICS AND SOLIDS

**Quantum Mechanics:** Introduction to quantum physics, blackbody radiation, Wein's and Rayleigh- Jean's law, Planck's radiation law (Qualitative) - photoelectric effect de-Broglie hypothesis and matter waves- Davisson and Germer experiment –Heisenberg uncertainty principle - Born interpretation of the wave function – time independent Schrodinger wave equation - particle in one dimensional potential box.

Solids: Free electron theory (Drude & Lorentz, Sommerfeld) (Qualitative) Bloch's theorem - Kronig-Penney model (Qualitative) origin of energy bands- classification of solids.

### UNIT - II: SEMICONDUCTORS AND DEVICES

Intrinsic and extrinsic semiconductors – Hall effect - direct and indirect band gap semiconductors - construction, principle of operation and characteristics of P-N Junction diode, Zener diode and bipolar junction transistor (BJT)–LED, PIN diode, avalanche photo diode (APD) and solar cells, their structure, materials, working principle and characteristics.

### UNIT - III: DIELECTRIC, AND MAGNETIC AND ENERGY MATERIALS

**Dielectric Materials:** Basic definitions- types of polarizations (qualitative) - ferroelectric, piezoelectric, and pyroelectric materials.

**Magnetic Materials:** Basic definitions – classification of Magnetic materials – Domain theory of ferromagnetism in hysteresis - soft and hard magnetic materials - magnetostriction, magnetoresistance.

**Energy Materials:** Conductivity of liquid and solid electrolytes- superionic conductors - materials and electrolytes for super capacitors.

### UNIT - IV: NANOTECHNOLOGY

Nanoscale, quantum confinement, surface to volume ratio, **bottom-up fabrication:** sol-gel, precipitation, combustion methods – **top-down fabrication:** ball milling - physical vapor deposition (PVD) - chemical vapor deposition (CVD) - characterization techniques - XRD, SEM & TEM - applications of nanomaterials.

### UNIT - V: LASER AND FIBER OPTICS

**Lasers:** Laser beam characteristics-three quantum processes-Einstein coefficients and their relations- lasing action - pumping methods, CO<sub>2</sub> laser, Nd: YAG laser- semiconductor laser-applications of laser.

**Fiber Optics:** Introduction to optical fiber- advantages of optical Fibers - total internal reflection- construction of optical fiber - acceptance angle - numerical aperture- classification of optical fibers- losses in optical fiber - optical fiber for communication system - applications.

**TEXT BOOKS:**

1. M. N. Avadhanulu, P.G. Kshirsagar & TVS Arun Murthy” A Text book of Engineering Physics” S. Chand Publications, 11<sup>th</sup> Edition 2019.
2. Engineering Physics by Shatendra Sharma and Jyotsna Sharma, Pearson Publication, 2019
3. Semiconductor Physics and Devices- Basic Principle – Donald A. Neamen, Mc Graw Hill, 4<sup>th</sup> Edition, 2021.
4. B.K. Pandey and S. Chaturvedi, Engineering Physics, Cengage Learning, 2<sup>nd</sup> Edition, 2022.
5. Essentials of Nanoscience & Nanotechnology by Narasimha Reddy Katta, Typical Creatives NANO DIGEST, 1<sup>st</sup> Edition, 2021.

**REFERENCE BOOKS:**

1. Quantum Physics, H.C. Verma, TBS Publication, 2<sup>nd</sup> Edition 2012.
2. Fundamentals of Physics – Halliday, Resnick and Walker, John Wiley & Sons, 11<sup>th</sup> Edition, 2018.
3. Introduction to Solid State Physics, Charles Kittel, Wiley Eastern, 2019.
4. Elementary Solid-State Physics, S.L. Gupta and V. Kumar, Pragathi Prakashan, 2019.
5. A.K. Bhandhopadhyaya - Nano Materials, New Age International, 1<sup>st</sup> Edition, 2007.
6. Energy Materials a Short Introduction to Functional Materials for Energy Conversion and Storage Aliaksandr S. Bandarenka, CRC Press Taylor & Francis Group
7. Energy Materials, Taylor & Francis Group, 1<sup>st</sup> Edition, 2022.



## 22BS1212: ENGINEERING CHEMISTRY

I B.Tech. II Semester

L T P C  
3 1 0 4

### Course Objectives:

1. To acquire knowledge about desalination of brackish water and treatment of municipal water
2. To include the fundamental aspects of battery chemistry, significance of corrosion and its control to protect the structures.
3. To gain the knowledge of conducting polymers, bio-degradable polymers and fiber reinforced plastics.
4. To understand the significance of green chemistry and green synthesis and to imbibe the green chemistry principles.
5. To acquire required knowledge about engineering materials like smart materials, lubricants, and biodiesel.

### Course Outcomes:

1. Students will acquire the basic knowledge of electrochemical procedures related to corrosion and its control.
2. The students are able to understand the basic properties of water and its usage in domestic and industrial purposes.
3. They can substitute metals with conducting polymers and also produce cheaper biodegradable polymers to reduce environmental pollution.
4. The student can use real examples to illustrate how the principles of *r* *str* can be applied to chemical process in engineering
5. They can predict potential applications of engineering materials and practical utility in order to become good engineers and entrepreneurs.

### UNIT - I: Water and its treatment:

Introduction to hardness of water – Estimation of hardness of water by complexometric method and related numerical problems. Potable water and its specifications - Steps involved in the treatment of potable water - Disinfection of potable water by chlorination and break - point chlorination. Defluoridation - Determination of  $F^-$  ion by ion-selective electrode method.

Boiler troubles: Sludges, Scales and Caustic embrittlement. Internal treatment of Boiler feed water - Calgon conditioning - Phosphate conditioning - Colloidal conditioning, External treatment methods - Softening of water by ion-exchange processes. Desalination of water – Reverse osmosis.

### UNIT – II Battery Chemistry & Corrosion

Introduction - Classification of batteries- primary, secondary and reserve batteries with examples. Basic requirements for commercial batteries. Construction, working and applications of: Zn-air and Lithium ion battery, Applications of Li-ion battery to electrical vehicles. Fuel Cells- Differences between battery and a fuel cell, Construction and applications of Methanol Oxygen fuel cell and Solid oxide fuel cell. Solar cells - Introduction and applications of Solar cells.

**Corrosion:** Causes and effects of corrosion – theories of chemical and electrochemical corrosion – mechanism of electrochemical corrosion, Types of corrosion: Galvanic, water-line and pitting corrosion. Factors affecting rate of corrosion, Corrosion control methods- Cathodic protection – Sacrificial anode and impressed current methods.

### UNIT - III: Polymeric materials:

Definition – Classification of polymers with examples – Types of polymerization – addition (free radical addition) and condensation polymerization with examples – Nylon 6:6, Terylene **Plastics:** Definition and characteristics- thermoplastic and thermosetting plastics, Preparation, Properties and engineering applications of PVC and Bakelite, Teflon, Fiber reinforced plastics (FRP). **Rubbers:** Natural rubber and its vulcanization.

**Elastomers:** Characteristics – preparation – properties and applications of Buna-S, Butyl and Thiokol rubber.

**Conducting polymers:** Characteristics and Classification with examples-mechanism of conduction in trans-polyacetylene and applications of conducting polymers.

**Biodegradable polymers:** Concept and advantages - Polylactic acid and poly vinyl alcohol and their applications.

### UNIT - IV: Green Chemistry and Engineering for sustainable Development

Definition and history of Green chemistry, Concept and principles (Prevention, Atom Economy, Less Hazardous Chemical Syntheses, Designing Safer Chemicals, Safer Solvents and Auxiliaries, Design for Energy Efficiency, Use of Renewable Feedstock, Reduce, Derivatives, Catalysis, Design for Degradation, Real-time Analysis for Pollution Prevention, Inherently Safer Chemistry for Accident Prevention) of Green Chemistry with suitable examples.

**UNIT - V: Engineering Materials:****Smart materials and their engineering applications**

Shape memory materials- Poly L- Lactic acid. Thermoresponse materials- Polyacryl amides, Poly vinylamides

**Lubricants:** Classification of lubricants with examples-characteristics of a good lubricants - mechanism of lubrication (thick film, thin film and extreme pressure)- properties of lubricants: viscosity, cloud point, pour point, flash point and fire point.

**Bio Diesel:** Sources and applications of Biodiesel

**TEXT BOOKS:**

1. Engineering Chemistry by P.C. Jain and M. Jain, Dhanpatrai Publishing Company, 2010
2. Engineering Chemistry by Rama Devi, Venkata Ramana Reddy and Rath, Cengagelearning, 2016
3. Textbook of Engineering Chemistry by Jaya Shree Anireddy, Wiley Publications.
4. A text book of Engineering Chemistry by M. Thirumala Chary, E. Laxminarayana and K. Shashikala, Pearson Publications, 2021.
5. Engineering Chemistry by K Sesha Maheswaramma and Mridula Chugh, Pearson Publications.

**REFERENCE BOOKS:**

1. Engineering Chemistry by Shikha Agarwal, Cambridge University Press, Delhi (2015)
2. Engineering Chemistry by Shashi Chawla, Dhanpatrai and Company (P) Ltd. Delhi (2011)



## 22CE1214: APPLIED MECHANICS

B.Tech. I Year II Sem.

L T P C  
3 0 0 3

**Course Objectives:** The objectives of this course are to

1. Explain the resolution of a system of forces, compute their resultant and solve problems using equations of equilibrium
2. Perform analysis of bodies lying on rough surfaces.
3. Locate the centroid of a body and compute the area moment of inertia and mass moment of inertia of standard and composite sections
4. Explain kinetics and kinematics of particles, projectiles, curvilinear motion, centroidal motion and plane motion of rigid bodies.
5. Explain the concepts of work-energy method and its applications to translation, rotation and plane motion and the concept of vibrations

**Course Outcomes:** At the end of the course, students will be able to

1. Determine resultant of forces acting on a body and analyse equilibrium of a body subjected to a system of forces.
2. Find the location of centroid and solve problem of bodies subjected to friction.
3. Calculate moment of inertia of a given section.
4. Understand the kinetics and kinematics of a body undergoing rectilinear, curvilinear, rotatory motion and rigid body motion.
5. Understand concepts of work-energy method and its applications

### UNIT - I

**Introduction to Engineering Mechanics** - Force Systems: Basic concepts, Particle equilibrium in 2-D & 3-D; Rigid Body equilibrium; System of Forces, Coplanar Concurrent Forces, Components in Space – Resultant- Moment of Forces and its Application; Couples and Resultant of Force System, Equilibrium of System of Forces, Free body diagrams, Equations of Equilibrium of Coplanar Systems and Spatial Systems; Static Indeterminacy.

### UNIT - II

**Friction:** Types of friction, Limiting friction, Laws of Friction, Static and Dynamic Friction; Motion of Bodies, ladder friction

Centroid and Centre of Gravity - Centroid of Lines, Areas and Volumes from first principle, centroid of composite sections; Centre of Gravity and its implications. – Theorem of Pappus.

### UNIT - III

**Area moment of inertia-** Definition, Moment of inertia of plane sections from first principles, Theorems of moment of inertia, Moment of inertia of standard sections and composite sections; Product of Inertia, Parallel Axis Theorem, Perpendicular Axis Theorem.

Mass Moment of Inertia: Moment of Inertia of Masses - Transfer Formula for Mass Moments of Inertia – Mass moment of inertia of composite bodies.

### UNIT - IV

Kinematics of Particles: Kinematics of particles – Rectilinear motion – Curvilinear motion – Projectiles. Kinetics of Particles: Kinetics of particles – Newton's Second Law – Differential equations of rectilinear and curvilinear motion – Dynamic equilibrium – Inertia force – D. Alembert's Principle applied for rectilinear and curvilinear motion.

### UNIT - V

Work - Energy Principle: Equation of translation, principle of conservation of energy, work - energy principle applied to particle motion and connected systems, fixed axis rotation. Impulse – Momentum Principle: Introduction, linear impulse momentum, principle of conservation of linear momentum, elastic impact and types of impact, loss of kinetic energy, coefficient of restitution.

**TEXT BOOKS:**

1. Shames and Rao (2006), Engineering Mechanics, Pearson Education
2. Reddy Vijay Kumar K. and J. Suresh Kumar (2010), Singer's Engineering Mechanics – Statics & Dynamics

**REFERENCE BOOKS:**

1. Timoshenko S.P and Young D.H., "Engineering Mechanics", McGraw Hill International Edition, 1983.
2. Andrew Pytel, Jaan Kiusalaas, "Engineering Mechanics", Cengage Learning, 2014.
3. Beer F.P & Johnston E.R Jr. Vector, "Mechanics for Engineers", TMH, 2004.
4. Hibbeler R. C & Ashok Gupta, "Engineering Mechanics", Pearson Education, 2010.
5. Tayal A.K., "Engineering Mechanics – Statics & Dynamics", Umesh Publications, 2011.
6. Basudeb Bhattacharyya, "Engineering Mechanics", Oxford University Press, 2008.
7. Meriam. J. L., "Engineering Mechanics", Volume-II Dynamics, John Wiley & Sons, 2008.
8. P.C Dumir et al. "Engineering Mechanics", University press



## 2HS1212- ENGLISH FOR SKILL ENHANCEMENT

I B Tech. I Semester

L T P C  
0 0 0 2

**Course Objectives:** This course will enable the students to:

1. Improve the language proficiency of students in English with an emphasis on Vocabulary, Grammar, Reading and Writing skills.
2. Develop study skills and communication skills in various professional situations.
3. Learn remedial and functional grammar related to various grammar items.
4. Prepare the students for examinations such as IELTS and TOEFL by sharpening their reading and writing skills.
5. Equip students to study engineering subjects more effectively and critically using the theoretical and practical components of the syllabus.

**Course Outcomes:** Students will be able to:

1. Use a wide range of vocabulary and sentence structures and also acquire basic proficiency in reading and writing modules of English.
2. Choose appropriate vocabulary and sentence structures for their oral and written communication.
3. Demonstrate their understanding of the rules of functional grammar.
4. Develop comprehension skills from the known and unknown passages.
5. Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various contexts.

### UNIT-I

Chapter entitled '*Toasted English*' by R.K. Narayan from "*English: Language, Context and Culture*" published by Orient Black Swan, Hyderabad.

**Vocabulary:** The Concept of Word Formation – The Use of Prefixes and Suffixes-Acquaintance with Prefixes and Suffixes from Foreign Languages to form Derivatives - Synonyms and Antonyms **Grammar:** Identifying Common Errors in Writing with Reference to Articles and Prepositions.

**Reading:** Reading and Its Importance – Techniques for Effective Reading.

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

### UNIT-II

Chapter entitled '*Appro JRD*' by Sudha Murthy from "*English: Language, Context and Culture*" published by Orient Black Swan, Hyderabad.

**Vocabulary:** Words Often Misspelt - Homophones, Homonyms and Homographs

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

**Reading:** Sub-Skills of Reading – Skimming and Scanning – Exercises for Practice

**Writing:** Nature and Style of Writing - Defining/Describing People, Objects, Places and Events Classifying – Providing Examples or Evidence.

### UNIT-III

Chapter entitled '*Lessons from Online Learning*' by F.Haider Alvi, Deborah Hurst et al from

"*English: Language, Context and Culture*" published by Orient Black Swan, Hyderabad.

**Vocabulary:** Words Often Confused – Words from Foreign Languages and their Use in English.

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

**Reading:** Sub-Skills of Reading – Intensive Reading and Extensive Reading –Exercises for Practice.

**Writing:** Format of a Formal Letter – Writing Formal Letters e.g. Letter of Complaint, Letter of Requisition, Email Etiquette, Job Application with CV/Resume.

### UNIT-IV

Chapter entitled '*Art and Literature*' by Abdul Kalam from "*English: Language, Context and Culture*" published by Orient Black Swan, Hyderabad.

**Vocabulary:** Standard Abbreviations in English

**Grammar:** Redundancies and Clichés in Oral and Written Communication.

**Reading:** Survey, Question, Read, Recite and Review (SQ3R Method) – Exercises for Practice

**Writing:** Writing Practices – Essay Writing – Writing Introduction and Conclusion –Précis Writing.



### UNIT-V

Chapter entitled ‘Go, Kiss the World’ by Subroto Bagchi from “English: Language, Context and Culture” published by Orient Black Swan, Hyderabad.

**Vocabulary:** Technical Vocabulary and their Usage

**Grammar:** Common Errors in English (r t tr sts rr r t r t rs ts )

**Reading:** Reading Comprehension – Exercises for Practice

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

**Note:** Listening and Speaking Skills which are given under Unit -6 in AICTE Model Curriculum are covered in the syllabus of ELCS Lab Course.

• **Note: 1.** As the syllabus of English given in AICTE 2 r rst r s **Open-ended** besides following the prescribed textbook, it is required to prepare teaching/learning materials **by the teachers collectively** in the form of handouts based on the needs of the students in their respective colleges for effective teaching/learning in the class.

• **Note: 2.** Based on the recommendations of NEP2020, teachers are requested to be flexible to adopt Blended Learning in dealing with the course contents. They are advised to teach 40 percent of each topic from the syllabus in blended mode.

### TEXTBOOK:

1. “English: Language, Context and Culture” by Orient Black Swan Pvt. Ltd, Hyderabad.2022. Print.

### REFERENCEBOOKS:

1. Effective Academic Writing by Liss and Davis (OUP)
2. Richards, Jack C. (2022) Interchange Series. Introduction,1,2,3. Cambridge University Press
3. Wood, F. T. (2007). Remedial English Grammar. Macmillan.
4. Chaudhuri, Santanu Sinha. (2018). Learn English: A Fun Book of Functional Language, Grammar and Vocabulary. (2<sup>nd</sup> ed.,). Sage Publications India Pvt. Ltd.
5. (2019). Technical Communication. Wiley India Pvt. Ltd.
6. Vishwamohan, Aysha.(2013). English for Technical Communication for Engineering Students. Mc Graw-Hill Education India Pvt. Ltd.
7. Swan, Michael. (2016). Practical English Usage. Oxford University Press. Fourth Edition.



## 22EC1215 - ELECTRONIC DEVICES AND CIRCUITS

B.Tech. I Year II Sem.

L T P C  
2 0 0 2

### Course Objectives:

1. To introduce components such as diodes, BJTs and FETs.
2. To know the applications of devices.
3. To know the switching characteristics of devices.
4. To know the special purpose devices such as SCR, UJT.
5. To know the MOSFET and its characteristics

### Course Outcomes: Upon completion of the Course, the students will be able to:

1. Acquire the knowledge of various electronic devices and their use on real life.
2. Know the applications of various devices.
3. Acquire the knowledge about the role of special purpose devices and their applications.
4. Know the configurations of Transistors
5. Acquire the knowledge of various device characteristics.

### UNIT - I

**DIODES:** Diode - Static and Dynamic resistances, Equivalent circuit, Diffusion and Transition Capacitances, V-I Characteristics, Diode as a switch- switching times.

### UNIT - II

Diode Applications: Rectifier - Half Wave Rectifier, Full Wave Rectifier, Bridge Rectifier, Rectifiers with Capacitive and Inductive Filters, Clippers-Clipping at two independent levels, Clamper-Clamping Circuit Theorem, Clamping Operation, Types of Clampers.

### UNIT - III

**BIPOLAR JUNCTION TRANSISTOR (BJT):** Principle of Operation, Common Emitter, Common Base and Common Collector Configurations, Transistor as a switch, switching times,

**UNIT – IV JUNCTION FIELD EFFECT TRANSISTOR (FET):** Construction, Principle of Operation, Pinch-Off Voltage, Volt-Ampere Characteristic, Comparison of BJT and FET, FET as Voltage Variable Resistor, MOSFET, MOSTET as a capacitor.

**UNIT – V Special Purpose Devices:** Zener Diode - Characteristics, Zener diode as Voltage Regulator, Principle of Operation - SCR, Tunnel diode, UJT, Varactor Diode, Photo diode, Solar cell, LED, Schottky diode.

### TEXT BOOKS:

1. Jacob Millman - Electronic Devices and Circuits, McGraw Hill Education
2. Robert L. Boylestead, Louis Nashelsky- Electronic Devices and Circuits theory, 11<sup>th</sup> Edition, 2009, Pearson.

### REFERENCE BOOKS:

1. Horowitz -Electronic Devices and Circuits, David A. Bell – 5<sup>th</sup> Edition, Oxford. Chinmoy Saha, Arindam Halder, Debaati Ganguly - Basic Electronics-Principles and Applications, Cambridge, 2018.



## 22EE1214 - BASIC ELECTRICAL ENGINEERING

B.Tech. I Year II Sem.

L T P C

2 0 0 2

**Prerequisites:** Mathematics

**Course Objectives:**

1. To study and understand DC circuits.
2. To study and understand Single & Three phase AC circuits.
3. To study and understand the Single Phase Transformers.
4. To study and understand the different types of DC and AC machines.
5. To have the knowledge of various electrical installations and the concept of power factor improvement.

**Course Outcomes:** After completion of this course, students will be able to

1. Analyze DC circuits using various techniques
2. Analyze Single & Three phase AC circuits
3. Discuss the working principles and estimate the performance of Single Phase Transformers
4. Discuss the Construction and working principle of different types of DC and AC machines.
5. Classify various components of Low Voltage Electrical Installations and identify the importance of power factor improvement

**UNIT-I: D.C. CIRCUITS:** Electrical circuit elements (R, L and C), voltage and current sources, KVL & KCL, analysis of simple circuits with dc excitation (Series, Parallel, Series and Parallel circuits, Nodal Analysis and Mesh Analysis). Superposition, Thevenin's and Norton's Theorems. Time-domain analysis of first-order RL and RC circuits.

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

**UNIT-III: SINGLE PHASE TRANSFORMERS:** Working Principle and construction of Transformer, Types, Ideal and practical transformer, EMF Equation, equivalent circuit, losses in transformers, regulation and efficiency.

### UNIT-IV: ELECTRICAL MACHINES

**D. C. Generator:** Constructional details of D C Machine, Working Principle of D C Generator, EMF Equation, Types, Numerical Problems.

**D. C. Motor:** Working Principle of D C Motor, Types, Torque Equation, Numerical Problems Performance Characteristics of dc shunt motor.

**Three Phase Induction Motor:** Generation of rotating magnetic field, Construction and working of a three-phase induction motor, Significance of torque-slip characteristics.

**Synchronous Generator:** Construction and working of synchronous generator.

**UNIT-V: ELECTRICAL INSTALLATIONS:** Components of LT Switchgear: Switch Fuse Unit (SFU), MCB, ELCB, MCCB, Types of Wires and Cables, Earthing. Elementary calculations for energy consumption, power factor improvement

**TEXT BOOKS:**

1. D.P. Kothari and I. J. Nagrath, “Basic Electrical Engineering”, Tata McGraw Hill, 4<sup>th</sup> Edition, 2019.
2. MS Naidu and S Kamakshaiah, “Basic Electrical Engineering”, Tata McGraw Hill, 2<sup>nd</sup> Edition, 2008.

**REFERENCE BOOKS:**

- 1 P. Ramana, M. Suryakalavathi, G.T. Chandrashekar, “Basic Electrical Engineering”, S. Chand, 2<sup>nd</sup> Edition, 2019.
- 2 D. C. Kulshreshtha, “Basic Electrical Engineering”, McGraw Hill, 2009
- 3 M. S. Sukhija, T. K. Nagsarkar, “Basic Electrical and Electronics Engineering”, Oxford, 1<sup>st</sup> Edition, 2012.
- 4 Abhijit Chakrabarthy, Sudipta Debnath, Chandan Kumar Chanda, “Basic Electrical Engineering”, 2<sup>nd</sup> Edition, McGraw Hill, 2021.
- 5 L. S. Bobrow, “Fundamentals of Electrical Engineering”, Oxford University Press, 2011.
- 6 E. Hughes, “Electrical and Electronics Technology”, Pearson, 2010.
- 7 V. D. Toro, “Electrical Engineering Fundamentals”, Prentice Hall India, 1989



## 22EE1215: ELECTRICAL CIRCUIT ANALYSIS – II

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

**L T P C**  
**2 0 0 2**

**Prerequisites:** Mathematics

**Course Objectives:**

1. To study and understand the transient analysis of various R, L and C circuits for different inputs
2. To study and understand electrical circuit analysis using Laplace transforms
3. To study and understand two-port networks.
4. To study and understand Fourier Series and Integrals
5. To study and understand the concept of filters

**Course Outcomes:** After completion of this course, students will be able to

1. Interpret the response of various R, L and C circuits for different excitations.
2. Analyze the behavior of circuits using Laplace transforms
3. Classify and Calculate two port network parameters
4. Discuss the Fourier Series and Integrals
5. Classify and Describe various filters

### UNIT-I:

**Transient analysis:** Transient response of R, L & C circuits, Formulation of integral differential equations, Initial conditions, Transient Response of RL, RC and RLC (series and parallel) networks subjected to internal energy, Response to impulse, step, and ramp, exponential and sinusoidal excitations.

### UNIT-II:

**Electrical circuit Analysis using Laplace Transforms:** Application of Laplace Transforms to RL, RC and RLC (series and parallel) Networks for impulse, step, and ramp, exponential and sinusoidal excitations.

### UNIT-III:

**Two port network parameters:** Open circuit impedance, short-circuit admittance, Transmission, Hybrid parameters & inter-relationships, Series, parallel and cascade connection of two port networks, System function, and Impedance and admittance functions.

### UNIT-IV:

**Fourier Series and Integral:** Fourier series representation of periodic functions, Symmetry conditions, Exponential Fourier series, Discrete spectrum, Fourier integral and its properties, Continuous spectrum, Application to simple networks

### UNIT-V:

**Filters:** Classification of filters – Low pass, High pass, Band pass and Band Elimination, Constant-k and M-derived filters-Low pass and High pass Filters and Band pass and Band elimination filters (Elementary treatment only)

### TEXTBOOKS:

1. Van Valkenburg M.E, “Network Analysis”, Prentice Hall of India, 3<sup>rd</sup> Edition, 2000.
2. Ravish R Singh, “Network Analysis and Synthesis”, McGrawHill, 2<sup>nd</sup> Edition, 2019.

### REFERENCE BOOKS:

1. B. Subramanyam, “Electric Circuit Analysis”, Dreamtech Press & Wiley, 2021.
2. James W. Nilsson, Susan A. Riedel, “Electric Circuits”, Pearson, 11<sup>th</sup> Edition, 2020.
3. A Sudhakar, Shyamamohan S Palli, “Circuits and Networks: Analysis and Synthesis”, McGrawHill, 5<sup>th</sup> Edition, 2017.
4. Jagan N.C, Lakshminarayana C., “Network Analysis”, B.S. Publications, 3<sup>rd</sup> Edition, 2014.
5. William Hayt H, Kimmerly Jack E. and Steven Durbin M, “Engineering Circuit Analysis”, McGraw Hill, 6<sup>th</sup> Edition, 2002.
6. Chakravorthy A., “Circuit Theory”, Dhanpat Rai & Co., First Edition, 1999.



## 22CE1215: SURVEYING

B.Tech. I Year II Sem.

L T P C  
2 0 0 2

### Course Objectives:

1. Determining relative position between two or more points in a horizontal plane using chain and compass
2. Determining the elevations by using Levelling Instruments.
3. Determining area and Volumes by using various methods
4. Determining the relation between two or more points in both horizontal and vertical plane using Theodolite.
5. Exploring the various of advanced surveying tools like EDM, Total station and G.P.S & Photogrammetry.

**Course Outcomes:** At the end of the course, the student will be able to:

1. Calculate angles, distances and levels
2. Identify data collection methods and prepare field notes
3. Understand the working principles of survey instruments
4. Estimate measurement errors and apply corrections
5. Interpret survey data and compute areas and volumes

### UNIT - I

**Introduction and Basic Concepts:** Introduction, Objectives, classification and principles of surveying, Scales, Shrinkage of Map, Conventional symbols and Code of Signals, Surveying accessories, phases of surveying.

Measurement of Distances and Directions

**Linear distances-** Approximate methods, Direct Methods- Chains- Tapes, ranging, Tape corrections, indirect methods- optical methods- E.D.M. method.

**Prismatic Compass-** Bearings, included angles, Local Attraction, Magnetic Declination and dip.

### UNIT - II

**Levelling and Contouring Leveling-** Basics definitions, types of levels and levelling staves, temporary adjustments, methods of levelling, booking and Determination of levels- HI Method-Rise and Fall method, Effect of Curvature of Earth and Refraction.

**Contouring-** Characteristics and uses of Contours, Direct & Indirect methods of contour surveying, interpolation and sketching of Contours.

Computation of Areas and Volumes

**Areas -** Determination of areas consisting of irregular boundary and regular boundary (coordinates, MDM, DMD methods), Planimeter.

**Volumes -** Computation of areas for level section and two level sections with and without transverse slopes, determination of volume of earth work in cutting and embankments, volume of borrow pits, capacity of reservoirs.

### UNIT - III

**Theodolite Surveying:** Types of Theodolites, Fundamental Lines, temporary adjustments, measurement of horizontal angle by repetition method and reiteration method, measurement of vertical Angle, Trigonometrical levelling when base is accessible and inaccessible.

**Traversing:** Methods of traversing, traverse computations and adjustments, Gale's traverse table, Omitted measurements.

### UNIT - IV

**Tacheometric Surveying:** Principles of Tacheometry, stadia and tangential methods of Tacheometry.

**Curves:** Types of curves and their necessity, elements of simple curve, setting out of simple Curves,

### UNIT - V

**Modern Surveying Methods:** Total Station and Global Positioning System: Basic principles, classifications, applications, comparison with conventional surveying. Electromagnetic wave theory - electromagnetic distance measuring system - principle of working and EDM instruments, Components of GPS – space segment, control segment and user segment, reference systems, satellite orbits, GPS observations. Applications of GPS.

**TEXT BOOKS:**

1. Surveying and levelling by R. Subramanian, Oxford university press, New Delhi.
2. Chandra A M, "Higher Surveying", New age International Pvt. Ltd., Publishers, New Delhi, 2002.
3. Hoffman. B, H. Lichtenegger and J. Collins, Global Positioning System - Theory and Practice, Springer -Verlag Publishers, 2001.

**REFERENCE BOOKS:**

1. Arthur R Benton and Philip J Taety, Elements of Plane Surveying, McGraw Hill – 2000.
2. Arora K R "Surveying Vol 1, 2 & 3), Standard Book House, Delhi, 2004.
3. Surveying (Vol – 1, 2 & 3), by B. C. Punmia, Ashok Kumar Jain and Arun Kumar Jain - Laxmi Publications (P) Ltd., New Delhi.
4. Chandra A M, "Plane Surveying", New Age International Pvt. Ltd., New Delhi, 2002.
5. Surveying by Bhavikatti; Vikas publishing house ltd.
6. Duggal S K, "Surveying (Vol – 1 & 2), Tata McGraw Hill Publishing Co. Ltd. New Delhi, 2004.
7. Surveying and leveling by R. Agor Khanna Publishers 2015.



## 22ME1214: ENGINEERING MECHANICS

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

**L T P C**

**3 0 0 3**

**Course Objectives:** The objectives of this course are to

1. Explain the resolution of a system of forces, compute their resultant and solve problems using equations of equilibrium
2. Perform analysis of bodies lying on rough surfaces.
3. Locate the centroid of a body and compute the area moment of inertia and mass moment of inertia of standard and composite sections
4. Explain kinetics and kinematics of particles, projectiles, curvilinear motion, centroidal moment plane motion of rigid bodies.
5. Explain the concepts of work-energy method and its applications to translation, rotation and plane motion and the concept of vibrations

**Course Outcomes:** At the end of the course, students will be able to

1. Determine resultant of forces acting on a body and analyse equilibrium of a body subjected to a system of forces.
2. Solve problem of bodies subjected to friction.
3. Find the location of centroid and calculate moment of inertia of a given section.
4. Understand the kinetics and kinematics of a body undergoing rectilinear, curvilinear, rotatory motion and rigid body motion.
5. Solve problems using work energy equations for translation, fixed axis rotation and plane motion and solve problems of vibration.

### UNIT - I:

Introduction to Engineering Mechanics - Force Systems: Basic concepts, Particle equilibrium in 2-D & 3-D; Rigid Body equilibrium; System of Forces, Coplanar Concurrent Forces, Components in Space – Resultant- Moment of Forces and its Application; Couples and Resultant of Force System, Equilibrium of System of Forces, Free body diagrams, Equations of Equilibrium of Coplanar Systems and Spatial Systems; Static Indeterminacy

### UNIT - II:

**Friction:** Types of friction, Limiting friction, Laws of Friction, Static and Dynamic Friction; Motion of Bodies, wedge friction, screw jack & differential screw jack;  
Centroid and Centre of Gravity -Centroid of Lines, Areas and Volumes from first principle, centroid of composite sections; Centre of Gravity and its implications. – Theorem of Pappus

### UNIT - III:

Area Moment of Inertia- Definition, Moment of inertia of plane sections from first principles, Theorems of moment of inertia, Moment of inertia of standard sections and composite sections; Product of Inertia, Parallel Axis Theorem, Perpendicular Axis Theorem  
Mass Moment of Inertia: Moment of Inertia of Masses - Transfer Formula for Mass Moments of Inertia – Mass moment of inertia of composite bodies.

### UNIT - IV:

Review of particle dynamics- Rectilinear motion; Plane curvilinear motion (rectangular, path, and polar coordinates). 3-D curvilinear motion; Relative and constrained motion; Newton's 2nd law (rectangular, path, and polar coordinates). Work-kinetic energy, power, potential energy. Impulse-momentum (linear, angular); Impact (Direct and oblique).

### UNIT - V:

Kinetics of Rigid Bodies -Basic terms, general principles in dynamics; Types of motion, Instantaneous centre of rotation in plane motion and simple problems; D' Alembert's principle and its applications in plane motion and connected bodies; Work Energy principle and its application in plane motion of connected bodies; Kinetics of rigid body rotation.

**TEXT BOOKS:**

1. Shames and Rao (2006), Engineering Mechanics, Pearson Education
2. Reddy Vijay Kumar K. and J. Suresh Kumar (2010), Singer's Engineering Mechanics – Statics & Dynamics

**REFERENCE BOOKS:**

1. Beer F.P & Johnston E.R Jr., Vector Mechanics for Engineers – Statics and Dynamics, McGraw Hill, 12<sup>th</sup> Edition.
2. Dumir P.C, Sengupta, Srinivas, Engineering Mechanics- Universities Press, 2020.
3. Hibbeler R.C, Engineering Mechanics, Pearson, 14<sup>th</sup> Edition.
4. Arshad Noor, Zahid & Goel, Engineering Mechanics, Cambridge University Press, 2018.
5. Khurmi R.S, Khurmi N., Engineering Mechanics, S. Chand, 2020.
6. Basudeb Bhattacharyya, “Engineering Mechanics”, Oxford University Press



## 22ME1215: ENGINEERING MATERIALS

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

**L T P C**  
**2 0 0 2**

**Course Objectives:** The objectives of this course are to

1. Provide basic understanding of engineering materials, their structure, classification and usage.
2. Introduce the testing methods for various material properties and ASTM standards used in testing.
3. Understand the various materials used in composite materials.
4. Understand the importance of ceramics, polymers and other new materials..
5. Introduce the Basic elements of Nano Technology.

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

1. Classify the various materials that will be essential for the mechanical engineering applications.
2. Express the mechanical properties of metals and their testing procedures.
3. Understand the application of materials and their processing
4. Understand the requirement and need for the development of the new materials.
5. Understand the need of Nano technology in the development of new materials.

### UNIT-I:

Classification of Engineering Materials, Ashby chart, Mechanical Properties of Metals and their testing equipment/procedures, ASTM standards for testing, Stress–Strain Behavior of various materials, Sources of Material Data

### UNIT –II:

Metals and Metal Alloys, Classification of Metal Alloys, Classification, composition, properties and usage of Ferrous alloys, steel, HSS, grey cast iron, white cast iron; Classification, composition, properties and usage of Non-ferrous materials, Aluminum, Titanium, Zinc, Copper, Nickel, Cobalt and their alloys

### UNIT –III:

Composites: Definitions, Reinforcements and matrices, Types of reinforcements, Types of matrices, Classification of composites, Properties of composites in comparison with standard materials Manufacturing methods: Hand and spray lay - up, injection molding, resin injection, filament winding, pultrusion, centrifugal casting and prepreps.

### UNIT – IV:

Ceramics, Classification of ceramic materials, Crystal Structure, Applications and Properties of Ceramics, Ceramic fabrication techniques, Carbon: Diamond and Graphite.

Polymer Structures, Chemistry of Polymer Molecules, Classification scheme of polymer molecules, Thermoplastic and Thermosetting Polymers, Characteristics, Applications, and Processing of Polymers, Elastomers.

### UNIT – V:

Materials in nano technology: Semiconductor Nanomaterials (Zinc oxide nano materials, titanium dioxide nanoparticles, Metal nanoparticles, ceramic nano materials metal nano particles (Silver, gold, iron and copper), applications, bio materials and other recent materials

### TEXT BOOKS:

1. George Murray, Charles V. White, Wolfgang Weise, “Introduction to Engineering Materials”, CRC Press, 2007.
2. William. D. Callister, David G. Rethwisch, “Materials Science and Engineering: An Introduction”, John Wiley & Sons, 2018.

### REFERENCE BOOKS:

1. Myer Kutz, “Mechanical Engineers’ Handbook”, John Wiley & Sons, 2015.
2. M.A. Shah, K.A. Shah, Nano technology, the science of Small, WILEY, Second Edition, 2019.
3. E. Paul De Garmo, J.T. Black, R.A. Kohler. Materials and Processes in Manufacturing, John Wiley and Sons, Inc., NY, 11 th Edition, 2012.
4. R.J. Crawford, plastics engineering, Pergamon Press, 2013.
5. Donald R Askland and Pradeep P Phule “Essentials of Materials Science and Engineering”, by Pradeep P. Fulay (Author), Donald R. Askland, 2013.
6. K. K. Chawala, Ceramic Matrix composite Materials, Kluwer Academic Publishers, 2002.



## 22MC0002: ENVIRONMENTAL SCIENCE

I B.Tech. II Semester

L T P C  
3 0 0 0

### Course Objectives:

1. Understanding the importance of ecological balance for sustainable development.
2. Understanding the impacts of developmental activities and mitigation measures.
3. Understanding the environmental policies and regulations

### Course Outcomes:

1. Based on this course, the Engineering graduate will understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development

### UNIT - I

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

### UNIT - II

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

### UNIT - III

**BIODIVERSITY AND BIOTIC RESOURCES:** Introduction, Definition, genetic, species and ecosystem diversity. Value of biodiversity; consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega diversity nation, Hot spots of biodiversity. Field visit. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts; conservation of biodiversity: In-Situ and Ex-situ conservation. National Biodiversity act.

### UNIT - IV

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

### UNIT - V

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

**TEXT BOOKS:**

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

**REFERENCE BOOKS:**

1. Environmental Science: towards a sustainable future by Richard T. Wright. 2008 PHL Learning Private Ltd. New Delhi.
2. Environmental Engineering and science by Gilbert M. Masters and Wendell P. Ela. 2008 PHI Learning Pvt. Ltd.
3. Environmental Science by Daniel B. Botkin & Edward A. Keller, Wiley INDIA edition.
4. Environmental Studies by Anubha Kaushik, 4<sup>th</sup> Edition, New age international publishers.
5. Text book of Environmental Science and Technology - Dr. M. Anji Reddy 2007, BS Publications.
6. Introduction to Environmental Science by Y. Anjaneyulu, BS. Publications.



## 22ME1256 - ENGINEERING WORKSHOP

I B Tech. I Semester

L T P C  
1 3 2.5 0

**Pre-requisites:** Practical skill

### Course Objectives:

1. To Study about different hand operated power tools, uses and their demonstration.
2. To gain a good basic working knowledge required for the production of various engineering products.
3. To provide hands on experience about use of different engineering materials, tools, equipment's and processes those are common in the engineering field.
4. To develop a right attitude, team working, precision and safety at workplace.
5. It explains the construction, function, use and application of different working tools, equipment and machines.

**Course Outcomes:** At the end of the course, the student will be able to:

CO1: Study and practice on machine tools and their operations

CO2: Practice on manufacturing of components using work shop trades including plumbing, fitting, carpentry, foundry, house wiring and welding.

CO3: Identify and apply suitable tools for different trades of Engineering processes including drilling, material removing, measuring, chiseling.

CO4: Apply basic electrical engineering knowledge for house wiring practice.

CO 5: Study and Practice of arc welding process

### 1. TRADES FOR EXERCISES:

At least two exercises from each trade:

1. Carpentry – (T-Lap Joint, Dovetail Joint, Mortise & Tenon Joint)
2. Fitting – (V-Fit, Dovetail Fit & Semi-circular fit)
3. Tin-Smithy – (Square Tin, Rectangular Tray & Conical Funnel)
4. Foundry – (Preparation of Green Sand Mould using Single Piece and Split Pattern)
5. Welding Practice – (Arc Welding & Gas Welding)
6. House-wiring – (Parallel & Series, Two-way Switch and Tube Light)
7. Black Smithy – (Round to Square, Fan Hook and S-Hook)

### 2. TRADES FOR DEMONSTRATION & EXPOSURE:

Plumbing, Machine Shop, Metal Cutting (Water Plasma), Power tools in construction and Wood Working

### TEXT BOOKS:

1. Workshop Practice / B. L. Juneja / Cengage
2. Workshop Manual / K. Venugopal / Anuradha.

### REFERENCE BOOKS:

2. Work shop Manual - P. Kanniah/ K.L. Narayana/ Scitech
3. Workshop Manual / Venkat Reddy/ BSP



## 22IT1255: IT WORKSHOP

### I B.Tech. II Semester

L T P C  
0 0 2 1

**Course Objectives:** The IT Workshop for engineers is a training lab course spread over 60 hours.

1. The modules include training on PC Hardware, Internet & World Wide Web
2. To learn Hardware troubleshooting.
3. To understand the productivity tools including Word, Excel, PowerPoint and Publisher.
4. To learn the Safeguard computer systems from viruses/worms
5. To learn the LaTeX and Word.

### Course Outcomes:

1. Perform Hardware troubleshooting
2. Understand Hardware components and inter dependencies
3. Safeguard computer systems from viruses/worms
4. Document/ Presentation preparation
5. Perform calculations using spreadsheets

### PC Hardware

**Task 1:** Identify the peripherals of a computer, components in a CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral and submit to your instructor.

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

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

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

### Internet & World Wide Web

**Task1: Orientation & Connectivity Boot Camp:** Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Finally students should demonstrate, to the instructor, how to access the websites and email. If there is no internet connectivity preparations need to be made by the instructors to simulate the WWW on the LAN.

**Task 2: Web Browsers, Surfing the Web:** Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and pop up blockers. Also, plug-ins like Macromedia Flash and JRE for applets should be configured.

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

**Task 4: Cyber Hygiene:** Students would be exposed to the various threats on the internet and would be asked to configure their computer to be safe on the internet. They need to customize their browsers to block pop ups, block active x downloads to avoid viruses and/or worms, PGF(ref.9) Case study of Wayback Machine web robot for Cyberforensics for Secure Digital India

### LaTeX and WORD

**Task 1 – Word Orientation:** The mentor needs to give an overview of LaTeX and Microsoft (MS) office or equivalent (FOSS) tool word: Importance of LaTeX and MS office or equivalent (FOSS) tool Word as word Processors, Details of the four tasks and features that would be covered in each, Using LaTeX and word – Accessing, overview of toolbars, saving files, Using help and resources, rulers, format painter in word.

**Task 2: Using LaTeX and Word** to create a project certificate. Features to be covered:- Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in both LaTeX and Word.



**Task 3: Creating project abstract** Features to be covered:-Formatting Styles, Inserting table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check, Track Changes.

**Task 4: Creating a Newsletter:** Features to be covered:- Table of Content, Newspaper columns, Images from files and clipart, Drawing toolbar and Word Art, Formatting Images, Textboxes, Paragraphs and Mail Merge in word.

## EXCEL

**Excel Orientation:** The mentor needs to tell the importance of MS office or equivalent (FOSS) tool Excel as a Spreadsheet tool, give the details of the four tasks and features that would be covered in each. Using Excel – Accessing, overview of toolbars, saving excel files, Using help and resources.

**Task 1: Creating a Scheduler** - Features to be covered: Gridlines, Format Cells, Summation, auto fill, Formatting Text

**Task 2 : Calculating GPA** - .Features to be covered:- Cell Referencing, Formulae in excel – average, std. deviation, Charts, Renaming and Inserting worksheets, Hyper linking, Count function, LOOKUP/VLOOKUP

**Task 3:** Split cells, freeze panes, group and outline, Sorting, Boolean and logical operators, Conditional formatting

## POWERPOINT

**Task 1:** Students will be working on basic power point utilities and tools which help them create basic powerpoint presentations. PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows in PowerPoint

**Task 2:** Interactive presentations - Hyperlinks, Inserting –Images, Clip Art, Audio, Video, Objects, Tables and Charts.

**Task 3:** Master Layouts (slide, template, and notes), Types of views (basic, presentation, slide slotter, notes etc), and Inserting – Background, textures, Design Templates, Hidden slides. Prepare and demonstrate (.ppt file) for the “Call to the Nation” quotations under "Faith and Strength", "Education and Society", "Powers of the Mind", "Man: The Maker of his Own Destiny", "India: Our Motherland" from the sources  
<https://sites.google.com/view/chandraksekharaiyah/call-to-the-nation-book>  
[https://www.ramakrishnavivekananda.info/vivekananda/complete\\_works.htm](https://www.ramakrishnavivekananda.info/vivekananda/complete_works.htm)

## REFERENCE BOOKS:

1. Comdex Information Technology course tool kit Vikas Gupta, *rt*
2. The Complete Computer upgrade and repair book, 3rd edition Cheryl A Schmidt, *rt*
3. Introduction to Information Technology, ITL Education Solutions limited, *rs t*
4. PC Hardware - A Handbook – Kate J. Chase (Microsoft)
5. LaTeX Companion – Leslie Lamport, */rs*
6. IT Essentials PC Hardware and Software Companion Guide Third Edition by David Anfinson and Ken Quamme. – *rss rs t*
7. IT Essentials PC Hardware and Software Labs and Study Guide Third Edition by Patrick Regan – CISCO Press, *rs t*
8. "Swami Vivekananda - Call to the Nation", ISBN: 978-81-7505-018-1. [://sites.google.com/view/pgovernanceforum](https://sites.google.com/view/pgovernanceforum)



## 22ME1255: COMPUTER AIDED ENGINEERING GRAPHICS

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

**L T P C**

**1 0 4 3**

### Course Objectives:

1. To develop the ability of visualization of different objects through technical drawings
2. To acquire computer drafting skill for communication of concepts, ideas in the design of engineering products
3. To draw sectional views and pictorial views for various types of solids.
4. To develop the lateral surfaces of basic engineering objects
5. To impart knowledge about standard principles of orthographic projection and isometric views of different objects.

**Course Outcomes:** At the end of the course, the student will be able to:

1. Apply computer aided drafting tools to create 2D and 3D objects
2. sketch conics and different types of solids
3. Appreciate the need of Sectional views of solids and Development of surfaces of solids
4. Read and interpret engineering drawings
5. Conversion of orthographic projection into isometric view and vice versa manually and by using computer aided drafting

### UNIT – I:

**Introduction to Engineering Graphics:** Principles of Engineering Graphics and their Significance, Scales – Plain & Diagonal, Conic Sections including the Rectangular Hyperbola – General method only. Cycloid, Epicycloid and Hypocycloid, Introduction to Computer aided drafting – views, commands and conics

### UNIT- II:

**Orthographic Projections:** Principles of Orthographic Projections – Conventions – Projections of Points and Lines, Projections of Plane regular geometric figures. Auxiliary Planes. Computer aided orthographic projections – points, lines and planes

### UNIT – III:

Projections of Regular Solids – Auxiliary Views - Sections or Sectional views of Right Regular Solids – Prism, Cylinder, Pyramid, Cone – Auxiliary views, Computer aided projections of solids – sectional views

### UNIT – IV:

Development of Surfaces of Right Regular Solids – Prism, Cylinder, Pyramid and Cone, Development of surfaces using computer aided drafting

### UNIT – V:

**Isometric Projections:** Principles of Isometric Projection – Isometric Scale – Isometric Views – Conventions – Isometric Views of Lines, Plane Figures, Simple and Compound Solids – Isometric Projection of objects having non- isometric lines. Isometric Projection of Spherical Parts. Conversion of Isometric Views to Orthographic Views and Vice-versa – Conventions. Conversion of orthographic projection into isometric view using computer aided drafting.

**TEXT BOOKS:**

1. Engineering Drawing N.D. Bhatt / Charotar
2. Engineering Drawing and graphics Using AutoCAD Third Edition, T.Jeyapoovan, Vikas: S.Chand and company Ltd.

**REFERENCE BOOKS:**

1. Engineering Drawing, Basant Agrawal and C M Agrawal, Third Edition McGraw Hill
2. Engineering Graphics and Design, WILEY, Edition 2020
3. Engineering Drawing, M. B. Shah, B.C. Rane / Pearson.
4. Engineering Drawing, N. S. Parthasarathy and Vela Murali, Oxford
5. Computer Aided Engineering Drawing – K Balaveera Reddy et al – CBS Publishers

**Note:** - External examination is conducted in conventional mode and internal evaluation to be done by both conventional as well as using computer aided drafting.

**22BS1153 - APPLIED PHYSICS LABORATORY****B.Tech. I Year I Sem.****L T P C**  
**0 0 3 1.5****Course Objectives:** The objectives of this course for the student to

1. Capable of handling instruments related to the Hall effect and photoelectric effect experiments and their measurements.
2. Understand the characteristics of various devices such as PN junction diode, Zener diode, BJT, LED, solar cell, lasers and optical fiber and measurement of energy gap and resistivity of semiconductor materials.
3. Understand the method of least square fitting
4. Study the behavior of B-H curve of ferromagnetic materials.
5. Study the behavior of passive components.

**Course Outcomes:** *The students will be able to:*

1. Know the determination of the Planck's constant using Photo electric effect and identify the material whether it is n-type or p-type by Hall experiment.
2. Appreciate quantum physics in semiconductor devices and optoelectronics.
3. Carried out data analysis
4. Understand the variation of magnetic field and behavior of hysteresis curve.
5. Learn the characteristics of passive components like L, C and R and their applications.

**LIST OF EXPERIMENTS:**

1. Understanding the method of least squares – torsional pendulum as an example.
2. Determination of work function and Planck's constant using photoelectric effect.
3. Determination of Hall co-efficient and carrier concentration of a given semiconductor.
4. Characteristics of series and parallel LCR circuits.
5. V-I characteristics of a p-n junction diode and Zener diode
6. Input and output characteristics of BJT (CE, CB & CC configurations)
7. a). V-I and L-I characteristics of light emitting diode (LED) b). V-I characteristics of a Laser diode
8. V-I Characteristics of solar cell
9. a). Determination of the beam divergence of the given LASER beam  
b). Determination of Acceptance Angle and Numerical Aperture of an optical fiber.
10. Determination of Energy gap of a semiconductor.
11. Determination of time constant of RC Circuit.
12. Study B-H curve of a magnetic material.

**Note:** *Any 8 experiments are to be performed.***REFERENCE BOOK:**

S. Balasubramanian, M.N. Srinivasan "A Text book of Practical Physics"- S Chand Publishers, 2017.



## 22BS1252: ENGINEERING CHEMISTRY LAB

L T P C  
0 0 2 1

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

1. Estimation of hardness of water to check its suitability for drinking purpose.
2. Students are able to perform estimations of acids and bases using conductometry, potentiometry and pH metry methods.
3. Students will learn to prepare polymers such as Bakelite and nylon-6 in the laboratory.
4. Students will learn skills related to the lubricant properties such as saponification value, surfacetension and viscosity of oils.
5. Students will be able to visualize the experiments virtually for better understanding

**Course Outcomes:** The experiments will make the student gain skills on:

1. Determination of parameters like hardness of water and rate of corrosion of mild steel in various conditions.
2. Able to perform methods such as conductometry, potentiometry and pH metry in order to find out the concentrations or equivalence points of acids and bases.
3. Students are able to prepare polymers like bakelite and nylon-6.
4. Estimations saponification value, surface tension and viscosity of lubricant oils.
5. Can perform the experiments making use of working models

### List of Experiments:

- I. Volumetric Analysis:** Estimation of Hardness of water by EDTA Complexometry method.
- II. Conductometry:** Estimation of the concentration of an acid by Conductometry.
- III. Potentiometry:** Estimation of the amount of  $\text{Fe}^{+2}$  by Potentiometry.
- IV. pH Metry:** Determination of an acid concentration using pH meter.
- V. Preparations:**
  1. Preparation of Bakelite.
  2. Preparation Nylon – 6.
- VI. Lubricants:**
  1. Estimation of acid value of given lubricant oil.
  2. Estimation of Viscosity of lubricant oil using Ostwald's Viscometer.
- VII. Corrosion:** Determination of rate of corrosion of mild steel in the presence and absence of inhibitor.
- VIII. Virtual lab experiments**
  1. Construction of Fuel cell and its working.
  2. Smart materials for Biomedical applications
  3. Batteries for electrical vehicles.
  4. Functioning of solar cell and its applications.

### REFERENCE BOOKS:

1. Lab manual for Engineering chemistry by B. Ramadevi and P. Aparna, S Chand Publications, New Delhi (2022)
2. Vogel's text book of practical organic chemistry 5th edition
3. Inorganic Quantitative analysis by A.I. Vogel, ELBS Publications.
4. College Practical Chemistry by V.K. Ahluwalia, Narosa Publications Ltd. New Delhi (2007).



## 22CS1251: PYTHON PROGRAMMING LAB

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

**L T P C**  
**0 1 2 2**

### Course Objectives:

1. To learn python programming language using the data types, input/ output statements.
2. To install and run the Python interpreter
3. To learn control structures.
4. To Understand Lists, Dictionaries in python
5. To Handle Strings and Files inPython

**Course Outcomes:** After completion of the course, the student should be able to

1. Develop the application specific codes using python.
2. Understand Strings, Lists, Tuples and Dictionaries in Python
3. Verify programs using modular approach, file I/O, Python standard library
4. Implement Digital Systems using Python
5. Capable to implement on hardwareboards

Note: The lab experiments will be like the following experiment examples

### Week -1:

1. i) Use a web browser to go to the Python website <http://python.org>. This page contains information about Python and links to Python-related pages, and it gives you the ability to search the Python documentation.
- ii) Start the Python interpreter and type `help()` to start the online help utility.
2. Start a Python interpreter and use it as a Calculator.
- i) Write a program to calculate compound interest when principal, rate and number of periods are given.
- ii) Given coordinates (x1, y1), (x2, y2) find the distance between two points
3. Read name, address, email and phone number of a person through keyboard and print the details.

### Week - 2:

1. Print the below triangle using forloop.  
5  
4 4  
3 3 3  
2 2 2 2  
1 1 1 1 1
2. Write a program to check whether the given input is digit or lowercase character or uppercase character or a special character (use 'if-else-if' ladder)
3. Python Program to Print the Fibonacci sequence using while loop
4. Python program to print all prime numbers in a given interval (use break)

### Week - 3:

1. i) Write a program to convert a list and tuple into arrays.  
ii) Write a program to find common values between two arrays.
2. Write a function called `gcd` that takes parameters `a` and `b` and returns their greatest common divisor.
3. Write a function called `palindrome` that takes a string argument and returns `True` if it is a palindrome and `False` otherwise. Remember that you can use the built-in function `len` to check the length of a string.

### Week - 4:

1. Write a function called `is_sorted` that takes a list as a parameter and returns `True` if the list is sorted in ascending order and `False` otherwise.
2. Write a function called `has_duplicates` that takes a list and returns `True` if there is any element that appears more than once. It should not modify the original list.

Write a function called `remove_duplicates` that takes a list and returns a new list with only the unique elements from the original. Hint: they don't have to be in the same order.

- i). The wordlist I provided, `words.txt`, doesn't contain single letter words. So you might want to add "I", "a", and the empty string.
- ii). Write a python code to read dictionary values from the user. Construct a function to invert its content. i.e., keys should be values and values should be keys.



3. i) Add a comma between the characters. If the given word is 'Apple', it should become 'A,p,p,l,e'
- ii) Remove the given word in all the places in a string?
- iii) Write a function that takes a sentence as an input parameter and replaces the first letter of every word with the corresponding upper case letter and the rest of the letters in the word by corresponding letters in lower case without using a built-in function?
4. Writes a recursive function that generates all binary strings of n-bit length

#### Week - 5:

1. i) Write a python program that defines a matrix and prints
- ii) Write a python program to perform addition of two square matrices
- iii) Write a python program to perform multiplication of two square matrices
2. How do you make a module? Give an example of construction of a module using different geometrical shapes and operations on them as its functions.
3. Use the structure of exception handling all general purpose exceptions.

#### Week-6:

1. a. Write a function called `draw_rectangle` that takes a Canvas and a Rectangle as arguments and draws a representation of the Rectangle on the Canvas.
- b. Add an attribute named `color` to your Rectangle objects and modify `draw_rectangle` so that it uses the color attribute as the fill color.
- c. Write a function called `draw_point` that takes a Canvas and a Point as arguments and draws a representation of the Point on the Canvas.
- d. Define a new class called Circle with appropriate attributes and instantiate a few Circle objects. Write a function called `draw_circle` that draws circles on the canvas.
2. Write a Python program to demonstrate the usage of Method Resolution Order (MRO) in multiple levels of Inheritances.
3. Write a python code to read a phone number and email-id from the user and validate it for correctness.

#### Week- 7:

1. Write a Python code to merge two given file contents into a third file.
2. Write a Python code to open a given file and construct a function to check for given words present in it and display on found.
3. Write a Python code to Read text from a text file, find the word with most number of occurrences
4. Write a function that reads a file and displays the number of words, number of vowels, blank spaces, lower case letters and uppercase letters.

#### Week - 8:

1. Import numpy, Plotpy and Scipy and explore their functionalities.
2. a) Install NumPy package with pip and explore it.
3. Write a program to implement Digital Logic Gates – AND, OR, NOT, EX-OR
4. Write a program to implement Half Adder, Full Adder, and Parallel Adder
5. Write a GUI program to create a window wizard having two text labels, two text fields and two buttons as Submit and Reset.

#### TEXT BOOKS:

1. Supercharged Python: Take your code to the next level, Overland
2. Learning Python, Mark Lutz, O'reilly

#### REFERENCE BOOKS:

1. Python Programming: A Modern Approach, Vamsi Kurama, Pearson
2. Python Programming A Modular Approach with Graphics, Database, Mobile, and Web Applications, Sheetal Taneja, Naveen Kumar, Pearson
3. Programming with Python, A User's Book, Michael Dawson, Cengage Learning, India Edition
4. Think Python, Allen Downey, Green Tea Press
5. Core Python Programming, W. Chun, Pearson
6. Introduction to Python, Kenneth A. Lambert, Cengage



## 22CE1253: SURVEYING LABORATORY– I

B.Tech. I Year II Sem.

L T P C  
0 0 2 1

### Course Objective:

1. Student will be able to learn and understand the various basic concept and principles used in surveying like Chain Surveying, Compass Surveying, Plane Table Surveying, and Levelling Surveying.
2. Student will be able to learn and understand various instrument used in surveying.
3. Student will learn and understand how to calculate Area of plot and Ground.
4. Student will learn and understand about Horizontal Angle, Vertical Angle, Horizontal distance and Vertical distance to study the ground profile.
5. Student will learn and understand determine inaccessible distance between twopoints

**Course Outcomes:** At the end of the course student will be able to:

1. Prepare Map And Plan For Required Site With Suitable Scale.
2. Prepare Contour Map And Estimate The Quantity Of Earthwork Required For Formation Level For Road And Railway Alignment.
3. Judge Which Type of Instrument To Be Used For Carrying Out Survey For A Particular Area And Estimate The Area.
4. Judge The Profile of Ground By Observing The Available Existing Contour Map.
5. Determine Inaccessible Distance Between Two Points

### CYCLE - I

1. Chaining of a line using chain, measurements of area by cross staff survey.
2. Measurement of distance between two points when there is an obstacle for both chaining and ranging. Compass survey
3. Traversing by compass and adjustments in included angles and measurement of area - graphical adjustments.
4. Distance between two inaccessible points by compass. Plane Table Surveying
5. Measurement & Plotting of the area by Radiation method.
6. Determination of Positions objects by Intersection Method – Plane Table Survey.
7. Traverse by Plane table Survey.

### CYCLE – II

#### Leveling

8. Measurement of elevation of various given points.
9. Elevation difference between two given points by reciprocal leveling.
10. Longitudinal Leveling
11. Cross – section Leveling
12. Plotting of Contours by Indirect Method



## 22EC1255 - ELECTRONIC DEVICES AND CIRCUITS LABORATORY

B.Tech. I Year II Sem.

L T P C  
0 0 2 1

### Course Objectives:

*The main objectives of the course is to*

1. Study basic electronic components.
2. Observe characteristics of electronic devices.
3. Study rectifier characteristics and other diode circuits.
4. Observe BJT and MOSFET amplifiers in different configurations.
5. Gain knowledge of SCR, UJT, Photodiode, Solar Cell & LED.

### Course Outcomes: Students will be able to

1. Understand the P-N diode and Zener diode characteristics
2. Acquire knowledge about various configurations of transistor like CE, CB and CC.
3. Understand & Analyze Fullwave rectifier, clippers and clampers.
4. Acquire the knowledge about MOSFET in CS and CD configuration
5. Understand and Analyze SCR, UJT, Photodiode, solar cells and LED

### List of Experiments (Twelve experiments to be done):

Verify any twelve experiments in H/W Laboratory

1. PN Junction diode characteristics A) Forward bias B) Reverse bias.
2. Full Wave Rectifier with & without filters
3. Types of Clippers at different reference voltages
4. Types of Clampers at different reference voltages
5. The steady state output waveform of clampers for a square wave input
6. Input and output characteristics of BJT in CB Configuration
7. Input and output characteristics of BJT in CE Configuration
8. Input and output characteristics of BJT in CC Configuration
9. Input and output characteristics of MOS FET in CS Configuration
10. Input and output characteristics of MOS FET in CD Configuration
11. Switching characteristics of a transistor
12. Zener diode characteristics and Zener as voltage Regulator
13. SCR Characteristics.
14. UJT Characteristics and identify negative region
15. Photo diode characteristics
16. Solar cell characteristics
17. LED Characteristics

\*Design a circuit to switch on and off LED using diode/BJT/FET as a switch.

### Major Equipment required for Laboratories:

1. Regulated Power Suppliers, 0-30V
1. 20 MHz, Dual Channel Cathode Ray Oscilloscopes.
2. Functions Generators-Sine and Square wave signals
3. Multimeters, voltmeters and Ammeters
4. Electronic Components and devices



## 22HS1152 - ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY

B.Tech. I Year I Sem.

L T P C

0 0 2 1

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

### Course Objectives:

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

**Course Outcomes:** Students will be able to:

1. Make use of various online and web resources for independent language learning.
2. Understand the nuances of English language through audio-visual experience and group activities.
3. Neutralize their accent for intelligibility for enabling them to communicate with a global audience.
4. Speak with clarity and confidence which in turn improves their academic performance in the other courses.
5. Face and interact with various stakeholders leading to the enhancement of their employability skills.

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

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

### Listening Skills:

Objectives

1. To enable students develop their listening skills so that they may appreciate the role in the LSRW skills approach to language and improve their pronunciation
2. To equip students with necessary training in listening, so that they can comprehend the speech of people of different backgrounds and regions

*t ts s rt st t ss t t tr t t t  
stt t rt ss t tr strss r s t rt tt*

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

### Speaking Skills:

Objectives

1. To involve students in speaking activities in various contexts
  2. To enable students express themselves fluently and appropriately in social and professional contexts
- Oral practice
  - Describing objects/situations/people
  - Roleplay – Individual/Group activities
  - Just A Mine (JAM) Sessions

The following course contents prescribed for the **English Language and Communication Skills Lab Exercise-I**

**CALL Lab**

Understand: Listening Skill- Its importance – Purpose - Process - Types - Barriers - Effective Listening. Practice: Introduction to Phonetics – Speech Sounds – Vowels and Consonants –Minimal Pairs - Consonant Clusters - Past Tense Marker and Plural Marker - Testing Exercises

**ICS Lab**

Understand: Spoken vs. Written language – Formal and Informal English.

Practice: Ice-Breaking Activity and JAM Session- Situational Dialogues – Greetings – Taking Leave – Introducing Oneself and Others.

**Exercise-II CALL Lab**

Understand: Structure of Syllables–Word Stress–Weak Forms and Strong Forms– Stress pattern in sentences – Intonation.

Practice: Basic Rules of Word Accent – Stress Shift - Weak Forms and Strong Forms – Stress pattern in sentences – Intonation - Testing Exercises

**ICS Lab**

Understand: Features of Good Conversation – Strategies for Effective Communication.

Practice: Situational Dialogues – Role Play – Expressions in Various Situations –Making Requests and Seeking Permissions - Telephone Etiquette.

**Exercise-III CALL Lab:**

Understand: Errors in Pronunciation – Neutralising Mother Tongue Interference (MTI).

Practice: Common Indian Variants in Pronunciation – Differences between British and American Pronunciation -Testing Exercises

**ICS Lab**

Understand: Descriptions – Narrations – Giving Directions and Guidelines – Blog Writing

Practice: Giving Instructions – Seeking Clarifications – Asking for and Giving Directions –Thanking and Responding – Agreeing and Disagreeing – Seeking and Giving Advice – Making Suggestions.

**Exercise-IV CALL Lab**

Understand: Listening for General Details.

Practice: Listening Comprehension Tests - Testing Exercises

**ICS Lab**

Understand: Public Speaking – Exposure to Structured Talks - Non-verbal Communication -Presentation Skills.

Practice: Making a Short Speech – Extempore – Making a Presentation.

**Exercise-V CALL Lab:**

Understand: Listening for Specific Details.

Practice: Listening Comprehension Tests – Testing Exercises

**ICS Lab**

Understand: Group Discussion Practice: Group Discussion

**Minimum Requirement of infrastructural facilities for ELCS Lab:**

**1. Computer Assisted Language Learning (CALL) Lab:**

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

**System Requirement (Hardware component):**

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i. Computers with Suitable Configuration

ii. High Fidelity Headphones



### 1. *Interactive Communication Skills (ICS) Lab:*

**The Interactive Communication Skills Lab:** A Spacious room with movable chairs and audio-visual aids with a Public Address System, a T. V. or LCD, a digital stereo – audio & video system and camcorder etc.

#### **Source of Material (Master Copy):**

- *rss s rt 2*. CIEFL and Oxford University Press

**Note:** Teachers are requested to make use of the master copy and get it tailor-made to suit the contents of the syllabus.

#### **Suggested Software:**

- Cambridge Advanced Learners' English Dictionary with CD.
- Grammar Made Easy by Darling Kindersley.
- Punctuation Made Easy by Darling Kindersley.
- Oxford Advanced Learner's Compass, 10<sup>th</sup> Edition.
- English in Mind (Series 1-4), Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge.
- English Pronunciation in Use (Elementary, Intermediate, Advanced) Cambridge University Press.
- English Vocabulary in Use (Elementary, Intermediate, Advanced) Cambridge University Press.
- TOEFL & GRE (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS).
- Digital All
- Orell Digital Language Lab (Licensed Version)

#### **REFERENCE BOOKS:**

1. (2022). *s ts* *r* Cengage Learning India Pvt. Ltd.
2. Shobha, KN & Rayen, J. Lourdes. (2019). *ts* *r* Cambridge University Press
3. Kumar, Sanjay & Lata, Pushp. (2019). *ts r* Oxford University Press
4. Board of Editors. (2016). *r r* *tts* Orient Black Swan Pvt. Ltd.
5. Mishra, Veerendra et al. (2020). *s s rt r* Cambridge University Press.



## 22ME1253: FUELS AND LUBRICANTS LABORATORY

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

**L T P C**  
**0 0 2 1**

**Prerequisite:** Chemistry

**Course Objectives:**

1. To understand the fuel and lubricants properties.
2. To understand about importance of flash point and fire point of fuels
3. To understand about different types of viscometers and their uses
4. To understand about different types of calorimeters and their uses
5. To calculate the carbon residue

**Course Outcomes:** At the end of the course, students will be able to

1. Find the kinematic viscosity of lubricants and its variation with temperature
2. Determine the flash point, fire point, cloud point and pour point of liquid fuels
3. Determine the calorific value of solid, liquid and gaseous fuels
4. Determination of the dropping point of lubricating grease
5. Determination of distillation characteristics of petroleum products

**List of Experiments:**

1. Determination of Flash and Fire points of Liquid fuels/Lubricants using: Abels Apparatus
2. Determination of Flash and Fire points of Liquid fuels/Lubricants using: PenskyMartens Apparatus
3. Carbon residue test: Liquid fuels.
4. Determination of Viscosity of Liquid lubricants and Fuels using: Saybolt Viscometer
5. Determination of Viscosity of Liquid lubricants and Fuels using: Redwood Viscometer
6. Determination of Viscosity of Liquid lubricants and Fuels using: Engler Viscometer
7. Determination of Calorific value: of Gaseous fuels using: Junkers Gas Calorimeter.
8. Determination of Calorific value: Solid/Liquid/ fuels using: Bomb Calorimeter.
9. Drop point and Penetration Apparatus for Grease.
10. ASTM Distillation Test Apparatus.
11. Cloud and Pour Point Apparatus.



## 22EE1255: ELECTRICAL CIRCUIT ANALYSIS LABORATORY

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

**L T P C**

**0 0 2 1**

**Prerequisites:** Elements of Electrical Engineering & Electrical Circuit Analysis

**Course Objectives:**

1. To draw locus diagrams of different electrical systems.
2. To measure three phase Active and Reactive power.
3. To understand concept of resonance.
4. To determine various two port network parameters
5. To determine Frequency Domain analysis using various filters.

**Course Outcomes:** After completion of this course, students will be able to

1. Sketch locus diagrams of different electrical systems
2. Calculate the three phase Active and Reactive power.
3. Verify the resonance in series and parallel circuits
4. Calculate different two port network parameters
5. Analyze various filter circuits

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

1. To draw the locus Diagrams of RL (R-Varying) and RC (R-Varying) Series Circuits.
2. Verification of Series and Parallel Resonance.
3. Determination of Time response of first order RL and RC circuit for periodic non –sinusoidal inputs – Time Constant and Steady state error.
4. Determination of Two port network parameters – Z and Y parameters.
5. Determination of Two port network parameters – A, B, C, D parameters.
6. Determination of Co-efficient of Coupling and Separation of Self and Mutual inductance in a Coupled Circuits.
7. Frequency domain analysis of Low-pass filter.
8. Frequency domain analysis of Band-pass filter

**In addition to the above eight experiments, at least any two of the experiments from the following list are required to be conducted**

1. Harmonic Analysis of non-sinusoidal waveform signals using Harmonic Analyzer and plotting frequency spectrum.
2. Measurement of Active Power for Star and Delta connected balanced loads.
3. Measurement of Reactive Power for Star and Delta connected balanced loads.
4. Frequency domain analysis of High-pass filter.
5. Determination of Two port network parameters – Hybrid parameters..
6. To draw the locus Diagrams of RL (L-Varying) and RC (C-Varying) Series Circuits.
7. Determination of Time response of first order RLC circuit for periodic non – sinusoidal inputs – Time Constant and Steady state error.

**TEXTBOOKS:**

1. Van Valkenburg M.E., “Network Analysis”, Prentice Hall of India, 3<sup>rd</sup> Edition, 2000.
2. Ravish R Singh, “Network Analysis and Synthesis”, McGrawHill, 2<sup>nd</sup> Edition, 2019.

**REFERENCE BOOKS:**

1. B. Subramanyam, “Electric Circuit Analysis”, Dreamtech Press & Wiley, 2021.
2. James W. Nilsson, Susan A. Riedel, “Electric Circuits”, Pearson, 11<sup>th</sup> Edition, 2020.
3. A Sudhakar, Shyamamohan S Palli, “Circuits and Networks: Analysis and Synthesis”, McGrawHill, 5<sup>th</sup> Edition, 2017.
4. Jagan N.C, Lakshminarayana C., “Network Analysis”, B.S. Publications, 3<sup>rd</sup> Edition, 2014.
5. William Hayt H, Kimmerly Jack E. and Steven Durbin M, “Engineering Circuit Analysis”, McGraw Hill, 6<sup>th</sup> Edition, 2002.
6. Chakravorthy A., “Circuit Theory”, Dhanpat Rai & Co., First Edition, 1999.



## 22CS1253: APPLIED PYTHON PROGRAMMING LABORATORY

B.Tech. I Year II Sem

L T P C  
0 1 2 2

### Course Objectives:

1. To learn python programming language using the data types, input/ output statements.
2. To install and run the Python interpreter
3. To learn control structures.
4. To Understand Lists, Dictionaries in python
5. To Handle Strings and Files inPython

**Course Outcomes:** Upon completing this course, the students will be able to

1. Build basic programs using fundamental programming constructs
2. Write and execute python codes for different applications
3. Capable to implement on hardware boards
4. Able to Implement File Handling.
5. Able to deploy Small Projects using Predefined Libraries.

### LIST OF EXPERIMENTS:

#### Cycle - 1

1. Downloading and Installing Python and Modules
  - a) Python 3 on Linux  
Follow the instructions given in the URL <https://docs.python-guide.org/starting/install3/linux/>
  - b) Python 3 on Windows  
Follow the instructions given in the URL <https://docs.python.org/3/using/windows.html> (Please remember that Windows installation of Python is harder!)
  - c) pip3 on Windows and Linux  
Install the Python package installer by following the instructions given in the URL <https://www.activestate.com/resources/quick-reads/how-to-install-and-use-pip3/>
  - d) Installing numpy and scipy
  - e) You can install any python3 package using the command `pip3 install <packagename>`
  - f) Installing jupyterlab  
Install from pip using the command `pip install jupyterlab`
2. Introduction to Python3
  - a) Printing your biodata on the screen
  - b) Printing all the primes less than a given number
  - c) Finding all the factors of a number and show whether it is a *rt*—— number, i.e., the sum of all its factors (excluding the number itself) is equal to the number itself
3. Defining and Using Functions
  - a) Write a function to read data from a file and display it on the screen
  - b) Define a boolean function  $s \ r$  (`<input>`)
  - c) Write a function  $t()$  which does the following: if  $i$  is odd,  $i$ ; if  $i$  is even, then  $i/2$ . Return the number of steps it takes for  $i$  to reach 1
  - d) Write a function  $(s) \ (s) \ (s)^2/(2s^2))/\text{sqrt}(2\pi)s$  that computes the Normal distribution
4. The package numpy
  - a) Creating a matrix of given order containing  $r$   $rs$  in the range 1 to 99999
  - b) Write a program that adds, subtracts and multiplies two matrices. Provide an interface such that, based on the prompt, the function (addition, subtraction, multiplication) should be performed
  - c) Write a program to solve a system of linear equations in variables using matrix inverse
5. The package scipy and pyplot
  - a) Finding if two sets of data have the same value
  - b) Plotting data read from a file
  - c) Fitting a function through a set of data points using  $t$  function
  - d) Plotting a histogram of a given data set



6. The strings package
  - a) Read text from a file and print the number of lines, words and characters
  - b) Read text from a file and return a list of all letter words beginning with a vowel
  - c) Finding a secret message hidden in a paragraph of text
  - d) Plot a histogram of words according to their length from text read from a file

### Cycle -2

#### 7. Installing OS on Raspberry Pi

- a) Installation using Pimager
- b) Installation using image file
  - Downloading an Image
  - Writing the image to an SD card
  - using Linux
  - using Windows
  - Booting up

Follow the instructions given in the URL <https://www.raspberrypi.com/documentation/computers/gettin-g-started.html>

#### 8. Accessing GPIO pins using Python

) Installing GPIO Zero library. First, update your repositories list: `sudo apt-get update`

Then install the package for Python 3: `sudo apt-get install python3-gpiozero`

- b) Blinking an LED connected to one of the GPIO pin
  - c) Adjusting the brightness of an LED
  - d) Adjust the brightness of an LED (0 to 100, where 100 means maximum brightness) using the in-built PWM wavelength.
- #### 9. Collecting Sensor Data
- a) DHT Sensor interface
    - o Connect the terminals of DHT GPIO pins of Raspberry Pi.
    - o Import the DHT library using `from DHT11 import DHT11`

**Read sensor data and display it on screen.**



## 22EE1254- BASIC ELECTRICAL ENGINEERING LABORATORY

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

**L T P C**  
**0 0 2 1**

**Prerequisites:** Basic Electrical Engineering

**Course Objectives:**

1. To measure the electrical parameters for different types of DC circuits using conventional and theorems approach.
2. To measure the electrical parameters for different types of AC circuits
3. To study the transient response of various R, L and C circuits using different excitations.
4. To determine the performance of Single Phase Transformers.
5. To determine the performance of different types of DC and AC machines.

**Course Outcomes: After completion of this course, students will be able to**

1. Verify the basic conventional approach and theorems for Electrical circuits through different experiments.
2. Calculate the electrical parameters for different types of AC circuits
3. Analyze the transient responses of R, L and C circuits for different input conditions.
4. Evaluate the performance calculations of Single Phase Transformers through various testing methods.
5. Evaluate the performance calculations of DC and AC machines through various testing methods.

**List of experiments/demonstrations:**

**PART- A (compulsory)**

1. Verification of KVL and KCL
2. Verification of Thevenin's theorem
3. Verification of Norton's theorem
4. Resonance in series RLC circuit
5. Calculations and Verification of Impedance and Current of RL, RC and RLC series
6. Circuits.
7. Measurement of Voltage, Current and Real Power in primary and Secondary Circuits of a Single-Phase Transformer
8. Performance Characteristics of a DC Shunt Motor
9. Torque-Speed Characteristics of a Three-phase Induction Motor.

**PART-B (any two experiments from the given list)**

1. Verification of Superposition theorem
2. Transient Response of Series RL and RC circuits for DC excitation
3. Load Test on Single Phase Transformer (Calculate Efficiency)
4. Measurement of Active and Reactive Power in a balanced Three-phase circuit
5. No-Load Characteristics of a Three-phase Alternator

**TEXT BOOKS:**

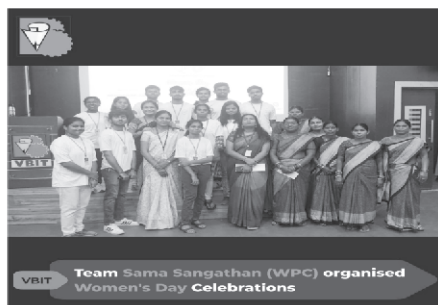
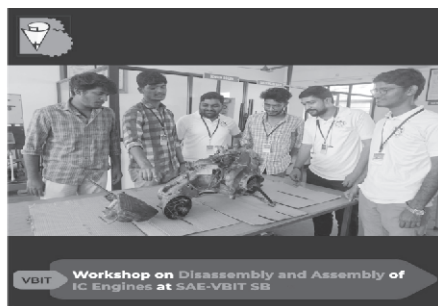
1. D.P. Kothari and I. J. Nagrath, "Basic Electrical Engineering", Tata McGraw Hill, 4<sup>th</sup> Edition, 2019.
2. MS Naidu and S Kamakshaiah, "Basic Electrical Engineering", Tata McGraw Hill, 2<sup>nd</sup> Edition, 2008.

**REFERENCE BOOKS:**

1. P. Ramana, M. Suryakalavathi, G.T.Chandrashekar, "Basic Electrical Engineering", S. Chand, 2<sup>nd</sup> Edition, 2019.
2. D. C. Kulshreshtha, "Basic Electrical Engineering", McGraw Hill, 2009
3. M. S. Sukhija, T. K. Nagsarkar, "Basic Electrical and Electronics Engineering", Oxford, 1<sup>st</sup> Edition, 2012.
4. Abhijit Chakrabarthy, Sudipta Debnath, Chandan Kumar Chanda, "Basic Electrical Engineering", 2<sup>nd</sup> Edition, McGraw Hill, 2021.
5. L. S. Bobrow, "Fundamentals of Electrical Engineering", Oxford University Press, 2011.
6. E. Hughes, "Electrical and Electronics Technology", Pearson, 2010.
7. V. D. Toro, "Electrical Engineering Fundamentals", Prentice Hall India, 1989.



## EVENTS@VBIT





# వీబీఐటిలో మెగా ఫ్లేస్ మెంట్ డ్రైవ్

**హైదరాబాద్, వెలుగు:** రాబోయే కాలంలో భారతదేశం గ్రోబల్ నాటర్స్, ఎడ్యుకేషన్ క్యాపిటల్, టెక్నాలజీ లీడర్ గా ఎదుగుతుందని ఏఐసీటీఈ చీఫ్ కో ఆర్డినేటింగ్ ఆఫీసర్ దాక్షర్ చంద్రశేఖర్ బుద్ధ అన్నారు. పీఎం నరేంద్ర మోడీ దార్శనికతతో కూడిన నాయకత్వంలోనే ఇది సాధ్యమవుతుందన్నారు. మంగళవారం ఫుట్ కేసరిలోని విజ్ఞాన భారతి ఇన్ స్టిట్యూట్ ఆఫ్ టెక్నాలజీ (వీబీఐటి) ఆధ్వర్యంలో జరిగిన మెగా ఫ్లేస్ మెంట్ డ్రైవ్ గ్రాండ్ ప్రారంభోత్సవానికి ఆయన చీఫ్ గెస్టుగా హాజరయ్యారు. డైరెక్ట్ ఇనిషియేటివ్ ల ద్వారా కొత్త స్టార్టప్ ఎక్స్ ప్లొరేషన్ రూపొందిస్తున్నట్లు ఆయన తెలిపారు. 2022-23 బిటెక్ గ్రాడ్యుయేట్లకు మెగా ఫ్లేస్ మెంట్ డ్రైవ్ గొప్ప తెరెర్ అవకాశం అని తెలిపారు. ఎడ్యు స్మిల్స్ కో ఫౌండర్ శుభజితీ జగదేవ్ మాట్లాడుతూ.. వీబీఐటిలో మౌలిక సదుపాయాల



ఏర్పాటు, వాటి కోసం తీసుకుంటున్న చర్యలను ప్రశంసించారు. ఏఐసీటీఈ, ఎడ్యుక్యూఎస్ అకాడమీ, ఎడ్యుస్మిల్స్ ఫౌండేషన్ సహకారంతో ఈ ఫ్లేస్ మెంట్ డ్రైవ్ ను నిర్వహించామని.. 9 కంపెనీలు రాగా, 3 మేల మంది స్టూడెంట్లు హాజరయ్యారని వీబీఐటి చైర్మన్ దాక్షర్ గౌతంరావు తెలిపారు.



Wed, 21 September 2022

<https://epaper.v6velugu.com/c/70217471>

ఆంధ్రజ్యోతి

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## సాంకేతిక పరిజ్ఞానం పెంపొందించుకోవాలి

● షేఆర్ బీటీ ప్రొఫెసర్ వద్దమని రవి



ప్రసంగిస్తున్న ప్రొఫెసర్ రవి

**ఫుటేశ్వర్ రూరల్ :** సాంకేతిక రంగంలో వస్తున్న మార్పులకు అనుగుణంగా పరిజ్ఞానాన్ని పెంపొందించుకోవాలని షేఆర్ బీటీ ప్రొఫెసర్ వద్దమని రవి అన్నారు. ఫుటేశ్వర్ మండలం అవతా ఫూర్ గ్రామ పరిషత్ లోని వీబీఐటీ కళాశాలలో సోమవారం నిర్వహించిన 'పెప్పిన రెల్లింగ్, డీమ్ రెల్లింగ్' అనే

అంశంపై జరిగిన కార్యక్రమానికి ఆయన ముఖ్య అతిథిగా పాల్గొని జ్యోతి ప్రజ్వలన చేశారు. ఈ సందర్భంగా ఆయన మాట్లాడుతూ నేటి కంప్యూటర్ యుగంలో సాంకేతిక పరిజ్ఞానంతో ముందుకు సాగాలన్నారు. నైపుణ్యంతోనే ఉద్యోగవకాశాలు వస్తాయని గుర్తించారు. సాంకేతిక, వృద్ధి, బాషా నైపుణ్యాలను పెంపొందించుకోవాలన్నారు. ఇంటర్నెట్ తో కాలయాపన చేయకుండా అవసరాలకు వాడుకొని విషయ పరిజ్ఞానం పెంచుకోవాలని తెలిపారు. కార్యక్రమంలో కళాశాల చైర్మన్ దాక్షర్ గౌతంరావు, కార్యదర్శి దాక్షర్ మనోహర్ రెడ్డి, ప్రిన్సిపాల్ అమరేంద్రరావు, ప్రొగ్రాం కోర్డినేటర్ కె.శ్రీనివాస్ రావు, అధ్యాపకులు, విద్యార్థులు పాల్గొన్నారు.



**VIGNANA BHARATHI**  
Institute of Technology

### క్రీడలతో మానసికోల్లాసం

బీటెల్ కళాశాల కార్యదర్శి మోహన్ రెడ్డి

మనోరంజన క్రీడలతో మానసిక అభివృద్ధి, ఆరోగ్యం, బలం పెంచుకోవాలని అవతా ఫూర్ కళాశాల (వీబీఐటి) కార్యదర్శి మోహన్ రెడ్డి అన్నారు. సో. శో. బి.ఎస్. యూనివర్సిటీ రాంచీలోని వీబీఐటి కేంద్రంగా జరిగిన ప్రారంభోత్సవం కళాశాలలో నిర్వహించారు. ఈ కార్యక్రమానికి ముఖ్య అతిథిగా పాల్గొని ఆయన మాట్లాడుతూ.. సో. శో. బి.ఎస్. యూనివర్సిటీ రాంచీలోని వీబీఐటి కేంద్రంగా జరిగిన ప్రారంభోత్సవం కళాశాలలో నిర్వహించారు. ఈ కార్యక్రమానికి ముఖ్య అతిథిగా పాల్గొని ఆయన మాట్లాడుతూ.. సో. శో. బి.ఎస్. యూనివర్సిటీ రాంచీలోని వీబీఐటి కేంద్రంగా జరిగిన ప్రారంభోత్సవం కళాశాలలో నిర్వహించారు.



ప్రారంభోత్సవం కళాశాల కార్యదర్శి మోహన్ రెడ్డి

Thur, 05 January 2022  
<https://epaper.vakathi.com/c/65421849>

సాక్షి

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### క్రీడలతో మానసిక విశ్రాంతి

అవతా ఫూర్ కళాశాలలోని వీబీఐటి కేంద్రంగా జరిగిన ప్రారంభోత్సవం కళాశాలలో నిర్వహించారు. ఈ కార్యక్రమానికి ముఖ్య అతిథిగా పాల్గొని ఆయన మాట్లాడుతూ.. సో. శో. బి.ఎస్. యూనివర్సిటీ రాంచీలోని వీబీఐటి కేంద్రంగా జరిగిన ప్రారంభోత్సవం కళాశాలలో నిర్వహించారు.

**VBIT IN NEWS**



# Major Achievements

S.No.	ACHIEVEMENTS	
1.	VBIT acquired Autonomous Status for a period of 10 years starting from the AY 2019-20	
2.	VBIT emerged as the first college under JNTUH to introduce the Honours & Minor Degree Programme starting from A.Y. 2021-22.	
3.	Vignana Bharathi Institute of Technology (VBIT) has received Accreditation by NAAC (National Assessment and Accreditation Council) with 'A' grade and 3.23 CGPA which is the highest score among all the colleges nationwide participated in 1st window.	
4.	VBIT has been accredited by NBA and is permanently affiliated to JNTUH and is recognised under 2(f) & 12(B) of UGC Act, 1956.	 
5.	<b>IEEE International Awards</b> <ol style="list-style-type: none"> <li>Exemplary Student Branch Award in Asia Pacific Region (2015)</li> <li>Richard E. Merwin International Scholarship Award from IEEE Computer Society (2009-11), (2012-13), (2015-16)</li> <li>Darrel Chong Student Activity International Award (Gold Prize) (2012)</li> <li>Larry K. Wilson International Award in Asia Pacific Region (2013)</li> <li>Outstanding Branch Counselor Award (2012-13) in Asia-Pacific Region (R-10) to Dr. C.R.N. Sarma</li> <li>Special feature on VBIT-SB in IEEE-International Publication "IEEE-Potential" (Volume-32, Issue-4, August 2013)</li> <li>WIE VBIT Student Branch Affinity Group has been declared as the recipient of an "Honorable Mention for the 2015 WIE Student Branch Affinity Group of the Year Award".</li> <li>IEEE-VBIT SB has bagged 2nd position in IEEE Region 10 (Asia-Pacific) website contest 2017</li> </ol>	  
6.	<b>IEEE Regional Awards</b> <ol style="list-style-type: none"> <li>Vibrant Student Branch Award (2009-10)</li> <li>Outstanding Student Branch Award (2010-11)</li> <li>Section student representatives from VBIT for consecutive 6 years (2009-15)</li> <li>IEEE Day Brand Ambassador (2013 &amp; 2014)</li> </ol>	
7.	Power & Energy society (PES) of IEEE-VBIT SB has been awarded as High Performing student Branch Chapter Program (HPSBCP) for the year 2016 under Asia-Pacific Region R10.	
8.	AICTE has approved the institute as a center for Pradhan Manthri Koushal Vikas Yojana (PMKVY) where unemployed youth from near by areas can be trained in 4 vocational disciplines.	