

# POORNIMA UNIVERSITY



## POORNIMA CONNECT



### Hand Book for Session 2020-21

### School of Computer Science & Engineering/ School of Engineering & Technology

Name .....

Reg. No..... Roll No. ....

Program ..... Branch .....

Section ..... Batch..... Year & Sem.....

IS-2027 to 2031, Ramchandrapura, P.O. Vidhani Vatika, Sitapura Extension, Jaipur-303905 (Raj.)  
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# POORNIMA UNIVERSITY, JAIPUR



## ENGINEERS' DAY

Bharat Ratna Sir Mokshagundam Visvesvaraya (1861-1962) was called a wizard in engineering. He was also called the precursor of economic planning in India. He took an interest not in engineering alone, but was capable of applying his talent to many allied matters connected with the development of the nation. His learned discourse on economic planning in India titled 'Planned Economy for India and Reconstructing India' was the first available document on the planning effort of the country and it is still held as the parent source matter for economic planners. To commemorate the birthday of Bharat Ratna Sir M. Visvesvaraya, the Council of the Institution decided to observe September 15 as the Engineers' Day every year. This is celebrated throughout the country through all the Centres of the Institution with learned discourses on a theme specified by the Council every year.

## Code of Ethics for Corporate Members of the Institution of Engineers (India) ([www.ieindia.org](http://www.ieindia.org))

### **Code of Ethics for Corporate Members of the Institution of Engineers (India)([www.ieindia.org](http://www.ieindia.org))**

#### **Preamble**

The Corporate Members of The Institution of Engineers (India) are committed to promote and practice the profession of engineering for the common good of the community bearing in mind the following concerns :

Concern for ethical standard;

Concern for social justice, social order and human rights;

Concern for protection of the environment;

Concern for sustainable development;

Public safety and tranquility.

#### **The Tenets of the Code of Ethics**

A Corporate Member shall utilise his knowledge and expertise for the welfare, health and safety of the community without any discrimination for sectional or private interests.

A Corporate Member shall maintain the honour, integrity and dignity in all his professional actions to be worthy of the trust of the community and the profession.

A Corporate Member shall act only in the domains of his competence and with diligence, care, sincerity and honesty.

A Corporate Member shall apply his knowledge and expertise in the interest of his employer or the clients for whom he shall work without compromising with other obligations to these Tenets.

A Corporate Member shall not falsify or misrepresent his own or his associates' qualifications, experience, etc.

A Corporate Member, wherever necessary and relevant, shall take all reasonable steps to inform himself, his employer or clients, of the environmental, economic, social and other possible consequences, which may arise out of his actions.

A Corporate Member shall maintain utmost honesty and fairness in making statements or giving witness and shall do so on the basis of adequate knowledge.

A Corporate Member shall not directly or indirectly injure the professional reputation of another member.

A Corporate Member shall reject any kind of offer that may involve unfair practice or may cause avoidable damage to the ecosystem.

A Corporate Member shall be concerned about and shall act in the best of his abilities for maintenance of sustainability of the process of development.

A Corporate Member shall not act in any manner which may injure the reputation of the Institution or which may cause any damage to the Institution financially or otherwise.

"Men often become what they believe themselves to be. If I believe I cannot do something, it makes me incapable of doing it. But when I believe I can, then I acquire the ability to do it even if I didn't have it in the beginning."

- Mahatama Gandhi

**"Scientists investigate that which already is, Engineers create that which has never been."**

## CALENDAR - 2020

## CALENDAR - 2021

December							
Nº	S	M	T	W	T	F	S
48				1	2	3	4
49	5	6	7	8	9	10	11
50	12	13	14	15	16	17	18
51	19	20	21	22	23	24	25
52	26	27	28	29	30	31	

## *Preface*

On behalf of Poornima University, I extend you a hearty welcome for a new journey towards success. The undergraduate course that you have chosen is an excellent career choice and I am confident that this education will enable you to meet the challenges of future. We are committed to enthuse you to sail through this new voyage to shape your career and professional life.

Though, you are excited to join the vibrant graduate and professional PU community yet there might be some doubts regarding the programs, infrastructure and many other important details related to academics. In order to answer to some of your “who-how-where-when” and to give you an insight about your University, we have specially prepared this handbook – **POORNIMA CONNECT**. It is a fine composition which provides basic information on important aspects. It contains the details of contact points in emergency situations, locations of labs, tutorial & lecture theatres, syllabus details and even subject-wise Hindi-English dictionary of selected words.

**POORNIMA CONNECT** is a document, instigated by our visionary Chairperson Ar. Shashikant Singhi, Secretary, Shanti Education Society whose valuable advisory support has been of immense moral boost to one and all. In addition, constant encouragement of President, Provost & all the dignitaries of Poornima University and unconditional support of Ar. Rahul Singhi, Director, Poornima Foundation was an eternal source of inspiration in preparing **POORNIMA CONNECT**.

I also convey my special thanks to Dr. Priti Kaushik, Dr. Pragya Mishra & other faculty members, who left no stone unturned in compiling the **POORNIMA CONNECT** in its present form as a beautiful and prestigious document of Poornima University.

Best wishes...

**Dr. Manoj Gupta**  
Provost

**Prof. Sunil Chand Padhy**  
President

**ARISE! AWAKE! AND STOP NOT TILL THE GOAL IS REACHED!**

**VISION :** To create knowledge based society with scientific temper, team spirit and dignity of labour to face the global competitive challenges.

**MISSION :** To evolve and develop skill based systems for effective delivery of knowledge so as to equip young professionals with dedication & commitment to excel in all spheres of life.

### Department of Computer Science & Engineering

**VISION:** To produce globally competent computer professionals by providing high quality education, conducive learning and research experience that responds swiftly to the challenges of the ever-changing world.

**MISSION:** To produce a quality learning environment that helps students to enhance problem solving skills and to be lifelong learners in ever evolving and challenging global technological developments. To collaborate with industry and institutes to make students ready for the professions across disciplines, nationally and globally.

### Program Outcome (POs)

**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**PO2: Problem analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

**PO3: DESIGN/DEVELOPMENT of SOLUTIONS:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

**PO4: Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

**PO5: Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools prediction and modelling to complex engineering activities with an understanding of the limitations.

**PO6: The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

**PO7: Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and the need for sustainable development.

**PO8: ETHICS:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**PO9: Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

- PO10: Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and receive clear instructions.
- PO11: Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in team, to manage projects and in multidisciplinary environments.
- PO12: Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

# Contents

<b>1. First Year: The year to explore</b>	<b>07</b>
<b>2. UNIVERSITY Structure</b>	<b>08</b>
<b>3. List of Officers</b>	<b>09</b>
<b>4. Contact persons for VARIOUS ISSUES</b>	<b>10</b>
<b>5. FACILITIES</b>	<b>13</b>
<ul style="list-style-type: none"> <li>Library</li> <li>Seminar Halls</li> <li>Cafeteria</li> <li>Internet Lab and Wi-Fi</li> <li>Provision Store</li> <li>Medical Facility</li> </ul>	
<b>6. Hostel/TRANSPORT</b>	<b>14</b>
<b>7. DO's/DON'Ts</b>	<b>15</b>
<ul style="list-style-type: none"> <li>Attendance</li> <li>Assignments</li> <li>Uniform/Records</li> <li>Discipline and Anti-Ragging</li> </ul>	
<b>8. Time Table</b>	<b>16</b>
<b>9. Scheme and SYLLABUS</b>	<b>17-59</b>
BCA I year I Sem and II Sem	
<b>9. Student Council</b>	<b>60</b>
<b>10. Curricular ACTIVITIES</b>	<b>62-69</b>
<ul style="list-style-type: none"> <li>Credit &amp; Grading System</li> <li>Self Help Group (SHG)</li> <li>Digital Class</li> <li>Campus Recruitment Training (CRT) &amp; Super Club</li> <li>On-Line Exam (OLE)</li> <li>Talent Enrichment Program (TEP)</li> <li>Professional Certificate Course (PCC)</li> <li>Extra Curricular Activities (ECA)</li> </ul>	
<b>11. Toppers List (2019-20)</b>	<b>70</b>
<b>12. SCHOLARSHIP</b>	<b>71-73</b>
<b>13. Other Important Information</b>	<b>74-89</b>
<ul style="list-style-type: none"> <li>Subject Wise Dictionary and List of useful Dictionaries</li> <li>Life Skill for Students</li> <li>List your Areas of Interest and Resolutions</li> <li>Exam &amp; Attendance performance</li> <li>Important Instructions and Notes</li> <li>Pink City, Jaipur and Help Line No.</li> </ul>	
<b>14. VARIOUS FORMS</b>	<b>90-96</b>
<ul style="list-style-type: none"> <li>Undertaking : Anti-Ragging Form</li> <li>Undertaking : Attendance Form</li> <li>Leave Form for Student</li> </ul>	

**BEST WISHES & GOOD LUCK**



# POORNIMA UNIVERSITY

ISI-2027 & 2031, Ramchandrapura, Sitapura Extension, Jaipur- 303905

Tel.: +91-0141-2650249 to 255 (7 LINES)

E-mail: [info@poornima.edu.in](mailto:info@poornima.edu.in), Web: [www.poornima.edu.in](http://www.poornima.edu.in)

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## RAGGING IS PROHIBITED BY LAW

All the students should know that RAGGING IS PROHIBITED. It is a criminal offence.

A student indulging in any act of ragging, howsoever insignificant it may be, will be dealt severely and such a student will be handed over to law and order authorities (Police). In addition, the university will take disciplinary action on its end, which may include rustication of the defaulters from the university.

Ragging in all its forms is totally banned in all departments, constituent units, premises and in all means of transportation of students in Poornima University. The institution takes strict action against those found guilty of ragging and/or of abetting ragging and the burden of proof shall hereby lie on the perpetrator of alleged ragging and not on the victim. The institution follows the policy of zerotolerance to ragging.

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*You cannot change your future, but you can change your habits  
and surely your habits will change your future*

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## Personal Details

Name: \_\_\_\_\_  
School of: \_\_\_\_\_  
Program: \_\_\_\_\_  
Branch/specialization: \_\_\_\_\_  
Class/Section: \_\_\_\_\_  
Tutor's Name: \_\_\_\_\_  
Student Mobile No.: \_\_\_\_\_  
E-mail: \_\_\_\_\_  
Hobbies: \_\_\_\_\_

**FATHER'S Name:** \_\_\_\_\_  
Office Address: \_\_\_\_\_  
Phone: \_\_\_\_\_ Mobile: \_\_\_\_\_

**Permanent Residential Address:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Pin No.: \_\_\_\_\_ Phone: \_\_\_\_\_  
Mobile: \_\_\_\_\_

**Student's Local Address:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Pin No.: \_\_\_\_\_ Phone: \_\_\_\_\_  
Mobile: \_\_\_\_\_

**FOR HOSTELLERS:**  
Name of Local Guardian: \_\_\_\_\_  
Phone: \_\_\_\_\_ Mobile: \_\_\_\_\_

### BANK ACCOUNTS:

Name of Branch: \_\_\_\_\_  
A/c No.: \_\_\_\_\_

### MEDICAL INFORMATION:

Height: \_\_\_\_\_ Weight: \_\_\_\_\_  
Blood Group: \_\_\_\_\_ Allergict to: \_\_\_\_\_  
Physician: \_\_\_\_\_ Phone: \_\_\_\_\_  
Passport No.: \_\_\_\_\_  
Date of Issue/ Expiry: \_\_\_\_\_  
Vehicle type/No.: \_\_\_\_\_  
Driving License No.: \_\_\_\_\_

### IN CASE OF EMERGENCY, NOTIFY:

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_

OTHER INFORMATION: \_\_\_\_\_

Parents' Signature \_\_\_\_\_  
Tutor's Name: \_\_\_\_\_  
Mobile No.: \_\_\_\_\_  
E-mail: \_\_\_\_\_  
Tutor's Signature: \_\_\_\_\_  
Proctor's Signature: \_\_\_\_\_

विनम्र बनो साहसी बनो शक्तिशाली बनो!!!

## **FIRST YEAR: THE YEAR TO EXPLORE**

### **A PLAN OF ACTION**

Each year of a student's career at Poornima University will be marked by challenges and opportunities as self-knowledge increases and choices are made about the future. The keys to success are planning ahead, using time, taking advantage of campus and community resources, and being pro-active. Student's experiences are all different, but the following “plan of action” should help them make their way toward being the people they would like to be after completion of first year.

### **FRESHMEN (EXPLORING)**

#### **ACADEMICS:**

- Read the POORNIMA CONNECT
- Get to know academic programmes and people
  - Meet Professors
- Attend classes/workshop on: study skills, test taking, time management
- Explore general education program requirements

#### **PERSONAL:**

- Self –Understanding
- Develop a support group of friends
  - Take a personality test
  - Do values clarification exercises
  - Explore individual counseling
- Identify major fears of college life
- Redefine family relationships

#### **SOCIAL:**

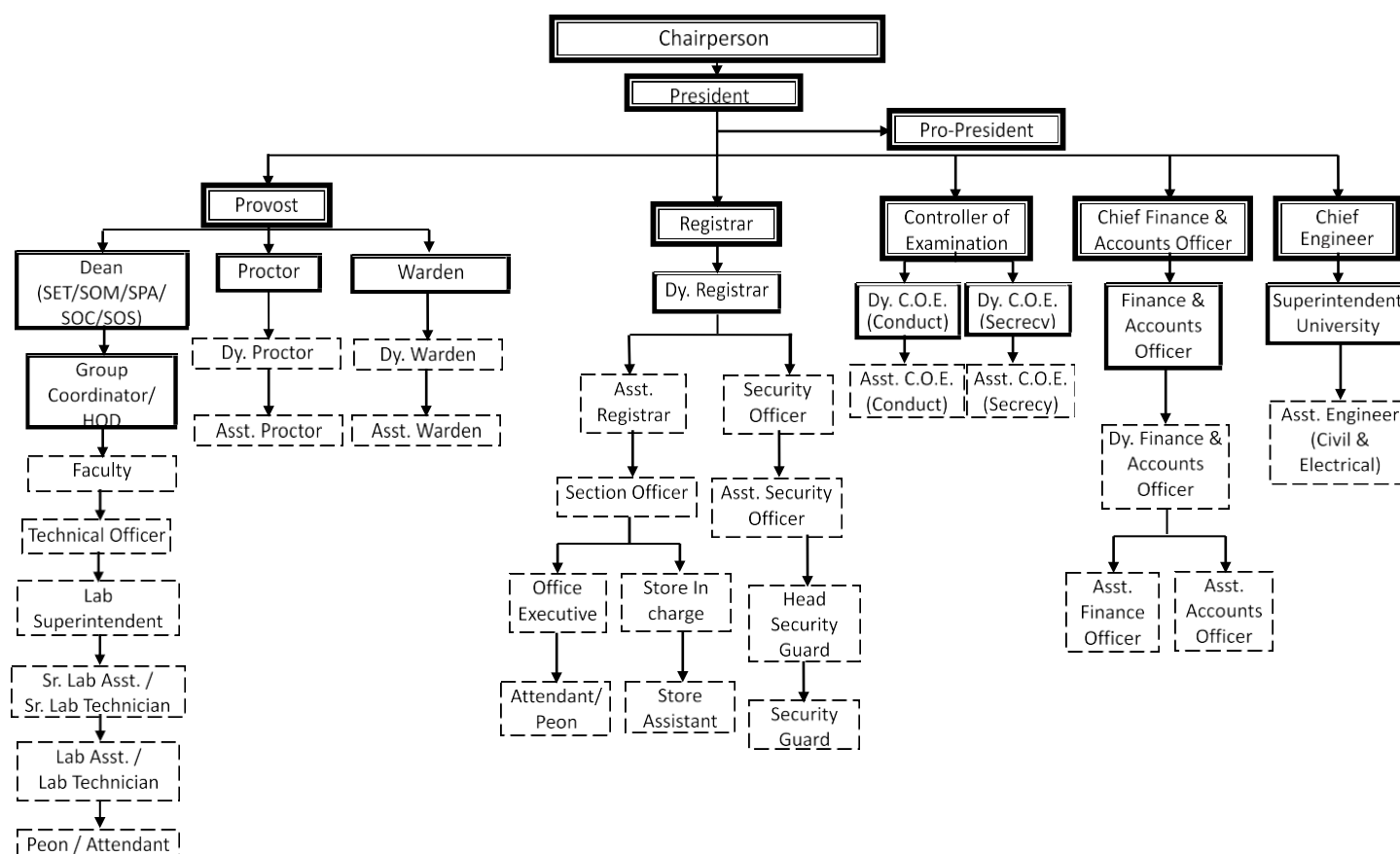
- Join clubs and associations
- Get involved in collegelife
  - Make leave plans
  - Nurture hobbies
- Develop a peer group
- Seek out volunteer opportunities at college

#### **CAREER:**

- Explore career areas
- Attend workshops
- Talk with parents, friends, professors, and career counselors
  - Take career related assessments,
- Continue developing leadership, analytical thinking, communication and interpersonal skills.

**“We all have two CHOICES: We can make a living or we can DESIGN a life.”**

## UNIVERSITY STRUCTURE



### WHOM TO CONTACT

#### REGISTRAR OFFICE:

- For identity cards, education loan, exam related information, theory/ lab records, various non academic activities and any correspondence related queries.

#### PROCTOR OFFICE:

- For information related to ragging, attendance, illness, participation in various activities and leaves, students grievanceredressal.

#### FINANCE OFFICE:

- For semester fees/ loan etc.

If you don't go after what you want, you'll never have it

### List of Officers

S. No.	DESIGNATION	Name
1.	Chairperson, PU	Ar. Shashikant Singhi
2.	President, PU	Prof. Sunil Chand Padhy
3.	Provost, PU	Dr. Manoj Gupta
4.	Director, PF	Ar. Rahul Singhi
5.	Dean (R & D), PU	Dr. Mahesh Bundeale
6.	Registrar, PU	Dr. Chandni Kirpalani
7.	Controller of Examination, PU	Dr. Nupur Srivastava
8.	Dean (SPA)	Ar. N. C. Nakra
9.	Dean (SET)	Dr. B.K. Sharma
10.	Dean (SMC)	Dr. Nikhil varghese
11.	Dean (SCE)	Dr. Ajay Khunteta
12.	Dean (SSH)	Dr. Priti Kaushik
13.	Dean I/C (SDA) &HOD	Ms. Shikha Singh
14.	CF & AO	Sh. Chain Raj Kothari
15.	Training & Placement Officer	Ms. Garima Mathur
16.	Chief Proctor	Mr. Simranjeet Singh
17.	Chief Warden	Mr. Ashok Poonia

### Abbreviations for Lecture HALLS / Tutorial ROOMs / Laboratories

Location	Abbreviations
Academic Block BASEMENT	A1-B
Academic Block Ground Floor	A1-G
Academic Block First Floor	A1-1
Academic Block Second Floor	A1-2
Academic Block Third Floor	A1-3

If you don't step forward, you will always be in the SAME SPOT.

## Frequently Asked QUESTIONS

### **Q1. What is the role of a tutor?**

**ANS.** A tutor is expected to help the students in their academic problems and he/she works as a local guardian of the students. For any problem student must contact respective tutor. The tutor maintains records of the students, interacts with their parents and informs them about his/her performance and attendance etc.

### **Q2. How to get academic and non academic information in the university?**

**ANS.** See notice boards regularly, in the university and in hostel (if one is hosteller).

### **Q3. What are the advantages of tutor system?**

**ANS.** The advantages of the system are:

Excellent academic performance by students

- Motivation for participation in extracurricular activities
- Framing of the professional attitude and ways of behavior.
- Teamworking and event management
- Career counseling
- Guidance for preparing for job interviews

### **Q4. How should a student apply for leave?**

**ANS.** Leave forms available with the tutor shall be filled and submitted to tutor.

### **Q5. Whom should you inform about your participation OUTSIDE CAMPUS COMPETITIONS?**

**ANS.** To the tutor.

### **Q6. Whether I can avail leave on working days?**

**ANS.** Yes, if attendance is more than 75% and the tutor or proctor approves it.

### **Q7. Where should a student go to get details of SEMESTER-FEES?**

**ANS.** Fee-Structure can be obtained from the Registrar office.

### **Q9. How can a student file complaint of the act of ragging?**

**ANS.** Telephonically or personally inform tutor/ proctor/ Anti ragging cell or higher authorities.

### **Q9. What is the procedure of DEPOSITING SEMESTER-FEES?**

**ANS.** Detail of semester fees is notified to students via notices or they can contact tutor/ proctor for the same. The fees can be deposited by draft only as per rules. The fee must be deposited till the last date of fee deposition otherwise fine will be imposed as per rules.



**Q10. Whom SHOULD one contact in emergency like RAGGING/ ACCIDENT?**

S.No.	Name DESIGNATION	Name	Mobile
1.	Director, PF	Mr. Rahul Singhi	9829000071
2.	Chief Proctor	Mr. Simranjeet Singh	9001893265
3.	Chief Warden	Mr. Ashok Poonia	9001893267
4.	Warden - Gargi Hostel	Ms. Neetu Singh	9588846843
5.	Proctor-Girls, PU	Dr. Dipti Mathur	9460187235
6.	Proctor, SET & SSH	Dr. Rakesh Gupta	9983665500
7.	Proctor, SOC & SOM	Dr. Swati Jain	9829222732
8.	Proctor, SPA & SOD	Ar. Himanshu Nandiwal	9799886475
9.	Transport Officer, PU	Mr. Vishnu Kr. Yadav	9829855516

**Q11. How can student file complain of the act of ragging?**

Ans. Give the information to the Anti Ragging Team members/ Proctor either telephonically or personally.

**Q12. What is the procedure of participating in inter/intra college competitions?**

Ans. Write an application for participating in any event/competition.

- Take approval from the tutor.
- Submit a formal report after participation.

**Q13. What type of roles can be performed by a student apart from academic activities?**

Ans. One can work as the coordinator of the magazine /newsletters/annual function and various other academic/ non-academic activities like poster/essay writing competitions etc.

**Q 14. How much attendance is required to be eligible for the University examinations?**

Ans. Minimum 75%

**Q15. When the students can access internet lab?**

Ans. Students can access internet during lunch hours and on Tuesday, Thursday and Saturday from 2:30 p.m. to 3.30 p.m. and in evening time from 6:00 p.m. to 8:00 p.m. in hostels.

**Q16. What time the facility of canteen is available in the university campus and hostels?**

Ans. During lunch time in the university and evening time in hostels.

**Q17. What are the timings to go/use university library?**

Ans. Separate period may be assigned as library period and the students can go/use during following periods/times.

- a) Lunch time
- b) 7th period which is free for using library.
- c) After completing project work during lab periods with the permission of faculty for not more than 10 min..
- d) Library Period (if given)

**Q18. How to get library books issued?**

Ans. Through library cards, issued by library as per university norms.

**Q19. Whom should a student meet to get him/her registered for using the facility of the WI-FI?**

Ans. Mr. Praful Dubey, Coordinator– Network Administration.

**Educated people do not simply believe;  
they believe what they can explain and cogently defend.**

## FACILITIES

### A. CENTRAL LIBRARY

- The Library has a well balanced collection of books on Engineering, Management, Economics, Commerce, Architecture, Fashion & Textile Design, Computer Science and Information Technology and books of general interest.
- **Collection of books:** The Library has around 26910 volumes and 5336 titles. The library has subscribed over 104 journals & Periodicals related to different fields. The library also includes audio and video databases.
- **Working hours :** Library service is available to all the students, faculty members and staff members. The regular timings of library are from 8:00 a.m. to 3.30/5.30/8:00 p.m.
- **Other FACILITIES :**
  - The books will be issue through Smart ID Card. Smart ID Card is your Smart ID.
  - 4 Books are issued for 15 days period with a fine Re. 1 per day beyond due date.
  - Reference books are issued for overnight only.
  - OPAC (Online Public Access Catalogue) is helpful in locating a book in the library.
  - **DELNET:** This network of libraries provides sharing of books and resources among each other.  
*Webaddress: <http://www.delnet.nic.in>*
  - Along with this the library also has IEEE, KNIMBUS, GREENR online subscription.

Browsing facility for e-publications is being provided in the library in which one can access journals published worldwide.

### B. CAFETERIA

Food quality is highly handled in our exceptionally managed and hygienic Cafeteria. It provides perfect ambience for socialization and creativity.

- Reasonable Prizes
- Neverserve food that expires
- Branded Packed Food
- Healthy & Fresh preparation
- Palatable & Piping Hot Snacks
- Nutritive Beverages

### C. PROVISION STORE

All the stationary and basic necessity goods are available in provision store. Students can purchase goods from the provision store located near the canteen and in the hostel.

### D. THE SEMINAR HALL

Three seminar halls well equipped with state of art technology and a seating capacity of nearly 300 students are located at each floor.

### E. INTERNET LAB & WI-FI

- The wireless internet facility is available for the students 24\*7.
- The student needs to bring his/her laptop at his or her own risk.
- Any student who desires to use WI-FI in college campus has to fill a form (mentioning the desired username and password) which is available in proctor office. Account will be activated within two days from the submission of the form.
- Highspeed Internet is available in Internet Lab

### F. Medical Facility

- Medical Facility available for the students
- For emergency ambulance available in university

इन्तजार करने वाले को सिर्फ उतना ही मिलता है, जितना कोशिश करने वाले छोड़ देते हैं।

## HOSTEL/TRANSPORT

PU caters the residential need of the students of all its schools. Residential facilities for girls are located in PCE campus at Gayatri Girls Hostel and for boys in PU campus at Himalaya Boys Hostel.

### FEATURES:

- Proper hygienic food facilities are adequately provided in the mess of PU
- Well furnished rooms
- Special Facilities:
  - Gymnasium
  - Activity rooms
  - Internet facility ( WI-FI)
  - Indoor games
  - Outdoor games
  - Beauty saloon
  - Departmental store
  - Laundry
  - TV room
- Hostel day celebration
- Medical facility
- Centralized cooling
- Competitive atmosphere
- Tours (Industrial Visit )

### WHO IS WHO?

#### Himalaya Boys Hostels:

Mr. Ashok Poonia (Chief Warden) 9001893267

Mr. Ramit Kumar (Warden) 7891689338

#### Gargi Girls Hostel:

Ms. Neetu Singh (Warden) 9588846843

Ms. Beena Brahmabhatt (Warden) 7413812981

### TRANSPORT FACILITY:

The University is providing conveyance facility from every nook of Jaipur to students & faculty members. Swaraj Mazda buses run on roads to facilitate this

service to the students & faculty members. Name of all the buses are kept on the names of rivers of the world. Poornima University does not charge any amount for various Academic and Non Academic activities such as

- Industrial Visits
- Educational Tour
- Examination
- Campus Recruitment
- Seminars & Workshops
- Social Visits
- Annual fests
- Inter University Competition

### TRANSPORT Officer

Mr. Vishnu Yadav (98298-55516)

**Q1. If a student is ill then what Assistance he gets in the university campus?**

**ANS.** Contact Proctor.

**Q2. How to get the facility of the transportation?**

**ANS.** Fill a registration form and submit it with fee.  
For more inquiry call the Transport Officer.

**Q3. What is the SCHEDULE of the MESS with MEALS detail?**

**ANS.** Contact the Mess In-charge  
Mr. Rajesh Pradhan (9667612161)  
Contact the Mess Manager  
Mr. Praveen Singhvi (99283-64374)

*You cannot change your future,  
but, you can change your habits,  
and surely your habits will  
change your future*

## **Do's & Don't**

### **ATTENDANCE**

- Students are expected to attend all the classes regularly and on time. Attendance registers are closed ten minutes after the start of class.
- It is mandatory to fulfill the criterion of 75% attendance as per the rules of PU.

### **UNIFORM/RECORDS**

- Students are expected to observe all health and safety procedures, special regulation of uniform etc.
- Any cheating, plagiarism or copying of work of other students is not allowed.

### **ASSIGNMENTS**

- Students are expected to take their course seriously and listen to the advice of tutors.
- Complete all course work on time (assignments and homework) as required by your tutors and respective faculty members.

### **DISCIPLINE**

- Students are expected to respect the diversity of the people within the university.

- Students are expected to respect the property of the college, staff, other students and visitors.
- Students must not enter the university if you have been drinking or are carrying alcohol.
- Students must not enter the university if they have been using or are carrying illegal drugs or weapons.
- Students must not use offensive language or wear clothes with offensive slogan.
- Student must not have a switched on mobiles during lessons.
- Students should not involve themselves in any act of ragging.

### **ACTIONS AGAINST INDISCIPLINE/MISCONDUCT**

1. Official warning.
2. Disciplinary interview with Proctor/Chief Proctor.
3. Disciplinary interview with Board for suspension.
4. Permanent expulsion.

## **TRANSITION FROM SCHOOL TO UNIVERSITY**

Please remember your success up to (10+2) level is only a beginning. Professional Education in University is much different. The decision that you make the actions you take and the success you achieve in FIRST YEAR will have a MAJOR IMPACT on the rest of your life and career.

POORNIMA UNIVERSITY						
SCHOOL OF COMPUTER SCIENCE AND ENGINEERING				Session 2020-2021		
BACHELOR OF COMPUTER APPLICATIONS I Year T.T. w.e.f. 28-9-2020						
Days/Time	8:00AM-9:00AM	9:00 AM-10:00 AM	10:00AM-11:00AM	BREAK	11:50AM-12:50 PM	12:50PM-1:50PM
Monday	Programming Fundamentals Using C	Computer Organization & Architecture	Web Designing		Env St	Lang Lab
Tuesday	Computer Oriented Numerical & Statistical Methods	English-I	Programming Fundamentals Using C		Web Designing Lab	Computer Organization & Architecture
Wednesday	Web Designing	Computer Oriented Numerical & Statistical Methods	Computer Organization & Architecture		English-I	Office Automation Lab
Thursday	Computer Oriented Numerical & Statistical Methods	Programming Fundamentals Using C	Env St		Programming Fundamentals Using C Lab	Web Designing
Friday	i 3 DAY				i 3 DAY	
Saturday	Computer Oriented Numerical & Statistical Methods	Computer Organization & Architecture	English-I		Programming Fundamentals Using C	Web Designing

## Scheme and SYLLABUS of Teaching for I year BCA I Semester COMMON TO ALL SPECIALIZATIONS

### A. Scheme (BCA I Sem)

POORNIMA UNIVERSITY, JAIPUR										
BCA First Year (2020-2023)										
Teaching Scheme for First Semester										
Course Code	Course Name	Teaching Scheme (Hrs per wk)			Marks Distribution			Credits	Course Type	Course Category
		Lec (L)	Tut (T)	Prac (P)	IE	ESE	Total			
BAP01101	Programming Fundamentals using C	3	-	-	40	60	100	3	Theory	Core Course
BAP01102	Computer Organization and Architecture	3	-	-	40	60	100	3	Theory	Core Course
BAP01103	Web Designing	3	-	-	40	60	100	3	Theory	Core Course
BAP01104	Computer Oriented Numerical & Statistical Methods	3	1	-	40	60	100	4	Theory	Core Course
BAP01205	Programming Fundamentals using C Lab	-	-	5	60	40	100	2	Practical	Core Course
BAP01206	Web Designing Lab	-	-	4	60	40	100	2	Practical	Core Course
BAP01107	English-I	3	-	-	40	60	100	3	Theory	Ability Enhancement Compulsory Course
BAP01208	Language Lab	-	-	2	60	40	100	1	Practical	Ability Enhancement Compulsory Course
BAP01109	Environmental Studies	3	-	-	40	60	100	3	Theory	Ability Enhancement Compulsory Course
BAP01210	Office Automation Lab	-	-	2	60	40	100	1	Practical	Skill Enhancement Course
BAP01611	Discipline and Talent Enrichment Programme (TEP)	-	-	-	50	-	50	0.5	Practical	Social Outreach, Discipline & Extra Curricular Activities
BAP01611.1	Online Eligibility Exam (OLE)	-	-	1	-	-	-			
BAP01611.2	Campus Recruitment Training (CRT) - Introduction to Communication Skills	2	-	-	-	-	-			
BAP01611.3	Online Certification Courses	-	-	-	-	-	-			
	<b>Total</b>	<b>20</b>	<b>1</b>	<b>14</b>				<b>25.5</b>		
	<b>Total Teaching Hours</b>	<b>35</b>								

## CORE THEORY SUBJECTS

Code: BAP01101

PROGRAMMING FUNDAMENTALS USING C

3 Credits [LTP: 3-0-0]

## COURSE OUTCOME:

Even with the introduction of several high level languages and frameworks, the development of procedural codes is important in several commercial app developments. The object oriented platforms and event driven systems use procedural languages for coding integral command content.

C is an important procedural language and was developed initially to write the UNIX operating system. UNIX operating system, C compiler and all UNIX application programs are written in C. C is popular because, it is easy to learn, produces efficient programs, can handle low-level activities, and can be compiled on a variety of platforms.

This unit focuses on all the basic concepts, syntax and constructs of the C language. For students, who are new to programming, this unit can be considered as the starting point before taking up any other programming oriented units. The students will be implementing the concepts explained here to create simple to complex programs.

## A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Overview of Programming	6
2.	Fundamentals of C programming	6
3.	Advanced programming techniques	8
4.	Dynamic data structures in C	8
5.	Additional features	8

## B. DETAILED SYLLABUS

Unit	Unit Details
1.	<b>Overview of Programming</b>
	<ul style="list-style-type: none"> <li>Introduction of Unit</li> <li><b>Introduction to computer based problem solving</b>, Program design and implementation issues- Flowcharts &amp; Algorithms, Top down design &amp; stepwise refinement</li> <li><b>Programming environment</b> – Machine language, assembly language, high level languages, Assemblers, Compilers, Interpreters.</li> <li>Conclusion of the Unit</li> </ul>
2.	<b>Fundamentals of C programming</b>
	<ul style="list-style-type: none"> <li>Introduction of Unit</li> <li><b>Overview of C</b>, Data Types, Constants &amp; Variables, Operators &amp; Expressions</li> <li><b>Control constructs</b>-if then, for, while, <b>Arrays</b>- single &amp; multidimensional arrays</li> <li><b>Functions</b>-fundamentals – general form, function arguments, return value</li> <li><b>Basic I/O</b>-formatted and Unformatted I/O, <b>Advanced features</b>- Type modifiers and storage class specifies for data types, Bit operators, Operator, &amp;operator, * operator, Type casting, type conversion.</li> <li>Conclusion of the Unit</li> </ul>
3.	<b>Advanced programming techniques</b>

	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>Control constructs</b>- Do while, Switch statement, break and continue, exit() function, go to and label</li> <li>• <b>Scope rules</b>- Local &amp; global variables, scope rules of functions</li> <li>• <b>Functions</b>-parameter passing, call by value and call by reference, calling functions with arrays, argc and argv, recursion- basic concepts, ex-towers of Hanoi.</li> <li>• Conclusion of the Unit</li> </ul>
<b>4.</b>	<b>Dynamic data structures in C</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>Pointers</b>- The &amp; and * operator, pointer expression, assignments, arithmetic, comparison, malloc vs calloc, arrays of pointers, pointers to pointers, initializing pointers, pointers to functions, function returning pointers</li> <li>• <b>Structures</b>- Basics, declaring, referencing structure elements, array of structures, passing structures to functions, structure pointers, arrays and structures within structures</li> <li>• <b>Unions</b> – Declaration, uses, enumerated data-types, typedef.</li> <li>• Conclusion of the Unit</li> </ul>
<b>5.</b>	<b>Additional features</b>
<b>E R R E X V V V</b>	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>File Handling</b> – The file pointer, file accessing functions, fopen, fclose, puc, getc, fprintf</li> <li>• <b>C Preprocessor</b>- #define, #include, #undef, Conditional compilation directives.</li> <li>• <b>C standard library and header files</b>: Header files, string functions, mathematical functions, Date and Time functions.</li> <li>• Conclusion of the Unit</li> </ul>

**RECOMMENDED STUDY MATERIAL:**

Sr. No	Reference Book	Author	Publication
1.	Let us C, 6 <sup>th</sup> Edition	Yashwant Kanetka	PBP Publication
2.	The C programming Language	Richie and Kenninghan	BPB Publication, 2004
3.	Programming in ANSI C 3 <sup>rd</sup> Edition, 2005	Balaguruswamy	Tata McGraw Hill

**COURSE OUTCOME:**

- To understand and the use of basic concepts of Computer components.
- To understand the concept of memory hierarchy and the use of various input-output devices.
- To understand the various computer languages, operating system functions and the application of number systems.
- To understand the basic Computer Networking principles and the applications of WWW, multimedia and the usage of electronic mail.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Register Transfer and Micro-operation	8
2.	Basic Computer Organization	8
3.	Micro Programmed Control Unit	8
4.	Computer Arithmetic	6
5.	Modes of Data Transfer and Memory Organization	6

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Register Transfer and Micro-operation</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Register Transfer Language, Register Transfer, Bus and Memory Transfer: Three state bus buffers, Memory Transfer.</li> <li>• Arithmetic Micro-operations: Binary Adder, Binary Adder-Subtractor, Binary Incrementor,</li> <li>• Logic Micro-operations: List of Logic micro operations, Shift Micro-operations (excluding H/W implementation), Arithmetic Logic Shift Unit.</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Basic Computer Organization</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Instruction Codes, Computer Registers: Common bus system, Computer Instructions:</li> <li>• Instruction formats, Instruction Cycle: Fetch and Decode, Flowchart for Instruction cycle, Register reference instructions.</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Micro Programmed Control Unit</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Control Memory, Address Sequencing, Conditional branching, Mapping of instruction, Subroutines.</li> <li>• Design of Control Unit, Central Processing Unit: Introduction, General Register Organization,</li> <li>• Stack Organization: Register stack, Memory stack; Instruction Formats, Addressing Modes.</li> <li>• Conclusion of Unit</li> </ul>
4.	<b>Computer Arithmetic</b>

	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Introduction, Addition and Subtraction,</li> <li>• Multiplication Algorithms (Booth algorithm), Division Algorithms,</li> <li>• Input – Output Organization: Peripheral devices, Input – Output interface, Introduction of Multiprocessors: Characteristics of multi-processors.</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Modes of Data Transfer and Memory Organization</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Modes of Data Transfer: Priority Interrupt, Direct Memory Access,</li> <li>• Memory Organization: Memory Hierarchy, Main Memory, Auxiliary Memory,</li> <li>• Associative Memory, Cache Memory, Virtual Memory</li> <li>• Conclusion of unit</li> </ul>

### C. RECOMMENDED STUDY MATERIAL:

Sr. No	Reference Book	Author	Publication
1.	Computer System Architecture	Morris Mano	PHI
2.	Computer Organization and Architecture	William Stallings	PHI
3.	Digital Computer Electronics:	An Introduction to Microcomputers by Malvino	TMH

**COURSE OUTCOME:**

Web Technology has revolutionized mankind and entirely changed the way we look at things. Banking, Education, Retailing, Manufacturing and Research are some of the things that have undergone major transformations due to influence from web development. By adding more features, increasing the scope and reach of industries, making it available to users irrespective of their geography, web has captivated the human minds. Learning web technology is one of the top priorities for every computer enthusiast in order to better understand its working and scope. Students will understand the fundamental working technology behind web development and HTML. They will be taught concepts like JS, HTML5 thus making them capable of web development.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Introduction to the Internet and the World Wide Web	8
2.	HTML & CSS	8
3.	XML and HTML5, CSS3	8
4.	PHP Server side scripting	6
5.	Practical website development	6

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Introduction to the Internet and the World Wide Web</b>
	<ul style="list-style-type: none"> <li>Introduction, History of internet, Internet Design Principles, Internet Protocols - FTP, TCP/IP, SMTP, Telnet, etc., Client Server Communication, Web System architecture</li> <li>Evolution of the Web, Web architectures, Web clients and servers, Static and Dynamic Web Applications, Front end and back end web development.</li> <li>HTML, CSS, JS, XML; HTTP, secure HTTP, etc; URL, Web Services – SOAP, REST</li> </ul>
2.	<b>HTML &amp; CSS</b>
	<ul style="list-style-type: none"> <li>Introduction to Html, Html Document structure, Html Editors, Html element/tag &amp; attributes, Designing simple page - Html tag, Head tag, Bodytag;</li> <li>More Html tags - Anchor tag, Image tag, Table tag, List tag, Frame tag, Div tag ; Html forms - Input type, Text area, Select , Button, Images.</li> <li>Introduction to CSS, Syntax, Selectors ,Embedding CSS to Html, Formatting fonts, Text &amp; background colour, Inline styles, External and Internal Style Sheets, Borders &amp; boxing</li> </ul>
3.	<b>XML and HTML5, CSS3</b>
	<ul style="list-style-type: none"> <li>Introduction to XML, Difference b/w Html &amp; XML, XML editors, XML Elements &amp; Attributes XML DTD, XML Schema, XML Parser, Document Object Model (DOM), XML DOM.</li> <li>Introduction to HTML5, CSS3, New features, Local storage, Web Sockets, Server events, Canvas, Audio &amp; Video, Geolocation, Microdata, Drag and Drop. Browser life cycle and browser rendering stages. Service workers</li> </ul>
4.	<b>PHP Server side scripting</b>
	<ul style="list-style-type: none"> <li>Introduction to PHP, Basic Syntax, Variables, constants and operators, Loops, Arrays Strings,</li> <li>Environment &amp; environment variables, responding to HTTP requests, Files, Cookies, Sessions, Examples.</li> </ul>

5

**Practical website development**

- Commonly used Web Servers and browsers, Setting up a server and domain name, website types and structures,
- Web authoring tools, Web hosting, website maintenance, generating traffic to your website.

**C. RECOMMENDED STUDY MATERIAL:**

Sr.No	Book	Author	Publication
<b>a. Reference Books</b>			
1.	Practical Web Design for Absolute Beginners	Adrian W. West	Apress 2016
2.	Introducing Web Development	Jorg Krause	Apress 2017
3.	HTML & CSS: The Complete Reference	Thomas Powell	McGraw Hill, Fifth Edition, 2010
4.	Creating a Website: The Missing Manual	Mathew Macdonald. O'Reilly	3rd Edition

**COURSE OUTCOME:**

- To learn fundamentals and concepts of statistical and optimization methods, in particular, with reference to frequency distribution and measures of central tendency, measures of dispersion, skewness and kurtosis.
- To solve problems on theory of probability, linear programming problems, transportation, assignment and game problems.
- To learn important theorems, different formulae and practical applications of these statistical and optimization methods in the field of Computer Sciences and Applications..

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Basic Statistics	8
2.	Probability Distribution	10
3.	Regression	10
4.	Sample introduction, Sampling	10
5.	T-Test	10

**B. DETAILED SYLLABUS**

Unit	Unit Details Regression
1.	<b>Basic Statistics</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Preparing Frequency Distribution Table and Cumulative frequency, Measure of Central Tendency, Types: Arithmetic mean, Geometric Mean, Harmonic Mean, Median, Mode.</li> <li>• Measure of Dispersion: Range, Quartile Deviation, mean deviation, Coefficient of mean Deviation, Standard Deviation</li> <li>• Moments: Moments About mean, Moments about any point, Moment about origin, Moment about mean in terms of moment about any point, Moment about any point in terms of Moment about mean.</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Probability Distribution</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Random Variable- Discrete Random and Continuous Random variable, Probability Distribution of a Random Variable, Mathematical Expectation</li> <li>• Types: Binomial, Poisson, Normal Distribution, Mean and Variance of Binomial, Poisson, and Normal Distribution.</li> <li>• Correlation: Introduction, Types, Properties, Methods of Correlation: Karl Pearson's Coefficient of Correlation, Rank Correlation and Concurrent Deviation method, Probable error</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Regression</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Introduction, Aim of Regression Analysis, Types of Regression Analysis, Lines of Regression, Properties of Regression Coefficient and Regression Lines, Comparison with Correlation.</li> </ul>

	<ul style="list-style-type: none"> <li>• Curve Fitting: Straight Line, Parabolic curve, Geometric Curve and Exponential Curve Baye's Theorem in Decision Making, Forecasting Techniques</li> <li>• Conclusion of Unit</li> </ul>
<b>4.</b>	<b>Sample introduction, Sampling</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Meaning, methods of Sampling, Statistical Inference: Test of Hypothesis, Types of hypothesis, Procedure of hypothesis Testing, Type I and Type II error,</li> <li>• One Tailed and two tailed Test, Types of test of Significance: Test of significance for Attribute-Test of No. of success and test of proportion of success</li> <li>• Test of significance for large samples - Test of significance for single mean and Difference of mean, Test of significance for small samples</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>T-Test</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Test the significance between the mean of a random sample, between the mean of two independent samples.</li> <li>• Chi square Test, ANOVA: Meaning, Assumptions, One way classification, ANOVA Table for One-Way Classified Data</li> <li>• Conclusion of unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

Sr. No	Reference Book	Author	Publication
1.	Fundamentals of Applied statistics	Gupta S.P. and Kapoor	Sultan Chand & Sons, 1996.
2.	Introduction to Statistics	Graybill,	McGraw

# Practicals

Code: BAP01205

PROGRAMMING FUNDAMENTALS USING C LAB

2 Credits [LTP: 0-0-5]

## A. List of Programs

Part A	
	<ol style="list-style-type: none"><li>1. Find biggest number among 4 given numbers</li><li>2. Printing the reverse of an integer.</li><li>3. Printing the odd and even series of N numbers.</li><li>4. Input a string and find the number of each of the vowels appear in the string.</li><li>5. Accept N words and make it as a sentence by inserting blank spaces and a full stop at the end.</li><li>6. Printing the reverse of a string.</li></ol>
Part B	
	<ol style="list-style-type: none"><li>7. Searching an element in an array using pointers.</li><li>8. Checking whether the given matrix is an identity matrix or not</li><li>9. Addition and subtraction of two matrices.</li><li>10. Multiplication of two matrices.</li><li>11. Print the following:</li><li>12. Reverse of an integer.</li><li>13. Odd and even series of N numbers.</li><li>14. Get a string and convert the lowercase to uppercase and vice-versa using <code>getchar()</code> and <code>putchar()</code>.</li><li>15. Perform the following:</li><li>16. Input a string and find the number of each of the vowels appear in the string</li><li>17. Accept N words and make it as a sentence by inserting blank spaces and a full stop at the end.</li></ol>

## A. List of Programs

Part A	
	<ol style="list-style-type: none"> <li>1. 1. Hello World Web Page               <ol style="list-style-type: none"> <li>a) Create a web page using basic HTML features like tags, attributes, elements and page title.</li> <li>b) How to install, and configure a webserver</li> </ol> </li> <li>2. Create a My Profile Page               <ol style="list-style-type: none"> <li>a) A more functional web page by making use of headings, paragraphs, lists, images and links.</li> <li>b) Design a web page using CSS include the following:                   <ol style="list-style-type: none"> <li>i. Use different font styles.</li> <li>ii. Set background image for both the page and single elements on the page.</li> </ol> </li> </ol> </li> <li>3. Create a My Profile Page               <ol style="list-style-type: none"> <li>a) Using textboxes, check boxes, radio buttons and submit buttons.</li> <li>b) Design a web page using CSS include the following:                   <ol style="list-style-type: none"> <li>i. Control the repetition of image with background-repeat property.</li> <li>ii. Define style for links as a: link, b: active, c: hover, d: visited.</li> <li>iii. Add customized cursors for links.</li> </ol> </li> </ol> </li> <li>4. Create XMLHttpRequest and retrieve data from a text file and an XML file.</li> <li>5. Create the following webpage:               <ol style="list-style-type: none"> <li>a) Show the class timetable in a tabular format.</li> <li>b) Create a webpage using HTML to show your geolocation.</li> </ol> </li> <li>6. Create a webpage using HTML for audio and video player.</li> </ol>
Part B	
	<ol style="list-style-type: none"> <li>7. Create a login registration form using PHP.</li> <li>8. Develop a PHP webpage to manipulating files such as creating, writing, reading and uploading.</li> <li>9. Create a dynamic webpage by using PHP conditional operators, loops and strings to create an dynamic timetable page.</li> <li>10. Develop a PHP web application track the user as how many times visited and last visited time</li> <li>11. Develop a static website – I.</li> <li>12. Develop a dynamic website – II</li> </ol>

# Ability Enhancement Compulsory Course (AECC)

Code: BAP01107

ENGLISH-I

3 Credits [LTP: 3-0-0]

## **COURSE OUTCOME:**

To train students to be comfortable with everyday communication. Training the students in English grammar.

## **A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Everyday Conversations	8
2.	Asking for..	7
3.	Reporting/ Describing	7
4.	Meeting People	7
5.	Expressing & Talking about....	7

## **B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Everyday Conversations</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Introducing self / others</li> <li>• Weather</li> <li>• Classroom</li> <li>• Asking about facilities around</li> <li>• Describing a person / thing</li> <li>• Points to cover: Vocabulary, grammar, Construction of sentences, listening</li> <li>• Methodology: Role plays, Videos, Classroom conversation, worksheets</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Asking for..</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Help/ Suggestion/ ideas</li> <li>• Clarification/ Directions</li> <li>• Time/ food</li> <li>• Advice</li> <li>• Uses</li> <li>• Points to cover: Vocabulary, grammar, Construction of sentences, listening</li> <li>• Methodology: Role plays, Videos, Classroom conversation, worksheets</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Reporting/ Describing</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Incidences</li> <li>• Personalities</li> <li>• Experiences</li> <li>• Wants/Needs</li> <li>• Intentions</li> </ul>

	<ul style="list-style-type: none"> <li>• Points to cover: Vocabulary, grammar, Construction of sentences, listening</li> <li>• Methodology: Role plays, Videos, Classroom conversation, worksheets</li> <li>• Conclusion of Unit</li> </ul>
<b>4.</b>	<b>Meeting People</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Greetings</li> <li>• Starting the Conversation</li> <li>• Small talks</li> <li>• Closing the conversation</li> <li>• Points to cover: Vocabulary, Grammar, Construction of sentences, listening</li> <li>• Methodology: Role plays, Videos, Classroom conversation, worksheet</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Expressing &amp; Talking about....</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Happiness/Displeasure</li> <li>• Preferences</li> <li>• Doubts</li> <li>• Views</li> <li>• Unawareness</li> <li>• Points to cover: Vocabulary, grammar, Construction of sentences, listening</li> <li>• Methodology: Role plays, Videos, Classroom conversation, worksheets Interests</li> <li>• Different Cultures, Clothes , cars, institutes, situations</li> <li>• Schedules, prices</li> <li>• Points to cover: Vocabulary, grammar, Construction of sentences, listening</li> <li>• Methodology: Role plays, Videos, Classroom conversation, worksheets</li> <li>• Conclusion of Unit</li> </ul>

#### C. RECOMMENDED STUDY MATERIAL:

Sr. No	Reference Book	Author	Publication
1.	Speak Now Level I & II	Jack C Richards & David Bohlke	Oxford Press
2.	Business Benchmark, Level –	Guy Brook-Hart	Upper Intermediate by Cambridge University Press
3.	Practical English Usage	Michel Swan	Oxford University Press
4.	Cambridge Grammar for English: A comprehensive Guide for spoken & written English	Ronald Carter, Michael McCarthy	(South Asian edition), Cambridge University Press

**COURSE OUTCOME:**

To train students to be comfortable with everyday communication. Training the students in English grammar.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Communication Process	6
2.	Types of Communication & Barriers to communication	5
3.	Listening Skills & Reading Skills	5
4.	Conversation Skills	4
5.	Telephone Etiquette	4

**B. DETAILED SYLLABUS**

Unit	Unit Details
<b>1.</b>	<b>Communication Process</b>
	<ul style="list-style-type: none"> <li>What is communication?</li> <li>The communication model</li> <li>Elements of communication</li> <li>Importance of effective communication skills in the business world</li> <li>Components of Communication</li> <li>Process, practicing effective communication, good communication Vs effective communication, styles of communication, intercultural communication skills- need for attitude change and benefits</li> </ul>
<b>2.</b>	<b>Types of Communication &amp; Barriers to communication</b>
	<ul style="list-style-type: none"> <li>Verbal Communication</li> <li>Non Verbal Communication</li> <li>Written Communication</li> <li>Do's and don'ts of each type</li> <li>Barriers to effective communication and how to overcome them</li> <li>Interaction of verbal and non-verbal communication, talents of a corporate communicator, silence- merits and limitations of each type</li> </ul>
<b>3.</b>	<b>Listening Skills &amp; Reading Skills</b>
	<ul style="list-style-type: none"> <li>What is listening</li> <li>Various types of listening – Active, passive, selective, listening and note taking, listening and comprehending, listening to speak,</li> <li>Principles of good listening</li> <li>Techniques to develop effective listening skills</li> <li>Reading Skills- skimming, scanning and inferring- common reading techniques,</li> <li>Practicing smart reading.</li> </ul>
<b>4.</b>	<b>Conversation Skills</b>
	<ul style="list-style-type: none"> <li>Importance of conversation skills</li> <li>Features of a good conversation</li> <li>Tips to improve Conversation skills</li> </ul>

	<ul style="list-style-type: none"> <li>Importance of questioning skills, techniques to ask right questions- role play situations to practice the same, discussing issues (social, political and cultural), formal and informal conversation</li> </ul>
<b>5.</b>	<b>Telephone Etiquette</b>
	<ul style="list-style-type: none"> <li>Basic rules of telephone etiquette- formal vs. informal; tone, pitch and vocabulary related to formal ways of speaking over the phone, leaving voice messages; practice sessions (role plays)</li> <li><b>Persuasive communication</b> :What is persuasive communication, different techniques of persuasive communication, How to negotiate using persuasive communication, the act of negotiation, negotiation style and their contexts, fundamentals of negotiation, common hurdles in negotiation and how to overcome them</li> </ul>

**COURSE OUTCOME:**

The student would be able:

- To acquire the knowledge of environmental studies and understand the principles of ecology and environmental issues.
- To distinguish & analyze different water treatment methods and conservation of water.
- To design innovative ideas for controlling air, noise & soil pollution.
- To develop deeper knowledge in the problems and possibilities of waste management from a national and global perspective and demonstrate socio-economic skills for sustainable development.
- To increase the knowledge and understanding of the disaster phenomenon, its different contextual aspects, impacts and public health consequences.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Environmental studies	6
2.	Ecology	8
3.	Natural & Biological Resources	8
4.	Social Issues	7
5.	Environmental Pollution	7

**B. DETAILED SYLLABUS**

Unit	Unit Details
1	<b>Environmental studies</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Definition</li> <li>• Scope</li> <li>• Importance &amp; components</li> <li>• Natural and Manmade.</li> <li>• Conclusion of the Unit</li> </ul>
2	<b>Ecology</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Concept</li> <li>• Structure and Functions of Ecosystem</li> <li>• Biotic and A biotic Factors</li> <li>• Environmental Interactions.</li> <li>• Defining Communication Theories.</li> <li>• Conclusion of the Unit</li> </ul>
3	<b>Natural &amp; Biological Resources</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Plants</li> <li>• Animal and Microorganisms.</li> <li>• Conclusion of the Unit</li> </ul>
4	<b>Social Issues</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Human Population</li> <li>• Environment</li> </ul>

	<ul style="list-style-type: none"> <li>• Conclusion of the Unit</li> </ul>
<b>5</b>	<b>Environmental Pollution</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Definition</li> <li>• Cause</li> <li>• Effects</li> <li>• Types and Control Measures</li> <li>• Conservation and preservation of Environment.</li> <li>• Conclusion of the Unit</li> </ul>

### C. RECOMMENDED STUDY MATERIAL:

Sr.No	Reference Book	Author	Edition	Publication
1.	Environmental Studies	Erach Barucha	Latest	UGC
2.	Environmental Studies	Benny Joseph	Latest	Tata McgrawHill
3.	Environmental Studies	R. Rajagopalan	Latest	Oxford University Press
4.	Principles of Environmental Science and Engineering	P. Venugoplan Rao	Latest	Prentice Hall of India.
5.	Environmental Science and Engineering	Meenakshi	Latest	Prentice Hall India.
<b>Important Web Links</b>				
1.	<a href="http://www.ct.gov/">http://www.ct.gov/</a>			
2.	<a href="http://www.energy.gov">http://www.energy.gov</a>			

## Skill Enhancement Courses (SEC)

Code: BAP01210

OFFICE AUTOMATION LAB

1 Credit [LTP: 0-0-2]

### A. List of Programs

1	Installing Operating Systems and Basic Software
	<b>MS Word</b>
	<ol style="list-style-type: none"> <li>1. Prepare a document about any tourist destination of your choice with appropriate pictures and editing features.</li> <li>2. Prepare a News Paper Layout. Insert appropriate pictures wherever necessary. Use the following Features: <ul style="list-style-type: none"> <li>• Three Column and Four Column setting</li> <li>• Set One or Two Advertisements</li> <li>• Use Bullets and Numbering.</li> </ul> </li> <li>3. Create a Document consisting of Bio-data. It includes <ul style="list-style-type: none"> <li>• A table giving your qualification and/or experience of work. Table should be Bordered and Shaded.</li> <li>• A Multilevel list giving your areas of interest and further areas of interest. The sub areas should be numbered as</li> <li>• 'a', 'b', etc while the areas should be numbered as '1', '2', etc.</li> <li>• The information should be divided in "General" and "Academic" sections.</li> <li>• The header should contain "BIO-DATA" while the footer should have page numbers in the format Page 1 of 10.</li> <li>• Assign a password for the document to protect it from unauthorized access.</li> </ul> </li> <li>4. Assume that you are coordinating a seminar in your organization. Write a letter to 10 different IT companies asking them to participate in the seminar using mail merge facility.</li> <li>5. Prepare a document which contains template of marks card of students. Assume that there are 10 students. The footer for the document should be 'Poornima University Jaipur'.</li> <li>6. Prepare a document about any topic In mathematics which uses mathematical symbols. (At least 5 mathematical symbols should be used). Assign a password for the document to protect it from unauthorized access. Demonstrate the use of Hyperlink Option. Sets margins to your document, a font of size and double spaced document</li> </ol>
	<b>MS – Excel</b>
	<ol style="list-style-type: none"> <li>7. Open a new workbook, save it as JavaCoffeeBar.xls. In sheet1 write following sales data for Java Coffee bar to show their first 6 months sales.</li> </ol>

- Select cell B4:D4 and change the horizontal alignment to center and text to 90 degree.
  - All titles should be in bold
  - Format all cells numbers to currency style and adjust width as necessary.
  - Add border to data.
  - Select the cell range A1:H1, merge and center these cells. Apply same format to A2:H2.
  - Give border, shading and pattern to data insheet
  - Apply different font settings for all titles insheet
  - Apply green color and bold setting to sales above 10000 (use conditional formatting)
  - Rename current worksheet as FirstHalfSales
8. Prepare a worksheet to maintain student information. The work sheet should Contain Roll Number, Name and marks in 5 subjects. (Max Marks is 100).Validate the marks. Calculate the total marks. Assign the grade according to the following. Assign grade 'A' if the total marks is above 450. From 401 to 449 assign the grade as 'B'. From 351 to 400 assign the Grade as 'C'. From 300 to 350 the grade to be assigned is 'D'. For the total marks less than 300 No grade is assigned. A student is eligible to get a grade only when he gets 40 and above in all the subjects. In such cases the grade is "FAIL". (Assume that there are 10students)
  9. Prepare a pay-bill using a worksheet. The work sheet should contain Employee Id, Name, Designation, Experience and Basic Salary and Job ID. If Job Id is 1 then DA is 40% of the basic salary. HRA is Rs. 4500. If Job Id is 2 then DA is 35% of the basic salary. HRA is Rs. 3500. If Job Id is 3 then DA is 30% of the basic salary. HRA is Rs. 2500. If Job Id is 4 then DA is 25% of the basic salary and HRA is RS.2500. For all the other Job ids DA is 20% of the basic salary and HRA is Rs. 1500. For all the above Job ids PF to be deducted is 4%. For the job ids between 1-4 Rs. 100 to be deducted as Professional Tax. Find the net pay.
  10. For the above employee worksheet perform the following operations
    - Use filter to display the details of employees whose salary is greater than 10,000.
    - Sort the employees on the basis of their net pay
    - Use advance filter to display the details of employees whose designation is "Programmer" and Net Pay is greater than 20,000 with experience greater than 2 yrs
  11. Using Excel project the Product sales for any five products for five years.
    - Compute the total sales of each product in the five years.
    - Compute the total sales of all the products in five year.
    - Compute the total sales of all products for each year.
    - Represent annual sale of all the products using Pie-Chart.
    - Represent annual sales of all products using Bar Chart.
    - Represent sale of a product for five years using Pie-Chart.
    - Label and format the graphs
  12. Create a statement of Telephone Bill Charge for a customer.
    - Telephone Calls
    - Up to 150 calls- free
    - 151 to 500 calls- 0.80 per call
    - 501 to 1000 calls- 1.00 per call
    - 1001 to 2000 - 1.25 per call
    - Above 2000- 1.40 per call
  13. Perform Following:
    - Using Excel write sales data with columns product, month and sales. Write at least 5

ORINIMA UNIVERSITY	<ul style="list-style-type: none"> <li>• Create a macro to change the name of worksheet as Macro Example, merge first three columns of first row and write heading as DATA in green color with yellow background</li> <li>• Link word document in excel worksheet to show the usage of linking and embedding.</li> </ul>
	<b>MS - PowerPoint</b>
	<p>14. Assume that you are going to give a presentation about Information Technology. (Choose some latest technologies). The presentation should have minimum 10 slides. Insert appropriate images wherever necessary. Use proper formatting, Diagrams and tables. Show the usage of action buttons, hyperlinks, and animations.</p>

records. Create Pivot Table chart and Report for the data.

<b>Code: BAP01611</b>	<b>DISCIPLINE AND TALENT ENRICHMENT PROGRAMME (TEP) – I</b>	<b>2 CREDITS</b>
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**COURSE OUTCOME:**

The objective of Discipline and TEP is to provide students with the opportunities to enhance job fetching skills and at the same time to cultivate the student's personal interests and hobbies while maintaining the good disciplinary environment in the University. TEP is integrated into the curriculum for holistic development of students through active participation in various activities falling in Technical and non-technical categories.

Discipline and Talent Enrichment Programme (TEP)-I shall be evaluated on the basis of its sub constituent programmes, as a complete Two credit course. It shall be counted in calculation of SGPA but it is not a backlog subject. However, the attendance of these classes shall be recorded and accounted in the total attendance.

Activities included in this category in the FIRST Semester are as follows:

<b>Code</b>	<b>Activity</b>	<b>Hours</b>	<b>Credits</b>
BAP01611.1	Online Eligibility Exam (OLE)	1	0.5
BAP01611.2	Campus Recruitment Training (CRT) - Introduction to Communication Skills	2	
BAP01611.3	Online Certification Courses	-	

# POORNIMA UNIVERSITY, JAIPUR

SCHOOL OF COMPUTER SCIENCE & ENGINEERING  
Course: Bachelor of Computer Applications (BCA) SESSION: 2020-23

## Scheme and SYLLABUS of Teaching for I year BCA II SEMESTER COMMON TO ALL SPECIALIZATIONS

### A. Scheme (BCA II Sem)

POORNIMA UNIVERSITY, JAIPUR										
BCA First Year (2020-2023)										
Teaching Scheme for Second Semester										
Course Code	Course Name	Teaching Scheme (Hrs per wk)			Marks Distribution			Credits	Course Type	Course Category
		Lec (L)	Tut (T)	Prac (P)	IE	ESE	Total			
BAP02101	Computer Networks	3	-	-	40	60	100	3	Theory	Core Course
BAP02102	OOPs using Java	4	-	-	40	60	100	4	Theory	Core Course
BAP02103	Data Structures	3	-	-	40	60	100	3	Theory	Core Course
BAP02104	Operating System	3	-	-	40	60	100	3	Theory	Core Course
BAP02205	Computer Networks Lab	-	-	4	60	40	100	2	Practical	Core Course
BAP02206	OOPs using Java Lab	-	-	5	60	40	100	2	Practical	Core Course
BAP02207	Data Structures Lab	-	-	4	60	40	100	2	Practical	Core Course
BAP02108	English-II	3	-	-	60	40	100	3	Theory	Ability Enhancement Compulsory Course
BAP02209	Life & Career Skills-I	-	-	2	60	40	100	1	Practical	Skill Enhancement Course
BAP02610	Discipline and Talent Enrichment Programme (TEP)	-	-	-	50	-	50	0.5	Practical	Social Outreach, Discipline & Extra Curricular Activities
BAP02610.1	Online Eligibility Exam (OLE)	-	-	1	-	-	-			
BAP02610.2	Campus Recruitment Training (CRT) - Introduction to Public Speaking	3	-	-	-	-	-			
BAP02610.3	Online Certification Courses	-	-	-	-	-	-			
	<b>Total</b>	<b>19</b>	<b>0</b>	<b>16</b>				<b>23.5</b>		
	<b>Total Teaching Hours</b>	<b>35</b>								

### CORE THEORY SUBJECTS

<b>Code: BAP02101</b>	<b>COMPUTER NETWORKS</b>	<b>3 Credits [LTP: 3-0-0]</b>
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records. Create Pivot Table chart and Report for the data.

## COURSE OUTCOME:

It is important for networking professionals to have a sound grounding in the basics of networking and with the networking technology being developed thick and fast, the professionals need to be updated of them at all times. The focus of this unit is providing a background to the basics of networking and its underlying principles.

This course will explore the fundamentals of networking, the principle and purpose behind layered models, devices used in networks and their wireless connectivity and the ways to troubleshoot network related issues. The unit underpins the principles of networking and enables the learners to work towards taking up vendor certifications in the networking domain. To enable students to understand computer networking concepts, how they work, how they operate and the protocols, standards and the models associated with networking technology and their troubleshooting mechanisms.

### A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Networking Fundamentals	8
2.	Basics of Network Devices	7
3.	Basics of Network, Transport and Application Layers	7
4.	WAN Technology	7
5.	Network Operating Systems and Troubleshooting Network	7

### B. DETAILED SYLLABUS

Unit	Unit Details
1.	<b>Networking Fundamentals</b>
	<ul style="list-style-type: none"><li>• Introduction To Unit</li><li>• Basics of Network &amp; Networking, Advantages of Networking, Types of Networks</li><li>• Network Terms- Host, Workstations, Server, Client, Node</li><li>• Types of Network Architecture- Peer-to-Peer &amp; Client/Server, Workgroup Vs. Domain</li><li>• Network Topologies, Types of Topologies, Logical and physical topologies, selecting the Right Topology</li><li>• Types of Transmission Media, Communication Modes, Wiring Standards and Cabling- straight through cable, crossover cable, rollover cable, media connectors (Fibre optic, Coaxial, and TP etc.)</li><li>• Introduction of OSI model, Seven layers of OSI model, Functions of the seven layers, Introduction of TCP/IP Model, TCP, UDP, IP, ICMP, ARP/RARP, Comparison between OSI model &amp; TCP/IP model</li><li>• Overview of Ethernet Addresses</li><li>• Conclusion of the Unit</li></ul>
2.	<b>Basics of Network Devices</b>
	<ul style="list-style-type: none"><li>• Introduction To Unit</li><li>• Network Devices- NIC- functions of NIC, installing NIC, Hub, Switch, Bridge, Router, Gateways, And Other Networking Devices, Repeater, CSU/DSU, and modem</li><li>• Data Link Layer: Ethernet, Ethernet standards, Ethernet Components, Point-to-Point Protocol (PPP ), PPP standards, Address Resolution Protocol, Message format, transactions</li></ul>

	<p><b>UNIVERSITY</b></p> <ul style="list-style-type: none"> <li>• Wireless Networking: Wireless Technology, Benefits of Wireless Technology</li> <li>• Types of Wireless Networks: Ad-hoc mode, Infrastructure mode</li> <li>• Wireless network Components: Wireless Access Points, Wireless NICs</li> <li>• wireless LAN standards: IEEE 802.11a, IEEE 802.11b, IEEE 802.11g, wireless LAN modulation techniques</li> <li>• wireless security Protocols: WEP, WPA, 802.1X, Installing a wireless LAN</li> <li>• Conclusion of the Unit</li> </ul>
<b>3.</b>	<b>Basics of Network, Transport and Application Layers</b>
	<ul style="list-style-type: none"> <li>• Introduction To Unit</li> <li>• Network Layer: Internet Protocol (IP ), IP standards, versions, functions, IPv4 addressing, IPv4 address Classes, IPv4 address types, Subnet Mask, Default Gateway, Public &amp; Private IP Address, methods of assigning IP address, IPv6 address, types, assignment, Data encapsulation, The IPv4 Datagram Format, The IPv6 Datagram Format, Internet Control Message Protocol (ICMP ), ICMPv4, ICMPv6, Internet Group Management Protocol (IGMP ), Introduction to Routing and Switching concepts</li> <li>• Transport Layer: Transmission Control Protocol(TCP), User Datagram Protocol (UDP), Overview of Ports &amp; Sockets</li> <li>• Application Layer: DHCP, DNS, HTTP/HTTPS, FTP, TFTP, SFTP, Telnet, Email: SMTP, POP3/IMAP, NTP</li> <li>• Conclusion of the Unit</li> </ul>
<b>4.</b>	<b>WAN Technology</b>
	<ul style="list-style-type: none"> <li>• Introduction To Unit</li> <li>• What Is a WAN?, WAN Switching, WAN Switching techniques Circuit Switching, Packet Switching etc., Connecting to the Internet : PSTN, ISDN, DSL, CATV, Satellite-Based Services, Last Mile Fiber, Cellular Technologies</li> <li>• Connecting LANs : Leased Lines, SONET/SDH, Packet Switching, Remote Access: Dial-up Remote Access, Virtual Private Networking, SSL VPN, Remote Terminal Emulation, Network security: Authentication and Authorization, Tunneling and Encryption Protocols, IPSec, SSL and TLS, Firewall, Other Security Appliances, Security Threats</li> <li>• Conclusion of the Unit</li> </ul>
<b>5.</b>	<b>Network Operating Systems and Troubleshooting Network</b>
	<ul style="list-style-type: none"> <li>• Introduction To Unit</li> <li>• Network Operating Systems: Microsoft Operating Systems, Novell NetWare, UNIX and Linux Operating Systems, Macintosh Networking</li> <li>• Trouble Shooting Networks: Command-Line interface Tools, Network and Internet Troubleshooting, Basic Network</li> <li>• Troubleshooting : Troubleshooting Model, identify the affected area, probable cause, implement a solution, test the result, recognize the potential effects of the solution, document the solution</li> <li>• Using Network Utilities: ping, traceroute, tracert, ipconfig, arp, nslookup, netstat, nbtstat, Hardware trouble shooting tools, system monitoring tools</li> <li>• Conclusion of the Unit</li> </ul>

**P****C. RECOMMENDED STUDY MATERIAL:**

<b>Sr. No</b>	<b>Reference Book</b>	<b>Author</b>	<b>Publication</b>
1.	CCNA Cisco Certified Network Associate: Study Guide (With CD)	Todd Lamele	7th Edition (Paperback), Wiley India, 2011
2.	CCENT/CCNA ICND1 640-822 Official Cert Guide	Wendell Odom	3 Edition (Paperback), Pearson, 2013
3.	Routing Protocols and Concepts CCNA Exploration Companion Guide (With CD)	Rick Graziani, Allan Johnson	Pearson, 2008
4	CCNA Exploration Course Booklet : Routing Protocols and Concepts	Cisco Networking Academy	Pearson, 2010

**COURSE OUTCOME:**

Object oriented programming is the most proven technique for developing reliable programs. It helps in increased productivity, reusability of code, decreases development time, and reduces cost of production to an extent. The cost of maintaining such systems have also considerably decreased. There are many languages which used the object oriented concepts and techniques. Some of them are C++, Java, Smalltalk, Objective-C, etc.

Java is a purely object oriented language. Systems/applications created using java programming language reduces the need for developing and maintain complex and space consuming applications. Java has a lot of advantages of being simple, robust, platform independent, etc. Nowadays java is also found in the mobile phones. This unit focuses on the concepts of object oriented programming language and the different constructs for creating applications in java.

To provide students with an understanding of the object oriented concepts which helps in the field of programming, management of data, etc. and of Java programming which helps to explore the object oriented nature of the language and the multi-platform versatility offered by it.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Introduction to Object Oriented Programming	8
2	Basic Java Programming	10
3	Java Packages and Interfaces	10
3	Exceptions and I/O Handling	10
5	User Interface and Advanced Concepts	10

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Introduction to Object Oriented Programming</b>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• Classes and Objects</li> <li>• Object Oriented Programming Concepts</li> <li>• Access Specifiers and Access Modifiers</li> <li>• Introduction to Java, Java Virtual Machine</li> <li>• Conclusion of the Unit</li> </ul>
2.	<b>Basic Java Programming</b>

## P

	<ul style="list-style-type: none"><li>• Introduction to Unit</li><li>• Variables</li><li>• Data Types</li><li>• Control flow statements – if, else, switch, for, while</li><li>• Arrays</li></ul>
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<p>• Strings</p> <p>• Conclusion of the Unit</p>	<p><b>UNIT 1: JAVA UNIVERSITY</b></p>
<p><b>3.</b></p>	<p><b>Java Packages and Interfaces</b></p>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• Java classes, Java methods, Packages, Interfaces</li> <li>• Java.util, java.io, java.net, java.sql, java.applet, etc</li> <li>• Collection Framework</li> <li>• Generics</li> <li>• Wrapper classes</li> <li>• Conclusion of the Unit</li> </ul>
<p><b>4.</b></p>	<p><b>Exceptions and I/O Handling</b></p>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• Errors and Exceptions</li> <li>• Exception handling</li> <li>• Streams, Readers and Writers</li> <li>• Programming with Files</li> <li>• Multithreaded programming</li> <li>• Networking – Socket Programming</li> <li>• Conclusion of the Unit</li> </ul>
<p><b>5.</b></p>	<p><b>User Interface and Advanced Concepts</b></p>
	<ul style="list-style-type: none"> <li>• Introduction to Unit</li> <li>• User Interface Components</li> <li>• AWT</li> <li>• Swing</li> <li>• Event Handling</li> <li>• Layouts, Forms</li> <li>• Applets</li> <li>• Annotations</li> <li>• Conclusion of the Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

Sr. No	Reference Book	Author	Publication
1	Java Complete Reference	Herbert Schildt	TMH
2	SAMS teach yourself Java-2	Rogers Cedenhead and Leura Lemay	3rd Edition, Pub. Pearson Education.

## COURSE OUTCOME:

A data structure is a particular way of storing and organizing data in a computer so that it can be used efficiently. Different kinds of data structures are suited to different kinds of applications and some are highly specialized to specific tasks. In this course the student will be learning about different data structures and their applications.

## A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1	Introduction to Data structures	7
2	Searching and Sorting	7
3	Stack and Queue	8
4	Linked List	7
5	Tree Graphs and their Applications	7

## B. DETAILED SYLLABUS

Unit	Unit Details
1.	<b>Introduction to Data structures</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Definition,</li> <li>• Classification of data structures: primitive and non-primitive</li> <li>• Elementary data organization</li> <li>• Time and space complexity of an algorithm (Examples), String processing.</li> <li>• Definition of dynamic memory allocation</li> <li>• Accessing the address of a variable</li> <li>• Declaring and initializing pointers -</li> <li>• Accessing a variable through its pointer, Meaning of static and dynamic memory allocation, Memory allocation functions: malloc(), calloc(), free() and realloc().</li> <li>• Recursion – Definition, advantages, Writing Recursive programs – Binomial coefficient, Fibonacci, GCD.</li> <li>• Conclusion of the Unit</li> </ul>
2.	<b>Searching and Sorting</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>Basic Search Techniques</b> - Sequential search, Iterative and Recursive methods, Binary search: Iterative and Recursive methods, Comparison between sequential and binary search.</li> <li>• <b>Sorting</b>: General background and definition - Bubble sort, Selection sort, Insertion sort, Merge sort, Quick sort</li> <li>• Conclusion of the Unit</li> </ul>

3.	<b>Stack, and Queue</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Stack – Definition</li> <li>• Array representation of stack</li> <li>• Operations on stack: Infix, prefix and postfix notations</li> <li>• Conversion of an arithmetic expression from Infix to postfix</li> <li>• Applications of stacks.</li> <li>• Definition of queue</li> <li>• Array representation of queue</li> <li>• Types of queue: Simple queue, Circular queue, Double ended queue (deque), Priority queue,</li> <li>• Operations on all types of Queues</li> <li>• Conclusion of the Unit</li> </ul>
4.	<b>Linked List</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Definition of linked list</li> <li>• Components of linked list</li> <li>• Representation of linked list</li> <li>• Advantages and Disadvantages of linked list</li> <li>• Types of linked list: Singly linked list, doubly linked list, Circular linked list</li> <li>• Operations on singly linked list: creation, insertion, deletion, search and display</li> <li>• Conclusion of the Unit</li> </ul>
5.	<b>Tree, Graphs and their Applications</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Definition : Tree</li> <li>• Binary tree, Complete binary tree, Binary search tree</li> <li>• Heap</li> <li>• Tree terminology: Root, Node, Degree of a node and tree, Terminal nodes, Non-terminal nodes, Siblings, Level, Edge, Path, depth, Parent node, ancestors of a node</li> <li>• Binary tree: Array representation of tree, Creation of binary tree.</li> <li>• Traversal of Binary Tree: Preorder, Inorder and postorder.</li> <li>• Graphs</li> <li>• Application of Graphs</li> <li>• Depth First search, Breadth First search.</li> <li>• Conclusion of the Unit</li> </ul>

## P C. RECOMMENDED STUDY MATERIAL:

Sr.No	Reference Book	Author	Publication
1	Data Structures and Algorithm Analysis in C	Weiss	II Edition, Pearson Education, 2001
2	Schaum's outline series Data structures	Lipschutz	Tata McGraw-Hill
3	Data Structures and program designing using 'C'	Robert Kruse	Pearson Education
4	Programming in ANSI C.	E. Balaguruswamy	Tata McGraw-Hill
5	Data Structures Using C	Bandyopadhyay	Pearson Education, 1999
6	Data Structures Using C	Tenenbaum	Pearson Education, 200
7	Introduction to Data Structures in C	Kamthane	Pearson Education 2005
8	Practical approach to Data Structures	Hanumanthappa M	Practical approach to Data Structures
9	Aaron Data Structures using C and C++	Langsam, Ausenstein Maoshe & M. Tanenbaum Aaron	Pearson Education

**COURSE OUTCOME:**

The course provides an overview of the Linux Operating System, geared toward new users as an exploration tour and getting started guide. This unit provides examples to help the learners get a better understanding of the Linux system. The unit also provides the guidelines for the learners to take up vendor certifications.

The unit explores the basics of Linux, the underlying management of the Linux operating system and its network configuration. The complete system services of Linux is explained along with the troubleshooting.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Introduction to Operating System	7
2.	Process Management – Processes and Threads	8
3.	Process Management – Synchronization and Deadlocks	8
4.	Storage Management	6
5.	Protection and Security	7

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Introduction to Operating System</b>
	<ul style="list-style-type: none"> <li>Objectives and Functions of OS, Evolution of OS, OS Structures, OS Components, OS Services, System calls, System programs, Virtual Machines.</li> <li>History of UNIX, Features &amp; Benefits, Versions of UNIX, Features of UNIX File System,, Commonly Used Commands and getting Started (Login/Logout) .</li> <li>Creating and viewing files using cat, file comparisons, View files, disk related commands, checking disk free spaces</li> </ul>
2.	<b>Process Management – Processes and Threads</b>
	<ul style="list-style-type: none"> <li>Processes: Process concept, Process scheduling, Co-operating processes, Inter process Communication</li> <li>Threads: Introduction to Threads, Single and Multi-threaded processes</li> <li>CPU Scheduling: Basic concepts, Scheduling criteria, Scheduling Algorithms, Multiple Processor Scheduling, Real-time Scheduling,</li> <li><b>Unix Process Management</b> The Structure of Processes: Process States and Transitions - Layout of system memory - Context of a process.</li> <li>Process Control: Process Creation – Signals – Process Termination – Invoking other programs – PID &amp; PPID – Shell on a Shell.</li> </ul>
3.	<b>Process Management – Synchronization and Deadlocks</b>

	<ul style="list-style-type: none"> <li>• Process Synchronization: Mutual Exclusion, Critical – section problem, Synchronization hardware, Semaphores, Classic problems of synchronization, Critical Regions,</li> <li>• Monitors, OS Synchronization, Atomic Transactions. Deadlocks: System Model,</li> <li>• Deadlock characterization, Methods for handling Deadlocks, Deadlock prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock.</li> </ul>
<b>4.</b>	<b>Storage Management</b>
	<ul style="list-style-type: none"> <li>• Memory Management: Logical and physical Address Space, Swapping, Contiguous Memory Allocation, Paging, Segmentation with Paging.</li> <li>• Virtual Memory Management: Demand paging, Process creation, Page Replacement Algorithms, Allocation of Frames, Thrashing,</li> <li>• File-System Interface: File concept, Access Methods, Directory structure, File- system Mounting, File sharing, Protection and consistency semantics.</li> <li>• File-System Implementation: File-System structure. Directory Implementation, Allocation Methods, Free-space Management, Efficiency and Performance, Recovery.</li> <li>• Disk Management: Disk Structure, Disk Scheduling, Disk Management, Swap-Space Management, Disk Attachment, stable-storage Implementation</li> <li>• <b>The Unix File System</b></li> <li>• Inodes - Structure of a regular file – Directories - Conversion of a path name to an inode - Super block - Inode assignment to a new file - Allocation of diskblocks.</li> <li>• System calls for the file System: Open – Read - Write - Lseek – Close - File creation - Creation of special files - Changing directory and root - changing owner and mode – stat and fstat - pipes - Dup</li> <li>- Mounting and Un mounting file systems - Link and Un link.</li> </ul>
<b>5.</b>	<b>Protection and Security</b>
	<ul style="list-style-type: none"> <li>• Protection: Goals of Protection, Domain of Protection, Security: Security Problem,</li> <li>• User Authentication, One – Time Password, Program Threats, System Threats,</li> <li>• UNIX SYSTEM ADMINISTRATION Common administrative tasks, identifying administrative files configuration and log files, Role of system administrator, managing user accounts-adding &amp; deleting users, changing permissions and ownerships,</li> <li>• Creating and managing groups, modifying group attributes, temporary disabling of user's accounts, creating and mounting file system, checking and monitoring system performance - file security &amp; Permissions, becoming super user using su.</li> <li>• Getting system information with uname, host name, disk partitions &amp; sizes, users, kernel, installing and removing packages with rpm command</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

Sr. No	Book	Author	Publication
1.	Operating System Concepts and design	Milan Milonkovic,	II Edition, McGraw Hill 1992.
2.	Operation System Concepts	Tanenbaum	2 <sup>nd</sup> Edition, Pearson Education.
3.	Operating System	William Stallings	4 <sup>th</sup> Edition, Pearson Education.
4.	Guide to UNIX Using LINUX	Jack Dent Tony Gaddis, Vikas	Thomson Pub. House Pvt. Ltd. 2010

**A. List of Programs**

Part A	
	1 Implementation of TCP/IP protocol – I
	2 Implementation of TCP/IP protocol - II
	3 Troubleshooting Scenarios Network - I
	4 Troubleshooting Scenarios Network - II
	5 Router – Configuration - I
	6 Router – Configuration - II
Part B	
	7 Router – Configuration - III
	8 Configuration of IP Address for a Router –I
	9 Configuration of IP Address for a Router -II
	10 Setting up of Passwords – I
	11 Setting up of Passwords –II
	12 Setting up of Passwords - III

**A. List of Programs**

Part A	
	<ol style="list-style-type: none"> <li>1. A. Write a program to print "Hello World" in Java.  . B. Write a program to add two numbers  C. Write a program to demonstrate the different access specifiers</li> <li>2. A. Write a program to demonstrate inheritance, abstraction, encapsulation and Polymorphism.  B. Write a program to find the factorial of n numbers  C. Write a program to calculate Fibonacci series  D. Write a program to add n numbers and series</li> <li>3. A. Write a program to create an array and store elements into the array.  B. Write a program to find the sum of elements in an array  C. Write a program to demonstrate switch case, if, if-else and for loop.</li> <li>4. A. Write a program to demonstrate the working of methods.  B. Write a program which has four methods – add(), subtract(), multiply() and divide() and demonstrate a simple console calculator.  C. Write a program to accept command line arguments and display them to the user  Write a program which uses different packages</li> <li>5. A. Write a program to create a package.  B. Write a program to handle different exceptions  6. A. Write a program to demonstrate try-catch, throw and throws.  B. Write a program to accept input from the user using streams</li> </ol>
Part B	
	<ol style="list-style-type: none"> <li>7. Write a program to read a file</li> <li>8. Write a program to write into a file</li> <li>9. A. Write a program to demonstrate client server communication (socket programming)  B. Write a program to create threads and manipulate them</li> <li>10. Write a program to create a user interface to check user authentication.</li> <li>11. Write a program to create a registration form and save the details into a file</li> <li>12. Write a program to create a small animation using applets</li> </ol>

**A. List of Programs:**

Part A	
	<ol style="list-style-type: none"> <li>1. Use a recursive function to find               <ol style="list-style-type: none"> <li>(a) GCD of two numbers.</li> <li>(b) Use a recursive function to find the Fibonacci series.</li> </ol> </li> <li>2. Use pointers to find the length of a string and to concatenate two strings.</li> <li>3. Perform the following:               <ol style="list-style-type: none"> <li>(a) Use pointers to copy a string and to extract a substring from a given string.</li> <li>(b) Use a recursive function for the towers of Hanoi with three discs.</li> </ol> </li> <li>4. Perform the following:               <ol style="list-style-type: none"> <li>(a) Insert an integer into a given position in an array.</li> <li>(b) Deleting an integer from an array.</li> </ol> </li> <li>5. Write a program to create a linked list and to display it.</li> <li>6. Perform the following:               <ol style="list-style-type: none"> <li>(a) Write a program to sort N numbers using insertion sort.</li> <li>(b) Write a program to sort N numbers using selection sort.</li> </ol> </li> </ol>
Part B	
	<ol style="list-style-type: none"> <li>7. Inserting a node into a singly linked list.</li> <li>8. Deleting a node from a singly linked list.</li> <li>9. Pointer implementation of stacks.</li> <li>10. Pointer implementation of queues.</li> <li>11. Creating a binary search tree and traversing it using in order, preorder and post order.</li> <li>12. Sort N numbers using merge sort.</li> </ol>

## Ability Enhancement Compulsory Course (AECC)

Code: BAP02108

ENGLISH-II

3 Credits [LTP: 3-0-0]

### COURSE OUTCOME:

After studying the building blocks of English like Grammar Essentials, Sentence structure and Professional writing skills, students will now learn about few advanced Grammar like Voice, Tenses, Communication concepts and so on. In the second Unit which is Advanced Grammar, they are taught concepts in Synonyms, Idioms and Phrases and Antonyms all of which give a little color to the language. Students will learn about report writing, review writing and more interesting topics in communication, which is the final topic.

### A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Comprehension	8
2.	Short Paragraph Writing	7
3.	Review writing	7
4.	Writing for Social Media	7
5.	Presentations & Miscellaneous	7

### B. DETAILED SYLLABUS

Unit	Unit Details
1.	<b>Comprehension</b> <ul style="list-style-type: none"> <li>Introduction of Unit</li> <li>Comprehension passage 1</li> <li>Comprehension passage 2</li> <li>Comprehension passage 3</li> <li>Comprehension passage 4</li> <li>Comprehension passage 5</li> </ul> <p>Points to cover: Vocabulary, grammar, Construction of sentences.</p> <ul style="list-style-type: none"> <li>Conclusion of Unit</li> </ul>
2.	<b>Short Paragraph Writing</b> <ul style="list-style-type: none"> <li>Introduction of Unit</li> <li>Topic 1</li> <li>Topic 2</li> <li>Topic 3</li> <li>Topic 4</li> <li>Topic 5</li> <li>Points to cover: Vocabulary, grammar, Construction of sentences</li> <li>Conclusion of Unit</li> </ul>

	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> </ul> <p>Topic 1 – Book [can be a story review for average students] Topic 2 - Movie review [different kinds of movies can be suggested too for practice] Topic 3 – Another Movie review Topic 4 – Hotel / Café / Recreations centre Review Topic 5 – Electronic Gadget Review (Laptop/smart phone / speakers/ PSP/ etc.)</p> <p>What is a review? How to write a review. Different types of reviews. Points to cover: Vocabulary, grammar, Construction of sentences.</p> <ul style="list-style-type: none"> <li>• Conclusion of Unit</li> </ul>
<b>4.</b>	<b>Writing for Social Media</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Writing for social media: Facebook, Inked-in</li> <li>• Points to remember while writing on the social media. How to write Profile summary.</li> <li>• What is a blog? How to write a blog?</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Presentations &amp; Miscellaneous</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Formal Informal</li> <li>• Debate</li> <li>• Discussions</li> <li>• Pick &amp; Speak</li> </ul> <p>Points to cover: Vocabulary, grammar, Construction of sentences. Usage of Phrases &amp; Idioms</p> <p>Revision of English I &amp; II</p> <ul style="list-style-type: none"> <li>• Conclusion of Unit</li> </ul>

#### C. RECOMMENDED STUDY MATERIAL:

Sr. No	Reference Book	Author	Publication
1.	Practical English Usage	Michel Swan	Oxford University Press
2.	Cambridge Grammar for English: A comprehensive Guide for spoken & written English		South Asian edition), Cambridge University Press
3.	Learn Correct English: Grammar, Usage and Composition	Shiv K. Kumar & Hemalatha Nagarajan	Pearson, New Delhi, India
4.	Grammar of the Modern English Language	Sukhdev Singh & Balbir Singh	Foundation Books, New Delhi
5.	Communicative English for Engineers and Professionals	Nitin Bhatnagar and Mamta Bhatnagar	Pearson( New Delhi)
6.	Communicative grammar and composition	Rajesh.K.Lidiya 44	Oxford Univ Press, New Delhi.

- LIST OF ACTIVITIES

<b>Part - A</b>	
1.	Self-Introduction & knowing your environment
2.	GOAL Setting & Planning
3.	Time Management & Team Work
4.	Personal Grooming and Body language
5.	Etiquettes (Personal, Social, Professional & Corporate) etiquettes
6.	Reading skills: General & Technical Articles
<b>Part - B</b>	
7.	Listening Skills: Analysis of videos by famous Personalities
8.	Writing Skills: Picture perception & Story Making by jumbled words
9.	Speaking Skills: Extempore, JAM & Me against myself
10.	Role Plays
11.	Resume Writing
12.	Group Discussion

**COURSE OUTCOME:**

The objective of Discipline and TEP is to provide students with the opportunities to enhance job fetching skills and at the same time to cultivate the student's personal interests and hobbies while maintaining the good disciplinary environment in the University. TEP is integrated into the curriculum for holistic development of students through active participation in various activities falling in Technical and non-technical categories.

Discipline and Talent Enrichment Programme (TEP)-II shall be evaluated on the basis of its sub constituent programmes, as a complete Two credit course. It shall be counted in calculation of SGPA but it is not a backlog subject. However, the attendance of these classes shall be recorded and accounted in the total attendance.

Activities included in this category in the SECOND Semester are as follows:

Code	Activity	Hours	Credits
BAP02610.1	Online Eligibility Exam (OLE)	1	0.5
BAP02610.2	Campus Recruitment Training (CRT) -Introduction to Public Speaking	3	
BAP02610.3	Online Certification Courses	-	

POORNIMA UNIVERSITY						
SCHOOL OF COMPUTER SCIENCE AND ENGINEERING					Session 2020-21	
B. Tech SCE I Year TIME TABLE					T. T. w.e.f. 28-09-2020	
Day/Time	8:00AM-9:00AM	9:00 AM-10:00 AM	10:00AM-11:00AM	11:00:11:50	11:50AM-12:50 PM	12:50PM-1:50PM
Monday	Engineering Physics	Engineering & Electronics Engineering	Fundamentals of Computers	BREAK	Engineering Physics Lab	Environmental Studies
Tuesday	English- I	Fundamentals of Computers	Workshop Practice/ Electrical & Electronics Engineering Lab		Engineering Physics	Fundamentals of Computers Lab
Wednesday	Engineering & Electronics Engineering	Practical Geometry Lab	Engineering Physics		English- I	Environmental Studies
Thursday	Fundamentals of Computers	Engineering Physics	Environmental Studies		English- I	Engineering & Electronics Engineering
Friday	i3 DAY				i3 DAY	
Saturday	Engineering & Electronics Engineering	English- I	Environmental Studies Engineering Lab		Fundamentals of Computers	Life & Career Skill Lab

# POORNIMA UNIVERSITY

## School of Computer Science & Engineering

**B. Tech. (Common to All Branches), Batch: 2020-24**

### Teaching Scheme for First Year (First Semester)

Course Code	Course Name	Teaching Scheme (Hrs. per Week)			Marks Distribution			Credits
		Lecture (L)	Tutorials (T)	Practical (P)	IE	ESE	Total	
<b>A.</b>	<b>Core Courses</b>							
<b>BTX01101</b>	Engineering Physics	3	1	-	40	60	100	3.5
<b>BTX01102.1/ BTX01102.2</b>	Engineering Mechanics/ Electrical & Electronics Engineering	3	1	-	40	60	100	3.5
<b>BTX01103</b>	Fundamentals of Computer	3	-	-	40	60	100	3
<b>BTX01104</b>	English – I	3	-	-	40	60	100	3
<b>BTX01205</b>	Engineering Physics Lab-1	-	-	2	60	40	100	1
<b>BTX01206.1/ BTX01206.2</b>	Workshop Practice / Electrical & Electronics Engineering Lab	-	1	2	60	40	100	1.5
<b>BTX01207</b>	Practical Geometry	-	1	2	60	40	100	1.5
<b>BTX01208</b>	Fundamentals of Computer Lab	-	-	2	60	40	100	1
<b>BTX01209</b>	Life & Career Skills (LCS) Lab - I	-	-	2	60	40	100	1
<b>B.</b>	<b>Department Elective</b>							
	NIL							
<b>C.</b>	<b>Open Elective</b>							
	NIL							
<b>D.</b>	<b>Humanities and Social Sciences including Management courses (HSSM) OR Ability Enhancement Compulsory Course (AECC)</b>							
<b>BTX01110.1 / BTX01110.2</b>	Human Values & Professional Ethics / Environmental Studies	2	-	-	40	60	100	2
<b>BTX01211.1/ BTX01211.2</b>	Human Values & Professional Ethics Lab / Environmental Studies Lab	-	-	2	60	40	100	1
<b>BTX01212</b>	Anandam Course			1	60	40	100	2
<b>E.</b>	<b>Skill Enhancement Courses (SEC) OR Project work, Seminar and Internship</b>							
	NIL							
<b>F.</b>	<b>Social Outreach, Discipline &amp; Extra Curricular Activities</b>							
<b>BTX01613</b>	Discipline and Talent Enrichment Programme	-	-	-	50	-	50	1
<b>BTX01613.1</b>	Talent Enrichment Programme (TEP)-I	2	-	-	-	-	-	
<b>BTX01613.2</b>	Campus Recruitment Training (CRT)-I	2	-	-	-	-	-	
	<b>Total</b>	18	04	13				
	<b>Total Teaching Hours</b>	35						25

# POORNIMA UNIVERSITY

## School of Computer Science & Engineering

**B. Tech. (Common to All Branches), Batch: 2020-24**

### Teaching Scheme for First Year (Second Semester)

Course Code	Course Name	Teaching Scheme (Hrs. per Week)			Marks Distribution			Credits
		Lecture (L)	Tutorials (T)	Practical (P)	IE	ESE	Total	
<b>A.</b>	<b>Core Courses</b>							
BTX02101	Engineering Chemistry	3	1	-	40	60	100	3.5
BTX02102	Engineering Mathematics	3	1	-	40	60	100	3.5
BTX02103.1/ BTX02103.2	Engineering Mechanics/ Electrical & Electronics Engineering	3	1	-	40	60	100	3.5
BTX02104	English – II	3	-	-	40	60	100	3
BTX02205	Engineering Chemistry Lab	-	-	2	60	40	100	1
BTX02206.1/ BTX02206.2	Workshop Practice/ Electrical & Electronics Engineering Lab	-	1	2	60	40	100	1.5
BTX02207	Machine Drawing Lab	-	-	2	60	40	100	1
BTX02208	Life & Career Skills (LCS) Lab– II	-	-	2	60	40	100	1
<b>B.</b>	<b>Department Elective</b>							
	NIL							
<b>C.</b>	<b>Open Elective</b>							
	<i>As Per Annexure-I</i>	2	-	-	40	60	100	2
<b>D.</b>	<b>Humanities and Social Sciences including Management courses (HSSM) OR Ability Enhancement Compulsory Course (AECC)</b>							
BTX02109.1 / BTX02109.2	Human Values & Professional Ethics / Environmental Studies	2	-	-	40	60	100	2
BTX02210.1/ BTX02210.2	Human Values & Professional Ethics Lab / Environmental Studies Lab	-	-	2	60	40	100	1
BTX02211	Anandam Course			1	60	40	100	2
<b>E.</b>	<b>Skill Enhancement Courses (SEC) OR Project work, Seminar and Internship</b>							
	NIL							
<b>F.</b>	<b>Social Outreach, Discipline &amp; Extra Curricular Activities</b>							
BTX02612	Discipline and Talent Enrichment Programme	-	-	-	50	-	50	1
BTX02612.1	Talent Enrichment Programme (TEP)- II	1	-	-	-	-	-	
BTX02612.2	Campus Recruitment Training (CRT)- II	2	-	-	-	-	-	
	<b>Total</b>	20	04	11				
	<b>Total Teaching Hours</b>	35						26

# **Syllabus**

**(Semester-I to Semester-VIII)**

# FIRST SEMESTER

## CORE THEORY SUBJECTS

**Code: BTX01101**

**ENGINEERING PHYSICS**

**3.5 Credits [LTP: 3-1-0]**

### COURSE OUTCOME

The student would be able:

- To understand the method to produce coherent sources and phenomenon of interference and diffraction
- To acquire knowledge of quantum mechanical history with experimental facts and its applications.
- To learn and exhibit the deeper knowledge of laser and fibre optics and apply it for suitable applications.
- To learn the basic principles of relativity, twin paradox and energy-mass relations.
- To have a deep understanding of different bonding in materials, band theory and Hall Effect.

### A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Wave Optics	10
2.	Quantum Mechanics	7
3.	Laser & Optical Fibre	7
4.	Special Theory of Relativity	6
5.	Elements of Material Science	6

### B. DETAILED SYLLABUS

Unit No.	Unit Details
1.	<b>Wave Optics</b> <ul style="list-style-type: none"> <li>• <b>Introduction of Unit</b></li> <li>• <b>Interference of light:</b> Types of interference, Coherent sources, Principle of Superposition, characteristics of coherent sources, methods to produce coherent sources with examples.</li> <li>• <b>Michelson's Interferometers:</b> Principle, Construction, Working &amp; Applications</li> <li>• <b>Newton's Rings:</b> Principle, Construction, working &amp; Applications</li> <li>• <b>Diffraction of light:</b> Fraunhofer Diffraction from a Single Slit</li> <li>• <b>Diffraction grating:</b> Construction, theory and spectrum</li> <li>• X-Ray diffraction and Bragg's Law</li> <li>• Resolving power and Rayleigh criterion for limit of resolution</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Quantum Mechanics</b> <ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Black body radiation and Planck's hypothesis</li> <li>• Wave-particle duality, Matter waves</li> <li>• Compton Effect, Compton shift</li> <li>• Wave function and its basic postulates</li> <li>• Physical interpretation of wave function and its properties</li> <li>• Time dependent and time independent Schrodinger's Wave Equation,</li> <li>• Applications of the Schrodinger's Equation: Particle in one dimensional box</li> </ul>

	<ul style="list-style-type: none"> <li>• Conclusion of Unit</li> </ul>
<b>3.</b>	<b>Laser &amp; Optical Fibre</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Theory of laser action: Einstein's Coefficients, Components of laser, Threshold conditions for laser action</li> <li>• Theory, Design and Applications of He-Ne Laser</li> <li>• Optical Fibre: Construction and working principle of Optical fiber</li> <li>• Types of optical fibre (on the basis of modes and the refractive index of the medium)</li> <li>• Applications of optical fibre</li> <li>• Conclusion of Unit</li> </ul>
<b>4.</b>	<b>Special Theory of Relativity</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Relativity of size, position, velocity and time. Inertial and non-inertial frames of Reference.</li> <li>• Postulates of special theory relativity</li> <li>• Galilean and Lorentz Transformations, Length contraction, Mass Variation and Time Dilation.</li> <li>• Relativistic Velocity addition and Mass-Energy relation</li> <li>• Relativistic Energy and Momentum</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Elements of Material Science</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit: Bonding in solids, Covalent bonding and Metallic bonding</li> <li>• Classification of Solids as Insulator, Semi-Conductor and Conductor</li> <li>• Semiconductors: Conductivity in Semiconductors, Fermi dirac distribution function and Fermi energy</li> <li>• Determination of band gap of a semiconductor</li> <li>• Hall Effect: Theory, Hall Coefficients and application to determine the sign of charge carrier, to determine the concentration of charge carrier, to determine the mobility of charge carriers.</li> <li>• Conclusion of Unit</li> </ul>

### C. RECOMMENDED STUDY MATERIAL:

Sr.No	Reference Books	Author	Edition	Publication
1.	Fundamental of Optics	Jenkins and While	4 <sup>th</sup>	Tata McGraw-Hill
2.	Optics	Ajoy Ghatak	3 <sup>rd</sup>	Tata McGraw-Hill
3.	A Text Book of optics	Brijlal & Subramaniam	Latest	S.Chand and co. Ltd
4.	Quantum Mechanics	Schiff	3 <sup>rd</sup>	Tata Mc Graw-Hill
5.	Concept of Modern Physics	Beiser	Latest	Tata McGraw-Hill
6.	Introduction to special Theory of Relativity	R. Resnick	Latest	Johan Willy Singapore
7.	Elements of Properties of Matter	D.S.Mathur	Latest	S.Chand & Co.
8.	Solid State Physics	S.O.Pillai	Latest	Wiley Eastern Ltd.

#### Important Web Links

1.	<a href="https://nptel.ac.in/courses/122107035/">https://nptel.ac.in/courses/122107035/</a>
2.	<a href="https://nptel.ac.in/courses/122103011/">https://nptel.ac.in/courses/122103011/</a>
3.	<a href="https://www.khanacademy.org/science/physics">https://www.khanacademy.org/science/physics</a>
4.	<a href="https://ocw.mit.edu/courses/physics/">https://ocw.mit.edu/courses/physics/</a>

**COURSE OUTCOME**

The student would be able to:

- Understand the forces act on a component and method of resolution
- Evaluate the centroid and center of gravity of an object and also analyze how to minimize the effort for lifting a load
- Understand the effect of friction and also evaluate forces with the effect of friction
- Analyze the conversion of linear motion into angular motion and vice versa
- Analyze the effect of impact on elastic and non-elastic body

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the Unit	Time required for the Unit (Hours)
1.	<b>Fundamentals of Mechanics</b>	7
2.	<b>Machine &amp; Moment of Inertia</b>	8
3.	<b>Friction &amp; Belt Drive</b>	7
4.	<b>Dynamics of Particles</b>	7
5.	<b>Work, Power &amp; Impact</b>	7

**B. DETAILED SYLLABUS**

Unit	Unit Details
<b>1.</b>	<b>Fundamentals of Mechanics</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Fundamental laws of mechanics, Principle of transmissibility.</li> <li>• System of forces, Resultant force, Resolution of force.</li> <li>• Moment and Couples, Varignon's Theorem,</li> <li>• Resolution of a force into a force and a couple, free body diagram.</li> <li>• Equilibrium, Conditions for equilibrium, Lami's theorem.</li> <li>• Conclusion of Unit</li> </ul>
<b>2.</b>	<b>Machine &amp; Moment of Inertia</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>Lifting Machines:</b> Mechanical advantage, Velocity Ratio, Efficiency of machine, Ideal machine, Ideal effort and ideal load, Reversibility of machine, Law of machine, Lifting machines.</li> <li>• <b>Centroid &amp; Moment of Inertia:</b> Location of centroid and center of gravity, Moment of inertia, Parallel axis and perpendicular axis theorem, Radius of gyration, M.I of composite section.</li> <li>• Conclusion of Unit</li> </ul>
<b>3.</b>	<b>Friction &amp; Belt Drive</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>Friction:</b> Types of Friction, Laws of friction, Angle of friction, Angle of repose, Ladder, Wedge.</li> <li>• <b>Belt Drive:</b> Types of belts, Types of belt drives, Velocity ratio, Effect of slip on Velocity ratio, Length of belt, Ratio of tensions and power transmission by flat belt drives.</li> <li>• Conclusion of Unit</li> </ul>
<b>4.</b>	<b>Dynamics of Particles</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>Kinematics of Particles and Rigid Bodies:</b> Velocity, Acceleration, Types of Motion, Equations of Motion, Rectangular components of velocity and acceleration, Angular velocity and Angular acceleration.</li> <li>• <b>Kinetics of Particles and Rigid Bodies:</b> Newton's laws, Linear Momentum, Equation of motion in rectangular coordinate, Equation of motion in plane for a rigid body, D'Alembert principle.</li> </ul>

	<ul style="list-style-type: none"> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Work, Power &amp; Impact</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>Work, Energy and Power:</b> Work of a force, weight, couple, Power, Efficiency, Energy, Kinetic energy of rigid body, Principle of work and energy.</li> <li>• <b>Impact:</b> Collision of elastic bodies, types of impact, conservation of momentum, Newton's law of collision, coefficient of restitution.</li> <li>• Conclusion of Unit</li> </ul>

### C. RECOMMENDED STUDY MATERIAL

Sr.No	Reference Book	Author	Edition	Publication
1.	Vector Mechanics for Engineers	Beer and Johnston	Latest	Tata McGraw Hill
2.	Engineering Mechanics	D S Kumar	Latest	S K Kataria & Sons
3.	Engineering Mechanics Statics	Meriam, J. L. & Kraige, L. G	Latest	John Wiley & Son
4.	Engineering Mechanics	S. Ramamruthan	Latest	Dhanpat Rai Pub.
5.	Engineering Mechanics	Shames	Latest	Pearson Education
<b>Important Web Links</b>				
1.	<a href="https://nptel.ac.in/courses/112103109/">https://nptel.ac.in/courses/112103109/</a>			
2.	<a href="https://nptel.ac.in/courses/112106286/">https://nptel.ac.in/courses/112106286/</a>			
3.	<a href="https://freevideolectures.com/course/2264/engineering-mechanics">https://freevideolectures.com/course/2264/engineering-mechanics</a>			

**COURSE OUTCOME**

The student would be able:

- To apply basic electrical concepts, including various circuit analysis techniques and fundamentals of theorem, in practical applications.
- To understand the fundamentals of AC circuits such as the R.M.S value, average value, active power, reactive power, power factor, form factor, peak factor and their applications.
- To analyze the energy conversion process and fundamentals of rotating and stationary electrical machines with their application in real life.
- To analyze the working of semiconductor devices such as Diode, BJT, UJT, photovoltaic cells, filters and fundamentals of digital electronics.
- To understand the concepts of Communication systems and Instrumentation engineering in practical applications.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the Unit	Time required for the Unit (Hours)
1.	Basic Concepts of Electrical Engineering	7
2.	Alternating Quantities	8
3.	Energy Conversion and Electrical Machines	7
4.	Basic Electronics	7
5.	Communication Systems	7

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Basic Concepts of Electrical Engineering</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Basic Concepts: Electric Current, Electromotive Force, Electric Power, Ohm's Law, Basic Circuit Components, Faraday's Law of Electromagnetic Induction.</li> <li>• DC Network Analysis &amp; Theorems: Kirchhoff's Laws, Network Sources, Resistive Networks, Series-Parallel Circuits, Star-Delta Transformation, Node Voltage Method, Mesh Current Method, Super- Position, Thevenin's, Norton's and Maximum Power Transfer Theorems.</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Alternating Quantities</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Single Phase AC system: Introduction, Generation of AC Voltages, Root Mean Square and Average Value of Alternating Currents and Voltages, Form Factor, Peak Factor, Power Factor and Quality Factor, Phasor Representation of Alternating Quantities, Single Phase RLC Circuits.</li> <li>• Three Phase AC system: Introduction, Merits of Three Phase System, Generation and Waveform.</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Energy Conversion and Electrical Machines</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Introduction to Energy: Types of Energy, Introduction to Energy Conversion, Sources of Energy (Conventional &amp; Non-Conventional), Energy Scenario in India &amp; Rajasthan.</li> <li>• Rotating Machines: <b>DC Machines:</b> Principle of Operation of DC Machine as Motor and Generator, EMF Equation, Applications of DC Machines. <b>AC Machines:</b> Principle of Operation of 3-Phase Induction Motor, 3-Phase Synchronous Motor and 3- Phase Synchronous Generator (Alternator), Applications of AC Machines.</li> <li>• Stationary Machines: Introduction, Construction and Principle of Working of Transformer, EMF Equation, Voltage Transformation Ratio.</li> <li>• Conclusion of Unit</li> </ul>

<b>4.</b>	<b>Basic Electronics</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>Semiconductor Devices:</b> Conduction in Semiconductors, Conduction Properties of Semiconductor Diodes, Behavior of the PN Junction, PN Junction Diode, Zener Diode, LED, Photovoltaic Cell, Rectifiers, L, C, &amp; L-C filters, BJT, UJT, Transistor as an Amplifier.</li> <li>• <b>Digital Electronics:</b> Boolean algebra, Binary System, Logic Gates and Their Truth Tables.</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Communication Systems</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>Basics of Communication:</b> Introduction, IEEE Spectrum for Communication Systems, Types of Communication, Amplitude and Frequency Modulation.</li> <li>• <b>Basics of Instrumentation:</b> Introduction to Transducers, Thermocouple, RTD, Strain Gauges, Load Cell and Bimetallic Strip, Introduction and Classification of Ics.</li> <li>• Conclusion of Unit</li> </ul>

### C. RECOMMENDED STUDY MATERIAL

Sr.No	Reference Book	Author	Edition	Publication
1.	Electrical and Electronic Technology	Edward Hughes et al,	Latest	Pearson Publication
2.	Basic Electrical & Electronics Engineering	V. Jagathesan, K. Vinod Kumar & R. Saravan Kumar	Latest	Wiley India
3.	Basic Electrical & Electronics Engineering	Van Valkenburge	Latest	Cengage learning
4.	Basic Electrical and Electronics Engineering by,	Muthusubramaniam	Latest	TMH
5.	Basic Electrical & Electronics Engineering	Ravish Singh	Latest	TMH
<b>Important Web Links</b>				
1.	<a href="https://nptel.ac.in/courses/108108076/">https://nptel.ac.in/courses/108108076/</a>			
2.	<a href="https://nptel.ac.in/courses/117103063/">https://nptel.ac.in/courses/117103063/</a>			
3.	<a href="https://nptel.ac.in/courses/108/101/108101091/">https://nptel.ac.in/courses/108/101/108101091/</a>			

**Course Outcomes: -**

On completion of the course, students will be able:

- To identify parts of computer hardware
- To evaluate data representation techniques like binary, hexadecimal and octal
- To design algorithms to solve small computer problems related to daily life
- To apply arithmetic operations and sequential programming using C Language
- To discriminate among while, for and do-while iterative statements

**OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Introduction to Computers	5
2.	Data Representation	5
3.	Principles of Programming	5
4.	Introduction to C Programming	10
5.	Decision Making, Branching and Looping Statement	11

**A. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Introduction to Computers</b>
	<ul style="list-style-type: none"><li>• Introduction of Unit</li><li>• Definition of Computer, Characteristics of Computer, Applications of Computers</li><li>• Computer Generations</li><li>• Computer Hardware &amp; Software</li><li>• Classification of Computers</li><li>• Structure of Computer</li><li>• Types of Memory: Primary Memory, Secondary Memory</li><li>• Conclusion of Unit</li></ul>
2.	<b>Data Representation</b>
	<ul style="list-style-type: none"><li>• Introduction of Unit</li><li>• Data Organization-Bits, Bytes, KB, MB, GB, TB</li><li>• Number System: Concept of Radix and representation of numbers in radix r</li><li>• Representation of Integer in Sign-magnitude, Signed 1's and 2's complement.</li><li>• Binary, Octal and Hexadecimal Addition and Subtraction and their conversion</li><li>• Binary Codes- Gray Code, BCD, ASCII</li><li>• Conclusion of Unit</li></ul>
3.	<b>Principles of Programming</b>
	<ul style="list-style-type: none"><li>• Introduction of Programming Fundamentals</li><li>• Algorithm Writing Rules and Examples</li><li>• Flow Chart: Process and Symbols</li><li>• Brief Introduction of Compiler</li><li>• Conclusion of Unit</li></ul>
4.	<b>Introduction to C Programming</b>
	<ul style="list-style-type: none"><li>• Introduction to C</li><li>• Structure of a C program</li><li>• C Tokens</li><li>• Basic Data types</li><li>• Variable Declaration</li><li>• Operators- Arithmetic Operators, Increment and Decrement, Logical, Relational and Bitwise Operators</li><li>• Type Conversion-Implicit Type and Explicit Type Conversion</li></ul>

	<ul style="list-style-type: none"> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Decision Making, Branching and Looping Statement</b>
	<ul style="list-style-type: none"> <li>• Conditional statements in C: If else, Nested If, If-else-If Ladder</li> <li>• Switch, Break, Continue and Go to Statement</li> <li>• Looping In C: For Loop, While Loop, Do-While Loop</li> <li>• Introduction to Array, Pointers, Function and Structures in C</li> <li>• Conclusion of Unit</li> </ul>

#### A. RECOMMENDED STUDY MATERIAL

Sr.No	Reference Book	Author	Edition	Publication
1.	Fundamentals of Computers	V.Rajaraman	Sixth	PHI
2.	Computer Fundamentals and Programming in C	ReemaThareja	Second	Oxford
3.	Fundamentals of Computers	E Balagurusamy	First	Tata McGraw Hill
4.	Programming in ANSI C	E Balagurusamy	Eight	Tata McGraw Hill
5.	Let US C	YashavantKanetkar	Fifteenth	BPB Publications
6.	The C Programming language	Ritchie Kernighan	Third	PHI
<b>Important Web Links</b>				
1.	<a href="https://www.learn-c.org/">https://www.learn-c.org/</a>			
2.	<a href="https://www.sanfoundry.com/">https://www.sanfoundry.com/</a>			
3.	<a href="https://nptel.ac.in/courses/106/104/106104128/">https://nptel.ac.in/courses/106/104/106104128/</a>			
4.	<a href="http://www.tutorials4u.com/c/">http://www.tutorials4u.com/c/</a>			
5.	<a href="http://www.howstuffworks.com/c.htm">www.howstuffworks.com/c.htm</a>			

**COURSE OUTCOME**

The student would be able to:

- understand the mechanism of language and linguistic creativity to communicate with each other.
- apply writing skills effectively for a variety of professional and social communication
- understand the importance of intonation, word and sentence stress for improving communicative competence and foster social and emotional Learning.
- apply writing skills effectively for a variety of professional and social communication.
- understand the structured conversation to make their point of views clear to the listeners by reading short stories written in English

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the Unit	Time Required for the Unit (Hours)
1.	<b>Grammar and Usage</b>	8
2.	<b>Composition</b>	7
3.	<b>Poems</b>	7
4.	<b>Essays&amp; Short Play</b>	7
5.	<b>Short Stories</b>	7

**B. DETAILED SYLLABUS**

Unit	Contents
<b>1.</b>	<b>Grammar and Usage</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Parts of speech</li> <li>• Tenses</li> <li>• Sentences</li> <li>• Word format</li> <li>• Conclusion of Unit</li> </ul>
<b>2.</b>	<b>Composition</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Letter writing</li> <li>• Application writing</li> <li>• Précis writing</li> <li>• Conclusion of Unit</li> </ul>
<b>3.</b>	<b>Poems</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• The Solitary Reaper by William Wordsworth</li> <li>• God's Grandeur by Gerard Manley Hopkins</li> <li>• The Road Not Taken by Robert Frost</li> <li>• Conclusion of Unit</li> </ul>
<b>4.</b>	<b>Essays &amp; Short Play</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Of Studies by Francis Bacon</li> <li>• On Doing Nothing by G.B. Priestley</li> <li>• The Monkey's Paw by W.W. Jacobs</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Short Stories</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> </ul>

- The Three Dancing Goats by Anonymous
- God and the Cobbler by R.K. Narayan
- My lord, The baby by R.N.Tagore
- Conclusion of Unit

### C. RECOMMENDED STUDY MATERIAL

Sr.No	ReferenceBook	Author	Edition	Publication
1.	Technical Communication	Meenakshi Raman and Sangeetha Sharma	2008	Oxford University Press,
2.	Effective Technical Communication	M. Ashraf Rizvi	2005	Tata McGraw-Hill
3.	Learn Correct English: Grammar, Usage and Composition	Shiv K. Kumar & Hemalatha Nagarajan	Latest	Pearson, New Delhi, India
4.	Grammar of the Modern English Language	Sukhdev Singh & Balbir Singh	Latest	Foundation Books, New Delhi
5.	Communicative English for Engineers and Professionals	Nitin Bhatnagar and Mamta Bhatnagar	Latest	Pearson( New Delhi)
6.	Communicative grammar and composition	Rajesh.K.Lidiya	2008	Oxford Univ Press, New Delhi.
<b>Important Web Links</b>				
1.	<a href="http://www.communicationskills.co.in/index.html">http://www.communicationskills.co.in/index.html</a>			
2.	<a href="http://www.bbc.co.uk/worldservice/learningenglish">http://www.bbc.co.uk/worldservice/learningenglish</a>			
3.	<a href="https://www.englishlearner.com/">https://www.englishlearner.com/</a>			
4.	<a href="http://www.englishclub.com/vocabulary/idioms-body.htm">http://www.englishclub.com/vocabulary/idioms-body.htm</a>			
5.	<a href="https://dictionary.cambridge.org/">https://dictionary.cambridge.org/</a>			

# PRACTICAL

Code:BTX01205

ENGINEERING PHYSICS LAB1 Credit [LTP: 0-0-2]

## Course Outcome:-

Students will be able:

- To understand the concept of interference with the help of Newton's ring and dispersive power through prism.
- To evaluate the resolving power through diffraction grating and double slit arrangement.
- To evaluate the numerical aperture of optical fiber and Coherent length and time using He-Ne laser.
- To evaluate the height of the unknown object by Sextant.
- To analyze the mechanism of Ballistic Galvanometer and evaluate the specific resistance of wire through Carey's foster bridge.

## LIST OF EXPERIMENTS:

1.	To determine the wave length of Sodium light by Newton's Ring
2.	To determine the dispersive power of material of a prism for violet, red and yellow color of mercury light with the help of spectrometer.
3.	To determine the wave length of prominent lines of mercury by plane diffraction grating with the help of spectrometer
4.	To verify the expression for the resolving power of Telescope
5.	To measure the numerical Aperture of an optical fibre by He-Ne laser
6.	To determine the coherent length and coherent time by using He-Ne laser
7.	To study the variation of a semiconductor resistance with temperature and hence determine the Band Gap of the semiconductor in the form of reverse biased P-N junction diode.
8.	To study the characteristics of semiconductor diode and determine forward and reverse bias resistance
9.	To Determine the height of a given line drawn on the wall by sextant
10.	To study the charging and discharging of a condenser and hence determine time constant (both current and voltage graphs are to be plotted)
11.	To determine the high resistance by method of leakage, using a ballistic galvanometer.
12.	To specify the specific resistance of a material of a wire by carey foster's bridge.
Virtual Labs	
1	<a href="http://vlab.amrita.edu/?sub=1&amp;brch=282">http://vlab.amrita.edu/?sub=1&amp;brch=282</a>
2	<a href="http://vlab.iitb.ac.in/vlab/labsps.html">http://vlab.iitb.ac.in/vlab/labsps.html</a>
3	<a href="https://praxilabs.com/en/virtual-labs.aspx?TAB=1#LOL">https://praxilabs.com/en/virtual-labs.aspx?TAB=1#LOL</a>

**Course Outcomes:-**

Students will be able

- To Create a model of T Lap and T- Bridle Joint through carpentry shop
- To Understand the making of prototype model through foundry shop
- To analyze the difference between gas welding and arc welding and their applications
- To create a model on fitting shop through filling, slotting, drilling and tapping operation
- To Understand the difference between forging, moldings and casting

**LIST OF EXPERIMENTS**

1.	<b>Carpentry Shop</b> <ul style="list-style-type: none"> <li>• Timber, definition, engineering applications, seasoning and preservation</li> <li>• Plywood and ply boards</li> </ul>
2.	<b>Foundry Shop</b> <ul style="list-style-type: none"> <li>• Moulding Sands, constituents and characteristics</li> <li>• Pattern, definition, materials types, core prints</li> <li>• Role of gate, runner, riser, core and chaplets</li> <li>• Causes and remedies of some common casting defects like blow holes, cavities, inclusions</li> </ul>
3.	<b>Welding Shop</b> <ul style="list-style-type: none"> <li>• Definition of welding, brazing and soldering processes and their applications</li> <li>• Oxyacetylene gas welding process, equipment and techniques, types of flames and their applications</li> <li>• Manual metal arc welding technique and equipment, AC and DC welding</li> <li>• Electrodes: Constituents and functions of electrode coating, welding positions</li> <li>• Types of welded joints, common welding defects such as cracks, undercutting, slag inclusion and boring</li> </ul>
4.	<b>Fitting Shop</b> <ul style="list-style-type: none"> <li>• Files, materials and classification.</li> </ul>
5.	<b>Smithy Shop</b> <ul style="list-style-type: none"> <li>• Forging, forging principle, materials</li> <li>• Operations like drawing, upsetting, bending and forge welding</li> <li>• Use of forged parts</li> </ul>

**List of Jobs to be made in the Workshop Practice**

1.	<b>Carpentry Shop</b> <ol style="list-style-type: none"> <li>1. T – Lap joint</li> <li>2. Bridle joint</li> </ol>
2.	<b>Foundry Shop</b> <ol style="list-style-type: none"> <li>3. Mould of any pattern</li> </ol>
3.	<b>Welding Shop</b> <ol style="list-style-type: none"> <li>4. Square butt joint by MMA welding</li> <li>5. Lap joint by MMA welding</li> </ol>
4.	<b>Machine Shop Practice</b> <ol style="list-style-type: none"> <li>6. Job on lathe with facing operation</li> <li>7. Job on lathe with one step turning and chamfering operations</li> <li>8. Job on shaper for finishing two sides of a job</li> </ol>
5.	<b>Fitting Shop</b> <ol style="list-style-type: none"> <li>9. Finishing of two sides of a square piece by filing</li> <li>10. Drilling operation on fitted job (two holes)</li> <li>11. Slotting operation on fitted job</li> <li>12. Tapping operation on fitted job</li> </ol>

**Course Outcomes:-**

Students will be able to

- analyze the house wiring connections of various equipments such as energy meter, ceiling fan, tubelight etc.
- create the connections of single phase and three phase induction motors.
- Understand the construction and application of various electrical components such as Resistors, Inductors, Capacitors, PN-Diode. Zenger Diode, LED, LCD, etc.
- Analyze the effect of L, C and L-C filters in single phase half wave and full wave bridge rectifier
- Analyze the effect of LC and LC filters in current and power rectifiers

**LIST OF EXPERIMENTS:**

1	Assemble house wiring including earthing for 1-phase energy meter, MCB, ceiling fan, tube light, three pin socket and a lamp operated from two different positions. Basic functional study of components used in house wiring.
2	Prepare the connection of ceiling fan along with the regulator and vary the speed.
3	Prepare the connection of single phase induction motor through 1-Phase Auto-transformer and vary the speed.
4	Prepare the connection of three phase squirrel cage induction motor through 3-Phase Autotransformer and vary the speed.
5	Prepare the connection of Fluorescent Lamp, Sodium Vapour and Halogen Lamp and measure voltage, current and power in the circuit.
6	Identification, testing and application of Resistors, Inductors, Capacitors, PN-Diode. Zenger Diode, LED, LCD, BJT, Photo Diode, Photo Transistor, Analog/Digital Multi- Metres and Function/Signal Generator.
7	Measure the frequency, voltage, current with the help of CRO.
8	Assemble the single phase half wave and full wave bridge rectifier & the analyse effect of L, C and L-C filters in rectifiers.
9	Study the BJT amplifier in common emitter configuration. Measure voltage gain plot gain frequency response and calculate its bandwidth.
10	Verify the truth table of AND, OR, NOT, NOR and NAND gates
11	Prepare the connection of sodium lamp and measure voltage
12	Analyze the effect of LC and LC filters in current and power rectifiers
Virtual Lab	
1	<a href="http://vlabs.iitkgp.ernet.in/be/">http://vlabs.iitkgp.ernet.in/be/</a>
2	<a href="http://em-coep.vlabs.ac.in/List%20of%20experiments.html?domain=Electrical%20Engineering">http://em-coep.vlabs.ac.in/List%20of%20experiments.html?domain=Electrical%20Engineering</a>

**Course Outcome:-**

Students will be able to:

- Understand the concept of scale and their applications
- Analyze the different applications of conic section and engineering curves and also how to draw on sheet
- Analyze the use of projection and also understand the difference between first and third angle projection method
- Understand the purpose of sectioning and also draw sheet on section of solid
- Analyze the use of development and their application

**(Theory Concepts)**

1.	<ul style="list-style-type: none"> <li>• Lines, Lettering and Dimension (Sketch Book)</li> <li>• Scales: Representative Fraction, plain scales, diagonal scales, (In drawing sheet)</li> </ul>
2.	<ul style="list-style-type: none"> <li>• Conic Sections: Construction of ellipse, parabola and hyperbola by different methods( in drawing sheet)</li> <li>Engineering Curves: Construction of Cycloid, Epicycloids, Hypo-cycloid( in drawing sheet)</li> </ul>
3.	<ul style="list-style-type: none"> <li>• Type of Projection, Orthographic projection: first angle and third angle projection (in drawing sheet)</li> <li>• Projection of Points</li> <li>• Projection of Straight lines</li> <li>• Projection of planes: Different positions of plane lamina like: regular polygon, circle of three planes (four problems in drawing sheet)</li> <li>• Projection of Solids: Projection of right and regular polyhedron, cone (four problem in drawing sheet)</li> </ul>
4.	<ul style="list-style-type: none"> <li>• Sections of Solids: Projection of Frustum of a cone and pyramid(in drawing sheet)</li> </ul>
5.	<ul style="list-style-type: none"> <li>• Development of Surfaces: Parallel line and radial line method for right solids, Regular Solids (in drawing sheet)</li> <li>• Isometric Projections: Isometric Scale, Isometric axes, Isometric View of geometrical shapes (in drawing sheet)</li> </ul>

**(Practical Concepts)**

6.	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Line (coordinate Methods)</li> <li>• Dimension</li> <li>• Scale</li> </ul>
7.	<ul style="list-style-type: none"> <li>• Rectangle</li> <li>• Conic Section</li> <li>• Construction of ellipse, Parabola &amp; Hyperbola, Polygon</li> <li>• Circle</li> </ul>
8.	<ul style="list-style-type: none"> <li>• AutoCAD commands (copy, Mirror, Move, Array, Block, Group, Join, Hatch etc.)</li> </ul>
9.	<ul style="list-style-type: none"> <li>• Type of Projection , Orthographic projection: First Angle and Third Angle projection</li> <li>• Projection of Points</li> <li>• Projection of Straight lines, different positions of straight lines</li> <li>• Projection of planes</li> <li>• Projection of Solids: projection of right and regular polyhedron and cone</li> </ul>
10.	<ul style="list-style-type: none"> <li>• Section of solids: projection of frustum of a cone and pyramid</li> <li>• Isometric projections</li> </ul>
Virtual Labs	
1	<a href="http://vlabs.iitb.ac.in/vlabs-dev/labs/mit_bootcamp/egraphics_lab/labs/index.php">http://vlabs.iitb.ac.in/vlabs-dev/labs/mit_bootcamp/egraphics_lab/labs/index.php</a>

**Course Outcomes: -**

On completion of the course, students will be able:

- To prepare documents, worksheets and presentations using MS Word, Excel and PowerPoint.
- To perform arithmetic and conditional operations using C Language.
- To design program based on iterative statements using C Language.
- To perform array operations to solve computer problems.
- To demonstrate the use of pointers and structures.

**LIST OF EXPERIMENTS:**

	<b>MS Office</b>
1.	Implement basic features of MS Office, Prepare a document using MS-Word
2.	Prepare a Sheet using MS Excel and Slides using MS PowerPoint
	<b>Programming In C</b>
3.	Programs to demonstrate the use of input and output in C Language including data types and format specifiers.
4.	Program to evaluate arithmetic operations in C Language
5.	Program to apply conditional operators. (if-else, switch-case)
6.	Program to design program using iterative statements. (while, for and do-while)
7.	Program to implement input, output and manipulation operations on Array.
8.	Program to perform matrix addition and multiplication.
9.	Program to demonstrate declaration, definition, initialization and access operations on pointers.
10.	Program to solve problems of collection of different data types using structures.
Virtual Lab	
1	<a href="http://cse02-iiith.vlabs.ac.in/">http://cse02-iiith.vlabs.ac.in/</a>

**COURSE OUTCOME**

The student would be able:

- To present themselves in an effective manner and know about their short-term and long-term goals.
- To work in a team by managing time properly and focus on personal grooming, etiquettes and body language.
- To demonstrate their abilities by improving skills of LSRW (Listening /Speaking/Reading/Writing).
- To present different viewpoints or ways of thinking about a situation , expand their abilities to resolve situations and get experience within the given context
- To enhance their employability skills by working on the presentation of Résumé and giving impactful performance during Group Discussion.

**LIST OF ACTIVITIES**

1.	Self Introduction& knowing your environment
2.	GOAL Setting &Planning
3.	Time Management & Team Work
4.	Personal Grooming and Body language
5.	Etiquettes (Personal, Social, Professional & Corporate) etiquettes
6.	Reading skills: General & Technical Articles
7.	Listening Skills: Analysis of videos by famous Personalities
8.	Writing Skills: Picture perception & Story Making by jumbled words
9.	Speaking Skills: Extempore, JAM & Me against myself
10.	Role Plays
11.	Resume Writing
12.	Group Discussion

**COURSE OUTCOME**

Students will be able:

- To help students distinguish between values and skills, and understand the need, basic guidelines, content and process of value education.
- To help students initiate a process of dialog within themselves to know what they ‘really want to be’ in their life and profession.
- To help students understand the meaning of happiness and prosperity for a human being.
- To facilitate the students to understand harmony at all the levels of human living, and live accordingly.
- To facilitate the students in applying the understanding of harmony in existence in their profession and lead an ethical life.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the Unit	Time required for the Unit (Hours)
1	<b>Self-exploration</b>	5
2	<b>Understanding Harmony in the Human Being - Harmony in Myself</b>	4
3	<b>Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship</b>	5
4	<b>Implications of the above Holistic Understanding of Harmony on Professional Ethics</b>	5
5	<b>Professional &amp; Language competency</b>	5

**B. DETAILED SYLLABUS**

Unit	Unit Details
1	<b>Self-exploration</b>
	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Course Introduction - Need, Basic Guidelines, Content and Process for Value Education</li> <li>• Understanding the need, basic guidelines, content and process for Value Education, Self-Exploration–what is it?</li> <li>• Its content and process; ‘Natural Acceptance’ and Experiential Validation- as the mechanism for self-exploration, Continuous Happiness and Prosperity- A look at basic Human Aspirations, Right understanding, Relationship and Physical Facilities The basic requirements for fulfillment of aspirations of every human being with their correct priority.</li> <li>• Conclusion &amp; Real life applications</li> </ul>
2	<b>Understanding Harmony in the Human Being - Harmony in Myself</b>
	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Understanding human being as a co-existence of the sentient ‘I’ and the material ‘Body’</li> <li>• Understanding the needs of Self (‘I’) and ‘Body’</li> <li>• Understanding the Body as an instrument of ‘I’ (I being the doer, seer and enjoyer),</li> <li>• Understanding the characteristics and activities of ‘I’ and harmony in ‘I’,</li> <li>• Understanding the harmony of I with the Body.</li> <li>• Conclusion &amp; Real life applications</li> </ul>
3	<b>Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship</b>

	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Understanding harmony in the Family- the basic unit of human interaction</li> <li>• Understanding values in human-human relationship</li> <li>• meaning of Justice &amp; program for its fulfillment to ensure Trust and Respect as the foundational values of relationship,</li> <li>• Understanding the meaning of Trust</li> <li>• Difference between intention and competence,</li> <li>• Understanding the meaning of Respect Difference between respect and differentiation; the other salient values in relationship</li> <li>• Understanding the harmony in the society (society being an extension of family): as comprehensive Human Goals, Visualizing a universal harmonious order in society- Undivided Society</li> <li>• Conclusion &amp; Real life applications</li> </ul>
4	<b>Implications of the above Holistic Understanding of Harmony on Professional Ethics</b>
	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Natural acceptance of human values</li> <li>• Definitiveness of Ethical Human Conduct</li> <li>• Basis for Humanistic</li> <li>• Humanistic Constitution and Humanistic Universal Order</li> <li>• Competence in Professional Ethics &amp; Case studies of typical holistic technologies, management models and production systems</li> </ul> <p>Strategy for transition from the present state to Universal Human Order</p> <ul style="list-style-type: none"> <li>• Conclusion &amp; Real life applications</li> </ul>
5	<b>Professional and Language Competence</b>
	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Professional Communication , its meaning , importance &amp; scope .</li> <li>• Sentences</li> <li>• Tenses and its usage</li> <li>• Active &amp; Passive Voice</li> <li>• Conclusion &amp; Real life applications</li> </ul>

### C. RECOMMENDED STUDY MATERIAL:

Sr. No	Reference Book	Author	Edition	Publication
1.	A Foundation Course in Human Values and Professional Ethics.	R R Gaur, R Sangal, G P Bagaria,	2009	Excel Books
2.	Human Values	A N Tripathy	2003	New Age International Publishers
3.	Indian Ethos and Modern Management	B L Bajpai	2004	New Royal Book Co., Lucknow
4.	Science and Humanism	P L Dhar, RR Gaur	1990	Commonwealth Publishers
5.	Human Values and Professional Ethics	Tanu Shukla, Anupam Yadav	Latest	Cengage India Private Limited.
<b>Important Web Links</b>				
1	<a href="https://nptel.ac.in/courses/109104068/">https://nptel.ac.in/courses/109104068/</a>			
2	<a href="https://www.tutorialspoint.com/engineering_ethics/index.htm">https://www.tutorialspoint.com/engineering_ethics/index.htm</a>			
3	<a href="https://www.storyofstuff.org/">https://www.storyofstuff.org/</a>			

**COURSE OUTCOME**

Students will be able:

- To understand the scope of environmental studies and explain the concept of ecology, ecosystem and biodiversity.
- To implement innovative ideas of controlling different categories of Environmental Pollution.
- To explain different environmental issues together with various Environmental Acts, regulations and International Agreements.
- To summarize social issues related to population, resettlement and rehabilitation of project affected persons and demonstrate disaster management with special reference to floods, earthquakes, cyclones, landslides.
- To determine the local environmental assets with simple ecosystems and identify local flora and fauna.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Introduction to environmental studies	5
2.	Environmental Pollution and its control	5
3.	Environmental Policies & Practices	5
4.	Human Communities and the Environment	5
5.	Field work	4

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Introduction to environmental studies</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Multidisciplinary nature of environmental studies</li> <li>• Concept of sustainability and sustainable development.</li> <li>• Ecosystem: Structure and function of ecosystem</li> <li>• Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies\</li> <li>• Case studies of the following ecosystems: Forest ecosystem, Grassland ecosystem, Desert ecosystem Aquatic ecosystems</li> <li>• Biodiversity and Conservation</li> <li>• Conclusion of Unit including Real Life Application</li> </ul>
2.	<b>Environmental Pollution and its control</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution</li> <li>• Nuclear hazards and human health risks</li> <li>• Solid waste management: Control measures of urban and industrial waste.</li> <li>• Pollution case studies</li> <li>• Conclusion of Unit including Real Life Application</li> </ul>
3.	<b>Environmental Policies &amp; Practices</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture</li> <li>• Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.</li> <li>• Environment Laws: Environment Protection Act; Air (Prevention &amp; Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act.</li> </ul>

	<ul style="list-style-type: none"> <li>• International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity(CBD)</li> <li>• Conclusion of Unit including Real Life Application</li> </ul>
<b>4.</b>	<b>Human Communities and the Environment</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Human population growth: Impacts on environment, human health and welfare.</li> <li>• Resettlement and rehabilitation of project affected persons; case studies.</li> <li>• Disaster management: floods, earthquake, cyclones and landslides.</li> <li>• Conclusion of Unit including Real Life Application</li> </ul>
<b>5.</b>	<b>Field work</b>
	<ul style="list-style-type: none"> <li>• Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc.</li> <li>• Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.</li> <li>• Study of common plants, insects, birds and basic principles of identification.</li> <li>• Study of simple ecosystems-pond, river, Delhi Ridge, etc.</li> </ul>

### C. RECOMMENDED STUDY MATERIAL:

Sr. No	Reference Book	Author	Edition	Publication
1.	Environmental Studies	ErachBarucha	Latest	UGC
2.	Environmental Studies	Benny Joseph	Latest	Tata McGrawHill
3.	Environmental Studies	R. Rajagopalan	Latest	Oxford University Press
4.	Principles of Environmental Science and Engineering	P. Venugoplan Rao	Latest	Prentice Hall of India.
5.	Environmental Science and Engineering	P. Meenakshi	Latest	Prentice Hall India.
<b>Important Web Links</b>				
1.	<a href="http://www.energy.gov">http://www.energy.gov</a>			
2.	<a href="https://nptel.ac.in/courses/122102006/">https://nptel.ac.in/courses/122102006/</a>			

**COURSE OUTCOME**

Students will be able:

- To help students distinguish between values and skills, and understand the need, basic guidelines, content and process of value education.
- To help students initiate a process of dialog within themselves to know what they ‘really want to be’ in their life and profession.
- To help students understand the meaning of happiness and prosperity for a human being.
- To facilitate the students to understand harmony at all the levels of human living, and live accordingly.
- To facilitate the students in applying the understanding of harmony in existence in their profession and lead an ethical life

**LIST OF ACTIVITIES**

Sr. No.	Details
1.	<b>Activity No. 1: Self-Introduction &amp; Goal Setting</b> Introduce yourself in detail. What are the goals in your life? How do you set your goals in your life? How do you differentiate between right and wrong? What have been your salient achievements and shortcomings in your life? Observe and analyze them.
2.	<b>Activity No. 2: Ambitions and its relation to SELF &amp; BODY</b> List down all your Desires & segregate between them whether the Desire is related to SELF or BODY or BOTH? And if Both which part is related to BODY and which part is related to SELF.
3.	<b>Activity No. 3: Creating in Harmony between mind &amp; body</b> Chalk out some programs towards ensuring your harmony with the body - in terms of nurturing, protection and right utilization of the body. 2. Find out the plants and shrubs growing in and around your campus or home, which can be useful in curing common diseases.
4.	<b>Activity No. 4: Creative Speaking &amp; Writing Skills</b> Write a narration in the form of a story, poem, skit or essay to clarify a salient Human Value to the children. 2. Recollect and narrate an incident in your life where you were able to exhibit willful adherence to values in a difficult situation.
5.	<b>Activity No. 5: Creative Speaking &amp; Writing Skills</b> Make a chart to show the whole existence as co-existence. With the help of this chart try to identify the role and the scope of some of the courses of your study. Also indicate the areas which are being either over-emphasized or ignored in the present context.
6.	<b>Activity No. 6: Analytical Skills</b> Identify any two important problems being faced by the society today and analyze the root cause of these problems. Can these be solved on the basis of natural acceptance of human values. If so, how should one proceed in this direction from the present situation.
7.	<b>Activity No. 7: Professional Writing</b> Write letters to the newspaper editors of your city regarding your suggestions on the role & responsibility of Youth towards Nation Building.
8.	<b>Activity No. 8: Professional Competence</b> Group Discussion & Personal Interview Sessions on contemporary & Ethical Issues.
9.	<b>Activity No. 9: Professional Ethics &amp; Dilemmas</b> Case Studies analysis regarding the lapses in ethical conduct around in the professional Set Up and the ultimate consequences.
10.	<b>Activity No. 10: Professional &amp; Ethical Approaches</b> Pick a card with Ethical and troubling situations written on and enact or write the response you could probably give over.

**COURSE OUTCOME**

Students will be able:

- To communicate scientific information precisely in both oral and written forms.
- To demonstrate basic laboratory skills of proper handling of laboratory glassware, equipment and chemical reagents.
- To test water quality parameters in given waste water sample by using different instruments.
- To investigate the values of DO, BOD and COD in industrial waste water samples.
- To detect levels of TS, TDS and TSS in waste water sample.

**LIST OF EXPERIMENTS:**

1.	To determine the pH of the given sample of sewage.
2.	To determine the conductivity of the given sample of sewage
3.	To determine the turbidity of the given sample of sewage
4.	To determine free chlorine of the given sample of water
5.	To determine available chlorine of the given sample of water
6.	To determine Total Solids of the given sewage sample.
7.	To determine the Total Dissolved Solids of the given sewage sample.
8.	To find out Total Settleable Solids of the given sewage sample.
9.	To determine Total Suspended Solids of the given sewage sample.
10	To find out the Quantity of Dissolved Oxygen present in the given water sample by Winkler's Method.
11	To determine Biochemical Oxygen Demand exerted by the given wastewater sample.
12	To find out Chemical Oxygen Demand of the waste water sample.
Virtual Labs	
1	<a href="https://virtuallabs.merlot.org/earth_science/index.html">https://virtuallabs.merlot.org/earth_science/index.html</a>

**Code: BTX01212****ANANDAM COURSE****2 Credits [LTP: 0-0-1]**

**OVERVIEW AND OBJECTIVES:** The Anandam program aims to instill the joy of giving in young people, turning them into responsible citizens. Who will build a better society through daily action, it will build the habit of service in students across colleges and universities in Rajasthan. The students will have to undertake the course each semester starting with the 2020-21 academic year.

**Course Outcomes**

- Each student will be able to work as team member.
- Student will learn social activities.
- Students will be familiar with society.

**DETAILED SYLLABUS**

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register/ Personal Diary
- Share this Register/ Personal Diary day in the 30-minute Anandam time slot dedicated by the college.
- Undertake one group service project for 64 Hours every term (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion session held once a month.

**CODE: BTX01613****Social Outreach, Discipline & Extra Curricular Activities****1 Credits**

**OVERVIEW AND OBJECTIVES:** The objective of Social Outreach, Discipline & Extra Curricular Activities is to provide students with the opportunities to enhance job fetching skills and at the same time to cultivate the student's personal interests and hobbies while maintaining the good disciplinary environment in the University. TEP is integrated into the curriculum for holistic development of students through active participation in various activities falling in Technical and non technical categories.

Social Outreach, Discipline & Extra Curricular Activities shall be evaluated irrespective of period/time allocation (as in the case of Extra Curricular activity) in the teaching scheme as a **0.5 credit** course. The record related to discipline and related activities are maintained for each student and they shall be evaluated for the same also. It shall be counted in calculation of SGPA but it is not a backlog subject. However, the attendance of these classes shall be recorded and accounted in the total attendance.

Activities included in this category in the First Semester are as follows:

Code	Activity	Hours	Credits
BTX01613.1	Talent Enrichment Programme (TEP)-I	2	1
BTX01613.2	Campus Recruitment Training (CRT)- I	2	

# SECOND SEMESTER

## CORE THEORY SUBJECTS

Code: BTX02101

ENGINEERING CHEMISTRY

3.5 Credits [LTP: 3-1-0]

### COURSE OUTCOME

The student would be able:

- To develop innovative methods to produce soft water for industrial use and potable water at cheaper cost.
- To use their knowledge of polymers and glass and its use in industries and daily life.
- To identify practices for the prevention and remediation of corrosion
- To characterize the fuels and analyze the combustion mechanisms of various fuels.
- To learn about the manufacturing of cement and the chemistry involved in setting and hardening of it and also learn about the suitable use of lubricants.

### A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Water Technology	8
2.	Polymer and Glass	7
3.	Corrosion and its control	6
4.	Fuel and Fuel Analysis	8
5.	Binding Materials and Lubricants	7

### B. DETAILED SYLLABUS

Unit	Unit Details
1.	<b>Water Technology</b> <ul style="list-style-type: none"> <li>• Introduction of Unit</li> </ul> <b>Water</b> <ul style="list-style-type: none"> <li>• Sources of water, Impurities in water and effect of impurities</li> <li>• Municipal water supply: Requisites of drinking water, Steps involved in purification of water, Sedimentation, Coagulation, Filtration and Disinfection, Break Point Chlorination</li> </ul> <b>Water Analysis</b> <ul style="list-style-type: none"> <li>• Hardness of water; Type of hardness, Degree of hardness, Units of hardness, Disadvantages of hard water, Determination of hardness by Complexometric (EDTA) method, Numericals based on hardness by EDTA method</li> <li>• Boiler Troubles : Formation of solids (scale and sludge), Carry over (Priming and Foaming), Caustic Embrittlement, Disadvantages and Prevention</li> <li>• Treatment of hard water: Lime-soda method, Permutit (zeolite) method and Deionization or Demineralization method, Numerical problems based on Lime-soda and Zeolite softening methods</li> <li>• Desalination: Reverse osmosis, Electrodialysis</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Polymer and Glass</b>

	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> </ul> <p><b>Polymers</b></p> <ul style="list-style-type: none"> <li>• Introduction to Polymer chemistry:, Classification of Polymers and Types of polymerization</li> <li>• Plastics: Constituents of plastics,Thermosets and Thermoplastics, Preparation, Properties and Uses of Polyethylene, Bakelite, Teflon, Terylene and Nylon</li> <li>• Elastomers: Natural rubber, Vulcanization, Synthetic rubber- Preparation, Properties and Applications of SBR, Buna-N, Butyl and Neoprene rubber.</li> </ul> <p><b>Glass</b></p> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Definition of glass, its Properties, Manufacturing of glass, Importance of annealing in glass making, Types of silicate glasses and their commercial uses.</li> <li>• Conclusion of Unit</li> </ul>
<b>3.</b>	<b>Corrosion and its control</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> </ul> <p><b>Corrosion and its control</b></p> <ul style="list-style-type: none"> <li>• Definition of corrosion and its Significance</li> <li>• Mechanisms of Corrosion: Chemical (Dry) corrosion and Electrochemical (Wet) corrosion</li> <li>• Types of corrosion: Galvanic corrosion, Concentration cell corrosion, Stress corrosion, Pitting corrosion</li> <li>• Factors affecting the rate of corrosion</li> <li>• Protection from corrosion : Material selection and design, Improvement of Environment , Coating of metallic surface, Cathodic protection, Anodic protection, Electroplating, Tinning, Galvanization and Modification in designs . Some practical examples of corrosion.</li> <li>• Conclusion of Unit</li> </ul>
<b>4.</b>	<b>Fuel and Fuel Analysis</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Classification and general aspects of fuel.</li> <li>• Solid fuel: Coal, Types of coal, Carbonization of coal</li> <li>• Liquid fuel: Processing of crude petroleum, Cracking, Thermal Cracking and Catalytic Cracking, Synthetic petrol (Coal to Liquid (CTL) Technology): Bergius and Fischer Tropsch process. Knocking, Octane number and Cetane number, Anti-knocking and Anti-knocking agents</li> <li>• Gaseous fuel: Advantages of gaseous fuel, Biogas, LPG, CNG</li> <li>• Analysis of Coal: Ultimate and Proximate analysis of coal</li> <li>• Calorific Value: Definition, Higher calorific value, Lower calorific value, Determination of higher &amp; lower calorific value by Bomb Calorimeter</li> <li>• Fuel gas analysis by Orsat's apparatus and its significance</li> <li>• Numericals based on Bomb</li> <li>• Numericals based on combustion and requirement of oxygen/ air in combustion process</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Binding Materials and Lubricants</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> </ul> <p><b>Binding Materials</b></p> <ul style="list-style-type: none"> <li>• Cement: Composition and Significance of cement</li> <li>• Manufacturing of Portland cement by Rotary Kiln Technology</li> <li>• Chemistry of setting and hardening of cement and role of gypsum</li> </ul> <p><b>Lubricants</b></p> <ul style="list-style-type: none"> <li>• Introduction of lubricants, Classification, Properties and Uses of lubricants</li> <li>• Mechanism of lubrication, Selection of lubricants</li> <li>• Properties of lubricants: Viscosity &amp; Viscosity Index, Flash and Fire Point, Cloud and Pour Point, Carbon Residue, Oiliness, Aniline Point, Steam Emulsification Number, Precipitation Number and Neutralization Number</li> <li>• Conclusion of Unit</li> </ul>

**C. RECOMMENDED STUDY MATERIAL:**

Sr.No	Reference Book	Author	Edition	Publication
1.	Engineering Chemistry	P.C. Jain	Latest	DhanpatRai&Sons
2.	Engineering Chemistry.	S. S. Dara	Latest	S. Chand & Co.
3.	Chemistry in Engineering & Tech.	Rajaram, Kuriacose	Latest	Tata McgrawHill
4.	Physical Chemistry	P.W. Atkins	Latest	Oxford University Press.
<b>Important Web Links:</b>				
1.	<a href="https://civilengineersforum.com/cement-manufacturing-process/">https://civilengineersforum.com/cement-manufacturing-process/</a>			
2.	<a href="https://www.explainthatstuff.com/lubricants.html">https://www.explainthatstuff.com/lubricants.html</a>			
3.	<a href="https://nptel.ac.in/courses/122/101/122101001/">https://nptel.ac.in/courses/122/101/122101001/</a>			

**COURSE OUTCOME**

The student would be able:

- To understand and prove relationships between matrices, rank of matrix and systems of equations, Inverses, and determinants.
- To utilize methods of integration to evaluate volumes and surface of objects and lengths of curves.
- To understand basic structure of differential equations, and order and degree of first order and first degree and its simple applications.
- To form Fourier series and can apply partial differential equations to technological applications.
- To apply vector integration to scalar and vector field with the help of green's theorem, Gauss's theorem and Stokes theorem.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the Unit	Time required for the Unit (Hours)
1.	Matrices	7
2.	Integral Calculus	7
3.	Ordinary Differential Equations	6
4.	Fourier Series and Partial Differential Equations	8
5.	Introduction and Application of Vector Calculus	8

**B. DETAILED SYLLABUS**

Unit	Unit Details
1.	<b>Matrices</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Rank of a Matrix, Normal form of a Matrix</li> <li>• Consistency of systems of linear equations</li> <li>• Eigen Values and Eigen Vectors</li> <li>• Cayley-Hamilton Theorem (without proof)</li> <li>• Diagonalization of Matrix</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Integral Calculus</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Surfaces and Volumes of Solids of Revolutions</li> <li>• Double integrals, Double integral by changing into polar form, Areas &amp; Volumes by Double Integration</li> <li>• Change of order of integration</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Ordinary Differential Equations</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• First order and first-degree differential equations-Linear Equation and reducible to linear form,</li> <li>• Exact Equation and reducible to exact form</li> <li>• Linear differential equations with constant coefficients</li> <li>• Conclusion of Unit</li> </ul>
4.	<b>Fourier Series and Partial Differential Equations</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Fourier Series – Expansion of simple functions in Fourier Series</li> <li>• Half range Fourier Sine and Cosine Series</li> </ul>

	<ul style="list-style-type: none"> <li>• Change of interval, Harmonic Analysis</li> <li>• Partial differential equations of first order- Lagrange's form, Standard forms, Charpit's method</li> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Introduction and Application of Vector Calculus</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Introduction of concepts of vector calculus</li> <li>• Line, Surface and Volume integral</li> <li>• Gauss, Stocks and Green theorem (without proof) – verification and applications</li> <li>• Conclusion of Unit</li> </ul>

### C. RECOMMENDED STUDY MATERIAL:

Sr.No	Reference Book	Author	Edition	Publication
1.	Higher Engineering Mathematics	B S Grewal	Latest	Khanna Publications, Delhi,
2.	Higher Engineering Mathematics	Ramana, B.V	Latest	Tata McGraw-Hill.
3	Engineering Mathematics: A Tutorial Approach	Ravish R Singh and M Bhatt	Latest	Tata McGraw-Hill
4	Calculus and Analytical Geometry	Thomas and Finney,	Latest	Narosa Publishing, New Delhi
5	Advanced Engineering Mathematics	Erwin Kreyszig	Latest	John Wiley and Sons
<b>Important Web Links:</b>				
1	<a href="https://nptel.ac.in/courses/111105134/">https://nptel.ac.in/courses/111105134/</a>			
2	<a href="https://nptel.ac.in/courses/122/101/122101001/">https://nptel.ac.in/courses/122/101/122101001/</a>			
3	<a href="https://www.classcentral.com/course/swayam-engineering-mathematics-i-13000">https://www.classcentral.com/course/swayam-engineering-mathematics-i-13000</a>			

**COURSE OUTCOME**

The student would be able to:

- Understand the forces act on a component and method of resolution.
- Evaluate the centroid and center of gravity of an object and also analyze how to minimize the effort for lifting a load.
- Understand the effect of friction and also evaluate forces with the effect of friction.
- Analyze the conversion of linear motion into angular motion and vice versa.
- Analyze the effect of impact on elastic and non-elastic body.

**D. OUTLINE OF THE COURSE**

Unit No.	Title of the Unit	Time required for the Unit (Hours)
1.	<b>Fundamentals of Mechanics</b>	7
2.	<b>Machine &amp; Moment of Inertia</b>	8
3.	<b>Friction &amp; Belt Drive</b>	7
4.	<b>Dynamics of Particles</b>	7
5.	<b>Work, Power &amp; Impact</b>	7

**E. DETAILED SYLLABUS**

Unit	Unit Details
<b>1.</b>	<b>Fundamentals of Mechanics</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Fundamental laws of mechanics, Principle of transmissibility.</li> <li>• System of forces, Resultant force, Resolution of force.</li> <li>• Moment and Couples, Varignon's Theorem,</li> <li>• Resolution of a force into a force and a couple, free body diagram.</li> <li>• Equilibrium, Conditions for equilibrium, Lami's theorem.</li> <li>• Conclusion of Unit</li> </ul>
<b>2.</b>	<b>Machine &amp; Moment of Inertia</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>Lifting Machines:</b> Mechanical advantage, Velocity Ratio, Efficiency of machine, Ideal machine, Ideal effort and ideal load, Reversibility of machine, Law of machine, Lifting machines.</li> <li>• <b>Centroid &amp; Moment of Inertia:</b> Location of centroid and center of gravity, Moment of inertia, Parallel axis and perpendicular axis theorem, Radius of gyration, M.I of composite section.</li> <li>• Conclusion of Unit</li> </ul>
<b>3.</b>	<b>Friction &amp; Belt Drive</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>Friction:</b> Types of Friction, Laws of friction, Angle of friction, Angle of repose, Ladder, Wedge.</li> <li>• <b>Belt Drive:</b> Types of belts, Types of belt drives, Velocity ratio, Effect of slip on Velocity ratio, Length of belt, Ratio of tensions and power transmission by flat belt drives.</li> <li>• Conclusion of Unit</li> </ul>
<b>4.</b>	<b>Dynamics of Particles</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>Kinematics of Particles and Rigid Bodies:</b> Velocity, Acceleration, Types of Motion, Equations of Motion, Rectangular components of velocity and acceleration, Angular velocity and Angular acceleration.</li> <li>• <b>Kinetics of Particles and Rigid Bodies:</b> Newton's laws, Linear Momentum, Equation of motion in rectangular coordinate, Equation of motion in plane for a rigid body, D'Alembert principle.</li> </ul>

	<ul style="list-style-type: none"> <li>• Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Work, Power &amp; Impact</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• <b>Work, Energy and Power:</b> Work of a force, weight, couple, Power, Efficiency, Energy, Kinetic energy of rigid body, Principle of work and energy.</li> <li>• <b>Impact:</b> Collision of elastic bodies, types of impact, conservation of momentum, Newton's law of collision, coefficient of restitution.</li> <li>• Conclusion of Unit</li> </ul>

#### F. RECOMMENDED STUDY MATERIAL

Sr.No	Reference Book	Author	Edition	Publication
1.	Vector Mechanics for Engineers	Beer and Johnston	Latest	Tata McGraw Hill
2.	Engineering Mechanics	D S Kumar	Latest	S K Kataria & Sons
3.	Engineering Mechanics Statics	Meriam, J. L. & Kraige, L. G	Latest	John Wiley & Son
4.	Engineering Mechanics	S. Ramamruthan	Latest	Dhanpat Rai Pub.
5.	Engineering Mechanics	Shames	Latest	Pearson Education
<b>Important Web Links</b>				
1.	<a href="https://nptel.ac.in/courses/112103109/">https://nptel.ac.in/courses/112103109/</a>			
2.	<a href="https://nptel.ac.in/courses/112106286/">https://nptel.ac.in/courses/112106286/</a>			
3.	<a href="https://freevideolectures.com/course/2264/engineering-mechanics">https://freevideolectures.com/course/2264/engineering-mechanics</a>			

**COURSE OUTCOME**

The student would be able:

- To apply basic electrical concepts, including various circuit analysis techniques and fundamentals of theorem, in practical applications.
- To understand the fundamentals of AC circuits such as the R.M.S value, average value, active power, reactive power, power factor, form factor, peak factor and their applications.
- To analyze the energy conversion process and fundamentals of rotating and stationary electrical machines with their application in real life.
- To analyze the working of semiconductor devices such as Diode, BJT, UJT, photovoltaic cells, filters and fundamentals of digital electronics.
- To understand the concepts of Communication systems and Instrumentation engineering in practical applications.

**D. OUTLINE OF THE COURSE**

Unit No.	Title of the Unit	Time required for the Unit (Hours)
1.	Basic Concepts of Electrical Engineering	7
2.	Alternating Quantities	8
3.	Energy Conversion and Electrical Machines	7
4.	Basic Electronics	7
5.	Communication Systems	7

**E. DETAILED SYLLABUS**

Unit	Unit Details
<b>1.</b>	<b>Basic Concepts of Electrical Engineering</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Basic Concepts: Electric Current, Electromotive Force, Electric Power, Ohm's Law, Basic Circuit Components, Faraday's Law of Electromagnetic Induction.</li> <li>• DC Network Analysis &amp; Theorems: Kirchhoff's Laws, Network Sources, Resistive Networks, Series-Parallel Circuits, Star-Delta Transformation, Node Voltage Method, Mesh Current Method, Super- Position, Thevenin's, Norton's and Maximum Power Transfer Theorems.</li> <li>• Conclusion of Unit</li> </ul>
<b>2.</b>	<b>Alternating Quantities</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Single Phase AC system: Introduction, Generation of AC Voltages, Root Mean Square and Average Value of Alternating Currents and Voltages, Form Factor, Peak Factor, Power Factor and Quality Factor, Phasor Representation of Alternating Quantities, Single Phase RLC Circuits.</li> <li>• Three Phase AC system: Introduction, Merits of Three Phase System, Generation and Waveform.</li> <li>• Conclusion of Unit</li> </ul>
<b>3.</b>	<b>Energy Conversion and Electrical Machines</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Introduction to Energy: Types of Energy, Introduction to Energy Conversion, Sources of Energy (Conventional &amp; Non-Conventional), Energy Scenario in India &amp; Rajasthan.</li> <li>• Rotating Machines: <b>DC Machines:</b> Principle of Operation of DC Machine as Motor and Generator, EMF Equation, Applications of DC Machines. <b>AC Machines:</b> Principle of Operation of 3-Phase Induction Motor, 3-Phase Synchronous Motor and 3- Phase Synchronous Generator (Alternator), Applications of AC</li> </ul>

	<p>Machines.</p> <ul style="list-style-type: none"> <li>Stationary Machines: Introduction, Construction and Principle of Working of Transformer, EMF Equation, Voltage Transformation Ratio.</li> <li>Conclusion of Unit</li> </ul>
<b>4.</b>	<b>Basic Electronics</b>
	<ul style="list-style-type: none"> <li>Introduction of Unit</li> <li><b>Semiconductor Devices:</b> Conduction in Semiconductors, Conduction Properties of Semiconductor Diodes, Behavior of the PN Junction, PN Junction Diode, Zener Diode, LED, Photovoltaic Cell, Rectifiers, L, C, &amp; L-C filters, BJT, UJT, Transistor as an Amplifier.</li> <li><b>Digital Electronics:</b> Boolean algebra, Binary System, Logic Gates and Their Truth Tables.</li> <li>Conclusion of Unit</li> </ul>
<b>5.</b>	<b>Communication Systems</b>
	<ul style="list-style-type: none"> <li>Introduction of Unit</li> <li><b>Basics of Communication:</b> Introduction, IEEE Spectrum for Communication Systems, Types of Communication, Amplitude and Frequency Modulation.</li> <li><b>Basics of Instrumentation:</b> Introduction to Transducers, Thermocouple, RTD, Strain Gauges, Load Cell and Bimetallic Strip, Introduction and Classification of Ics.</li> <li>Conclusion of Unit</li> </ul>

#### F. RECOMMENDED STUDY MATERIAL

Sr.No	Reference Book	Author	Edition	Publication
1.	Electrical and Electronic Technology	Edward Hughes et al,	Latest	Pearson Publication
2.	Basic Electrical & Electronics Engineering	V. Jagathesan, K. Vinod Kumar & R. Saravan Kumar	Latest	Wiley India
3.	Basic Electrical & Electronics Engineering	Van Valkenburge	Latest	Cengage learning
4.	Basic Electrical and Electronics Engineering by,	Muthusubramaniam	Latest	TMH
5.	Basic Electrical & Electronics Engineering	Ravish Singh	Latest	TMH
<b>Important Web Links</b>				
1.	<a href="https://nptel.ac.in/courses/108108076/">https://nptel.ac.in/courses/108108076/</a>			
2.	<a href="https://nptel.ac.in/courses/117103063/">https://nptel.ac.in/courses/117103063/</a>			
3.	<a href="https://nptel.ac.in/courses/108/101/108101091/">https://nptel.ac.in/courses/108/101/108101091/</a>			

**COURSE OUTCOME**

The student would be able to:

- understand the mechanism of language and linguistic creativity to communicate with each other.
- analyze the good linguistic competence through accuracy in grammar, pronunciation and vocabulary.
- apply writing skills effectively for a variety of professional and social communication.
- understand the structured conversation to make their point of views clear to the listeners by reading short stories written in English
- create the goals of effective communication and break down the barriers to effective communication process.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the unit	Time Required for the Unit (Hours)
1.	Advanced Grammar	8
2.	Applied Grammar	7
3.	Composition	7
4.	Reading fiction	7
5.	Communication	7

**B. DETAILED SYLLABUS**

Unit	Contents
1.	<b>Advanced Grammar</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Question Tag</li> <li>• Modal verbs</li> <li>• Active and passive voice</li> <li>• Punctuations</li> <li>• Conclusion of Unit</li> </ul>
2.	<b>Applied Grammar</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Idioms and phrases</li> <li>• Confusing words</li> <li>• Synonyms and Antonyms</li> <li>• Direct and indirect speech</li> <li>• One word substitution</li> <li>• Conclusion of Unit</li> </ul>
3.	<b>Composition</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Report writing</li> <li>• Review writing</li> <li>• Conclusion of Unit</li> </ul>
4.	<b>Reading Skills</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Second Opinion- R.K. Narayan</li> <li>• Kabuliwala – Rabindranath Tagore</li> <li>• Conclusion of Unit</li> </ul>
5.	<b>Communication</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Definition, meaning, significance and objectives</li> </ul>

- Types of communication
- Characteristics and principles
- Process of Communication
- Common barriers to Communication and overcoming them
- Communication structure in an organization
- Conclusion of Unit

### C. RECOMMENDED STUDY MATERIAL:

Sr.No	ReferenceBook	Author	Edition	Publication
1.	Technical Communication	Meenakshi Raman and Sangeetha Sharma	2008	Oxford University Press,
2.	Effective Technical Communication	M. Ashraf Rizvi	2005	Tata McGraw-Hill
3.	Learn Correct English: Grammar, Usage and Composition	Shiv K. Kumar & Hemalatha Nagarajan	Latest	Pearson, New Delhi, India
4.	Grammar of the Modern English Language	Sukhdev Singh & Balbir Singh	Latest	Foundation Books, New Delhi
5.	Communicative English for Engineers and Professionals	Nitin Bhatnagar and MamtaBhatnagar	Latest	Pearson( New Delhi)
6.	Communicative grammar and composition	Rajesh.K.Lidiya	2008	Oxford Univ Press, New Delhi.
<b>Important Web Links</b>				
1.	<a href="http://www.communicationskills.co.in/index.html">http://www.communicationskills.co.in/index.html</a>			
2.	<a href="http://www.bbc.co.uk/worldservice/learningenglish">http://www.bbc.co.uk/worldservice/learningenglish</a>			
3.	<a href="https://www.englishlearner.com/">https://www.englishlearner.com/</a>			
4.	<a href="http://www.englishclub.com/vocabulary/idioms-body.htm">http://www.englishclub.com/vocabulary/idioms-body.htm</a>			
5.	<a href="https://dictionary.cambridge.org/">https://dictionary.cambridge.org/</a>			

# PRACTICAL

Code:BTX02205

ENGINEERING CHEMISTRY LAB

1 Credit [LTP: 0-0-2]

## COURSE OUTCOME

The student would be able:

- To analyze hardness and fluoride content of water
- To analyze the strength of NaOH and Na<sub>2</sub>CO<sub>3</sub> solutions.
- To analyze hardness strength of Ferrous Ammonium sulphate solution and CuSO<sub>4</sub> solution
- To analyze different properties of lubricating oil.
- To handle different instruments & analytical techniques.

## LIST OF EXPERIMENTS

LIST OF EXPERIMENTS	
1.	To determine the hardness of water by EDTA method.
2.	To determine the amount of fluoride in drinking water
3.	To determine the strength of NaOH and Na <sub>2</sub> CO <sub>3</sub> in a given alkali mixture.
4.	To determine the strength of Ferrous Ammonium sulphate solution with the help of K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> solution using diphenyl amine as internal indicator.
5.	To determine the strength of CuSO <sub>4</sub> solution with the help of hypo solution.
6.	To determine the acid value of a given oil.
7.	To determine the viscosity of a given lubricating oil by Redwood viscometer.
8.	To determine the flash and fire point of a given lubricating oil.
9.	To determine the cloud and pour point of a given oil.
10.	Synthesis of Bakelite
11.	To determine the calorific value of a fuel by Bomb Calorimeter.
12.	To determine the Saponification No. of a given oil.
Virtual Labs	
1.	<a href="https://www.youtube.com/watch?v=RzAPQPWOINI">https://www.youtube.com/watch?v=RzAPQPWOINI</a>
2.	<a href="https://vlab.amrita.edu/?sub=3&amp;brch=63&amp;sim=688&amp;cnt=1">https://vlab.amrita.edu/?sub=3&amp;brch=63&amp;sim=688&amp;cnt=1</a>

**Course Outcomes:-**

Students will be able

- To Create a model of T Lap and T- Briddle Joint through carpentry shop
- To Understand the making of prototype model through foundry shop
- To analyze the difference between gas welding and arc welding and their applications
- To create a model on fitting shop through filling, slotting, drilling and tapping operation
- To Understand the difference between forging, moulding and casting

**LIST OF EXPERIMENTS**

1.	<b>Carpentry Shop</b> <ul style="list-style-type: none"> <li>• Timber, definition, engineering applications, seasoning and preservation</li> <li>• Plywood and ply boards</li> </ul>
2.	<b>Foundry Shop</b> <ul style="list-style-type: none"> <li>• Moulding Sands, constituents and characteristics</li> <li>• Pattern, definition, materials types, core prints</li> <li>• Role of gate, runner, riser, core and chaplets</li> <li>• Causes and remedies of some common casting defects like blow holes, cavities, inclusions</li> </ul>
3.	<b>Welding Shop</b> <ul style="list-style-type: none"> <li>• Definition of welding, brazing and soldering processes and their applications</li> <li>• Oxyacetylene gas welding process, equipment and techniques, types of flames and their applications</li> <li>• Manual metal arc welding technique and equipment, AC and DC welding</li> <li>• Electrodes: Constituents and functions of electrode coating, welding positions</li> <li>• Types of welded joints, common welding defects such as cracks, undercutting, slag inclusion and boring</li> </ul>
4.	<b>Fitting Shop</b> <ul style="list-style-type: none"> <li>• Files, materials and classification.</li> </ul>
5.	<b>Smithy Shop</b> <ul style="list-style-type: none"> <li>• Forging, forging principle, materials</li> <li>• Operations like drawing, upsetting, bending and forge welding</li> <li>• Use of forged parts</li> </ul>

**List of Jobs to be made in the Workshop Practice**

6.	<b>Carpentry Shop</b> <ul style="list-style-type: none"> <li>13. T – Lap joint</li> <li>14. Bridle joint</li> </ul>
7.	<b>Foundry Shop</b> <ul style="list-style-type: none"> <li>15. Mould of any pattern</li> </ul>
8.	<b>Welding Shop</b> <ul style="list-style-type: none"> <li>16. Square butt joint by MMA welding</li> <li>17. Lap joint by MMA welding</li> </ul>
9.	<b>Machine Shop Practice</b> <ul style="list-style-type: none"> <li>18. Job on lathe with facing operation</li> <li>19. Job on lathe with one step turning and chamfering operations</li> <li>20. Job on shaper for finishing two sides of a job</li> </ul>
10.	<b>Fitting Shop</b> <ul style="list-style-type: none"> <li>21. Finishing of two sides of a square piece by filing</li> <li>22. Drilling operation on fitted job (two holes)</li> <li>23. Slotting operation on fitted job</li> <li>24. Tapping operation on fitted job</li> </ul>

**COURSE OUTCOMES:-**

Students will be able to

- analyze the house wiring connections of various equipments such as energy meter, ceiling fan, tubelight etc.
- create the connections of single phase and three phase induction motors.
- Understand the construction and application of various electrical components such as Resistors, Inductors, Capacitors, PN-Diode, Zener Diode, LED, LCD, etc.
- Analyze the effect of L, C and L-C filters in single phase half wave and full wave bridge rectifier
- Analyze the effect of LC and LC filters in current and power rectifiers

**LIST OF EXPERIMENTS:**

1	Assemble house wiring including earthing for 1-phase energy meter, MCB, ceiling fan, tube light, three pin socket and a lamp operated from two different positions. Basic functional study of components used in house wiring.
2	Prepare the connection of ceiling fan along with the regulator and vary the speed.
3	Prepare the connection of single phase induction motor through 1-Phase Auto-transformer and vary the speed.
4	Prepare the connection of three phase squirrel cage induction motor through 3-Phase Autotransformer and vary the speed.
5	Prepare the connection of Fluorescent Lamp, Sodium Vapour and Halogen Lamp and measure voltage, current and power in the circuit.
6	Identification, testing and application of Resistors, Inductors, Capacitors, PN-Diode, Zener Diode, LED, LCD, BJT, Photo Diode, Photo Transistor, Analog/Digital Multi- Meters and Function/Signal Generator.
7	Measure the frequency, voltage, current with the help of CRO.
8	Assemble the single phase half wave and full wave bridge rectifier & the analyse effect of L, C and L-C filters in rectifiers.
9	Study the BJT amplifier in common emitter configuration. Measure voltage gain plot gain frequency response and calculate its bandwidth.
10	Verify the truth table of AND, OR, NOT, NOR and NAND gates
11	Prepare the connection of sodium lamp and measure voltage
12	Analyze the effect of LC and LC filters in current and power rectifiers
Virtual Lab	
1	<a href="http://vlabs.iitkgp.ernet.in/be/">http://vlabs.iitkgp.ernet.in/be/</a>
2	<a href="http://em-coep.vlabs.ac.in/List%20of%20experiments.html?domain=Electrical%20Engineering">http://em-coep.vlabs.ac.in/List%20of%20experiments.html?domain=Electrical%20Engineering</a>

**COURSE OUTCOME**

The student would be able to:

- understand the concepts sectioning, true section and apparent section and create the sectional views of the engineering components.
- understand the development of surface and analyze the sheet metal requirement for fabricating a surface.
- analyze the curves produced due to intersections of different surfaces.
- create isometric views of various engineering components.
- create multi view drawings of simple and complex engineering components

**A. LIST OF EXPERIMENTS**

1.	Introduction to machine drawing
2.	Dimensioning, locations and placing
3.	<b>Orthographic projections:</b> First & third angle methods Drawing Sheet 1: Orthographic Projections (3 Problems) Drawing Sheet 2: Sectional Views (3 Problems) Drawing Sheet 3: Riveted joints, lap joints, butt joints, chain riveting, zig-zag riveting Drawing Sheet 4: Screw fasteners, different threads, Nuts & bolts locking devices, set screws, foundation Drawing Sheet 5: Bearing, Plumber block
4.	Instructions on free hand sketches List of free hand sketches <ul style="list-style-type: none"> <li>• Different type of lines</li> <li>• Conventional representation of materials</li> <li>• Screw fasteners</li> <li>• Bearing: Ball, roller, needle, foot step bearing</li> <li>• Coupling: Protected type, flange, and pin type flexible coupling</li> <li>• Welded joints</li> <li>• Belts and pulleys</li> <li>• Pipes and pipe joints</li> <li>• Valves</li> </ul>
Virtual Labs	
1	<a href="http://vlabs.iitb.ac.in/vlabs-dev/labs/mit_bootcamp/egraphics_lab/labs/index.php">http://vlabs.iitb.ac.in/vlabs-dev/labs/mit_bootcamp/egraphics_lab/labs/index.php</a>

## COURSE OUTCOME

The student would be able:

- To develop English Language Skills in Listening, Speaking, Reading and Writing by getting engaged in a range of communicative tasks and activities.
- To understand how speech sounds are used to create meaning and applying their knowledge of Phonetics to improve the pronunciation.
- To expand the use of grammatically correct and culturally appropriate language in a variety of interpersonal and academic situations.
- To create awareness about the learning styles and to increase competence in the use of technology for achieving academic goals.
- To demonstrate an understanding of the ethical and political scenarios by presenting their opinions on different forums and work on achieving industry-oriented qualifications.

## LIST OF EXPERIMENTS

Sr. No.	Details
11.	Listening Skills-Techniques of effective listening; listening to the audios and videos of famous personalities then analysis of the same ,Audio-Video Listening
12.	Reading skills: Newspaper Review & movie Review
13.	Writing Skills- Writing of story with jumbled words, writing of article& E-Mail Writing (do's & don'ts, effective techniques)
14.	Phonetics-I: Introduction and Basic Concepts
15.	Phonetics-II:Use of phonetics in English language; pronunciations
16.	Grammar common errors &usage :Spotting errors, confusing words,
17.	Speaking Skills: Listening of conversation through software; Doing conversation based on day to day life
18.	Role Plays: On various situations based on various sectors.
19.	Presentation Skills I: Elements of an effective presentation, Structure and tools of presentation ;body language& voice Module
20.	Presentation Skills II: Sample Presentation by students(Entrepreneurship,Interview Skills, Environment etc.)
21.	Group Discussions: Key Points of Group Discussion; Live Group Discussion
22.	Interview Skills: Concepts and process, pre-interview planning, opening and answering strategies, Interview through telephone and video conferencing; Mock Interviews

**COURSE OUTCOME**

Students will be able:

- To help students distinguish between values and skills, and understand the need, basic guidelines, content and process of value education.
- To help students initiate a process of dialog within themselves to know what they ‘really want to be’ in their life and profession.
- To help students understand the meaning of happiness and prosperity for a human being.
- To facilitate the students to understand harmony at all the levels of human living, and live accordingly.
- To facilitate the students in applying the understanding of harmony in existence in their profession and lead an ethical life.

**A. OUTLINE OF THE COURSE**

Unit No.	Title of the Unit	Time required for the Unit (Hours)
1	<b>Self-exploration</b>	5
2	<b>Understanding Harmony in the Human Being - Harmony in Myself</b>	4
3	<b>Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship</b>	5
4	<b>Implications of the above Holistic Understanding of Harmony on Professional Ethics</b>	5
5	<b>Professional &amp; Language competency</b>	5

**B. DETAILED SYLLABUS**

Unit	Unit Details
1	<b>Self-exploration</b>
	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Course Introduction - Need, Basic Guidelines, Content and Process for Value Education</li> <li>• Understanding the need, basic guidelines, content and process for Value Education, Self-Exploration–what is it?</li> <li>• Its content and process; ‘Natural Acceptance’ and Experiential Validation- as the mechanism for self-exploration, Continuous Happiness and Prosperity- A look at basic Human Aspirations, Right understanding, Relationship and Physical Facilities The basic requirements for fulfillment of aspirations of every human being with their correct priority.</li> <li>• Conclusion &amp; Real life applications</li> </ul>
2	<b>Understanding Harmony in the Human Being - Harmony in Myself</b>
	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Understanding human being as a co-existence of the sentient ‘I’ and the material ‘Body’</li> <li>• Understanding the needs of Self (‘I’) and ‘Body’</li> <li>• Understanding the Body as an instrument of ‘I’ (I being the doer, seer and enjoyer),</li> <li>• Understanding the characteristics and activities of ‘I’ and harmony in ‘I’,</li> <li>• Understanding the harmony of I with the Body.</li> <li>• Conclusion &amp; Real life applications</li> </ul>
3	<b>Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship</b>

	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Understanding harmony in the Family- the basic unit of human interaction</li> <li>• Understanding values in human-human relationship</li> <li>• meaning of Justice &amp; program for its fulfillment to ensure Trust and Respect as the foundational values of relationship,</li> <li>• Understanding the meaning of Trust</li> <li>• Difference between intention and competence,</li> <li>• Understanding the meaning of Respect Difference between respect and differentiation; the other salient values in relationship</li> <li>• Understanding the harmony in the society (society being an extension of family): as comprehensive Human Goals, Visualizing a universal harmonious order in society- Undivided Society</li> <li>• Conclusion &amp; Real life applications</li> </ul>
4	<b>Implications of the above Holistic Understanding of Harmony on Professional Ethics</b>
	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Natural acceptance of human values</li> <li>• Definitiveness of Ethical Human Conduct</li> <li>• Basis for Humanistic</li> <li>• Humanistic Constitution and Humanistic Universal Order</li> <li>• Competence in Professional Ethics &amp; Case studies of typical holistic technologies, management models and production systems</li> </ul> <p>Strategy for transition from the present state to Universal Human Order</p> <ul style="list-style-type: none"> <li>• Conclusion &amp; Real life applications</li> </ul>
5	<b>Professional and Language Competence</b>
	<ul style="list-style-type: none"> <li>• Introduction of the Unit</li> <li>• Professional Communication , its meaning , importance &amp; scope .</li> <li>• Sentences</li> <li>• Tenses and its usage</li> <li>• Active &amp; Passive Voice</li> <li>• Conclusion &amp; Real life applications</li> </ul>

### C. RECOMMENDED STUDY MATERIAL:

Sr. No	Reference Book	Author	Edition	Publication
1.	A Foundation Course in Human Values and Professional Ethics.	R R Gaur, R Sangal, G P Bagaria,	2009	Excel Books
2.	Human Values	A N Tripathy	2003	New Age International Publishers
3.	Indian Ethos and Modern Management	B L Bajpai	2004	New Royal Book Co., Lucknow
4.	Science and Humanism	P L Dhar, RR Gaur	1990	Commonwealth Publishers
5.	Human Values and Professional Ethics	Tanu Shukla, Anupam Yadav	Latest	Cengage India Private Limited.
<b>Important Web Links</b>				
1	<a href="https://nptel.ac.in/courses/109104068/">https://nptel.ac.in/courses/109104068/</a>			
2	<a href="https://www.tutorialspoint.com/engineering_ethics/index.htm">https://www.tutorialspoint.com/engineering_ethics/index.htm</a>			
3	<a href="https://www.storyofstuff.org/">https://www.storyofstuff.org/</a>			

Students will be able:

- To understand the scope of environmental studies and explain the concept of ecology, ecosystem and biodiversity.
- To implement innovative ideas of controlling different categories of Environmental Pollution.
- To explain different environmental issues together with various Environmental Acts, regulations and International Agreements.
- To summarize social issues related to population, resettlement and rehabilitation of project affected persons and demonstrate disaster management with special reference to floods, earthquakes, cyclones, landslides.
- To determine the local environmental assets with simple ecosystems and identify local flora and fauna.

#### A. OUTLINE OF THE COURSE

Unit No.	Title of the unit	Time required for the Unit (Hours)
1.	Introduction to environmental studies	5
2.	Environmental Pollution and its control	5
3.	Environmental Policies & Practices	5
4.	Human Communities and the Environment	5
5.	Field work	4

#### B. DETAILED SYLLABUS

Unit	Unit Details
1.	<b>Introduction to environmental studies</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Multidisciplinary nature of environmental studies</li> <li>• Concept of sustainability and sustainable development.</li> <li>• Ecosystem: Structure and function of ecosystem</li> <li>• Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies\</li> <li>• Case studies of the following ecosystems: Forest ecosystem, Grassland ecosystem, Desert ecosystem Aquatic ecosystems</li> <li>• Biodiversity and Conservation</li> <li>• Conclusion of Unit including Real Life Application</li> </ul>
2.	<b>Environmental Pollution and its control</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution</li> <li>• Nuclear hazards and human health risks</li> <li>• Solid waste management: Control measures of urban and industrial waste.</li> <li>• Pollution case studies</li> <li>• Conclusion of Unit including Real Life Application</li> </ul>
3.	<b>Environmental Policies &amp; Practices</b>
	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture</li> <li>• Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.</li> <li>• Environment Laws: Environment Protection Act; Air (Prevention &amp; Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act.</li> <li>• International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD)</li> <li>• Conclusion of Unit including Real Life Application</li> </ul>
4.	<b>Human Communities and the Environment</b>

	<ul style="list-style-type: none"> <li>• Introduction of Unit</li> <li>• Human population growth: Impacts on environment, human health and welfare.</li> <li>• Resettlement and rehabilitation of project affected persons; case studies.</li> <li>• Disaster management: floods, earthquake, cyclones and landslides.</li> <li>• Conclusion of Unit including Real Life Application</li> </ul>
<b>5.</b>	<b>Field work</b>
	<ul style="list-style-type: none"> <li>• Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc.</li> <li>• Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.</li> <li>• Study of common plants, insects, birds and basic principles of identification.</li> <li>• Study of simple ecosystems-pond, river, Delhi Ridge, etc.</li> </ul>

### C. RECOMMENDED STUDY MATERIAL:

Sr. No	Reference Book	Author	Edition	Publication
1.	Environmental Studies	ErachBarucha	Latest	UGC
2.	Environmental Studies	Benny Joseph	Latest	Tata McGrawHill
3.	Environmental Studies	R. Rajagopalan	Latest	Oxford University Press
4.	Principles of Environmental Science and Engineering	P. Venugoplan Rao	Latest	Prentice Hall of India.
5.	Environmental Science and Engineering	P. Meenakshi	Latest	Prentice Hall India.
<b>Important Web Links</b>				
1.	<a href="http://www.energy.gov">http://www.energy.gov</a>			
2.	<a href="https://nptel.ac.in/courses/122102006/">https://nptel.ac.in/courses/122102006/</a>			

**COURSE OUTCOME**

Students will be able:

- To help students distinguish between values and skills, and understand the need, basic guidelines, content and process of value education.
- To help students initiate a process of dialog within themselves to know what they ‘really want to be’ in their life and profession.
- To help students understand the meaning of happiness and prosperity for a human being.
- To facilitate the students to understand harmony at all the levels of human living, and live accordingly.
- To facilitate the students in applying the understanding of harmony in existence in their profession and lead an ethical life

**LIST OF ACTIVITIES**

Sr. No.	Details
1.	<b>Activity No. 1: Self-Introduction &amp; Goal Setting</b> Introduce yourself in detail. What are the goals in your life? How do you set your goals in your life? How do you differentiate between right and wrong? What have been your salient achievements and shortcomings in your life? Observe and analyze them.
2.	<b>Activity No. 2: Ambitions and its relation to SELF &amp; BODY</b> List down all your Desires & segregate between them whether the Desire is related to SELF or BODY or BOTH? And if Both which part is related to BODY and which part is related to SELF.
3.	<b>Activity No. 3: Creating in Harmony between mind &amp; body</b> Chalk out some programs towards ensuring your harmony with the body - in terms of nurturing, protection and right utilization of the body. 2. Find out the plants and shrubs growing in and around your campus or home, which can be useful in curing common diseases.
4.	<b>Activity No. 4: Creative Speaking &amp; Writing Skills</b> Write a narration in the form of a story, poem, skit or essay to clarify a salient Human Value to the children. 2. Recollect and narrate an incident in your life where you were able to exhibit willful adherence to values in a difficult situation.
5.	<b>Activity No. 5: Creative Speaking &amp; Writing Skills</b> Make a chart to show the whole existence as co-existence. With the help of this chart try to identify the role and the scope of some of the courses of your study. Also indicate the areas which are being either over-emphasized or ignored in the present context.
6.	<b>Activity No. 6: Analytical Skills</b> Identify any two important problems being faced by the society today and analyze the root cause of these problems. Can these be solved on the basis of natural acceptance of human values. If so, how should one proceed in this direction from the present situation.
7.	<b>Activity No. 7: Professional Writing</b> Write letters to the newspaper editors of your city regarding your suggestions on the role & responsibility of Youth towards Nation Building.
8.	<b>Activity No. 8: Professional Competence</b> Group Discussion & Personal Interview Sessions on contemporary & Ethical Issues.
9.	<b>Activity No. 9: Professional Ethics &amp; Dilemmas</b> Case Studies analysis regarding the lapses in ethical conduct around in the professional Set Up and the ultimate consequences.
10.	<b>Activity No. 10: Professional &amp; Ethical Approaches</b> Pick a card with Ethical and troubling situations written on and enact or write the response you could probably give over.

**COURSE OUTCOME**

Students will be able:

- To communicate scientific information precisely in both oral and written forms.
- To demonstrate basic laboratory skills of proper handling of laboratory glassware, equipment and chemical reagents.
- To test water quality parameters in given waste water sample by using different instruments.
- To investigate the values of DO, BOD and COD in industrial waste water samples.
- To detect levels of TS, TDS and TSS in waste water sample.

**LIST OF EXPERIMENTS:**

1.	To determine the pH of the given sample of sewage.
2.	To determine the conductivity of the given sample of sewage
3.	To determine the turbidity of the given sample of sewage
4.	To determine free chlorine of the given sample of water
5.	To determine available chlorine of the given sample of water
6.	To determine Total Solids of the given sewage sample.
7.	To determine the Total Dissolved Solids of the given sewage sample.
8.	To find out Total Settleable Solids of the given sewage sample.
9.	To determine Total Suspended Solids of the given sewage sample.
10	To find out the Quantity of Dissolved Oxygen present in the given water sample by Winkler's Method.
11	To determine Biochemical Oxygen Demand exerted by the given wastewater sample.
12	To find out Chemical Oxygen Demand of the waste water sample.
Virtual Labs	
1	<a href="https://virtuallabs.merlot.org/earth_science/index.html">https://virtuallabs.merlot.org/earth_science/index.html</a>

**Code: BTX02211****ANANDAM COURSE****2 Credits [LTP: 0-0-1]**

**OVERVIEW AND OBJECTIVES:** The Anandam program aims to instill the joy of giving in young people, turning them into responsible citizens. Who will build a better society through daily action, it will build the habit of service in students across colleges and universities in Rajasthan. The students will have to undertake the course each semester starting with the 2020-21 academic year.

**COURSE OUTCOMES**

- Each student will be able to work as team member.
- Student will learn social activities.
- Students will be familiar with society.

**DETAILED SYLLABUS**

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register/ Personal Diary
- Share this Register/ Personal Diary day in the 30-minute Anandam time slot dedicated by the college.
- Undertake one group service project for 64 Hours every term (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion session held once a month.

**CODE: BTX02612****Social Outreach, Discipline & Extra Curricular Activities****1 Credits**

**OVERVIEW AND OBJECTIVES:** The objective of Social Outreach, Discipline & Extra Curricular Activities is to provide students with the opportunities to enhance job fetching skills and at the same time to cultivate the student's personal interests and hobbies while maintaining the good disciplinary environment in the University. TEP is integrated into the curriculum for holistic development of students through active participation in various activities falling in Technical and non technical categories.

Social Outreach, Discipline & Extra Curricular Activities shall be evaluated irrespective of period/time allocation (as in the case of Extra Curricular activity) in the teaching scheme as a **0.5 credit** course. The record related to discipline and related activities are maintained for each student and they shall be evaluated for the same also. It shall be counted in calculation of SGPA but it is not a backlog subject. However, the attendance of these classes shall be recorded and accounted in the total attendance.

Activities included in this category in the Second Semester are as follows:

Code	Activity	Hours	Credits
BTX01612.1	Talent Enrichment Programme (TEP)- II	2	1
BTX01612.2	Campus Recruitment Training (CRT)- II	2	

## Students' Council

To instill the values of self-motivation, self-confidence and sensibility within all its students Poornima University is introducing the concept of Students' Council from session 2017-18 onwards. The Students' council will consist of Chair, Co-Chair, Captains & vice Captains representing all schools & departments of the university as well as the hostels. The Chair, Co-Chair, Captains & vice Captains will be selected by the committee comprising of the Chief Proctor, Chief Warden and 2 Faculty Advisors.

### Objectives :

- To cultivate and rejuvenate hobbies and interests of students;
- To act as a platform to showcase hobbies, interests and talents of students;
- To learn and nurture managerial and leadership skills;
- To organize inter & intra university activities, programs and competitions;
- To act as a medium for Interschool interaction.

**Students' Council SHALL have 1 Chair, 1 Co-Chair and 10 clubs under them. The clubs for session 2018-19 will be:**

Club Name	Captain & Vice-Captain	Faculty Advisor
<ul style="list-style-type: none"> <li>• Photography &amp; Videography Club</li> <li>• Yi Yuva Club</li> </ul> (Club supported by Young Indians, CII; Membership Fee will be INR 100) <ul style="list-style-type: none"> <li>• Music Club</li> <li>• Literary &amp; Theatre Club</li> <li>• Poornima Paathshala Club</li> </ul>	May be a Day Scholar, but in case of no show to be chosen from hostels	Mr. Simranjeet Singh
<ul style="list-style-type: none"> <li>• Art &amp; Design Club</li> <li>• Sports Club</li> <li>• Workshop, Training &amp; Placement (WTP)</li> <li>• Dance Club</li> <li>• Academics Club</li> </ul>	Compulsorily from Hostels	

### Eligibility for becoming member of The Students' Council:

- Students enrolled in full time courses at Poornima University will be eligible to apply.
- Students of Pre-Final year will be eligible to apply for the post of Chair, Students' Council.
- Students of 2nd Year will be eligible to apply for the post of Co-Chair, Students' Council.
- Students of 2nd Year will be eligible to apply for the post of Captain of any club.
- Students of 1st Year will be eligible to apply for the post of Vice-Captain of any club.
- Students having excellent track record in a leadership role will be preferred.
- Students will apply through S-17 form and selection will be done by the committee through a personal interview.
- Chair of Students' Council will be part of the committee interviewing Captains & vice-Captains.

### Benefits of The Students' Council:

- Completely Student Driven, Student run council with least intervention of Mgmt.;
- It will empower the student to become responsible and develop leadership qualities;
- Certificate for volunteering will be given to each individual upon successful completion of the term;
- Student member availing college transport will have the liberty to use faculty bus service.
- 10 Bonus Attendance will be given against time taken out to plan various meetings & activities.
- It will foster a strong sense of community within its members.

## About [www.poornima.edu.in](http://www.poornima.edu.in)

The website has in it a lot of information relevant to students, faculty and visitors. The website features the academic calendar, which shows the exact schedule to be followed throughout the session. Through this facility, the students can get the examination dates and can keep a track of the upcoming events.

As the whole world is already going 'gaga' over bringing all the information online, our university is also matching the pace. The students can now get assignments, syllabus and schemes of their respective branches on a click. It also contains a section which tells the student about "ATTENDANCE" the word that every poornimite chants like a mantra. The red color shows attendance less than 75%, the yellow 75-80% and the green more than 80%. So, this facility of keeping track of one's attendance is a boon for the students who struggle really hard with their attendance.

## How To ENSURE SUCCESS AS a FRESHER in The University

1. Attend all the orientation programs
2. Get to know your roommate and others in your residence hall.
3. Be organized
4. Find the ideal place for you to study.
5. Attend all classes.
6. Become an expert on the course requirements and due dates.
7. Meet with your faculty members.
8. Seek a balance.
9. Get involved in campus activities.
10. Strive for good grades.
11. Get to know your academic adviser.
12. Take advantage of the study resources on campus.
13. Spare time for yourself.
14. Don't feel pressurized to make hasty decisions about a career or a major.
15. Take responsibility of yourself and your actions.
16. Make connections with students in your classes.
17. Find the career services office.
18. Don't procrastinate; prioritize your life.
19. Stay healthy / eat right.
20. Learn to cope with homesickness.

### HINDI MEDIUM STUDENTS MUST DO

- Buy a Hindi/English dictionary.
- Ask the difficult words from teachers and classmates
- Try to frame short and simple sentences in English
- Practice to write answers before appearing in exams.
- Make a model answer book in own language.

## CURRICULAR ACTIVITIES

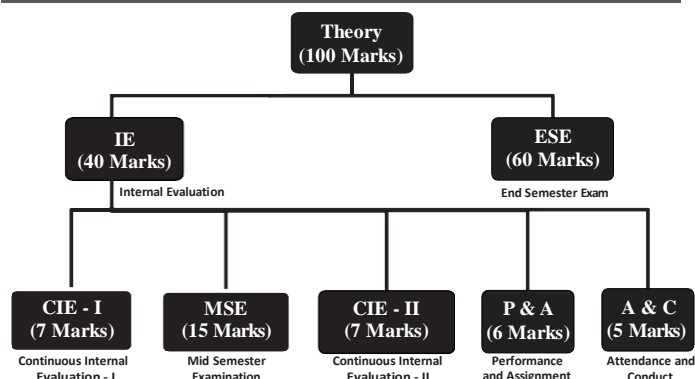
### A. CREDIT AND GRADING SYSTEM

- Credit System is introduced which involves breaking down the curriculum into measurable units that can be combined to get a degree / diploma.
- A 'credit' is generally a 'value' used to measure a student's work load in terms of learning time required to complete course units, resulting in learning outcomes.
- Marks in each subject will be converted to the following letter grade on the Ten-point scale.

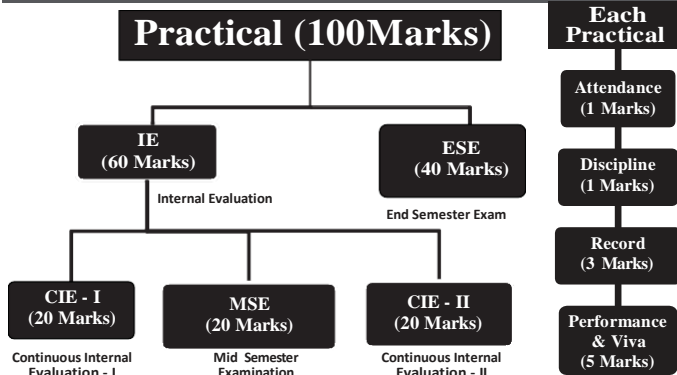
Grade	Academic Performance	Grade Point ( $G_i$ )	Grade	Academic Performance	Grade Point ( $G_i$ )
A+	Outstanding	10	D	Satisfactory	5
A	Excellent	9	F	Fail	0
B+	Very good	8	I	Incomplete	---
B	Good	7	W	Withdrawal	---
C	Average	6			

- The student's performance in any semester will be assessed by the Semester Grade Point Average (SGPA). Semester Grade Point Average (SGPA) is calculated as  $SGPA = \frac{C_1G_1 + C_2G_2 + \dots + C_iG_i + \dots}{C_1 + C_2 + \dots + C_i + \dots}$  where C is the number of credits allotted to the subject "i",  $G_i$  is the Grade Point associated to the Grade given to that subject "i".

#### MARKING SCHEME FOR THEORY SUBJECTS



#### MARKING SCHEME FOR PRACTICAL SUBJECTS



### B. SELF HELP GROUPS (SHG)

**Objective :** To involve higher performance students in improving question answer skills of weaker students and make the group a high achiever group.

**Procedure:**

- Self Help Groups (SHG) are formed for each tutorial batch in a class on the basis of their last university/school result. 6 self help groups will be formed in one tutorial batch, each group comprising of 3 or 4 students.
- Faculty will check the copies of the coordinator of each group and will guide them so that they can help the other students.
- Each SHG group gets a different tutorial sheet, so there will be 6 tutorial sheets in a tutorial class.

- If required, the group members can stay back after college hours up to 4:00 pm for mutual help and discussions. College may provide conveyance if possible or else the students can make their own arrangements for their benefit.
- Tutor of the class shall be the facilitator of the groups formed for the batches and shall pass on the relevant information as desired by Dean/ HOD to the groups so that quality of tutorials assignments, lab records, results & attendance improves.

### **C. SMART CLASSES**

Poornima University enjoys advantage of smart classrooms empowered by Pearson DigiClass. Pearson's highest quality e-textbook content, flexible offering allows the advantage of a convenient and fully digital way for teaching and learning. Better assessment system, real-time paper evaluation and abstract concepts made easy to understand.

### **D. TALENT ENRICHMENT PROGRAM (TEP)**

#### **Objective:**

TEP includes various clubs which are regularly conducting activities for boosting confidence and leadership of the students. Seven clubs are actively working to nurture the personal areas of interest among the students as a part of TEP. The clubs are technical as well as non technical with well defined activities which are co curricular/ extracurricular in nature. TEP is integrated in curriculum under discipline with two credits and performer are motivated / sponsored to participate in inter/intra university competitions.

- It would be compulsory for a student to perform them at a satisfactory level.
- Attendance of TEP course shall be accounted with other courses and used for the calculation purpose of Total attendance.
- A student needs to register for TEP course as per availability and based on his/her interest from the offered course

Club Name	DESCRIPTION	Faculty Coordinator
Literary & Rhetoric Club	Literary Club enhances the speaking skill of students and promote them to speak in public and improve their presentation skills.	Dr. Pragya Mishra & Ms. Sugandha Verma
CAD Club	This Club enhances the use of CAD software.	Mr. Vinay Bhatt
Dynamic Projects Club	This Club enhances the mechanical thinking and practical knowledge of students.	Mr. Manoj Sharma Mr. Shrikant Verma Mr. Praveen Meena
Cinematography Club	This Club enhances the picture capturing skills of students.	Mr. Ashok Saini
Sports Club	This Club enhances the sports skills of student.	Mr. Randhir Baghel Mr. Kailash Bairwa
Social Service Club	Social Service Club of Poornima University is to promote social spirit among students.	Dr. Dipti Mathur Dr. Ravika Vijay

**E. LIFE AND CAREER SKILLS:**

- Language lab for enhancing communication
- Soft Skills in all Semesters
- Life and Career Skills and Human Skills to improve values and communication
- Soft Skills designed as Practical

**F. NON SYLLABUS PROJECTS:**

- Technical Know-how exposure of projects
- Included as a part of regular curriculum (I, III, and V Semester of B.Tech; and I & III Sem of BCA)
- Provide hands on experience of implementing a project right from the conceptual stage
- Exposure to Report Writing and model Building

**G. FRENCH LANGUAGE:**

- Offered as Open Elective to all students
- For interested and selected students
- 3 credit / 36 hrs Course

**H. INDUSTRIAL TRG & VISIT :**

- First year industrial Visit (B.Sc./B.Tech/ BCA/ B.com / MBA )
- Educational Tour( MBA / BBA / B.Com)
- 3 months rigorous winter TRG for B.Tech Students incorporated in curriculum (V sem)
- 6 months internships for B.Tech/B.Arch/BCA students in final sem.
- Short term Ind. training in sem break- B.Sc. / B.Tech

**I. PU- MISSION PLACEMENT :**

- Forging ahead with placement as Mission
- Company specific trainings
- Workshop Mode for preparation of Apti/ GD / PI
- One to one interaction and placement workshop

**J. INDUSTRY EXPERT INTERACTION :**

- Top notch industrialists, CEOs, MDs invited for Expert talks to brief the current requirements from Budding Professional
- Provide real time inputs and exposure to students to get Placement ready

**K. SEMESTERS BREAK ACTIVITY :**

- To guide students to utilize time available in semester breaks productively for grooming their skills and personality
- Short term courses offered by PU: GATE / PDP/ Core technical brushing up/ placement workshop / English language etc.

**L. E- SHIKSHA:**

- Virtual classes for E- Learning with access to IIT / IIM Learning material
- Self-study, anytime, anywhere
- An innovative learning tool for developing technical and non technical skills in each application
- large repository of courses in Engineering, Science and Humanities from the best institutes available on web

**M. PU-WRS:**

- PU- Write, Rehearse and Speak- a regular weekly programme for improvement of communication skills
- Develops writing, reading and speaking skills and instills confidence
- Encourages students to go through multifarious issues and motivates them to speak in a group of people

**N. SHORT TERM INDUSTRIAL TRAININGS AND VISITS :**

- Students motivated and referred to industries / organizations for short term training
- Hands on intensive training
- Daily feedback and daily report
- Report submission, presentation
- Ensure utilization of semester breaks
- Industrial visits to give practical exposure of organizational structure and working

**O. SUPER CLUB**

Super club act as an information centre and the focus is on preparing students for all competitive examination like GATE, GRE, CRT etc.

**P. CARRIER ORIENTATED CLASSES (COC)**

A Tie-Up with leading education service provider Career Launcher Educate Limited (CL Educate), aims at training Poornima's students to face global challenges posed by the recruiters. MOU with reputed professional institutions/centers accelerate the process of CRT. The training includes practice sessions, technical trainings, motivational and inspirational sessions by corporate trainers. PU is achieved through continuous activities such as:

## POORNIMA UNIVERSITY

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- |                     |                                 |                         |
|---------------------|---------------------------------|-------------------------|
| • Group Discussion  | • Technical Skills              | • Seminars              |
| • Aptitude Skills   | • Interview Skills              | • Workshops             |
| • Analytical Skills | • Mock written test             | • Online placement test |
| • Language Skills   | • Mock interview technical & HR |                         |

### Q. PU INSPIRE

PU INSPIRE is a program for interaction of students with Eminent Achievers as a part of career guidance and personality development.

### R PMEPI (Poornima MISSION For Becoming ENGLISH Proficient Institution)

The Vision Plan 2016-17 prepared by Chairperson Ar. Shashikant Singhi, PF on overall development of Faculty and Students. It targets the enhancement of the personal and professional self and genuine contribution in this mission will surely ignite the flame of hope, zeal to create an environment of speaking proficient English.

The practice of PMEPI led to the creation of an atmosphere of speaking English which improved capability of a student to secure a job. It also provided a platform for every individual to remove their hesitation. It also increased speaking confidence in students.

### S. EXTRA-CURRICULAR ACTIVITIES

#### Poornima Annual SPORTS-CULTURAL Fest: Lakshya

The

Fourth Annual Sports and Cultural Fest of Poornima University was started on April 5th 2018 and lasted on April 8th 2018. It was an inter and intra institutional event comprising of Cultural, Club and Sports (indoor and outdoor) activities. Approximately 40 Universities and 3000 students (1200 where the outside participants) participated in 34 different activities organized in the three days fest.

- The Fest commenced with the formal Inauguration by Chief Guest Dr. K.K.S. Bhatia (President, PU), Guest of Honor Athlete Padamshree Shri Ram Singh adorned the occasion with their eminence presence in the University.
- Other dignitaries viz., Ar. Rahul Singhi (Director, PF), Dr. Manoj Gupta (Pro-President (I/C), PU, Dr. Mahesh Bunde (Dean-R&D, PU) and Smt. Renu Singhi (Advisor- PAA) along with many esteemed persons also honored the occasion with their prestigious presence.
- It witnessed a splendid blend of more than 35 dazzling events like Volley ball, Football, Basket Ball, Crazy Selfie, LAN Gaming, Stop Motion Documentary, Scavenger Hunt, Group Dance, Nukkad Natak etc.
- Lottery for Students was introduced in which one who participates in all registered events received attractive prizes on the basis of lottery like Mobile Phones, Smart Watch, Smart Health Band, Pens, Pen Drives, Laptop Bags, Bluetooth Speakers, Earphones, Document Folder, Dinner Coupons for Two, Aviator Sunglasses.
- Vivo smart phones sponsored the event Lakshya and gave the prizes to the students. The fest also attracted a large number of corporate sponsorships like : KNOWAFEST.com (campus festival in India), Education partner Global Research (education matters), Fitness partner Gold gym, Study partner CADD Centre, Network partner Bangon, Style partner shades, Healthcare partner Mediplus, Media partner radio city, Yatra partner Swadeshi cab,.

**T. Poornima Annual Magazine: Spectrum**

Poornima University extends far beyond the classroom education, therefore our students excel in numerous areas. The dynamic accomplishments and involvement of the Poornima University have provided our writers with a wealth of interesting topics to share with you. A magazine mirrors an institution -its aims and objectives. It also highlights events, activities and academic prowess and achievements. In this edition, we have tried to capture this year's excitement and activities. We do hope that the magazine encourages many more students to use it as a platform to express their creativity.

**U. Department Day Celebration**

Poornima University celebrates Annual Department Day among all its departments. Students from all the departments participate in many activities & competitions like Project competition, Poster competition, Skit, Seminar Competition and Documentary Competition.

**V. Poornima Newsletter: ASPIRATION**

Every year on the occasion of Department Day Celebration, B.Sc and B.Tech I Year department release its news Letter Aspiration.

**W. Elite Football League of India**

Poornima University has tie up with Elite Football League of India to mentor students for American Football. The University team is named as "POORNIMA PANTHERS". Many students enthusiastically participated in the local league and the selected students also played the advance game.

**Himalaya Hostel Premier League(HHPL 2018)**

This cricket season was a very special one for Poornima hostels because of the introduction of the first edition of HHPL. It was clearly program to find the best cricketers of Poornima, to enhance their talents and to give a platform to the students to perform.

**X. Prayogam**

"PRAYOGAM" a multi-dimensional event that acts as a proactive initiative to create awareness among enthusiastic students about contemporary technological scenario.

## Poornima PATHSHALA

Om Prakash Gurjar, alumnus of Poornima University (International Children's Peace Prize Winner) along with PU students are running "Poornima Pathshala" in Poornima University campus. The Pathshala is contributing in the noble cause of transforming the lives of underprivileged children & people residing in near by villages and slum areas of Jaipur. The events & activities organized under Poornima Pathshala :

- Various festival celebration
- Study Kit distribution
- Indoor & Outdoor Activities
- Personality Grooming
- Art & Craft workshop
- Excursion & Entertainment Activities
- Basic Education
- Goodies Distribution

## MISCELLANEOUS EVENTS

- Student Orientation Programme
- Blood Donation Camp
- Engineer's Day Celebration
- Art of Living
- Science Day
- World Ozone Day
- Teacher's Day Celebration
- World Water Day

## Time, Management Funda

*Set priority*  
*Do*  
*Delay*  
*Delegate*  
*Delete*

Don't procrastinate, whatever the situation may be, if you have some free time, just do it now otherwise, you will be struck doing later. If an assignment takes longer than you had expected, you will have wished that had begun it sooner or waiting until the last minute. Read more about procrastination from the University of North Carolina.

Use a planner or calendar to keep track of due dates. Missing a paper deadline or forgetting exam dates is inexcusable. Avoid this by shelling out a few bucks for a planner and use it regularly.

Set priorities and don't be afraid to cut back on a few things. Being captain of the lacrosse team, student government president, and editor of the yearbook all while getting a degree in chemical engineering might look great on a resume, but for most people, taking on so many activities is impractical. Take a serious look at what is important to you. If you feel overloaded, don't be afraid to drop an activity or two.

Time is on your side. There are 168 hours in each week. If you set aside 56 hours for sleep and 40 hours for academics, that leaves you with 72 hours for everything else.

Leave reminders for yourself. Have a meeting tomorrow at noon? Leave post-it note on your door so you don't forget.

Avoid time wasters'. As fun as it may be to stay up all night watching television or playing cards, perhaps you shouldn't do so with a tough paper due on the next day.

### ENTRY LEVEL SCHOLARSHIP

1. Applicant availing any kind of scholarship or financial assistance from Government or Semi Government or any other private organization for educational support is not entitled for Poornima University Scholarship.
2. Any violation of above said term will result in stopping of Poornima University scholarship and recovery of already granted scholarship.
3. Applicant has to pay the annual courses fee after the deduction of scholarship amount at the time of admission.
4. Above said scholarship is for the first year (both semester) only.
5. Scholarship will be further continued annually on the basis of CGPA awarded in previous academic year, calculated on theory papers only.
6. A student who is not entitled for scholarship in first year is not eligible for scholarship in further years.
7. A student who fails to continue scholarship once on the basis of CGPA or gets backlog in any semester will not be entitled for continuing scholarship any further.
8. Eligibility for Scholarships:
  - a) All UG courses except B.Voc.: Applicant must have passed class 12th Examination in either 2019 or 2020 in a single attempt.
  - b) B. Voc.: Applicant must have passed class 12th Examination in either 2018 or 2019 or 2020 in a single attempt.
  - c) PG courses (MBA & M.SC.): Applicant must have passed relevant UG course/program in either 2019 or 2020.
  - d) PG courses (M. Des.): Applicant must have passed relevant UG course/program in either 2019 or 2020.
  - e) PG courses (M. Tech.): Applicant must have passed relevant UG course/program after 2011 only.
9. SCHOLARSHIP SLAB FOR BCA

#### BCA Scholarships on tuition fee

Percentage in class 12th ( Aggregate of best 5 Subjects)	Before 5th September	Between 6th Sept. to 30th Sept. 2020	Between 1st Oct. to 15th Oct. 2020
>=85%	90%	60%	30%
Between 75% to 84.99 %	70%	45%	25%
Between 65% to 74.99 %	50%	35%	20%
Between 55% to 64.99 %	30%	20%	10%

### CONTINUATION OF MERIT BASED SCHOLARSHIP

Continuation of Poornima University scholarship for students admitted in session 2020-21 as per following norms:

1. Applicant availing any kind of scholarship or financial assistance from Government or Semi Government or any other private organization for educational support is not entitled for Poornima University Scholarship.
2. Any violation of above said term will result in stopping of Poornima University scholarship and recovery of already granted scholarship.

## POORNIMA UNIVERSITY

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3. Applicant has to pay the annual courses fee after the deduction of scholarship amount at the time of admission.
4. Above said scholarship is for the first year (both semester) only.
5. Scholarship will be further continued annually on the basis of CGPA awarded in previous academic year, calculated on theory papers only.
6. A student who is not entitled for scholarship in first year is not eligible for scholarship in further years.
7. A student who fails to continue scholarship once on the basis of CGPA or gets backlog in any semester will not be entitled for continuing scholarship any further.
8. Scholarship slab for Renewal

### Scholarship (In Tuition Fee)

CGPA (Theory Papers)	Category I	Category II	Category III
9.3 & above	100%	75%	50%
$8.6 \leq 9.29$	80%	60%	40%
$7.9 \leq 8.59$	60%	45%	30%
$7.2 \leq 7.89$	40%	30%	20%
$6.5 \leq 7.19$	20%	15%	10%

## OTHER IMPORTANT INFORMATION

1. **Working days in a week:** 5 days
2. **Daily working hours:**
  - 8:00 a.m. to 3:30 p.m. (summer)
  - 8.30 am to 4.00 pm (winter)
3. **No. of PERIODS per day:**
  - 6 periods of 50/60 min.
  - Vacation/ Break:
  - According to Academic calendar
4. **Dress Code:**
  - Students have to follow the dress code prescribed by the college management for four days Monday, Tuesday, Friday and Saturday.
  - Students are allowed to come in coloured dress /without uniform on Wednesday.
5. **Attendance Requirement:**
  - Minimum Attendance requirement for the student is 75% separately in lecture, tutorial and lab. Students having less than 75% attendance will not be allowed to appear in University Examination as per PU rules.
  - \*VERY IMPORTANT:**
  - No student should take a leave without prior written permission of the competent authority.
6. **Special activities:** Special activities such as special lectures, quiz, class tests, OBT and PPT are included in our curriculum.
  - i) **Special Lectures :** Special lectures are conducted in every semester in all the subjects on difficult topics by external faculty member or by internal faculty member expert in the respective subject.
  - ii) **CLASS TESTS:** Faculty members are free to take surprise test whenever they desire.
  - iii) **OBT (Open Book Test):** OBT is generally conducted in the library. Questions are given to the students and then they are asked to find the answers from any book of their choice.
  - iv) **PPT(Power Point Presentation):** All the faculty members deliver some lectures through PPT to make the topic easier and interesting for the students to understand.
  - v) **Quiz:** Multiple choice questions are given in quiz which is being prepared in all the subjects and are given to students to solve it.
  - vi) **DigiClass Pro** - Interactive Sessions are conducted in every semester in all the subjects on difficult topics by internal faculty members using DigiClass Pro.
  - vii) **Google Class Room** - Important study material, notices, tests or assignments are given through Google Class Room to motivate the use of IT resources in Teaching Learning Process & to make student familiar with new technology.
7. **Examinations:**
  - i) **Theory Examination:** Each theory subject of maximum marks 100 is divided into following components
    - a) Continuous Internal Evaluation CIE-I (Th.)(7 marks)
    - b) Mid Semester Exam MSE(Th.)(15 marks)
    - c) Continuous Internal Evaluation CIE-II (Th.)(7 marks)
    - d) Attendance and Conduct A&C(Th.)(5 marks)

- e) Assignment (6marks)
- f) End Semester Examination ESE (Th.) (60 marks)
- ii) **Practical Examination:** Each practical subject of maximum marks 100 is divided into following components
  - a) Continuous Internal Evaluation CIE-I (Pr.)(20marks)
  - b) Mid Semester Exam MSE (Pr.)(20 marks)
  - c) Continuous Internal Evaluation CIE-II (Pr.)(20marks)
  - d) End Semester Examination ESE (Pr.) (40 marks)
- iii) Under the Continuous Internal Evaluation for practical subjects CIE(Pr.) each experiment(say of 10 marks) is assessed broadly under following heads:
  - Attendance (1)
  - Discipline (1)
  - Record (3)
  - Performance & Viva (5)
- iv) The subject faculty/proctorial board/ discipline committee can deduct marks as a penalty for any misconduct by the students.
- v) **Talent Enrichment Program(TEP):** The students are continuously assessed for TEP during the whole semester under following heads
  - Attendance
  - Performance in Clubs / Presentation/ Report Submission / Achievements
  - Participation in Activities
  - Organization of Activities/ Competitions

## 8. Always bring while coming to University:

- a) Identity Card
- b) Hostel Card
- c) Poornima Connect

- d) Bag containing:
  - Library Cards
  - Lecture NoteBooks
  - Practical Records
  - Scientific Calculator

## 9. Minimum Passing Marks :

- The minimum passing marks for various courses in each component of theory as well as practical / sessional subjects are as indicated below :

Courses	ESE	Total
BCA	35%	40%

- The University provides attempts to clear backlog subjects by improving ESE component during summer / winter terms

*"You cannot  
believe in god until  
you believe in  
yourself."*

-Swami Vivekananda

### LIST OF EXCELLENT DICTIONARIES

- Merriam-Webster's Collegiate Dictionary, 11<sup>th</sup> Edition (Red Kivar Binding with Jacket)
- The Newbury House Dictionary: Of American Heinle Publisher Inc.
- Bartlett's Familiar Quotations: A collection of passages, phrases, and proverbs. Traced to their sources in Ancient and modern literature (17<sup>th</sup> Edition) (Hardcover) John Bartlett (author) Justin Kaplan (editor)
- Concise Oxford English Dictionary (Concise Dictionary) [Hardcover] Catherine Soanes
- Longman Dictionary of American English [Hardcover] with CD-ROM (3<sup>rd</sup> Edition) [Hardcover] Donnal. Pearson Education.
- The Oxford Hindi English Dictionary [Paperback] R.S McGregor (Editor)
- Hindi –English/ English –Hindi and Phrase book [paper back] Todd Scudiere
- Oxford English-Hindi Dictionary by S.K. Verma
- Hindi-English/English –Hindi Concise Dictionary (Hippocrene Concise Dictionary) [paper back] Todd Scudiere
- The Penguin English-Hindi Dictionary [Hardcover] Arvind Kumar (Author), Kusum Kumar (Author)
- Allied Transliterated Hindi-English Dictionary (English and Hindi Edition) by H.W. Wagebaar, D.F. Plukker and S.S Parikh (Dec 31, 2008)

***Stand up, be bold, be strong...***

### TOP 10 REASONS OF DROPPING OUT: LEAVING UNIVERSITY

1. Too much fun at the expense of classes and grades.
2. A sense of not belongingness; a sense of isolation, homesickness.
3. Academically unprepared: burned out on education.
4. Financial constraints: low on funds.
5. Personal family issues.
6. Academic climate /fit.
7. Choice of wrong major; major not offered.
8. Lack of advice and guidance.
9. Demands from part –time or full-time employment.
10. Move to a different geographic location.

### IMPORTANT WORDS OF ENGLISH

Aptitude	योग्यता	Assault	ळमला
Brevity	संक्षिप्तता	Boulders	गोल पत्थर
Benignity	कृपा	Courage	पराक्रम
Curiosity	उत्सूक्ता	Context	प्रसंग
Comprehensive	व्यापक	Creation	सृजन
Contain	प्रसंग	Cannibal	नरभक्षक
Conciliatory	समझौताकारी	Crafty	चतुर
Cellar	तहखाना	Cognitive	संज्ञानात्मक
Discreet	अलग	Daft	बावला
Distinguish	फर्क बताना	Dross	आम
Enticement	आकर्षण	Eccentricity	अरुढिवादी
Endurance	सहनशक्ति	Forgetful	भूलक्कड
Greatful	कृतज्ञ	Gallivanting	आवारागर्दी करना
Humorous	मजाकिया	Herb	औषधी
Martyr	शहीद	Mumble	बुदबुदाना
Nymph	देवी	Nectar	अमृत
Novel	अनोखा	Nostalgia	पुरानी यादें
Oxymoron	विरोधाभास	Occur	घटित
Plea	गिडगिडाना	Prank	मजाक
Personification	मानवीकरण	Pedagogical	शैक्षणिक
Quixotic	अनोखा	Roof	छत
Relevant	सम्बद्ध	Rapport	घनिष्ठता
Reprobate	पथभ्रष्ट	Rational	अक्लमंद
Rob	चुरा लेना	Smother	दम घोंट कर मार देना
Separate	पृथक	To melt	पिघलना
Tentative	सम्भावित	Unusual	अनहोनी
Urchin	शरारती बच्चा	Unconscious	बेहोश

*Do not confuse motion and progress.  
A rocking horse keeps moving but does not make any progress.*

## IMPORTANT WORDS OF MATHEMATICS

Adjoint	सहखंडन	Minor	उपखंड
Rank	कोटी	Digonalization	विकर्णीय
Eigen Value	अभिलाक्षणिक मूल	Eigen Vector	अभिलाक्षणिक सदिश
Row	पंक्ति	Column	स्तंभ
Consistant	हलयुक्त	Linear	रेखि
Lo-factor	स्वहखंड	Generator	जनित रेखा
Singular Matrix	शून्य मैट्रिक्स	Semi-Vertical Angle	अर्द्ध शीर्ष कोण
Tangent Plane	स्पर्शीय समतल	Orthogonal	लम्ब कोणीय
Sphere	गोला	Circle	वृत्त
Qudratune	क्षेत्रकलन	Rectification	वक्र की लम्बाई
Rotational/Revolutation	धूर्णन	Solid	ठोस
Asymptote	अनन्तस्पर्शी	Cuvature	वक्रता
Cartisian	कार्तीय	Polar	ध्रुवीय
Concavity	अवतलीय	Convex	उत्तल
Inflexon Point	बिन्दू	Parallel	समान्तर
Derivative	अकलज	Padel Equation	पदिक समीकरण
Instrinctean	नैन समीकरण	Leminiscates	द्विपाश
Elementary	प्रारंभिक	Divergent	अपसारी
Analysis	विश्लेषण	Homogenous	समघात
Exact	यथार्थ	Gradient	ढाल
Normal	अभिलम्ब	Variable	चर
Constant	अचर	Singular Solution	विचित्र हल
Particular Solution	विशिष्ट हल	Order	कोटि
Coefficient	गुणांक	Differential	अवकल
Integration	समाकल	Algebra	बीज गणित

## IMPORTANT WORDS OF ENVIRONMENTAL STUDIES

Abundance	बहुलता	Aerobic	वायुजीवी
Aerosol	वायुविलय पत्र	Biodegradable	जैव निम्नकरणीय
Biodiversity	जैव विविधता	Biological Oxygen Demand	जैव रासायनिक आक्सीजन माँग
Biomass	जैव ईंधन	Fuel	ईंधन
Biosphere	जीव मंडल	Biotic	जैविक
Birth Control	स्तति नियंत्रण	Carbon Cycle	कार्बन चक्र
Carcinogenic	कैंसरकारी	Condensation	संघनन
Consumer	उपभोक्ता	Public Awareness	जन जागरूकता
Renewable	अक्षय	Disease	रोग
Dissolved Oxygen	घुली हुई आक्सीजन	Diversity	विविधता
Environment	वातावरण	Pollution	प्रदूषण
Environmental Impact Assessment	वातावरण प्रभाव विश्लेषण	Resources	संसाधन
Conservation	संरक्षण	Ecosystem	पारिस्थितिकी तंत्र
Structure	संरचना	Function	कार्य
Food Chain	खाद्य श्रृंखला	Food Web	खाद्य वेब
Ecological Pyramid	पारिस्थितिक पिरामिड	Desert	रेगिस्तान
Aquatic	जलिय	Endemic	स्थानिक
Endangered	खतरे में	Species	प्रजाति
Threats	धमकी	Poaching	अवैध शिकार
Solid Waste Management	ठोस अपशिष्ट प्रबंधन	Disaster	आपदा
Sustainable Development	सतत विकास	Rain Water Harvesting	बारिश के पानी का संग्रहण
Global Warming	ग्लोबल वार्मिंग	Ozone Layer Depletion	ओजोन परत रिकवरीकरण
Population Growth	जनसंख्या वृद्धि	Human Right	मानवाधिकार
Welfare	कल्याण	Aesthetic	सौंदर्य
Water Shed Management	जल विभाजन प्रबंधन	Assessment	आकलन

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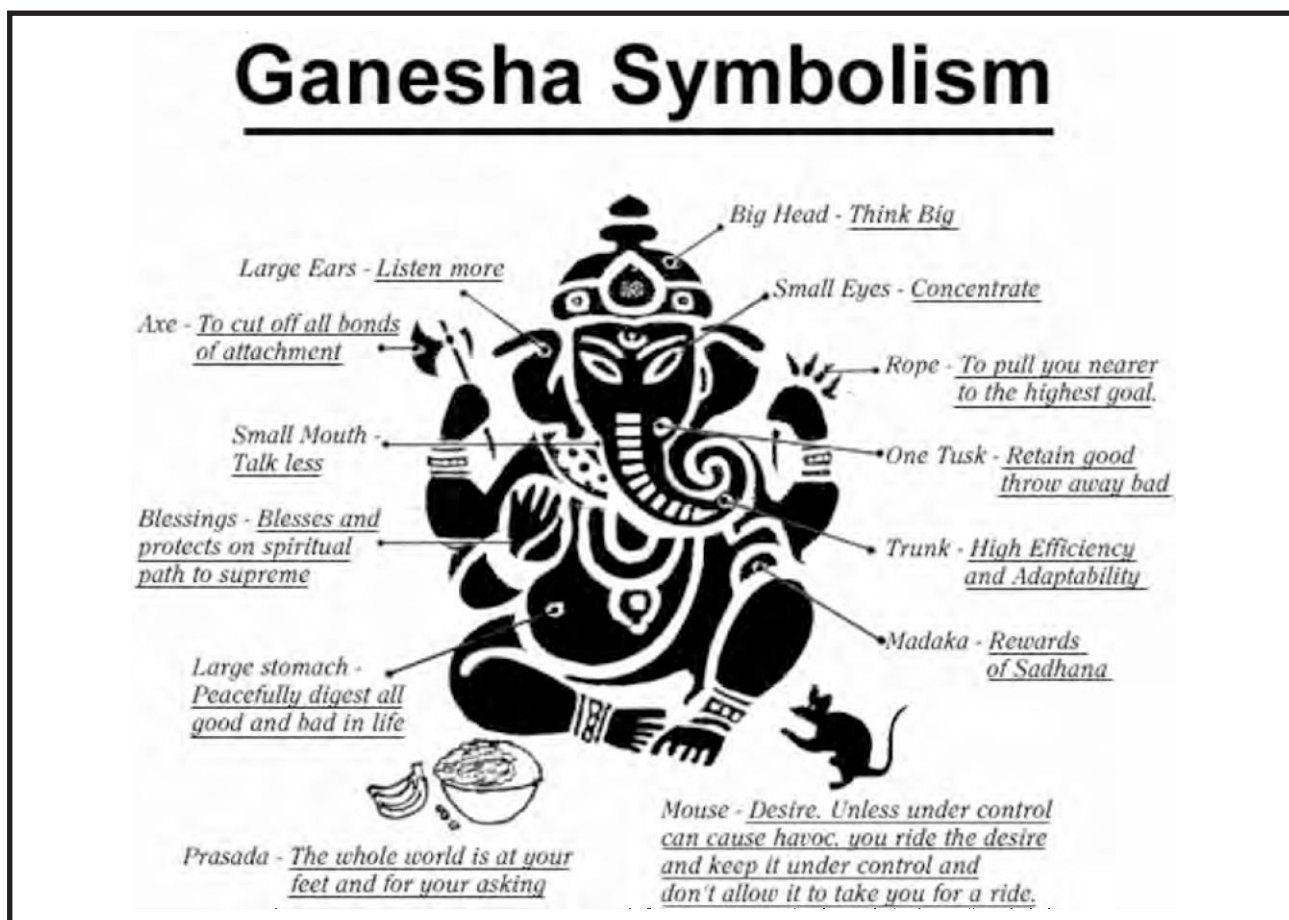
We cannot SEEK or attain health, wealth,  
Action is always SPECIFIC, concrete, individualized and unique.

## IMPORTANT WORDS OF FUNDAMENTAL OF COMPUTER

Abort	आधार	Access	दाखिला
Alphanumeric	अक्षरांकीय	BandWidth	आवेष्ट विशदता
Boot	मदद	Classification	वर्गीकरण
Cache	संचिकागार	Compatibility	अनुरूप
Compile	तैयार करना	Convention	परम्परा
Configure	मूल गुण	Core memory	मूल याददाश्त
Console	डब्बा	Debugging	दोषमर्जन
Digital	अंकिय	Data Base	ऑकडा
Encryption	कूटलेखन	Flow Chart	प्रवाह संचित्र
Function	कार्य	Generation	पीढ़ी
Hardware	धातु सामग्री	Hierarchy	वर्गीकरण
Loop	घुमावदार वक	Module	भाग
Multiprocessing	बहुप्रक्रमण	Multitasking	बहु कार्यण
Network	जाल	Organization	संस्था
Protocol	नियम	Software	ब्रमानुदेश
Sequential	टानुकमि	Storage Unit	संग्रह इकाई
Terminal	अवसान		

### CAUTIONS FOR STUDENTS

- |  |  |
|--|--|
| 1. Attend all lectures on time.                    | 7. Always carry student ID card while in college campus.               |
| 2. Reach college 10 min. before the first lecture. | 8. Be active in bringing into notice your problems to tutors/teachers. |
| 3. Be regular in attending classes.                | 9. Always carry assignment/lecture note books and subject books.       |
| 4. Interact with teachers.                         | 10. Be modest in learning.   |
| 5. Explore college Library.                        | 11. Never choose bad company.  |
| 6. Seek solutions of the subject problems.         |  |



### SPECIAL INSTRUCTIONS FOR HOSTELLERS

1. Interact with teachers as well as parents, regularly.
2. Abide by the rules and regulations of hostel.
3. Regularly, see the hostel notice board.
4. Inform authorities in case of emergency.
5. Make good friends in hostel.
6. Participate in hostel activities.

## **Life Skills for Students**

Your future success will be determined in large part by your ability to work in teams, communicate your ideas use different kinds of technology, and to think critically about both problems and opportunities. These life skills are important in very career and engineering is noexception.

### **TEAM WORK**

How do you become a better team player ?Practice, group projects ,athletics , drama club ,student government ,youthgroup, and community service activities all offer opportunities foryou to work with other people. Start with something you enjoy or are really interested in, but don't be afraid to try something new.

### **COMMUNICATIONS**

Being able to communicate your ideas to other people is a critical skill in any career. Take advantage of every opportunity to develop your speaking and writing skills .Even things as simple as reading a story for your younger brother or sister or writing letters(e-mail) to your grandparents can help you to become a better communicator.

### **TECHNOLOGY**

Technology is more than just computers: it's tools, telephones, machines and systems. It isn't necessary to know exactly how they all work, but being comfortable with technology and having a basic understanding what it is and what it can do for you will make your life easier and will help you in your career.

### **CRITICAL THINKING**

Critical thinking isn't just pointing out flaws and giving something a “thumbs up” or “thumbs down”. Critical thinking involves asking questions, seeking out answers, comparing options and making decisions. It is also about keeping things in perspective and learning from experience and practice.

### **You Can Be Whatever You Want To Be!**

There is inside you all of the potential to be whatever you want to be,  
all of the energy to do whatever you want to do.

Imagine yourself as you would like to be, doing what to do, and each day,  
take one step towards your dream.

And though at times it may seem too difficult to continue,  
hold on your dream.

One morning you will awake to find that you are the person you dreamed of,  
doing what you wanted to do, simply because you had the courage  
to believe in your potential and to hold on to your dream.

~Donna Levine~

**List Your AREAS of Special Interest and  
Main Achievements SO Far**

Date\_\_\_\_\_

Academic \_\_\_\_\_

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Co-Curricular \_\_\_\_\_

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Extra-Curricular \_\_\_\_\_

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Hobbies \_\_\_\_\_

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Social Work \_\_\_\_\_

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**PROFESSIONAL Education Components**

**\*Lecture \*Practical \*PROJECTS \*INDUSTRIAL Tour \*Seminar \*Training**

### RESOLUTION

Take RESOLUTIONS for targets like ACADEMICS (% marks), attendance,  
SKILL Learning (ENGLISH Language), SOCIAL work & HOBBIES.

### IST SEMESTER

#### Targets

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#### Achievements

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### IIND SEMESTER

#### Targets

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#### Achievements

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**Analysis of Marks (I SEMESTER)**

<div> <div>Courses</div> <div>↓</div> <div>Max Marks</div> <div>↘</div> </div>	CIE-I	MSE	CIE-II	REMARKS
	07	15	07	
<b>Practical</b>	<b>CIE-I 20 Marks</b>	<b>MSE 40 Marks</b>	<b>CIE- II 20 Marks</b>	
<b>Tutor's Remark/ Signature</b>				
<b>Parents' Remark/ Signature</b>				

**Analysis of Marks (II SEMESTER)**

<div> <div>Courses</div> <div>↓</div> </div> <div> <div>Max Marks</div> <div>↘</div> </div>	CIE-I	MSE	CIE-II	REMARKS
	07	15	07	
<b>Practical</b>	<b>CIE-I 20 Marks</b>	<b>MSE 40 Marks</b>	<b>CIE- II 20 Marks</b>	
<b>Tutor's Remark/ Signature</b>				
<b>Parents' Remark/ Signature</b>				

**Attendance Performance**
**I SEMESTER**

	<b>I Half</b>	<b>II Half</b>	<b>Total</b>	<b>Tutor's Remark</b>	<b>Parent's Remark</b>
<b>AUGUST</b>					
<b>September</b>					
<b>October</b>					
<b>November</b>					
<b>December</b>					
				<b>G. Total</b>	
<b>Tutor's Remark/ Signature</b>				<b>Max.</b>	
<b>Parent's Remark/ Signature</b>				<b>Avg. %</b>	

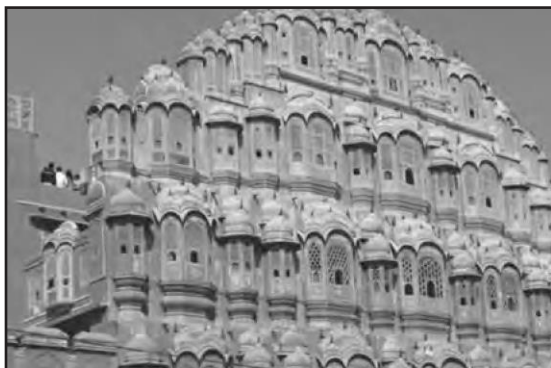
**Attendance Performance**
**II SEMESTER**

	<b>I Half</b>	<b>II Half</b>	<b>Total</b>	<b>Tutor's Remark</b>	<b>Parent's Remark</b>
<b>January</b>					
<b>February</b>					
<b>March</b>					
<b>April</b>					
<b>May</b>					
				<b>G. Total</b>	
<b>Tutor's Remark/ Signature</b>				<b>Max.</b>	
<b>Parent's Remark/ Signature</b>				<b>Avg. %</b>	

## PINK CITY- JAIPUR



**JAIPUR ROYAL CITY PALACE**



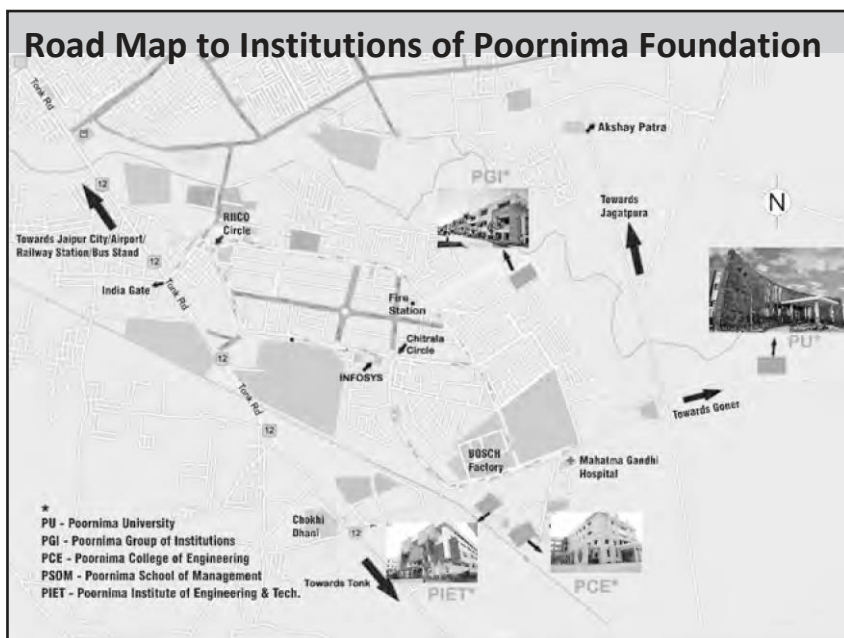
**HAWA MAHAL**



**JANTAR MANTAR**



**AMBER FORT**



### ABOUT JAIPUR:

Jaipur is the famous city and capital of Rajasthan. It was founded on 18th November, 1727 by Maharaja Sawai Jai Singh – II, the ruler of Amber, after whom the city has been named. Jaipur is known as the pink city of India because of the color used in the walled city.

Jaipur is the first planned city of India and the king took great interest while designing this city of victory. He consulted several books on architecture and architects before making the layout of Jaipur.

The city was built on the principles of shilpa shastra, the science of Indian architecture. The city was divided into nine blocks.

The capital of Rajasthan, Jaipur is rich in history and culture. Here the past comes alive in magnificent forts and places. The bustling bazaars of Jaipur, famous for jewelry, fabric and shoes, possess a timeless quality and sure a treasure-trove for the shoppers. This fascinating city with its enchanting charms makes us to an epoch of royalty and tradition.

### GENERAL INFORMATION ABOUT JAIPUR:

Area: 200.4sq .km

Geographic location: Jaipur is located at 26.92 degrees N and 75.82 degrees E.

Altitude: 431m above sea level.

Languages: Rajasthani, Hindi and English

STD code: 0141.

Temperature:

Summers: Maximum 45°C Minimum 25°C

Winters: Maximum 22°C Minimum 5°C

**HELP LINE NUMBERS**
**AIR SERVICES**

Indian Airlines 2743324

**BLOOD BANKS**

Jaipur Hospital 2513365

Mahila Chikitsalaya 2601321

Swasthya Kalyan 2721771

SDM Hospital 2566251

SMS Hospital 2518234

Zanana Hospital 2378721

US –SDMH 3405024

**ELECTRICITY STATION**

Emergency 912/5110055

Sitapura 2770858

**EMERGENCY SERVICE**

POLICE 100

Fire Brigade 101

Ambulance 102/108

Telephone Complaint 198

Police control room (rural) 2577554

Police control room (city) 2575715

Accident Control room 2565 630

**EYE BANKS**

Jaipur Calgiri 2521384

Eye Hospital 2378811

K.C. memorial Eye Hospital 2378811

SMS hospital 2593734

Santokba Durlabh ji 2566251

**FIRE STATION**

General 101

Bani Park 2201898

Bais Godown 2211258

Ghat Gate 2615550

MI Road 2375925

VKI Area 2332573

**EMERGENCY HELPLINE**

AIDS 1051

Crime Police 1090

Child 1098

Electricity 155333

Help in suffering 2760012

Information Center 2372345

Weather 2790194

**PASSPORT OFFICE**

Passport office 2710884

**POLICE STATION**

Police 100

Sanganer Sadar 2771020

**POSTAL ENQUIRY**

Foreign Post Service 2367659

General Post office 2372052

RMS Jaipur Railway Station 2202808

Speed post 2369234

**HOSPITAL ENQUIRY**

Gopinath Hospital 2793333

Mahatma Gandhi Hospital 2771777

Santokba Durlabh ji 2566251

**RAILWAYS**

Railway Enquiry 139

Control Room 2202369

Durgapura 2721787

Gandhi Nagar Station 2707416

Main Railway Station 2202915

 Railway Enquiry 2204531,  
131/135

Railway Enquiry (Computerized) 139

Sanganer Railway Station 2731635

**ROADWAYS**

Enquiry Deluxe Bus 2205790

Express/Local 5116043

Narain Singh Circle 2574645

Sindhi Camp Bus Stand 2234580

Control Room 5116024

Phone Booking Deluxe Bus 2205790

**TAXI STAND**

Sanganeri Gate 2362223

Govt. Hostel 2375911

Hawa Mahal 2381172

Jaipur Travels 2317957

Taxi Stand/M.I. Road 2361818

Mini Bus No.55

MGH to Railway Station

Jaipur Special Enquiry 2362465

(To find any no.)

Private 4444444



# POORNIMA UNIVERSITY

## UNDERTAKING : ANTI-RAGGING

Institute: .....

Ref: Directives of the Supreme Court of India, dated May 16, 2007 in SLP No. (s) 24295 of 2006. University of Kerala Vs Council, Principals', Colleges, Kerala & Ors with SLP(C) No. 24296-99/2004 & W.P. (Crl) No. 173/2006 and SLP (C) No. 14356/2005) and Civil Appeal no. 887 of 887 of 2009 dated May 8, 2009.

The Hon'ble Supreme Court of India admitted and heard the above referred SLPs in relation to the menace of ragging in Technical Institutions/Universities/Colleges in the Country. In this connection, a committee headed by Dr. R.K. Raghavan, former Director of CBI, for giving specific recommendations on effective prevention of ragging in educational institutions was constituted by the apex court. Accordingly, the Committee had carried out a very detailed study on the various factors contributing for ragging and collected the public opinion. Further, the Committee had submitted a detailed report with suitable recommendations and measures required to effectively curb the menace. The recommendations of the Committee were duly accepted. The following directives have been issued to all the educational institutes for necessary implementation by the Hon'ble Court and this institute proposes to follow them.

### Undertaking from the students as per the provision of anti-ragging verdict by the Hon'ble Supreme Court

I,....., S/o, D/o Mr..... Year & Branch:....., Reg.No....., Program ....., Student of Poornima University, Jaipur do hereby undertake on this dated..... The following with respect to above subject and office order No. PR/PU/2013/01.

- \* That I have read and understood the directives of the Hon'ble Supreme Court of India on anti-ragging and the measures proposed to be taken in the above references. (Available at <http://www.poornima.edu.in>)
- \* That I understand the meaning of Ragging and know that the ragging in any form is a punishable offence and the same is banned by the Court of Law.
- \* That I have not been found or charged for my involvement in any kind of ragging in the past. However, I undertake to face disciplinary action/ legal proceedings including expulsion from the Institute if the above statement is found to be untrue or the facts are concealed, at any stage in future.
- \* That I shall not resort to ragging in any form at any Place and shall abide by the rules/laws prescribed by the Court, Govt. of India and the University authorities for the purpose from time to time.

**Signature of Student with date**



# POORNIMA UNIVERSITY

## UNDERTAKING : ATTENDANCE

I \_\_\_\_\_ son/daughter of \_\_\_\_\_ a student of \_\_\_\_\_ in Branch \_\_\_\_\_ Year \_\_\_\_\_ Semester \_\_\_\_\_, Poornima Foundation is undergoing full time \_\_\_\_\_ program.

I fully understand that this program is a full time program which requires the attendance obligation of 75% in order to be eligible to appear in the University Examination. The absence due to medical grounds, emergency situations, family obligations and other pressing engagements do not provide for any relaxation in the attendance criteria.

1. I also understand that the attendance is taken in every period (lecture/Tutorial/special lecture/Lab.) by the faculty member and is compiled on fortnightly basis by Secrecy cell.
2. I also understand that students having attendance less than 75% as on last day of every Month will have to take written permission from Director of Institute, Poornima Foundation to continue attending the classes.
3. I also understand that students who have attendance between 70% to 75% prior to MSE would be debarred from appearing in one Practical/Theory subject of MSE.
4. I also understand that students who have attendance between 60% to 70% prior to MSE would be debarred from appearing in two Practical/Theory Subjects of MSE.
5. I also understand that students who have attendance below 60% prior to MSE would be debarred from appearing in three Practical/Theory Subjects of MSE.
6. I also understand that the criteria for appearing in ESE would be the same as mentioned at point's no. 3, 4 & 5 above.
7. I also understand that the students having overall semester attendance less than 75% on the last teaching day of the semester will be debarred from appearing in some / all Theory & Practical Examination of University
8. I also know that the participation in extra and co-curricular activities and off-campus placement activities approved by the University will be compensated @ 5 attendances per working day. For individual participation in such activities outside the institution the students must have prior written permission of Tutor and the same should be submitted to Secrecy Cell on Next working day by the tutor.

As on \_\_\_\_\_ I have attended \_\_\_\_\_ no. of classes out of \_\_\_\_\_ no. of classes held. I understand that as per academic calendar provided to me for the current semester of teaching days, total classes would be conducted and I will not be eligible for appearing in University Examination if I attend less than 75% (\_\_\_\_\_ no.) classes. As per my present calculation I will have to attend \_\_\_\_\_ no. of classes out of \_\_\_\_\_ no. of classes before last teaching day of the semester.

I am fully aware of my deficiency / performance and I undertake to improve the same before MSE

I will also regularly inform about my attendance to my parents and explain them the importance of the same on my career.

May god bless me and give me strength to complete my degree with outstanding performance.

**Signature of student with date**

**Signature of parents with date**

Name of the student \_\_\_\_\_ S/o ,D/o Sh/Smt. \_\_\_\_\_

Reg. No. \_\_\_\_\_ Poornima E-mail ID: \_\_\_\_\_

Mobile No. \_\_\_\_\_ Mobile No. of Parents \_\_\_\_\_

Mobile No. of Tutor \_\_\_\_\_

**Signature of Tutor with date**



# POORNIMA UNIVERSITY

## LEAVE APPLICATION FORM (FOR STUDENTS)

To,

\_\_\_\_\_  
PU, First Year

Subject: Application for \_\_\_\_\_ days leave.

Respected Sir/Madam,

I \_\_\_\_\_ son / daughter of \_\_\_\_\_ Sec \_\_\_\_\_  
Branch \_\_\_\_\_ Program \_\_\_\_\_ under school \_\_\_\_\_  
need \_\_\_\_\_ days leave dated from \_\_\_\_\_ to \_\_\_\_\_ due to reason \_\_\_\_\_

\_\_\_\_\_

I am very much aware about the attendance obligation of 75% to appear in examination. I ensure to fulfill the same.

(Name and Signature of Tutor)

Date: \_\_\_\_\_

(Signature of Student)

Date: \_\_\_\_\_

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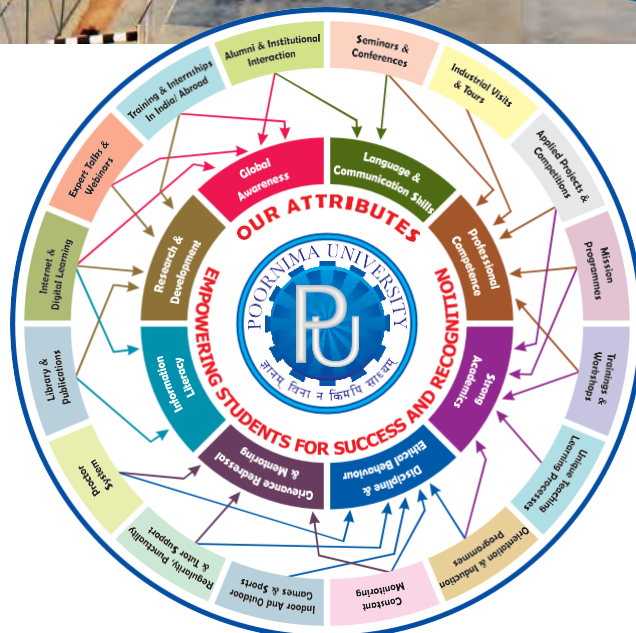
**Poornima Foundation**, established under theegis of Shanti Education Society, has effectively contributed in providing Indian Industry with young, enthusiastic, well-organized and manager. Beginning its journey with the establishment of First Technical Institute, Poornima College of Engineering in Year 2000, its activities have grown into largest network of Professional Education in Rajasthan with 4 Campuses, 8500+ Students, 1000 Faculty & Staff. The constituents of Poornima Foundation endeavor at facilitating industry academia interface to achieve excellence in academics.

### Institutes of Poornima Foundation

- Poornima College of Engineering
- Poornima Institute of Engineering and Technology
- Poornima Group of Institutions
- Poornima University

### Achievements of Poornima Foundation

- NBA accreditation of branches in Poornima College of Engineering
- 16 RTU merits (2012 – 2016 Batch) – Highest in Rajasthan
- 14,000+ Alumni around the world
- Global recognitions & alliances
- In house training on PLC, PHP, Micro Controller Embedded Systems, Robotics, JAVA, IBM DB2, .NET, Oracle, CAD/CAM, etc.
- 1326 placements in 2016-17 with Highest Package offered of Rs. 12 Lakhs /Annum
- Foreign internships at Egypt, Russia, Vietnam, Portugal, Indonesia and Mauritius undertaken by students of Poornima in association with AIESEC, Jaipur
- Industrial Training & visits for students at top notch companies like: SAIL, NBC, NTPC, HONDA, HINDALCO, TATAMOTORS, HARLEY DAVIDSON, BHEL, etc.
- International and National workshops and seminars are organized on regular basis for students and faculties.
- Total 19 hostels for boys & girls separately.



## ॥ कॉलेज गान ॥

जय जय जय पूर्णिमा संस्थान, मरुभूमि अभिनन्दन करती, अरावली देता मुस्कान ॥ 1 ॥ जय जय .....  
 उन्नत शिक्षा आदर्शों पर, आधारित जिसकी संरचना, ज्ञानम् विना न किमपि साध्यम्, जिसका जीवन व्रत महान् ॥ 2 ॥ जय जय .....  
 युवा शिल्पी रहते रचनारत, यन्त्र कला कौशल अपनाकर, विद्युत, सूचना, संगणक से, अंतरिक्ष तक भरें उडान ॥ 3 ॥ जय जय .....  
 मानवता से करें प्रकाशित, ज्ञानदीप की लौ जलाकर, तारागण सम सदा चमकते, जनमानस का करे कल्याण ॥ 4 ॥ जय जय .....  
 करें वन्दना, सरस्वती माँ पूर्ण हो मन की अभिलाषा, सृजन हित दृढ़ नित परिश्रम, ध्येय राष्ट्र का नव निर्माण ॥ 5 ॥ जय जय .....