

MANDATORY DISCLOSURE

2007-08



SHRI BALWANT INSTITUTE OF TECHNOLOGY

Meerut Road (Pallri), Near DPS, Sonapat-131001, Haryana

Tel: 0130-2340237, 3202040; Fax: 0130-2340237

Email: info@sbit.in Website: www.sbit.in



I. NAME OF THE INSTITUTION

Shri Balwant Institute of Technology

Meerut Road (Pallri), Sonapat –131001 Haryana

Tel; 0130-2340237, 3202040 Fax: 0130-2340237

E-mail: info@sbit.in

Website: www.sbit.in

II. NAME & ADDRESS OF THE DIRECTOR

Prof. M.M. Jha

Shri Balwant Institute of Technology

Meerut Road (Pallri)

Sonapat-131001 (Haryana)

Ph. No. 0130-3202040 Fax 0130-2340237

Mobile No. 09896234821

III. NAME OF THE AFFILIATING UNIVERSITY

Maharshi Dayanand University (MDU), Rohtak (Haryana)



IV. GOVERNANCE

Members of the Board and their brief background

Name	Designation
Ms. Sushil Industrialist	Chairperson
Mr. Rajesh Kumar Industrialist	Vice-Chairman
Dr. Pritam Singh Former Director IIM, Lucknow Former Director MDI, Gurgaon Professor of Eminence, MDI, Gurgaon	Member
Mr. Pradeep Kumar Additional Commissioner Income Tax, Government of India	Member
Dr. P.C. Jain Principal SRCC, Delhi	Member
Prof. M.M. Sharma, Former Scientist 'F' DRDO, Ministry of Defence, Govt. of India & Former Director, Cabinet Secretariat	Member
Mr. Nawal Singh Industrialist	Member
Prof. M.M. Jha Director, SBIT	Member-Secretary



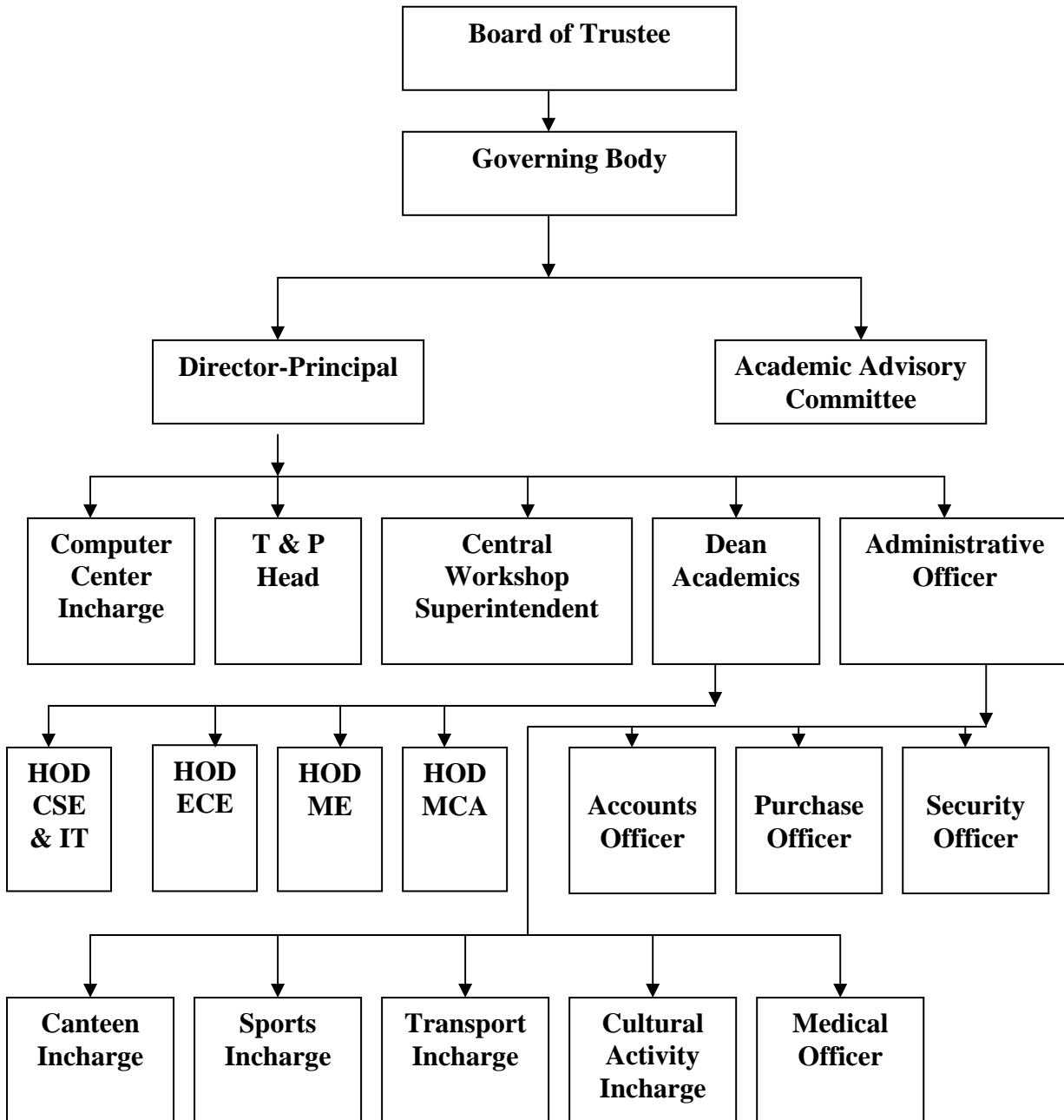
Members of Academic Advisory Body

Name	Designation
Dr. Pritam Singh Former Director IIM, Lucknow Former Director MDI, Gurgaon Professor of Eminence, MDI, Gurgaon	Chairman
S.Y. Siddique Chief General Manager, HR Maruti Udyog Limited.	Member
Anand Kumar Aggarwal Executive Director Institute of Petroleum Management Indian Oil Corporation	Member
G.K. Aggarwal Executive Director, Personnel & HR, NTPC	Member
Dr. V.K. Gupta Dean, Faculty of Science & Technology DCR University of Science & Technology Murthal-Sonepat	Member
Dr. Ishwar Singh Dean, Faculty of Physical Sciences Maharishi Dayanand University, Rohtak	Member
Mr. Harinder Yadav Additional Director, Systems Income Tax Government of India	Member
Amit Thakkar Product Manager Nortel Inc, USA	Member
Naveen Rohtagi Chief Engineer Aastra Communication Inc, USA	Member
Prof. M.M. Jha Director, SBIT, Sonapat	Member

➤ *Frequency of the Board Meetings and Academic Advisory Body*

: Normally two meetings in a year.

➤ *Organizational chart and processes*





- ***Nature and Extent of involvement of faculty and students in academic affairs/improvements***

S_ No.	Involvement of faculty and students in academic affairs/improvement
1	Participation in academic competitions/ programmes organized by the institute in house competition.
2	Industrial Visit
3	Debates/ Quiz Competitions
4	Brain storming session organization
5	Seminars
6	Inviting specialist as guest faculty.

The students of each discipline are divided into two groups of 30 each under the supervision of course coordinator. Each group will conduct meeting twice a month to discuss the academic and personal problems relating to institute affairs. The problems, which are not solved at the level of course coordinator, will be put to the committee consisting of Director/Principal, Senior HODs.

- ***Mechanism/Norms & Procedure for democratic/good Governance***

1. Effective administration
2. Liasoning with the pass out students.
3. Continuous transparent evaluation mechanisms.

- ***Student Feedback on Institutional Governance/faculty performance***

Feedback about the performance of faculty and Institutional Governance will be collected confidentially.

- ***Grievance redressal mechanism for faculty, staff and students***

System of open form, feed back, suggestion book exist. Interaction between students and faculty is encouraged to identify and resolve grievances. A Students Affair Committee is constituted, consisting of faculty members and headed by HOD. For each branch, faculty member is appointed as branch co-ordinator. Issues/ Concerns/ Feedback of students are addressed by this committee. Grievances of the faculty, staff and students are sorted out through grievances redressal committee of HOD and headed by the Director/Principal.

V. PROGRAMMES

- ***Name of the Programmes approved by the AICTE :***

- a) Computer Science and Engineering (CSE)
- b) Electronics and Communication Engineering (ECE)
- c) Information Technology (IT)
- d) Mechanical Engineering (ME)
- e) Master of Computer Application (MCA)



➤ **Name of the Programmes accredited by the AICTE** Not applicable.

For each Programme the following details are given:

Name	Computer Science & Engineering	Electronics & Communication Engineering	Information Technology	Mechanical Engineering	Master of Computer Application
No. of Seats	120	60	60	60	60
Duration	4 Years	4 Years	4 Years	4 Years	3 Years
Cut off Marks	NA	NA	NA	NA	NA
Fee/Annum	Rs. 48500.00				Rs.39500.00 (Provisional)
Placement Facilities	Organized Placement Cell				
Campus Placement	NA Being 2nd Year	NA Being 2nd Year	NA Being 2nd Year	NA Being 2nd Year	NA Being 1 st Year

➤ **Name of the Programme accredited by AICTE:** Nil

➤ **Name and duration of programme(s) having affiliation/collaboration with Foreign University(s)/Institution(s) and being run in the same Campus along with status of their AICTE approval. If there is foreign collaboration, give the following details :** Nil

➤ **Details of the Foreign Institution/University :** Not Applicable

VI. FACULTY

SBIT has constituted the following selection committee for the recruitment of faculty.

1. Chairperson Ms. Sushil
2. Director SBIT Prof. M. M. Jha
3. Representative of MDU, Rohtak Dr. N.S. Gill, and Dr. Ishwar Singh
4. Three subject experts from different reputed institutes for each discipline



➤ **Permanent Faculty:**

List of Faculty Members					
S.No.	Name of the Faculty	Designation	S.No.	Name of the Faculty	Designation
1	Prof. M.M. Jha	Director	24	Ms. Pooja Chauhan	Lecturer
2	Prof. M.M. Sharma	Professor	25	Mr. Parveen Kumar	Lecturer
3	Mr. Munish Gupta	Asst. Professor	26	Mr. Devender Malik	Lecturer
4	Mr. Anil Kumar	Asst. Professor	27	Mr. Rishabh Anand	Lecturer
5	Dr Rajendra Gartia	Asstt Professor	28	Mr. Parmod Kumar	Lecturer
6	Dr. O.P. Garg	Professor	29	Ms. Rekha Kukreja	Lecturer
7	Surabhi Pandey	Sr Lecturer	30	Mr. Kanta Parsad Verma	Lecturer
8	Dr. Vandana Sachdeva	Sr. Lecturer	31	Mr. Vikas Sindhu	Lecturer
9	Mr. Biswajit Kaushik	Sr. Lecturer	32	Mr. Manoj Kumar	Lecturer
10	Ms. Sonia Bansal	Lecturer	33	Mr. Rudra Sharma	Lecturer
11	Ms. Shikha Gautam	Lecturer	34	Mr. Chandresh Tripathi	Lecturer
12	Mr. Puneet Sharma	Lecturer	35	Mr. Himanshu Jha	Lecturer
13	Ms. Madhu Nain	Lecturer	36	Mr. Brijesh Kumar	Lecturer
14	Ms. Deeksha Bhardwaj	Lecturer	37	Mr. Manish Kumar	Lecturer
15	Ms. Deepti Arora	Lecturer	38	Mr. Devender Verma	Lecturer
16	Mr. Gaurav Gautam	Lecturer	39	Mr. Vinod Nandal	Lecturer
17	Mr. Sunil Kumar	Lecturer	40	Mr. Manoj Kumar	Lecturer
18	Mr. Sunil	Lecturer	41	Mr. Himanshu Sharma	Lecturer
19	Mr. Avanindra	Lecturer	42	Ms. Meenau Dudeja	Lecturer
20	Mr Ashish	Lecturer	43	Mr. Pradeep Kumar	Lecturer
21	Mr. Pradeep Kumar	Lecturer	44	Ms. Richa Tomer	Lecturer
22	Ms. Rati Gaur	Lecturer	45	Mr. Ashutosh Pal	Lecturer
23	Ms. Bimla Malik	Lecturer			

➤ **Visiting Faculty:**

Eminent persons from reputed Engineering Institutes and Industry.



VII. PROFILE OF DIRECTOR WITH QUALIFICATIONS

RESUME of PROF. M.M.JHA

POSITION: DIRECTOR, SHRI BALWANT INSTITUTE OF TECHNOLOGY, SONEPAT

PERSONAL DETAILS

NAME : PROF. M.M.Jha
FATHER'S NAME : SH. G.S.Jha
AGE : 49 Years

EDUCATIONAL QUALIFICATION

Exam	Board/ University	Year	Division
High School	BSE Board, Patna	1972	1 st
B.Sc. Engg(Elect & Comm.)	Ranchi University	1975	1 st
M.E. (Instrumentation & Control)	MNREC, Allahabad University	1984	1 st
Ph.D (Electrical Engg.)(Regd. In UPTU) Thesis Topic "Development of SMPS with reduced EMI"			

EXPERIENCE IN TEACHING & INDUSTRY (26 YEARS)

A. TEACHING EXPERIENCE: TOTAL 6 YEARS

S.No.	Institute / Position	Year
1	Assistant Professor in IIT Lucknow	2001-2004
2	Professor / HOD (E & C) in Integral University	2004-2005
3	Professor / HOD (Elect.) in SITM, Barabanki	2005-2007
4	Director in DBIT, Dehradun	2007

B. INDUSTRIAL EXPERIENCE: TOTAL 20 YEARS

S.No.	Organization/ Position	Nature of Job	Year
5	Tech. Advisor in M/s Santronics, Lucknow	Design & Development activities	1998 to 2001
6	Vice President Technical in M/s Super Plast, New Delhi	For setting the production line	1997 to 1998
7	Joint Manager (Last Position) (R&D) in M/s Uptron India Ltd., Lucknow	Production/QC / R & D Departments	1981 to 1997

Specialized Experience in Development of New Products in the Electronic Field, such as Static Energy Meters, UPS, Switching Converter, Battery Chargers, Battery Monitoring Circuits, TV Testing & Measurement Equipments, PCB Design Sector Softwares etc., having expertise in Research & Development as well as in SQC & ISO 9000.

PLACE: SONEPAT

(Prof. M. M. Jha)

DATE: 12.07.2007



VIII. FEE: Following provisional fees has been approved by state fee committee, Chandigarh, Haryana.

	Type of Fee	B. Tech Per Year (General)	MCA Per Year (General)
1.	Tuition Fee	Rs. 32000.00	Rs. 30000.00
2.	Development Fund	Rs. 13000.00	Rs. 6000.00
3.	Student Activity Fee	Rs. 1500.00	Rs. 1500.00
4.	Caution Money (Refundable)	Rs. 2000.00	Rs. 2000.00
	Sub Total (1 to 4)	Rs. 48500.00	Rs. 39500.00 (Provisional)

IX. ADMISSION

Total number of seats sanctioned: 360

AICTE approved course(s) of study for academic year 2007-08:

S_ No.	Courses (B.Tech) (4 Years degree course)	2 nd Year approval by AICTE	2007-08	
			Sanctioned Intake	Actual Admission
1	Computer Science & Engineering	F.No. 06/01/HR-ENG / 2006 /01 dt. 09.07.2007	120	Admissions are under process
2	Electronics & Communication Engineering	F.No. 06/01/HR-ENG / 2006 /01 dt. 09.07.2007	60	
3	Information Technology	F.No. 06/01/HR-ENG / 2006 /01 dt. 09.07.2007	60	
4	Mechanical Engineering	F.No. 06/01/HR-ENG / 2006 /01 dt. 09.07.2007	60	

S_ No.	Courses MCA (3 Years degree course)	1 st Year approval by AICTE	2007-08	
			Sanctioned Intake	Actual Admission
1	Master of Computer Application (MCA)	F.No. 06/01/HR-ENG / 2006 /01 dt. 09.07.2007	60	Admission are under process

X. ADMISSION PROCEDURE

The admissions will be made as per the state policy on the web site: www.tehadmissions.gov.in. Information regarding the admissions will however be updated as and when required on our institute website: www.sbit.in. Admissions are based strictly on AIEEE (All India rank).

Starting of the Academic session. : 01 August 2007

XI. CRITERIA AND WEIGHTAGES FOR ADMISSION

The admissions will be made as per the state policy. Information regarding the admission details will however be updated as and when required.



XII. INFORMATION ON INFRASTRUCTURE AND OTHER RESOURCES AVAILABLE

➤ **Library:**

Number of Library books/Titles/Journals available (programme-wise)

Above 7500 Books

List of online National/International Journals subscribed.

Total No. of Journals	:	37
National Journals	:	25
International Journals	:	12
E-Library facilities	:	Yes, DELNET Subscription.

➤ **Laboratory** : **See Annexure-I**

For each Laboratory

List of Major Equipment/Facilities

List of Experimental Setup

➤ **Workshop** : **See Annexure-I**

List of Facilities Available.

➤ **Games and Sports Facilities:**

Indoor: Table Tennis, Chess, and Carrom Board.

Outdoor: Volley Ball, Badminton.

➤ **Extra Curricular Activities:**

Music Room

➤ **Soft Skill Development Facilities:**

Public Speaking, Debating, Personality development.

➤ **Number of Classrooms & size of each:**

Total Class rooms: 10 (75 m² area each)

➤ **Number of Tutorial rooms and size of each:**

Total tutorial rooms: 05 (39 m² each)



➤ **Number of laboratories and size of each:**

	Requirement as per norms	Available in the institution	Area Requirement as per norms	Area Available in the Institution (Sq.M)
Computer Centre	1	1	150	152.55
Laboratories	15	16	150	152.55
Workshop	1	1	900	920

➤ **Number of drawing halls and size of each:**

Total drawing halls: 01 (200 m²)

➤ **Number of Computer Centers with capacity of each:**

Total computer center: Size 175m², Capacity 75 students

➤ **Central Examination Facility, Number of rooms and capacity of each.**

Central examination office: 1

Strong room along with necessary accessories: 1

Total Rooms: 06

Capacity: 60 and 90 each.

➤ **Teaching Learning process:**

Curriculum and syllabi for each of the programmes as approved by the Maharishi Dayanand University, Rohtak.



Annexure I

Details of the equipments available in each of the labs/workshop and list of experiments
B Tech 1st Year (Common for all branches)

Chemistry Lab

S No	Infrastructure	Qty. Available
1	Viscometer	3
2	PH Meter	3
3	Burettes	50
4	Titration Flasks	60
5	Pipettes	40
6	Beakers of various capacities	200
7	Bunsen Burners	30
8	Dish Plates	60
9	Flasks	30
10	Glass Rods	80
11	Stoppers	30
12	Mesh wiring	50
13	Tripad Stands	40
14	Caustic Soda, coconut oil, ground nut oil and other oils/fats required for saponification.	As per requirement
15	Chemicals required in the preparation of Nylon 6.6	As per requirement
16	Soaps and Detergents	As per requirement
17	KMno ₄ , K ₂ Cr ₂ O ₇ , and all other laboratory reagents needed in Practical work	As per requirement
18	Spectrometer (6")	2

Chemicals

S No	Description	Qty. Available
1	Potassium Iodide	100 gm
2	Potassium Dichromate	500 gm
3	Potassium Permanganate	1000gm
4	Potassium Oxalate	500gm
5	Potassium Chromate	500 gm
6	Potassium Chloride	100gm
7	Mercuric Chloride	100gm
8	N + phenyl Anthranilic acid	30gm
9	Napthalene	500 gm
10	Ferrous sulphate	500gm
11	Ferric Oxide (Red)	400 gm
12	Methyl Orange (solid)	75 gm
13	Methyl Orange (Liquid)	375 ml
14	Solochrome Black + T (E.B.T)	50 gm
15	E.D.T.A. (Disodium Salt of Ethylene Diamine Tetra Acetic acid)	
16	Paraffin liquid light0	500gm
17	Oxalic acid	1000gm



18	Diethyl amine	500gm
19	Calcon indicator	35 gm
20	Calcium carbonate	1000gm
21	Ammonia solution	2.5lits
22	Ammonium chloride	1000gm
23	Ammonium carbonate	500gm
24	Magnous sulphate	500gm
25	Ethyl acetate	500 gm
26	Diethyl ether	500gm
27	Barium chloride	500 gm
28	Carbon disuiphide	500 ml
29	Chloroform	500 ml
30	Charcoal	750 gm
31	Benzoic acid	500gm
32	Benzene	500gm
33	Ammonium sulphate - Ferrous sulphate	500 gm
34	Acetone	500gm
35	Glacial Acetic acid	500gm
36	Ammonium Oxalate	500gm
37	Aniline	500 ml
38	Borax	500 gm
39	Bees Wax	500 gm
40	Sodium Bicarbonate	500 gm
41	Glycerol	1400 ml
42	Phenolphthalein (Liquid)	250gm
43	Sodium Azide	100gm
44	Sodium Carbonate (Anhydrous)	500 gm
45	Sodium Hydroxide Pallets	1500 gm
46	Sodium Chloride	500 gm
47	Sodium Thiosulphate	500gm
48	Sodium Sulphate	500gm
49	Stannous Chloride	200 gm
50	Starch	500gm
51	Silica Gel	500 gm
52	Magnesium Carbonate	500gm
53	Conc. Hydrochloride Acid	5 litre
54	Conc. Sulphuric Acid	5 litre
55	Rectified Spirit	4.5 litre



Physics Lab

S No	Infrastructure	Qty. Available
1	Sodium Lamps	4
2	Convex Lenses	5
3	Optical Bench	2
4	Plano convex Lenses	5
5	Microscope with Vernier	2
6	Spectrometer	2
7	Plance Diffraction Grating	3
8	Telescopes	1
9	Fresnel's biprism	4
10	Thermometers	6
11	Lee Disc method apparatus for finding conductivity	2
12	Searle's method apparatus for finding conductivity	2
13	Polarimeter	2
14	Michelson Interferometer	2
15	He-Ne-Laser apparatus	1
16	Platinum resistance thermometers	2
17	Callender and Giffith Bridge	1
18	Thermo couples	2
19	Apparatus for finding joule-Mechanical equivalent of heat	1
20	DE- Sauty Bridge	1
21	Capacitors	4
22	Resistors	4
23	Ressistance Boxes	2
24	Key connecting wires	50meters
25	Galvanometers	2
26	Voltmeters	4
27	Ammeters	4
28	Batteries / Power Supply	2
29	Diodes of different types	40
30	Transistors	40
31	Photo electric Cell	2
32	Circular Coils	2
33	Moving Coil Galvanometer	1
34	Tangent Galvanometer	2
35	Cathode Ray Oscillator	1
36	Magnetometers	1
37	Magnetic Bench	1
38	Thyratron	2
39	Rayleigh Bridge	1
40	Apparatus for finding e/m for electron by Helical Method	2
41	Apparatus for findidng e/m for electron by oil drop method	1
42	G.M. Counter	1



Mechanical Engineering Lab

S No	Infrastructure	Qty. Available
1	Babcock and Wilcox boiler	1
2	Steam Injector	1
3	Spring loaded safety valve	1
4	Float steam trap	1
5	Two stroke diesel engine	1
6	Four stroke diesel engine	1
7	Four stroke petrol engine	1
8	Two stroke petrol engine	1
9	Single start worm & worm wheel.(Lifting Machine)	1
10	Double start worm & worm wheel (Lifting Machine)	1
11	Triple start worm & worm wheel. (Lifting Machine)	1
12	Single purchase winch crab. (Lifting Machine)	1
13	Double purchase winch crab. (Lifting Machine)	1
14	Universal testing machine 40 Tons	1
15	Brinell and Rockwell Hardness testing machine	1
16	Deflection of beam apparatus	1
17	Equipment of JIB crane.	1
18	Screw Jack. (Large)	1
19	Screw Jack (small)	1
20	Compound Srew Jack	1
21	Prony brake dynamometer	1
22	Kaplan turbine model	1
23	Francis turbine model	1
24	Pelton turbine model	1



Electrical Technology Lab

S No	Infrastructure	Qty Available
1	Synchronous Motors with DC shunt motor	2
2	Induction Motors with DC compound generator	2
3	DC shunt Generator with Induction motor with wound rotor	2
4	Series R-L-C circuits	2
5	Parallel R-L-C circuits	2
6	CRO 25 Mhz	2
7	Voltmeters	10
8	Ammeters	10
9	Watt Meters	4
10	Galvano meters	2
11	Bread Board	5
12	DC Power Supply	2
13	Carbon Resistances	40
14	Speedometer	5
15	Tachometer	5
16	Frequency meter	5
17	PF meter	3
18	Phase Sequence Meter	1

Additional Equipment

S No	Infrastructure	Qty Available
1	Single phase resistive loads	6
2	Digital Multimeter	4
3	Connecting Leads	250
4	Foundation Pads	24
5	Single phase auto transformer	2
6	Wattmeter UPF 5/10A, 150/300/600V	1
7	Wattmeter UPF 10/20A, 75/150/300V	2
8	1 Phase loading rheostat 3 KVA	3
9	DC supply 30 A transformer type	1
10	Transformer single phase 2 KVA	1



WORKSHOP

MACHINE SHOP		
S No	Infrastructure	Qty. Available
1	Vernier Callipers	10
2	Micrometers, V. Height Guage and other measuring tools	5 Each
3	Lathe Machine	8
4	Shaper Machine	1
5	Power Hacksaw	1
6	Drilling Machine	1
7	Slotter Machine	1
8	CNC Lathe Machine	1
9	Bench Grinder	1
10	Carpentry tools	5
11	Fitting equipments	5
12	Smithy tools	2
13	Welding equipments & tools	2
14	Foundry Shops	1
FITTING SHOP		
1	Benchvicas	20
2	Hacksaw	20
3	Trysquares	10
4	Faltfile	10
5	Trysquares graduations	10
6	Roundfile	10
7	Half Round File	14
8	Steel Scale	8
9	Centrepunoh	20
10	Spring divider	20
11	Cross peen hammers	10
12	Ball peen hammer	10
13	Square File	4
14	Triangular file	10
15	Thread Gauge	2
16	Radius Gauge	2
17	Pipe Wrench	2
18	Ring Spanner	1
19	Universal Surface Gauge	2
SHEET METAL		
1	Sheet Cutters	10
2	Comlieration Plier	1
3	Outside Calliper	1
4	Inside Calliper	1
5	Wire Gauge	1
6	Funnel Stake	10
7	Mallets	1
8	Rail	1
9	Try Square 2 Ft.	1



10	Slide Wrench	2
11	Soldering Iron	4
CARPENTARY SHOP		
1	Carpentary Vices	8
2	Screw Drivers	6
3	Carpentary files half round	6
4	Folding rule	1
5	Carpentary Squas	12
6	Grinding Stone, pincer, claw hammer, measuring, tapes, drill machine - 13mm, Spirit Lamp	1 each
SMITHY TOOL		
1	Cross peen hammer	10
2	Ball peen hammer	10
3	Flat Chisel, cross cut chisel, round nose, diamond nose chisel	2 Each
4	Anvil - 10 Kg	1
5	Allen ket set	1 set
6	Tongs	9
FOUNDRY SHOP		
1	Moulding pit with moulding sand	1
2	Moulding boxes	10
3	Trowels	9
4	Hand rammers	5
5	Lifter	5
6	Chalni (Riddle)	4
7	Shovel	2
8	Crucible	1
9	Oil furnace	4
10	Gate Cutter	4
11	Iron karchi	4
12	Flatter	5
13	Spruce Pin	5
14	Draw Spike	5
15	Vent wire	7
16	Karahi	2
17	floor rammers	5
18	funnel	1
19	Strike off bar	1
20	Buckets	2
21	Fawra	2
22	Fountain	2
23	Oil Cane	1



Computers Center

S No	Infrastructure	Qty. Available
1	PC: P-4, 2.66 GHz Colour Monitor, 256 MB Ram, 80 GB HDD, Optical Mouse (Computer Centre)	64
2	Printer	6
3	P-4, Colour Monitor, 256 MB Ram, 80 GB HDD, Optical Mouse (Library)	4
4	Switches	5
5	WiFi	1
6	Server: P-4, 3.1 GHz Colour Monitor, 1 GB Ram, 160 GB HDD, Optical Mouse (Computer Centre)	1
7	All computers are on LAN with Internet facilities.	
8	Complete campus is WiFi enabled allowing wireless access.	



Engineering Drawing / Graphics Lab

S No	Infrastructure	Qty. Available
1	Drawing Trestles with boards and stools	60 Sets



CSE -103E: C Programming Lab.

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-	-	2

Class Work: 25
Exam: 25

Total: 50

Duration of Exam: 3 Hours

Representative programming problems:

1. Write a program to find the largest of three numbers. (if-then-else)
2. Write a program to find the largest number out of ten numbers (for-statement)
3. Write a program to find the average male height & average female heights in the class (input is in form of sex code, height).
4. Write a program to find roots of quadratic equation using functions and switch statements.
5. Write a program using arrays to find the largest and second largest no. out of given 50 nos.
6. Write a program to multiply two matrices
7. Write a program to read a string and write it in reverse order
8. Write a program to concatenate two strings
9. Write a program to sort numbers using the Quicksort Algorithm.
10. Represent a deck of playing cards using arrays.
11. Write a program to check that the input string is a palindrome or not.

Note: At least 5 to 10 more exercises to be given by the teacher concerned.



CH-103-E: CHEMISTRY LAB. (COMMON FOR ALL BRANCHES)

L T P
- - 2

Class Work: 25 Marks
Practical: 25 Marks

Total: 50 Marks

Duration of exam: 3 Hours

LIST OF EXPERIMENTS

1. Determination of Ca^{++} and Mg^{++} hardness of water using EDTA solution.
2. Determination of alkalinity of water sample.
3. Determination of dissolved oxygen (DO) in the given water sample.
4. To find the melting & eutectic point for a two component system by using method of cooling curve.
5. Determination of viscosity of lubricant by Red Wood viscometer (No. 1 & No. 2).
6. To determine flash point & fire point of an oil by Pensky -Marten's flash point apparatus.
7. To prepare Phenol-formaldehyde and Urea formaldehyde resin.
8. To find out saponification No. of an oil.
9. Estimation of calcium in lime stone and dolomite.
10. Determination of concentration of KMnO_4 solution spectrophotometrically.
11. Determination of strength of HCl solution by titrating it against NaOH solution conductometrically.
12. To determine amount of sodium and potassium in a, given water sample by flame photometer.
13. Estimation of total iron in an iron alloy.

Note: At least ten experiments are to be performed by the students.

SUGGESTED BOOKS:

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



EE-103-E: ELECTRICAL TECHNOLOGY LAB

L T P
0 0 2

CLASS WORK: 25

EXAMS: 25

TOTAL: 50

DURATION OF EXAM: 3 Hours

LIST OF EXPERIMENTS

1. To verify KCL and KVL.
2. To verify Thevenin's & Norton's Theorems.
3. To Verify maximum power transfer theorem in D.C. Circuit & A.C circuit.
4. To verify reciprocity & Superposition theorems.
5. To study frequency response of a series R-L-C circuit and determine resonant frequency & Q-factor for various Values of R,L,C.
6. To study frequency response of a parallel R-L-C circuit and determine resonant frequency & Q-Factor for various values of R,L,C.
7. To perform direct load test of a transformer and plot efficiency Vs load characteristic.
8. To perform direct load test of a D.C. shunt generator and plot load voltage Vs load current curve.
9. To plot V-curve of a synchronous motor.
10. To perform O.C. and S.C. tests of a three phase induction motor.
11. To study various type of meters.
12. Measurement of power by 3 voltmeter / 3 ammeter method.
13. Measurement of power in a 3 phase system by two watt meter method.

NOTE:

1. At least 10 experiments are to be performed by students in the semester.
2. At least 7 experiments should be performed from the above list, remaining three experiments may either be performed from the above list or designed and set by the concerned institution as per the scope of the syllabus of EE-101-E.



ME- 109E: ELEMENTS OF MECHANICAL ENGINEERING LAB.

L T P
- - 2

Sessional: 50Marks
Practical: 100 Marks

Total: 150 Marks

Duration of Exam: 3 Hours

LIST OF EXPERIMENTS

1. To study Cochran & Babcock & Wilcox boilers.
2. To study the working & function of mountings & accessories in boilers.
3. To study 2-Stroke & 4-Stroke diesel engines.
4. To study 2-Stroke & 4-Stroke petrol engines.
5. To calculate the V.R., M.A. & efficiency of single, double & triple start worm & worm wheel.
6. To calculate the V.R., M.A. & efficiency of single & double purchase winch crabs.
7. To find the percentage error between observed and calculated values of stresses in the members of a Jib crane.
8. To draw the SF & BM diagrams of a simply supported beam with concentrated loads.
9. To study the simple & compound screw jacks and find their MA, VR & efficiency.
10. To study the various types of dynamometers.
11. To the constructional features & working of Pelton/Kaplan/Francis.
12. To prepare stress-strain diagram for mild steel & cast iron specimens under tension and compression respectively on a Universal testing machine.
13. To determine the Rockwell / Brinell /Vickers hardness no. of a given specimen on the respective machines.

Note:

1. Total ten experiments are to be performed in the semester.
2. At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed & set by the concerned Institution as per the scope of the syllabus.



**PHY-103-E: PHYSICS LAB-I
(COMMON FOR ALL BRANCHES)**

L T P
- - 2

Class Work: 25 Marks
Practical: 25 Marks

Total: 50 Marks

Duration of exam: 3 Hours

LIST OF EXPERIMENTS

The experiments in 1st semester will be based mainly upon optics, electrostatics, wave and oscillations, which are the parts of the theory syllabus of 1st semester.

1. To find the wavelength of sodium light by Newton's rings experiment.
2. To find the wavelength of sodium light by Fresnel's biprism experiment.
3. To find the wavelength of various colours of white light with the help of a plane transmission diffraction grating.
4. To find the refractive index and cauchy's constants of a prism by using spectrometer.
5. To find the wavelength of sodium light by Michelson interferometer.
6. To find the resolving power of a telescope.
7. To find the pitch of a screw using He-Ne laser.
8. To find the specific rotation of sugar solution by using a polarimeter.
9. To compare the capacitances of two capacitors by De'sauty bridge and hence to find the dielectric constant of a medium.
10. To find the flashing and quenching potentials of Argon and also to find the capacitance of unknown capacitor.
11. To study the photoconducting cell and hence to verify the inverse square law.
12. To find the temperature co-efficient of resistance by using platinum resistance thermometer and Callender and Griffith bridge.
13. To find the frequency of A.C. mains by using sonometer.
14. To find the velocity of ultrasonic waves in non-conducting medium by piezo-electric method.

RECOMMENDED BOOKS:

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

Note: Students will be required to perform atleast 10 experiments out of the list in a semester.



PHY-104-E: PHYSICS LAB -II
(COMMON FOR ALL BRANCHES)

L T P
- - 2

Class Work: 25 Marks
Practical: 25 Marks

Total: 50 Marks

Duration of exam: 3 Hours

LIST OF EXPERIMENTS

The experiments in Second semester will be based upon electricity, Magnetism, Modern Physics and Solid State Physics, which are the parts of theory syllabus.

1. To find the low resistance by Carey - Foster's bridge.
2. To find the resistance of a galvanometer by Thomson's constant deflection method using a post office box.
3. To find the value of high resistances by Substitution method.
4. To find the value of high resistances by Leakage method.
5. To study the characteristics of a solar cell and to find the fill factor.
6. To find the value of e/m for electrons by Helical method.
7. To find the ionization potential of Argon/Mercury using a thyratron tube.
8. To study the variation of magnetic field with distance and to find the radius of coil by Stewart and Gee's apparatus.
9. To study the characteristics of (Cu-Fe, Cu-Constantan) thermo couple.
10. To find the value of Planck's constant by using a photoelectric cell.
11. To find the value of coefficient of self-inductance by using a Rayleigh bridge.
12. To find the value of Hall Co-efficient of semi-conductor.
13. To study the V-I characteristics of a p-n diode.
14. To find the band gap of intrinsic semi-conductor using four probe method.
15. To calculate the hysteresis loss by tracing a B-H curve.

RECOMMENDED BOOKS:

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

Note: Students will be required to perform at least 10 experiments out of the list in a semester.



ME- 107E: WORKSHOP PRACTICE

L	T	P
-	-	4

Class Work: 25 Marks
Examination: 25 Marks

Total: 50 Marks

Duration of Exam: 3 Hours

List of Experiments / Jobs

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

NOTE:

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.
2. At least 8 experiments/ jobs should be performed / prepared from the above list, remaining two may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Manufacturing Processes and facilities available in the Institute.



**Details of the equipments available in each of the labs/workshop and list of experiments
BE 2nd Year**

S.No.	Name of the Course	Name of the laboratory / Workshop	Total area of lab/workshop (approx.)	Major Equipment
1	BE (Computer Science and Engineering & Information Technology)	PC Lab	300.00 Sqm	PCs (Pentium Dual Core) 150, Laser Printers 16
		Data Structures & Algorithms Lab		
		Numerical Methods Lab		
		Database Management System Lab		
		C++ Programming Lab		
		Multimedia Technology Lab		
		Internet Lab		
CAD Lab				
2	BE (Electronics and Communication Engineering)	Electrical Engineering Materials and semi conductor devices lab	300.00 Sqm	CROs, Function Generators, Digital Multi Meters, Power Supplies, Trainer Kits, DC & AC Machines, Transformers, Ammeters, Voltmeters, Watt Meters, Variacs, Power supply and Starters, Transfer and switch fuse unit Rheostat & MCB
		Network Theory Lab		
		Electromechanical Energy Conversion Lab		
		Electrical Workshop		
		Analog Electronics Lab		
		Digital Electronics Lab		
		Communication System Lab		
Electronics Engineering Lab				
3	BE (Mechanical Engineering)	Strength of Materials Lab	300.00 Sqm	Tensile Testing machine, Impact Testing machine, Torsion Measuring machine, Hardness testing machine, Lathe Machine, Molding tools, Power Hacksaw, Bench Grinder, Drill Machine, Hand tools,
		Material Science Lab		
		Fluid Mechanics Lab		
		Energy Conversion Lab		
		Manufacturing Practice		



CSE-205 E Data Structures & Algorithms Lab.

L T P Class Work: 25

-- 2 Exam: 25

Total: 50

Duration of Exam: 3 Hrs.

1. Write a program to search an element in a two-dimensional array using linear search.
2. Using iteration & recursion concepts write programs for finding the element in the array using Binary Search Method
3. Write a program to perform following operations on tables using functions only a) Addition b) subtraction c) Multiplication d) Transpose
4. Using iteration & recursion concepts write the programs for Quick Sort Technique
5. Write a program to implement the various operations on string such as length of string concatenation, reverse of a string & copy of a string to another.
6. Write a program for swapping of two numbers using call by value and call by reference strategies.
7. Write a program to implement binary search tree. (Insertion and Deletion in Binary search Tree)
8. Write a program to create a linked list & perform operations such as insert, delete, update, reverse in the link list
9. Write the program for implementation of a file and performing operations such as insert, delete, update a record in the file.
10. Create a linked list and perform the following operations on it a) add a node b) Delete a node
11. Write a program to simulate the various searching & sorting algorithms and compare their timings for a list of 1000 elements.
12. Write a program to simulate the various graph traversing algorithms.
13. Write a program which simulates the various tree traversal algorithms.

Note: At least 5 to 10 more exercises to be given by the teacher concerned.



EE-224-E DIGITAL ELECTRONICS LAB

L T P CLASS WORK : 25

0 0 2 EXAM : 25

TOTAL : 50

DURATION OF EXAM: 3 HRS

LIST OF EXPERIMENTS:

1. Study of TTL gates AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR.
2. Design & realize a given function using K-maps and verify its performance.
3. To verify the operation of multiplexer & Demultiplexer.
4. To verify the operation of comparator.
5. To verify the truth tables of S-R, J-K, T & D type flip flops.
6. To verify the operation of bi-directional shift register.
7. To design & verify the operation of 3-bit synchronous counter.
8. To design and verify the operation of synchronous UP/DOWN decade counter using J K
9. flip-flops & drive a seven-segment display using the same.
10. To design and verify the operation of asynchronous UP/DOWN decade counter using J K
11. flip-flops & drive a seven-segment display using the same.
12. To design & realize a sequence generator for a given sequence using J-K flip-flops.
13. Study of CMOS NAND & NOR gates and interfacing between TTL and CMOS gates.
13. Design a 4-bit shift-register and verify its operation . Verify the operation of a ring counter and a Johnson counter.

NOTE: At least ten experiments are to be performed, atleast seven experiments should be performed from above list. Remaining three experiments may either be performed from the above list or designed & set by the concerned institution as per the scope of the syllabus.



CSE- 212 E Database Management Systems Lab

L T P Class Work: 25

-- 2 Exam: 25

Total: 50

Duration of Exam: 3 Hrs.

I. Create a database and write the programs to carry out the following operation :

1. Add a record in the database
2. Delete a record in the database
3. Modify the record in the database
4. Generate queries
5. Generate the report
6. List all the records of database in ascending order.

II Develop a menu driven project for management of database system:

1. Library information system
 - (a) Engineering
 - (b) MCA
2. Inventory control system
 - (a) Computer Lab
 - (b) College Store
3. Student information system
 - (a) Academic
 - (b) Finance
4. Time table development system
 - (a) CSE, IT & MCA Departments
 - (b) Electrical & Mechanical Departments

III Usage of S/w:

1. VB, ORACLE and/or DB2
2. VB, MSACCESS
3. ORACLE, D2K
4. VB, MS SQL SERVER 2000

Note: At least 5 to 10 more exercises to be given by the teacher concerned.



IT-206 E C ++ Programming Lab.

L T P Class Work: 25

-- 2 Exam: 25

Total: 50

Duration of Exam: 3 Hrs.

Q1. Raising a number n to a power p is the same as multiplying n by itself p times. Write a function called `power ()` that takes a double value for n and an int value for p , and returns the result as double value. Use a default argument of 2 for p , so that if this argument is omitted, the number will be squared. Write a main () function that gets values from the user to test this function.

Q2. A point on the two dimensional plane can be represented by two numbers: an X coordinate and a Y coordinate. For example, (4,5) represents a point 4 units to the right of the origin along the X axis and 5 units up the Y axis. The sum of two points can be defined as a new point whose X coordinate is the sum of the X coordinates of the points and whose Y coordinate is the sum of their Y coordinates.

Write a program that uses a structure called point to model a point. Define three points, and have the user input values to two of them. Then set the third point equal to the sum of the other two, and display the value of the new point. Interaction with the program might look like this:

Enter coordinates for P1: 3 4

Enter coordinates for P2: 5 7

Coordinates of P1 + P2 are : 8, 11

Q 3. Create the equivalent of a four function calculator. The program should request the user to enter a number, an operator, and another number. It should then carry out the specified arithmetical operation: adding, subtracting, multiplying, or dividing the two numbers. (It should use a switch statement to select the operation). Finally it should display the result. When it finishes the calculation, the program should ask if the user wants to do another calculation. The response can be Y or N . Some sample interaction with the program might look like this.

Enter first number, operator, second number: 10/ 3 Answer = 3.333333 Do another (Y/ N)? Y Enter first number, operator, second number 12 + 100 Answer = 112 Do another (Y/ N) ? N

Q4. A phone number, such as (212) 767-8900, can be thought of as having three parts: the area code (212), the exchange (767) and the number (8900). Write a program that uses a structure to store these three parts of a phone number separately. Call the structure phone. Create two structure variables of type phone. Initialize one, and have the user input a number for the other one. Then display both numbers. The interchange might look like this:

Enter your area code, exchange, and number: 415 555 1212 My number is (212) 767-8900 Your number is (415) 555-1212

Q 5. Create two classes DM and DB which store the value of distances. DM stores distances in metres and centimeters and DB in feet and inches. Write a program that can read values for the class objects and add one object of DM with another object of DB. Use a friend function to carry out the addition operation. The object that stores the results maybe a DM object or DB object, depending on the units in which the results are required. The display should be in the format of feet and inches or metres and centimetres depending on the object on display.

Q 6. Create a class rational which represents a numerical value by two double values- NUMERATOR & DENOMINATOR. Include the following public member Functions: constructor with no arguments (default). constructor with two arguments. void reduce() that reduces the rational number by eliminating the highest common factor between the numerator and denominator. Overload + operator to add two rational number. Overload >> operator to enable input through cin. Overload << operator to enable output through cout. Write a main () to test all the functions in the class.

Q 7. Consider the following class definition

```
class father {
protected : int age;
public;
father (int x) {age = x;}
virtual void iam ( )
```



```
{ cout << I AM THE FATHER, my age is : << age<< endl;}  
};
```

Derive the two classes son and daughter from the above class and for each, define iam () to write our similar but appropriate messages. You should also define suitable constructors for these classes.

Now, write a main () that creates objects of the three classes and then calls iam () for them.

Declare pointer to father. Successively, assign addresses of objects of the two derived classes to this pointer and in each case, call iam () through the pointer to demonstrate polymorphism in action.

Q 8. Write a program that creates a binary file by reading the data for the students from the terminal. The data of each student consist of roll no., name (a string of 30 or lesser no. of characters) and marks.

Q9. A hospital wants to create a database regarding its indoor patients. The information to store include

- a) Name of the patient
- b) Date of admission
- c) Disease
- d) Date of discharge

Create a structure to store the date (year, month and date as its members). Create a base class to store the above information. The member function should include functions to enter information and display a list of all the patients in the database. Create a derived class to store the age of the patients. List the information about all the to store the age of the patients. List the information about all the pediatric patients (less than twelve years in age).

Q 10. Make a class **Employee** with a name and salary. Make a class **Manager** inherit from **Employee**. Add an instance variable, named department, of type string. Supply a method to **toString** that prints the manager s name, department and salary. Make a class **Executive** inherit from **Manager**. Supply a method **to String** that prints the string **Executive** followed by the information stored in the **Manager** superclass object. Supply a test program that tests these classes and methods.

Q11. Imagine a tollbooth with a class called toll Booth. The two data items are a type unsigned int to hold the total number of cars, and a type double to hold the total amount of money collected. A constructor initializes both these to 0. A member function called payingCar () increments the car total and adds 0.50 to the cash total. Another function, called nopayCar (), increments the car total but adds nothing to the cash total. Finally, a member function called displays the two totals. Include a program to test this class. This program should allow the user to push one key to count a paying car, and another to count a nonpaying car. Pushing the ESC key should cause the program to print out the total cars and total cash and then exit.

Q12. Write a function called reversit () that reverses a string (an array of char). Use a for loop that swaps the first and last characters, then the second and next to last characters and so on. The string should be passed to reversit () as an argument. Write a program to exercise reversit (). The program should get a string from the user, call reversit (), and print out the result. Use an input method that allows embedded blanks. Test the program with Napoleon s famous phrase, Able was I ere I saw Elba) .

Q13. Create some objects of the string class, and put them in a Deque-some at the head of the Deque and some at the tail. Display the contents of the Deque using the forEach () function and a user written display function. Then search the Deque for a particular string, using the first That () function and display any strings that match. Finally remove all the items from the Deque using the getLeft () function and display each item. Notice the order in which the items are displayed: Using getLeft (), those inserted on the left (head) of the Deque are removed in last in first out order while those put on the right side are removed in first in first out order. The opposite would be true if getRight () were used.

Q 14. Create a base class called shape. Use this class to store two double type values that could be used to compute the area of figures. Derive two specific classes called triangle and rectangle from the base shape. Add to the base class, a member function get_data () to initialize base class data members and another member function display_area () to compute and display the area of figures. Make display_area () as a virtual function and redefine this function in the derived classes to suit their



requirements. Using these three classes, design a program that will accept dimensions of a triangle or a rectangle interactively and display the area. Remember the two values given as input will be treated as lengths of two sides in the case of rectangles and as base and height in the case of triangles and used as follows: Area of rectangle = $x * y$ Area of triangle = $\frac{1}{2} * x * y$



CSE 214 E Internet Lab

L T P Class Work: 25

- - 2 Exam: 25

Total: 50

Duration of Exam: 3 Hrs.

Exercises involving:

1. Sending and receiving mails.
2. Chatting on the net.
3. Using FTP and Tel net server.
4. Using HTML Tags (table, form, image, anchor etc.).
5. Making a Web page of your college using HTML tags.

Note: At least 10 exercises to be given by the teacher concerned.



IT-201 E PC Lab.

L T P Class Work: 25

- - 2 Exam: 25

Total: 50

Duration of Exam: 3 Hrs.

PC Software: Application of basics of MS Word 2000, MS Excel 2000, MS Power Point 2000, MS Access 2000.

1. To prepare the Your Bio Data using MS Word
2. To prepare the list of marks obtained by students in different subjects and show with the help of chart/graph the average, min and max marks in each subject.
3. Prepare a presentation explaining the facilities/infrastructure available in your college/institute.
4. Create a database of books in the library on a mini scale w.r.t. Computers and manipulate the database using different forms and reports.

PC Hardware :

1. To check and measure various supply voltages of PC.
2. To make comparative study of motherboards.
3. To observe and study various cables, connections and parts used in computer communication.
4. To study various cards used in a system viz. display card, LAN card etc.
5. To remove, study and replace floppy disk drive.
6. To remove, study and replace hard disk.
7. To remove, study and replace CD ROM drive.
8. To study monitor, its circuitry and various presents and some elementary fault detection.
9. To study printer assembly and elementary fault detection of DMP and laser printers.
10. To observe various cables and connectors used in networking.
11. To study parts of keyboard and mouse.
12. To assemble a PC.
13. Troubleshooting exercises related to various components of computer like monitor, drives, memory and printers etc.

Reference Books:

- a. Complete PC upgrade & maintenance guide, Mark Mines, BPB publ.
- b. PC Hardware: The complete reference, Craig Zacker & John Rouske, TMH
- c. Upgrading and Repairing PCs, Scott Mueller, 1999, PHI,

Note: At least 5 to 10 more exercises to be given by the teacher concerned.



IT-208 E Multimedia Technologies Lab.

L T P Class Work: 25

- - 2 Exam: 25

Total: 50

Duration of Exam: 3 Hrs.

1. Write a program to justify a text entered by the user on both the left and right hand side. For example, the text An architect may have a graphics program to draw an entire building but be interested in only ground floor, can be justified in 30 columns as shown below. An architect may have a Graphics programs draw an Entire building but be interested in only ground floor.
2. Study the notes of a piano and simulate them using the key board and store them in a file.
3. Write a program to read a paragraph and store it to a file name suggested by the author.
4. Devise a routine to produce the animation effect of a square transforming to a triangle and then to a circle.
5. Write a program to show a bitmap image on your computer screen.
6. Create a web page for a clothing company which contains all the details of that company and at-least five links to other web pages.
7. Write a program by which we can split mpeg video into smaller pieces for the purpose of sending it over the web or by small capacity floppy diskettes and then joining them at the destination.
8. Write a program to simulate the game of pool table.
9. Write a program to simulate the game Mine Sweeper.
10. Write a program to play wave or midi format sound files\

Note: At least 5 to 10 more exercises to be given by the teacher concerned.



**EE-221-E ELECTRICAL ENGINEERING MATERIALS AND SEMICONDUCTOR
DEVICES LAB**

L T P CLASS WORK : 25

0 0 2 EXAM : 25

TOTAL : 50

DURATION OF EXAM: 3 HRS

LIST OF EXPERIMENTS :

1. To study V-I characteristics of diode, and its use as a capacitance.
2. Study of the characteristics of transistor in Common Base configuration.
3. Study of the characteristics of transistor in Common Emitter configuration.
4. Study of V-I characteristics of a photo-voltaic cell.
5. Study of characteristics of MOSFET/JFET in CS configuration.
6. To plot characteristics of thyristor.
7. To plot characteristics of UJT .
8. To plot characteristics of diac & Triac.
9. Study of loss factor in a dielectric by an impedance bridge.
10. Study of photo-resist in metal pattern for planar technology/PCB technology.

NOTE : Ten experiments are to be performed, out of which at least seven experiments should be performed from above list. Remaining three experiments may either be performed from the above list or designed & set by the concerned institution as per the scope of the syllabus.



EE-223-E NETWORK THEORY LAB

L T P CLASS WORK : 25

0 0 2 EXAM : 25

TOTAL : 50

DURATION OF EXAM: 3 HRS

LIST OF EXPERIMENTS :

1. Transient response of RC circuit.
2. Transient response of RL circuit.
3. To find the resonance frequency, Band width of RLC series circuit.
4. To calculate and verify "Z" parameters of a two port network.
5. To calculate and verify "Y" parameters of a two port network.
6. To determine equivalent parameter of parallel connections of two port network.
7. To plot the frequency response of low pass filter and determine half-power frequency.
8. To plot the frequency response of high pass filter and determine the half-power frequency.
9. To plot the frequency response of band-pass filter and determine the band-width.
10. To calculate and verify "ABCD" parameters of a two port network.
11. To synthesize a network of a given network function and verify its response.
12. Introduction of P-Spice

NOTE : Ten experiments are to be performed, out of which at least seven experiments should be performed from above list. Remaining three experiments may either be performed from the above list or designed & set by the concerned institution as per the scope of the syllabus.



EE-225-E ELECTROMECHANICAL ENERGY CONVERSION LAB

L T P CLASS WORK : 25

0 0 3 EXAM : 25

TOTAL : 50

DURATION OF EXAM: 3 HRS

LIST OF EXPERIMENTS:

1. To find turns ratio and polarity of a single phase transformer.
2. To perform open and short circuit tests on a single phase transformer.
3. To perform Sumpner's back to back test on single phase transformers.
4. Parallel operation of two single phase transformers.
5. Study of construction of a DC machine.
6. To plot O.C.C of a DC shunt generator and find its Critical Resistance.
7. To perform direct load test of a DC motor.
8. Speed control of a DC motor by armature control and field control methods.
9. To perform open circuit and block rotor tests of an induction motor.
10. Star-delta starting of a three phase induction motor.
11. Plot O.C.C of a synchronous generator.
12. To plot V-curve of a synchronous motor.

NOTE: Ten experiments are to be performed, out of which at least seven experiments should be performed from above list. Remaining three experiments may either be performed from the above list or designed & set by the concerned institution as per the scope of the syllabus.



EE-231-E ELECTRICAL WORKSHOP

L T P CLASS WORK : 25

0 0 2 EXAM : 25

TOTAL : 50

DURATION OF EXAM: 3 HRS

LIST OF EXPERIMENTS:

1. Introduction of tools, electrical materials, symbols and abbreviations.
2. To study stair case wiring.
3. To study house wiring i.e., batten, cleat, casing-caping and conduit wirings.
4. To study fluorescent tube light.
5. To study high pressure mercury vapour lamp (H.P.M.V).
6. To study Sodium lamp.
7. To study repairing of home appliances such as heater, electric iron, fans etc.
8. To study construction of moving iron, moving coil, electrodynamic & induction type meters.
9. To design & fabricate single phase transformer.
10. To study fuses, relays, contactors, MCBs and circuit breakers.
11. Insulation testing of electrical equipments.
12. To design, fabricate a PCB for a circuit, wire-up and test.

NOTE: Ten experiments are to be performed, out of which at least seven experiments should be performed from above list. Remaining three experiments may either be performed from the above list or designed & set by the concerned institution.



EE-222-E ANALOG ELECTRONICS-LAB

L T P CLASS WORK : 25

0 0 2 EXAM : 25

TOTAL : 50

DURATION OF EXAM: 3 HRS

LIST OF EXPERIMENTS:

1. Study of Half wave & full wave rectifiers.
2. Study of power supply filters.
3. Study of Diode as clipper & clamper.
4. Study of Zener diode as a voltage regulator.
5. Study of CE amplifier for voltage, current & Power gains and input, output impedances..
6. Study of CC amplifier as a buffer.
7. To study the frequency response of RC coupled amplifier.
8. Study of 3-terminal IC regulator.
9. Study of transistor as a constant current source in CE configuration.
10. Study of FET common source amplifier.
11. Study of FET common Drain amplifier.
12. Graphical determination of small signal hybrid parameters of bipolar junction transistor.
13. Study & design of a d.c. voltage doubler.

NOTE : At least ten experiments are to be performed, atleast seven experiments should be performed from above list. Remaining three experiments may either be performed from the above list or designed & set by the concerned institution as per the scope of the syllabus.



EE-224-E DIGITAL ELECTRONICS LAB

L T P CLASS WORK : 25

0 0 2 EXAM : 25

TOTAL : 50

DURATION OF EXAM: 3 HRS

LIST OF EXPERIMENTS:

1. Study of TTL gates AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR.
2. Design & realize a given function using K-maps and verify its performance.
3. To verify the operation of multiplexer & Demultiplexer.
4. To verify the operation of comparator.
5. To verify the truth tables of S-R, J-K, T & D type flip flops.
6. To verify the operation of bi-directional shift register.
7. To design & verify the operation of 3-bit synchronous counter.
8. To design and verify the operation of synchronous UP/DOWN decade counter using J K flip-flops & drive a seven-segment display using the same.
9. To design and verify the operation of asynchronous UP/DOWN decade counter using J K flip-flops & drive a seven-segment display using the same.
10. To design & realize a sequence generator for a given sequence using J-K flip-flops.
11. Study of CMOS NAND & NOR gates and interfacing between TTL and CMOS gates.
12. Design a 4-bit shift-register and verify its operation . Verify the operation of a ring counter and a Johnson counter.

NOTE : At least ten experiments are to be performed, atleast seven experiments should be performed from above list. Remaining three experiments may either be performed from the above list or designed & set by the concerned institution as per the scope of the syllabus.



EE-226-E COMMUNICATION SYSTEMS LAB

L T P CLASS WORK : 25

0 0 2 EXAM : 25

TOTAL : 50

DURATION OF EXAM: 3 HRS

LIST OF EXPERIMENTS:

1. Study of Amplitude Modulation and determination of Modulation index.
2. Study of Frequency Modulation and determination of Modulation index.
3. Study of Phase Modulation.
4. Study of Pulse Amplitude Modulation.
5. Study of Pulse Width Modulation.
6. Study of Pulse Frequency Modulation.
7. Study of Pulse Code Modulation.
8. Study of frequency Shift Keying.
9. Study of ASK and QASK.
10. Study of PSK and QPSK.
11. Project related to the scope of the course.

NOTE: Atleast ten experiments are to be performed , atleast seven experiments should be performed from above list. Remaining three experiments may either be performed from the above list or designed & set by the concerned institution as per the scope of the syllabus.



**MATH-204-E NUMERICAL METHODS LAB.
(COMMON FOR EE,EL,CHE,EI)**

L T P Class Work : 25 Marks
-- 2 Exam. : 25 Marks
Total : 50 Marks
Duration of exam. : 2 Hours

WRITE DOWN AND EXECUTE THE FOLLOWING PROGRAMS USING C/C++/MATLAB

1. To find the roots of non-linear equation using Bisection method.
2. To find the roots of non-linear equation using Newton's method.
3. Curve fitting by least - square approximations.
4. To solve the system of linear equations using Gauss-Elimination method.
5. To solve the system of linear equations using Gauss-Seidal iteration method.
6. To solve the system of linear equations using Gauss-Jorden method.
7. To Integrate numerically using Trapezoidal rule.
8. To Integrate numerically using Simpson's rules.
9. To find the largest eigen value of a matrix by power-method.
10. To find numerical solution of ordinary differential equations by Euler's method.
11. To find numerical solution of ordinary differential equations by Runge-Kutta method.
12. To find numerical solution of ordinary differential equations by Milne's method.
13. To find the numerical solution of Laplace equation.
14. To find numerical solution of wave equation.
15. To find numerical solution of heat equation.

BOOKS SUGGESTED :

1. Applied Numerical Analysis by Curtis F. Gerald and Patrick G. Wheatley-Pearson, Education Ltd.
2. Numerical Methods : E. Balagurusamy T.M.H.

Note: Ten experiments are to be performed out of which at least seven experiments should be performed from above list. Remaining three experiments may either be performed from the above list or designed by the concerned institution as per the scope of the syllabus.



ME- 209 E STRENGTH OF MATERIAL-I LAB

Sessional: 25 Marks

Exam: 25 Marks

L T P Total: 50 Marks

-- 2 Duration of exam: 3 Hrs.

List of Experiments :

1. To study the Brinell hardness testing machine & perform the Brinell hardness test.
- 1 To study the Rockwell hardness testing machine & perform the Rockwell hardness test.
- 2 To study the Vickers hardness testing machine & perform the Vickers hardness test.
- 3 To study the Erichsen sheet metal testing machine & perform the Erichsen sheet metal test.
- 4 To study the Impact testing machine and perform the Impact tests (Izod & Charpy).
- 5 To study the Universal testing machine and perform the tensile test.
- 6 To perform compression & bending tests on UTM.
- 7 To perform the shear test on UTM.
- 8 To study the torsion testing machine and perform the torsion test.
- 9 To draw shear Force, Bending Moment Diagrams for a simply Supported Beam under Point and Distributed Loads.
- 10 To determine Mechanical Advantage and Efficiency of Single and Double Purchase Winch Crab.
- 11 To determine Mechanical Advantage and Efficiency of Worm and Worm Gear of Single, Double and Triple start.
- 12 To determine Mechanical Advantage, Efficiency of Simple and Compound Screw Jack.
- 13 To find Moment of Inertia of a Fly Wheel.

Note:

- 1 At least ten experiments are to be performed in the semester.
- 2 At least eight experiments should be performed from the above list. Remaining two experiments may either be performed from the above list or designed & set by the concerned institute as per the scope of the syllabus.



ME 211 E COMPUTER AIDED DRAFTING LAB.

L T P Sessional : 25 Marks

-- 2 Practical : 25 Marks

Total : 50 Marks

Duration of Exam : 3 hrs.

The students will be required to carry out the following exercises using educational softwares (AutoCad-2002, I-DEAS, Pro-Engineer etc).

- 1 Setting up of drawing environment by setting drawing limits, drawing units, naming the drawing, naming layers, setting line types for different layers using various type of lines in engineering drawing, saving the file with .dwg extension.
- 2 Layout drawing of a building using different layer and line colors indicating all Building details. Name the details using text commands, Make a title Block.
- 3 To Draw Orthographic projection Drawings (Front, Top and side) of boiler safety valve giving name the various components of the valve.
- 4 Make an Isometric dimensioned drawing of a connecting Rod using isometric grid and snap.
- 5 Draw quarter sectional isometric view of a cotter joint.
- 6 Draw different types of bolts and nuts with internal and external threading in Acme and square threading standards. Save the bolts and nuts as blocks suitable for insertion.
- 7 Draw 3D models by extruding simple 2D objects, dimension and name the objects.
- 8 Draw a spiral by extruding a circle.



ME- 212 E MATERIAL SCIENCE LAB.

L T P

-- 2

Sessional : 25 Marks

Theory : 25 Marks

Total : 50 Marks

Duration of Exam: 3 Hrs

List of Experiments:

- 1 To study crystal structures of a given specimen.
- 2 To study crystal imperfections in a given specimen.
- 3 To study microstructures of metals/ alloys.
- 4 To prepare solidification curve for a given specimen.
- 5 To study heat treatment processes (hardening and tempering) of steel specimen.
- 6 To study microstructure of heat-treated steel.
- 7 To study thermo-setting of plastics.
- 8 To study the creep behavior of a given specimen.
- 9 To study the mechanism of chemical corrosion and its protection.
- 10 To study the properties of various types of plastics.
- 11 To study Bravais lattices with the help of models.
- 12 To study crystal structures and crystals imperfections using ball models.

Note:

- 1 At least ten experiments are to be performed in the semester.
- 2 At least eight experiments should be performed from the above list. Remaining two experiments may either be performed from the above list or designed & set by the concerned institute as per the scope of the syllabus.



ME- 214 E FLUID MECHANICS LAB

Sessional : 25 Marks

Practical/Viva : 25 Marks

L T P Total : 50 Marks

-- 2 Duration of Exam. : 3 Hrs.

List of Experiments:

- 1 To determine the coefficient of impact for vanes.
- 2 To determine coefficient of discharge of an orificemeter.
- 3 To determine the coefficient of discharge of Notch (V and Rectangular types).
- 4 To determine the friction factor for the pipes.
- 5 To determine the coefficient of discharge of venturimeter.
- 6 To determine the coefficient of discharge, contraction & velocity of an orifice.
- 7 To verify the Bernoullis Theorem.
- 8 To find critical Reynolds number for a pipe flow.
- 9 To determine the meta-centric height of a floating body.
- 10 To determine the minor losses due to sudden enlargement, sudden contraction and bends.
- 11 To show the velocity and pressure variation with radius in a forced vertex flow.

Note:

- 1 At least ten experiments are to be performed in the semester.
- 2 At least eight experiments should be performed from the above list. Remaining two experiments may either be performed from the above list or designed & set by the concerned institute as per the scope of the syllabus.



ME- 216 E ENERGY CONVERSION LAB

Sessional : 25 Marks

Practical/Viva : 25 Marks

L T P Total : 50 Marks

-- 2 Duration of Exam. : 3 Hrs.

List of Experiments:

- 1 To study low pressure boilers and their accessories and mountings.
- 2 To study high pressure boilers and their accessories and mountings.
- 3 To prepare heat balance sheet for given boiler.
- 4 To study the working of impulse and reaction steam turbines..
- 5 To find dryness fraction of steam by separating and throttling calorimeter.
- 6 To find power out put & efficiency of a steam turbine.
- 7 To find the condenser efficiencies.
- 8 To study and find volumetric efficiency of a reciprocating air compressor.
- 9 To study cooling tower and find its efficiency.
- 10 To find calorific value of a sample of fuel using Bomb calorimeter.
- 11 Calibration of Thermometers and pressure gauges.

Note”

- 1 At least ten experiments are to be performed in the semester.
- 2 At least eight experiments should be performed from the above list. Remaining two experiments may either be performed from the above list or designed & set by the concerned institute as per the scope of the syllabus.



ME- 218 E MANUFACTURING PRACTICE

L T P

-- 3

Sessional : 25 Marks

Practical/Viva : 25 Marks

Total : 50 Marks

Duration of Exam : 3 Hrs

List of Experiments:

- 1 To make a pattern for a given casting with all the necessary allowances, parting line, running system details. Prepare the mold and make the casting. Investigate the casting defects and suggest the remedial measures.
- 2 To make a component involving horizontal and vertical welding and study the welding defects and suggest their remedies.
- 3 To prepare a job on surface grinder/cylindrical grinder and measure the various parameters of the finished piece.
- 4 To cut external threads on a lathe.
- 5 Manufacture and assembly of a unit consisting of 2 to 3 components to have the concept of tolerances and fits (shaft and bush assembly or shaft, key and bush assembly or any suitable assembly).
- 6 Leveling of machine tools and testing their accuracy.
- 7 Disassembly and assembly of small assemblies such as tail stock, bench vice, screw jack etc.
- 8 Development and manufacture of complex sheet-metal components such as funnel etc.
- 9 Multi slot cutting on milling machine by indexing.
- 10 Drilling and boring of a bush.
- 11 Modeling of 3D runner system and creation of drawing for manufacturing of the casting patterns.
- 12 Development of blank size for complex sheet metal components using CAD/CAE software and compare results with manual calculation method.

Note:

- 1 At least ten experiments are to be performed in the semester.
- 2 At least eight experiments should be performed from the above list including exercises 11 and 12. Remaining two experiments may either be performed from the above list or designed & set by the concerned institute as per the scope of the syllabus.



Details of Laboratories & Workshops (MCA first year)

S.No	Name of the Course	Name of the laboratory/workshop	Total Area of lab/workshop	Major equipment
1	MCA	FOCP Lab	150.00 Sqm	As per curriculum of MDU, Rohtak
		Assembly Language Lab		do
		PC Lab		do
		DSA Lab		do
		Computer Graphics Lab		do
		Database Lab		do