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BENEFITS OF HIGHER EDUCATION

Higher education opens doors to different career paths. The earlier a student decides which path to take, the easier and cheaper it becomes to achieve.

OVERALL DEVELOPMENT

Institutions work on finding a balance between education and students get a well-rounded education that supports them in their careers. There are many universities in the region where students are required to complete multiple courses in Engineering, Medical and Paramedical courses, while at the same time ensuring that the quality of Mathematics, Science and Technology courses guarantee that they are capable of contributing and competing with their international counterparts.

SPECIALIZED DEGREE

Those with a degree find it easier to enter the job market, mainly because of skills learned, such as communication. Through essays, research reports and other papers students learn how to write effectively and professionally. Through presentations, course participation and team projects they learn how to speak clearly and concisely, work with other people, manage time efficiently and meet deadlines.

PRACTICAL KNOWLEDGE

In higher education practical course work provides students with multiple analysis tools to help them absorb information critically and draw rational conclusions. In this way, information is transformed into knowledge. Higher education broadens the mind. Rather than spoon-feeding information to students and telling them what to think, colleges and universities teach them how to think. There is a direct correlation between critical analysis and making good life choices. As education enhances our reasoning and critical thinking, we make better decisions in our lives and are more active citizens.

ENTREPRENEURSHIP

The digital movement has led to a surge of entrepreneurship and innovation, which has questioned the value of higher education. “Why obtain a university degree when I can create an innovative concept and start my own business?” The misconception is that you have to be born with the mind of an entrepreneur. That is simply not true.

RESEARCH AND INNOVATION

Universities and colleges have begun offering courses and programs centered on entrepreneurship and innovation, to guide students down that path and support them in pursuing their dreams. These courses teach students to think outside the box, give them more confidence in their abilities and provide them with the skills they need to succeed.

HIGH SELF CONFIDENCE

College or university graduates, in general, also have higher levels of self-esteem. They gain that extra boost from completing a highly regarded achievement and developing acumen in their fields. The higher their learning and understanding, the more confidence they have to think and make sound decisions.

HIGH DEMAND AND EARNING

Higher education provides considerable value to individuals, the economies where educated individuals work & live and society in general. People with a bachelor's degree earn more than those with only a high school diploma; and those with a graduate education earn more than those with only an undergraduate education.

The benefits to an individual from a university education vary with the quality of the institution attended. Those who graduate from an elite university earn substantially more than those who graduate from a lower-quality institution. When these calculations are made, the benefits of a college education are seen to be more than three times as large as the costs.

SOCIETAL BENEFITS

The benefits of higher education students who attend institutions of higher education obtain a wide range of personal, financial, and other lifelong benefits. College-educated adults are more likely than others to receive health insurance and pension benefits from their employers and be satisfied with their jobs. Adults with higher levels of education are more active citizens than others.

GENERAL RULES & REGULATIONS FOR STUDENTS

- Students are expected to maintain decorum in their behavior and habits, at all times, befitting the prestige of the Campus. Students are also expected to dress decently in all public places.
- Students are advised to attend all classes and to ensure that they maintain the attendance criteria as laid down in the university ordinance governing the same. A minimum of 75% attendance (except in cases where the concerned regulatory council has stipulated a higher percentage) in lectures, presentations and practical classes individually in each course/subject is mandatory to appear in end/final term examinations. In case of deviation, Institute is empowered to detain the student from appearing from end semester/year examinations. For details, students are advised to read the Kurukshetra University ordinance carefully which is available at www.kuk.ac.in.
- Participation of students in academic activities such as seminar/workshop, industrial visits is compulsory. Non participation without prior permission, may adversely affect the student's internal assessment performance.
- If a student absents himself/herself from the classes for seven consecutive working days without prior permission his/her name may be struck off the rolls.
- During teaching hours students are not allowed to leave the college campus without written permission from class coordinator.
- Students are prohibited from engaging in acts of intimidation, violence or abuse against any of the students, employees, staff and faculty members of the university. Students are expected to show sincere, decent and cordial attitude towards their classmates, students of other programs, staff, faculty and other employees of the university.
- Students' loitering (stand or wait around idly or without apparent purpose) in the campus is prohibited.
- Ragging is an inhuman and illegal act and is banned both inside and outside the campus. The Honorable Supreme Court of India has taken serious cognizance (notice) of the offence of ragging and has issued strict directives to ensure its elimination. Students shall not directly or indirectly indulge in, aid or abet any activity that might be construed as ragging. Violators will face necessary disciplinary and legal action. This includes lodging of a criminal case, against the student at the Police Station as per the directive of the Honorable Supreme Court of India as well as expulsion from the University. (For details, refer to Anti-ragging policy of the AICTE available at <https://www.aicte-india.org/grievance/anti>)
- Use of cell phone is strictly prohibited in campus teaching areas. The cell phone will be confiscated, if found being used in prohibited area.

- Smoking, chewing pan, pan-masala, gutka, gambling, consumption of alcoholic drinks and use of hallucinogenic (psychoactive) drugs and other illegal substances, or the possession of such substances, anywhere in the campus, is strictly forbidden.
- Carrying any explosive/fire arm, and/or weapon inside the campus is strictly prohibited.
- Non-vegetarian food is strictly prohibited in the campus.
- Students are advised not to indulge in any prohibited, illegal and unethical, immoral activities inside and/or outside the campus, or else, they will be liable for punishment as per Campus rules.
- Safety of all personal valuables/belongings will be the responsibility of the student.
- If the student is found involved in activities resulting in direct or indirect loss/damage to the Institute, the same shall be borne by the student. He/ She will be asked to compensate the Institute for the same.
- Adherence to dress code is compulsory for academic and allied activities in the campus.
- Each student will be issued an Identity Card which is non-transferable. The student is expected to keep the ID card on his/her person while in the campus and especially when appearing in tests and examinations, etc. and also when going out of the campus.
- College would not be liable for any compensation/claim whatsoever under any circumstances, in case of any casualty/injury or otherwise to any student during his/her academic course inside or outside the RPIIT campus.
- In case of any dispute on any matter, the decision of the Institute would be final and binding.
- Competent authority of the campus possesses the right to modify the aforesaid rules and/or insert/delete from time to time in future and the same shall be binding upon the students.

LIBRARY RULES AND REGULATIONS

1. SILENCE & CLEANLINESS should be strictly maintained in & around the Library.
2. Each student is eligible for 4 (Four) Non Transferable Library Borrower Cards, on which he/she can borrow Books for a Period of 14 (FOURTEEN) Days. These Library Cards must be RENEWED at the beginning of each SEMESTER.
3. All the Students should RETURN their Library Borrower Cards after completion of their course and obtain a NO-DUE- Certificate from the Library.
4. While borrowing the Book(s) the student is ADVISED to ensure that the Book(s) are in PROPER condition. If any Page(s) are MISSING or DAMAGED, inform the same to the Library Staff on Duty.
5. Avoid making Pencil / Pen Marks, Underlining, or any other type of Damage to the Book(s). If any such things are noticed at the time of returning the books, the Borrower will be held RESPONSIBLE.
6. In case the Book is lost, the Borrower has to REPLACE the Same Edition or the LATEST EDITION of the Lost Book. If the Book is not available Borrower has to pay the COST of the Book (Two times for the Book published after 2005 / Three times for the Book published on or before 2000)
7. Borrowers should RETURN the books ON or BEFORE the Due Date. Otherwise defaulter will be fined

Days of Delay	Library Fine
Up to 15 Days	Rs. 2.00 per student per day.
16 to 30 Days	Rs. 5.00 per student per day + ONE Month Suspension of Library Card.
31 to 60 Days	Rs. 6.00 per student per day + TWO Months Suspension of Library Card.
61 to 70 Days	Rs. 6.00 per student per day+ Cost of the Book as a Fine + Three Months Suspension of Lib. Card.
More than 71Days	Rs. 6.00 per student per day+ Cost of the Book as a Fine + All the 4 Library Cards will be suspended for a minimum period of One Semester Period

8. REFERENCE BOOKS are NOT for ISSUE and they should be referred WITHIN the Library only.

9. WATCH the Notice Board of the Library every time you visit.
10. Consult the Library Staff on Duty for any other Information or Clarification.
11. Any marking or writing in the book is strictly prohibited.
12. Misbehavior in the library will lead to cancellation of membership and also in consequences management can take serious disciplinary action.
13. If you have any Suggestions and Problems in the Library, Please See the LIBRARIAN in person or send the E-mail to librarian@rpiit.com
14. Students are advised to maintain Silence in the Library Premises.
15. The College Library works on all working days between 9.00am. to 4.00 pm and timings can be extended as per demand/requirement of students.
16. Books should be returned on or before the due date failing which fine will be charged as mentioned above for late returning of books.
17. One renewal is allowed if there is no demand for the same book by other reader.
18. Students are advised to check carefully the physical condition of the book before it is issued. Once the book is issued he/she will be held responsible to return the book in good condition.
19. If the book is damaged, the borrower has to replace a new copy or pay double the prevailing cost in the market along with postal charges and processing fee of RS.150/-each.
20. Reference books such as Dictionaries, Encyclopedias, Year Books, Journals, projects reports, Textbooks with a marking REFERENCE etc., will not be issued.
21. Students are advised not to bring their personal belongings and books into the Library except a note Book for making notes.
22. Every Faculty / Student entering into The Library should sign the Gate Register.
23. You are Solely Responsible for the Transactions Made against Your Library Cards.
24. No Entertainment or Monopolizing of Books will not be done.
25. All the students should return their Library Borrower Cards after completion of their course and obtain a "No-Due" Certificate from the Library.
26. Duplicate Borrower Cards will be issued after submitting written intimation to Librarian with a fine of Rs.150/-. At least a week days required for processing.
27. The Librarian may refuse students to loan books without assigning any reasons thereof.
28. Help Us to Help Better.

GENERAL RULES & REGULATIONS FOR TRANSPORT FACILITY

1. The prescribed fee for the BUS facility is non-refundable; to be paid in a single upfront installment (before availing the bus facility). The payment can be done either in the form of Demand Draft (DD) in favour of 'R P Educational Trust' payable at Karnal. Payment through cheque is not acceptable. The bus pass is not transferable & The Bus Facility will be granted to the student only by the Management decision after assessing the viability and route availability options.
2. The charges for the Bus Facility have to be paid in one single installment before availing the bus facility. Bus charges cannot be paid in installments.
3. Once Bus Facility is opted and charges are paid no amount will be refunded back to the student if the student desires to cancel the bus facility. Cancellation of bus facility is not possible at any point of time.
4. Bus charges are dependent upon escalation of various factors which are not in the control of Management and therefore Management reserves all the rights to revise the Bus facility charges at any point of time.
5. Bus Facility will be granted for the complete Academic Year and charges will have to be paid for the complete Academic Year (July to June). Availing Bus Facility on a monthly basis is not permissible.
6. Management reserves the rights to reject an application for bus facility on the basis of non availability of minimum number of students or only girls students are traveling in the bus or viability of the bus running on a route, pick up point not on the route, etc.
7. Any change in the pick-up point and drop point have to be intimated to the Management in advance and after assessing the viability and other factors Management will approve / disapprove the same. Without approval of Management, pick up point and drop point will not be changed for the student.
8. Management will expel / stop the student from availing the bus facility at any point of time without refunding any bus charges & without any notice period in the following events:-
 - Misbehavior, misconduct, any kind of disturbances with staff / driver / conductor in the bus.
 - Any kind of act which accounts to Ragging as per DAVV, UGC and AICTE definitions.
 - Causing any kind of harm / damage to the bus / students / staff.
 - Causing any kind of disturbance to other students sitting in the bus.
 - Misbehavior, misconduct, fighting with other students, use of abusing words, in drinking condition or any kind of disturbance in the bus.
 - Disobeying of Institute transport rules/orders of Bus in-charge, Transport in-charge, Bus Driver/Conductor.

9. It is mandatory to carry Valid Bus Pass issued by Institute with students while travelling in the Institute bus; failing which a fine of Rs. 200/- per visit will be charged from concerned student. If the student does not produce the bus pass on demand, he/she may not be allowed to board the bus.
10. Students are advised to adhere bus timings strictly. In case of late arrival of student at his/her stoppage, no claim from students/Parents side will be entertained by the In-charge/Institute. Students are not allowed to board the bus other than the one allotted to ones. Every student should board at their given boarding point only.
11. Bus will not wait for any student coming late to the bus stop.
12. Students/Staff travelling in the Institute bus, under no circumstances will make phone call to Bus Driver; which can lead to accident.
13. In case of student traveling in bus, without issuing a Bus Pass; a fine of Rs. 2000 (per visit) will be charged.
14. In case of heavy rain (July-August)/foggy season (January)/non teaching days/during vacations; bus facility may be suspended temporarily for few days depending upon various weather conditions; for which decision of the Management will be final and no plea in these cases will be entertained. In this case, hostel accommodation can be provided to concerned students on temporary basis on payments of meal charges only (Rs. 150/- Per day)
15. Bus facility will be available only from Monday to Friday (from first day of academic session to last day of regular University/Board Examinations). Apart from this, students/staff members have to make their own arrangements to arrive at Institute.
16. Any other person except student/staff of RPIIT family, if found travelling in the Institute's bus; he/she will be directly handed over to Police.
17. No bus will start from its scheduled stoppage, if
 - Only 1-2 girl students are traveling in the bus
 - Minimum required numbers of students are not available on the route.
18. The student will have to pay Rs.200/ for the replacement of lost bus pass and get the duplicate pass.
19. The student may lodge complaint with principal or Transport In-charge for any issues related to the transport in written.
20. No recommendation letters for fee waiver/concession/ installment payment and temporary/ one way bus pass facility, etc. will be entertained.

HOSTEL RULES

Hostel accommodation is provided with the understanding that the resident student will strictly abide by the Hostel Rules currently in force or as may be enforced from time to time. Accommodation in the Hostel cannot be claimed as a matter of right. The Institute Administration may refuse accommodation to any student who is known to have grossly violated the Hostel Rules or whose presence is likely to disturb the peace and tranquility of hostel. Violation of hostel rules will make the student liable to disciplinary action including permanent expulsion from the hostels. Students must remember that hostel is the home of the student on the campus and therefore, he/she should behave on the campus as well as outside in such a manner as to bring credit to him/her and to the Institution. A student once admitted in the hostel, will continue to be a hostel inmate throughout the year unless otherwise debarred from the hostel on disciplinary grounds and he/she will have to pay the room rent for both the terms. Every student must be acquainted with all the rules and regulations of the Hostel. He / She must observe them strictly. Ignorance of rules will not be considered as an excuse.

1. Hostel facility will be provided on yearly basis only and fee is to be paid in single installment for whole year. In case of leaving the hostel during the academic year, student can't claim any refund for the remaining period of the academic year.
2. Every student should stay in the room allotted to him/her. Mutual exchange of rooms after final allotment is not allowed. However, only the Chief Warden may allow as a special case on valid and reasonable ground. Violation of this rule will be considered an act of gross misconduct and entail appropriate disciplinary action including expulsion from Hostel and imposition of heavy fine.
3. Boarders must look up the Hostel Notice Board regularly. The Warden Team member or any authorized member of the Institute staff can inspect the room of any student in the hostel at any time. Hostel inmates are supposed to keep I-cards with them and must present the same to any hostel or institute authority whenever asked for. Students must always carry their Identity Cards with them.
4. The students must make entry in the "In/Out Register" kept at the Hostel.
5. No Boarders should see the Director for ordinary matters. Warden In-charge of the concerned hostel is the right person for such matters. In next step they can approach to the Chief Warden.
6. All cases of illness should be reported to the Medical-Officer of the institute through concerned Warden In-charge/Warden.
7. No student should keep any fire-arms, lethal weapons, poisonous things or intoxicants of any kind in the Hostel. Students must not take law into their own hands, but must report all disputes to the hostel Warden In-charge/Warden. All kinds of shouting, fighting, gambling, stealing, violet knocking, maltreating or abusing are strictly prohibited. In such cases offender will be handed over to Police immediately.
8. The boarder shall have to vacate accommodation as and when asked for. All the boarders shall vacate the hostel rooms before they leave for the summer vacation so that annual repairs and white washing are carried out. All the hostel articles issued to the students are returned to the caretaker before the students leave their rooms. They will be responsible for any loss.
9. No boarder is allowed to engage a private servant or pet animals.

10. Students shall not remain absent from their hostels during night without the prior permission of the Warden In-charge/Warden.
11. Hostel students shall not leave the campus without prior permission of the Warden In-charge/Warden. They shall have to apply in prescribed form in advance stating the reason for leaving and the address of destination. Hostel student who leave hostel without the permission from the concerned Warden shall be deemed to be missing and Parent/Guardian/Police authorities may be intimated in consultation with the Director.
12. The inmates of the hostel will not leave the hostel premises on holidays for the purpose of excursion or picnic. Prior permission of the Warden In-charge/Warden has to be obtained for going for any picnic or excursion. However for any eventuality that may occur during picnic/excursion, the responsibility does not lie with the Institute authorities.
13. Hostel inmates are supposed to take care of their health themselves. Student suffering from infectious disease has to leave for medical treatment to proper clinic/hospital or isolated place.
14. Formation of association of students on the basis of regions, caste or creed is not permitted, during their stay in the hostels.
15. Room furniture and electric fittings are required to be maintained by the inmates in good condition. At the time of allotment of room and leaving the hostel for the summer vacation, every student must take-over and hand-over, respectively, the hostel property carefully. Students should invariably vacate the hostel during summer vacation. Hostel facility will be available from the day of start of session to the last day of University/Board regular examinations. Apart from this, if any student stays in hostel during vacations, Rs. 4500/- per month will be charged.
16. In case of damage to any part of the hostel buildings, furniture, apparatus or other property of the institute, caused by inmates of the hostel, the loss shall be recovered from the persons identified as responsible for such damage. However, if the persons causing damage cannot be identified, the cost of repairing the same as may be assessed will be distributed equally amongst all the inmates of the hostel or group of inmates of the hostel found responsible for the damage.
17. Students should lock their room properly when they go out for bath, food etc. Each roommate must keep a key of the door lock of his/her room in case of double / triple/four seated accommodations.
18. Every student residing in the hostel must join the mess attached to that hostel. Individual cooking is not permitted. They are not allowed to cook anything in their rooms.
19. Every inmate of the hostel shall pay the Hostel fees and other charges as per the notified schedule failing which fine will be imposed as decided by the hostel authority.
20. Ragging in any form is a cognizable offence and severely punishable as per the Supreme Court of India directives leading to expulsion from the Hostel and the disciplinary action may culminate in his/her expulsion from the Institute as well. The Institute administration may report incidents of ragging to the Police for taking appropriate action under the law.
21. Students should take treatment in the Institute dispensary between 9AM to 4PM when they are sick. For emergency, between 5PM to 9AM they should contact the warden. The Warden will decide further course of treatment. Students are advised to

take treatment at the nearest clinic and inform about it to the authorities immediately in case of emergency occurring outside the Institute campus.

22. In case of need for hospitalization, student should inform his/her parents / guardian. Parents / guardian are required to communicate to the concerned Warden In-charge/ Warden in this regard.
23. Penalty for violation of hostel rules will be decided by the hostel authorities considering the severity of the offense / violation of rules / act of indiscipline. Fine/ penalty amount may be deducted from the hostel deposit. If cumulative fine exceeds Rs.5000/- per academic year, he / she will not be considered in merit for the next hostel admission.
24. Guests are not permitted to stay overnight in the room of the students. A boarder keeping a guest without permission is liable to be fined.
25. Students are prohibited from giving shelter to any other student/outsider in the rooms. In case of any unauthorized shelter, the student will be liable to bear disciplinary action.
26. Resident students are not permitted to invite any outside person to address any meeting in the hostel without written permission of the Dean (Student Welfare)/ Director.
27. Light must be switched off when not in use. The use of electric heater, electric rod and other similar appliances are prohibited. Boarders are warned against tampering with electric installation and for all electric repairs the electrician should be called in.
28. Students, in their own interest, are advised not to keep excess cash or any valuables in their hostel rooms. They are cautioned to be very careful about safety of their belongings. They should close their rooms securely when they leave the room even for short periods or when they are sleeping. Institute shall not be responsible for the loss of such items due to theft or otherwise. However, in the case of theft, the matter should be immediately reported to the concerned Warden In-charge/Warden and Chief Security Officer (CSO) of the Institute.
29. Male students are strictly forbidden from entering the Girls' Hostel and female students from entering Boy's Hostel.
30. Students are prohibited from consuming alcoholic drinks, drugs, cigarettes, tobacco products or any other intoxicants inside the hostel or to enter the hostel after consuming the same. Any student found consuming such thing or in a drunken state in the hostel will render himself liable for strict disciplinary action, including expulsion/rustication from Hostel/Institute.
31. Students are prohibited from screening/ keeping obscene literature/ video films in the possession.

Any violation in this regard will result disciplinary action.

Additional Rules for Girls' Hostel:

- Closing time 7:30 PM in summer (April to September) and 6.30 PM in winter (October to March).
- Visiting Hours: 12.00 noon to 2.00 p.m. and 4.00 p.m. to 6.00 p.m.
- No male visitor is allowed to enter the Girls' Hostel without prior permission of the respective Warden In-charge/Warden.

MESS RULES AND REGULATIONS

The rules and regulations for management of Mess have been framed for the smooth functioning of it. All the hostel residents are requested to cooperate with committee members for their efficient enforcement. The hostel management reserves the right to revise the rules and regulations from time to time and will keep the hostel residents informed of any changes in the form of notices on the hostel notice board. Ignorance of rules will not be accepted as an excuse.

1. The Hostel is meant for both boarding and lodging. No one is permitted to use either of them (boarding or lodging). Once a student is admitted to the Hostel he/she is deemed to become a member of the Hostel Mess until he/she officially vacates the Hostel.
2. Hostel Mess Committee The function of the Mess shall be supervised and carried out by the Hostel Mess Committee consisting of the following members:
(i) Mess Coordinator (ii) Students' Representatives (On rotation)

The mess committee shall be responsible for ensuring smooth & timely operation of the mess and also verify the quality of food being served in the mess. The mess committee shall ensure that the proposed menu is strictly followed and any exception has to be approved by the mess coordinator.

3. The mess timings are as follows and the students should strictly follow these timings:
Breakfast: 8.00 a.m. to 9.00 a.m.
Lunch: 12.40 p.m. to 2.00 p.m.
Dinner: 8.00 p.m. to 9.30 p.m.
No food will be reserved for the late comers.
4. Guests are allowed in mess with prior permission of the Supervisor. The guest rates will be as follows: Breakfast: Rs. 40.00/- Lunch: Rs. 60.00/- Dinner: Rs. 60.00/- These rates are subjected to revision from time to time.
5. Discipline should be strictly maintained in the dining hall.
6. Students are expected to behave properly with the mess staff. Misbehavior will lead to disciplinary action.
7. Food will not be served in rooms and the inmates are not supposed to take food from the dining hall to their rooms.
8. In no case, a resident can enter the kitchen either to collect food or to communicate any grievances regarding food with kitchen staff.
9. After eating food, diners shall leave the cup, plate, waste food etc. in the designated bins.
10. Wasting food is a social crime. For the first offence of wasting food by a boarder, warning will be issued to him/her. If the concerned boarder is found repeating the mistake, strict disciplinary action shall be taken against him/her including penalty. Paying mess bill does not entitle a diner to waste food.

11. The menu will be prepared by the Mess Committee and it will be displayed on the Notice Board. \
12. Day Scholars cannot be entertained as guests in the mess on a regular basis.
13. Shouting and sitting on the mess table is strictly prohibited, if anyone is found doing so he/she shall be fined depending on the severity of offence.
14. Outside food is not allowed in the mess.
15. Modesty in dress is expected from students.
16. During vacation if the strength of the boarder's falls below 30, the management reserves the right to stop the mess services temporarily (even on payment basis also).
17. Individual cooking and messing inside or outside, under any circumstance is not permitted.
18. Student shall pay full mess fees for six months in advance at the time of admission to the hostel. Students are requested to carry their identity cards while going to mess.
19. If a student is sick, written application by the student approved by warden should be given to Mess Coordinator for serving food in the room.
20. Suggestion Register: Suggestions and complaints should be entered in the "Suggestion Register" kept in the mess premises. We would like to know your suggestions.
21. Smoking and drinking alcoholic beverages is strictly prohibited in mess premises. Anyone found doing the same in the premises would be imposed a fine.
22. Anyone found sharing his food with one or more persons would be imposed a fine.
23. If anybody found using others card would be imposed a fine.
24. Every resident must record their entry in the mess register before taking meals.
25. Students who absent themselves on the date of reopening of the Institute after any semester vacation will be deemed to have joined the mess and will be charged accordingly.
26. The system of self service will be followed.
27. The quantity of food will be unlimited except in the case of special items.
28. Students on no account will be permitted to take food outside the mess. Nor can they take mess utensils such as plates, spoons, tumblers, etc. to their rooms.
29. All are advised to keep the mess and surroundings neat and clean. No notices are permitted to be pasted on walls by the students. Notices put up on the notice boards (with the approval of Registrar) should not be removed by the diners. Fine will be levied to those who have pasted or removed.
30. Students should not bring any pet animals into the mess hall or encourage such practice.
31. Violation of any of the above rules will attract disciplinary action.

DEPARTMENT OF APPLIED SCIENCE
ACADEMIC CALENDER 2018-19

SR.No.	NAME OF ACTIVITY	PROPOSED DATES AND MONTHS
ODD SEMESTER		
1	Commencement of Classes	6-Aug-18 (2nd, 3rd & 4th Year) 13-Aug-2018 (1st Year)
2	Freshers Party	24-Aug-18
3	Teacher's Day	5-Sep-18
4	Engineers Day	14-Sep-18
5	Ist Sessional Exams	24 - 28 Sep2018
6	National Conference (Engg. Dept.)	4 - 5 Oct 2018
7	Dussehra Holiday	18-Oct-18
8	Recreational Trip	29-31 Oct 2018.
9	2nd Sessional Exams	12 - 14 Nov 2018
10	Practical Exams	15 Nov 2018 Onwards
11	Diwali Celebration	5-Nov-18
12	Diwali Vacations	6-11 Nov 2018
13	Preparatory Leave	20 Nov Onwards
14	Pharmacy Week	19-24 Nov 2018
15	Semester Exam	1st Week of December
16	Foreign trip for Students	Dec 2018/Jan 2019
17	New Year Celebration	1st Jan 2019
18	Lohri Celebration	12th Jan 2019
19	Road Safety Week	11-17 Jan 2019
20	Road Safety Lecture	15-Jan-19
EVEN SEMESTER		
21	Commencement of Classes	19-Feb-19
22	National Science Day	20-Feb-19
23	Women Day	8-Mar-19
24	1st Sessional Exams	15-19 Mar 2019
25	Holi	20-21 Mar 2019
26	Annual Function/Sports	25 Feb - 02 Mar 2019
27	World Health Day	8-Apr-19
28	Educational trip	15-17 Apr 2019
29	2nd Sessional Exams	22-25 Apr 2019
30	FarewellParty	30-Apr-19
31	Practical Exams	1st Week of May
32	Nursing Day	13-May-19
33	Semster Exam	2nd Week of May
34	World Environment Day	6-Jun-19
35	International Yoga Day	21-Jun-19

SCHEME OF EXAMINATIONS

Semester – I

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/Week	Theory	Sessional	Practical	Total	
1	AS-101N	Applied Physics-I	4	1	0	5	75	25	0	100	3
2A	AS-103N	Applied Chemistry	3	1	0	4	75	25	0	100	3
2B	ME-101N	Manufacturing Technology and Processes	4	0	0	4	75	25	0	100	3
3	AS-105N	Applied Mathematics-I	4	1	0	5	75	25	0	100	3
4A	HS-101N	Technical Communication	3	1	0	4	75	25	0	100	3
4B	BT-101N	Fundamentals of Biotechnology	3	1	0	4	75	25	0	100	3
5A	ME-105N	Engg. Drawing and Graphics	1	0	3	4	75	25	0	100	3
5B	ECE-101N	Basics of Electronics Engg.	3	1	0	4	75	25	0	100	3
6A	EE-101N	Electrical Technology Fundamentals	4	1	0	5	75	25	0	100	3
6B	CSE-101N	Introduction to Computer Programming	3	1	0	4	75	25	0	100	3
7	AS-107N	Applied Physics Lab -I	0	0	2	2	0	20	30	50	3
8A	AS-109N	Applied Chemistry Lab	0	0	2	2	0	20	30	50	3
8B	ME-107N	Engg. Workshop	0	0	3	3	0	20	30	50	3
9A	EE-103N	Electrical Technology Lab	0	0	2	2	0	20	30	50	3
9B	CSE-103N	Computer Programming Lab	0	0	2	2	0	20	30	50	3
10B	ECE-103N	Basic Electronics Lab	0	0	2	2	0	20	30	50	3
		Total	19/ 21	5/5	9/9	33/35	450	210/230	90/120	750A /800B	

Semester – III

S. No.	Course No.	Course Title	Teaching Schedule				Allotment of Marks				Duration of Exam (Hrs.)
			L	T	P	Hours/Week	Theory	Sessional	Practical	Total	
1	AS-102N	Applied Physics-II	4	1	0	5	75	25	0	100	3
2A	AS-103N	Applied Chemistry	3	1	0	4	75	25	0	100	3
2B	ME-101N	Manufacturing Technology and Processes	4	0	0	4	75	25	0	100	3
3	AS-104N	Applied Mathematics-II	4	1	0	5	75	25	0	100	3
4A	HS-101N	Technical Communication	3	1	0	4	75	25	0	100	3
4B	BT-101N	Fundamentals of Biotechnology	3	1	0	4	75	25	0	100	3
5A	ME-105N	Engg. Drawing and Graphics	1	0	3	4	75	25	0	100	3
5B	ECE-101N	Basics of Electronics Engg.	3	1	0	4	75	25	0	100	3
6A	EE-101N	Electrical Technology Fundamentals	4	1	0	5	75	25	0	100	3
6B	CSE-101N	Introduction to Computer Programming	3	1	0	4	75	25	0	100	3
7	AS-106N	Applied Physics Lab -II	0	0	2	2	0	20	30	50	3
8A	AS-109N	Applied Chemistry Lab	0	0	2	2	0	20	30	50	3
8B	ME-107N	Engg. Workshop	0	0	3	3	0	20	30	50	3
9A	EE-103N	Electrical Technology Lab	0	0	2	2	0	20	30	50	3
9B	CSE-103N	Computer Programming Lab	0	0	2	2	0	20	30	50	3
10B	ECE-103N	Basic Electronics Lab	0	0	2	2	0	20	30	50	3
		Total	19/21	5/5	9/9	33/35	450	210/230	90/120	750A/800B	

SYLLABUS

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
AS-101N	Applied Physics-I	4	1	0	75	25	100	3
Purpose	<i>To introduce the basics of Physics to the students for applications in Engineering field.</i>							
Course Outcomes (CO)								
CO-1	Introduce the fundamentals of interference and diffraction and their applications.							
CO-2	To make the students aware of the importance of polarization and Laser in technology.							
CO-3	Applications of Optical Fiber and Ultrasonics in various fields.							
CO-4	Discussion of theory of relativity and detection of nuclear radiations.							

Unit - I

Interference: Principle of Superposition, Conditions for interference, Division of wave- front: Fresnel's Biprism and Applications, Division of amplitude: Wedge-shaped film, Newton's rings, Michelson Interferometer and Applications.

Diffraction: Types of diffraction, Fraunhofer diffraction at a single slit, Plane transmission diffraction grating: theory, secondary maxima and minima, width of principal maxima, absent spectra, overlapping of spectral lines, determination of wavelength; Dispersive power and resolving power of diffraction grating.

Unit – II

Polarization: Polarization of transverse waves, Plane of polarization, Polarization by reflection, Double refraction, Nicol Prism, Quarter and half wave plate, Specific Rotation, Laurent 's half shade polarimeter, Biquartz polarimeter.

Laser: Introduction, Stimulated Absorption, Spontaneous and Stimulated Emission; Einstein's Coefficients and its derivation, Population Inversion, Direct and Indirect pumping, Pumping schemes, Main components of Laser, He-Ne Laser, Semiconductor Laser, Characteristics of Laser, Applications of Laser.

Unit – III

Optical Fiber: Introduction, Principle of propagation of light waves in optical fibers: total internal reflection, acceptance angle, numerical aperture, V- number; Modes of propagation, Types of optical fibers: single mode fiber, multimode fibers; Fiber optics communication system, Advantages of optical fiber communication, Applications of optical fibers.

Ultrasonics: Ultrasonic waves, Properties of ultrasonic waves, Production of ultrasonic waves: Magnetostriction and Piezoelectric methods, Detection of ultrasonic waves, Measurement of velocity of ultrasonic waves, Applications of ultrasonic waves.

Unit - IV

Special theory of Relativity: Concept of ether, Michelson-Morley experiment, Postulates of Special theory of relativity, Frame of reference, Galilean Transformations, Lorentz transformations, Consequences of Lorentz Transformations: Length contraction, Time dilation; Velocity transformations, Variation of mass with velocity, Einstein's mass-energy relation, Einstein's energy-momentum relation.

Nuclear Radiation and Detection: Classification of nuclear radiations, Interaction of charged particle (light and heavy) and gamma radiations with matter (basic concepts); Gas-filled detector: Ionization Chamber, Proportional Counter, Geiger Muller Counter; Scintillation Detector, Semiconductor Detector.

Text Books

1. P.K. Diwan, *Applied Physics for Engineers*, Wiley India Pvt. Ltd.
2. S.P. Taneja, *Modern Physics for Engineers*, R. Chand & Co.

Reference Books

1. N. Subrahmanyam, B. Lal, M.N. Avadhanulu, *A Textbook of Optics*, S. Chand & Company Ltd.
2. Arthur Beiser, *Concepts of Modern Physics*, Tata McGraw-Hill Publishing Company Limited.
3. R. Resnick, *Introduction to Special Relativity*, John Wiley & Sons. (Asia) Pte. Ltd.
4. V.K. Mittal, R.C. Verma, S.C. Gupta, *Introduction to Nuclear and Particle Physics*, PHI Learning Private Limited.
5. S.S. Kapoor, V.S. Ramamurthy, *Nuclear Radiation Detectors*, New Age International (P) Limited.

Note: Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
AS-103N	Applied Chemistry	3	1	0	75	25	100	3
Purpose	<i>To introduce some of the concepts of applied chemistry to students.</i>							
Course Outcomes (CO)								
CO-1	Basic concepts of thermodynamics and phase rule chemistry.							
CO-2	General methods of water purification and introduction of green chemistry.							
CO-3	Importance of lubricants and drawbacks of corrosion.							
CO-4	Introduction of different engineering materials. .							

Unit - I

Thermodynamics: First, second, third and zeroth law of thermodynamics, concept of entropy (for reversible and irreversible process, of ideal gases, of phase transition), free energy, work function, chemical potential, Gibb's Helmholtz equation, Clausius-Clapeyron equation and related numerical problems. Phase rule, terminology and derivation of Gibbs phase rule, phase diagrams of water system, sulphur system, (Pb-Ag) system, (Zn-Mg) system and (Na-K) system.

Unit - II

Water and its treatment: Hardness of water and its determination by EDTA, alkalinity and its determination, related numerical problems, Scale and sludge formation (composition, properties and methods of prevention), Water softening by ion exchange process, desalination (reverse osmosis, electrodialysis)

Green Chemistry: Definition and concept, Twelve principles of green chemistry, Alternate solvents-ionic liquids, super critical fluid (SCF) system, derivatized and immobilized solvent materials.

Unit - III

Corrosion: Dry and Wet corrosion, electrochemical theory of corrosion, Pitting, water-line, differential aeration and stress corrosion, factors affecting corrosion, preventive measures (proper design and material selection, cathodic and anodic protection).

Lubricants: Mechanism of thin and thick layer lubrication, classification of lubricants and important properties of lubricants (viscosity index, flash and fire point, saponification number, pour point, iodine number,) Greases as lubricants: consistency and drop point test

Unit-IV

Engineering materials: Ceramics (brief introduction of clays, silica, feldspar, porcelain and Vitreous Enamels), cement (introduction, raw materials, manufacture of portland cement, analysis of cement) Nanoscale materials(introduction, properties of

nanomaterials, brief discussion of nanocrystals and clusters, fullerenes, carbon nanotubes, dendrimers, nano wires, nanocomposites)

Text Book

1. Rajesh Agnihotri, *Engineering Chemistry*, Wiley India Pvt. Ltd.

Reference Books

1. J.C. Kuriacone, J. Rajaram, *Chemistry in Engineering and Technology*, McGraw Hill Education (India) Private Ltd. Volume I and II.
2. S.S. Dua, *A Text Book of Engineering Chemistry*, S.Chand and Company Ltd.
3. Atkin, *Physical Chemistry*, Oxford Publication.
4. Puri, Sharma, Pathania, *Principals of Physical Chemistry*, Vishal Publications.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
ME-101N	Manufacturing Technology and Processes	4	0	0	75	25	100	3
Purpose	<i>To make the students aware of different manufacturing processes like metal casting, forming, metal cutting and joining processes.</i>							
Course Outcomes (CO)								
CO-1	Define and classify the manufacturing processes, accidents, safety methods, comprehend about the engineering materials, properties and application areas.							
CO-2	Comprehend the procedure of casting of liquid materials such as molten metal's. Define and classify the plant layout.							
CO-3	Comprehend the procedure of manufacturing process of forming materials into shapes.							
CO-4	Explain the procedure of how the materials are joined together and the processes used to achieve this.							

Unit - I

Introduction: Introduction to Manufacturing Processes and their Classification. Industrial Safety; Introduction, Types of Accidents, Causes and Common Sources of Accidents, Methods of Safety, First Aid.

Engineering Materials: General Properties and Applications of Engineering Materials, Mild Steel, Medium Carbon Steel, High Carbon Steel, High Speed Steel and Cast Iron.

Unit – II

Foundry: Introduction to Casting Processes, Basic Steps in Casting Process, Pattern, Types of Patterns, Pattern Allowances, Risers, Runners, Gates, Moulding Sand and its composition, Sand Preparation, Molding Methods, Core Sands and Core Making, Core Assembly, Mold Assembly, Melting (Cupola) and Pouring, Fettling, Casting Defects and Remedies.

Unit – III

Cold Working (Sheet Metal Work): Sheet Metal Operations, Measuring, Layout Marking, Shearing, Punching, Blanking, Piercing, Forming, Bending and Joining, Advantages and Limitations.

Hot Working Processes: Introduction to Hot Working, Principles of Hot Working Processes, Forging, Rolling, Extrusion, Wire Drawing.

Plant Layout: Objectives of Layout, Types of Plant Layout and their Advantages.

Unit – IV

Introduction to Machine Tools: Specifications and Uses of commonly used Machine Tools in a Workshop such as Lathe, Milling, Drilling, Introduction to Metal Cutting. Nomenclature of a Single Points Cutting Tool and Tool Wear. Mechanics of Chips Formations, Type of Chips , Use of Coolants in machining.

Welding: Introduction to Welding, Classification of Welding Processes, Gas Welding: Oxy- Acetylene Welding, Resistance Welding; Spot and Seam Welding, Arc Welding: Metal Arc, TIG & MIG Welding, Welding Defects and Remedies, Soldering & Brazing.

Text Books

1. Hazra & Chaudhary, *Workshop Technology Vol. I &II* , Asian Book Comp., New Delhi.
2. R.A. Lindberg, *Process and Materials of Manufacture*, Prentice Hall of India, New Delhi.

Reference Books

1. J.S. Campbell, *Principles of Manufacturing Materials and Processes*, McGraw-Hill.
2. Amitabha Ghosh & Ashok Kumar Malik, *Manufacturing Science*, East-West Press.
3. Ostwald, Munoz , *Manufacturing Process and Systems*, John Wiley.
4. Chapman, WAJ, Edward Arnold , *Workshop Technology*, Vol. 1, 2 & 3.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
AS-105N	Applied Mathematics-I	4	1	0	75	25	100	3
Purpose	<i>To acquaint the students with the basic use of matrices, differential calculus and integral calculus.</i>							
Course Outcomes (CO)								
CO-1	How to find the inverse of the higher order matrices using Gauss Jordan method, using the rank how to get the solution of system of linear equations, and application of Eigen values and Eigen vectors.							
CO-2	Find higher order derivatives, to find the approximate values of the function using series method and, tracing of plane curves.							
CO-3	Extension of some concept of differential calculus for more than one variable							
CO-4	Application of integral calculus to find the area, volume, surface, volume of solid of revolution and, easy way to solve the multiple integrals by changing the variables.							

Unit - I

Linear Algebra: Rank of a matrix, elementary transformations, elementary matrices, Gauss Jordan method to find inverse using elementary transformations, normal form of a matrix, linear dependence and independence of vectors, consistency of linear system of equations, linear and orthogonal transformations, eigenvalues and eigenvectors, properties of eigenvalues, Cayley - Hamilton theorem and its applications, diagonalization of matrices, quadratic forms.

Unit - II

Differential Calculus I: Successive differentiation, Leibnitz theorem and applications, Taylor's and Maclaurin's series (single variable), Expansion of functions, Asymptotes (Cartesian and Polar Co-ord.), Curve Tracing (for standard curves, Cartesian and Polar)

Unit - III

Differential Calculus II: Concept of limit and continuity of a function of two and three variables, Partial derivatives, variable treated as constant, Euler's theorem on Homogeneous functions, total derivative, differentiation of an implicit function, chain rule, change of variables, Jacobian, Taylor's and Maclaurin's series(two variables). Maxima and minima of a function of two variables, Lagrange's method of undetermined multipliers

Unit - IV

Integral Calculus: Application of single integration to find the volume and surface areas of solid of revolution, Double integrals, Change of order of integration, Areas enclosed by plane curves, Triple integrals, Volume of solids, Change of variables.

Text Books

1. E. Kreyszig, *Advanced Engineering Mathematics*, Wiley India.

Reference Books

1. G. B. Thomas, R. L. Finney, *Calculus and Analytic Geometry*, Pearson Education.
2. B. V. Ramana, *Engineering Mathematics*, Tata McGraw Hill
3. Michael D. Greenberg, *Advanced Engineering Mathematics*, Pearson Education, Prentice Hall.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
HS-101N	Technical Communication	3	1	0	75	25	100	3
Purpose	<i>To enhance the students' communication skills by giving adequate exposure in reading, writing, listening and speaking skills and the related sub-skills</i>							
Course Outcomes (CO)								
CO-1	Know the process of technical communication and its components.							
CO-2	Improve the language skills i.e. Listening Skills, Speaking Skills, Reading Skills and Writing Skills (LSRW).							
CO-3	Construct basic and intermediate skills in English language.							
CO-4	Enhance comprehension skills, presentation skills, group discussion skills etc.							
	Create literature sensibility and learn life skills through it.							
	Develop confidence for communicating in English and create interest for the life-long learning of English language							

Unit-I

Introduction: Meaning; Types; Role of Communication; Barriers to Communication

Unit-II

Communicative Skills:

- i) Listening: Traits of a good listener; Barriers
- ii) Speaking: Achieving confidence, clarity and fluency; Paralinguistic features
- iii) Reading Skills: Vocabulary; Scanning; Skimming; the SQ3R Reading Technique
- iv) Writing: Characteristics; Language; Techniques for effective writing

Unit-III

Professional Speaking:

- i) Group Discussion Interview
- ii) Oral Presentation
- iii) Job Interview

Unit-IV

Technical Writing:

- i) Technical letters
- ii) Job Application and Resume
- iii) Technical articles

Text Books

1. Meenakshi Raman and Sangeeta Sharma, *Technical Communication: Principles and Practice*, Oxford University Press

2. M. Ashraf Rizvi, *Effective Technical Communication*, McGraw Hill

Reference Books

1. Wallace and Masters, *Personality Development for Life and Work*, Thomson Learning
2. Farhathullah, T. M. *Communication Skills for Technical Students*
3. *Advanced Learner's Dictionary*, Oxford University Press
4. Sanjay Kumar, *Communication Skills*, Oxford University Press

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
BT-101N	Fundamentals of Biotechnology	3	1	0	75	25	100	3
Purpose	<i>To familiarize the students with the basics of Biotechnology</i>							
Course Outcomes (CO)								
CO-1	Introduction to essentials of life and macromolecules essential for growth and development							
CO-2	Defining the basic concepts of cell division, genes and Immune system							
CO-3	Introduction of basic tools and techniques in Genetic Engineering and Transgenics							
CO-4	Explain the role of Biotechnology in Agriculture, Medicine, Environment, Industry and Forensic Science							

UNIT - I

Introduction to living world: Concept and definition of Biology; Characteristic features of living organisms; Cell ultra-structure and functions of cell organelles like nucleus, mitochondria, chloroplast, ribosomes and endoplasmic reticulum; Difference between prokaryotic and eukaryotic cell; Difference between animal and plant cell.

Introduction to Biomolecules: Definition, general classification and important functions of carbohydrates, lipids, proteins, nucleic acids (DNA& RNA: Structure and forms), vitamins, hormones and enzymes.

UNIT-II

Genetics: Cell division- Mitosis and its utility to living systems. Meiosis and its genetic significance; **Gene:** Concept, location, definition and structure; Introduction to replication, transcription, translation, Mutations, Genetic disorders; **Human traits:** Genetics of blood groups, diabetes type I & II.

Role of immune system in health and disease: Brief introduction to morphology and pathogenicity of bacteria, fungi, virus, protozoa beneficial and harmful for human beings.

UNIT-III

Concepts of Genetic Engineering: Definition; Tools used in recombinant DNA Technology: Plasmids as nature's interlopers, restriction enzymes as nature's pinking-shears, Vectors as gene transfer vehicles.

Transgenesis: Production and significance of transgenic plants and animals; Basic concept of genetically modified organisms.

UNIT-IV

Applications of Biotechnology: Definition of biotechnology; Applications of Biotechnology in Agriculture, Medicine, Environment, Industry and Forensic Science.

Role of biology in allied fields: Role of biology in Information Technology (Bioinformatics), Nanotechnology (Nanobiotechnology), Micro-electromechanical systems (Bio-MEMS) and Sensors (Biosensors). Ethical issues related to Biotechnology.

Text Book

1. Deswal & Deswal, *Introduction to Biotechnology*, Dhanpat Rai Publications

Reference Books

1. Bruce *et al.*, *Molecular Biology of cell*, (4th ed.) Alberts, Garland Science Publishing, New York.
2. Pelczar Jr., M.J.; Chan, E.C.S. and Krieg, N.R., *Microbiology*, Tata McGraw Hill, New Delhi.
3. David L. Nelson and M.M. Cox, *Lehninger: Principles of Biochemistry* (3rd edition), Maxmillan/ Worth publishers.
4. Snusted & Simmons, *Genetics*.
5. Glick, B. R. and Pasternak, J.J., *Molecular Biotechnology: Principles Application of Recombinant DNA*. ASM press WashingtonDC.
6. Goldsby, R A,. Kindt, T.J, Osborne, B.A., *Kuby's Immunology*, W. H. Freeman and company, New York.
7. Watson, James D. and Gilman, M, *Recombinant DNA* (2nd Edition), W.H Freeman and Company, New York.
8. Malacinski, G. M., *Essentials of Molecular Biology* (4th ed.), Jones & Bartlet Publishers, Boston

Note: Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
ME-105N	Engg. Drawing and Graphics	1	0	3	75	25	100	3
Purpose	<i>To draw and interpret various projections of 1D, 2D and 3D objects. To understand the basics of AUTOCAD and perform exercises.</i>							
Course Outcomes (CO)								
CO-1	To familiarize with the projections of points and straight lines							
CO-2	To draw with the projection of planes and solids							
CO-3	To familiarize with the sectioning of solids and development of surfaces							
CO-4	To know the AUTOCAD basics and exercise the problems							

Unit-I

Introduction, Projection of Points: Introduction to Engineering Equipments, Elements of Engineering Drawing, Types of Lines, Various types of projections, First and third angle systems of orthographic projections. Projections of points in different quadrants.

Projection of Straight Lines:

Projections of straight lines: parallel to one or both reference planes, contained by one or both planes, perpendicular to one of the planes, inclined to one plane but parallel to the other plane, inclined to both the planes, true length of a line and its inclinations with reference planes, traces of a line.

Unit-II

Projection of planes: Introduction, types of planes, Projection of planes by change of position method only, projection of plane perpendicular to a plane, with axis parallel to both planes, with axis parallel to one plane and inclined to the other plane.

Projection of Solids: Types of solids, Projections of Polyhedra Solids and Solids of Revolution – in simple positions with axis perpendicular to a plane, with axis parallel to both planes, with axis parallel to one plane and inclined to the other.

Unit-III

Section of Solids: Introduction - section planes - apparent section - true section - sectional view - need for sectional view - cutting plane - cutting plane line.

Sectional view of simple solids such as Prism, Cylinders, Pyramids and Cones in simple positions Section plane perpendicular to one plane and parallel to the other, section plane perpendicular to one plane and inclined to the other.

Development of Surfaces: Development of surface of various simple solids in simple positions such as cubes, cylinders, prisms, pyramids etc.

Unit-IV

Orthographic views (First Angle Projection Only): Three orthographic views of solids, Orthographic Views of Nuts & Bolts.

AUTOCAD basics: Cartesian and Polar Co-ordinate system, Absolute and Relative Co-ordinates systems. Basic Commands: Line, Point, Rectangle, Polygon, Circle, Arc, Ellipse, Polyline

Basic editing Commands: Basic Object Selection Methods, Window and Crossing Window Erase, Move, Copy, Offset, Fillet, Chamfer, Trim, Extend, Mirror Display Commands: Zoom, Pan, Redraw, and Regenerate Simple dimensioning and text, simple exercises.

Text Book

1. T. Jeyapoovan, *Engineering Graphics using AUTOCAD 2000*, Vikas Publishing House.
2. Basudeb Bhattacharyya, *Machine Drawing*, Oxford University Press, New Delhi

Reference Books

1. Amar Pathak, *Engineering Drawing*, Dreamtech Press, New Delhi.
2. N.D. Bhatt and V.M.Panchal, *Engineering Drawing: Plane and Solid Geometry*, Charotar Publishing House.
3. Thomas E.French, Charles J.Vierck, Robert J.Foster, *Engineering drawing and graphic technology*, McGraw Hill International Editions.
4. P.S. Gill, *Engineering Graphics and Drafting: Millennium Edition*, S.K. Kataria and Sons.
5. *A Primer on Computer aided Engineering Drawing-2006*, published by VTU, Belgaum.

Note: Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
ECE - 101 N	Basics of Electronics Engg.	3	1	0	75	25	100	3
Purpose	<i>To familiarize the students with the basics of Electronics Engineering.</i>							
Course Outcomes (CO)								
CO-1	Explain the fundamentals and applications of basic semiconductors and diodes.							
CO-2	Explain Bipolar Junction Transistors (BJT): Biasing techniques, BJT Amplifier, Feedback, Oscillators.							
CO-3	Discuss Operational Amplifier (OP-Amp): Block Diagram, Configurations, Parameters and Applications.							
CO-4	Discuss the Special Semiconductor Devices: Field Effect Transistors (FET), Types of FETs, Characteristics, Operation and Applications of SCR, UJT and TRIAC.							

Unit - I

Semiconductor Diodes: Active Components (Current & Voltage Sources) and Passive Electronic components (Resistors, Capacitors & Inductors), concept of P-N diode, Diode Equivalent Circuits, Load Line Analysis, Diode as a Switch, Breakdown Mechanisms, Zener Diode: Operation and Applications, Rectifiers: Half Wave and Full Wave Rectifiers, Photo Diode and Applications, LED.

Unit – II

Bipolar Junction Transistor: Different Types of Transistors, basic operation of a transistor, Amplifying Action of BJT, Input and Output Characteristics of Common Base (CB), Common Collector (CC) and Common Emitter (CE) Configurations, Operating Point, Transistor as a switch and amplifier, Biasing: Fixed Bias, Self Bias, Voltage Divider Bias, Concept of Feedback in amplifiers, Advantages of negative feedback, Oscillators: Barkhausen criterion for oscillations.

Unit – III

Operational Amplifier: Operational Amplifier: Basic Block Diagram, Equivalent Circuit, Characteristics of Ideal Op-Amp, Concept of Virtual Short, Ideal Op-Amp vs Practical Op- Amp, Configurations of Op-Amp: Inverting, Non-Inverting, Differential, Parameters of Op- Amp: Bandwidth, Slew Rate, Gain, CMRR, PSRR, Input offset voltage, Output offset voltage, Op-Amp Applications: Summing and Difference Amplifiers, Integrator and Differentiator.

Unit – IV

Special Semiconductor Devices: Operation and I-V Characteristics of enhancement and depletion MOSFET, concept of n-MOSFET, p-MOSFET and C-MOSFET, DIAC: Characteristics, Operation and Applications, UJT: Characteristics, Operation and Applications, SCR: Characteristics, Operation and Applications, TRIAC: Characteristics, Operation and Applications.

Text Books

1. Boylestad & Nashelsky, *Electronics Devices & Circuits*, Pearson Education.

Reference Books

1. *Basic Electronics Engineering*, Wiley Precise Textbook Series, Wiley India.
2. N. N. Bhargava S. C. Gupta D. C. Kulshreshtha, *Basic Electronics and Linear Circuits*, Tata McGraw-Hill Education
3. Millman & Halkias, *Integrated Electronics*, Mc-Graw Hill.
4. David A. Bell, *Electronic Devices and Circuits*, Oxford University Press.
5. Donald L. Schilling & Charles Belove, *Electronics Circuits*, Mc-Graw Hill.
6. Thomas L. Floyd, *Electronic Devices*, Pearson Education
7. Malvino, *Electronics Principles*, Mc-Graw Hill.

Note: Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
EE-101N	Electrical Technology Fundamentals	4	1	0	75	25	100	3
Purpose	<i>To familiarize the students with the basics of Electrical Technology</i>							
Course Outcomes (CO)								
CO-1	Deals with steady state circuit analysis subject to DC							
CO-2	Deals with AC fundamentals & steady state circuit response subject to AC and circuit parameters solution techniques							
CO-3	Deals with introductory Balanced Three Phase System analysis in first part and second part deals with qualitative analysis of magnetic circuits & Single Phase Transformer.							
CO-4	Explains the general constructional features and working of various types of Electrical Machines (qualitative analysis only)							

Unit - I

D.C. circuits excited by independent voltage/current source (steady state): Ohm's Law, junction & node, circuit elements classification: Linear & nonlinear, active & passive, lumped & distributed, unilateral & bilateral with examples. KVL, KCL, Loop analysis of resistive circuit in the context of dc voltages & currents, Node-voltage analysis of resistive circuit in the context of dc voltages & currents. Star-Delta transformation for set of pure resistors. Relevant D.C. circuit analytical problems for quantitative analysis.

Network Theorems: Superposition, Thevenin's and Norton's theorems all in the context of dc voltage and current sources acting in a resistive network, maximum power transfer theorem, Relevant D.C. circuit analytical problems for quantitative analysis.

Unit - II

AC Fundamentals: Mathematical representation of various wave functions. Sinusoidal periodic signal, instantaneous & peak values, polar & rectangular form representation of impedances & phasor quantities. Addition & subtraction of two or more phasor sinusoidal quantities using component resolution method. RMS & average values of various waveforms including clipped, clamped, half wave rectified & full wave rectified sinusoidal periodic waveforms etc. Generation of alternating emf (dynamo). Relevant analytical problems for quantitative analysis.

A.C. Circuits: Behavior of various components fed by A.C. source. (steady state response of pure R, pure L, pure C, RL, RC, RLC series with waveforms of instantaneous voltage, current & power on simultaneous real axis scale and corresponding phasor diagrams), P.F. active, reactive & apparent power. Frequency

response of Series & Parallel RLC circuit including resonance, Q factor, cut-off frequency & bandwidth. Relevant A.C. circuit analytical problems solutions using 'j-omega' operator method.

Unit - III

Balanced Three Phase Systems: Necessity & advantage of three phase system, mode of generation of 3 phase supply. Phase and line voltages & currents, power. Measurement of 3- phase power by two wattmeter method for various types of star & delta connected balanced resistive, inductive & capacitive loads including phasor diagrams at various power factors. Phase sequence significance. Relevant problems for quantitative analysis.

Electromagnetism & Magnetic circuits (Qualitative analysis only): Laws of EMI, statically & dynamically induced emf, self & mutual induction, dot notation, RH Screw rule, Fleming's RH & LH rules. MMF, Relation between magnetic flux, m.m.f. and reluctance, magnetic fringing. Hysteresis & Eddy current losses & their minimization

Single Phase Transformer (Qualitative analysis only): Principle, construction & emf equation. Phasor diagram for ideal case and at no load. Winding resistance & leakage reactance. Actual transformer at resistive, inductive & capacitive loads with phasor diagrams. Losses & Efficiency, condition of maximum efficiency, regulation. OC & SC test, direct load test, equivalent circuit, concept of auto transformer.

Unit - IV

ELECTRICAL MACHINES (Qualitative analysis only)

Prime mover, Stator-Rotor, Field-Armature, necessity of a starter.

D.C. Machines: Principle, general construction & working. Split ring /Commutator working in DC generator & motor, generated emf equation, Torque Equation.

Types of DC Machines, speed control of DC Shunt motor.

A.C. Machines: 3-phase Induction motor: Concept of rotating magnetic field, principle, types, general construction and working. Concept of slip & its significance.

Synchronous Generator (alternator): Principle, general construction & working.

Synchronous motor: Principle, general construction & working.

General comparison amongst squirrel cage I.M., phase wound rotor type I.M. & DC motor. General comparison between alternator & DC generator.

Text Books

1. Vijay Kumar Garg, *Basic Electrical Engg: A complete Solution*, Wiley India Ltd.
2. Rajendra Prasad, *Electrical Engg. Fundamentals*, PHI Pub.

Reference Books

1. S.K. Sahdev, *Basic Electrical Engg.*, Pearson Education
2. PV Prasad, *Basic Electrical Engg*, Sivangaraju, Cengage Learning Pub.
3. Bobrow, *Electrical Engg. Fundamentals*, Oxford Univ. Press
4. Kulshreshtha, *Basic Electrical Engg.*, McGraw Hill Pub.

Note: Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
CSE-101N	Introduction to Computer Programming	3	1	0	75	25	100	3
Purpose	<i>To familiarize the students with the basics of Computer System and C Programming</i>							
Course Outcomes (CO)								
CO-1	Describe the overview of Computer System and Levels of Programming Languages.							
CO-2	Learn the basic concepts of C Language.							
CO-3	Description and applications of arrays and functions.							
CO-4	Description and applications of pointers and user defined data types.							

Unit – I

Overview of Computers: Block diagram and its description, Number systems, Arithmetic of number systems, Computer Hardware: Printers, Keyboard and Mouse, Storage Devices.

Introduction to programming language: Different levels of PL: High Level language, Assembly language, Machine language; Introduction to Compiler, Interpreter, Debugger, Linker, Loader, Assembler.

Problem Analysis: Problem solving techniques, Algorithms and Flowchart representation.

Unit – II

Overview of C: Elements of C, Data types; Storage classes in C; Operators: Arithmetic, relational, logical, bitwise, unary, assignment and conditional operators, precedence & associativity of operators.

Input/output: Unformatted & formatted I/O function in C.

Control statements: if statement, switch statement; Repetition: for, while, and do-while loop; break, continue, goto statements.

Unit – III

Arrays: Definition, types, initialization, processing an array, String handling.

Functions: Definition, prototype, parameters passing techniques, recursion, built-in functions, passing arrays to functions, returning arrays from functions.

Unit – IV

Pointers: Declaration, operations on pointers, pointers and arrays, dynamic

memory allocation, pointers and functions, pointers and strings.

Structure & Union: Definition, processing, Structure and pointers, passing structures to functions, use of union.

Data files: Opening and closing a file, I/O operations on files.

Text Books

1. Pradip Dey and Manas Ghose, *Computer Fundamental and Programming in C*, Oxford Pub.
2. Vikas Gupta, *Computer Concepts and C Programming*, Dreamtech.

Reference Books

1. Forouzan Behrouz, *Computer Science: A Structured Programming Approach Using C*, Cengage Learning.
2. Brian W. Kernighan Dennis Ritchie, *C Programming Language*, Pearson
3. Yashwant Kanetker, *Let us C*, BPB Publications.
4. A K Sharma, *Fundamentals of Computers & Programming*, Dhanpat Rai Publications
5. Kashi Nath Dey, Samir Bandyopadhyay, *C Programming Essentials*, Pearson.
6. Rajaraman V., *Computer Basic and C Programming*, Prentice Hall of India Learning.

Note: Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
AS-107N	Applied Physics Lab-I	0	0	2	30	20	50	3
Purpose	<i>Give the knowledge of basic practicals of Physics in Engineering.</i>							
Course Outcomes (CO)								
CO-1	To make the students familiar with the experiments related with optics.							
CO-2	To give the knowledge of handling of the experiments related with resistance using different methods.							

List of Experiments

1. To find the wavelength of monochromatic light by Newton's ring experiment.
2. To find the wavelength of various colours of white light with the help of plane transmission diffraction grating.
3. To verify Newton's formula and hence to find the focal length of the given convex lens.
4. To find the specific rotation of sugar solution by using a Polarimeter.
5. To find the frequency of A.C. mains by using Sonometer and horse shoe magnet.
6. To find low resistance by Carrey-Foster bridge.
7. To find the resistance of a galvanometer by post office box.
8. To find the value of high resistance by substitution method.
9. To convert a galvanometer into an ammeter of desired range and verify the same.
10. To find high resistance by leakage method.
11. To compare the capacitances of two capacitors by de-sauty's bridge and hence to find the dielectric constant of a medium.
12. To find the wavelength of sodium light by Michelson's interferometer.
13. To find the resolving power of telescope.
14. To find the wavelength of sodium light using Fresnel bi-prism.

Note: Student will be required to perform at least 10 experiments out of the given list.

Recommended Books

1. C.L. Arora, *B. Sc. Practical Physics*, S. Chand & Company Ltd.
2. B.L. Worshnop and H, T, Flint, *Advanced Practical Physics*, (KPH).

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
AS-109N	Applied Chemistry Lab-I	0	0	2	30	20	50	3
Purpose	<i>To train the students for handling of chemicals and glassware</i>							
Course Outcomes (CO)								
CO-1	Testing of certain properties of water samples							
CO-2	Determination of some of the properties of lubricants							
CO-3	To determine some important properties of liquids							
CO-4	To make familiar with the use of flame photometer, spectrophotometer							

List of Experiments

- Determination of temporary and permanent hardness by EDTA method **or** Determination of Ca^{2+} and Mg^{2+} hardness of water using EDTA method.
- To determine the alkalinity of given water sample.
- Determination of Dissolved Oxygen (**DO**) in given water sample.
- To determine the flash point and fire point of an oil by Pensky-Marten flash point apparatus.
- Determination of viscosity of lubricant by Red Wood Viscometer (No. 1 and No. 2).
- To determine the strength of HCl solution by titrating it with NaOH solution conductometrically.
- To determine the amount of sodium and potassium ions in a given water sample by flame photometer.
- To determine the total iron content (Fe^{2+} and Fe^{3+}) in an iron ore by **internal/self/external** indicator method.
- To determine the concentration of KMnO_4 solution spectrophotometrically.
- To determine the coefficient of viscosity of a liquid by Ostwald viscometer.
- To determine the refractive indices of given organic liquid using Abbe's refractometer.
- To determine the strength of strong acid by titrating it with strong base using pH meter.
- To determine the surface tension of a given liquid by means of stalagmometer by drop number method.

Note: Student will be required to perform at least 10 experiments out of the given list.

Recommended Books

- S.S. Dara, *A Text Book on Experimental and Calculation :Engineering Chemistry*, S. Chand & Company (Ltd.)
- Shashi Chawla, *Essential of Experimental Engineering Chemistry*, Dhanpat Rai Publishing Company.
- O.P. Virmani, A.K. Narula, *Theory & Practice Applied Chemistry*, New Age.

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
ME-107N	Engg. Workshop	0	0	3	30	20	50	3
Purpose	<i>To aware the students with hands on experience on different trades of engineering like fitting, carpentry, smithy, welding, machine shop and sheet metal.</i>							
Course Outcomes (CO)								
CO-1	Prepare models of various basic prototypes in the carpentry trade such as Lap joint, T joint, Dove tail joint, Mortise & Tenon joint, Cross-Lap joint							
CO-2	Prepare models of various basic prototypes in the trade of Welding such as Lap joint, Lap & T joint, Edge joint, Butt joint and Corner joint.							
CO-3	Comprehend various machine tools and prepare specified models involving various operations in the trade of Machining on lathe, drilling, shaper machines							
CO-4	Identify fitting, marking, carpentry, measuring and machine tools.							

List of Experiments

1. To study different types of measuring tools used in metrology and determine least counts of vernier calipers, micrometers and vernier height gauges.
2. To study different types of machine tools (lathe, shape, milling, drilling machines)
3. To prepare a job on a lathe involving facing, outside turning, taper turning, step turning, radius making and parting-off.
4. To study different types of fitting tools and marking tools used in fitting practice.
5. To prepare lay out on a metal sheet by making and prepare rectangular tray, pipe shaped components e.g. funnel.
6. To prepare joints for welding suitable for butt welding and lap welding.
7. To perform pipe welding.
8. To study various types of carpentry tools and prepare simple types of at least two wooden joints.
9. To prepare simple engineering components/ shapes by forging.
10. To prepare mold and core assembly, to put metal in the mold and fettle the casting.
11. To prepare horizontal surface/ vertical surface/ curved surface/ slots or V-grooves on a shaper/ planner.
12. To prepare a job involving side and face milling on a milling machine

Note: (i) At least 10 experiments are to performed by students in a semester; (ii) At least 7 experiments should be performed from the above list; remaining three experiments may either be performed from the above list or designed and set by the concerned institution as per the scope of the syllabus.

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
EE-103N	Electrical Technology Lab	0	0	2	30	20	50	3
Purpose	<i>To familiarize the students with the Electrical Technology Practicals</i>							
Course Outcomes (CO)								
CO-1	Understand basic concepts of Network theorems							
CO-2	Deals with steady state frequency response of RLC circuit parameters solution techniques							
CO-3	Deals with introductory Single Phase Transformer practicals							
CO-4	Explains the constructional features and practicals of various types of Electrical Machines							

List of Experiments

1. To verify KVL and KCL.
2. To verify Superposition theorem on a linear circuit with at least one voltage & one current source.
3. To verify Thevenin's Theorem on a linear circuit with at least one voltage & one current source
4. To verify Norton's Theorem on a linear circuit with at least one voltage & one current source.
5. To study frequency response of a series R-L-C circuit on CRO and determine resonant frequency & Q- factor for various Values of R, L, and C.
6. To study frequency response of a parallel R-L-C circuit on CRO and determine resonant frequency & Q -Factor for various values of R, L, and C.
7. To perform O.C. and S.C. tests on a single phase transformer.
8. To perform direct load test on a single phase transformer and plot efficiency v/s load characteristic.
9. To perform speed control of DC shunt motor.
10. To perform starting & reversal of direction of a three phase induction motor.
11. Measurement of power in a 3 phase balanced system by two watt meter method.
12. To calibrate a single phase energy meter.
13. To study connections & working of fluorescent tube light.

Note: Student will be required to perform at least 9 experiments out of the given list.

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
CSE-103N	Computer Programming Lab	0	0	2	30	20	50	3
Purpose	<i>To Introduce students with C Programming</i>							
Course Outcomes (CO)								
CO-1	Understand the basic concepts of C Programming							
CO-2	Implementation of arrays and functions.							
CO-3	Implementation of pointers and user defined data types.							
CO-4	Write individual and group reports: present objectives, describe test procedures and results.							

List of Programs

1. Write a program to find the sum of individual digits of a positive integer.
2. Write a program to generate the first n terms of the Fibonacci sequence.
3. Write a program to generate all the prime numbers between 1 and n, where n is the input value given by the user.
4. Write a program to calculate the following Sum:

$$\text{Sum} = 1 - \frac{s_2}{2!} + \frac{s_4}{4!} - \frac{s_6}{6!} + \frac{s_8}{8!} \dots$$
5. Write a program to find the roots of a quadratic equation.
6. a) Write a function to generate Pascal's triangle.
b) Write a function to construct a pyramid of numbers.
7. Write a C functions to find both the largest and smallest number of an array of integers.
8. Write a program for addition of Two Matrices
9. Write a program for calculating transpose of a matrix.
10. Write a program for Matrix multiplication by checking compatibility
11. Write programs that use both recursive and non-recursive functions for the following
 - a. To find the factorial of a given integer.
 - b. To find the GCD (greatest common divisor) of two given integers.
12. Write a function that uses functions to perform the count the lines, words and characters in a given text.
13. Write a program to explores the use of structures, union and other user defined variables
14. Write a program to print the element of array using pointers
15. Write a program to implement call by reference
16. Write a program to print the elements of a structure using pointers
17. Write a program to read a string and write it in reverse order
18. Write a program to concatenate two strings
19. Write a program to check that the input string is a palindrome or not.
20. Write a program which copies one file to another.
21. Write a program to reverse the first n characters in a file.

Note: Student will be required to perform at least 10 programs out of the given list.

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
ECE-103N	Basic Electronics Lab-I	0	0	2	30	20	50	3
Purpose	<i>To familiarize the students with the basics of Electronics Engineering, PCB design and fabrication processes.</i>							
Course Outcomes (CO)								
CO-1	Study and Identification of various basics electronics components..							
CO-2	Study and perform the experimental verification of diodes, BJT, JFET, MOSFET, OP-Amps.							
CO-3	To provide the knowledge in assembling and testing of the PCB based electronic circuits.							

List of Experiments

1. Identification, Specifications, Testing of R, L, C Components (Colour Codes), Potentiometers, Switches (SPDT, DPDT and DIP), Bread Boards, Diodes, BJTs, JFETs, MOSFETs, Power Transistors, SCRs and LEDs.
2. Study the operation of Digital Multi Meter, Function / Signal Generator, Regulated Power Supply (RPS), Cathode Ray Oscilloscopes; Amplitude, Phase and Frequency of Sinusoidal Signals on CRO.
3. To study & perform the Experimental Verification of V-I characteristics of PN- diode in forward and reverse bias & study of various parameters of diode like threshold voltage and breakdown voltage etc.
4. To study & perform the Experimental Verification of Half-Wave & Full-Wave Rectifier and calculate its ripple factor, efficiency and PIV.
5. To study & perform the Experimental Verification of Zener Diode as a Voltage Regulator and calculate its parameters.
6. To study & perform the Experimental Verification of the input and output characteristics of BJT in common-emitter configuration & calculate all its parameters.
7. To study & perform the Experimental Verification of Op-Amp as Inverting, Non- Inverting, Differential amplifier & calculate its Voltage gain.
8. To study & perform the Experimental Verification of Summing and Difference amplifier & calculate its Voltage gain.
9. To study & perform the Experimental Verification of the I-V characteristics of JFET and MOSFET & calculate all its parameters.
10. Simulation of simple electronic circuits and analyzing its input and output waveforms using any of EDA tools.

Note: *Experiments are to be performed using bread-board and components only.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
AS-102N	Applied Physics - II	4	1	0	75	25	100	3
Purpose	<i>To introduce the fundamentals of solid state physics and its applications to the students.</i>							
Course Outcomes (CO)								
CO-1	To make the students aware of basic terminology of crystal structure.							
CO-2	Introduce the elementary quantum mechanics, which will be useful in understanding the concepts of solid state physics.							
CO-3	Discussion of classical free electron theory, quantum theory and Band theory of solids.							
CO-4	Basics and applications of superconductivity and nanomaterials.							

Unit - I

Crystal Structure: Crystalline and Amorphous solids, Crystal Structure: lattice translation vector, symmetry operations, space lattice, basis; Unit cell and Primitive cell, Fundamental types of lattices: two-dimensional and three dimensional Bravais lattices; Characteristics of Unit cells: Simple Cubic (SC), Body Centred Cubic (BCC), Face Centred Cubic (FCC), Hexagonal Close Packed (HCP) structure; Simple crystal structures: Sodium Chloride, Cesium Chloride, Diamond, Cubic Zinc Sulfide; Miller Indices, Bonding in Solids, Point defects in crystals: Schottky and Frenkel defects.

Unit – II

Quantum Theory: Need and origin of Quantum concept, Wave-particle duality, Phase velocity and group velocity, Uncertainty Principle and Applications; Schrodinger's wave equation: time-dependent and time –independent; Physical Significance of wave function ψ .

Unit – III

Free Electron Theory: Classical free electron theory: electrical conductivity in metals, thermal conductivity in metals, Wiedemann-Franz law, success and drawbacks of free electron theory; Quantum free electron theory: wave function, eigen values; Fermi-Dirac distribution function, Density of states, Fermi energy and its importance, Thermionic Emission (qualitative).

Band theory of Solids: Bloch theorem, Kronig-Penney Model (qualitative), E versus k diagram, Brillouin Zones, Concept of effective mass of electron, Energy levels and energy bands, Distinction between metals, insulators and semiconductors, Hall effect and its Applications.

Unit –IV

Superconductivity: Introduction, General features of Superconductors, Meissner effect, Types of superconductors, Elements of BCS theory, London equations, Applications of superconductivity.

Nanomaterials: Introduction, Synthesis of nanomaterials: Top-down and Bottom-up approach, Sol-Gel and Ball Milling methods, Properties of Nanomaterials, Applications of Nanomaterials.

Text Books

1. P.K. Diwan, *Applied Physics for Engineers*, Wiley India Pvt. Ltd.
2. S.P. Taneja, *Modern Physics for Engineers*, R. Chand & Co.

Reference Books

1. C. Kittel, *Introduction to Solid State Physics*, John Wiley & Sons.
2. Arthur Beiser, *Concepts of Modern Physics*, Tata McGraw-Hill Publishing Company Limited.
3. S.O. Pillai, *Solid State Physics, New Age International (P) Limited*.
4. J.L. Powell, B. Crasemann, *Quantum Mechanics*, Narosa Publishing House.
5. C.P. Poole, F.J. Owens, *Introduction to Nanotechnology*, John Wiley & Sons (Asia) Pte. Ltd.

Note: Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Theory	Sessional	Total	
AS-104N	Applied Mathematics - II	4	1	0	75	25	100	3
Purpose	<i>To acquaint the students with the basic use of theory of equations, Laplace transform and its applications, Ordinary differential equation and its applications, and vector calculus.</i>							
Course Outcomes (CO)								
CO-1	How to find the roots and relation between them for the higher order polynomials, to solve the integrals by the beta and Gamma functions, and by the Leibnitz's rule for differentiation under the integral sign.							
CO-2	Introduction about the concept of Laplace transform and how it is useful in solving the definite integrals and initial value problems.							
CO-3	Methods to solve the ODE and some of its applications.							
CO-4	How to perform the derivative and integral of the vectors, its application to find the line, surface and volume integrals.							

Unit - I

Theory of Equations : Introduction, formation of equations, Relation between roots and coefficients, Reciprocal Equations, Transformation of equations
Integral Calculus: Beta and Gamma functions, Evaluation of integrals by Leibnitz's rule (Differentiation under the Integral sign)

Unit - II

Laplace Transforms and its applications: Laplace transforms: Basic concepts, Existence conditions, transform of elementary functions, Properties of Laplace transforms, transform of derivatives and integrals, multiplication and division property, Evaluation of integrals by Laplace transforms, Inverse transforms, The Convolution theorem, Unit step function, second shifting theorem, Dirac's Delta function, Application to linear differential equations and simultaneous linear differential equations with constant coefficients.

Unit – III

Ordinary Differential Equations and its applications: Exact differential equations, Equations reducible to exact differential equations, Applications of differential equations of first order and first degree to simple electric circuits, Newton's law of cooling, heat flow and orthogonal trajectories.
Linear differential equations of second and higher order, complete solution, complementary function and particular integral, method of variation of parameters and

method of undetermined coefficients to find the particular integral, Cauchy's and Legendre's linear equations, simultaneous linear equations with constant coefficients.

Unit - IV

Vector Calculus: Differentiation of Vectors, Scalar and vector point functions, Gradient of a scalar field and directional derivative, divergence and Curl of a vector field and their physical interpretations, line integrals, surface integral, volume integral, Green's theorem in the plane, Stoke's Theorem, Gauss Divergence Theorem(without proof) and their applications.

References Books

1. E. Kreyszig, *Advanced Engineering Mathematics*, Wiley India.
2. G. B. Thomas, R. L. Finney, *Calculus and Analytic Geometry*, Pearson Education.
3. B. V. Ramana, *Engineering Mathematics*, Tata McGraw Hill
4. Michael D. Greenberg, *Advanced Engineering Mathematics*, Pearson Education, Prentice Hall.

Note: *Examiner will set eight questions by selecting two from each unit. Students will be required to attempt five questions selecting at least one question from each unit.*

Course No.	Course Title	Teaching Schedule			Allotment of Marks			Duration of Exam (Hrs.)
		L	T	P	Practical	Sessional	Total	
AS-106N	Applied Physics Lab-II	0	0	2	30	20	50	3
Purpose	<i>To give the practical knowledge of handling the sophisticated instruments.</i>							
Course Outcomes (CO)								
CO	To make the students familiar with the experiments related with solid state physics.							

List of Experiments

1. To find the frequency of ultrasonic waves by piezoelectric methods.
2. To find the value of e/m for electrons by Helical method.
3. To find the ionisation potential of Argon/Mercury using a thyratron tube.
4. To study the variation of magnetic field with distance and to find the radius of coil by Stewart and Gee's apparatus.
5. To study the characteristics of (Cu-Fe, Cu-Constantan) thermocouple.
6. To find the value of Planck's constant by using photoelectric cell.
7. To find the value of coefficient of self inductance by using a Rayleigh bridge.
8. To find the value of Hall Coefficient of semiconductor.
9. To study the V-I characteristics of a p-n diode.
10. To find the band gap of intrinsic semiconductor using four probe method.
11. To calculate the hysteresis loss by tracing a B-H curve.
12. To verify Richardson thermionic equation.
13. To find the flashing and quenching potential of Argon and to find the capacitance of unknown capacitor.
14. To find the temperature coefficient of resistance by using Pt resistance thermometer by post office box.

Note: Student will be required to perform at least 10 experiments out of the given list.

Recommended Books

1. C.L. Arora, *B. Sc. Practical Physics*, S. Chand & Company Ltd.
2. B.L. Worshnop and H. T Flint, *Advanced Practical Physics*, KPH.

LESSION PLAN

Discipline - Mechanical Engineering
Semester - 2nd Semester
Subject and Code - Engineering Drawing (ME-105N)
Lesson Plan Duration - 15 weeks

Week	Theory		Practical	
	Lecture Day	Topic (Including Assignment/ Test)	Practical Day	Topic
1	1st	Introduction of Engineering Equipments,	1st	Prepare sheet
		Elements of engineering drawing,	2nd	
		Types of Lines, Various types of projections,	3rd	
2	2 nd	First and Third angle systems of orthographic projections. Projection of Points in different quadrants	4th	Prepare sheet
			5th	
			6th	
3	3 rd	Projections of Straight Lines – parallel to one or both reference planes,	7th	Prepare sheet
		contained by one or both planes,	8th	
		perpendicular to one of the planes	9th	
4	4 th	inclined to one plane but parallel to the other planes,	10th	Prepare sheet
		inclined to both the planes, true length of a line and its inclination with reference planes, traces of a line.	11th	
			12th	
5	5 th	Projections of Polyhedra Solids and Solids of Revolution - in simple positions with axis perpendicular to a plane	13th	Prepare sheet
			14th	
			15th	
6	6 th	Projections of Polyhedra Solids with axis parallel to both planes, with axis parallel to one plane and inclined to the other	16th	Prepare sheet
			17th	
			18th	
7	7 th	Development of surfaces of various simple solids such as cubes, cylinders, prisms, pyramids etc. orthographic views	19th	Prepare sheet
			20th	
			21st	
8	8 th	Three orthographic views of solids	22nd	Prepare sheet
			23rd	
			24th	
9	9 th	Orthographic views of Nuts and Bolts, Profile of Screw threads	25th	Prepare sheet
			26th	

			27th	
10	10 th	Section planes, apparent section true section, sectional view-cutting plane-cutting plane line.	28th	Prepare sheet
		Sectional view of solids-prism, cylinders, pyramids & cones in simple position, perpendicular to one plane and parallel to other.	29th	
		Section plane perpendicular to one plane and inclined to the other.	30th	
11	11 th	AUTOCAD basics: Cartesian and Polar Co-ordinate system, Absolute and Relative Coordinates systems.	31st	Prepare sheet
			32nd	
			33rd	
12	12 th	Basic Commands: Line, Point, Rectangle, Polygon, Circle, Arc, Ellipse, Polyline	34th	Prepare sheet
			35th	
			36th	
13	13 th	Basic editing Commands: Basic Object Selection Methods, Window and Crossing Window	37th	Prepare sheet
			38th	
			39th	
14	14 th	Erase, Move, Copy, Offset, Fillet, Chamfer, Trim, Extend, Mirror Display Commands:	40th	Prepare sheet
			41st	
			42nd	
15	15 th	Zoom, Pan, Redraw, and Regenerate Simple dimensioning and text, simple exercises.	43rd	Prepare sheet
			44th	
			45th	

Department APPLIED SCIENCES
 Name of faculty Dr. Shilpi Aggarwal
 Class B.Tech 2nd Sem
 Duration Jan,2018 to April 2018
 Subject Applied Chemistry

Week	Lecture Day	Theory	Practical	Topic
1st	1	1st and 2nd law of thermodynamics	1st	Temporary and permanent hardness by EDTA method
	2	zeroth and 3rd law of thermodynamics		
	3	concepts of entropy		
2nd	4	free energy, work function, chemical potential	2nd	alkalinity of water sample
	5	Gibbs Helmholtz eq, Clausius-Caplyeron eq		
	6	Numericals		
3rd	7	Phase rule	3rd	determination of dissolved oxygen
	8	Gibbs phase rule		
	9	phase diagram of water system		
4th	10	sulphur system	4th	flash point and fire point of an oil
	11	Pb-Ag system		
	12	Zn-Mg and Na-K system		
5th	13	Hard water and its types	5th	viscosity of lubricant
	14	EDTA method		
	15	Alkalinity		
6th	16	Numericals	6th	iron content in iron ore by internal indicator method
	17	scale and sludge		
	18	ion exchange process		
7th	19	desalination	7th	iron content in iron by external indicator method
	20	reverse osmosis and electro dialysis		
	21	green chemistry		
8th	22	twelve principles of green chemistry	8th	coefficient of viscosity of a liquid
	23	alternate solvents-ionic liquids		
	24	SCF, derivatized and immobilized solvent		
9th	25	dry and wet corrosion	9th	surface tension of a liquid by drop number method
	26	electrochemical theory		
	27	pitting and water line corrosion		
10th	28	diffrential aeration and stress corrosion	10th	
	29	factors affecting corrosion		
	30	proper designing and material selection		
11th	31	cathodic and anodic protection	11th	

	32	mechanisms of lubrication		
	33	classification of lubricants		
12th	34	viscosity and viscosity index	12th	
	35	flash and fire point		
	36	saponification number and pour point		
13th	37	iodine number and greases	13th	
	38	consistency and drop point test		
	39	ceramics- clays, silicon		
14th	40	feldspar, porcelain	14th	
	41	vitrous enamels		
	42	cement and its manufacturing		
15th	43	nanoscale materials and its properties	15th	
	44	fullerences CNT, dendrimes, nanowires		
	45	nano-composites		

Department	Applied Science		
Name of faculty	Vimal Kala		
Class	B.Pharmacy		
Duration	August,2018 - November,2018		
Subject	English		
Sr. no	Week	Lecture Day	Theory
1	1	1	Comm. Skills - Intro., Def. Imp. & process
2		2	Barriers to Communication
3	2	3	Interpersonal, Psycological & emotional Barriers
4		4	Perspective in comm.
5	3	5	Factors affecting our Perspective
6		6	Elements of Comm.
7	4	7	Body Lang. (Non verbal), verbal Comm.
8		8	Comm. Style
9	5	9	Direct , Spirited, Systematic, Considerate Comm. Style
10		10	Basic Listening skills
11	6	11	A good listener traits
12		12	Effective Wriiten Comm.
13	7	13	Complexity of the topic, Discussion Required
14		14	Shades of meaning formal Comm.
15	8	15	Writing Effectively
16		16	Know your audience, Organisation of the message
17	9	17	Interview Skills, Purpose of an interview
18		18	Do's & Don'ts of an interview
19	10	19	Giving presentation & dealing with fears.
20		20	Planning and presentation, structuring your presentation
21	11	21	Delivering your presentation
22		22	Techniques of delivering
23	12	23	Group discussion
24		24	Do's & Don'ts of group discussion

Department	Applied Science		
Name of faculty	Vimal Kala		
Class	B.Tech Ist sem		
Duration	August,2018 - November,2018		
Subject	English		
Sr. no	Week	Lecture Day	Theory
1	Ist	1	Communication- meaning
2		2	Types- Role of comm.
3		3	Process of comm.
4	2nd	4	Barriers of comm.
5		5	How to overcome these barriers -Strategies
6		6	Listening traits of a good listener
7	3rd	7	Barriers of listening
8		8	Difference between learning & listening
9		9	Reading
10	4th	10	Vocabulary
11		11	Scanning
12		12	Skimming and SQ3R technique
13	5th	13	Same
14		14	Writing : Characterstics
15		15	Language
16	6th	16	Techniques of effective Writing
17		17	Same
18		18	Vocabulary
19	7th	19	Structuring
20		20	Brevity,coherence etc.
21		21	Group discussion
22	8th	22	Purpose of GD
23		23	Do's & don't of GD
24		24	Oral presentation
25	9th	25	Types of oral presentation
26		26	Steps of oral presentation
27		27	How to make an oral presentation effective
28	10th	28	Job interview
29		29	Types of job interview
30		30	Purpose of an interview
31	11th	31	Preparation done on the part of interviewee
32		32	Preparation done on the part of interviewer

33		33	Technical letters
34	12th	34	Revision
35		35	Format
36		36	letters
37	13th	37	Job applications
38		38	Revision
39		39	Technical articles
40	14th	40	Revision
41		41	Revision
42		42	Revision

Name of the Faculty: Ankush Sharma

Discipline: Electrical Engineering

Semester: 1st

Subject: Electrical Technology Fundamentals

Lesson Plan Duration: 15 weeks

Work load (Lecture/Practical) per week (in hours): Lecture 04, Practicals 02

Week	Theory		Practical	
	Lecture day	Topic (Including assignment/ test)	Practical day	Topic
1st	1	D.C Circuits: Ohm's law, Network terminology terminology	1	Introduction to Lab
	2	KCL, KVL & its numericals		
	3	Mesh/Loop method & its numerical		
	4	Nodal voltage analysis method & its numericals		
2nd	5	Delta to star & star to delta transformation	2	To verify KCL & KVL
	6	Network Theorems: Thevenin's Theorem & its numerical		
	7	Norton's Theorem & Its Numericals		
	8	Superposition theorem & its numerical problems		
3rd	9	Maximum power transfer theorem & its Numericals	3	To verify Superposition theorem
	10	AC Fundamentals: Mathematical representation of various wave functions		
	11	Polar & Rectangular form representations of Impedances		
	12	Addition & Subtraction, Multiplication & division of two or more phasor quantities		
4th	13	Average value for half & full wave rectified sinusoidal waveform	4	To verify Thevenin's & Nortons theorem
	14	RMS value for half & full wave rectified sinusoidal waveform		
	15	Generation of alternating emf		
	16	Behavior of various components fed by ac source		

5th	17	Pure R,L & C components	5	To study frequency response of Series R-L-C Circuit & Q-factor
	18	R-L series circuit & its numericals		
	19	R-C series circuit & its numericals		
	20	R-L-S series circuit & its numericals		
6th	21	Frequency response of series resonance, Q-factor, cutoff frequency & bandwidth	6	To study frequency response of Parallel R-L-C Circuit & Q-factor
	22	Frequency response of parallel resonance		
	23	AC circuit analytical problems using J-Omega Method & power factor		
	24	Three Phase System: Necessity & advantages of 3-phase system		
7th	25	Mode of generation of 3-phase supply	7	To carry out speed control of dc shunt motor
	26	Star connection & its numerical		
	27	Delta connection & its numerical		
	28	Measurement of power by two wattmeter method for star connected resistive load		
8th	29	Measurement of power by two wattmeter method for star connected Inductive & Capacitive load	8	To perform direct load test on a single phase transformer & Plot efficiency vs load characteristics
	30	Measurement of power by two wattmeter method for delta connected Inductive & Capacitive load		
	31	Measurement of power by two wattmeter method for delta connected resistive load & its numericals		
	32	Phase sequence significance		
9th	33	Phase sequence significance & Power	9	To perform OC and SC test on a 1-phase transformer
	34	Electromagnetism & magnetic circuits: laws of EMI		

	35	Statically & Dynamically emf, self & mutual induction, dot notation		
	36	RH Screw rule, Fleming's RHR, LHR, MMF, Flux, Reluctance, Losses, Fringing		
10th	37	1-phase Transformer: Construction & working principle	10	Measurement of power in a 3-phase system by two wattmeter method
	38	Emf equation, ideal case, no-load transformer		
	39	Actual transformer & its phasor diagram		
	40	Losses, Efficiency & its condition		
11th	41	Regulations, OC & SC test, Load test	11	To perform OC and SC test on a 3-phase I.M
	42	Auto transformer and its advantages		
	43	DC Machine: Principle & Construction		
	44	Working of generator & emf equation		
12th	45	Working of motor, Torque equation		
	46	Types of DC Machines, Speed control of Motor		
	47	Induction motor: Principle & its working, Construction		
	48	Concept of slip & its importance, Torque equation		
13th	49	Synchronous m/c: Working principle, Construction		
	50	Comparison between squirrel cage & slipring I.M		
	51	Comparison between motor & generator		

Department	Applied Science			
Name of faculty	Surender Kumar			
Class	B.Tech 4th Sem			
Duration	Aug,2018 - Dec,2018			
Subject	Environmental Sc			
Week	Lecture Day	Theory	Practical	Topic
1st	1	Definition, Scope, Importance of EVS	1st	
	2	Need for Public Awareness		
	3	Natural Resources		
2nd	4	forest resources	2nd	
	5	water resources		
	6	mineral resources		
3rd	7	food resources	3rd	
	8	energy resources		
	9	land resources		
4th	10	ecosystem concept	4th	
	11	producers,consumers		
	12	energy flow in ecosystem		
5th	13	food chain,food web,pyramids	5th	
	14	forest , grassland,desert ecosystem		
	15	aquatic ecosystem		
6th	16	genetic species,diversity	6th	
	17	value of biodiversity		
	18	biodiversity at global level		
7th	19	india as mega divesion level	7th	
	20	hot spots of biodiversity		
	21	threats to diversity		
8th	22	endangered species of india	8th	
	23	conservation of biodiversity		
	24	air,water pollution		
9th	25	soil,marine,noise pollution	9th	
	26	thermal, nuclear pollution		
	27	solid waste management		
10th	28	role of individual	10th	
	29	disaster management		
	30	floods, earthquake		
11th	31	cyclone, land slide	11th	
	32	urban problems related to energy		

	33	water conservation		
12th	34	resettlement and rehabilitation	12th	
	35	environmental ethies		
	36	climate change, global warming		
13th	37	environmental protection act	13th	
	38	air,water, forest act		
	39	population growth		
14th	40	population explosion	14th	
	41	human right, value education		
	42	environment and human health		
15th	43	HIV/AIDS	15th	
	44	Women and child welfare		
	45	Role Of IT in environment		

Department	Applied Science		
Name of faculty	Surender Kumar		
Class	B.Tech 1st sem		
Duration	August 2018 - November 2018		
Subject	Fundamentals of Biotechnology		
Sr. no	Week	Lecture Day	Theory
1	1st	1	Definition and concepts of biology
2		2	Characteristic features of living organism
3		3	Cell ultra structure and functions of cell organelles
4	2nd	4	Nucleus, ribosomes and endoplasmic reticulum
5		5	Mitochondria, chloroplast,
6		6	Difference between prokaryotic and eukaryotic cell
7	3rd	7	Carbohydrates
8		8	Proteins, Nucleic acid
9		9	Lipids, vitamins, hormones
10	4th	10	Enzymes
11		11	Mitosis
12		12	Meiosis, gene
13	5th	13	Transcription, genetic disorder
14		14	Translation, mutation
15		15	Blood group, diabetes
16	6th	16	Morphology and pathogenicity of bacteria
17		17	Virus, fungi
18		18	Protozoa
19	7th	19	Harmful and beneficial for human being
20		20	Definition and tools of r-dn technology
21		21	Plasmid
22	8th	22	restriction endonuclease
23		23	Vectors as gene transfer vehicles
24		24	Production of transgenic animals
25	9th	25	Transgenic plants
26		26	Significance of transgenic organisms
27		27	GMOs
28	10th	28	Definition of biotechnology
29		29	Application of biotechnology in agriculture
30		30	Medicine
31	11th	31	Industry
32		32	Forensic science

33		33	Environment
34	12th	34	Role of biology in allied fields
35		35	Bio-informatics
36		36	Nanobiotechnology
37	13th	37	Bio-MEMS
38		38	Biosensors
39		39	Ethical issues related to biotechnology
40	14th	40	Molecular biology
41		41	Restriction for biotechnology
42		42	DNA fingerprinting

Name of Faculty: Er. Deepika Arora

Discipline : B.Tech Computer Science and Engineering

Semster: 1st

Subject : Introduction to Computer Programming CSE-101N & CSE-103N

Lesson Plan Duration: 15 weeks (from Aug, 2018 to Nov, 2018)

Work Load : Lecture: 03, Practical : 02

Week	Theory		Practical	
	Lecture Day	Topic (Including Assignment/Test)	Practical Day	Topic
1	1	Introduction to Computer, Block Diagram	1	Write a program to find the sum of individual digits of a positive integer.
	2	Number Systems		Write a program to generate the first n terms of the Fibonacci sequence.
	3	Number Systems		
2	4	Arithmetic of Number Systems,	2	Write a program to generate all the prime numbers between 1 and n, where n is the input value given by the user
	5	Arithmetic of Number Systems,		Write a program to calculate the following Sum:
	6	Printers		$\text{Sum} = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \frac{x^8}{8!} \dots$
3	7	Keyboard and Mouse	3	Write a program to find the roots of a quadratic equation
	8	Storage Devices		
	9	Storage Devices		
4	10	Problems	4	a) Write a function to generate Pascal's triangle. B) Write a function to construct a pyramid of numbers.
	11	High Level language, Assembly language, Machine language		
	12	Compiler, Interpreter, Debugger, Linker, Loader, Assembler.		
5	13	Problem Analysis: Algorithms and Flowchart	5	Write a C functions to find both the largest and smallest number of an array of integers
	14	Introduction to C Programming		
	15	Test/ Assignment		
6	16	Data types, Variables, Constants	6	Write a program for addition of Two Matrices

	17	Operators: Arithmetic, relational, logical, bitwise, unary, assignment and conditional operators,		Write a program for calculating transpose of a matrix.
	18	Precedence & Associativity of Operators		Write a program for Matrix multiplication by checking compatibility
7	19	Problems	7	Write programs that use both recursive and non-recursive functions for the following: a. To find the factorial of a given integer. b. To find the GCD (greatest common divisor) of two given integers.
	20	Unformatted & Formatted I/O function in C		
	21	Control Statements: if statement		
8	22	for, while, and do-while loop	8	Write a function that uses functions to perform the count the lines, words and characters in a given text.
	23	Switch Statement, Break, Continue, Goto statements		
	24	Arrays: Definition, Types		
9	25	Initialization, processing an array, Mutlti Dimensional Array	9	Write a program to print the element of array using pointers
	26	String Handling		Write a program to implement call by reference
	27	Functions: Definition, Prototype		
10	28	Parameters Passing Techniques	10	Creation of scripts for file and user management, creation of startup and shutdown scripts using at, cron etc.
	29	Built-in Functions		
	30	Recursion		
11	31	Passing Arrays to Functions, Returning Arrays from Functions	11	Write a program to read a string and write it in reverse order
	32	Programs		Write a program to concatenate two strings
	33	Pointers: Declaration, Operations on Pointers		
12	34	Pointers and Arrays	12	Write a program to check that the input string is a palindrome or not.
	35	Dynamic Memory Allocation		
	36	Pointers and Functions		
13	37	Pointers and Strings	13	Write a program which copies one file to another.
	38	Structure & Union: Definition, Processing		

	39	Structure and Pointers		
14	40	Passing Structures to Functions	14	Write a program to reverse the first n characters in a file.
	41	Use of Union		
	42	Opening and Closing a File		
15	43	File Handling		
	44	I/O Operations on Files		
	45	Programs		

Department		APPLIED SCIENCE	
Name of faculty		Feeja Rani	
Class		B.Pharmacy	
Duration		August to Nov.	
Subject		Mathematics	
Week	Lecture Day	Theory	Practical
1st	1	Polynomial and Fraction	1st
	2	Partial fraction and its application	
	3	Logarithms and its properties	
2nd	4	Examples and its application	2nd
	5	Real valued function	
	6	Characterstics of real valued function	
3rd	7	Limits	3rd
	8	Continuity	
	9	Revision	
4th	10	Introduction of matrices	4th
	11	Types and Operations on matrices	
	12	Determinants and its property	
5th	13	Minor and Co-factors	5th
	14	adjoint of matrix	
	15	Singular and Non singular matrices	
6th	16	Inverse of a matrix	6th
	17	Sol. of linear. eq. (Matrix ,Cramer's rule)	
	18	Charaterstics eq. and its roots	
7th	19	Cayley Hamilton theorem	7th
	20	Derivative of a function and constant	
	21	Product formula	
8th	22	Quotient formula	8th
	23	Derivative of Logarithm and exponential fun.	
	24	Derivative of trigonometric fun.	
9th	25	Successive Differentiation	9th
	26	Concept of maxima and minima	
	27	Revision	
10th	28	Sign of coordinates and distance formula	10th
	29	Slope of a straight line	
	30	Condition for perpe. And parall.	
11th	31	Slope of a line joining two points	11th
	32	Slope intercept Formula	

	33	Definition, formulas of integration	
12th	34	Method of substitution & partial fractions	12th
	35	Integration by parts	
	36	Define Integrals, Application	
13th	37	Introduction of Differential equation	13th
	38	Order and degree	
	39	Eq. in separable form	
14th	40	Homogeneous eq. Linear diff. eq.	14th
	41	Exact eq.	
	42	Application in solving Pharmacokinetic eq.	
15th	43	Laplace transformation	15th
	44	Application of Laplace eq.	
	45	Revision	

Department		Applied Science	
Name of faculty			
Class		B.Tech 1st sem	
Duration		August,2018 - November,2018	
Subject		Mathematics	
Sr. no	Week	Lecture Day	Theory
1	1st	1	Introduction of Matrix, rank of a matrix
2		2	elementary transformation and matrices.
3		3	Gauss jordan method for inverse,normal form
4	2nd	4	linear dependence and independence of vectors
5		5	Consistency of linear system
6		6	linear and orthogonal transformation
7	3rd	7	eigen values and vectors and its properties
8		8	Cayley-Hamilton theorem & its applications.
9		9	Diagonalization of matrices
10	4th	10	Quadratic forms
11		11	Introduction ,Successive differentiation
12		12	Leibnitz theorem
13	5th	13	Application of Leibnitz theorem
14		14	Taylor's and Maclaurin's series for single variable
15		15	Expansion of functions
16	6th	16	Asymptotes of Cartesian co-ordinates
17		17	Asymptotes of polar co-ordinates
18		18	Curve tracing for standard curves
19	7th	19	Curve tracing for Cartesian and polar
20		20	Revision
21		21	Limit and continuity of a function of 2 & 3 variables
22	8th	22	Partial derivatives
23		23	Variable treated as a constant
24		24	Euler's theorem on homogeneous function
25	9th	25	Total derivative
26		26	Differentiation of an implicit function
27		27	Chain rule
28	10th	28	Change of variables
29		29	Jacobian, Taylor & Maclaurin's series (2 variable)
30		30	Maxima and Minima of a function of two variables
31	11th	31	Lagrange's method of undetermined multipliers
32		32	Introduction of Integral Calculus

33		33	Appl. Of single inte. to find the vol. & sur. area of solid revol.
34	12th	34	Double integrals
35		35	Change of order of integration
36		36	Areas enclosed by plane curves
37	13th	37	Triple integrals
38		38	Volume of solids
39		39	Change of variables
40	14th	40	Revision
41		41	Revision
42		42	Revision

Department		Applied Science	
Name of faculty			
Class		B.Tech 4th sem (ECE)	
Duration		Jan,2018 - Apr,2018	
Subject		MATHEMATICS	
Week	Lecture Day	Theory	Practical
1st	1	Solution of algebraic equation	1st
	2	method of false position	
	3	newton raphson method	
2nd	4	gaeffe's root square method	2nd
	5	eigen value problem by power method	
	6	jacobi method	
3rd	7	gauss elimination method	3rd
	8	gauss jordon method	
	9	method of triangularization	
4th	10	Crout's method	4th
	11	Iterative Method: Gauss Jacobi	
	12	gauss seidel method	
5th	13	relaxation method	5th
	14	inverse of matrix by gauss jordon method	
	15	inverse of matrix by gauss elimination method	
6th	16	crout's method to find inverse	6th
	17	dolittle method	
	18	dolittle method continues	
7th	19	choleski method	7th
	20	interpolation	
	21	relation between operators	
8th	22	newton's forward formula	8th
	23	newton's backward formula	
	24	newton's divided differential method	
9th	25	lagrange's method, gauss central formula	9th
	26	bessel formula	
	27	strling formula	
10th	28	numerical differentiation, newton's forward formula	10th
	29	newton's backward differential formula	
	30	derivatives using central differential formulae	
11th	31	finding max and min by above methods	11th
	32	numerical integration	

	33	newton's formula	
12th	34	trapezoidal rule	12th
	35	simpson's rule	
	36	romberg method	
13th	37	ordinary differential equations	13th
	38	taylor series method	
	39	picards method, euler's method	
14th	40	modifies euler's method	14th
	41	R-K method	
	42	milne's method	
15th	43	Adams-bashforth method	15th
	44	curve fitting, principle of least square	
	45	fitting of straight line, parabola	

Department		APPLIED SCIENCE	
Name of faculty			
Class		B.Tech 4th sem	
Duration		Jan,2018 - April,2018	
Subject		Mathematics	
Week	Lecture Day	Theory	Practical
1st	1	applications of transform	1st
	2	fourier expansion	
	3	fourier expansion continues	
2nd	4	change of interval related problems	2nd
	5	odd and even function	
	6	half range series	
3rd	7	fourier transform	3rd
	8	F.C.T and F.S.T,	
	9	properties of F.T.	
4th	10	Convolution theorem	4th
	11	parseval identity	
	12	F.T. of a derivative of a function	
5th	13	applications of transform	5th
	14	P.D.E.	
	15	continous LLDE	
6th	16	charpit's method	6th
	17	homogenous linear equation	
	18	method of seperation	
7th	19	solution of LPP	7th
	20	simplex method	
	21	function of complex variable	
8th	22	diffrentiability and analyticity of a function	8th
	23	basic elementary functions	
	24	hyperbolic functions, log functions	
9th	25	CR equations	9th
	26	complex line integral	
	27	CR theorem	
10th	28	taylor, laurent and residue theorem	10th
	29	probablity	
	30	conditional probablity, multiplication rule	
11th	31	mean, median ,mode	11th
	32	baye's theorem	

	33	discrete random variable	
12th	34	complete discrete random variable	12th
	35	continuous random variable	
	36	prob. Mass, prob. Density	
13th	37	mathematical expectations	13th
	38	moments	
	39	binomial distribution	
14th	40	poisson distribution	14th
	41	normal distribution	
	42	normal distribution continue	
15th	43	revise LPP	15th
	44	LPP simplex method	
	45	LPP- dual simplex method	

Department		Applied Science	
Name of faculty			
Class		B.Tech 1st sem	
Duration		August,2018 - November,2018	
Subject		Physics	
Sr. no	Week	Lecture Day	Theory
1	1st	1	Principle of superposition, condtions for intreferece
2		2	Division of wavefront-Fresnel's Biprism & Applications
3		3	Divison of Amplitude
4	2nd	4	Wedge-shaped films, Newton's rings
5		5	Michelson enterferometer & aplication
6		6	Types of diffraction , Fraunhofer diffraction
7	3rd	7	Plane transmission diffarction grating
8		8	Width of Principal maximum, Absent spectra
9		9	Overlapping of Spectral lines
10	4th	10	Determination of wavelenght
11		11	Disprusive and resolving power of diffraction grating
12		12	Polarisation of transverse waves
13	5th	13	Plane of polarisation, Polarisation by reflaction
14		14	Double Refraction. Nicol prism
15		15	Quarter and Half wave plate
16	6th	16	Specific rotation, Laurent's Half shade polarimeter
17		17	BiQuartz polarimeter,
18		18	Laser Introduction, stimulated absorption
19	7th	19	Spontaneous and stimulated emmision
20		20	Einstein's coefficient and its derivatives
21		21	population inversion, direct and indirect pumping
22	8th	22	Pumping schemes
23		23	Main components of laser, He-Ne Laser
24		24	Semiconductor Laser, Characterstics and application of laser
25	9th	25	Introcction and principle of optical fibre.
26		26	Total internal reflection, Acceptance angle,
27		27	Numerical aperture, V-Number, modes of propagation
28	10th	28	types of optical fibres, fibre optics communication system
29		29	Advantages and application optical fibres
30		30	Introduction, properties and prouction of ultrasonic

			waves
31	11th	31	Magnetostriction & piezoelectric methods
32		32	Detection, measurement and applications of ultrasonic waves
33		33	Concepts of ether, Michelson-Morley experiments
34	12th	34	Postulates of special theory of relativity, frame of reference
35		35	Galilean transformation, Lorentz transformation and consequence.
36		36	length contraction, time dilation, velocity transformation
37	13th	37	Varia. of mass with velocity, Einstein's mass-energy relation
38		38	Einstein energy-momentum
39		39	Classification of nuclear radiation,
40	14th	40	Interaction of charged particle and gamma radiation with matter.
41		41	Gas filled detector, Ionization chamber, proportional counter
		42	Geiger Muller counter, Scintillation and semiconductor

Discipline	Mechanical Engineering
Semester	1st Semester
Subject	Manufacturing Technology and Processes (ME-101N)
Lesson Plan Duration:	15 weeks
** Work	

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1 st	1 st	Introduction to Manufacturing Processes and their Classification, Industrial Safety	1 st	NA
	2 nd	Introduction, Types of Accidents, Causes and Common Sources of Accidents	2 nd	NA
	3 rd	Methods of Safety, First Aid.	3 rd	NA
	4 th	Engineering Materials: General Properties and Applications of Engineering Materials	4 th	NA
2 nd	5 th	Mild Steel, Medium Carbon Steel,	5 th	NA
	6 th	High Carbon Steel, High Speed Steel and	6 th	NA
	7 th	Cast Iron.	7 th	NA
	8 th	Assignment 1	8 th	
3 rd	9 th	Test-1	9 th	NA
	10 th	Introduction to Casting Processes, Basic Steps in Casting Process	10 th	NA
	11 th	Pattern, Types of Patterns	11 th	NA
	12 th	Pattern Allowances	12 th	NA
4 th	13 th	Risers, Runners, Gates	13 th	NA
	14 th	Moulding Sand and its composition, Sand Preparation	14 th	NA
	15 th	Molding Methods, Core Sands and Core Making	15 th	NA
	16 th	Core Assembly, Mold Assembly	16 th	NA
5 th	17 th	Melting (Cupola) and Pouring, Fettling,	17 th	NA
	18 th	Casting Defects and Remedies	18 th	NA
	19 th	Revision	19 th	NA
	20 th	Assignment 2	20 th	NA
6 th	21 st	Test-2	21 st	NA

	22 nd	Sheet Metal Operations, Measuring, Layout Marking, Shearing, Punching, Blanking, Piercing, Forming, Bending and Joining,	22 nd	NA
	23 rd	Advantages and Limitations of cold working	23 rd	NA
	24 th	Hot Working Processes: Introduction to Hot Working	24 th	NA
7 th	25 th	Principles of Hot Working Processes	25 th	NA
	26 th	Forging	26 th	NA
	27 th	Rolling	27 th	NA
	28 th	Extrusion, Wire Drawing	28 th	NA
8 th	29 th	Plant Layout: Objectives of Layout,	29 th	NA
	30 th	Types of Plant Layout and their Advantages	30 th	NA
	31 st	Revision	31 st	NA
	32 nd	Assignment 3	32 nd	NA
9 th	33 rd	Test-3	33 rd	NA
	34 th	Introduction to Machine Tools: Specifications and Uses of Lathe	34 th	NA
	35 th	Specifications and Uses of Milling	35 th	NA
	36 th	Specifications and Uses of Drilling	36 th	NA
10 th	37 th	Introduction to Metal Cutting.	37 th	NA
	38 th	Nomenclature of a Single Points Cutting Tool	38 th	NA
	39 th	Tool Wear	39 th	NA
	40 th	Mechanics of Chips Formations	40 th	NA
11 th	41 st	Type of Chips,	41 st	NA
	42 nd	Use of Coolants in machining	42 nd	NA
	43 rd	Revision	43 rd	NA
	44 th	Introduction to Welding	44 th	NA
12 th	45 th	Classification of Welding Processes	45 th	NA
	46 th	Gas Welding: Oxy-Acetylene Welding	46 th	NA
	47 th	Resistance Welding; Spot Welding	47 th	NA
	48 th	Resistance Welding; Seam Welding	48 th	NA
13 th	49 th	Arc Welding: Metal Arc	49 th	NA
	50 th	TIG Welding	50 th	NA
	51 st	MIG Welding	51 st	NA
	52 nd	Welding Defects and Remedies,	52 nd	NA

14 th	53 rd	Soldering & Brazing.	53 rd	NA
	54 th	Revision	54 th	NA
	55 th	Assignment 4	55 th	NA
	56 th	Test-4	56 th	NA
15 th	57 th	Revision	57 th	NA
	58 th	Revision	58 th	NA
	59 th	Revision	59 th	NA
	60 th	Test (Whole Syllabus)	60 th	NA

R.P.I.I.T TECHNICAL CAMPUS,BASTARA (KARNAL)							
Deptt :- Applied Sciences (w.e.f : Aug.,2018)							
Faculty		X	Dr. Shilpi	Ms. Vimal Kala	Ms. Heena Verma	Ms. Feeja	Mr. Surinder Tanwar
MONDAY	9:10 :10:05		DMLT-Lab	DMLT-Lab	A-L-102	B. Ph 2nd	B Tech 3rd
	10:05-11:00						
	11:00-11:55		D CE--L			MATH-3RD	A L-102
	11:55-12:50			D CE--L+DMLT	BBA(12:10-12:50)		
	12:50-1:30	LUNCH					
	1:30-2:20					D CE-L	D PH -1st
	2:20-3:10	PHY LAB A-2		DMLT -Lab			
	3:10-4:00					B Ph-1st	
TUESDAY	9:10 :10:05			D CE-L+DMLT			
	10:05-11:00	A L-102				D CE-L	D CE+ D Arch
	11:00-11:55	D CE LAB	DMLT-L			MATH-3RD	A-L102
	11:55-12:50				A-L-102		B Tech 3rd
	12:50-1:30	LUNCH					
	1:30-2:20	D CE-L				B Ph-1st	B Ph-1st Lab
	2:20-3:10					B Ph-1st	
	3:10-4:00	PHY(T)A2			B Ph-1st		
WEDNESDAY	9:10 :10:05	A L-102	D CE-LAB		BBA(9:50-10:30)		DMLT-3rd
	10:05-11:00					MATH-3RD	
	11:00-11:55	D CE-L	DMLT-Lab	DMLT -Lab			A-L102
	11:55-12:50					A-L-102	D CE-L
	12:50-1:30	LUNCH					

	1:30-2:20						B Tech 3rd
	2:20-3:10			B Ph-1st Lab		B Ph 2nd	
	3:10-4:00	PHY(T)A1					
THURSDAY	9:10 :10:05		D CE-L	B.Pharmcy			A-L-102
	10:05-11:00				A-L-102	D CE-L	DMLT-3rd
	11:00-11:55	A-L-102		B Ph-1st Lab			
	11:55-12:50		DMLT-L		BBA(12:10-12:50)		
	12:50-1:30	LUNCH					
	1:30-2:20	D CE-L			A1-T(L-102)	MATH-3RD	
	2:20-3:10	A1-LAB		D CE LAB			
	3:10-4:00					B Ph-1st	
FRIDAY	9:10 :10:05	D CE-L					D CE+ D Arch
	10:05-11:00			D CE-L+DMLT			B PH-3rd
	11:00-11:55		DMLT-L		BBA(12:10-12:50)	D CE-L	
	11:55-12:50	A-L-102	D CE-L				
	12:50-1:30	LUNCH					
	1:30-2:20				A2-T(L-102)		DMLT-3rd
	2:20-3:10			ECE +CSE 5th sem			
3:10-4:00							