

INFORMATION BROCHURE

(2011-2012)

IMPORTANT INFORMATION

Following courses are under self finance scheme (SFS)

- 1. B .Tech (Information Technology)**
- 2. B. Tech (Electrical Engineering)**
- 3. Master of Business Applications (MBA)**
- 4. All M Tech programmes**

Therefore all rules, regulations and fees will be as per applicable to SFS Courses.

WELCOME MESSAGE

It is a great pleasure for me to welcome you all, especially new entrants to this institute of professional excellence i.e. Bundelkhand Institute of Engineering & Technology, Jhansi, which is known for providing quality education of International standards in Bundelkhand Region.

I would like to congratulate the new students for their decision of selecting this institution, which I assure you, will provide you a platform where from you will embark on your first journey towards your professional career. I assure you that BIET Jhansi will provide education of high standard along side with a homely atmosphere of the hostels and other excellent infrastructural facilities.



I am sure that overall inputs provided by the institution will help you to develop into a complete and competent professional in true sense for the better future of our country.

I wish you all a happy and healthy stay with quality environment conducive to academic growth at this institution.

(Prof. Harvinder Singh)
Director

1. About the Institute

Bundelkhand Institute of Engineering and Technology, Jhansi (Formerly Bundelkhand Engineering College, Jhansi) was established in the year 1986 with an objective to develop Bundelkhand region, a back ward region of state of Uttar Pradesh, through growth of technical education and industrial research. Subsequently, basic infrastructural facilities, on an area encompassing 240 acres of land, were developed. The institute was started initially with two branches, viz., Computer Science & Engg. and Electronics and Instrumentation Engg. with an intake of 30 students in each.

The campus was gradually developed into a neat, clean and green campus adding two additional branches, Mechanical Engineering and Civil Engineering with an intake of 20 students each in 1990. Moving ahead on the path of progress, in 1997, Chemical Engineering with an intake of 30 students was started and in 2000 Information technology with intake of 40 students was added (under self finance scheme). In the same year, the intake of Mechanical Engineering and Computer Science & Engineering were raised to 45 and 60 students respectively, and Electronics & Instrumentation Engg. was renamed as Electronics & Communication Engg. and intake was raised to 60. In 2006, the intake of Civil Engineering has been increased to 45. From session 2007-08, a four-year B. Tech programme in Electrical Engineering (under SFS) with an intake of 60 students has been added to the existing six B. Tech programmes.

In addition to these undergraduate programmes from session 2005-06 two post graduate programmes in (i) Environmental Engineering and (ii) Construction Technology & Management in Civil Engineering Department and one in Manufacturing Science & Technology in Mechanical Engineering Department with intake of 18 students each, had been started. From the session 2006-07 a M. Tech. programme in Digital Communication System in Electronics & Communication Engineering Department with intake of 20 students had also been added to the list of P.G. programmes being run by the institute. From session 2007-08, a two-year management programme leading to M.B.A. degree with intake of 60 students, has also been started. In this way the total intake of students in the institute including M. Tech. programmes is 474. It is worth to mention that all PG programmes are under SFS scheme.

2. Courses of Study

The institute offers the following programme

Undergraduate Programme in	Intake
Civil Engineering	45 Seats
Computer Science & Engineering	60 Seats
Electronics & Communication Engineering	60 Seats
Mechanical Engineering	45 Seats
Chemical Engineering	30 Seats
Information Technology (under SFS)	40 Seats
Electrical Engineering (under SFS)	60 Seats

The total intake of the institute is 340 seats. Beside this 5% seats are available for NRI / NRI sponsored candidates and 10% seats for the fee waiver students.

Post Graduate Programmes (all are under SFS)

M Tech (Environmental Engineering)	18 seats
M Tech (Manufacturing Science & Technology)	18 Seats
M Tech (Construction Technology and Management)	18 Seats
M Tech (Digital Signal System)	20 Seats
MBA	60 Seats

2.1 Eligibility Requirement for Admission

All the admissions are done by Gautam Buddha Technical University Lucknow/ Mahamaya Technical University, Noida. For details please visit <http://www.seeuptu.nic.in>.

3. Hostels

Institute is fully residential to accommodate all students in hostels. Boys are accommodated in four hostels namely Vrindavan Bhawan, Saket Bhawan, Panchwati Bhawan and Jai Bharat Bhawan. Girls are lodged in Yashodra Bhawan. One more hostel for girls is under construction and likely to be completed soon.

All hostels are equipped with gensets for full power backup and RO plants for safe drinking water. The dine facility for students are provided by student's cooperative mess in each hostels. The expected expenditure for a dine month is around Rs 1100/- which is adjusted by their mess advance deposited at the time of registration.

3.1 Hostel Rules

1. Students are expected to act in such a manner that an atmosphere conducive to effective study prevails in the hostel.
2. Students are required to be aware of all notices that are put up on the Notice Boards.
3. The hostel wardens have full authority to check any room in the hostel at any time with or without the help from local administration.
4. Ragging is a cognizable offence, punishable under the law and is strictly banned. Any student involved in any kind of ragging will be liable for immediate expulsion from the hostel/college.
5. Possession of fire arms, daggers, cycle chains, rods, iron rods or any other kind of weapons are strictly prohibited (Arms Acts.). Hostel inmates found in possession of the above will be handed over to the police or expelled from hostel immediately. No inquiry into the matter shall be required.

6. No one is allowed to take part in any type of video film show in the hostel premises without the permission of the hostel warden.
7. Unauthorized guests or outsiders in the hostel room are strictly prohibited. Any student keeping unauthorized person in his/her room will be liable to disciplinary action amounting to expulsion from the hostel. Guest may be allowed on prior written permission of the warden.
8. No student shall occupy or interchange the room without permission and proper allotment of the room by hostel warden.
9. Consumption of alcohol and other intoxicants and drugs are strictly prohibited. Anyone found consuming alcohol or drugs will be expelled from the hostel immediately. No enquiry into the matter shall be required.
10. Cooking food in the hostel room is strictly prohibited. In order to avoid fire hazards, no fire producing equipment in the room is permitted.
11. Hostellers are warned not to keep valuable goods in their rooms. Hostel management shall not be responsible for loss of such valuables.
12. Students shall have to abide by the decisions of the hostel wardens with respect to enforcement of the hostel rules failing which strict disciplinary action may be taken.
13. While leaving the rooms, it must be ensured that the light and fans are switched off failing which he/she will be liable to imposition of fines.
14. Use of electrical appliances such as heaters, electrical irons etc. are strictly prohibited. Violation of this rule will lead to strict disciplinary action. Confiscation along with a fine of Rs. 500/- shall be imposed.
15. Tampering with and alteration of electrical fittings are strictly prohibited and liable for action.
16. Hostellers desiring to go out of station must obtain permission from the warden concerned before going out.
17. Damage to hostel property such as doors, windows, electrical fitting, toilet fitting, glass panes etc. will lead to fine, disciplinary action, expulsion from the hostel. A general deduction from the hostel security deposit will be made at the end of the course, towards the breakage other than those, which are charged against the individuals.
18. No permission shall be given to a student to stay in the hostel after his/her even semester examinations are over, and for the purpose of preparation or appearance in any entrance test or any competitive examination he/she must obtain permission from the warden.

19. The boarders must keep their rooms neat and clean. They have to use waste paper baskets of their own in their rooms. Any waste found in hostel lobby is likely to get it cleaned by the residents of the lobby and a fine shall be realized from the residents in a combined manner as deemed fit by the hostel management.
20. Each boarder should check the fittings in his room at the time of occupation and takeover of the fittings and furniture in writing which are returnable on vacation of the room. Any loss or damage will be borne by the concerned boarder or boarders.
21. Room furniture, electric fittings etc are required to be maintained by the students in good conditions. At the time of allotment of seat / leaving the hostel for Summer Vacation every student must take over / handover the hostel room properly and carefully. They shall not break or damage any furniture and fittings. If any breakage occurs then cost will be realized (individually or collectively), together with heavy fines imposed on them.
22. Private picnics are prohibited in principle. The boarders are therefore cautioned against arranging picnic of their own without the written permission of the Wardens.
23. Student shall not remain absent from their hostels during the night between 10.00 P.M. to 5.00 A.M. without prior permission of the warden.
24. Visitors are not permitted to stay in hostel after 8.00 P.M. and guest of student are not allowed to stay in hostel.
25. Female visitors are not permitted at any time into the Hostels for boys. Parents Visitors may take prior reservation from Chief Warden to stay in Institute Guest House/ Visitors House on payment.
26. Boarders shall not leave the hostel without prior permission of the warden they shall apply to the Warden/Chief Warden stating reason of leaving and address of destination. Boarders who leave without application and permission shall be deemed to be missing and Police authorities / parents may be intimated as such.
27. Boarders will be personally / collectively responsible for any loss or damage caused to the properties and equipment and other fittings in the common places, due to indiscipline.
28. College will not be responsible for acts of student which lead to the disturbance of public peace and tranquility or cases of Law and Order in which they are knowingly or unknowingly involved in or outside the College premises.
29. Any boarder harboring any unauthorized element or any one expelled / removed from hostel earlier or any outside element, will be punished which may be up to removal from Hostels / College.

30. Boarders shall treat their fellow boarders, institute staff, hostel staff, mess staff with dignity and decorum.
31. Non-regular and Non-collegiate students having filled up form to appear at examination may be allowed to stay in the hostel temporarily, vacancy permitting, only if they obtain prior written permission of the authorities and undertake to abide by the hostel rules and deposit the fees of hostels in advance.
32. Students belonging to above categories willing to appear at their back-paper examinations may be allowed temporary accommodation in hostel not exceeding two months at a time on payment of usual charges for food and accommodation to the hostel in advance, subject to satisfying other conditions.
33. Ex-students, if allotted room temporarily will have to pay in advance seat-rent and electricity charges at the rate Rs. 20/- per day per head or Rs. 500/- per month whichever is less. Such allottees cannot claim provision of furniture if not available in the hostel.
34. Students/Delegates from other organizations may be allowed temporary accommodation in hostel with permission from the Warden/Chief Warden/Director, for which they may have to pay usual temporary accommodation charges.
35. No notice shall be put in the Hostel by any student directly unless such permission has been granted by the Warden of respective hostels.
36. No student or students shall raise or assist others to raise any subscription in the Hostel on any account without prior permission of the authorities.
37. Each boarder will be completely responsible for his/her belongings. The Institute will not be responsible for loss incurred due to his negligence or any other reason whatsoever.
38. Students must not keep valuable in their rooms. Extra money must be deposited in the post office/savings bank account. They should lock their rooms properly when they go out for bath, etc.
39. No one should use the belongings of other students without their consent.
40. Employment of personal servant or attendant in a hostel is not allowed.
41. Each student must carry identity card whenever he/she goes outside the hostel and produce on demand from institute/Hostel authorities otherwise a fine or disciplinary actions might be taken.
42. Residents desirous of purchasing second hand bicycle, calculator, mobiles, computers etc should ensure about the authenticity of the owner to avoid purchase of stolen and incriminating items.

43. Boarders are not to patronize food/soft drinks/snacks from unhygienic shops and road-side vendors to avoid infection to themselves and spreading amongst fellow boarders.
44. The boarders must be very particular about payment of hostel dues/Institute fees. The Accounts Section shall accept the Institute fees only after production of up to date mess dues clearance from the hostel. For payment of dues only two chances shall be given, the first without fine and the second with fine.
45. A student must remember that the hostel is the home of the students on the campus, he/she should behave himself/herself on the campus as well as outside in such manner as to bring credit to him/her and to the Institute.
46. A student once admitted in the hostel continues to be a hostel inmate throughout the year. He/she has to pay the room rent for the full academic session. The amount will be forfeited if the inmate decides to leave the hostel in the mid-session.
47. Every student should stay in the accommodation allotted to him/her by the Warden concerned. He/she will not be allowed to change the accommodation once allotted.
48. A student should not enter the rooms of others who are not in their rooms.
49. A student shall not hand over the keys of his/her room to any other student/person except the Warden or person authorized by him.

3.2 Mess Rules

1. Each Hostel has a Mess of its own, financed and managed by the boarders themselves through their representatives.
2. Each student residing in a Hostel must join the mess attached to it. Individual cooking and messing outside is not permitted. All students as notified by the Warden from time to time shall observe mess rules.
3. The cost of food including other overhead and establishment charges is to be borne by the boarders themselves. The Institute allows no subsidy.
4. The students must observe the timings of the mess and visit the mess in a proper dress.
5. Proper care of the utensils and mess furniture while in use must be ensured, failing which the students are likely to be punished by the hostel management.
6. Mess Dues/Advances should be paid every month by the dates in the respective hostel accounts as notified by the Hostel authorities failing which the concerned boarder has to pay fines for the days of default, as imposed by the Warden of the Hostels.

7. For payment of hostel dues, the boarders are required to open an account with Central Bank of India, BIET branch, Jhansi, and make all payments by transfer through bank vouchers which will be supplied to them. No payment in cash will be accepted.
8. Boarders are to share responsibilities in running their messes and keeping their hostel clean and tidy.
9. The students should dine together in the mess. Meals other than sick diets will not be served in the rooms of the borderers. Utensils/Chairs kept in the messes are not allowed to be brought to the rooms of borderers.

3.3 Additional Instruction for Female Hostellers

1. At the time when students are accepted for admission in the hostel, the parents or guardians should submit a list of names and address of persons who may visit or be local guardians of their daughters or ward subject to approval by the Director/warden. If no names are received the Director /warden will exercise his/her discretion. Certified signature and photograph of local guardian should be given. Local guardian can be any close relation who has a family unit.
2. If the visit of any person/persons has an adverse effect on the discipline of hostel in any way, the warden reserves the right to disallow such visitors.
3. Visitors listed by the parents or guardians may meet the students as per visiting hours given below:

Visiting Hours: 5.30 p.m. – 7.00 p.m. daily

- (a) Approved visitors out of town and residents of campus may be allowed at the discretion of the warden.
- (b) Male Students are not allowed to meet the girls in hostel unless in emergency for which they must obtain warden's written permission.
4. Each visitor should make proper entries in the visitor's book and obtain permission of the warden before meeting the concerned student. They should meet only the concerned student. Further, visitors are not allowed to enter the hostel rooms. They must meet the concerned student at the specified place and the visit be as brief as necessary.

Violation of the above mentioned hostel rules will lead to disciplinary action and expulsion from the hostel and deduction of general proficiency marks.

4. BRANCH CHANGE

Branch change is allowed on vacant seats in third semester as per instructions from GBTU and rules prescribed by AICTE time to time.

5. EXAMINATION

The Academic year comprises of two semesters. Each semester contains three examinations: Two Mid semester examination and one End semester examination. The marks obtained in mid semester examination are directly added in marksheet of final examination.

Assignment, quiz, surprise tests, laboratory tests and viva-voce are essential parts of examination.

Pre-final year students undergo 8-week/6 –week industrial training. Project and seminars are integral parts of the undergraduate programme.

6. STUDENTS' ACTIVITY

Council of Student Activity (CSA) functions in the institute to help students to organize various activities under its banner. The council headed by a senior faculty member acting in the capacity of the President, council of Student Activity, comprises six sub councils each looked after by a faculty officer-in-charge.

A dedicated team of student works under the guidance of respective officer-in-charge for each sub council. The various sub councils that constitute the CSA are listed below.

6.1 Literary Sub-Council

To inculcate a literary taste in the student and to boost up dormant talents in field literature, the literary sub-council organizes a number of events in the campus. These include debates, jam session, quiz, and cartoon contests to name a few. The literary sub-council contributes to publishing of 'BIET DARPAN' the institute magazine.

6.2 Cultural Sub-Council

The cultural sub-council works towards enhancement of various cultural activities in the campus, besides various round the year activities, two important functions, ABHINANDAN / UTSAV are organized by this sub council every year.

6.3 Sport Sub-Council

The sports sub-council conducts various matches, competitions and other events round the year. This sub-council also organizes Institute championships and Annual Games & Sports meet every year. For first year students, white shirt, white pant and sports shoes are compulsory.

6.4 N.S.S.

Institute N.S.S. has a strong work force of 50 students who under-take various social service, developmental works, awareness and literary campaigns.

6.5 N.C.C.

The Institute is affiliated of 56 UP BN NCC Army wing. A squad of 50 enthusiastic cadets takes regular parade sessions and other NCC activity.

6.6 HOBBIES, FINE ART AND PHOTOGRAPHY SUB COUNCIL

This sub council conducts various activities such as sketching, Dexterity Collage Photography etc.

7. DEPARTMENTS

7.1 Department of Civil Engineering

Department of Civil Engineering was established in the year 1990. Its courses of study include all important subjects of Civil Engineering with more emphasis on the analysis and design of various types of Civil Engineering structures. The department has fully developed Fluid Mechanics lab, Environmental Engineering Lab, Geotechnical Engg. Lab, Concrete Lab, Structures Lab, Computational Lab and Survey Lab.

In the short span of 15 years of its existence, the department has established its reputation in providing consultancy in the field of design of various Civil Engineering structures and testing of building materials, highway materials, soil. The department is also engaged by Ministry of Urban Development, Govt. of India and U P Jal Nigam to train field and sector professionals of various government departments. The department has also successfully completed numbers of Research Projects sponsored by AICTE/DST/UPCST etc.

The B. Tech (Civil Engineering) offered by this department is assessed best in Uttar Pradesh by National Board of Accreditation-AICTE and has been awarded five years accreditation.

FACULTY

Dr. Abhay Verma	Professor & Head
Dr. A.K. Nigam	Associate Professor
Dr. Mukesh Shukla	Associate Professor (On Leave)
Dr. Amitabh K. Srivastava	Reader
Sh. Rajendra Kaushal	Assistant Professor (On Study Leave)
Er Ashish Gupta	Assistant Professor

7.2 Department of Computer Science And Engineering

The department of Computer Science & Engineering is among the first two departments established in the year 1989. It is offering subject courses in software and hardware. All courses meet the present requirement of computer industries. Students have been provided facilities to

work in UNIX & LAN environment. The department has computer laboratories equipped with latest software. The department is also running a postgraduate certificate course in collaboration with CMC Ltd. The department is also an approved study center for IGNOU computer courses.

FACULTY

Dr. A.K. Solanki	Professor & Head
Dr. Rajeev Srivastava	Associate Professor (On Leave)
Dr. Yashpal Singh	Associate Professor & Head
Sh. Sanjay Gupta	Assistant Professor (On Leave)
Sh. R.N. Verma	Assistant Professor

7.3 Department of Electronics & Communication Engineering

Department of Electronics & Instrumentation Engineering was established in 1989. This department offers two UG courses i.e. B.Tech (Electronics & Communication) and B.Tech (Electrical Engineering) and One PG course (M Tech Digital Systems). Its courses of study include all aspects of measurement and Industrial Instrumentation viz. Analysis, design and monitoring in addition to Electronics and Communication Engineering. Students are given good exposure to various instrumentation schemes being used in industries like steel plants, cement factories textile industry, food processing plants, paper industry, traffic control and biomedical instrumentation etc.

Microprocessor laboratory, Printed circuit board laboratory, Process control and instrumentation laboratory and the digital electronics and communication laboratory are some of the facilities, which the department has developed.

FACULTY

Dr. J.P. Saini	Professor (On Leave)
Dr. Shahnaz Ayub	Associate Professor & Head
Dr. D.C. Dhubkaria	Associate Professor
Er Mahendra Kumar	Associate Professor (On Leave)
Dr. D.K. Srivastava	Reader
Dr Shahnaj Ayub	Reader & Head of the Department
Dr. Deepak Nagaria	Reader & I/C Electrical Engineering
Er. N S Beniwal	Assistant Professor
Dr Y Prajapati	Assistant Professor
Er Surendra Sriwas	Assistant Professor

7.4 Department of Mechanical Engineering

Department of Mechanical Engineering was established in 1990. It offers different subject courses keeping in view the requirement of modern days industries. The latest state of the art subject courses are coupled with all essential traditional Mechanical Engineering subjects. The department offers unique blend of Design., Thermal, Production, Industrial Engineering & Management course, with modern and latest laboratories.

The department has its own CAD/CAM lab, which provides latest design facility with all important software. The lab is connected with central computer centre with UNIX INDY Computer of Silicon Graphics.

Labs related to Thermal Engineering, Production Engineering and Industrial Engineering are well equipped with new and latest Apparatus. Department execute certain industrial projects for final years students from near by industries for better industrial exposure.

The department also has Mechanical Engineering Forum being look after by students themselves. It organizes industrial tour technical quizzes, general quizzes along with lot other activities regularly.

FACULTY

Dr. Ghanshyam Srivastava	Professor (T & P Officer)
Dr. Sanjay. Agrawal	Associate Professor & Head
Dr. N P Yadav	Associate Professor
Dr Tarun Soota	Reader
Dr. Aditya Kumar Padap	Assistant Professor
Er. Ajay Suryawanshi	Assistant Professor(On Study Leave)
Er Sunil Rajpoot	Assistant Professor(On QIP Leave)
Er. Narendra Kumar	Assistant Professor
Er. Vijay Verma	Assistant Professor

7.5 Department of Chemical Engineering

Department of Chemical Engineering and Technology was started from the Session 1996-97. The course of study includes all aspects of chemical engineering and polymer based technology viz. Introduction of Polymers Science and Technology Structure and Properties of Polymers, Reaction Engineering of Polymers, Rheology of Polymers, Processing of Polymers and Instrumentation and Process Control etc.

Heat Transfer laboratory, Fluid Mechanics Laboratory, Chemistry Laboratory and Basic Polymers Laboratory are some of the facilities which the institute has developed. The department has some sophisticated instruments like GLC, UV-VIS, Computerized batch distillation column and Pressure transducer etc.

FACULTY

Er. Ajay D Hiwarker	Reader (on leave)
Er. Sudeep Yadav	Assistant Professor & Head
Er. T P Singh	Assistant Professor
Er. Ravindra Kumar	Assistant Professor

7.6 Department of Applied Science & Humanities

Department of Applied Science & Humanities is composed of four main sections namely: Physics, Chemistry, Mathematics and Humanities. This department has been playing an important role in the teaching of core courses related to above subjects. It may be emphasized that the departmental in developing Management skills among the students whom have well taken these courses.

The courses have been designed so as to equip the students with the basic knowledge of the subjects in addition to make them realize the importance of the basic applied tools in reference to application in engineering problems.

The laboratories of the department have all basic facilities in addition to research facilities in Applied Mathematics, Physics and Chemistry.

FACULTY

Dr. M.K. Gupta	Professor & I/C Director
Dr. Anjana Solanki	Professor (On Leave)
Dr. Vikarm Singh Yadav	Associate Professor (On Leave)
Dr. Suman Yadav	Assistant Professor & I/C MBA
Dr. P K Srivastava	Assistant Professor
Dr Ekta Pandey	Assistant Professor
Dr Vimal Kishore	Assistant Professor

8. COMPUTER CENTRE

The Computer Centre provides centralized computing facilities to all students, faculty members and staff persons. It has very powerful 64 Bit, RISC based INDY (R4400) Unix Computer of Silicon Graphics. Its clock frequency is 2000 Mhz and has multimedia, CD ROM, CTD DAT. Floppy Drive, INDY is providing advanced Unix facilities to users through 32 terminals Compilers, (PC-486 and VT -220) which can be extended upto 356 terminals Compilers of C, FORTRAN, PASCAL, COBOL and image vision, Graphics libraries etc. are loaded on the system.

Further, it is connected on Ethernet backbone to powerful Novel Server which provides advanced Novel/DOS facilities to users on 26 intelligent nodes. All the facilities are provided to users in two shifts (14 hours).

9. CARRIER GUIDANCE AND PLACEMENT UNIT

The placement cell is headed by Director of the Institute and a faculty member of each department. The day to day work is looked after by the concerned faculty member, who is supported by student representatives from respective departments. The Director of the Institution and all other faculty members has extended their wholehearted cooperation for this august venture. By hard work and dedication, students have created their enviable position in Indian industries and abroad.

The unit is fully supported with all modern equipments like, Interactive/Multimedia Boards, PA system, OHP, TV, VCR, slide projector etc. Separate facilities are available for group discussion and interview designed for this purpose.

The objectives of the unit are :

- To place final year students in respectable organizations through campus recruitment.
- To provide industrial training to students during their study.
- To organize lectures, group discussions, mock interviews etc.
- To provide information and assistance to students regarding-
- Job opportunity in India and abroad.
- Opportunities for self-employment.
- Opportunities for higher studies in India and abroad through competitive examinations like GRE, GMAT, GATE, CAT etc.

For the last few years the campus is being visited by the various companies like Newgen Software, CMC Ltd., HCL Infosystems, HLS India Ltd. Jaypee Industry, TELCO, Nucleus software etc. **This year the highest pay package was Rs. 3.11 lacs p.a.**

This year more than 50% students are qualified for GATE and other examinations for higher studies.

The training & placement will be done by a council of faculty members under direct coordination of Director.

The details of students placed through campus selection during year 2009- 10 are given on next page.

PLACEMENT DETAILS FOR SESSION 2009-2010

SN	NAME OF COMPANY	CE(41)*	CH(22)*	CS(53)*	EC(59)*	IT(39)*	ME(43)*	MBA(51)*	TOTAL (308)
1	TCS	-	-	8	2	5	-	-	15
2	INFOSYS	3	6	8	5	4	1	-	27
3	L&T ECC	4	-	-	-	-	2	-	6
4	DSC LTD	4	-	-	-	-	-	-	4
5	SOMA ENTERPRISES	4	-	-	-	-	-	-	4
6	ARMY (I ROUND)	5	-	-	1	3	1	-	10
7	ANGEL BROKING	-	-	-	-	-	-	7	7
8	JINDAL STEELS	-	-	-	-	-	1	-	1
9	LOHIA STARLINGER	-	-	-	-	-	3	-	3
10	CGC Qatar	1	1	-	3	-	-	-	5
11	UBEL	7	-	-	-	-	-	-	7
12	HCL Comnet	-	-	-	2	5	-	-	7
13	TECH MAHINDRA	-	-	6	6	9	-	-	21
14	ADOBE	-	-	3	-	-	-	-	3
15	ADTEL	-	-	3	-	-	-	-	3
16	IE INFOTECH	-	-	3	-	3	-	-	6
17	TECHNIP	4	-	-	-	-	3	-	7
18	KRIBHCO SHYAM	-	6	-	1	-	1	-	8
19	ERA CONSTRUCTION	3	-	-	-	-	-	-	3
TOTAL		35	13	31	20	29	12	7	147

*The numbers in parenthesis shown total number of students interested for placement.

10. FEE STRUCTURE

Details of fee for B.Tech/MBA/M Tech (Students admitted in session 2011-12)

S.N.	Details	Fee (in Rupees)			
		B Tech (Govt. Aided)	B Tech (SFS course)*	MBA (under SFS)*	M Tech (under SFS)*
University Fee					
1	Enrolment Fee	100	100	100	100
2	Examination Fee	3000	3000	3000	3000
3	Insurance Fee	200	200	200	200
4	University Development Fee	250	250	250	250
Institute Fee					
5	Registration Fee	300	300	300	300
6	Tuition Fee	40000	55000	50000	35000
7	Recreation /Sports/ Students Activity	700	700	700	700
8	Medical Fee	600	600	600	600
9	Identity Card Fee	50	50	50	50
10	Magazine Fee	200	200	200	200
11	Student aid fund	200	200	200	200
12	Library Fee	600	600	600	600
13	Laboratory Fee	600	600	600	600
14	College Day Fee	150	150	150	150
15	Syllabus Fee	200	200	200	200
16	Placement Fee	500	500	500	500
17	Internet Fee	3000	3000	3000	3000
18	Computer Charges and Stationary	300	300	300	300
19	Semester Exam Fee	900	900	900	900
20	Caution Money	5000	5000	2500	2500
21	Alumni Registration	1000	1000	-	1000
Total		54300	69300	63300	49300
Hostel Fee					
21	Room Rent	4800	4800	4800	4800
22	Electricity and Water Charges	2600	2600	2600	2600
23	Electric Fan Charges	300	300	300	300
24	Utensil & Crockery Charges	500	500	500	500
25	Hostel Activities Charges	200	200	200	200
26	Hostel Maintenance	1000	1000	1000	1000
27	Bus Charges	200	200	200	200
Grand Total		67450	82450	76450	62450

*SFS courses: B Tech (Information Technology), B Tech (Electrical Engineering), All M. Tech, MBA

11. ORDINANCES FOR BACHELOR OF TECHNOLOGY PROGRAMME

11.1 Admission :

Admission to the first semester of B.Tech degree course will be made as per the rules prescribed by the Academic Council of the U P Technical University and as per approval of the Board of Governors of the Institute.

11.2 Eligibility :

- (a) A candidate should have passed 10 + 2 examination of the Board of High School and Intermediate UP or its equivalent with Mathematics, Physics, Chemistry and English of Subject for Agriculture Engineering Branch the candidate with agriculture subject at 10 + 2 level are also eligible.
- (b) A candidate should have passed 10 + 2 examination of the Board of High School and Intermediate UP or its equivalent and 3-4 years diploma(with min 60% marks) recognized by the U P Board of Technical Education U P in the same branch in which admission in III semester is desired.

11.3 Attendance :

- (a) Every candidate is normally required to attend all the lectures, tutorials, practical and other prescribed curricular and co-curricular activities. It can condone upto 25% by the Head of the department on medical grounds or for other genuine reasons acceptable to him.
- (b) A further relaxation of attendance upto 15% in each subject can be given by the Principal/ Dean / Director of the institute to the students who have been absent with prior permission for reason acceptable to Head of the Institution.
- (c) No candidate will be allowed to appear in the semester examination in a subject if he/she does not satisfy attendance requirements as laid down in clauses 11.3(a) and 11.3(b).

11.4 Duration

- (a) Total duration of the B.Tech course shall be four years, each year comprising two semesters.
- (b) Each semester shall have total 90 working days (excluding holidays) as per AICTE norms.
- (c) A student failing twice in I and/or II semester (of first year) and ineligible for the carry-over system, (ordinance 10) shall not be permitted to continue his/her studies further.
- (d) Maximum time allowed for a candidate admitted in I / III semester for completing the B.Tech course will be 7 years/ 5 years respectively. Those who are unlikely to satisfy this condition shall not be allowed to continue studies any further.

11.5 Curriculum

- (a) The 4-years curriculum will be divided into the VIII semesters and shall include lectures, practical, seminars and project in addition to practical training and educational tours, as defined in the scheme of instructions and examinations.
- (b) It will also include co-curricular and extra curricular activities as prescribed from time to time by the institute.

11.6 Change of Branch

- (a) Change of branch may be allowed as per the rules framed in this regard against vacant seats in the following two stages provided eligibility criteria at clause 11.2 is satisfied.
 - (i) After the last date of admission to the B Tech Ist semester on the basis of merit at the time of admission.
 - (ii) On the basis of merit of B Tech Ist year examination
- (b) The change of branch if allowed will become effective from B Tech III rd semester
- (c) Further change of branch shall not be permitted.

11.7 Change of College

Change of College shall not be permitted

11.8 Examination

- (a) Student performance will be evaluated through continuous, assessment in the form of class tests, assignments, quizzes, viva-voce, practical etc. In addition, there shall be an examination at the end of each semester in theory subject, practical and project.
- (b) The distribution of marks for the class testes, quiz tests, assignments, and semester theory, practical and other examinations shall be as per the prescribed scheme of examination.
- (c) The maximum marks for the theory subjects shall consist of marks allotted for end-semester examination and the sessional work.
- (d) Pass / fail in a subject shall be declared on the basis of marks obtained in theory / practical examination and the sessional awarded for theory practical subjects.
- (e) The minimum pass marks in a theory subject including sessional marks shall be 40%.But 30% marks are essential in end semester examination
- (f) The minimum pass marks in a practical subject including sessional shall be 50%.
- (g) The marks of previous semester shall not be added in declaring the results of any semester examination
- (h) To pass a semester a candidate must secure 50 % of aggregate marks in that semester.

11.9 Promotion Rules

- A candidate satisfying all the condition under clause 11.8 shall be promoted to the next semester.
- A candidate satisfying the above condition ,but failing in not more than three subject (theory and/or practical) of a semester examination shall be governed by the clause no 11.10.
- All other candidate will be required to repeat the semester either as a regular student after readmission or opting for ex-studentship, However, this condition is subjected to the time limit stipulated in ordinance 11.4.

11.10 Promotion Under Carry-Over System

- A candidate who fails in the category of clauses 11.9(b) shall become eligible for provisional promotion to the next semester and carry-over system system as per the following table:

For candidate admitted in Ist semester of B Tech course

For promotion To & Exam	Max permitted no of carry over subject of semester							
	I	II	III	IV	V	VI	VII	VIII
II	3	-	-	-	-	-	-	-
III	3	3	-	-	-	-	-	-
IV	3	3	3	-	-	-	-	-
V	-	-	3	3	-	-	-	-
VI	-	-	3	3	3	-	-	-
VII	-	-	-	-	3	3	-	-
VIII	-	-	-	-	3	3	3	-

For candidate admitted in III rd semester of B Tech course after diploma

For promotion To & Exam	Max permitted no of carry over subject of semester					
	III	IV	V	VI	VII	VIII
IV	3	-	-	-	-	-
V	3	3	-	-	-	-
VI	3	3	3	-	-	-
VII	-	-	3	3	-	-
VIII	-	-	3	3	3	-

- No separate carry over examination will be held for any subject except for B Tech final year. Any candidate eligible for the carry over system shall have to appear in the carry over subjects in the subsequent University Examination for the same semester

- (c). Marks obtained in the carry-over subject shall replace the original marks. Sessional will remain unaltered.

11.11 Ex Studentship:

A candidate opting for ex-studentship shall be required to register by paying only examination fee within 15 days of the declaration of end semester result.

11.12 Result :

Result at the end of final year will be declared with the following weightings:

- (a) For candidates admitted in I st semester of B Tech course

Ist year	25 %
IInd year	50 %
IIIrd year	75 %
IV year	100 %

- (b) For candidates admitted in IIIrd semester of B Tech course

IInd year	50 %
IIIrd year	75 %
IV year	100 %

11.13 Award of Division :

- (a) If a candidate passes all examinations in single attempt and secures 75% or more in aggregate, he/she will be placed in First Division with Honours.
- (b) If a candidate secures aggregate marks of 60% or more but less than 75% he/she will be placed in First Division.
- (c) Candidates having aggregate marks of 50% or more but less than 60% shall be placed in Second Division.

11.14 General Proficiency (GP) , Seminar, Industrial Training, Education Tour (If Any) Etc.

11.15 Grace Marks:

A maximum of 5 marks may be awarded in every semester examination in maximum of two subject and or aggregate to those candidate who by the award of these marks can be declared to have passed in all te subjects and aggregate of the semester

11.16 Scrutiny shall be allowed as per the rules of the University

Revaluation is not permitted. However, the challenge evaluation may be allowed by GBTU, as per their rules.

12 SYLLABUSES

B. Tech. First Year (common to all B. Tech. Courses except B.Tech. Agricultural Engg.)

[Effective from the session 2008-09]

YEAR I, SEMESTER-I

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme	Subject Total		Credit		
			L	T	P		CT	TA	Total		
						THEORY					SESSIONAL EXAM.
1.	EAS-103	Mathematics-I	3	1	0	30	20	50	100	150	4
2.	EAS-101	Engg. Physics-I	2	1	0	15	10	25	50	75	3
3.	EAS-102/ EME-102	Engg. Chemistry/ Engg. Mechanics	3	1	0	30	20	50	100	150	4
4.	EEE-101/ ECS-101	Electrical Engg. / Computer Concepts & Programming in C	3	1	0	30	20	50	100	150	4
5.	EEC-101/ EAS-104	Electronics Engineering / Professional Communication	3	1	0	30	20	50	100	150	4
6.	EME-101/ EAS-105	Manufacturing Processes/ Environment & Ecology	2	0	0	15	10	25	50	75	2
7.	EAS-109	<i>Remedial English Language*</i>	2	0	0	-	-	-	50*	50*	0
PRACTICAL/TRAINING/PROJECT											
8.	EAS-152/ EME-152	Engg. Chemistry Lab/ Engg. Mechanics Lab	0	0	2	10	10	20	30	50	1
9.	EEE-151/ ECS-151	Electrical Engg Lab / Computer Programming Lab	0	0	2	10	10	20	30	50	1
10.	EWS-151/ ECE-151	Workshop Practice/ Computer Aided Engg. Graphics	0	1	3	10	10	20	30	50	2
11.	EAS-151/ EAS-154	Physics Lab / Professional Communication	0	0	2	10	10	20	30	50	1

		Lab	0	0	2	30	20	50	-	50	1
12.	GP-101	General Proficiency	-	-	-	-	-	50	-	50	1
Total		18	6	9	190/210	140/150	380/410	670/640	1000	27	

**Remedial English language is compulsory Audit-course. Candidate has to secure minimum 30% pass marks*

L - Lecture

T - Tutorial

P - Practical

CT - Cumulative Test

TA - Teacher's Assessment

ESE - End Semester Exam.

EAS-103 - MATHEMATICS –I

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Unit - I : Differential Calculus-I

Leibnitz theorem, Partial differentiation, Eulers theorem, Curve tracing, Change of variables, Expansion of function of several variables.

Unit – II : Differential Calculus-II

Jacobian, approximation of errors, Extrema of functions of several variables, Lagranges method of multipliers (Simple applications).

Unit – III : Matrices

Elementary row and column transformation Rank of matrix, Linear dependence, Consistency of linear system of equations and their solution, Characteristic equation, Caley-Hamilton theorem, Eigen values and eigen vectors, Diagonalisation, Complex and unitary matrices, Application of matrices to engineering problems.

Unit – IV : Multiple Integrals

Double and triple integral, Change of order, Change of variables, Beta and Gamma functions, Application to area, volume, Dirichlet integral and applications.

Unit – V : Vector Calculus

Point function, Gradient, divergence and curl of a vector and their physical interpretations, Line, surface and volume integrals, Statement and problems of Green's, Stoke's and Gauss divergence theorems (without proof).

Test Books:-

1. B.V.Ramana, Higher Engineering Mathematics, Tata Mc Graw-Hill Publishing Company Ltd., 2008.
2. R.K.Jain & S.R.K.Iyenger, Advance Engineering Mathematics, Narosa Publishing House, 2002.

Reference Books:-

1. B.S.Grewal, Engineering Mathematics, Khanna Publishers, 2004.
2. B.S.Grewal, Higher Engineering Mathematics, Khanna Publishers, 2005.
3. E.Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons, 2005.

4. C.Ray Wylie & Louis C. Barrett, Advanced Engineering Mathematics, Tata Mc Graw-Hill Publishing Company Ltd. 2003
5. Peter V. O'Neil, Advanced Engineering Mathematics, Thomson (Cengage) Learning, 2007.

EAS-101 : ENGINEERING PHYSICS-I

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Unit – I

Relativistic Mechanics:

Inertial & non-inertial frames, Michelson- Morley experiment, Einsteins postulates. Lorentz transformation equations. Length contraction & Time dilation, Addition of velocities; Variation of mass with velocity Mass energy equivalence. 06 Hrs.

Unit - II

Optics:

Interference: Interference of light, Biprism experiment, displacement of fringes, Interference in thin films- wedge shaped film, Newton's rings,

Diffraction - Single, Double & N- Slit, Diffraction grating, Grating spectra, Rayleigh's criterion and resolving power of grating. 10 Hrs.

Unit - III

Polarization- Phenomena of double refraction, Nicol prism, Production and analysis of plane, circular and elliptical polarized light, Fresnel's theory of optical activity, Polarimeters .

Laser: Spontaneous and stimulated emission of radiation, Einstein's Coefficients, construction and working of Ruby, He-Ne lasers and laser applications. 08 Hrs.

Unit – IV

Fiber Optics and Holography

Fundamental ideas about optical fiber, Types of fibers, Acceptance angle and cone, Numerical aperture, Propagation mechanism and communication in optical fiber. Attenuation, Signal loss in optical fiber and dispersion.

Basic Principle of Holography, Construction and reconstruction of Image on hologram and applications of holography. 06 Hrs.

Reference Books:

- (i) Concepts of Modern Physics - Aurthur Beiser (Mc-Graw Hill)
- (ii) Introduction to Special theory of - Robert Resnick - Wiely
Relativity
- (iii) Optics - Ajoy Ghatak (TMH)
Brijlal & Subramanian (S. Chand)
- (iv) Optical Fibre & Laser - Anuradha De. (New Age)
- (v) Fundamental of Physics - Resnick, Halliday & Walker (Wiely)
- (vi) Principles of Physics - R.A. Serway & J.W. Jewett
(Thomson Asia Pvt. Ltd.)

UNIT-I : CHEMICAL BONDING AND STATES OF MATTER

M.O. theory and its applications in diatomic molecules. Hydrogen bond, metallic bond and their applications. Various states of matter including liquid crystallite state, classification and applications of liquid crystals. Types of unit cell, space lattice (only cubes, Bragg's Law. Calculation and density of the unit cell, one and two dimensional solids such as graphite and its conduction properties. Fullerenes and their applications.

UNIT-II: REACTION KINETICS, PHASE RULE AND ELECTROCHEMISTRY

Order and molecularity of reactions, Zero order, first order and second order reactions. Integrated rate equations. Theories of reaction rates. Phase rule and its applications to one component system (water). Equilibrium potential, electrochemical cells, galvanic and concentration cells, electrochemical theory of corrosion and protection of corrosion. Fuel cells.

UNIT-III : STRUCTURAL AND MECHANISTIC CONCEPTS OF ORGANICS

Inductive, electromeric mesomeric and hyperconjugative effects. Stability of reaction intermediates e.g. carbocation and free radicals. Mechanism of nucleophilic substitutions. Mechanism of the following reactions:

- (i) Aldol condensation
- (ii) Cannizzaro reaction
- (iii) Beckman rearrangement
- (iv) Hoffmann rearrangement and
- (v) Diels-Alder reaction.

E-Z nomenclature, R.S. configuration, optical isomerism, chirality and its implications, conformations of butene.

UNIT-IV : POLYMERS AND ORGANOMETALLICS

Polymerization and its classification. Thermoplastic and Thermosetting resins. Elastomers and synthetic fibres. Ion exchange resins. Organic conducting and biodegradable polymers. Classification and general methods of synthesis of organics and their applications in polymerizations and catalysis.

UNIT-V : ANALYTICAL METHODS AND FUELS

Titrimetric analysis with reference to acid-base, redox, precipitations and complexometric titrations. Elementary ideas and simple applications of u.v., visible, infra-red and ¹H NMR spectral techniques. Water treatment methods for boiler feed water by calgon process, zeolites and ion-exchange resins. Classification of fuels. Analysis of coal, determination of colorific values. Biomass and biogas.

Text Books

1. Advanced Inorganic Chemistry, by Cotton, F.A., Wilkinson G., Murrillo, C.A. and Bochmann, Wiley, chichester, 1999.
2. March's Advanced Organic Chemistry : Reactions, Mechanisms and Structure Smith, Michael B./March, Jerry, John Willey & sons, 6th Edition, 2007.
3. Elements of Physical Chemistry, Glasstonne, Samuel B. ELBS, 2005.
4. Organic Chemistry, Finar, I.L. : Addison – Wesley Longman, Limited, 2004.

Reference Books

1. Text Book of Polymer Science by F.W. Billmeyer, John Wiley & sons, 1994.
2. Liquid Crystals and Plastic Crystals, vol.-I, edited by G.W. Gray and P.A. Winsor, Ellis Harwood Series in Physical Chemistry, New York.
3. Corrosion Engineering by M.G. Fontana McGraw Hill Publications.

EME-102 / 202 : ENGINEERING MECHANICS

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UNIT I

Two Dimensional Force Systems: Basic concepts, Laws of motion, Principle of Transmissibility of forces, Transfer of a force to parallel position, Resultant of a force system, Simplest Resultant of Two dimensional concurrent and Non-concurrent Force systems, Distributed force system, Free body diagrams, Equilibrium and Equations of Equilibrium, Applications. 5

Friction: Introduction, Laws of Coulomb Friction, Equilibrium of Bodies involving Dry-friction, Belt friction, Application. 3

UNIT II

Beam: Introduction, Shear force and Bending Moment, Differential Equations for Equilibrium, Shear force and Bending Moment Diagrams for Statically Determinate Beams. 5

Trusses: Introduction, Simple Truss and Solution of Simple truss, Method of Joints and Method of Sections. 3

UNIT III

Centroid and Moment of Inertia: Centroid of plane, curve, area, volume and composite bodies, Moment of inertia of plane area, Parallel Axes Theorem, Perpendicular axes theorems, Principal Moment of Inertia, Mass Moment of Inertia of Circular Ring, Disc, Cylinder, Sphere and Cone about their Axis of Symmetry. 6

UNIT IV

Kinematics of Rigid Body: Introduction, Plane Motion of Rigid Body, Velocity and Acceleration under Translation and Rotational Motion, Relative Velocity. 4

Kinetics of Rigid Body: Introduction, Force, Mass and Acceleration, Work and Energy, Impulse and Momentum, D'Alembert's Principles and Dynamic Equilibrium. 4

UNIT V

Simple Stress and Strain: Introduction, Normal and Shear stresses, Stress- Strain Diagrams for ductile and brittle material, Elastic Constants, One Dimensional Loading of members of varying cross-sections, Strain energy. 3

Pure Bending of Beams: Introduction, Simple Bending Theory, Stress in beams of different cross sections. 3

Torsion: Introduction, Torsion of shafts of circular section, torque and twist, shear stress due to torque. 3

Text books:

1. Engineering Mechanics by Irving H. Shames, Prentice-Hall
2. Mechanics of Solids by Abdul Mubeen, Pearson Education Asia.

3. Mechanics of Materials by E.P.Popov, Prentice Hall of India Private Limited.

EEE101/EEE201 : ELECTRICAL ENGINEERING

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Unit-I

1. D C Circuit Analysis and Network Theorems:

Circuit Concepts: Concepts of network, Active and passive elements, voltage and current sources, concept of linearity and linear network, unilateral and bilateral elements, R, L and C as linear elements, source transformation.

Kirchhoff's laws; loop and nodal methods of analysis; star-delta transformation; Network Theorems: Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Maximum Power Transfer Theorem (simple numerical problems). 9

Unit-II

2. Steady- State Analysis of Single Phase AC Circuits:

AC Fundamentals: Sinusoidal, square and triangular waveforms – average and effective values, form and peak factors, concept of phasors, phasor representation of sinusoidally varying voltage and current. Analysis of series, parallel and series-parallel RLC Circuits: apparent, active & reactive powers, power factor, causes and problems of low powerfactor, powerfactor improvement; resonance in series and parallel circuits, bandwidth and quality factor (simple numerical problems). 8

Unit-III

3. Three Phase AC Circuits:

Three phase system-its necessity and advantages, meaning of phase sequence, star and delta connections, balanced supply and balanced load, line and phase voltage/current relations, three-phase power and its measurement (simple numerical problems). 3

4. Measuring Instruments:

Types of instruments, construction and working principles of PMMC and moving iron type voltmeters & ammeters, single phase dynamometer wattmeter and induction type energy meter, use of shunts and multipliers (simple numerical problems on energy meter, shunts and multipliers). 4

Unit-IV

5. Introduction to Power System:

General layout of electrical power system and functions of its elements, standard transmission and distribution voltages, concept of grid (elementary treatment only). 2

6. Magnetic Circuit: Magnetic circuit concepts, analogy between electric & magnetic circuits, magnetic circuits with DC and AC excitations, magnetic leakage, B-H curve, hysteresis and eddy current losses, magnetic circuit calculations, mutual coupling. 3

7. Single Phase Transformer:

Principle of operation, construction, e .m. f. equation, equivalent circuit, power losses, efficiency (simple numerical problems), introduction to auto transformer. 3

Unit-V

8. Electrical Machines:

Principles of electro mechanical energy conversion,

DC machines: types, e. m. f. equation of generator and torque equation of motor, characteristics and applications of dc motors (simple numerical problems).

Three Phase Induction Motor: types, Principle of operation, slip-torque characteristics, applications (numerical problems related to slip only).

Single Phase Induction motor: Principle of operation and introduction to methods of starting, applications.

Three Phase Synchronous Machines: Principle of operation of alternator and synchronous motor and their applications. 8

Text Books:

1. V. Del Toro, “Principles of Electrical Engineering” Prentice Hall International
2. I.J. Nagarath, “Basic Electrical Engineering” Tata McGraw Hill
3. D.E. Fitzgerald & A. Grabel Higginbotham, “Basic Electrical Engineering McGraw Hill

Reference Books:

1. Edward Hughes, “Electrical Technology” Longman
2. T.K. Nagsarkar & M.S. Sukhija, “Basic Electrical Engineering” Oxford University Press.
3. H. Cotton, “Advanced Electrical Technology” Wheeler Publishing
4. W.H. Hayt & J.E. Kennely, “Engineering Circuit Analysis” Mc Graw Hill.

ECS-101/ECS-201 : COMPUTER CONCEPTS AND PROGRAMMING IN C

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UNIT 1:

Introduction to any Operating System [Unix, Linux, Windows], Programming Environment, Write and Execute the first program, Introduction to the Digital Computer; Concept of an algorithm; termination and correctness. Algorithms to programs: specification, top-down development and stepwise refinement. Introduction to Programming, Use of high level programming language for the systematic development of programs. Introduction to the design and implementation of correct, efficient and maintainable programs, Structured Programming, Trace an algorithm to depict the logic, Number Systems and conversion methods

UNIT 2:

Standard I/O in “C”, **Fundamental Data Types and Storage Classes:** Character types, Integer, short, long, unsigned, single and double-precision floating point, storage classes, automatic, register, static and external, **Operators and Expressions:** Using numeric and relational operators, mixed operands and type conversion, Logical operators, Bit operations, Operator precedence and associativity,

UNIT 3:

Conditional Program Execution: Applying if and switch statements, nesting if and else, restrictions on switch values, use of break and default with switch, **Program Loops and**

Iteration: Uses of while, do and for loops, multiple loop variables, assignment operators, using break and continue, **Modular Programming:** Passing arguments by value, scope rules and global variables, separate compilation, and linkage, building your own modules.

UNIT 4:

Arrays: Array notation and representation, manipulating array elements, using multidimensional arrays, arrays of unknown or varying size, **Structures:** Purpose and usage of structures, declaring structures, assigning of structures, **Pointers to Objects:** Pointer and address arithmetic, pointer operations and declarations, using pointers as function arguments, Dynamic memory allocation, defining and using stacks and linked lists.

UNIT 5:

Sequential search, Sorting arrays, Strings, Text files, **The Standard C Preprocessor:** Defining and calling macros, utilizing conditional compilation, passing values to the compiler, **The Standard C Library:** Input/Output : fopen, fread, etc, string handling functions, Math functions : log, sin, alike Other Standard C functions.

Text Books :

1. Problem Solving and Program Design in C, by Jeri R. Hanly, Elliot B. Koffman, Pearson Addison-Wesley, 2006.
2. Computer Science- A Structured Programming Approach Using C, by Behrouz A. Forouzan, Richard F. Gilberg, Thomson, Third Edition [India Edition], 2007.

EEC-101/EEC-201 : ELECTRONICS ENGINEERING

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Unit – I (10 Periods)

Semiconductor Diodes and Applications:

p-n junction, depletion layer

v-i characteristics, ideal and practical, diode resistance, capacitance

diode ratings (average current, repetitive peak current, peak-inverse voltage)

p-n junction as rectifiers (half wave and full wave)

filter (Shunt capacitor filter), calculation of ripple factor and load regulation

clipping circuits, clamping circuits, voltage multipliers

Breakdown diodes:

breakdown mechanism (zener and avalanche)

breakdown characteristics, zener resistance, zener diode ratings

zener diode application as shunt regulator

Unit – II (08 Periods)

Bipolar Junction Transistor (BJT):

basic construction, transistor action

CB, CE and CC configurations, input/ output characteristics

biasing of transistors, fixed bias, emitter bias, potential divider bias, comparison of biasing circuits

graphical analysis of CE amplifier, concept of voltage gain, current gain, h-parameter model (low freq.)

computation of A_i , A_v , R_i , R_o of single transistor CE amplifier configuration

Unit – III (10 Periods)

Field Effect Transistor (FET):

JFET: Basic construction, principle of working, concept of pinch-off

maximum drain saturation current, input and transfer characteristics
characteristic equation, CG, CS and CD configurations, fixed and self biasing of JFET amplifier
MOSFET: depletion and enhancement type MOSFET- construction, operation and characteristics

Operational Amplifier (Op-Amp):

concept of ideal operational amplifier, ideal and practical Op-Amp parameters
inverting, non-inverting and unity gain configurations
applications of Op-Amp as adders, difference amplifiers, integrators and differentiator

Unit – IV (07 Periods)

Switching Theory and Logic Design (STLD):

number system, conversion of bases (decimal, binary, octal and hexadecimal numbers)
addition and subtraction, fractional numbers, BCD numbers
Boolean algebra, logic gates, concept of universal gates
canonical forms, minimization using K-map (don't care conditions also)

Unit – V (05 Periods)

Electronics Instruments:

working principle of digital voltmeter, digital multimeter (block diagram approach)
CRO (its working with block diagram)
measurement of voltage, current, phase and frequency using CRO

Books and references:

1. Robert L. Boylestad/ Louis Nashelsky “Electronic Devices and Circuit Theory”, 9th Edition, Pearson Education 2007
2. Devid A. Bell “Electronic Devices and Circuits”, 5th Edition, OXFORD University Press 2008
3. Jacob Millman/ Christos C. Halkias/ Satyabrata Jit “Electronics Devices and Circuits”, 3rd Edition, TMH 2008
4. Morris Mano “Digital Computer Design”, PHI 2003
5. H.S. Kalsi “Electronic Instrumentation”, 2nd Edition, TMH 2007

EAS-104/EAS-204 : PROFESSIONAL COMMUNICATION

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Unit -1 Basics of Technical Communication

Technical Communication: features; Distinction between General and Technical communication; Language as a tool of communication; Levels of communication: Interpersonal, Organizational, Mass communication; The flow of Communication: Downward, Upward, Lateral or Horizontal (Peer group); Importance of technical communication; Barriers to Communication. 5

Unit - II Constituents of Technical Written Communication

Words and Phrases: Word formation. Synonyms and Antonyms; Homophones; Select vocabulary of about 500-1000 New words; Requisites of Sentence Construction: Paragraph Development: Techniques and Methods -Inductive, Deductive, Spatial, Linear, Chronological etc; The Art of Condensation- various steps. 8

Unit - III Forms of Technical Communication

Business Letters: Sales and Credit letters; Letter of Enquiry; Letter of Quotation, Order, Claim and Adjustment Letters; Job application and Resumes.
Official Letters: D.O. Letters; Govt. Letters, Letters to Authorities etc.

Reports: Types; Significance; Structure, Style & Writing of Reports.

Technical Proposal; Parts; Types; Writing of Proposal; Significance.

Technical Paper, Project. Dissertation and Thesis Writing: Features, Methods & Writing. 10

Unit - IV Presentation Strategies

Defining Purpose; Audience & Locale; Organizing Contents; Preparing Outline; Audio-visual Aids; Nuances of Delivery; Body Language; Space; Setting Nuances of Voice Dynamics; Time-Dimension. 7

Unit - V Value- Based Text Readings

Following essays form the suggested text book with emphasis on Mechanics of writing,

(i) The Aims of Science and the Humanities by M.E. Prior

(ii) The Language of Literature and Science by A.Huxley

(iii) Man and Nature by J.Bronowski

(iv) The Mother of the Sciences by A.J.Bahm

(v) Science and Survival by Barry Commoner

(vi) Humanistic and Scientific Approaches to Human Activity by Moody E. Prior

(vii) The Effect of Scientific Temper on Man by Bertrand Russell. 10

Text Book

1. Improve Your Writing ed. V.N. Arora and Laxmi Chandra, Oxford Univ. Press, New Delhi .

2. Technical Communication – Principles and Practices by Meenakshi Raman & Sangeeta Sharma, Oxford Univ. Press 2007, New Delhi.

Reference Books

1. Effective Technical Communication by Barun K. Mitra, Oxford Univ. Press, 2006, New Delhi

2. Business Correspondence and Report Writing by Prof. R.C. Sharma & Krishna Mohan, Tata McGraw Hill & Co. Ltd., New Delhi.

3. How to Build Better Vocabulary by M.Rosen Blum, Bloomsbury Pub. London.

4. Word Power Made Easy by Norman Lewis, W.R.Goyal Pub. & Distributors; Delhi.

5. Developing Communication Skills by Krishna Mohan, Meera Banerji- Macmillan India Ltd. Delhi.

6. Manual of Practical Communication by L.U.B. Pandey & R.P. Singh; A.I.T.B.S. Publications India Ltd.; Krishan Nagar, Delhi.

EME-101/EME-201 : MANUFACTURING PROCESSES

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Unit-I Basic Metals & Alloys : Properties and Applications

Properties of Materials: Strength, elasticity, stiffness, malleability, ductility, brittleness, toughness and hardness. Elementary ideas of fracture, fatigue & creep. **2**

Ferrous Materials: Carbon steels, its classification based on % carbon as low, mild, medium & high carbon steel, its properties & applications. Wrought iron. Cast iron. Alloy steels: stainless steel, tool steel. Elementary introduction to Heat- treatment of carbon steels: annealing, normalizing, quenching & tempering and case-hardening. **3**

Non-Ferrous metals & alloys: Common uses of various non-ferrous metals & alloys and its composition such as Cu-alloys: Brass, Bronze, Al-alloys such as Duralumin. **2**

Unit-II Introduction to Metal Forming & Casting Process and its applications

Metal Forming: Basic metal forming operations & uses of such as : Forging , Rolling , Wire & Tube-drawing/making and Extrusion, and its products/applications. Press-work, & die & punch assembly, cutting and forming, its applications. Hot-working versus cold-working. **4**

Casting: Pattern & allowances. Molding sands and its desirable properties. Mould making with the use of a core. Gating system. Casting defects & remedies. Cupola Furnace. Die-casting and its uses. **3**

Unit-III Introduction to Machining & Welding and its applications

Machining: Basic principles of Lathe-machine and operations performed on it. Basic description of machines and operations of Shaper-Planer, Drilling, Milling & Grinding. **4**

Welding: Importance & basic concepts of welding, classification of welding processes. Gas-welding, types of flames. Electric-Arc welding. Resistance welding. Soldering & Brazing and its uses. **3**

Unit-IV Misc. Topics

Manufacturing: Importance of Materials & Manufacturing towards Technological & Socio-Economic developments. Plant location. Plant layout – its types. Types of Production. Production versus Productivity. **3**

Non-Metallic Materials: Common types & uses of Wood, Cement-concrete, Ceramics, Rubber, Plastics and Composite-materials. **2**

Misc. Processes: Powder-metallurgy process & its applications, Plastic-products manufacturing, Galvanizing and Electroplating. **2**

EAS105/EAS205 : ENVIRONMENT & ECOLOGY

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UNIT-I

Definition, Scope & Importance, Need For Public Awareness- Environment definition, Eco system – Balanced ecosystem, Human activities – Food, Shelter, Economic and social Security. **3**

Effects of human activities on environment-Agriculture, Housing, Industry, Mining and Transportation activities, Basics of Environmental Impact Assessment. Sustainable Development. **3**

UNIT-II

Natural Resources- Water Resources- Availability and Quality aspects. Water borne diseases, Water induced diseases, Fluoride problem in drinking water. Mineral Resources, Forest Wealth, Material cycles- Carbon, Nitrogen and Sulphur Cycles. **4**

Energy – Different types of energy, Electro-magnetic radiation. Conventional and Non-Conventional sources – Hydro Electric, Fossil Fuel based, Nuclear, Solar, Biomass and Bio-gas. Hydrogen as an alternative future source of Energy. **4**

UNIT-III

Environmental Pollution and their effects. Water pollution, Land pollution. Noise pollution, Public Health aspects, Air Pollution, Solid waste management. **3**

Current Environmental Issues of Importance : Population Growth, Climate Change and Global warming- Effects, Urbanization, Automobile pollution. **3**

Acid Rain, Ozone Layer depletion, Animal Husbandry. **3**

UNIT-IV

Environmental Protection- Role of Government, Legal aspects, Initiatives by Non-governmental Organizations (NGO), Environmental Education, Women Education. **3**

Text Books

1. Environmental Studies – Benny Joseph – Tata McgrawHill-2005
2. Environmental Studies – Dr. D.L. Manjunath, Pearson Education-2006.

3. Environmental studies – R. Rajagopalan – Oxford Publication - 2005.
4. Text book of Environmental Science & Technology – M. Anji Reddy – BS Publication..

Reference Books

1. Principles of Environmental Science and Engineering – P. Venugoplan Rao, Prentice Hall of India.
2. Environmental Science and Engineering – Meenakshi, Prentice Hall India.

EAS-109 : REMEDIAL ENGLISH LANGUAGE

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Unit -1 Basic Applied Grammar and Usage

The Sentences; Kinds of Sentences; Kinds of Phrases; Parts of Speech: Noun: Kinds, Gender; Case; Usage: Rules for Singular Nouns, Nouns in Plural form but Singular in sense etc. Nouns ending in - ics. Nouns ending in - es etc;

Pronoun: Definition, Kinds; Number, Gender, Person, Usage.

Adjectives and Determiners: Kinds, Position; Comparatives and Superlatives,

Conversion of Adjectives as Nouns, as adverbs, as Verbs. Determiners- Kinds. Usage of Adjectives and Determiners.

Articles: Kinds, Articles and Number System, Articles and Gender System, Omission of Articles, Repetition of Articles.

Adverbs: Kinds; Formation, Position of Adverbs, Degree of Comparison, Usage.

Preposition: Kinds, Prepositions and Adverbial Participles, Position; correct Usage, Meaning & Usage.

Verbs: Kinds; Auxiliaries; Principal Auxiliaries: Usage; Be, Have, Do, Modal

auxiliaries: Usage- Can/Could, May/Might; Must; Shall/Should; Will/Would; Ought to, Semi-Modals- Need; Dare; Used to.

Non-Finite Verbs: Kinds of Non-Finite: Infinitives, Gerund; Participle.

Concord: Of Numbers, Of Person. Exceptions to Grammatical; Concord; Concord System.

Conjunction: Coordinating Conjunction; Subordinating Conjunction.

Interjection: Definition, Types.

Mood: Indicative, Imperative, Subjunctive.

Active and Passive Voice.

Conditional Sentences. 10

Unit - II The Structure of Sentences/Clauses

Adverb Clause; Adjective Clause; Noun Clause. Sentences: Simple, Double, Multiple and Complex. Transformation of Sentences:

Simple to complex and vice versa; Transformation of Degree; Simple to Compound and vice versa; Interrogative into Assertive; Affirmative into Negative and vice versa:

Transformation of Statement into Exclamation. Sequence of Tenses: Usage. 8
19

Unit - III Paragraph Writing

Structure of Paragraph; Construction of Paragraph; Techniques of Paragraph Writing, Unity; Coherence; Emphasis. Expansion: Definition, Method of Expansion; Making of Expansion.

Paraphrasing : Use of Paraphrasing; Exercises. 5

Unit - IV Comprehension & Precis Writing

Role of Listening; Ear Training, Reading Comprehension; Reasons for poor Comprehension; Improving Comprehension Skills; Developing Skills of Comprehension; Exercises. Precis Writing: Difference from Comprehension; Techniques of Precis Writing; Topic Sentences and its Arrangement.

Short Essay Writing

Definition of Essay; Types of Essay, Relevant Essay Writing for Engineers/Professionals; Use of Essay Writing,

Dimensions of Essay Writing : Literary, Scientific, Sociological: Contemporary Problem Solving Essays.

Horizons of Essay Writing: Narrative Essays; Descriptive Essays; Reflective Essays;

Expository Essays; Argumentative and Imaginative Essays. Exercise. 5

Text Book

1. A Remedial Course in English for Colleges Books 1-3 by B.K. Das & A. David, Oxford Univ. Press, New Delhi.

Reference Books

1. Current English Grammar and Usage with composition by R.P. Sinha, Oxford Univ. Press, New Delhi.
2. English Grammar, Composition and Usage by J.C. Nesfield, Macmillan India Ltd. Delhi.
3. Oxford Practice Grammar by John Eastwood, Oxford Univ. Press, New Delhi.
4. Fowler's Modern English Usage by R.W. Burchfield, O.U.P. New Delhi.
5. English Grammar & Composition by P.C. Wren & Martin, S. Chand & Co. Ltd., New Delhi.

EAS152/EAS-252 : ENGINEERING CHEMISTRY (PRACTICALS)

List of Experiments

1. Determination of alkalinity in the given water sample.
2. Determination of temporary and permanent hardness in water sample using EDTA as standard solution.
3. Determination of available chlorine in bleaching powder.
4. Determination of chloride content in bleaching powder.
5. Determination of iron content in the given water sample by Mohr's methods.
6. pH-metric titration.
7. Determination of Equivalent weight of iron by the chemical displacement method. The equivalent weight of copper is 63.5.
8. Viscosity of an addition polymer like polyester by Viscometer.
9. Determination of iron concentration in sample of water by colorimetric method. The method involves the use of KSCN as a colour developing agent and the measurements are carried out at λ_{\max} 480nm.
10. Element detection and functional group identification in organic compounds.
11. Preparation of Bakelite resin.

EME-152/252 : ENGINEERING MECHANICS LAB.

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(Any 10 experiments of the following or such experiments suitably designed)

1. To conduct the tensile test and determine the ultimate tensile strength, percentage elongation for a steel

specimen.

2. To determine the compression test and determine the ultimate compressive strength for a specimen
 3. To conduct the Impact-tests (Izod / Charpy) on Impact-testing machine to find the toughness.
 4. To determine the hardness of the given specimen using Vicker/Brinell/Rockwell hardness testing machine..
 5. To study the slider-crank mechanism etc. of 2-stroke & 4-stroke I.C. Engine models.
 6. Friction experiment(s) on inclined plane and/or on screw-jack.
 7. Simple & compound gear-train experiment.
 8. Worm & worm-wheel experiment for load lifting.
 9. Belt-Pulley experiment.
 10. Bending of simply-supported and cantilever beams for theoretical & experimental deflection.
 11. Torsion of rod/wire experiment.
 12. Experiment on Trusses.
 13. Statics experiment on equilibrium
 14. Dynamics experiment on momentum conservation
 15. Dynamics experiment on collision for determining coefficient of restitution.
 16. Experiment on Moment of Inertia.
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EEE151/EEE251 : ELECTRICAL ENGINEERING LABORATORY

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List of Experiments

Note : A minimum of 10 experiments from the following should be performed

1. Verification of Kirchhoff's laws
2. Verification of (i) Superposition theorem (ii) Thevenin's Theorem (iii) Maximum Power Transfer Theorem.
3. Measurement of power and power factor in a single phase ac series inductive circuit and study improvement of power factor using capacitor
4. Study of phenomenon of resonance in RLC series circuit and obtain resonant frequency.
5. Measurement of power in 3- phase circuit by two wattmeter method and determination of its power factor.
6. Determination of parameters of ac single phase series RLC circuit
7. Determination of (i) Voltage ratio (ii) polarity and (iii) efficiency by load test of a single phase transformer
8. To study speed control of dc shunt motor using (i) armature voltage control (ii) field flux control.
9. Determination of efficiency of a dc shunt motor by load test
10. To study running and speed reversal of a three phase induction motor and record speed in both directions.
11. To measure energy by a single phase energy meter and determine error.
12. To study P-N diode characteristics
13. To study full wave and half wave rectifier circuits with and without capacitor and determine ripple factors.

14. To study various logic gates (TTL)
15. To study Operational Amplifier as Adder and Subtractor
16. To study transistor as a switch.

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ECS 151/ECS 251 : COMPUTER PROGRAMMING LAB

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Suggested Assignments to be conducted on a 3-hour slot. It will be conducted in tandem with the theory course so the topics for problems given in the lab are already initiated in the theory class. The topics taught in the theory course should be appropriately be sequenced for synchronization with the laboratory. A sample sequence of topics and lab classes for the topic are given below:

1. Familiarization of a computer and the environment and execution of sample programs
2. Expression evaluation
3. Conditionals and branching
4. Iteration
5. Functions
6. Recursion
7. Arrays
8. Structures
9. Linked lists
10. Data structures

It is suggested that some problems related to continuous domain problems in engineering and their numerical solutions are given as laboratory assignments. It may be noted that some of basic numerical methods are taught in the Mathematics course.

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EWS-151/251 : WORKSHOP PRACTICE

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- 1. Carpentry Shop:** 1. Study of tools & operations and carpentry joints. 2. Simple exercise using jack plane. 3. To prepare half-lap corner joint, mortise & tennon joints. 4. Simple exercise on woodworking lathe.
- 2. Fitting Bench Working Shop:** 1. Study of tools & operations 2. Simple exercises involving fitting work. 3. Make perfect male-female joint. 4. Simple exercises involving drilling/tapping/dieing.
- 3. Black Smithy Shop:** 1. Study of tools & operations 2. Simple exercises base on black smithy operations such as upsetting, drawing down, punching, bending, fullering & swaging.
- 4. Welding Shop:** 1. Study of tools & operations of Gas welding & Arc welding 2. Simple butt and Lap welded joints. 3. Oxy-acetylene flame cutting.
- 5. Sheet-metal Shop:** 1. Study of tools & operations. 2. Making Funnel complete with 'soldering'. 3. Fabrication of tool-box, tray, electric panel box etc.
- 6. Machine Shop:** 1. Study of machine tools and operations. 2. Plane turning. 3. Step turning 4. Taper turning. 5. Threading 6. Single point cutting tool grinding.
- 7. Foundry Shop:** 1. Study of tools & operations 2. Pattern making. 3. Mould making with the use of a core. 4. Casting

ECE-151/251 : COMPUTER AIDED ENGINEERING GRAPHICS

Unit-I

1. Introduction to Computer Aided Sketching

Introduction, Drawing Instruments and their uses, BIS conventions, lettering Dimensioning and free hand practicing.

Computer screen, layout of the software, standard tool bar/menus and description of most commonly used tool bars, navigational tools. Coordinate system and reference planes. Definitions of HP, VP, RPP & LPP. Creation of 2D/3D environment. Selection of drawing size and scale. Commands and creation of Lines, Co-ordinate points, axes, poly-lines, square, rectangle, polygons, splines, circles, ellipse, text, move, copy, off-set, mirror, rotate, trim, extend, break, chamfer, fillet, curves, constraints viz. tangency, parallelism, inclination and perpendicularity. Dimensioning, line convention, material conventions and lettering. **2-Sheet**

2. Orthographic Projections

Introduction, Definitions- Planes of projection, reference line and conventions employed, Projections of points in all the four quadrants, Projections of straight lines (located in First quadrant/first angle only), True and apparent lengths, True and apparent inclinations to reference planes (No application problems). **2-Sheet**

3. Orthographic Projections of Plane Surfaces (First Angle Projection Only)

Introduction, Definitions-projections of plane surfaces-triangle, square rectangle, rhombus, pentagon, hexagon and circle, planes in different positions by change of position method only (No problems on punched plates and composite plates.) **1-Sheet**

4. Projections of Solids (First Angle Projection Only)

Introduction, Definitions- Projections of right regular- tetrahedron, hexahedron (cube), prisms, pyramids, cylinders and cones in different positions. (No problems on octahedrons and combination solid) **2-Sheet**

5. Sections and Development of Lateral Surfaces of Solids

Introduction, Section planes, Sections, section views, Sectional views, apparent shapes and True shapes of Sections of right regular prisms, pyramids, cylinders and cones resting with base on HP. (No problems on section of solids) **1-Sheet**

Development of lateral surface of above solids, their frustums and truncations. (No problems on lateral surfaces of trays, Tetrahedrons spheres and transition pieces).

6. Isometric Projection (Using Isometric Scale Only)

Introduction, Isometric scale, Isometric Projection of simple plane figures, Isometric Projection of tetrahedron, hexahedron (cube), right regular prisms, pyramids, cylinders, cones, spheres, cut spheres and combination of solids (Maximum of three Solids). **1-Sheet**

Note : At least 3 drawing assignments must be on AUTOCAD.

Text

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Book

1. Engineering Drawing – N.D. Bhatt & V.M. Panchal, 48th edition, 2005 Charotar Publishing House, Gujarat.
2. A Primer on Computer Aided Engineering Drawing-2006, Published by VTU, Belgaum.

Reference Book

1. Computer Aided Engineering Drawing – S. Trymbaka Murthy, - I.K. International Publishing House Pvt. Ltd., New Delhi, 3rd revised edition-2006.
2. Engineering Graphics – K.R. Gopalakrishna, 32nd edition, 2005 – Subash Publishers Bangalore.
3. Fundamentals of Engineering Drawing with an Introduction to Interactive Computer Graphics for Design and Production – Luzadder Warren J., duff John M., Eastern Economy Edition, 2005 – Prentice- Hall of India Pvt. Ltd., New Delhi.

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EAS-151/EAS-251 : PHYSICS LAB

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List of Experiments

Any ten experiments, at least four from each group.

Group -A

1. To determine the wavelength of monochromatic light by Newton's ring.
2. To determine the wavelength of monochromatic light with the help of Fresnel's biprism.
3. To determine the focal length of two lenses by nodal slide and locate the position of cardinal points.
4. To determine the specific rotation of cane sugar solution using polarimeter.
5. To determine the wavelength of spectral lines using plane transmission grating.
6. To study the polarization of light by simple reflection using laser.
7. Measurement of Wavelength of a laser (He- Ne) light using single slit diffraction.

Group – B

8. To determine the specific resistance of a given wire using Carey Foster's bridge.
9. To study the variation of magnetic field along the axis of current carrying - Circular coil and then to estimate the radius of the coil.
10. To verify Stefan's Law by electrical method.
11. To calibrate the given ammeter and voltmeter by potentiometer.
12. To study the Hall effect and determine Hall coefficient, carrier density and - mobility of a given semiconductor using Hall effect set up.
13. To determine the energy band gap of a given semiconductor material.
- 14 To determine E.C.E. of copper using Tangent or Helmholtz galvanometer.
15. To draw hysteresis curve of a given sample of ferromagnetic material and from - this to determine magnetic susceptibility and permeability of the given specimen.
16. To determine the ballistic constant of a ballistic galvanometer.
17. To determine the coefficient of viscosity of a liquid.
18. Measurement of fiber attenuation and aperture of fiber.
19. High resistance by leakage method.
20. Magnetic Susceptibility of paramagnetic solution.

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EAS-154/EAS-254 : PROFESSIONL COMMUNICATION LABORATORY

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Interactive and Communicative Practical with emphasis on Oral Presentation/Spoken Communication based on International Phonetic Alphabets (I.P.A.)

LIST OF PRACTICALS

1. Group Discussion: Practical based on Accurate and Current Grammatical Patterns.
2. Conversational Skills for Interviews under suitable Professional Communication Lab conditions with emphasis on Kinesics.
3. Communication Skills for Seminars/Conferences/Workshops with emphasis on Paralinguistics/Kinesics.
4. Presentation Skills for Technical Paper/Project Reports/ Professional Reports based on proper Stress and Intonation Mechanics.
5. Official/Public Speaking based on suitable Rhythmic Patterns.
6. Theme- Presentation/ Key-Note Presentation based on correct argumentation methodologies.
7. Individual Speech Delivery/Conferences with skills to defend Interjections/Quizzes.
8. Argumentative Skills/Role Play Presentation with Stress and Intonation.
9. Comprehension Skills based on Reading and Listening Practicals on a model Audio-Visual Usage.

Reference Books

1. Bansal R.K. & Harrison: Phonetics in English, Orient Longman, New Delhi.
2. Sethi & Dhamija: A Course in Phonetics and Spoken English, Prentice Hall, New Delhi.
3. L.U.B.Pandey & R.P.Singh, A Manual of Practical Communication, A.I.T.B.S. Pub. India Ltd. Krishan Nagar, Delhi.
4. Joans Daniel, English Pronouncing Dictionary, Cambridge Univ. Press.

EAS-203 - MATHEMATICS –II

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3 1 0

Unit - I : Differential Equations

Linear differential equations of nth order with constant coefficients, Complementary functions and particular integrals, Simultaneous linear differential equations, Solution of second order differential equation by changing dependent and independent variables, Method of variation of parameters, Applications to engineering problems (without derivation).

Unit – II : Series Solution and Special Functions

Series solution of ordinary differential equations of 2nd order with variable coefficients (Frobenius Method), Bessel and Legendre equations and their series solutions, Properties of Bessel functions and Legendre polynomials.

Unit – III : Laplace Transform

Laplace transform, Existence theorem, Laplace transform of derivatives and integrals, Inverse Laplace transform, Unit step function, Dirac delta function, Laplace transform of periodic functions, Convolution theorem, Application to solve simple linear and simultaneous differential equations.

Unit – IV : Fourier Series and Partial Differential Equations

Periodic functions, Trigonometric series, Fourier series of period 2π , Eulers formulae, Functions having arbitrary period, Change of interval, Even and odd functions, Half range sine and cosine series, Harmonic analysis.

Solution of first order Lagrange's linear partial differential equations, Linear partial differential equations with constant coefficients of 2nd order and their classifications - parabolic, elliptic and hyperbolic with illustrative examples.

Unit – V : Applications of Partial Differential Equations

Method of separation of variables for solving partial differential equations, Wave equation up to two-dimensions, Laplace equation in two-dimensions, Heat conduction equations up to two-dimensions, Equations of transmission lines.

Test Books:-

1. B.V.Ramana, Higher Engineering Mathematics, Tata Mc Graw-Hill Publishing Company Ltd., 2008.
2. R.K.Jain & S.R.K.Iyenger, Advance Engineering Mathematics, Narosa Publishing House, 2002.

Reference Books:-

1. B.S.Grewal, Engineering Mathematics, Khanna Publishers, 2004.
2. B.S.Grewal, Higher Engineering Mathematics, Khanna Publishers, 2005.
3. E.Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons, 2005.
4. C.Ray Wylie & Louis C. Barrett, Advanced Engineering Mathematics, Tata Mc Graw-Hill Publishing Company Ltd. 2003
5. Peter V. O'Neil, Advanced Engineering Mathematics, Thomson (Cengage) Learning, 2007.
6. G.F.Simmons, Differential Equations, Tata Mc Graw-Hill Publishing Company Ltd. 1981.
7. Chandrika Prasad, Advanced Mathematics for Engineers, Prasad Mudranalaya, 1996.

EME-101/EME-201 : MANUFACTURING PROCESSES

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Unit-I Basic Metals & Alloys : Properties and Applications

Properties of Materials: Strength, elasticity, stiffness, malleability, ductility, brittleness, toughness and hardness. Elementary ideas of fracture, fatigue & creep.

Ferrous Materials: Carbon steels, its classification based on % carbon as low, mild, medium & high carbon steel, its properties & applications. Wrought iron. Cast iron. Alloy steels: stainless steel, tool steel. Elementary introduction to Heat-treatment of carbon steels: annealing, normalizing, quenching & tempering and case-hardening.

Non-Ferrous metals & alloys: Common uses of various non-ferrous metals & alloys and its composition such as Cu-alloys: Brass, Bronze, Al-alloys such as Duralumin.

Unit-II Introduction to Metal Forming & Casting Process and its applications

Metal Forming: Basic metal forming operations & uses of such as : Forging , Rolling , Wire & Tube-drawing/making and Extrusion, and its products/applications. Press-work, & die & punch assembly, cutting and forming, its applications. Hot-working versus cold-working.

Casting: Pattern & allowances. Molding sands and its desirable properties. Mould making with the use of a core. Gating system. Casting defects & remedies. Cupola Furnace. Die-casting and its uses.

Unit-III Introduction to Machining & Welding and its applications

Machining: Basic principles of Lathe-machine and operations performed on it. Basic description of machines and operations of Shaper-Planer, Drilling, Milling & Grinding.

Welding: Importance & basic concepts of welding, classification of welding processes. Gas-welding, types of flames. Electric-Arc welding. Resistance welding. Soldering & Brazing and its uses.

Unit-IV Misc. Topics

Manufacturing: Importance of Materials & Manufacturing towards Technological & Socio-Economic developments. Plant location. Plant layout – its types. Types of Production. Production versus Productivity.

Non-Metallic Materials: Common types & uses of Wood, Cement-concrete, Ceramics, Rubber, Plastics and Composite-materials.

Misc. Processes: Powder-metallurgy process & its applications, Plastic-products manufacturing, Galvanizing and Electroplating.

EAS105/EAS205 : ENVIRONMENT & ECOLOGY

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UNIT-I

Definition, Scope & Importance, Need For Public Awareness- Environment definition, Eco system – Balanced ecosystem, Human activities – Food, Shelter, Economic and social Security. Effects of human activities on environment-Agriculture, Housing, Industry, Mining and Transportation activities, Basics of Environmental Impact Assessment. Sustainable Development.

UNIT-II

Natural Resources- Water Resources- Availability and Quality aspects. Water borne diseases, Water induced diseases, Fluoride problem in drinking water. Mineral Resources, Forest Wealth, Material cycles- Carbon, Nitrogen and Sulphur Cycles.

Energy – Different types of energy, Electro-magnetic radiation. Conventional and Non-Conventional sources – Hydro Electric, Fossil Fuel based, Nuclear, Solar, Biomass and Bio-gas. Hydrogen as an alternative future source of Energy.

UNIT-III

Environmental Pollution and their effects. Water pollution, Land pollution. Noise pollution, Public Health aspects, Air Pollution, Solid waste management.

Current Environmental Issues of Importance : Population Growth, Climate Change and Global warming- Effects, Urbanization, Automobile pollution.

Acid Rain, Ozone Layer depletion, Animal Husbandry.

UNIT-IV

Environmental Protection- Role of Government, Legal aspects, Initiatives by Non-governmental Organizations (NGO), Environmental Education, Women Education.

Text Books

1. Environmental Studies – Benny Joseph – Tata McgrawHill-2005
2. Environmental Studies – Dr. D.L. Manjunath, Pearson Education-2006.
3. Environmental studies – R. Rajagopalan – Oxford Publication - 2005.
4. Text book of Environmental Science & Technology – M. Anji Reddy – BS Publication..

Reference Books

1. Principles of Environmental Science and Engineering – P. Venugoplan Rao, Prentice Hall of India.
2. Environmental Science and Engineering – Meenakshi, Prentice Hall India.

EAS-109 : REMEDIAL ENGLISH LANGUAGE

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Unit -1 Basic Applied Grammar and Usage

The Sentences; Kinds of Sentences; Kinds of Phrases; Parts of Speech: Noun: Kinds, Gender; Case; Usage: Rules for Singular Nouns, Nouns in Plural form but Singular in sense etc. Nouns ending in - ics. Nouns ending in - es etc;

Pronoun: Definition, Kinds; Number, Gender, Person, Usage.

Adjectives and Determiners: Kinds, Position; Comparatives and Superlatives,

Conversion of Adjectives as Nouns, as adverbs, as Verbs. Determiners- Kinds. Usage of Adjectives and Determiners.

Articles: Kinds, Articles and Number System, Articles and Gender System, Omission of Articles, Repetition of Articles.

Adverbs: Kinds; Formation, Position of Adverbs, Degree of Comparison, Usage.

Preposition: Kinds, Prepositions and Adverbial Participles, Position; correct Usage, Meaning & Usage.

Verbs: Kinds; Auxiliaries; Principal Auxiliaries: Usage; Be, Have, Do, Modal

auxiliaries: Usage- Can/Could, May/Might; Must; Shall/Should; Will/Would; Ought to, Semi-Modals- Need; Dare; Used to.

Non-Finite Verbs: Kinds of Non-Finite: Infinitives, Gerund; Participle.

Concord: Of Numbers, Of Person. Exceptions to Grammatical; Concord; Concord System.

Conjunction: Coordinating Conjunction; Subordinating Conjunction.

Interjection: Definition, Types.

Mood: Indicative, Imperative, Subjunctive.

Active and Passive Voice.

Conditional Sentences.

10

Unit - II The Structure of Sentences/Clauses

Adverb Clause; Adjective Clause; Noun Clause. Sentences: Simple, Double, Multiple and Complex. Transformation of Sentences:

Simple to complex and vice versa; Transformation of Degree; Simple to Compound and vice versa; Interrogative into Assertive; Affirmative into Negative and vice versa:

Transformation of Statement into Exclamation. Sequence of Tenses: Usage. 8

Unit - III Paragraph Writing

Structure of Paragraph; Construction of Paragraph; Techniques of Paragraph Writing, Unity; Coherence; Emphasis. Expansion: Definition, Method of Expansion; Making of Expansion. Paraphrasing : Use of Paraphrasing; Exercises. 5

Unit - IV Comprehension & Precis Writing

Role of Listening; Ear Training, Reading Comprehension; Reasons for poor Comprehension; Improving Comprehension Skills; Developing Skills of Comprehension; Exercises. Precis Writing: Difference from Comprehension; Techniques of Precis Writing; Topic Sentences and its Arrangement.

Short Essay Writing

Definition of Essay; Types of Essay, Relevant Essay Writing for Engineers/Professionals; Use of Essay Writing,

Dimensions of Essay Writing : Literary, Scientific, Sociological: Contemporary

Problem Solving Essays.

Horizons of Essay Writing: Narrative Essays; Descriptive Essays; Reflective Essays;

Expository Essays; Argumentative and Imaginative Essays. Exercise.

5

Text Book

1. A Remedial Course in English for Colleges Books 1-3 by B.K. Das & A. David, Oxford Univ. Press, New Delhi.

Reference Books

1. Current English Grammar and Usage with composition by R.P. Sinha, Oxford Univ. Press, New Delhi.
2. English Grammar, Composition and Usage by J.C. Nesfield, Macmillan India Ltd. Delhi.
3. Oxford Practice Grammar by John Eastwood, Oxford Univ. Press, New Delhi.
4. Fowler's Modern English Usage by R.W. Burchfield, O.U.P. New Delhi.
5. English Grammar & Composition by P.C. Wren & Martin, S. Chand & Co. Ltd., New Delhi

EAS152/EAS-252: ENGINEERING CHEMISTRY (PRACTICALS)

List of Experiments

1. Determination of alkalinity in the given water sample.
2. Determination of temporary and permanent hardness in water sample using EDTA as standard solution.
3. Determination of available chlorine in bleaching powder.
4. Determination of chloride content in bleaching powder.
5. Determination of iron content in the given water sample by Mohr's methods.
6. pH-metric titration.
7. Determination of Equivalent weight of iron by the chemical displacement method. The equivalent weight of copper is 63.5.
8. Viscosity of an addition polymer like polyester by Viscometer.
9. Determination of iron concentration in sample of water by colorimetric method. The method involves the use of KSCN as a colour developing agent and the measurements are carried out at $\lambda_{\max}=480\text{nm}$.
10. Element detection and functional group identification in organic compounds.
11. Preparation of Bakelite resin.

EME-152/252 : ENGINEERING MECHANICS LAB.

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(Any 10 experiments of the following or such experiments suitably designed)

1. To conduct the tensile test and determine the ultimate tensile strength, percentage elongation for a steel specimen.
2. To determine the compression test and determine the ultimate compressive strength for a specimen

3. To conduct the Impact-tests (Izod / Charpy) on Impact-testing machine to find the toughness.
4. To determine the hardness of the given specimen using Vicker/Brinell/Rockwell hardness testing machine.
5. To study the slider-crank mechanism etc. of 2-stroke & 4-stroke I.C. Engine models.
6. Friction experiment(s) on inclined plane and/or on screw-jack.
7. Simple & compound gear-train experiment.
8. Worm & worm-wheel experiment for load lifting.
9. Belt-Pulley experiment.
10. Bending of simply-supported and cantilever beams for theoretical & experimental deflection.
11. Torsion of rod/wire experiment.
12. Experiment on Trusses.
13. Statics experiment on equilibrium
14. Dynamics experiment on momentum conservation
15. Dynamics experiment on collision for determining coefficient of restitution.
16. Experiment on Moment of Inertia.

EEE151/EEE251 : ELECTRICAL ENGINEERING LABORATORY

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List of Experiments

Note : A minimum of 10 experiments from the following should be performed

1. Verification of Kirchhoff's laws
2. Verification of (i) Superposition theorem (ii) Thevenin's Theorem (iii) Maximum Power Transfer Theorem.
3. Measurement of power and power factor in a single phase ac series inductive circuit and study improvement of power factor using capacitor
4. Study of phenomenon of resonance in RLC series circuit and obtain resonant frequency.
5. Measurement of power in 3- phase circuit by two wattmeter method and determination of its power factor.
6. Determination of parameters of ac single phase series RLC circuit
7. Determination of (i) Voltage ratio (ii) polarity and (iii) efficiency by load test of a single phase transformer
8. To study speed control of dc shunt motor using (i) armature voltage control (ii) field flux control.
9. Determination of efficiency of a dc shunt motor by load test
10. To study running and speed reversal of a three phase induction motor and record speed in both directions.
11. To measure energy by a single phase energy meter and determine error.
12. To study P-N diode characteristics
13. To study full wave and half wave rectifier circuits with and without capacitor and determine ripple factors.
14. To study various logic gates (TTL)
15. To study Operational Amplifier as Adder and Subtractor
16. To study transistor as a switch.

ECS 151/ECS 251 : COMPUTER PROGRAMMING LAB

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Suggested Assignments to be conducted on a 3-hour slot. It will be conducted in tandem with the theory course so the topics for problems given in the lab are already initiated in the theory class. The topics taught in the theory course should be appropriately be sequenced for synchronization with the laboratory. A sample sequence of topics and lab classes for the topic are given below:

1. Familiarization of a computer and the environment and execution of sample programs
2. Expression evaluation
3. Conditionals and branching
4. Iteration
5. Functions
6. Recursion
7. Arrays
8. Structures
9. Linked lists
10. Data structures

ECE-151/251 : COMPUTER AIDED ENGINEERING GRAPHICS

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Unit-I

1. Introduction to Computer Aided Sketching

Introduction, Drawing Instruments and their uses, BIS conventions, lettering Dimensioning and free hand practicing.

Computer screen, layout of the software, standard tool bar/menus and description of most commonly used tool bars, navigational tools. Coordinate system and reference planes. Definitions of HP, VP, RPP & LPP. Creation of 2D/3D environment. Selection of drawing size and scale. Commands and creation of Lines, Co-ordinate points, axes, poly-lines, square, rectangle, polygons, splines, circles, ellipse, text, move, copy, off-set, mirror, rotate, trim, extend, break, chamfer, fillet, curves, constraints viz. tangency, parallelism, inclination and perpendicularity. Dimensioning, line convention, material conventions and lettering. **2-Sheet**

2. Orthographic Projections

Introduction, Definitions- Planes of projection, reference line and conventions employed, Projections of points in all the four quadrants, Projections of straight lines (located in First quadrant/first angle only), True and apparent lengths, True and apparent inclinations to reference planes (No application problems). **2-Sheet**

3. Orthographic Projections of Plane Surfaces

(First Angle Projection Only)

Introduction, Definitions-projections of plane surfaces-triangle, square rectangle, rhombus, pentagon, hexagon and circle, planes in different positions by change of position method only (No problems on punched plates and composite plates.) **1-Sheet**

4. Projections of Solids (First Angle Projection Only)

Introduction, Definitions- Projections of right regular- tetrahedron, hexahedron (cube), prisms, pyramids, cylinders and cones in different positions. (No problems on octahedrons and combination solid) **2-Sheet**

5. Sections and Development of Lateral Surfaces of Solids

Introduction, Section planes, Sections, section views, Sectional views, apparent shapes and True shapes of Sections of right regular prisms, pyramids, cylinders and cones resting with base on HP. (No problems on section of solids) **1-Sheet**

Development of lateral surface of above solids, their frustums and truncations. (No problems on lateral surfaces of trays, Tetrahedrons spheres and transition pieces).

6. Isometric Projection (Using Isometric Scale Only)

Introduction, Isometric scale, Isometric Projection of simple plane figures, Isometric Projection of tetrahedron, hexahedron (cube), right regular prisms, pyramids, cylinders, cones, spheres, cut spheres and combination of solids (Maximum of three Solids). **1-Sheet**

Note : At least 3 drawing assignments must be on AUTOCAD.

Text Book

1. Engineering Drawing – N.D. Bhatt & V.M. Panchal, 48th edition, 2005 Charotar Publishing House, Gujarat.
2. A Primer on Computer Aided Engineering Drawing-2006, Published by VTU, Belgaum.

Reference Book

1. Computer Aided Engineering Drawing – S. Trymbaka Murthy, - I.K. International Publishing House Pvt. Ltd., New Delhi, 3rd revised edition-2006.
2. Engineering Graphics – K.R. Gopalakrishna, 32nd edition, 2005 – Subash Publishers Bangalore.
3. Fundamentals of Engineering Drawing with an Introduction to Interactive Computer Graphics for Design and Production – Luzadder Warren J., duff John M., Eastern Economy Edition, 2005 – Prentice- Hall of India Pvt. Ltd., New Delhi.

EAS-151/EAS-251 : PHYSICS LAB

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List of Experiments

Any ten experiments, at least four from each group.

Group -A

1. To determine the wavelength of monochromatic light by Newton's ring.
2. To determine the wavelength of monochromatic light with the help of Fresnel's biprism.
3. To determine the focal length of two lenses by nodal slide and locate the position of cardinal points.
4. To determine the specific rotation of cane sugar solution using polarimeter.
5. To determine the wavelength of spectral lines using plane transmission grating.
6. To study the polarization of light by simple reflection using laser.
7. Measurement of Wavelength of a laser (He- Ne) light using single slit diffraction.

Group – B

8. To determine the specific resistance of a given wire using Carey Foster's bridge.
9. To study the variation of magnetic field along the axis of current carrying - Circular coil and then to estimate the radius of the coil.
10. To verify Stefan's Law by electrical method.
11. To calibrate the given ammeter and voltmeter by potentiometer.
12. To study the Hall effect and determine Hall coefficient, carrier density and - mobility of a given semiconductor using Hall effect set up.
13. To determine the energy band gap of a given semiconductor material.
- 14 To determine E.C.E. of copper using Tangent or Helmholtz galvanometer.
15. To draw hysteresis curve of a given sample of ferromagnetic material and from - this to determine magnetic susceptibility and permeability of the given specimen.
16. To determine the ballistic constant of a ballistic galvanometer.
17. To determine the coefficient of viscosity of a liquid.
18. Measurement of fiber attenuation and aperture of fiber.
19. High resistance by leakage method.

20. Magnetic Susceptibility of paramagnetic solution.

EAS-154/EAS-254 : PROFESSIONAL COMMUNICATION LABORATORY

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Interactive and Communicative Practical with emphasis on Oral Presentation/Spoken Communication based on International Phonetic Alphabets (I.P.A.)

LIST OF PRACTICALS

1. Group Discussion: Practical based on Accurate and Current Grammatical Patterns.
2. Conversational Skills for Interviews under suitable Professional Communication Lab conditions with emphasis on Kinesics.
3. Communication Skills for Seminars/Conferences/Workshops with emphasis on Paralinguistics/Kinesics.
4. Presentation Skills for Technical Paper/Project Reports/ Professional Reports based on proper Stress and Intonation Mechanics.
5. Official/Public Speaking based on suitable Rhythmic Patterns.
6. Theme- Presentation/ Key-Note Presentation based on correct argumentation methodologies.
7. Individual Speech Delivery/Conferences with skills to defend Interjections/Quizzes.
8. Argumentative Skills/Role Play Presentation with Stress and Intonation.
9. Comprehension Skills based on Reading and Listening Practicals on a model Audio-Visual Usage.

Reference Books

1. Bansal R.K. & Harrison: Phonetics in English, Orient Longman, New Delhi.
2. Sethi & Dhamija: A Course in Phonetics and Spoken English, Prentice Hall, New Delhi.
3. L.U.B.Pandey & R.P.Singh, A Manual of Practical Communication, A.I.T.B.S. Pub. India Ltd. Krishan Nagar, Delhi.
4. Joans Daniel, English Pronouncing Dictionary, Cambridge Univ. Press.

EAS-203 - MATHEMATICS –II

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3 1 0

Unit - I : Differential Equations

Linear differential equations of nth order with constant coefficients, Complementary functions and particular integrals, Simultaneous linear differential equations, Solution of second order differential equation by changing dependent and independent variables, Method of variation of parameters, Applications to engineering problems (without derivation).

Unit – II : Series Solution and Special Functions

Series solution of ordinary differential equations of 2nd order with variable coefficients (Frobenius Method),

Bessel and Legendre equations and their series solutions, Properties of Bessel functions and Legendre polynomials.

Unit – III : Laplace Transform

Laplace transform, Existence theorem, Laplace transform of derivatives and integrals, Inverse Laplace transform, Unit step function, Dirac delta function, Laplace transform of periodic functions, Convolution theorem, Application to solve simple linear and simultaneous differential equations.

Unit – IV : Fourier Series and Partial Differential Equations

Periodic functions, Trigonometric series, Fourier series of period 2π , Eulers formulae, Functions having arbitrary period, Change of interval, Even and odd functions, Half range sine and cosine series, Harmonic analysis.

Solution of first order Lagrange's linear partial differential equations, Linear partial differential equations with constant coefficients of 2nd order and their classifications - parabolic, elliptic and hyperbolic with illustrative examples.

Unit – V : Applications of Partial Differential Equations

Method of separation of variables for solving partial differential equations, Wave equation up to two-dimensions, Laplace equation in two-dimensions, Heat conduction equations up to two-dimensions, Equations of transmission lines.

Test Books:-

1. B.V.Ramana, Higher Engineering Mathematics, Tata Mc Graw-Hill Publishing Company Ltd., 2008.
2. R.K.Jain & S.R.K.Iyenger, Advance Engineering Mathematics, Narosa Publishing House, 2002.

Reference Books:-

1. B.S.Grewal, Engineering Mathematics, Khanna Publishers, 2004.
2. B.S.Grewal, Higher Engineering Mathematics, Khanna Publishers, 2005.
3. E.Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons, 2005.
4. C.Ray Wylie & Louis C. Barrett, Advanced Engineering Mathematics, Tata Mc Graw-Hill Publishing Company Ltd. 2003
5. Peter V. O'Neil, Advanced Engineering Mathematics, Thomson (Cengage) Learning, 2007.
6. G.F.Simmons, Differential Equations, Tata Mc Graw-Hill Publishing Company Ltd. 1981.
7. Chandrika Prasad, Advanced Mathematic for Engineers, Prasad Mudranalaya, 1996.

EAS-202 : ENGINEERING PHYSICS- II

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Unit - I

Wave Mechanics and X-ray Diffraction

Wave- particle duality, de-Broglie matter waves, Phase and Group velocities, Davisson-Germer experiment, Heisenberg uncertainty principle and its applications, Wave function and its significance, Schrödinger's wave equation – particle in one dimensional box.

Diffraction of X-rays by crystal planes, Bragg's spectrometer, Compton's effect. 10 Hrs.

Unit – II

Dielectric and Magnetic Properties of Materials:

Dielectric constant and Polarization of dielectric materials, Types of Polarization (Polarizability) . Equation of internal fields in liquid and solid (One- Dimensional),

Claussius Musotti- Equation, Ferro and Piezo electricity (Qualitative), Frequency dependence of dielectric constant, Dielectric Losses, Important applications of dielectric material, Langevin's theory for dia and paramagnetic material, Phenomena of hysteresis and its applications.

Ultrasonic: Generation, detection and application of ultrasonics 08 Hrs.

Unit-III

Electromagnetics

Displacement Current, Maxwell's Equations (Integral and Differential Forms). Equation of continuity, EM- Wave equation and its propagation characteristics in free space and in conducting media, Poynting theorem and Poynting vectors. 06 Hrs.

Unit-IV

Superconductivity and Science and Technology of Nanomaterials:

Temperature dependence of resistivity in superconducting materials, Effect of magnetic field (Meissner effect), Type I and Type II superconductors, Temperature dependence of critical field, BCS theory (Qualitative), High temperature superconductors. Characteristics of superconductors in superconducting state, Applications of Superconductors.

Introduction to Nanomaterials- Basic principle of nanoscience and technology, creation and use of buckyballs, structure, properties and uses of Carbon nanotubes, Applications of nanotechnology. 06 Hrs.

Reference books:

- 1- Concept of Modern Physics - by Beiser (Tata Mc-Graw Hill)
- 2- Solid State Physics - by C. Kittel, 7th edition (Wiley Eastern)
- 3- Materials Science and - by V. Raghavan (Prentice- Hall India) Engineering
- 4- Solid State Physics - by S.O. Pillai, 5th edition (New Age International)
- 5- Nanotechnology - by Rechar Booker and Earl Boysen (Wiley Publishing)
- 6- Introduction to - by David J. Griffith (PH I) Electrostatics

Student Counsellors from Different Departments

Chemical Engineering	- Er Sudeep Yadav (9450069101)
Civil Engineering	- Er Ashish Gupta (9839361389)
Computer Science	- Er S K Gupta (9415057834)
Electrical Engineering	- Dr Deepak Nagaria (9412903700)
Electronics & Communication	- Er Y K Prajapati (9415909685)
Information Technology	- Er R N Verma (9415590166)
Mechanical Engineering	- Er Narendra Kumar (9450504645)
MBA	- Dr Suman Yadav (9415133456)

Training & Placement work will be done by above committee under direct coordination of Director through Training & Placement Officer.

The scholarship forms should also be submitted by students to their respective consular. Students should contact their respective student counsellors for their academic and other activities.

Important Telephone Numbers for First Year Students Session 2010-11

Wardens - Vrindavan Bhawan (for First Year Boys)

Dr Abhai Kumar Verma, Professor - 9415136394

Shri T P Singh, Lecturer -

Wardens - Yashodra Bhawan (for Girls)

Dr Shahnaj Ayub, Reader -9889697117

Dr Ekta Pandey, Lecturer -9415587596

Chief Warden

Prof Abhai Kumar Verma, -9452907349

Academic Matter

Prof Abhai Kumar Verma, Dean (Academics) - 9935016061

Dr Amitabh K Srivastava , Deputy Dean (Academics) - 9452591206

Er R N Verma, Assistant Dean Academic - 9415590166

Fee Related Matter (Accounts Section)

Sri O P Sharma - 0510-2320349

Proctors

Dr M K Gupta, Chief Proctor -9415030610

Dr D C Dhubkarya, Proctor -9415136394

Medical Officer

Dr. Vikram Agarwal, Medical Officer -9793882199

Director

Prof Harvinder Singh - 0510-2320349, 2320321, 9550723106

BIET Jhansi is a ragging free institute however students are free to contact any one of the following if needed.

S.N.	Name	Designation	Contact No.
1.	Prof. Harvinder Singh	Director	9450723106
2	Prof V K Bhatt	Head, Mechanical Engg.	9450082702
3	Prof. M K Gupta	Chief Proctor & Head Applied Sc.	9415030610
4	Prof A K Verma	Chief Warden & Head Civil Engg	9415136394
6	Dr D C Dhubkarya	Proctor & Associate Professor	9415194924
7	Dr Yashpal	Head, Computer Science	9415030602
8	Er N P Yadav	Warden Saket Bhawan	9515684455
9	Dr Deepak Nagaria	Head I/C, Electrical Engineering	9412903700
10	Er Sudeep Yadav	Head, Chemical Engineering	9451658390
11	Dr Shahnaj Ayub	Warden, Yashdohra Bhawan & Head EC	9415587596
12	Dr Tarun Soota	Warden Jai Bharat Bhawan	9335383720
13	Er R N Verma	Head I/C, Information Technology	9415590166
14	Dr Suman Yadav	Head I/C, MBA	9415502685
15	Er T P Singh	Warden Vrindawan Bhawan	9936433667
16	Dr Ekta Pandey	Warden Yashodhra Bhawan	988969117

ALL INDIA ANTI RAGGING HELP LINE - 1800-180-5522 (Toll Free)