CURRICULUM FOR THREE YEAR
(SIX SEMESTER)
DIPLOMA COURSE IN

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:      INFORMATION TECHNOLOGY      :
:  Effective from Session          :
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        :Semester System   :
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Prepared By

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:  Curriculum Development Cell  :
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INSTITUTE OF RESEARCH DEVELOPMENT
& TRAINING, U.P., KANPUR

APPROVED BY

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:   BOARD OF TECHNICAL EDUCATION   :
: U.P. LUCKNOW,                    :
:CORRECTED AS SYLLABUS COMMITTEE OF:
: B.T.E. MEETING HELD ON 02.06.2015:
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Corrected and Approved By B.T.E. on Dated 02.06.2015

I Semester-(Common To Computer Science and Engineering)

Le c.	Tut ori al	Dr aw	Lab	Work Shop	Tot al	SUBJECT	Theory Dur.	Theory Marks	Sess. Marks	Total Marks	Practical Dur.	Practical Marks	Sess. Marks	Total Marks	Grand Total
5	–	–	3	–	8	1.1 Professional Communication	2.5	50	20	70	3	20	10	30	100
3	1	–	–	–	4	1.2 Applied Mathematics-I(A)	2.5	50	20	70	–	–	–	–	70
3	1	–	–	–	4	1.3 Applied Physics-I	2.5	50	20	70	–	–	–	–	70
6	–	–	–	–	6	1.4 Applied Chemistry	2.5	50	20	70	–	–	–	–	70
8	4	–	–	–	12	1.5 Components Of Information Technology.	2.5	50	20	70	–	–	–	–	70
25	6		3		34	T O T A L		250	100	350	–	20	10	30	380

GAMES/NCC/Social and Cultural activities + Discipline (15+10) | 25 |

Total | 405 |

II Semester-(Common To Computer Science and Engineering)

Le c.	Tut ori al	Dr aw	Lab	Work Shop	Tot al	SUBJECT	Theory Dur.	Theory Marks	Sess. Marks	Total Marks	Practical Dur.	Practical Marks	Sess. Marks	Total Marks	Grand Total
3	1	–	–	–	4	2.1 Applied Mathematics-I(B)	2.5	50	20	70	–	–	–	–	70
3	1	–	4	–	8	2.2 Applied Physics-II	2.5	50	20	70	3	40	20	60	130
6	–	–	4	–	10	2.3 Electrical Engineering-I	2.5	50	20	70	3	50	25	75	145
4	1	–	–	–	5	2.4 Engineering Mechanics and Material	2.5	50	20	70	–	–	–	–	70
8	–	–	6	–	14	2.5 Operating system	2.5	50	20	70	3	50	30	80	150
4	–	–	3	–	7	2.6 Fundamental of Electronic Devices	2.5	50	20	70	3	50	25	75	145
28	3		17		48	T O T A L		300	120	420	–	190	100	290	710

GAMES/NCC/Social and Cultural activities + Discipline (15+10) | 25 |

Total | 735 |

NOTE:-   (1) Each period will be of 50 minutes duration.
         (2) Each session will be of 16 weeks.
         (3) Effective teaching will be at least 14 weeks.
         (4) At least 2 industrial visits should be scheduled during the session.

Corrected and Approved By B.T.E. on Dated 02.06.2015

STUDY AND EVALUATION SCHEME FOR
THREE YEAR SIX SEMESTER) DIPLOMA COURSE IN COMPUTER SCIENCE AND ENGINEERING
(Effective From   )

III Semester

Lec.	Tut/ori/al	Dr/aw	Lab	Work/Shop	Total	COURSES / SUBJECTS	Theory Exam Dur.	Theory Marks	Sess. Marks	Total Marks	Practical Exam Dur.	Practical Marks	Sess. Marks	Total Marks	Grand Total
5	2	–	–	–	7	3.1 Applied Mathematics-II	2.5	50	20	70	--	--	--	--	70
6	–	–	6	–	12	3.2 Programming in C & C++	2.5	50	20	70	3	70	30	100	170
6	–	–	6	–	12	2.6 UNIX & LINUX	2.5	50	20	70	3	70	35	105	175
6	–	–	–	–	6	2.7 Computer Organisation	2.5	50	20	70	--	--	--	--	70
23	2	–	12	–	37	T O T A L		200	80	280	–	140	65	205	485

Games/NCC/Social and Cultural activities + Discipline (15+10) | 25|

Total | 510|

IV Semester-(Common To Computer Science and Engineering)

Lec.	Tut/ori/al	Dr/aw	Lab	Work/Shop	Total	COURSES / SUBJECTS	Theory Exam Dur.	Theory Marks	Sess. Marks	Total Marks	Practical Exam Dur.	Practical Marks	Sess. Marks	Total Marks	Grand Total
6	–	–	4	–	10	4.1 Data Communication & Computer Network	2.5	50	20	70	3	60	30	90	160
6	–	–	6	–	12	4.2 Office Tools	2.5	50	20	70	3	70	30	100	170
6	–	–	6	–	12	4.3 Dot(.) Net Technology	2.5	50	20	70	3	70	35	105	175
6		–	6	–	12	4.4 Microprocessor & Its Application	2.5	50	20	70	3	60	30	90	160
24	–	–	22	–	46	T O T A L		200	80	280	–	260	125	385	665

Games/NCC/Social and Cultural activities + Discipline (15+10) | 25|

Total | 690|

Note :   (1) Each period will be of 50 minutes duration.
          (2) Each session will be of 16 weeks.
          (3) Effective teaching will be at least 14 weeks.
          (4) 4 weeks structured and supervised, branch specific, task oriented
              industrial/field exposure to be organised after IV Semester
              Student will submit a report. There will be 60 marks for this exposure.
              These marks will be awarded by project examiner in the VI Semester.
              (Examination marks : 40, Sess. marks : 20).
          (5) At least 2 industrial visits should be scheduled during the session.
          (6) At least 1 seminar should be organised at the institute level with in the session.

Corrected and Approved By B.T.E. on Dated 02.06.2015

STUDY AND EVALUATION SCHEME FOR
THREE YEAR SIX SEMESTER) DIPLOMA COURSE IN COMPUTER SCIENCE AND ENGINEERING
(Effective From   )

V Semester-(Common To Computer Science and Engineering)

Curriculum						COURSES	Scheme of Examination								
Periods Per Week						SUBJECTS	Theory				Practical				Gra-nd
Lec.	Tut ori al	Dr aw	Lab	Work Shop	Tot al		Examination		Sess. Marks	Total Marks	Examination		Sess. Marks	Total Marks	Tot-al
							Dur.	Marks			Dur.	Marks			
6	2	–	–	–	8	5.1 Industrial Management and Entrepreneurship Development	2.5	50	20	70	--	--	--	--	70
6	–	–	4	–	10	5.2 Data Structure Using C&C++	2.5	50	20	70	3	60	30	90	160
6	–	–	6	–	12	5.3 RDBMS	2.5	50	20	70	3	60	30	90	160
6	–	–	6	–	12	5.4 Java programming	2.5	50	20	70	3	60	30	90	160
6	–	–	–	–	6	5.5 E-Commerce & EPR	2.5	50	20	70	–	--	--	--	70
30	2	–	16	–	48	T O T A L		250	100	350	–	180	90	270	620

Games/NCC/Social and Cultural activities + Discipline (15+10)| 50|

Total | 645|

VI Semester-(Common To Computer Science and Engineering)

Curriculum						COURSES	Scheme of Examination								
Lec.	Tut	Dr	Lab	Work Shop	Tot al	SUBJECTS	Examination		Sess. Marks	Total Marks	Examination		Sess. Marks	Total Marks	Tot-al
							Dur.	Marks			Dur.	Marks			
4	–	–	–	–	4	6.1 Environmental Education &* Disaster Management	2.5	50	--	--	–	--	--	--	--
6	–	–	6	–	12	6.2 Internet & Web Technology	2.5	50	20	70	3	60	30	90	160
6			6		12	6.3 Computer Graphics	2.5	50	20	70	3	60	30	90	160
–			8	–	8	6.4 Project -i. Problem	--	--	--	--	3	80	40	120	120
						ii Exposure	--	--	--	--	–	40	20	60	60
						iii Seminar	--	--	--	--	–	--	20	20	20
16	–	–	20	–	36	T O T A L		100	40	140	–	240	140	380	520

Games/NCC/Social and Cultural activities + Discipline (15+10)| 25|

Total | 545|

30% Carry Over of I & II | 342|
70% Carry Over of III & IV | 840|
100% Carry Over of V & VI |1190|

Grand Total |2372|

NOTE:-(1) Each period will be of 50 minutes duration.
     (2) Each session will be of 16 weeks.
     (3) Effective teaching will be at least 14 weeks.
     (4) Remaining periods will be utilised for revision etc.
     (5) At least 2 Field visit and 2 extension lectures are to be organised and managed
         well in advance at institute level during the session.
     (6) (*) It is compulsory to appear & to pass in examination, But marks will
         not be included for division and percentage of obtained marks.
     (7) At least 1 seminar should be organised at the institute level with in the session,
         Participation of each student is compulsuory and sessional marks for this should be
         allotted to the student. (No External Exam.)

Corrected and Approved By B.T.E. on Dated 02.06.2015

STUDY AND EVALUATION SCHEME FOR LATERAL AND ITI PASSED STUDENTS
THREE YEARS(SIX SEMESTER) DIPLOMA COURSE IN INFORMATION TECHNOLOGY
(Effective From   )

III Semester

Curriculum Periods Per Week						COURSES / SUBJECTS	Scheme of Examination							
							Theory				Practical			Grand Total
Lec.	Tut ori al	Dr aw	Lab	Work Shop	Tot al		Examination Dur.	Marks	Sess. Marks	Total Marks	Examination Dur.	Marks	Sess. Marks	Total Marks	
5	2	–	–	–	7	3.1 Applied Mathematics-II	2.5	50	20	70	--	--	--	--	70
6	–	–	6	–	12	3.2 Programming in C & C++	2.5	50	20	70	3	70	30	100	170
6	–	–	6	–	12	3.3 UNIX & LINUX	2.5	50	20	70	3	70	35	105	175
6	–	–	–	–	6	3.4 Computer Organisation	2.5	50	20	70	--	--	--	--	70
23	2	–	12	–	37	T O T A L		200	80	280	–	140	65	205	485

Games/NCC/Social and Cultural activities + Discipline (15+10) | 25

Total | 510

A.   COMPULSORY SUBJECT OF I Semester INFORMATION TECHNOLOGY TO BE TAUGHT IN III Semester TO ITI PASSED STUDENTS
      OF TRADES ARE AS FOLLOWS :
      I.   IT SECTOR

Curriculum Periods Per Week						SUBJECT	Scheme of Examination							
							Theory				Practical			Grand Total
Lec.	Tut ori al	Dr aw	Lab	Work Shop	Tot al		Examination Dur.	Marks	Sess. Marks	Total Marks	Examination Dur.	Marks	Sess. Marks	Total Marks	
5	–	–	3	–	8	1.1 Professional Communication (*)	2.5	50	--	50	3	20	–	20	70
3	1	–	–	–	4	1.2 Applied Mathematics-I(A)(*)	2.5	50	--	50	–	–	–	–	50
3	1	–	–	–	4	2.1 Applied Mathematics-I(B)(*)	2.5	50	--	50	–	–	–	–	50
3	1	–	–	–	4	1.3 Applied Physics-I(*)	2.5	50	--	50	–	–	–	–	50
14	3	–	3	–	20	<---------TOTAL---------->	--	200	--	200		20	–	20	220

IV Semester-(Common To Computer Science and Engineering)

6	–	–	4	–	10	4.1 Data Communication & Computer Network	2.5	50	20	70	3	60	30	90	160
6	–	–	6	–	12	4.2 Office Tools	2.5	50	20	70	3	70	30	100	170
6	–	–	6	–	12	4.3 Dot(.) Net Technology	2.5	50	20	70	3	70	35	105	175
6		–	6	–	12	4.4 Microprocessor & Its Application	2.5	50	20	70	3	60	30	90	160
24	–	–	22	–	46	T O T A L		200	80	280	–	260	125	385	665

Games/NCC/Social and Cultural activities + Discipline (15+10) | 25

Total | 690

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B.   COMPULSORY SUBJECT OF II Semester INFORMATION TECHNOLOGY TO BE TAUGHT IN IV Semester TO ITI PASSED STUDENTS
     OF TRADES ARE AS FOLLOWS :
     I.   IT SECTOR

Curriculum						SUBJECT	Scheme of Examination								
Periods Per Week							Theory				Practical				Gra-nd
Lec.	Tut ori al	Dr aw	Lab	Work Shop	Tot al		Examination		Sess. Marks	Total Marks	Examination		Sess. Marks	Total Marks	Tot-al
							Dur.	Marks			Dur.	Marks			
6	–	–	–	–	6	1.4 Applied Chemistry(*)	2.5	50	––	50	–	–	–	–	50
3	1	–	4	–	8	2.2 Applied Physics-II(*)	2.5	50	––	50	3	40	–	40	90
9	1	–	4	–	14	<---------TOTAL----------->	––	100	––	100		40	–	40	140

NOTE:-   (1) (*) It is compulsory to appear & to pass in examination From III Semester To VI Semester,
             But marks will not be included for division and percentage of obtained marks.
         (2) (*) Four Semester (Two Years) of Extra Time will be given after diploma curriculum period
             (If Required) to pass the above paper (1.1 To 1.4 and 2.1 to 2.2) examination (As Per
             G. O. No. 2221/16-Pra. Shi.-3-2009 Dated 28-08-2009) & Revised G.O. No. 2704/16-Pra.Shi.-3-
             2013-46(8)/2002 Dated 09-01-2013
         (3) Each period will be of 50 minutes duration.   -----
         (4) Each session will be of 16 weeks.
         (5) Effective teaching will be at least 14 weeks.
         (6) 4 weeks structured and supervised, branch specific, task oriented
             industrial/field exposure to be organised after IV Semester
             Student will submit a report. There will be 60 marks for this exposure.
             These marks will be awarded by project examiner in the VI Semester.
             (Examination marks : 40, Sess. marks : 20).
         (7) At least 2 industrial visits should be scheduled during the session.
         (8) At least 1 seminar should be organised at the institute level with in the session.

Corrected and Approved By B.T.E. on Dated 02.06.2015

STUDY AND EVALUATION SCHEME FOR LATERAL AND ITI PASSED STUDENTS
THREE YEARS(SIX SEMESTER) DIPLOMA COURSE IN INFORMATION TECHNOLOGY
(Effective From   )

V Semester-(Common To Computer Science and Engineering)

Curriculum — Periods Per Week						COURSES — SUBJECTS	Scheme of Examination — Theory — Examination Dur.	Marks	Sess. Marks	Total Marks	Practical — Examination Dur.	Marks	Sess. Marks	Total Marks	Grand Total
Lec.	Tut orial	Draw	Lab	Work Shop	Total										
6	2	–	–	–	8	5.1 Industrial Management and Entrepreneurship Development	2.5	50	20	70	––	––	––	––	70
6	–	–	4	–	10	5.2 Data Structure Using C&C++	2.5	50	20	70	3	60	30	90	160
6	–	–	6	–	12	5.3 RDBMS	2.5	50	20	70	3	60	30	90	160
6	–	–	6	–	12	5.4 Java programming	2.5	50	20	70	3	60	30	90	160
6	–	–	–	–	6	5.5 E-Commerce & EPR	2.5	50	20	70	–	––	––	––	70
30	2	–	16	–	48	T O T A L		250	100	350	–	180	90	270	620

Games/NCC/Social and Cultural activities + Discipline (15+10)| 50|

Total | 645|

VI Semester-(Common To Computer Science and Engineering)

Lec.	Tut orial	Draw	Lab	Work Shop	Total	COURSES — SUBJECTS	Theory Exam Dur.	Marks	Sess. Marks	Total Marks	Practical Exam Dur.	Marks	Sess. Marks	Total Marks	Grand Total
4	–	–	–	–	4	6.1 Environmental Education &* Disaster Management	2.5	50	––	––	–	––	––	––	––
6	–	–	6	–	12	6.2 Internet & Web Technology	2.5	50	20	70	3	60	30	90	160
6			6		12	6.3 Computer Graphics	2.5	50	20	70	3	60	30	90	160
–			8	–	8	6.4 Project -i. Problem	––	––	––	––	–	80	40	120	120
						ii Exposure	––	––	––	––	–	40	20	60	60
						iii Seminar	––	––	––	––	–	––	20	20	20
16	–	–	20	–	36	T O T A L		100	40	140	–	240	140	380	520

Games/NCC/Social and Cultural activities + Discipline (15+10)| 25|

Total | 545|

70% Carry Over of III & IV | 840|
100% Carry Over of V & VI |1190|

Grand Total |2030|

NOTE:-(1) Each period will be of 50 minutes duration.
      (2) Each session will be of 16 weeks.
      (3) Effective teaching will be at least 14 weeks.
      (4) Remaining periods will be utilised for revision etc.
      (5) At least 2 Field visit and 2 extension lectures are to be organised and managed
          well in advance at institute level during the session.
      (6) (*) It is compulsory to appear & to pass in examination, But marks will
              not be included for division and percentage of obtained marks.
      (7) At least 1 seminar should be organised at the institute level with in the session,
          Participation of each student is compulsuory and sessional marks for this should be
          allotted to the student. (No External Exam.)

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C O N T E N T S

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MAIN FEATURES OF THE CURRICULU

1. Title of the Course   : Diploma In Information
                                : Technology

2. Duration of the Course   : Three Years (Six Semester)

3. Type of the Course   : Full Time Institutional

4. Pattern of the Course   : Semester System

5. Intake   : 60

6. Entry Qualification   : Passed High School with 35% Marks

7. Admission Criteria   : State Joint   Entrance
                                   Examination

Corrected and Approved By B.T.E. on Dated 02.06.2015

List of experts who contributed to Change the of curriculum
of Three Year Diploma Course In Information Technology in
Semester System held on 08.04.2015 at I.R.D.T . U.P., Kanpur.

1. Smt Preeti Chaturvedi   Lecturer, C.S.J.M. University
                                  Kanpur

2. Shri Anoop Kumar Patel   H.O.D., G.P., Kanpur

3. Shri Harinam   Lecturer, G.P., Lucknow

4. Shri Litil Kumar   HOD Electronics
                                  I. R. D. T., Kanpur

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IV. NEED ANALYSIS :

       With the development of civilisation, human needs to keep on increasing thier fulfilment needed simulation, analysis of lot of informations too became essential. Now the individual responsbilities of every responsible citizen grew up to such a light that it is difficult for him to handle them successfully. Human memory too has its own limitations. So here comes the computer to help in all kind of decision making, whether it is highly complicated research work, war strategy, market speculations or day-to-day need of human life etc. As a matter of fact every individual activity needs decision making. So the computer is the need of organisations and also the need of individual being. It will not be exaggeration if we say that it is "Informtion era". So is the need for developing a course for "Information Technology" at diploma level. It is supposed that such personnel will not face any dearth of employment because of omnipresent nature of computer.

       The syllabus for diploma in"Information Technology" has been developed to meet above mentioned aims. Obviously achievement of any aim requires knowledge of the means and procedures of thier utilisation. With this view various courses have been carefully selected and thier length and depth decided by experienced experts in the field.

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List of experts who contributed to Change the of curriculum of Three Year Diploma Course In Computer Science and Engineering in Semester System held on 08.04.2015 at I.R.D.T . U.P., Kanpur.

1. Smt Preeti Chaturvedi   Lecturer, C.S.J.M. University
                                Kanpur

2. Shri Anoop Kumar Patel   H.O.D., G.P., Kanpur

3. Shri Harinam   Lecturer, G.P., Lucknow

4. Shri Litil Kumar   Assistant Professor
                                I. R. D. T., Kanpur

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I Semester

1.1 PROFESSIONAL COMMUNICATION

[Common to All Engineering/Non Engineering Courses]

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                                          L    T    P
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Rationale:

Communication forms an important activity of diploma holder. It is essential that he/she should be in a position to communicate in writing and orally with superiors,equals and subordinates. This subject aims at providing working knowledge of languages like Hindi and English so as to train the students in the art of communication. It is suggested that maximum attention should be given in developing Communication abilities in the students while imparting instructions by giving maximum emphasis on practice.

Sr.No.	Units	Coverage time		
		L	T	P
1.	Introduction to communication methods meaning,channels & media written and verbal.	5	-	-
2.	Development of comprehension of English & Hindi through study of text material& language exercises.	10	-	-
3.	Development of expression through A. Letters(English & Hindi)	10	-	-
	B. Report writing (English)	10	-	-
	Note making and minutes writing			
4.	Paragraph writing, Essey writing, Proposal writing	10	-	-
5.	Composition	10	-	-
6.	Remecial Grammer & Vocabulary Building	15	-	-
		70	-	42

1.   PART I : COMMUNICATION IN ENGLISH (40 Marks)

1.1 Concept of communication, importance of effective communication, types of communucation, formal, informal, verbal and nonverbal, spoken and written. Techniques of communication, Listening, reading, writting and speaking, Barriers in communication, Modern tools of communication- Fax, e-mail, Telephone, telegram, etc.

1.2 Technical communication Vs. General Communication : Development of comprehension and knowledge of English through the study of text material and language exercises based on the prescribed text book of English.

1.3 Development of expression through:

    1.3.1 Paragraph writing, Essay writing, Proposal writing.

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1.3.2 Business and personal correspondence (Letters) :
Kinds of letters:-
Official, demi-offical, unofficial , for reply or in reply, quotation, tender and order giving letters. Application for a job, Resume.

1.3.3 Report writing and Note making and minutes writing.

1.4 Functional Grammer : Study of sentences and parts of speech (word class), Preposition, Verb, Articles, Abbreviations.

1.5 Vocabulary Building : Homophones, One word substitution, Idioms and Phrases.

1.6 Composition on narrative, descriptive, imaginative, argumentative, discussion and factual topics.

2.   PART II : COMMUNICATION IN HINDI (10 Marks)

2.1 Development of comprehension and knowledge of Hindi usage through rapid reading and language exercises based on prescribed text material developed by IRDT.

2.2 Development of expression through ;

Letter writing in Hindi:
Kinds of letters:-
Official, demi-offical, unofficial , for reply or in reply, quotation, tender and order giving letters, Application for a job, Press release in Hindi, Report writing.

Note: Paper should be in two parts, part I - English and part II Hindi.

REFERENCE BOOKS

1. Bookshelf worksheet of Professional Communication, New Delhi : Bookshelf 2008

2. Functional Skills in language and literature by R. P. Singh, New Delhi : Oxford University Press.

3. Oxford Engilsh Hindi English Dictionary, New Delhi : Oxford 2008

LANGUAGE LAB PRACTICE

For the practice/exercise the following is suggested :-

1.A. Phonetic transcription
  B. Stress and intonation :
(At least 10 word for writting and 10 word for pronunciation)

2. ASSIGNMENT : (Written Communication)

Two assignment of approximately 400 word each decided by the teacher concerned.

THE FOLLOWING MODEL IS PROPOSED :

1.   a picture/photograph
2.   an opening sentence or phrase

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3. a newspaper/magzine clipping or report
4. factual writting which should be informative or argumentative.

(The students may refer to "Bookshelf worksheet" for technical communication)

3. Oral Conversation:

1. Short speeches/declamation : Bid farewell, Felicitate somebody, Celebrate a public event, Offer condolences
2. Debate on current problems/topics
3. MockInterview : Preparation, Unfolding of personality and Expressing ideas effectively
4. Group discussion on current topics/problems
5. Role Play/ general conversation : Making polite enquiries at Railway Station, Post Office, Banks and other Public places, Replying to such enquiries, enquiring about various goods sold in the market and discussing their prices. Complaining about service at Hotel, restaurant, Offering apologies in reply to such complaints, complain to a company about a defective product you have brought, reply to such complaints.
6. Presentation skill, Use of OHP and LCD.
7. Through drilling of model words involving different phonetic symbols (Vowels, Consonants, Difthongs).

4. Aural :

Listening to conversation/talk/reading of short passage and then writting down the relevant or main points in the specified number of words and answering the given questions

The assignments/project work are to be evaluated by the internal/ external examiner. The distribution of 30 marks e.g.

10 marks for assignment (Given by subject teacher as sessional marks)
10 marks for conversation and viva-voce
10 marks for phonetic transcription

STRUCTURE OF THE PAPER OF PROFESSIONAL COMMUNICATION

Distribution of Marks

Theory Paper : 50 Marks
Sessional   : 20 Marks
Pratices   : 30 Marks

Q1. Question based on the topics of the prescribed syllabus will be set for testing candidates ability to understand the content, explain words and phrases, making sentence of given words and ability to summarise will be included. All questions will have to be answered.

A. from English Text Book   10 Marks
B. from Hindi Text Book   5 Marks

Q2. Candidates will be required to write one letter (English) and one letter in (Hindi) from a choice of two –

A. English Letters   5 Marks
B. Hindi Letters   5 Marks

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Q3. Report Writting on given outlines   5 Marks

Q4. There will be a number of short answer questions to test the candidates knowledge of functional grammer, structure and usage of the language. All the items in this question will be compulsory. The grammar questions has four parts –

(Total Part: A For 5 Marks, B For 3 Marks, C For 3 Marks and D For 4 Marks)

A. This part of the question has to do with the transformation of sentences. English uses several patterns of sentence formation and the same meaning can be expresed by several patterns e.g. Active to Passive voice and vice versa, Direct to Indirect and vice versa, Reframing sentences by changing part of speech e.g Noune to Adjective, Interchanging degree of comparison.

Interchanging Moods – Affirmative to Negative, Assertive to Interrogative or to exclamatory

B. The second part usually requires blanks in a sentence to be filled in with a suitable preposition and articles.

C. The third part is usually an exercise on tenses.

D. The fourth part concerns with one word substitution and abbrevation, uses of idioms and Phrases, Homophones.

Q5. COMPOSITION : (About 300 Words) (5 marks)

Candidates will be required to select one composition topic from a choice of five. The choice will normally include narrative descriptive, argumentative, discussion and factual topics. The main ceteria by which the composition will be marked are as follows

A. the quality of the language employed, the range and appropriateness of vocabulary and sentence structure the correctness of grammatical construction, punctuation and spelling.

B. The degrees to which candidate have been successfully in organising both the composition as a whole and the individual paragraphs.

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                                    L   T   P
                                    3  2/2  -
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Rationale:

      The study of mathematics is an important requirement
for the understanding and development of any branch of
engineering. The purpose of teaching mathematics to diploma
engineering students is to impart them basic knowledge
of mathematics which is needed for full understanding
and study of engineering subjects.

S.N.	Units	Coverage Time		
		L	T	P
1.	Algebra- I	8	3	-
2.	Algebra- II	8	3	-
3.	Trignometry	6	2	-
4.	Differential Calculus-I	10	3	-
5.	Differential Calculus-II	10	3	-
		42	14	-

DETAILED CONTENTS:

1. ALGEBRA-I : (10 Marks)

1.1 Series : AP and GP; Sum, nth term, Mean

1.2 Binomial theorem for positive, negative and fractional index
(without proof). Application of Binomial theorem.

1.3 Determinants : Elementary properties of determinant of order
2 and 3, Multiplication system of algebraic equation,
Consistency of equation, Crammer's rule

2. ALGEBRA-II:(10 Marks)

2.1 Vector algebra : Dot and Cross product, Scaler and vector
triple product.

2.2 Complex number.

    Complex   numbers, Representation, Modulus   and   amplitud
Demoivre theorem, its application in solving algebraic
equations, Mod. function and its properties..

3. TRIGONOMETRY :(8 Marks)

3.1 Relation between sides and angles of a triangle : Statement
of various formulae showing relation ship between sides and
angle of a triangle.

3.2 Inverse circular functions : Simple case only

4. DIFFERENTIAL CALCULUS - I : (12 Marks)

4.1 Functions, limits, continuity, - functions and their graphs,
range and domain, elementary methods of finding limits
(right and left), elementary test for continuity and
differentiability.

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4.2 Methods of finding derivative, - Function of a function, Logaritimic differentiation, Differentiation of implicit functions.

5.   DIFFERENTIAL CALCULUS -II :(10 Marks)

5.1 Higher order derivatives, Leibnitz theorem.

5.2 Special functions (Exponential, Logarithmic, Inverse circular and function), Definition, Graphs, range and Domain and Derivations of each of these functions.

5.3 Application - Finding Tangants, Normal, Points of Maxima/Minima, Increasing/Decreasing functions, Rate, Measure, velocity, Acceleration, Errors and approximation.

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[Common to All Engineering Courses]

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                                         L   T   P
                                         3  2/2  -
```

Rationale:

Engineering physics is a foundation Course. Its purpose is to develop proper understanding of physical phenomenon and scientific temper in the students. While teaching the subject,teachers should make maximum use of demonstrations to make the subject interesting to the students.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	L	T	P
1.	Units & Dimensions	3	1	-
2.	Errors in Measurement	3	1	-
3.	Circular Motion	4	1	-
4.	Motion of Planets	4	1	-
5.	Dynamics of rigid body (Rotational Motion)	5	1	-
6.	Fluid Mechanics and Friction	4	1	-
7.	Friction	4	1	-
8.	Harmonic Motion	5	2	-
9.	Heat & Thermodynamics	6	4	-
10.	Acoustics	4	1	-
		42	14	-

DETAILED CONTENTS:

1. Units and Dimensions (4 Marks)

S.I. Units & Dimensions of physical quantities, Dimensional formula and dimensional equation. Principle of homogenity of dimensions and applications of homogenity principle to:

   i) Checking the correctness of physical equations,

   ii) Deriving relations among various physical quantities,

   iii) Conversion of numerical values of physical quantities from one system of units into another. Limitations of dimensional analysis.

2. ERRORS AND MEASUREMENT (4 Marks)

Errors in measuremnts, accuracy and precision, random and systematic errors, estimation of probable errors in the results of measurement(Combination of erros in addition, substraction, multipication and powers). Significant figures, and order of accuracy in respect to instruments,

3. Circular Motion (5 Marks)

Central forces. Uniform Circular motion (Horizental and Vertical cases),angular velocity,angular acceleration and centripetal acceleration.Relationship between linear and angular velocity and acceleration. Centripetal and

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centrifugal forces. Practical applications of centripetal forces. Principle of centrifuge.

4. MOTION OF PLANETS AND SATELLITES :(5 Marks)

    Gravitational force, Acceleration due to gravity and its variation w.r. to height and depth from earth, Kapler's Law, Escope and orbital velocity, Time period of satellite, Geo-stationary, Polar satellites (Concept Only)

5. Dynamics of Rigid Body (Rotational Motion) (6 Marks)

    Rigid body,Rotational motion, Moment of inertia,Theorems(Perpendicular and Parallel axis) of moment of inertia (Statement). Expression of M.I. of regular bodies (Lamina, Sphere, Disc, Cylindercal),Concept of Radius of gyration, angular momentum, Conservation of angular momentum, Torque, Rotational kinetic energy. Rolling of sphere on the slant plane . Concept of Fly wheel.

6. Fluid Mechanics :(5 Marks)

    Surface tension, Capillary action and determination of surface tension from capilary rise method, Equation of continuity (A1V1=A2V2), Bernoulli's theorem, and its application stream line and Turbulent flow, Reynold's number.

7. Friction :(4 Marks)

    Introduction, Physical significance of friction, Advantage and disadvantage of friction and its role in every day life. Coefficients of static and dynamic friction and their measurements. viscosity, coeff. of viscosity, & its determination by stoke's method.

8. Harmonic Motion (6 Marks)

    Periodic Motion , characterstics of simple harmonic motion; equation of S.H.M. and determination of velocity and acceleration. Graphical representation. Spring-mass system. Simple pendulum. Derivation of its periodic time. Energy conservation in S.H.M.. Concept of phase, phase difference, Definition of free, forced, undamped and damped vibrations, Resonance and its sharpness, Q-factor.

9. Heat & Thermodynamics: (6 Marks)

    Modes of heat transfer (Conduction, Convection and Radiation), coefficient of thermal conductivity Isothermal and adiabatic process. Zeroth First, Second Law of Thermodynamics and Carnot cycle, Heat Engine (Concept Only).

10. Acoustics (5 Marks)
    Definition of pitch, loudness, quality and intensity of sound waves. Echo, reverberation and reverberation time. Sabine's formula without Derivation. Control of reverberation time (problems on reverberation time). Accoustics of building defects and remedy.

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1.4 APPLIED CHEMISTRY

[Common to All Engineering Courses]

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                                        L   T   P
                                        6   -   -
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Rationale:

Engineering Chemistry has profound and deep relationship with the industrial and environmental technology. This curriculum intends to impart technical knowledge alongwith productive practice to the students of the diploma engineering. The teachers are expected to guide the students in the classroom and the laboratories according to the curriculum by demonstrations and by showing relevant materials and equipments to inculcate interests in learning among students.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	L	T	P
1.	Atomic Structure	4	-	-
2	Chemical Bonding	6	-	-
3.	Classification of Elements	4	-	-
4.	Electro Chemistry-I	7	-	-
5.	Electro Chemistry-II	8	-	-
6.	Chemical Kinetics	4	-	-
7.	Catalysis	4	-	-
8.	Solid State	4	-	-
9.	Fuels	4	-	-
10.	Water Treatment	6	-	-
11.	Colloidal State	4	-	-
12.	Lubricants	4	-	-
13.	Hydrocarbons	7	-	-
14.	Organic Reactions & Mechanism	8	-	-
15	Polymers	4	-	-
16	Synethetic Materials	6	-	-
		84	-	-

DETAILED CONTENTS:

1. ATOMIC STRUCTURE :(3 MARKS)

   Basic concept of atomic structure, Matter wave concept, Quantum number, Haisenberg's Uncertainty Principle, Shaples of orbitals.

2. CHEMICAL BONDING :(4 MARKS)

   Covalent bond, Ionic & Co-ordinate, Hydrogen bonding, Valence bond theory, Hybridisation, VSEPR theory, Molecular orbital theory.

3. CLASSIFICATION OF ELEMENTS :(3 MARKS)

   Modern classification of elements (s,p,d and f blcok elements), Periodic properties : Ionisation potential electro negativity, Electron affinity.

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4. ELECTRO CHEMISTRY-I:(3 MARKS)

Arrhenius Theory of electrolytic dissociation, Transport number, Electrolytic conductance, Ostwald dilution law. Concept of Acid and bases : Bronsted, Arrhenius and Lewis theory. Concept of pH and numericals. Buffer solutions, Indicators, Solubility product, Common ion effect with their application,

5. ELECTRO CHEMISTRY-II:(3 MARKS)

Redox reactions, Electrode potential(Nernst Equation), Electro-chemical cell (Galvanic and Electrolytic). EMF of a cell and free energy change. Standard electrode potential, Electro chemical series and its application. Chemical and Electrochemical theory of corrosion, Galvenic Series. Prevention of corrosion by various method.

6. CHEMICAL KINETICS :(3 MARKS)

Law of mass action, order and molecularity of rection. Activation energy, rate constants, Ist order reactions and 2nd order reactions.

7. CATALYSIS :(2 MARKS)

Definition Characteristics of catalytic reactions, Catalytic promotors and poison , Autocatalysis and Negative catalysis, Theory of catalysis, Application.

8. SOLID STATE :(2 MARKS)

Types of solids (Amorphous and Crystalline), Classification (Molecular, Ionic, Covalent, Metallic), Band theory of solids (Conductors, Semiconductors and Insulators), types of Crystals, FCC, BCC, Crystal imperfection.

9. FUELS :(3 MARKS)

Definition, its classification, high & low Calorific value.Determination of calorific value of solid and liquid fuels by Bomb calorimeter.

Liquid fuel – Petroleum and its refining, distillate of petroleum (Kerosene oil, Disel and Petrol), Benzol and Power alchol. Knocking, Anti-knocking agents, Octane number and Cetane number.

Cracking and its type, Gasoling from hydrogenation of coal (Bergius process and Fischer tropsch's process)

Gaseous Fuel – Coal gas, Oil gas, Water gas, Producer gas, Bio gas, LPG and CNG.

Numerical Problems based on topics

10. WATER TREATMENT :(3 MARKS)

Hardness of water, Its limits and determination of hardness of water by EDTA method. Softening methods (Only Sods lime, Zeolote and Ion exchange resin process). Disadvantage of hard water in different industries, scale and sludge

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formation, Corrosion, Caustic embritlement, primming and foarming in biolers.

Disinfecting of Water By Chloramine-T, Ozone and Chlorine. Advantage and disadvantage of chlorinational, Industrial waste and sewage, Municipality waste water treatment, Definition of BOD and COD. Numerical Problems based on topics.

11. COLLOIDAL STATE OF MATTER :(3 MARKS)

Concept of collidal and its types, Different system of colloids, Dispersed phase and dispersion medium.
Methods of preparation of colloidal solutions, Dialysis and electrodialysis. Properties of colloidal solution with special reference to absorption, Brownian Movement, tyndal effect, Electro phoresis and coagulation. relative stability of hydrophillic and hydrophobie colloids. Protection and protective colloids. Emulsion, Types, preparation,properties and uses. Application of colloids chemistry in different industries.

12. LUBRICANTS :(3 MARKS)

Definition, classification, Necessasity and various kinds of lubricants. Function and mechanism of action of lubricants and examples. Properties of lubricants, Importance of additive compunds in lubricants, Synthetic lubricants and cutting fluids. Industrial application, its function in bearing.

13. HYDROCARBONS:(4 MARKS)

A. Classification and IUPAC nomeuclature of organic compounds hamologous series (Functional Group)

B. Preparation, properties and uses of Ethane, Ethene, Ethyne (Acetylene), Benzene and Toluene.

14. ORGANIC REACTIONS & MECHANISM:(4 MARKS)

1. Fundamental auspects -

   A. Electrophiles and nucleophiles, Reaction Intermediates, Free radical, Carbocation, Carbanion
   B. Inductive effect, Mesomeric effect, Electromeric effect.

2.A. Mechanism of addition reaction (Markonicove's Rule, Cyanohydrin and Peroxide effect),

B. Mechanism of Substitution reactions; (Nucleophillic) hydrolysis of alkyle halide, electrophillic substitution halogenation, Sulphonation, Niration and friedel-Craft reaction.

C. Mechanism of Elimination reaction - Dehydration of primary alcohol, Dehyrohalogenation of primary alkyl halide.

15. POLYMERS :(3 MARKS)

1. Polymers and their classification. Average degree of polymerisation, Average molecular weight, Free radical polymerisation (Mechanisms)

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2.   Thermosetting and Thermoplastic resen -

   A.   Addition polymers and their industrial application-Polystyrene, PVA, PVC, PAN, PMMA, Buna-S, Buna-N, Teflon.

   B.   Condensation polymer and their industrial application : Nylon 6, Nylon 6,6, Bakelite, Melamine formaldehyde, Urea formaldehyde, Terylene or Decron, Polyurethanes.

3.   General concept of Bio polymers, Biodegradable polymers and inorganic polymers(Silicon)

16.   SYNETHETIC MATERIALS :(4 MARKS)

A.   Introduction - Fats and Oils
B.   Saponification of fats and oils , Manufacturing of soap.
C.   Synthetic detergents, types of detergents and its manufacturing.
3.   EXPLOSIVES: TNT, RDX, Dynamite.
4.   Paint and Varnish

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1.5 Components of Information Technology

(Common to Computer Science & Engineering, Post Graduate Diploma in Computer Application).

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                                      L    T    P
                                      8    4    -
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Rationale

Computers have become an integral part of modern industrial atmosphere. Every technician is supposed to be aware of the application of computers. A student having knowledge of popular software and computer peripherals will prove useful to accept any challenge in day today working.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time L	T	P
1.	Introduction of Information Technology	20	10	-
2.	Component of Information technology	20	10	-
3.	Data Representation	20	10	-
4.	Emerging Trends	20	10	-
5.	Components of Computers	16	8	-
6.	Mobile Computing	16	8	-
		112	56	-

1.   Intoduction of Information Technology

 Definition Of Information, difference betwwen data and information,need for information, qualities of information,value of information, categories of information,level of Information. Use of Information Technology in Office Automation, Computers & Its Types.

2.   Components of Information Technology:

Components Hardware & its Functioning - Input Unit, Control Processing Unit, Output Unit, Types of Input Units & Output Units Computer Software - Types of Software, System Software, Application Software.

3.   Data Resentation :

Binary Number System, Conversion from Decimal to Binary, Conversion from Binary to Decimal, Hexadecimal and Octadecimal No. System, Memory Addressing and its Importantance, ASCII and EBCDIC coding System.

4.   Emerging Trends in Information Technology -

Concepts of Networking and Local Area Networking, Advanced Input/Output Devices and their use(MICR,OCR,Scanners, Light pen,Plotters, Microfilms, Rewritable, CD-ROMS ,Multimedia, Video Conferencing, Tele Comferencing .

5.   Components of computer

Types of PC e.g. Desktops, Labtops, Notebooks, Palmtops,

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Memory System of a PC, Primary Memory,RAM(Ramdom Access Memory, ROM(read only Memory), Secondary Memory, Types of Secondary Storage, Acces Mechanism of storage Devices, PC setup and ROM-BIOS, Elemantary Trouble shooting.

6.   MOBILE COMPUTING :

Introduction, Personnel Communication Services (PCS), Gobal System Mobile Communication (GSM), GPRS, Mobile Data Communication, WAP, 3G Mobile service.

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II Semester
2.1 APPLIED MATHEMATICS I (B)
[Common to All Engineering Courses]

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                                       L    T    P
                                       3   2/2   -
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Rationale:

The study of mathematics is an important requirement for the understanding and development of any branch of engineering. The purpose of teaching mathematics to diploma engineering students is to impart them basic knowledge of mathematics which is needed for full understanding and study of engineering subjects.

S.N.	Units	Coverage Time		
		L	T	P
1.	Integral Calculus-I	12	4	-
2.	Integral Calculus-II	12	4	-
3.	Coordinate Geometry (2 Dimensional)	10	3	-
4.	Coordinate Geometry (3 Dimensional)	8	3	-
		42	14	-

DETAILED CONTENTS:

1. INTEGRAL CALCULUS - I : (14 Marks)

   Methods of Indefinite Integration :-
1.1 Integration by substitution.

1.2 Integration by rational function.

1.3 Integration by partial fraction.

1.4 Integration by parts.

2. INTEGRAL CALCULUS -II :(14 Marks)

2.1 Meaning and properties of definite integrals, Evaluation of definite integrals. Integration of special function.

2.2 Application : Finding areas bounded by simple curves, Length of simple curves, Volume of solids of revolution, centre of mean of plane areas.

2.3 Simposns 1/3rd and Simposns3/8th rule and Trapezoidal Rule : their application in simple cases.

3. CO-ORDINATE GEOMETRY (2 DIMENSION):(14 Marks)

3.1 CIRCLE :

   Equation of circle in standard form. Centre - Radius form, Diameter form, Two intercept form.

3.2 Standard form and simple properties

   Parabola $x2=4ay$, $y2=4ax$,

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Ellipse $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1$

Hyperbola $\dfrac{x^2}{a^2} - \dfrac{y^2}{b^2} = 1$

4.   CO-ORDINATE GEOMETRY (3 DIMENSION):(8 Marks)

4.1 Straight lines and planes in space –

Distance between two points in space, direction cosine and direction ratios, Finding equation of a straight line and Plane (Different Forms),

4.2 Sphere $x^2 + y^2 + z^2 + 2gx + 2fy + 2wz = d$ (Radius, Centre and General Equation)

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2.2 APPLIED PHYSICS-II

[Common to All Engineering Courses]

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                                        L    T    P
                                        3   2/2   4
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Rationale:

Engineering physics is a foundation Course. Its purpose is to develop proper understanding of physical phenomenon and scientific temper in the students. While teaching the subject,teachers should make maximum use of demonstrations to make the subject interesting to the students.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	L	T	P
1.	Optics	4	1	-
2.	Introduction To Fiber Optics	4	1	-
3.	Laser & its Application	4	1	-
4.	Electrostatics	4	1	-
5.	D.C. Circuits	4	1	-
6.	Magnetic Materials & Their Properties	4	1	-
7.	Semi Conductor Physics	4	1	-
8.	Introduction Diode & Transistors	4	2	-
9.	Introduction To Digital Electronics	4	2	-
10.	Non-conventional energy sources	6	3	-
		42	14	56

1. Optics (4 Marks)

Nature of light, Laws of Reflection and Refraction, Snell's Law, Interference (Constructive and Deotructive), Diffraction and Polarization (Concept Only), Law of Mallus and Polaroids.

2. Introduction To Fibre Optics :(5 Marks)

Critical angle, Total internal reflection, Principle of fibre optics, Optical fibre, Pulse dispersion in step-index fibres, Graded index fibre, Single mode fibre, Optical sensor.

3. Lasers and its Applications (4 Marks)

Absorbtion and Emission of energy by atom, Spontaneous and Stimulated Emission, Poluation inversion, Main component of laser and types of laser- Ruby Laser, He-Ne laser and their applications. Introduction to MASER.

4. Electrostatics :(4 Marks)

Coutomb's Law, Electric field, Electric potential, Potential energy, Capacator, Energy of a charged capacitor, Effect of dielectric on capacators.

5. D.C. Circuits (5 Marks)

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Ohm's Law, Kirchoff's Law and their simple application, Principle of Wheat Stone bridge and application of this principle in measurement of resistance (Meter bridge and Post Office Box); Carey Foster's bridge, potentiometer.

6.   Magnetic Materials and Their Properties: (5 Marks)

Dia, Para and Ferro-magnetism, Ferrites, Magnatic Hysteresis Curve and its utility. Basic idea of super conductivity, Meissner's effect.

7. Semiconductor Physics (4 Marks)

Concept of Energy bands in soldis, classification of solids into conductors, insulators and semiconductors on the basis of energy band structure. Intrinsic and extrinsic semi conductors, Electrons and holes as charge carriers in semiconductors, P-type and N-type semiconductors.

8.   Junction Diode and Transister : (6 Marks)

Majority and Minority charge carriers,P-N junction formation, barrier voltage, Forward and reverse biasing of a junction diode, P-N junction device characteristics, Formation of transistor, transistor-action, Base, emitter and collector currents and their relationship LED's.

9.   Introduction To Digital Electronics : (6 Marks)

Concept of binary numbers, Interconversion from binary to decimal and decimal to binary. Concepts of Gates (AND, NOT, OR).

10. Non-conventional energy sources: (7 Marks)

(a)   Wind energy : Introduction, scope and significance, measurement of wind velocty by anemometer, general principle of wind mill.

(b)   Solar energy: Solar radiation and potentiality of solar radiation in India, uses of solar energy: Solar Cooker, solar water heater, solar photovoltaic cells, solar energy collector.

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PHYSICS LAB

Note: Any 4 experiments are to be performed.

1. Determination of coefficient of friction on a horizontal plane.

2. Determination of 'g' by plotting a graph T2 verses l and using the formula g=4n2/Slope of the graph line

3. Determine the force connstant of combinationof springs incase of 1. Series 2. Parallel.

4. To verify the series and parallel combination of Resistances with the help of meter bridge.

5. To determine the velocity of sound with the help of resonance tube.

6. Determination of viscosity coefficient of a lubricant by Stoke's law.

7. Determination of E1/E2 of cells by potentio meter.

8. Determination of specific resistance by Carry Foster bridge.

9. Determination of resitivity by P.O.Box.

10. Verification of Kirchoff's Law.

11. To draw Characteristics of p-n Junction diode.

12. To measure instantaneous and average wind velocity by indicating cup type anemometer/hand held anemometer.

NOTE :

Students should be asked to plot a graph in experiments (where possible) and graph should be used for calculation of results. Results should be given in significant figures only.

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2.3 ELECTRICAL ENGINEERING-I

(Common With Diploma In Electronics Engineering, Instrumentation Engineering and Computer Science & Engineering)

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                                    L    T    P
                                    6    -    4
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RATIONALE

Electrical energy is most convinient neat and clean source of energy for industrial applications. The student is supposed to posses basic knowledge of electrical engineering materials such as conducting, non conducting, insulating, magnetic, semi conductor and some special purpose materials. Fundamental knowledge of electrostatics, electromagnetism will be helpful in understanding the performance of D.C. and A.C. circuits. To face the routine problems of world of work chapters on batteries, transients and harmonics have also been added.

TOPIC WISE DISTRIBUTION OF PERIODS

Sr. No.	Units	Coverage Time		
		L	T	P
1.	Classification	4	-	-
2.	Conducting Materials	8	-	-
3.	Insulating Materials	8	-	-
4.	Magnetic Materials	8	-	-
5.	Semi Conductor & Special Purpose Materials	8	-	-
6.	D. C. Circuits	8	-	-
7.	Electrostatics	8	-	-
8.	Electromagnetism	8	-	-
9.	A. C. Theory	8	-	-
10.	Batteries	8	-	-
11.	Transients & Harmonics	8	-	-
	Total	84	-	56

DETAILED CONTENTS

1. CLASSIFICATION:

Classification of materials into Conducting   materials, Insulating   materials, Semi-conducting   materials   with reference to their atomic structure.

2. Conducting Materials:

A. Resistivity and factors affecting   resistivity such as temperature, alloying and mechanical stressing.

B. Classification   of conducting materials   into   low resistivity   and high resistivity materials.   Some examples of each and their typical applications.

3. Insulating Materials:

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A.   Electrical Properties:

Volume resistivity, Sarface resistance, Dielectric loss, Dielectric strength (Break down valtage) and Dieclectric constant.

B.   Chemical Properties:

Solubility, Chemical resistance, Weather ability.

C.   Physical Properties:

Hygroscopicity, tensile and Compressive strength, Abrassive resistance, Brittleness.

D.   Thermal Properties:

Heat resistance, classification according to permissible temperature rise, Effect of electrical overloading on the life of an electrical appliance.

E.   Plastic Insulating Materials:

Classification into thermoplastic and thermosetting catagories, examples of each and their typical applications.

4.   MAGNETIC MATERIALS:

A.   Ferromagnetism, domains, permeability, hysterisis loop-(including coerrecive force and residual magnetism) and magnetic saturation.

B.   Soft and Hard magnetic materials, their examples and typical applications.

5.   SEMI CONDUCTOR AND SPECIAL PURPOSE MATERIALS:

N-type and P-type materials, application of semi-conductor materials, materials used in transistor and I.C. manufacture.

6.   D.C. CIRCUITS:

(i)   Ohm's law, resistivity, effect of temperature on resistances, heating effect of electric current, conversion of mechanical units into electircal units.

(ii) Kirchoff's laws, application of Kirchoff's laws to solve, simple d.c. circuits.

(iii) Thevenins theorem, maximum power trasfer theorem, Norton's theorem and super position theorem, simple numerical problems.

7.   ELECTROSTATICS:

(i)   Capacitance and capacitor, definition, various types.

(ii) Charging and discharging of a capacitor, growth and decay of current in a capacitive circuit.

(iii) Energy stored in a capacitor.

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(iv) Capacitance in terms of dimensions of parallel plate capacitor.

(v) Dielectric constant of material, Break down voltage of a capacitor.

(vi) Series and parallel connection of capacitors.

8. ELECTRO MAGNETISM:

(i) Concept of mmf, flux, reluctance and permeability.

(ii) Energy stored in a magnetic field and an inductor.

(iii) Solution of problems on magnetic circuits.

(iv) Faraday's laws of electromagnetic induction, Lenz's law, Physical explanation of self and mutual inductance.

(v) B-H curve, Hysterisis, Eddy currents elementary ideas and significance.

(vi) Growth and decay of current in an inductive circuit.

(vii) Force between two parallel current carrying conductors and its significance.

(viii) Current carrying conductor in a magnetic field and its significance.

9. A.C. THEORY:

(i) Concept of alternating voltage and current, difference between A.C and D.C..

(ii) Generation of alternating voltage, equation of sinusoidal waveform.

(iii) Definition and concept of cycle, frequency, Time period, amplitude, instantaneous value, average value, RMS value, peak value, form factor, Peak factor.

(iv) Phase and phase difference, representation of alternating quantities by phasor, addition and subtraction of alternating quantities.

10. BATTERIES:

(i) Construction of lead acid and nickel cadmium batteries.

(ii) Charging and maintenance of batteries.

(iii) Rating of batteries.

(iv) Back up batteries (Lithium & Silver Oxide batteries)

(v) Shelf life of batteries.

11. TRANSIENTS & HARMONICS:

Introduction, Types of trasients, Important differential

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equations, First and Second order equations, Transients   in
R-L series   circuits (D.C.), Short   circuit   current,   Time
constant,   Transients   in R-L series   circuits   (A.C.),
Transients in R-C series circuits (D.C.), Transients in R-C
series circuits (A.C), Double energy transients.

Fundamental wave and harmonics, Different complex waveforms,
Gemeral equation of complex wave, R.M.S. value of a complex
wave, Power supplied by complex wave, Harmonics in single
phase a.c. circuits, Selective resonance due to harmonics,
Effect of harmonics on measurement of inductance   and
capacitance

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ELECTRICAL ENGINEERING-I LAB:

LIST OF PRACTICALS:

1. Ohm's law verification.

2. To verify the laws of series and parallel connections of resistances i.e. to verify:-

    (i)   The total resistance in series connections.

          RT=R1+R2+R3.......

          Where RT is the total resistance and R1,R2,R3 etc.are the resistances connected in series.

    (ii) The total resistance in parallel connections.

          1/RT=1/R1 + 1/R2 + 1/R3......

          Where RT is the total resistance and R1,R2,R3 etc. are the resistances connected in parallel. Also to conclude that the total resistance value of a parallel circuit is less than the any individual resistance.

3. To verify Kirchoff's following laws:-

    (i) The algebric sum of the currents at a junction is zero.

    (ii) The algebric sum of the e.m.f. in any closed circuit is equal   to the algebric sum of IR products (drops) in that circuit.

4. To measure the resistance of an ammeter and a voltmeter and to conclude that ammeter has very low resistance whereas voltmeter has very high resistance.
5. To verify Thevenin's and maximum power transfer theorems.
6. To find the ratio of inductance values of a coil having air core and iron core respectively and thus see that by the introduction of a magnetic material inside the coil,the inductance value of the coil is substantially increased.
7. To verify the relation:-

        CT=(C1*C2)/(C1+C2)
                  and
        CT=C1+C2

    For two capacitors,connected in series and parallel respectively.

8. To test a battery for charged and discharged conditions and to make connections for its charging.
9. To show that the range of an ammeter (d.c. and a.c.) and a voltmeter (d.c. and a.c.) can be extended with the use of shunts and multiplier.
10. To convert the given galvanometer into a voltmeter and an ammeter.

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2.4 ENGINEERING MECHANICS AND MATERIALS

(Common With Electronics Engg & Instrumentation & Control Engg. & Computer Science & Engineering)

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                                        L   T   P
                                        4   1   -
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RATIONALE

TOPIC WISE DISTRIBUTION OF PERIODS

SL.No.	Topic	L	T	P
1.	Introduction	6	2	
2.	Force Analysis	10	3	
3.	General condition of equilibrium	10	3	
4.	Stress & Strain	10	2	
5.	Beam & Trusses	10	2	
6.	Materials & Concepts Use In Electronics	10	2	
	Total	56	14	-

DETAILED CONTENTS

1. Introduction:

   Mechanics and its utility. Concept of scaler and vector quantities. Effect of a force. Tension & compression. Rigid body. Principle of physical independence of force. Principle of transmissibility of a force.

2. Forces Analysis:

   Concept of coplaner and non-coplaner forces including parallel forces. Concurrent and non-concurrent forces. Resultant force. Equilibrium of forces. Law of parallelogram of forces. Law of triangle of forces and its converse. Law of polygon of forces. Solution of simple engineering problems by analytical and graphical methods such as simple wall crane, jib crane and other structures. Determination of resultant of any number of forces in one plane acting upon a praticle,conditions of equilibrium of coplaner concurrent force system.

3. General Condition of Equilibrium:

   General condition of equilibrium of a rigid body under the action of coplaner forces, statement of force law of equilibrium, moment law of equilibrium, application of above on body.

4. Stresses and strains:
   Concept of stress and strain. Concept of various types of stresses and strains . Definitions of tension, compression shear, bending, torsion. Concept of volumetric and lateral strains, Poisson's ratio. Mechanical properties of MS, SS, CI Al and etc.

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5.   Beams & Trusses:

     Definition of statically determinate and indeterminate trusses. Types of supports. Concept of tie & strut, calculation of reaction at the support of cantilever and simply supported beams and trusses. (simple problems only)

6.A. MATERIALS & CONCEPT USED IN ELECTRONICS :

     Soldering materials – Type, chemical composition and properties, Soldering alloys – Tin lead, Tin antimony, Tin silver, Lead silver, Tin zinc, Different types of flux and their properties, Properties of plastics materials, Epoxy materials for PCB (Single and multi layer board), Emulsion parameters, Film emulsion, Type of laminates (Phenolic, Epoxy, Polyster, Silicon, Melamine, Polymide), Properties of copper clad laminates, Material (Filler, Resin, Copper Foil) Photo printing basic for double side PCB, Photo resin materials coating process materials, Screen printing and its materials Etching agent, Film processing and used materials.

(B) Soldering & Brazing:

     For black Galvanised and Tincoated Iron sheet, brass and copper sheets only.

         (1) Its concept, comparison with welding as joining method and classification, electric soldering and forge soldering.

         (2) Soldering operation- edge preparation of joints, Pickling and degreasing, Fluxing, Tinning and Soldering. Wave soldering, solder mask, Dip soldering, Drag soldering,

         (3) Materials Used-Common fluxes, soft and hard solder, solder wire (Plain and Resin core) and sticks, spelters and their specifications and discription (For Identification Only), forge soldering bits.

         (4) Electric soldering iron, other soldering tools.

         (5) Common defects likely to occurs during and after soldering.

         (6) Safety of Personnel, Equipment & Tools to be observed.

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2.5 OPERATING SYSTEM

(Common to Diploma In Information Technology, P. G Diploma In Computer Application)

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                                          L    T    P
                                          8    _    6
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TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time L	T	P
1.	Introduction	15	-	-
2.	File System	20	-	-
3.	C.P.U. & Disk,Drum scheduling	26	-	-
4.	Memory Management	26	-	-
5.	Deadlock	25	-	-
		112	-	84

DETAILED CONTENTS

1. Introduction

   Operating System and Function, Evolution of Operating System, Batch, Interactive, Time Sharing and Real Time System.

2. File System

   File concepts,Access methods,Allocation methods,Directory System.

3. C.P.U.& Disk,Drum Scheduling.

   Scheduling concepts,Scheduling Algorithm,Multiprocessor,FCFS Schedulin,Shortest Seek-time first,Scan.

4. Memory Management

   Swapping,Multiple partitions,Paging,Segmentation,Demand paging,page replacement.

5. Deadlock :

   Introduction to Deadlock, Necessary Condition for Deadlock, Method For Handling Deadlock, Brier overview of Deadlock Prevention, Deadlock Avoidance (Banker Algorithm); Deadlock Detection & Recovery.

List Of Practicals

1. Excercise on Widows Latest Version.

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LIST OF BOOKS

1. Milenekovie - Operating System Concept - McGraw Hill

2. Petersons - Operating System - Addision Wesley

3. Dietal - An Introduction To Operating System- Addision Wesley

4. Tannenbaum - Operating System Design adn Implementation -PHI

5. Gary Nutt- Operating System, A Modern Perspective- Addision Wesley

6. Stalling, Willium - Operating System - Maxwell Macmillan

7. Silveschatza, Peterson J - Operating System Comcpts - Willey

8. Crowley - Operating System - TMH

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2.6 FUNDAMENTALS OF ELECTRONICS DEVICES.
(Common With Three Year Diploma Course In Computer Science &
Engineering)

                                        L   T   P
                                        4   -   3

       Rationale:

       Knowledge of Electronics Devices is quit essential for a
       students of diploma Computer Engineering. The knowledge of
       concepts , constructions & working of these devices, will
       help students in understanding the working and behaviour of
       different hardware constituents of computer.

            TOPIC WISE DISTRIBUTION OF PERIODS
_____
Sr. No.   Units   Coverage Time
                                          L   T   P
_____
1.   Introduction   4   -   -
2.   Semiconductor Physics   6   -   -
3.   Semiconductor Diodes   6   -   -
4.   Transistor   6   -   -
5.   Transistor as an amplifier   8   -   -
6.   Concepts of Feedback   6   -   -
7.   Transistor as a Switch   6   -   -
8.   Multivibrators   4   -   -
9.   Multivibrators as a Memory Elements 4   -   -
10.   Integrated Circuits   6   -   -
_____
                            Total   56   -   42
_____

1.   INTRODUCTION:

1.1   Application of electronics in different fields.

1.2   Electronic devices in computer system. e.g. power supply,
      micro processor and other ICs, amplifiers, clock & other
      signal generators.

1.3   Advancements in electronics technology and its impact on
      computers size reduction, capacity expansion, increase in
      reliability, cost reduction)

2.   SEMICONDUCTOR PHYSICS:

2.1   Analyzing conductivity of elements, Types of conductors.

2.2   Pure(Intrinsic) semiconductors-Silicon,   Germenium:Thermal
      Generation(formation of charge carrier-Positive & Negative
      charge carriers i.e. electron-hole pair), Recombination,
      Displacement of hole, mobility of free electron and moving
      hole, effect of variation in temperature, behavior of
      instrinsic semiconductors at 0 K.
2.3   Doping   the   Intrinsic semiconductors with   a   pentra-
      valent/tri-valent element(i.e. doner and accepter   type
      impurity) in small amount, effect of doping on strength of
      charge carrirs(formation of immobile ions and majority and
      minority carriers), P,N Junction.

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2.4 Effect of doping a crystal parity 'P' type and parity: concepts of diffusion & drift, formation of deplition layer(potential barrier)i.e. formation of P-N Junction.

3. SEMICONDUCTORS DIODES:

3.1 Effect of applying electrical potential across a P-N Junction in the following ways:

(a) Positive of the source to 'P' type terminal & Negative to the 'N' type terminal

(b) Positive of the source to 'N' type terminal & Negative to the 'P' type terminal.

3.2 Analyzing the flow of current in both the directions, cause of the difference in magnitudes of current in the two directions.

3.3 Characteristics of a P-N Junction diode in forward/reverse biasing.

3.4 Concepts of unidirectional and bi-directional flow of currents. Effect of putting in diode in series with a load connected across an ac source.

3.5 Half wave rectifier, Full wave rectifier9 using C.T. transformer, using bridge circuits)

3.6 Special purpose diodes:Zener diode, Vractor diode,Photo Diode,Light emiiting Diode (LED), their chractersitics and uses.

4. TRANSISTOR:

4.1 Growing a Crystal having two P-N Junction back to back (i.e.PNP & NPN); Junction transistor structure; acton of transistor in FF,RR,FR and RF biasiing; working of a tranistor; relation between different currents in a transistor;

4.2 Various configurations of transistor (CB,CE,CC);ralation between.Transistor action in three configuration; Comparison between the three configuration of transistor;

4.3 Input and Output characteristics of a transistor;

4.4 Field - effect transistor (JFET,IGFET,MOSFET);

5. TRANSISTOR AS AN AMPLIFIER:

5.1 Transistor biasing: DC Operating: need of biasing & bias stablization in a transistor circuit; various biasing circuits(Fixed, Collector to base, emitter, and potential devider.);

5.2 DC and AC load lines in a typical CE amplifier circuit;

5.3 Need of using multi- stages; how to couple two stages ; various coupling arrangements(R-C coupling,Transformer coupling, Direct coupling):

5.4 Effect of coupling arrangement on the requency response of a

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two stage amplifieer; frequency response curve of a RC coupled amplifier; a transformer coupled amplifier; band with of an amplfier.

6. OPERATIONAL AMPLIFIERS:

6.1 Specifications of ideal operational amplifier and its block diagram.

6.2 Definition of inverting and noninverting inputs, differential voltage gain and input and output off set, voltage input offset current, input bias current, common mode rejection ratio (CMMR), power supply rejection ratio (PSRR) and slew rate.

6.3 Method of offset null adjustments, use of op.amp. as an inverter scale changer, adder, subtractor, differential amplifier, buffer amplifier, differentiator, integrator, comparator, Schmitt Trigger, Generation of Square and Triangular Waveform, log and anti-log amplifiers, PLL and its appliation and IC power amplifier.

7. FEED BACK IN AMPLIFIER:

7.1 Concept of Feed back;

7.2 Types of feed back(Positive, Negative); different arrangement of feed back(series voltage, series- current, shunt -voltage, shunt current);

7.3 Voltage gain of feed back amplifier;(A'=A/(a) +A)

7.4 Analysis of Negative feed back arrangement on (Gain,Stability, Noise, Input/output impedances, Band width); Amplifier circuits with negative feed back;

7.5 Positive feed back; condition for infinite gain(AB=1 in Positive feed back)

7.6 Oscillator as an infinite gain feed back.

8. TRANSISTOR AS A SWITCH:

8.1 Control action of base current on the colector current in a transitor circuit .

8.2 Large singal amplifier (input changing from cut-off to saturation).

8.3 Remote control of a realy – opertated lamp employing amplifier .

8.4 Requirements of a transistor – switch .

9. MULTIVIBRATORS:

9.1 Regeneration: relaxation oscllators;

9.2 Simple astable MV circuit arrangement for its self starting;

9.3 Study and analysis of BI – STABLE MULTIVIBRATOR;

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9.4 Study and analysis of mono stable multivabrator;

9.5 Triggering requirements;

9.6 Schmit trigger circuit;

10. INTEGRATED CIRCUITS:

10.1 Introduction;

10.2 Manufacturing process;

10.3 SSI, MSI, LSI, VLSI, ICs;

10.4 Linear and Digital ICs;

10.5 Switching and Gating ICs;

10.6 DTL, TTL, ICs;

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LIST OF PRACTICALS

1. To Identify electronic devices and common passive components: such as Diodes (Rectifier, Zeners, Signal Diodes, Varacter diode, etc.); LED's; Transistors; Ics; Resistors, Capacitors, (Colour code for them); Inductors, Transformers.

2. To Plot characteristics (FB/RB) of Semiconductor rectifier diode.

3. To Plot characteristics (FB/RB) of a zener diode.

4. Observe the output wave of a Half wave rectifier circuit with/without shunt capacitor filter.

5. Observe the O/P wave of a full wave (C.T.) Rectifier circuit with/without Shunt capacitor filter.

6. Observe the O/P wave of a Bridge Rectifier circuit with/without shunt capacitor filter.

7. To Plot input/output characteristics of a Transistor in CB.

8. To Plot input/output characteristics of a Transistor in CE.

9. To Plot input/output characteristics of a FET.

10. To measure Voltage gain of a transistor amplifier at 1 KHz signal, at different load.

11. To measure over all Voltage gain of a 2 stage RC coupled transistor amplifier a 1 KHz signal.

12. To plot frequency response of a RC coupled amplifier at 1 KHz signal.

13. To measure input and output impedance of a negative feedback amplifier.

14. To fabricate a transistor switch and verify its working.

15. To observe the output of an Astable multivibrator.

16. To observe the output of a Bi-stable multivibrator.

17. To observe the output of an Monostable multivibrator.

18. Use OP-AMP as inverting and non-inverting amplifier, Use as Adder, Subtractor, Intergator and differentator.

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3.1 APPLIED MATHEMATICS II

[Common to All Engineering Courses]

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                                          L    T    P
                                          5    2    -
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Rationale :

        The study of mathematics is an important requirement for the understanding and development of concepts of Engg.The purpose of teaching mathematics to the Diploma Engg. students is to give them basic foundation and understanding of mathematics so that they can use the same for the understanding of engineering subjects and their advancements.

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Matrices	16	6	-
2.	Differential Calculus	15	6	-
2.	Differential Equations	15	6	-
4.	Integral Calculus	12	5	-
5.	Probability & Statistics	12	5	-
		70	28	-

DETAILED CONTENTS

1. MATRICES :(12 Marks)

1.1 Algebra of Matrices, Inverse :

    Addition, Multiplication of matrices, Null matrix and a unit matrix, Square matrix, Symmetric, Skew symmetric, Hermitian, Skew hermition, Orthagonal, Unitary, diagonal and Triangular matrix, Determinant of a matrix.

    Definition and Computation of inverse of a matrix.

1.2 Elementry Row/Column Transformation :

    Meaning and use in computing inverse and rank of a matrix.

1.3 Linear Dependence, Rank of a Matrix :

    Linear dependence/independence of vectors, Definition and computation of a rank of matrix. Computing rank through determinants, Elementary row transformation and through the concept of a set of independent vectors,Consistency of equations.

1.4 Eigen Pairs, Cayley-Hamilton Theorem :

    Definition and evaluation of eign values and eign vectors of a matrix of order two and three, Cayley-Hamilton theorem (without Proof) and its verification, Use in finding inverse and powers of a matrix.

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2.   DIFFERENTIAL CALCULUS :(10 Marks)

2.1 Function of two variables, identification of surfaces in
     space, conicoids

2.2 Partial Differentiation :

     Directional derivative, Gradient, Use of gradient f, Partial
     derivatives, Chain rule, Higher order derivatives, Eulens
     theorem for homogeneous functions, Jacobians.

2.3 Vector Calculus :

     Vector function, Introduction to double and triple integral,
     differentiation and integration of vector functions,
     gradient, divergence and curl, differential derivatives.

3.   DIFFERENTIAL EQUATION :(10 Marks)

3.1 Formation, Order, Degree, Types, Solution :

     Formation of differential equations through physical,
     geometrical, mechanical and electrical considerations,
     Order, Degree of a differential equation, Linear, Nonlinear
     equation.

3.2 First Order Equations :

     Variable seperable, equations reducible to seperable forms,
     Homogeneous equtions, equtions reducible to homogeneous
     forms, Linear and Bernoulli form exact equation and their
     solutions.

3.3 Higher Order Linear Equation :

     Property of solution, Linear differential equation with
     constant coefficients (PI for X=eax, Sin ax, Cos ax, Xn,
     eaxV, XV.

3.4 Simple Applications :

     LCR circuit, Motion under gravity, Newton's law of cooling,
     radioactive decay, Population growth, Force vibration of
     a mass point attached to spring with and without damping
     effect. Equivalence of electrical and mechanical system

4.   INTEGRAL CALCULUS – II: (12 Marks)
4.1 Beta and Gamma Functions :

     Definition, Use, Relation between the two, their use in
     evaluating integrals.

4.2 Fourier Series :

     Fourier series of f(x),-n<x<n, Odd and even function,Half
     range series.

4.3 Laplace Transform :

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Definition, Basic theorem and properties, Unit step and Periodic functions, inverse laplace transform, Solution of ordinary differential equations.

5.   PROBABILITY AND STATISTICS :(6 Marks)

5.1 Probability :

Introduction, Addition and Multiplication theorem and simple problem.

5.2 Distribution :

Discrete and continuous distribution, Bionimal Distribution, Poisson Distribution, Normal Distribution..

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3.2 PROGRAMMING IN C & C++

(Common to Diploma In Information Technology, Post Graduate In Computer Application, Post Diploma In Information Technology)

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                                    L   T   P
                                    6   -   6
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Rationale :

For solution of different problems, C is a very powerful high level language. It is widely used in research and engineering problems. A software technician must be aware of this language for working in computer environment.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Concept of Programming	9	-	
2.	Programming in C	25	-	-
3.	Classes & Objects	25	-	
4.	Programming in C++	25	-	
		84	-	84

DETAILED CONTENTS

1. CONCEPT OF PROGRAMMING:

Concept of Flowcharing, algorithm,programming, Structured Programming Various techniques of programming, Use of programming.

2. Programming in C:

Data Types, Operators and Expressions;Input & Output printf, scanf, clibrary Control Statement: IF- ELSE, While, Do-While, Switch; Functions and modular programming; Scope of variables, parameter passing, recursion, block structure; preprocessor statements; pointers and arrays; structures and unions; File handling.

3.CLASSES & OBJECT:
What is a class,what is an object,constructors,types of object(external,automatic static, Dynamic objects) Metaclass,role of meta class.Scope of classes, array of objects, objects as a function argument.

4.Programming in C++

What is object-orientation, area of object technology,C++, getting to grips with C++(data types,escape sequence,characters, variables, operator, notation, Arrays,Function conditional statements.call by value,call by reference.Pointer : C++ memory map, dynamic allocation pointers,pointers with arrays.Structure,structure with arrays,passing structure of function.Enumerated data types, Inherentance, apolymorphism & Overloading.

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PROGRAMMING IN C & C++

List of Experiments

1. Exercises involving output and input format controls in Pascal.

2. Exercises involving control transfer statements in C & C++

3. Exercises with arrays & Pointers in C & C++.

4. Exercises with functions in C & C++.

5. Exercises with files in C & C++.

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3.3COMPUTER ORGANISATION

(Common To Diploma IN Computer Application)

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                                        L    T    P
                                        6    -    -
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TOPIC WISE DISTRIBUTION OF PERIODS

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Sl.No.   Units   Coverage Time
_____L___T___P___

1.   Introduction To Computer Organisation   12   -   -
2.   C.P.U. & Mathematical Logic   12   -   -
3.   C.P.U. Organization   15   -   -
4.   Computer Arithmetc   15   -   -
5.   Input-Output Organization   15   -   -
6.   Memory Organization   15   -   -
_____
                                                84   -   -
_____

DETAILED CONTENTS

1.   INTRODUCTION TO COMPUTER ORGANISATION:

     Basic computer organization : Functional units operationla
     concepts, System buses and instruction cycle, CPU
     organization, Memory subsystem organization : Memory
     location, Address and encoding of infermation, Types of
     memory, Internal chip organization.

2.   C.P.U.& MATHEMATICAL LOGIC

     Processor Bus Organization,CPU Architecture Arithmetic Logic
     Unit, Stack Organization, Instruction formats, Addressing
     Modes, Data transfer manipulations, Program
     Control,Interrupt, Microprocessor Organization, Parallel
     processing. Logic gates, Boolean Algebra, Map
     simplification.

3.   CPU ORGANIZATION :

     Register Organization : General register organization, Stack
     organization, Programmer visible register, Status and
     control register. Microperations : Register transfer, Bus
     and Memory transfer, Arithmetic, Logic and shift
     microperation. Control Unit : Structure of Control Unit,
     Hard wired control unit. Case Study : 8085 Microprocessor.

4.   COMPUTER ARITHMETIC :

     Addition and substraction, Multiplication algorithms,
     Division algorithms, Floating point arithmetic operations.

5.   INPUT OUTPUT ORGANIZATION :

     I/O devices : Accesing, I/O interfaces, Asynchronous data
     transfer : Strobe control, Hand shaking, Modes of transfer :
     Programmed I/O, Interrupt - Initiated I/O, DMA interrupt
     hardware and priority I/O processes.

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6.   MEMORY ORGANIZATION :

      Memory hierarchy, Main memory : RAM and ROM, Memory address
      map, Auxiliary memory. Cache Memory : Associative memory,
      Virtual memory concept.

                              LIST OF BOOKS

1.   Patterson – Computer Organization adn Design- Elsevier Pub.
      2009

2.   William Stalling - Computer Organization - PHI

3.   Cravice, Hamacher & Zaky - Computer Organization - TMH

4.   Mano – Computer Organization - PHI

5.   John P Hays – Computer Organization- McGraw Hill

6.   Tannenbaum – Structured Computer Organization- PHI

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                         3.4 LINUX & UNIX
                   (Common To Diploma In Computer Application)
                                                    L   T   P
                                                    6   -   6

                   TOPIC WISE DISTRIBUTION OF PERIODS
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Sl.No.        Units                              Coverage Time
_____L___T___P____
1.            LINUX                              40    -   -
2.            UNIX                               44    -   -

_____
                                                 84    -   84
_____
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DETAILED CONTENTS

LINUX: Overview of Linux, what is Linux, history/evaluation of Linux, features of Linux:(System Features, software features), File structures, File handling in Linux, Commands of Linux , how to create file & directory, hardware and software requirements. UNIX:What is Unix Operating System, Unix file system,Commands files: chmod , chown File System: types of files in unix, structure of file system, parent child relationship, mkdir, pwd, cd, PATH, and directories, cat, cp,mv, rm, ls, pg, tail & head commands. File attributes: ls, ls-l output,changing file permission chmod, chownd directory permissions,chgrp, unmask. editors:ed, vi, sed, standard input/output:(pipes, tree,)Shell as a interpreter EX. c shell , bourne shell, korn shell, restricted shell.Administrations:Why does aunix system need administrator (System security, accounting, uucp,) su, system startup & shutdown, init process, cat shutdown, what is cron, creating file system, mounting and unmounting file system, saving and restoring file systems, adding and removing users, unix accounting system, accounting summary files.administrating the uucp system,permission of systems.

PRACTICALS

Practices on commands using Linux.
Practices on commands using Unix

LIST OF BOOKS

1. UNIX Concepts and Applications, 4th Edition, Sumitabha Das-
    Tata McGraw Hill

2. UNIX and Shell Programming, Behrouz A Forouzan and Richard F
    Gilberg - Thomson Course Technology.

3. Unix Shell Programming - Y Kanetkar - BPB Publication

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IV Semester
4.1 DATA COMMUNICATION AND COMPUTER NETWORKS

(Common to Diploma In Information Technology, Post Diploma In Information Technology, Diploma In Computer Science & Engineering)

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                                        L     T     P
                                        6     -     4
```

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time L	T	P
1.	Topic 1	12	-	-
2.	Topic 2	9	-	-
3.	Topic 3	12	-	-
4.	Topic 4	9	-	-
5.	Topic 5	12	-	-
6.	Topic 6	9	-	-
7.	Topic 7	12	-	-
8.	Topic 8	9	-	-
		84	-	56

DETAILED CONTENTS

1. OVERVIEW OF DATA COMMUNICATION AND NETWORKING :

   Introduction; Data Communication; Components, data representation (ASCII, ISO, etc.). Direction of Gata Flow (Simples, Half duplex, Full duplex), Network; Distributed processing, Network criteria, Physical structure (Types of connection, Topology), Categories of network (LAN, MAN, WAN); Internet; Brief history, Internet today; Protocols and standards; Reference models; OSI reference model TCP/IP reference model, their comparative study.

2. PHYSICAL LAYER :

   Overview of data (Analog and Digital), Singnal (Analog and Digital), Transmission (Analog and Digital) and Transmission media (Guided and Non-guided); TDM, FDM, WDM; Circuit switching; Time division and space division switch, TDM bus; Telephone network.

3. DATA LINK LAYER :

   Types of errors, Framing (Character and bit stuffing), Error detection and Correction methods; Flow control; Protocols Stop and wait ARQ, Go-Back, NARQ, Selective repeat ARQ, HDLC.

   Medium Access Sub Layer :

   Point to point protocol, LCP, NCP, FDDI, Token bus, Toke ring; Reservation, Polling, Concetration; Multiple access protocols, CSMA,CSMA/CD, FDMA, TDMA, CDMA; Traditional Ethernet, Fast Ethernet.

4. NETWORK LAYER :

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Internetworking and devices : Repeaters, Hubs, Bridges, Switches, Router, Gateway; Addressing : Internet address, Classful address, Subnetting; Routing : Techniques, Static vs. dynamic routing, Routing table for glassful address; Routing algorithms: Shortest path algorithm, Flooding, Distance vector routing, Link state routing; Protocols ARP, RARP, IP, ICMP, IPV6; Unicast and multicast routing protocols.

5.   TRANSPORT LAYER :

     Process to process delivery; UDP, TCP; Congestion control algorithm; Leaky bucket algorithm, Token bucket algorithm, Choke packets; Qualit of service; Techniques to improve Qos.

6.   SESSION LAYER :

     Functioning of session layer, OSI primitives.

7.   APPLICATION LAYER :

     DNS;SMTP;SNMP;FTP; HTTP & WWW; Security; Cryptography, Use authentication, Security protocols in internet Firewalls

8.   EMERGING TECHNOLOGIES IN NETWORKING :

     ISDN services and ATM; DSK technology, Cable modem, Sonet wireless LAN: IEEE 802.11; Introduction to blue-tooth, VLAN's, Cellular telephony and Satellite network.

     Text Books

1.   B. A. Forouzan - Data Communication and Networking (3 Ed.) - TMH.

2.   A. S. Tanebaum - Computer Networks (4 Ed.) - Pearson Education/ PHI.

3.   W. Stallings - Data and Computer Communication (5 Ed.) - Pearson Education/ PHI.

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LIST OF PRACTICALS

1. Identification of various networks components

-   Connection, BNC, RJ-45, I/O box
-   Cables, Co-axial, twisted pair, UTP
-   NIC (Network Interface Card)
-   Switch, Hub

2. Sketch wiring diagram of network cabling considering a computer lab of 20 systems.

3. Interfacing with the network card (Ethernet)

4. Preparing of network cables.

5. Establishment of a LAN

6. Use of protocols in establising LAN

7. Trouble shooting of networks.

8. Installation of network device drivers.

9. Installation of networks (Peer Networking client server interconnection.

10. Use/installation of proxy server.

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                          4.2 OFFICE TOOLS

(Common  to  Post  Diploma  in  Computer  Application,  Three  year
Diploma In Information Technology)
                                             L     T     P
                                             6     -     8

Rationale :

      The PC's are gaining their image as personal assistants  to
      every  individual in day today life. It is only  because  of
      the  softwares like Electronic spread sheet, Data  base  and
      Word  Star,Without   these this image of the pc's is  of  no
      worth.

              TOPIC WISE DISTRIBUTION OF PERIODS

_____
Sl.No.        Units                          Coverage Time
                                             _L___T___P____
_____
1.            MS Word                        21    - -
2.            MS Excel                       21    - -
3.            Power Point                    21    - -
4.            Electronic Mail                21    - -
_____
                                             84    - 112
_____


                       DETAILED CONTENTS


1.    MS WORD PROCESSING:

      File  : Open,  Close,  Save and Find File,  Print  and  Page
              Setup
      Edit  : Cut, Copy, Find, Replace
      Insert: Page Insert, Page No., Symbole
      Font  : Paragraph, Tabs, Boder & Shading, Change Case
      Tools : Spelling, Mail Merge
      Table : Insert Table, Delete Cells, Merge Cell, Sort Text


2.    MS Excel:

      File  : Open,  Close,  Save and Find File, Print  and  Page
              Setup
      Edit  : Cut, Copy, Find, Replace, Undo, Redo
      Insert: Cell, Row, Worksheet, Chart
      Format: Data, Sort, Filter, Form, Table


3.    POWER POINT

      File     : New,Open,Close,Save  as  HTML,Pack  and  Go,Page
                 setup,Send to ,Properties
      Edit     : Cut, Copy, Find, Replace, Undo, Redo,Duplicate.
      View     : Slide_Outline,Slide_sorter,Notepage,Slideshow,Master,
                 Black & white slide,Toolbars,Ruler ,Guides
      Insert   : New slide,Duplicate slide,Picture,Text  box,Movies
                 & sound,Hyperlink.
      Format   : Font,Bullet,Alignment,Line spacing,Slide layout.
      Tool     : Power  point,Presentation &   conference,Expand
                 slide,Macro,customise.
      Slide show: View show,Rehearse timing,Naration,View on two
```

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              screen ,Active buttons,Preset Animation,Custom -
              animation,Slide transition.
    Window        : New window,Arrange icons,Fit to page,Cascade.
```

4.   Electronic Mail Using Outlook Express :

-    Composing an Email Message
-    Working with Address Book
-    Automatically Add contents to Your Address Book
-    Reading Email using Outlook Express
-    Reading a message
-    Checking for New Messages
-    Reading file Attachment
-    Taking Acting on a Messages
-    Web Based Email
-    Advantage os using Web Based Email.

MS-OFFICE

List Of Practicals

1.   Create a document using funcation :Saveas, Page Number,
      Bullets adn Numbering.

2.   Create a document using styles and formatting option

3.   Create a document using different fonts.

4.   Create a document using the function page setup and page
      preview, then print that document.

5.   Create a table and perform operation in it.

6.   Create a table, chart in excel and implement all formula as
      addition, substraction, multiplication and division.
7.   How to use mail merge in MS Word.
8.   Create a Power Point presentation using slide designing.
9.   Create, Save and Print the Power Point Presentation.
10.   Create a Power Point Presentation using Clipart, Word Art
      Gallery and then add transition and animation effect.

LIST OF BOOKS

1.   Microsoft Office 2010 For Dummies By Wallace Wang
2.   2007 Microsoft Office System Plain & Simple by Jerry Joyce-
      Microsoft Press
3.   Office XP : The Complete Reference- Stephen L. Selson - Tata
      McGraw Hill Education.
4.   Working in Microsoft Office - Richard Mansfield - Tata
      McGraw Hill Education.

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4.3 DOT(.) NET TECHNOLOGY

(Common to Post Graduate Diploma in Computer Application, Diploma
in Information Technology, One year P. G. Diploma In Information
Technology)

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                                        L    T    P
                                        6    -    6
```

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Topic 1	12	-	-
2.	Topic 2	15	-	-
3.	Topic 3	15	-	-
4.	Topic 4	15	-	-
5.	Topic 5	15	-	-
6.	Topic 6	12	-	-
		84	-	84

1.   THE DOT(.) NET FRAMEWORK :

     Introduction, Common Language Routime, Common Types System,
     Common Language Specification, The Base Class Library, The
     .NET class library Intermediate language. Justin- Time
     compilation, garbage collection, Application installation
     and Assemblies, Web Services, Unified classes.

2.   C# BASICS :

     Getting started with .NET framework, Elploring Visual Studio
     .NET, Inside a C# Program, Data Types, Statements, Arrays,
     Using Strings, Objects, Classes and Structs, Properties,
     Inheritance, Indexers, Delegates, Events, Namespaces,
     Generics.

3.   ADVANCED FEATURES OF C# :

     Collection   and   Data Structure,   Exception,   Handling,
     Threading, Using Streams and Files, Reflection, Assemblies,
     Verioning, Windows Forms, Controls, Data   binding   to
     Controls, Advanced Database Programming using ADO.net, Using
     GDI+, Networking, .net Remoting, Manipulation XML.

4.   VB .NET :

     Creating Applications with Visual Basic .NET, Variables,
     Constants adn Calculations, Making Decisions and Working
     with Strings, List, Loops, Validations, Sub Procedures adn
     Functions, Multiple Forms, Standard Modules and Menus.
     Array, Timers, Form Controls, File Handling, Exception
     Handling, Working with Database, Advanced   Database
     Programming using ADO.net, Classes, Generics, Collections,
     Inheritance, Custom Controls, Packaging and deployment,
     Using Crystal Reports.

5.   ASP .NET 2.0 :

     Features of ASP .NET 2.0, Stages in Web Forms Processing,

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Introduction to Server Control, HTML Controls, Validation Controls, User control, Data Binding Controls, Configuration, Personalization, Session State, ADO.NET., Database Programming - Connecting with Database using DAO, RDO & ADO.

6. Working with inbuilt Active X, Window Common Control, Creating Own Active X through Active X Control, Active X EXE, Difference between EXE and DLL.

LIST OF PRACTICAL

1. Develop small software using . NET Technology.

LIST OF BOOKS

1. Application of .NET Technology, ISRD Group- McGraw Hill.

2. Beginning ASP.NET 4:in C# and VB by Imar Spaanjaars

3. Introduction to .NET 4.0 with Visual Studio 2010 From Apress Publication - Alex Mackey

4. Understanding .NET (2nd Edition) - David Chappell

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4.4 MICROPROCESSORS AND APPLICATIONS

(Common with Electronics Engineerint, Instrumentation & Control Engineering and Computer Engineering)

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                                         L    T    P
                                         6    -    6
```

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time L	T	P
1.	Over View of Microcomputer System	6	-	-
2.	Memory of A Microcomputer	15	-	-
3.	C.P.U. and Control	12	-	-
4.	Introduction To 8085 Microprocessor	15	-	-
5.	Architecture of 8086 Microprocessor	12	-	-
6.	Assembly Language Programming	15	-	-
7.	Basic I/O Interfacing	12	-	-
8.	Memory Interfacing	12	-	-
9.	Advance Microprocessor & Micro Controllers	12	-	-
		84	-	84

DETAILED CONTENTS

1.   OVERVIEW OF MICROCOMPUTERS SYSTEM:

1.1   Functional block.

      (a)   CPU.
      (b)   Memory.
      (c)   Input/Out devices (Key board, Floppy drive, Harddisk
            drive, Tape drive, VDU, Printer, Plotter).

1.2   Concept of programme and data memory.

      (a)   Registors (general purpose).
      (b)   external memory for storing data and results.

1.3   Data transfer between registers.
1.4   Concept of tristate bus.
1.5   Control on registers.

2.   MEMORY OF A MICROCOMPUTER:
2.1   Concept of byte organised memory.

      (a)   Address inputs.
      (b)   Address space.
      (c)   Data input/output.

2.2   Addressing and Address decoding.
      (a)   Memory system organisation.

      (b)   Partitioning of total memory space into small blocks.
      (c)   Bus contention and how to avoid it.

2.3   Memory chips.

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(a) Types of ROM, RAM, EPROM, PROM.

(b) Read/Write inputs.

(c) Chip enable/select input.

(d) Other control input/output signals.

    -   Address latching.

    -   Read output.

    -   Address strobes.

(f) Power supply inputs.

2.4 Extension of memory.

    -   In terms of word length and depth.

3.   C P U & CONTROL:

3.1 General microprocessor architecture.

3.1 Instruction pointer and instruction register.

3.2 Instruction format.

    -   Machine and Mnimonics codes.

    -   Machine and Assembly language.

3.3 Instruction decoder and control action.

3.4 Use of Arthematic Logic Unit.

    -   Accumulator.
    -   Temporary Register.
    -   Flag flip-flop to indicate overflow, underflow, zero result occurance.

3.5 Timing and control circuit.

    -   Crystal and frequency range for CPU operation.

    -   Control bus to control peripherals.

4.   INTRODUCTION OF 8085 MICROPROCESSOR:

Evolution of Microprocessor, Register Structure, ALU, BUS Organization, Timing and Control.

5.   INTRODUCTION OF 8086 MICROPROCESSOR:

Internal organization of 8086, Bus Interface Unit, Execuation Unit, Unit, register, Organization, Sequential Memory Organization, Bus Cycle.

6.   ASSEMBLY LANGUAGE PROGRAMMING :

Addressing Modes, Data Transfer, Instructions, Arithmetic

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and Logic Instruction, Program Control Instructions (Jumps, Conditional Jumps, Subroutine Call) Loop and String Instructions, Assembler Directives.

7.   BASIC I/O INTERFACING :

    Programmed I/O, Interrupt Driven I/O, DMA, Parallel I/O (8255-PPI, Centronics Parallel Port), Serial I/O (8251/8250, RS-232 Standard), 8259-Programmable Interrupt Controller, 8237-DMA Controller, 8253/8254-Programmable Timer/Counter, A/D and D/A conversion.

8.   MEMORY INTERFACING :

    Types of Memory, RAM and ROM Interfacing with Timing Considerations, DRAM Interfacing.

9.   ADVANCE MICROPROCESSOR AND MICRO CONTROLLERS :

    Brief idea of Microcontroller 8051, Pentium and Power PC

NOTE :

    Study of Popular ICs Read/Write Chips-8155/8156, 2114,2148,2164. ROM Chips- 8355,2716,2732,8755. Other support chips - 8279,8257,8275,8205.

                        LIST OF BOOKS

1.   Singh, B. P. - Advanced Microprocessor and Microcontrollers-New Age International.

2.   Singh, B. P. - Microprcessor Interfacing and Application - New Age International.

3.   Brey, Barry B. - INTEL Microprocessor - Prentic Hall (India)-4th Edition.

4.   Liu and Gibson G.A. - Microcomputer System - The 8086/8088 Faimly-Prentice Hall (India) 2nd Edition.

5.   Sombir Singh - Microprocessor and Its Application - Jai Prakesh Publication, Meerut

                MICROPROCESSORS AND APPLICATIONS LAB

                        List Of Practicals

1.   Assembly language programming :- Programming of simple problems.

2.   Simple programming problems using 8085 and 8086 microprocessor. Trainer kit to gain competence in the use of

    (a) 8085 and 8086 Instruction set.

    (b) Support chips of 8085 and 8086.

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5.1 INDUSTRIAL MANAGEMENT AND ENTREPRENEURSHIP DEVELOPMENT

	L	T	P
	6	2	-

RATIONALE

The knowledge of this subject is required for all engineers/technicians who wish to choose industry/field as their career. This course is designed to develop understanding of various functions of management, role of workers and engineers and providing knowledge about industrial and tax laws.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Principles of Management	8	-	-
2.	Human Resource Development	10	-	-
3.	Wages and Incentives	4	-	-
4.	Human and Industrial Relations	6	-	-
5.	Professional Ethics	2	-	-
6.	Sales and Marketing management	10	-	-
7.	Labour Legislation Act	10	-	-
8.	Material Management	8	-	-
9.	Financial Management	8	-	-
10.	Entrepreneurship Development	8	-	-
11.	Fundamental of Economics	5	-	-
12.	Accidents and Safety	5	-	-
		84	-	-

DETAILED CONTENTS

1. **Principles of Management**
    1.1 Management, Different Functions: Planning, Organising, Leading, Controlling.
    1.2 Organizational Structure, Types, Functions of different departments.
    1.3 Motivation: Factors, characteristics, methods of improving motivation, incentives, pay, promotion, rewards, job satisfaction, job enrichment.
    1.4 Need for leadership, Functions of a leader, Factors for accomplishing effective leadership, Manager as a leader, promoting team work.
2. **Human Resource Development**
    2.1 Introduction, objectives and functions of human resource development (HRD) department.
    2.2 Recruitment, methods of selection, training strategies and career development.
    2.3 Responsibilities of human resource management – policies and functions, selection – Mode of selection – Procedure – training of workers, Job evaluation and Merit rating.
3. **Wages and Incentives**
    3.1 Definition and factors affecting wages, methods of wage payment.
    3.2 Wage incentive – type of incentive, difference in wage, incentive and bonus; incentives of supervisor.
    3.3 Job evaluation and merit rating.
4. **Human and Industrial Relations**
    4.1 Industrial relations and disputes.
    4.2 Relations with subordinates, peers and superiors.
    4.3 Characteristics of group behaviour and trade unionism.
    4.4 Mob psychology.
    4.5 Grievance, Handling of grievances.

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4.6 Agitations, strikes, Lockouts, Picketing and Gherao.
4.7 Labour welfare schemes.
4.8 Workers' participation in management.

5. **Professional Ethics**
   5.1 Concept of professional ethics.
   5.2 Need for code of professional ethics.
   5.3 Professional bodies and their role.

6. **Sales and Marketing management**
   6.1 Functions and duties of sales department.
   6.2 Sales forecasting, sales promotion, advertisement and after sale services.
   6.3 Concept of marketing.
   6.4 Problems of marketing.
   6.5 Pricing policy, break even analysis.
   6.6 Distribution channels and methods of marketing.

7. **Labour Legislation Act (as amended on date)**
   7.1 Factory Act 1948.
   7.2 Workmen's Compensation Act 1923.
   7.3 Apprentices Act 1961.
   7.4 PF Act, ESI Act.
   7.5 Industrial Dispute Act 1947.
   7.6 Employers State Insurance Act 1948.
   7.7 Payment of Wages Act, 1936.
   7.8 Intellectual Property Rights Act

8. **Material Management**
   8.1 Inventory control models.
   8.2 ABC Analysis, Safety stock, Economic ordering quantity.
   8.3 Stores equipment, Stores records, purchasing procedures, Bin card, Cardex.
   8.4 Material handling techniques.

9. **Financial Management**
   9.1 Importance of ledger and cash book.
   9.2 Profit and loss Account, Balance sheet.
   9.3 Interpretation of Statements, Project financing, Project appraisal, return on investments.

10. **Entrepreneurship Development**
    10.1 Concept of entrepreneur and need of entrepreneurship in the context of prevailing employment conditions.
    10.2 Distinction between an entrepreneur and a manager.
    10.3 Project identification and selection.
    10.4 Project formulation.
    10.5 Project appraisal.
    10.6 Facilities and incentives to an entrepreneur.

11. **Fundamental of Economics**
    11.1 Micro economics.
    11.2 Macro economics.

12. **Accidents and Safety**
    12.1 Classification of accidents based on nature of injuries, event and place.
    12.2 Causes and effects of accidents.
    12.3 Accident-prone workers.
    12.4 Action to be taken in case of accidents with machines, electric shock, fires and erection and construction accidents.
    12.5 Safety consciousness and publicity.
    12.6 Safety procedures.
    12.7 Safety measures – Do's and Don'ts and god housing keeping.

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5.2 DATA STRUCTURE USING C & C++

(Common to Post Diploma in Information Technology and Post Graduate Diploma In Computer Application, Diploma In Computer Science and Engineering)

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                                          L    T    P
                                          6    -    4
```

Rationale :

For solution of different problems 'C' is a very powerful high level language. It is widely used in research and engineering problems. A software technician aware of this language will be useful for working in computer environment.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Basic Concepts.	8	-	
2.	Stacks And Queues	10	-	
3.	Lists	15	-	
4.	Sorting & Merging	12	-	
5.	Tables	12	-	
6.	Trees	15	-	
7.	Graphs	12	-	
		84	-	56

DETAILED CONTENTS

1. BASIC CONCEPTS:

   Basic concepts and notation & Mathematical background

2. Stacks And Queues

   Representation of stacks & queues,linked sequential.

3. LISTS:

   List representation techniques,Multilinked structures, Dynamic storage allocation techniques.

4. SORTING ALGORITHMS

   Insertion sorts, Bubble sort, Quicksort, Mergesort, Heapsort

5. Tables: -

   Searching sequential tables,Hash tables and Symbol tables, Heaps.r

6. TREES

   Definitions and basic concepts, Linked tree representations,binary tree traversal algorithms,B-trees and their applications.

7. Graphs:

   Depths-first-search.

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DATA STRUCTURE USING C & C++

List of Experiments

1.   Write a program on Linked List Using   'C' & C++.

2.   Exercise on Stack, Queues. Using C & C++

3.   Exercises on Sorting .

DATA STRUCTURE

1.   Data Structure - Schaum's Outline Series - McGraw Hill

2.   Data Structure - Schaum's Series - McGraw Hill Publications

3.   Horwitz and Sartaj Sahni - Data Structure

4.   Tanenbaum - Data Structures - Prentice Hall of India, New
      Delhi

5.   Kanekar Yashwant - Data Structure through C, BPB Publication

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2.   Data Structure - Schaum's Series - McGraw Hill Publications

5.3 RELATIONAL DATABASE MANAGEMENT SYSTEM

(Common to Post Graduate Diploma In Computer Application, Diploma in Computer Science and Engineering, Post Diploma In Information Technology).

```
                                        L   T   P
                                        6   -   6
```

Rationale:

Relational Database management system is the modern technique of managing data. The knowledge of DBMS is very useful & effective in prepration of different types of application software like Inventory, Financial & Accounting system etc. The student equiped with knowledge of this subject will be useful in the areas of the computer application.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Topic 1	12	-	-
2.	Topic 2	12	-	-
3.	Topic 3	12	-	-
4.	Topic 4	12	-	-
5.	Topic 5	9	-	-
6.	Topic 6	9	-	-
7.	Topic 7	9	-	-
8.	Topic 8	9	-	-
		84	-	84

DETAILED CONTENTS

1. OVERVIEW OF DBMS :

    Data, Representation of Data, Record, Data item, Field name, File, Data and Information, Database (Properties), Benifits of Database approach, Database Management System (Capabilities, Advantages, Disadvantages) and Functions of DBMS. Basic DBMS terminology (Data items, Entities and Attributes, Schama and Subschama, Database users, Instrance and Schanas). Three views of Data (External View, Conceptual View, Internal View), Three level architecture of DBMS, Data Independence.

2. DATA MODELS :

    Define data model, classify data model, Local Models : Object and Record based- Object Oriented Model- Entry relationship Models - Entity sets and relationship sets- Attributes - Keys in entity and relationship sets : (a) Super Key (b) Candidate Key (c) Primary Key (e) Unique Key - Mapping constraints.Object based logical models, E-R model, E-R diagram, Notations, Hierarchical Model (Advantage, Disadvantages), Network model (Advantages, Disadvantages), Relational Model (Advantages, Disadvantages), Object oriented database, Object oriented relational database.

3. RELATIONAL MODEL :

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Advantages, Disadvantages, Codd's 12 rules, Definition of Relations, Degree and Cardinality, Relational Model Constraints (Domain, Tuple Uniquiness, Key Constraints, Integrity Constraints, Entity constraints). Relations algebra (Basic operation : Union intersection and difference), Additional Relational Abgebraic Operations (Projection, Selection rows, Division)

4.   RELATIONAL DATABASE DESIGN :

Functional dependencies (I, II & III), Normal forms, Normalization, Boyce Codd Normal Form, Multivalued dependencis and Forth Normal Form, Join Dependencies and Fifth normal forms.

5.   STRUCTURE QUERY LANGUAGE (SQL) :

SQL, Object naming conventions, Object naming guidelines, Data types (Varchar 2, Number, Long, Date, Raw, Long Raw, Rowid, Char etc.), Tables, Views, Indexes, SQL Commond :- DESCRIBE, SELECT, COLUMN ALIASES, CONCATENATION OPERATOR, DISTINCT CLAUSE, ORDER BY, WHERE CLAUSE, LOGICAL OPERATIONS, SQL OPERATORS.

6.   DATABASE IMPLEMENTATION USERS:

Database integrity, Locking techniques for concurrency control, Concurrency control based in Time Stamp Ordering, Multiversion Concurrency control techniques, Database Security.

7.   RATIONAL DATABASE :

Data definition language- Data mainpulation language- Relational algebra - Operators : Select, Project, Join, Rename, etc. - Simple example.

8.   SECURITY :

Authorization and View- Security constraints - Integrity Constraints- Encryption.

LIST OF BOOKS

1.   An Introduction to Database System - C. J. Date

2.   Database System Concepts - A. Silberschatz & H. F. Korth

3.   Database Concepts and Systems - Lvan Bayroos/SPD

4.   Fundamental of Database System - R. Elmashri & S. B. Navathe

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RELATIONAL DATABASE MANAGEMENT SYSTEM LAB

STRUCTURED QUERY LANGUAGE

1. Creating Database

- Creating a database
- Creating a table
- Specifying relational data types
- Specifying constraints
- Creating indexes

2. Table and Record Handling

- INSERT statement
- Using SELECT and INSERT together
- DELETE, UPDATE, TRUNCATE Statement.
- DROP, ALTER statement

3. Retrieving Data From a Database

- The SELECT statement
- Using the WHERE clause
- Using Logical Operators in the WHERE clause
- Using In, BETWEEN, LIKE, ORDER BY, GROUP BY & HAVING clause
- Using Aggregate Functions
- Combining Tables Using JOINS

Corrected and Approved By B.T.E. on Dated 02.06.2015

5.4 JAVA PROGRAMMING

(Common To Post Graduate Diploma in Computer Application, Diploma In Computer Science and Engineering)

	L	T	P
	6	-	6

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	An Overview of Java	15	-	-
2.	Data Types & Control Statement	15	-	-
3.	Introducing Classes & Methods	15	-	-
4.	Inheritance	15	-	
5.	Multi threaded Programming	12	-	-
6.	Input/Output Applits	12	-	-
		84	-	112

1. **An Overview of JAVA:-**
   Introduction to Object Oriented Programming (two paradigms, abstraction, the three oops principles) creation of JAVA, JAVA Applits & applications, security & portability.

2. **Data Types & Control statements:**
   Integer,floating point type, character, boolean, all Operators, JAVA's selection statements,iteration and jump statement

3. **Introducing Classes & Methods:**
   Class fundamentals, declaring objects, overloading methods & constructs,access control, nested and inner classes, exploring the string class,Inheritance

4. **Inheritance:**
   Inheritance basics,member access and inheritance.

5. **Muti threaded Programming.:**

   The JAVA thread model,thread priority, synchronozation, Messaging.

6. **Input/Output Applits:**
   I/O Basics, byte streams & character streams, predefined streams, reading and writing console input/output, reading and writing files, applet fundamentals,applete class.

LIST OF PRACTICALS
PROGRAMS USING CONTROL STATEMENTS.
LIST OF BOOKS

1. Core Java II Advanced Feature 8th Edition, Sun Microsystem
2. The Complete Reference JAVA Seventh Edition
3. Thinking in Java, Third Ediction, Bruce Eckel Pearson Eduction.
4. JAVA 6 By Rogers Cadenhead, Laura Lemay, Pearson Education.

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5.5 E-COMMERCE AND ERP

(Common to Post Diploma in Information Technology, P. G. Diploma in Computer Application, Diploma In Computer Science and Engineering)

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                                              L   T   P
                                              6   -   -
```

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Topic 1	7	-	
2.	Topic 2	7	-	
3.	Topic 3	7	-	
4.	Topic 4	7	-	
5.	Topic 5	7	-	
6.	Topic 6	7	-	
7.	Topic 7	7	-	
8.	Topic 8	7	-	
9.	Topic 9	7	-	
10.	Topic 10	7	-	
11.	Topic 11	7	-	
12.	Topic 12	7	-	
		84	-	-

1. ELECTRONIC COMMERCE :

   Overview, Definitions, Advantages and Disadvantages of E-commerce, threats of E-commerce, Managerial Prospective, Rules and Regulations For controlling E-commerce, Cyber Laws.

2. TECHNOLOGY :

   Relationship Between E-Commerce and Networking, Different Types of Networking For E-commerce, Internet, Internet and Extranet, EDI System Wireless Application Protocol : Definition, Hand Held Devices, Mobility and Commerce, Mobile computing, Wireless Web, Web Security, Infrastructure Requirement Form E-Commerce.

3. BUSINESS MODELS OF E-COMMERCE :

   Model based on transaction, Type, Model Based on Transaction Party -B2B, B2C,C2b, C2c, E-Governance.

4. E-STRATEGY :

   Overview, Strategic, Methods for developing E-commerce.

5. FOUR C's:

   Four C's (Convergence, Collaborative Computing, Content Management and Call Center)

6. SUPPLY CHAIN MANAGEMENT :

   E-logistics, Supply Chain Portal, Supply Chain Planning

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Tools (SCP Tools), Supply Chain Execution (SCE), SCE-Framework, Internet's effect on Supply Chain Power.

7. E-PAYMENT MECHANISM :

    Payment through card system, E-Cheque, E-Cash, E-Payment Threats and protections.

8. E-MARKETING :

    Home-Shopping, E-Marketing, Tele-Marketing.

9. ELECTRONIC DATA INTERCHANGE (EDI):

    Meaning, Benifits, Concepts, Application, Edi Model.

10. RISK OF E-COMMERCE :

    Overview, Security for E-commerce, Security Standards, Firewall, Cryptography, Key Management, Passward system, Digital certificates, Digital signatures.

11. ENTERPRISE RESOURCE PLANNING (EPR) :

    Feature, capabilities and overview of commerical software, re-engineering work pressure of IT applications, Business Process Redesign, Knowledge Engineering and data warehouse.

12. SINESS MODULES :

    Finance, Manufacturing (Production), Human Resource, Plant Maintenance, Materials Management, Quality Management, Sales and Distribution.

                        LIST OF BOOKS

1. E-Commerce-M. M. Oka- EPH
2. Electronic Commerce- Technologies & Application - Bhaskar Bharat - TMH
3. E-Commerce :Strategy Technologies and Applications - Tata McGraw Hill

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VI Semester
   6.1 ENVIRONMENTAL EDUCATION & DISASTER MANAGEMENT
                                         L T P
                                         4 - -
RATIONALE:

        A diplima student must have the knowledge of different
        types of pollution caused due to industrialisation and
        construction activities, so as he may help in balancing of
        eco-system and control pollution by providing controlling
        measures. They should be also aware of the environmental laws
        for effectively controlling the pollution of environment.
        The topics are to be taught in light of legislation Para-3.

             TOPIC WISE DISTRIBUTION OF PERIODS:
_____

SL. NO.   TOPIC   L   T   P
_____

1.   Introduction   6
2.   Pollution   4
2.1 Water Pollution   8
2.2 Air Pollution   8
2.3 Noise Pollution   4
2.4 Radio Active Pollution   6
2.5 Solid Waste Management   6
3.   Legislations   4
4.   Environmental Impact Assessment   4
5.   Disaster Management   6
_____
                        TOTAL   56 - -
_____

                   DETAILED CONTENTS

1.   INTRODUCTION :

-    Basics of ecology, Ecosystem, Biodiversity Human activities
     and its effect on ecology and eco system, different
     development i.e. irrigation, urbanization, road development
     and other engineering activities and their effects on
     ecology and eco system, Mining and deforestation and their
     effects.

-    Lowering of water level , Urbanization.

-    Biodegradation and Biodegradibility, composting, bio
     remediation, Microbes .Use of biopesticidies and
     biofungicides.

-    Global warning concerns, Ozone layer depletion, Green house
     effect, Acid rain,etc.

2.   POLLUTION :

     Sources of pollution, natural and man made, their effects on
     living environments and related legislation.

2.1 WATER POLLUTION :

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- Factors contributing water pollution and their effect.

- Domestic waste water and industrial waste water. Heavy metals, microbes and leaching metal.

- Physical, Chemical and Biological Characteristics of waste water.

- Indian Standards for qulity of drinking water.

- Indian Standards for quality of treated waste water.

- Treatment methods of effluent (domestic waste water and industrial/ mining waste water), its reuse/safe disposal.

2.2 AIR POLLUTION :

Definition of Air pollution, types of air pollutants i.e. SPM, NOX, SOX, GO, CO2, NH3, F, CL, causes and its effects on the environment.

- Monitoring and control of air pollutants, Control measures techniques. Introductory Idea of control equipment in industries i.e.

    A. Settling chambers
    B. Cyclones
    C. Scrubbers (Dry and Wet)
    D. Multi Clones
    E. Electro Static Precipitations
    F. Bog Fillers.

- Ambient air qulaity measurement and their standards.

- Process and domestic emission control

- Vehicular Pollution and Its control with special emphasis of Euro-I, Euro-II, Euro-III and Euro IV.

2.3 NOISE POLLUTION :

Sources of noise pollution, its effect and control.

2.4 RADISACTIVE POLLUTION :

Sources and its effect on human, animal, plant and material, means to control and preventive measures.

2.5 SOLID WASTE MANAGEMENT :

Municipal solid waste, Biomedical waste, Industrial and Hazardous waste, Plastic waste and its management.

3. LEGISLATION :

Preliminary knowledge of the following Acts and rules made thereunder-

- The Water (Prevention and Control of Pollution) Act - 1974.

- The Air (Prevention and Control of Pollution) Act - 1981.

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- The Environmental Protection (Prevention and Control of Pollution) Act -1986. Rules notified under EP Act - 1986 Viz.

    # The Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 2000

    # The Hazardous Wastes (Management and Handling) Amendment Rules, 2003.

    # Bio-Medical Waste (Management and Handling) (Amendment) Rules, 2003.

    # The Noise Pollution (Regulation and Control) (Amendment) Rules, 2002.

    # Municipal Solid Wastes (Management and Handling) Rules, 2000.

    # The Recycled Plastics Manufacture and Usage (Amendment) rules, 2003.

4. ENVIRONMENTAL IMPACT ASSESSMENT (EIA) :

- Basic concepts, objective and methodology of EIA.

- Objectives and requirement of Environmental Management System (ISO-14000) (An Introduction).

5. DISASTER MANAGEMENT :

Definition of disaster - Natural and Manmade, Type of disaster management, How disaster forms, Destructive power, Causes and Hazards, Case study of Tsunami Disaster, National policy- Its objective and main features, National Environment Policy, Need for central intervention, State Disaster Authority- Duties and powers, Case studies of various Disaster in the country, Meaning and benifit of vulnerability reduction, Factor promoting vulnerability reduction and mitigation, Emergency support function plan.
    Main feature and function of National Disaster Management Frame Work, Disaster mitigation and prevention, Legal Policy Frame Work, Early warning system, Human Resource Development and Function, Information dissemination and communication.

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6.2 INTERNET & WEB TECHNOLOGY

(Common with Post Graduate Diploma In Computer Application, Diploma In Inforamtion Technology, Post Graduate Diploma In Information Technology)

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                                         L  T  P
                                         6  -  6
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TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time L	T	P
1.	Internet	19	-	-
2.	Web Technology	65	-	
		84	-	84

INTERNET

Introducing Internet, Its Uses : Why Internet, Basic internet Tools, E-Mail, Ftp, Telnet, Usenet News, Web Browsers, Search Engines, Yahoo, Archie, Infoseak, Veronica, World Wide Web.
How Internet works: Administration of Internet, How to Go On Internet : Requirements, Hardware, Software, ISP, Internet Account PPP/Shell. How to Use E-Mail Services On Internet Introducing Hotmail/Yahoo/Vsa-Net, How To Operate E-Mail address, How to Operate E-Mail Services : Sending E-Mail, Forwording, Saving, Reading etc., How to attach files,

2.   WEB TECHNOLOGY :

A.   HTML:

Elements of HTML, HTML sources & Rules of nesting, syntax conventions, HTML Categories, text tags, Formatting WebPages by using Styles, adding pictures, image attribute , introduction to forms, tables and models,advantages & limitations of tables, frames, links. SS cascading style sheets, XHTML, XML, Cient Side Scripting, Server Side Scripting, Managing data with SQL.

B.   JAVA SCRIPTS:

what is a Java Scripts, adding, Java scripts to documents, embedding java scripts, linking java scripts, creating a page program with scripts. What is a Java and its appletes, to make webpages run server sripts, activeX.

Data types, variables, operators, conditional statements, array object, date object, string object.

C.   JAVA SERVLET :

Servlet environment and role, HTML support, Servlet API, The servlet life cycle, Cookies and Sessions.

D.   JSP :

JSP architecture, JSP servers, JSP tags, understanding the layout in JSP, Declaring variables, methods in JSP, inserting java expression in JSP, processing request from user and generating dynamic response for the user, inserting

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applets and java beans into JSP, using include and forward
action, comparing JSP and CGI program, comparing JSP and ASP
program; Creating ODBC data soruce name, introduction ot
JDBC, prepared statement and callable statement.

E.   DYNAMIC WEB PAGES :

      The need of dynamic web pages; an overview of DHTML,
      Cascading   Style Sheet (CSS), Comparative   studies   of
      different technologies of dynamic page creation.

F.   ACTIVE WEB PAGES :

      Need of active web pages; Java applet life cycle.

                           PRACTICAL
1.   Excercises on E-Mail.
2.   Excercises on to see web sites.
3.   Development of different Websites using all tools.
4.   Development of Websites useing Frontpage

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6.3 COMPUTER GRAPHICS

(Common TO Diploma In Computer Science and Engineering)

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                                        L    T    P
                                        6    -    6
```

Rationale :

Computers are, now a days, used in industry for designing and manufacturing purposes also. Computer graphics is a powerful tool for obtaining plenty of designs by variation of different parameters which are not ordinarily possible. It also gives quality assurance in the manufacturing industries. A student equiped with must knows, how will be useful in the relevant field.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time		
		L	T	P
1.	Topic 1	15	-	-
2.	Topic 2	12	-	-
3.	Topic 3	12	-	-
4.	Topic 4	12	-	-
5.	Topic 5	12	-	-
6.	Topic 6	11	-	-
7.	Topic 7	10	-	-
		84	-	84

DETAILED CONTENTS

1.   OVERVIEW OF GRAPHICS SYSTEM :

Refresh Cathode Ray Tubes, Random Scan and Raster Scan Mointors, Colour CRT Monitors, DVST, Plasma Panel Displays, LED and LCD Monitors, Laser Devices, Three dimensional momitors, Hard copy devices - Printer, Plotters, Display processes- Random-Scan systems, DVST system, Raster Scan System.

2.   OUTPUT PRIMTIVES :

Points and lines, Line drawing alogerthims, DDA algorthim, Presentations Line Algorthim, Antialiasing Lines, circle generating algorthims - Circle equation, Presentations circle algorthim

3.   ATTRIBUTES OF OUTPUT PRIMITIVES :

Line styles, Line type, Line width, Line colour, Area filling- Scan line algorthim, Boundary fill algorthim, Flood fill algorthim.

4.   TWO DIMENSIONAL TRANSFORMATIONS :

Basic trnasformations, Translation, Scaling and Rotation, Matrix irepresentation of homogeneous co-ordinates,

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Composite transformations, Translations, scalings and protection, scaling relative to a fixed point, Rotation about fixed point, Arbitary scaling directions, Other transformations- Reflection and Shear.

5.   WINDOWING AND CLIPPING :

Windowing concepts, Clipping algorthims - Line clipping, Area clipping, Text clipping, Blanking, Window to viewport transformations.

6.   INTERACTIVE INPUT METHODS :

Touch panel, Light pens, Graphics tablets, Joy sticks, Track ball, Mouse, Voice systems, Ligical classification of input devices, Locator devices, Stroke devices, String device, Valuator devices, Choice device, Pick device.

7.   THREE DIEMNSIONAL CONCEPTS :

Three dimensional co-ordinate system, Three diemnsional display techniques, Parallel projection, Perspective projection, Intensity cueing, Hidden line removal, Three dimensional transformation, Translation, Rotation and scaling.

<div align="center">LIST OF BOOKS</div>

1.   Computer Graphics - Hearn & Baker
2.   Computer Graphics - Bresenham

<div align="center">LIst of Experiments</div>

1.   Practice on Computer Aided Drafting and Design.
2.   Exercies Based on all tools of graphics

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```
                        6.4 PROJECT
                                    L    T    P
                                    -    -    8
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Rationale:

The purpose of including project in curriculum is to develop skill and knowledge specifications of software used in computers.

1.   INFORMATION TECHNOLOGY PROJECT:

The student is expected to work on a project in consultation and acceptance with the instructor on either system software aspects related to industrial environment.

The end targets for the project should be well defined and evaluation should place major importance on meeting these targets.

2.   DATA PROCESSING PROJECT:

The student is expected to work and learn from implementing an application software and study its functional and performance aspects and submit a report.

The evaluation must be based on the project report and the seminars.

3.   SOFTWARE MAINTENANCE PROJECT:

Similar as Information Technology Project (Software), related to maintenance operation and evaluation of the systems.

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THREE YEAR (SIX SEMESTER) DIPLOAM IN INFORMATION TECHNOLOGY
STAFF STRUCTURE

Intake of the Course   60
Pattern of the Course   SEMESTER SYSTEM

Sl. No.   Name of Post   No.

Sl. No.	Name of Post	No.	
1.	Principal	1	
2.	H.O.D.	1	
3.	Lecturer In Information Technology	6	
4.	Computer Programmer Cum Operator	3	
5.	Lecturer in Maths	1--	
6.	Lecturer in Physics	1	Common with Other discipline
7.	Lecturer in Electronics		
8.	Lecturer in Comm. Tech.	1	
9.	Lecturer in Elect. Engg.	1	
10.	Steno Typist	1	
11.	Accountant / Cashier	1	
12.	Student / Library Clerk	1	
13.	Store Keeper	1	
14.	Class IV	6	
15.	Sweeper	Part time as per requirement	
16.	Chaukidar & Mali	As per justification	

Note :

1. Services of other discipline staff of the Institute may be
    utilized if possible

2. Qualifications of Staff : as per service rule

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```
                          SPACE REQUIREMENT

                   [A]   ADMINISTRATIVE BLOCK

Sl. No.      Details of Space                  Floor Area
                                               Sq. metres
    1.       Principal's Room                      30

    2.       Confidencial Room                     10

    3.       Steno's  Room                          6

  4.(a)      Office including Drawing
             Office                                 80
    (b)      Record Room                            20
    5.       Staff Room

             (a) Head  1                            15

             (b) Lecturer 10 sq.m./ Lect.
                 for 7 Lecturers                    70

    6.       Library and Reading room              150

    7.       Store                                 100

    8.       Students Common room                   80

    9.       Model Room                             90


                  [B]    Academic  Block

Sl.No.      Detail of Space              @       Floor Area
                                        Sq.m       Sq.m.

    1.      Class Room                   60        120
    2.      Physics Lab                             75
    3.      Electrical Engg. Lab/Shop             120
    4.      Digital Electronics & Microprocessor  120
            Lab
    5.      Computer Centre (Air Cond.Glass Partition
            and Special type pvc flooring and
            false ceiling ), Two Computer Centers 120
            For Space of 60 Sq. m

                  [D] Student's Aminities


    1.      Hostel                 40  %  of Strength of Students
    2.      Cycle Stand            50  %  of Strength of Students
    3.      Canteen and Tuck shop  50
    4.      N.C.C. Room            70
    5.      Dispensary             40
    6.      Guest Room(Attached Bath) 45
            incuding kitchen & store

                  [E] STAFF RESIDENCES

    1.      Principal               1   100    100
    2.      Head of the Department  1   100    100
    3.      Lecturer                4    80    320
    4.      Non teaching & Supporting 8  60    480
```

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```
              staff
    5.    Class IV                      6     30      180
```

Priorty to be given in following order

(1)
 a. Administrative Building
 b. Labs
 c. Over head Tank
 d. Boundary Wall
 e. Principal Residence
 f. Forth Class Quarters (2/3)

(2)
 a. Hostel
 b. Students Aminities

(3)
 Residences of employee

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                        LIST OF EQUIPMENTS
        Only  those  of  the  equipments given  below  which  are  essentially
required  for the conduction of practicals mentioned in the curriculum  are
to be procured by the institutions.
        "Machine/Equipments/Instruments of old BTE list which are not included
below are to be retained in the Lab/Shop for Demonstration purpose but  not
to be demanded fresh for purchase."
NOTE  :  Equipment for different shop and lab  of  latest  verson
should be purchased.
I.      APPLIED PHYSICS LAB
----------------------------------------------------------------
S.No.Name of Equipment              No.       @ Rs.   Amt.in Rs.
                                              Aprox.   Aprox.
----------------------------------------------------------------
1.    Brass ball with hook dia       2          50      100
      1.8 Cm to 2 Cm diameter
2.    Stop watch least count         4         750     3000
      Least Count 0.1 Sec.(non-megnetic)
      0.01 sec to 0.001 sec
      (Electronic Desirable)
3.    Wall bracket with clamping     2          50      100
      arrangement
      8" to 10" length
4.    Meter scale                    5          40      200
      Least count 0.1cm,wooden 1meter
5.    Meter scale                    5          40      200
      Least count 0.1cm,wooden 50 Cm
6.    Searl's conductivity apparatus
      with copper & steel rods 25 cm
      length 4 cm.diameter  with all  2 set   1500    3000
      accessaries
7.    Constant Level Water Flow      2         250      500
      Container of one liter capacity
      vertical stand & rubber tubing
8.    Thermometer                    4         100      400
      0-110oC(Least count 0.1oC
      desirable)
9.    Potentiometer - 10 wires
      (1 meter length of each        4         750     3000
      wire) with jockey,
      sunmoical top
10.   Moving coil galvenometer       5         300     1500
      30-0-30 with moving mounting
11.   Rheostat 50 ohm.,100 Ohm.,150 Ohm.16     300     4800
      capacity
12.   Lead Accumulator 2V,6V (1 No.Each) 2     250      500
13.   Meterbridge                    2         300      600
      1 meter length, sunmica top
      copper strips fitted with scale
14.   Resistance Coil (Standard)    10          50      500
      1 ohm. to 10 ohm.
15.   Moving coil ammeter 0-1 amp.,
      0-2 amp., 0-5  amp. with mounting  8      250     2000
16.   Moving coil voltmeter  0-1 V.,0-2V
      0-5 V., 0-10 V. with mounting   8         250     2000
17.   Denial cell                    2         250      500
      with complete accessories
```

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```
----------------------------------------------------------------
S.No.Name of Equipment              No.    @ Rs.  Amt.in Rs.
                                           Aprox. Aprox.
----------------------------------------------------------------
18.  Leclaunche Cell                2      250    500
     with complete accessories
19.  Standard Cadmium Cell          2      250    500
     with complete accessories
20.  Battery Charger                1set   1800   1800
     with complete accessories
21.  Battery Eliminator Multi range 2set   750    1500
22.  Multimeter(Digital)            1set   800    800
23.  Carey Foster Bridge            2set   4500   9000
     (With all accessories)
24.  Resistance Box (2 No. Each)    4      850    3400
     0-1 Ohm, 0-100 Ohm.
25.  Fractional Resistance Box       2     1200   2400
     0-1 Ohm.
26.  Post office box  Key type      2      1200   2400
27.  Post office box Dial type      2      1200   2400
28.  Resistance Wire(100 Gm.)       1 lacchi 100  100
     (Constanton/Maganin)
29.  Connecting Wire  Copper(1/2 Kg.) 1 lacchi 700 700
     (Cotton Insulated)
30.  Screw gauge L.c 1/100 mm       5set   150    750
31.  Vernier Callipers L.c. 1/10 mm 5set   100    500
32.  Appratus for determining character-
     stics of P-N junction diode complete
     with all accessaries           2 set  1500   3000
33.  Resonance Column of steel      2      1600   3200
     One Meter length and 3-4 Cm
     diameter fitted with scale
     & water level arrangement
34.  App. for determining coefficient
     of friction on a horrizontal plane 2 set 700 1400
     (Complete with all accessories)
35.  Tuning Fork's Sets             3set   350    1050
     Set of different frequency
     (with rubber pad)
36.  Physical balance with weight box 2    800    1600
     Complete with Fractional weight
37.  Anemometer with counter cup type 1    1000   1000
38.  Spring Force Constant Apparatus 2     1200   2400
     with graduated mirror & pointer,
     weight set with hanger
39.  Viscosity Apparatus      (Stock 2set  1600   3200
     law) with steel balls and
     viscous liquid & timer
40.  Thermometer of different range 10set  100    1000
     Mercury thermometer 0-50oC to
     0-110oC
41.  Wall Thermometer              2set    20     40
     Alcohal Filled 0-50oC
42.  Sprit Level Technical Type    1set    60     60
43.  Drilling Machine             1set    800    800
     Electric with different size
     bits
44.  LPG Gas Burner with Cylinder  1set    800    800
45.  Tool Kit with different tools 1set    800    800
     Complete
46.  Lab stools                    30
----------------------------------------------------------------
```

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```
----------------------------------------------------------------
S.No.Name of Equipment              No.      @ Rs.  Amt.in Rs.
                                             Aprox.  Aprox.
----------------------------------------------------------------
47.  Lab tables                      8
48.  Plug Keys One Way               5         50     250
49.  Plug Keys Two Way               5        100     500
50   Helical Springs - Soft, 10 cm   6        100     600
     each
```

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ELECTRICAL ENGINEERING LAB

Sl. No.	Equipment	Qty.	Price
1.	Ammeter -dynamometer type portable, moving coil, permanent magnet 150 mm uniform scale		
	a. Range 0 - 2.5 - 5 Amp.	2	1200
	b. Range 0 - 50 m A	1	500
	c. Range 0 - 500 mA	2	1000
2.	Ammeter - moving iron type Portable moving iron permanent magnet, 150 mm uniform scale		
	a. Range 0 - 5 Amp.	2	1000
	b. Range 0 - 10/20 Amp.	2	1000
	c. Range 0 - 500 mA/1000 mA	2	1000
3.	Voltmeter dynamometer type portable moving coil permanent magnet 150 mm uniform scale		
	a. Range 0 - 5/10 V	2	1000
	b. Range 0 - 15/30 V	1	1000
	c. Range 0 - 50 mv/100 mv	1	1000
	d. Range 0 - 125/500 V	1	1000
	e. Range 250/500 V		
4.	Digital multimeter 3.5 digit - display D.C. voltage 0 - 1000 V in 5 steps A.C. voltage 0 - 750 V in 5 steps Resistance 0 - 20 M ohm in 6 steps D.C. 0 - 10 A in 6 steps A.C. 0 - 10 A in 6 steps Power supply 9 V.	1	3000
5.	Analog multimeter (Portable) D.C. Voltage 0 0 1000 V AC Voltage 0 2/5/10/25/100/250/1100 V. Resistance 0 200 M ohm DC 0 - 50 micro Amp./1 mA/10 mA/100mA/1A/10A AC 0 - 100 mA/1A/25 A/10A	1	1000
6.	Wattmeter single phase (LPF= 0.2) portable dynamometer type, scale 150 mm current range 0 - 5/10 Amps voltage Range 0 - 250/500 V	2	5000
7.	Decade resistance box constantan coils, single dial 10x10, 10x100, 10x1000, 10x10,000 ohms	1	1000
8.	Continuously variable 0 - 1000 micro farad, 250 V	1	1000

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_____
Sl. No.          Equipment              Qty.   Price
_____
9.    Energymeter single phase          1     2000
      induction type, industrial
      grade 5 A or 10 A, 250 V, 50 Hz.

10.   Energymeter(Substandard)          1     3000
      single phase, induction type
      5 A/10A, 250 V, 50 Hz.

11.   Power factor meter                1     5000
      dynamometer type, eddy current
      damping, 50 Hz, scale length 150 mm
      range upto 20 amp, voltage range
      300 V 10 F. range 0.5 log, unity 0.5 load.

12.   Frequency meter (Reed type)       1      500
      230 V, range for having 21 reeds
      for 40-60 Hz range.

13.   Rheostat
      sliding rheostats wound with
      evenly oxidised iron free nickel
      copper on vitreous enamelled round
      steel tube 150 ohms 2 Amps.        1      600
                  110 ohms 2.5 Amps.     1      600

14.   Variable inductor                 1     2000
      single phase, 250 V, 2.5 KVAr
      continuously variable

15.   Battery charger                   1     1000
      12 V silicon bridge rectifier
      AC input 230 V, DC output
      suitable for charging 6 V And
      12 V batteries provided with
      MC voltmeter 0 - 20 V and
      ammeter 0 - 5 A

16.   Capacitors
      2.5 microfarod, electrolytic type  4      200

17.   Q Meter
      frequency 0 - 30 MHz
      Q  0 to 500                        1     4000

18.   LCR meter (digital)               1     8000
      3.5 digit display
      capacitance 0 to 20,000 microfarad
      inductance 0 to 200 Henry
      resistance 0 to 20 M ohms
19.   LCR/Q bridge                      1     5000
      capable of measuring resistance,
      inductance and capacitance of
      range 8 amps, 0.012 to 10 M ohms,
      4 to 10,000 H, 0.5 pico farad to 10 F.
```

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Sl. No.	Equipment	Qty.	Price
20.	Kelvin double bridge 10 x 0.1 ohms circular slide wire devided into 200 equal parts		
21.	Energy meter 3 phase induction type, 4 wire, industrial grade, 50 Hz, 10 A, 440 Volt	1	5000
22.	Energy meter (Sub standard) 3 phase, 4 wire, 440 V, 10A, 50 Hz induction type.		
23.	Transformer single phase core type, 230/110 V, 1 KVA, 50 Hz.	1	5000
24.	Universal shunt 0 - 75 A	1	2000
25.	Current transformer 10/25/50/5A as per IS 4201/1967 and 2705/1981	1	2000
26.	Potential transformer 10 VA, 415/110 V as per IS 4201/1967 and 2705/1981	1	2000
27.	Maxwells bridge	1	1000
28.	Laboratory D.C. power supply (220 V) static converter input from 3 phase 50 Hz, 415 volts A.C., output rating of 200 vatts to 260 watts, 50 amps, continuously varibale.	1	50,000
29.	Watt meter 3 phase induction type 2 element voltage range 0/300/600 V current range 0/5/10 A	1	2000
30.	Frequency meter - portable (Reed type) 45-55 Hz with 21 reeds	1	2000
	Frequency meter digital portable 3.5 digit LED display range 20-99 Hz	1	2000
31.	Phase sequence indicator (Rotary) 3 phase, 415 V, 50 Hz	1	1000
32.	Phase sequence indicator (Indicating type) 3 phase, 400 V, 50 Hz	1	1000
33.	Galvanometer centre zero response time 1.8 sec.	1	1000
34.	VAR meter 1/5 A, 300/600 V	1	2000

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Sl. No.	Equipment	Qty.	Price
35.	Wire wound rheostats		
	15 ohms, 10 A	2	1200
	100 ohms, 5 A	2	1200
	250 ohms, 5 A	2	1200
	1000 ohms, 0.5 A	2	1200
	2500 ohms, 0.1 A	2	1200
36.	Stop watch least count 0.01 Sec.	2	2000
37.	Stop watch (digital) LED	2	2000

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```
                        COMPUTER CENTRE


S.No.      DESCRIPTION                    QTY.      APPROX. COST
                                                    (in Rs.)
1.         Core-2 Quad Processor, 4GB RAM  02 Server  1,20,000=00
           1 GB SATA HDD, 19" TFT Mointor
           OS-Windows 2007/2008/Latest Version

2.         General Desktop Computer-Intel i5 60 node  36,00,000=00
           or Higher, 2GB RAM, 320 GB SATA HDD,
           17" TFT/LCD/LED Monitor, DVD Wirter
           Multi Media Kit with Speakers &
           Microphone Key Board-Multimedia,
           Mouse- Optical Scroll or Latest,
           32 Bit PCI ETHERNET CARD (10/100) Mbps,
           Internet Modem, Pen Drive 16 GB,
           Pre loaded Windows 2007/2008/latest
           Pre Loaded Latest Anti Virus
           with Life time Subscription,
           Licence Media and Manual with
           UPS 660 VA
                        OR

       Computer of latest Specification

3.        Lap Top (Latest Version) with damage      04  250000.00
          Warranty & 3 Hour backup battery

4.      Software (With Licence):                     LS

        i.     ORACLE 11i/My SQL 5.5 or Latest Window
               based (30 users) & Development (Latest)
        ii.    VISUAL STUDIO (Professional 2012)
        iii.   MS OFFICE 2010
        iv.    COMPILER 0 'C', C++, JAVA-7
        v.     Unix & Linux - Red Hat/UBUNTU/Fedora or
               Latest
        vi.    Page Maker, Corel Draw(Full Package),
               Adobe Reader, Adobe Dream Weaver CS6, Flash
               Photoshop, Net Beams
        vii.   Tally ERP 9
        viii.  Personal Web Server, HTML, IIS

5.      Hardware                          5,00,000.00 LS

        i. Switch-32 Port                         02
        ii. Router                                02
        iii.Hub                                   04(8 Port)
        iv. Ext. Modem                            02
        v.  Wireless N/W Adaptor                  02
        vi. Series Access Point                   02
        vii.LAN Cable Meter                       05
        viii. LAN Cable Analyzer                  05
        ix.   LAN Trainer Board                   05
        x.  DATA Communication Trainer Board      05
        ix. Crimping  Tool                        15
            and all other accessories related to
            Networking


6.    Scanner- Flat Bed A4/Auto Lighter         02  20,000
      (Bit depth 48)
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7.	132 Column 600 CPS or faster 9 Pin dot matrix printer with 500 million character head life	02	50,000
8.	Laser Jet-A4 All In one 20 page per min (2 Each)	04	10,000
9.	Desk Jet-A4 Photo Smart (2 Each)	04	40,000
10.	5 KVA on line UPS with minimum 30 miniute battery backup along with sealed maintenance free batteries. Provision for connecting external batteries with network connectivity.(For 2 Labs)	04	8,00000
11.	Split Air Conditioner 1.5 tones capctity with ISI mark alongwith electronic voltage stablizer with over viltage and time delay circuit	08	35,0000
12.	Room preparation and furniture	LS	
13.	19" rack, 24-port switch. connector RJ-45 Cat-6 cabling for network	LS	10,0000
14.	2 KVA Inverter Cum UPS	02	6,0000
15.	Digital Camera (Latest Version)	01	20000
16.	Fire Extinguisher (2 Kg.)	04	15000
17.	Fire Extinguisher (5 Kg.)	04	25000
18.	Vaccum Cleaner	02	25000
19.	LCD Projector 3000 Lumen with all accessories	02	350000
20.	Pen Drive 16 GB	10	10000
21.	DVD Writer External	02	10000
22.	HDD External 500 GB	02	15000
23.	PAD (Latest Configuration)	02	15000
24.	Boardband For Internet(Speed Min. 8mbps)	04	LS
25.	USB Modem	02	8000
26.	Generator 15 KVA Water Coolent	01	450000

NOTE : All the above items should be equally distributed in the 2 computer centres

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DIGITAL ELECTRONICS AND MICROPROCESSOR LAB

Principles of Digital Electronics Lab. (Second Year)
Microprocessors And Applications Lab. (Third Year)

S.No.	Name of the Equipment/ Board/Kit Etc.	Principles of Digital Eltx. Lab. Intake 60	Intake 75	Micropro-cessors & Application Lab. Intake 60	Intake 75	Total Intake 60	Intake 75	Total No. Recommended Intake 60	Intake 75	Rate per Piece @ Rs.	Total Cost Intake 60	Intake 75
1.	CRO dual trace with delayed time base, 25 MHz or higher band width.	2	2	–	–	4	4	4	4	25000	100000	100000
2.	CRO dual trace 100MHz. Digital storage oscilloscope 4 Kpts of Memory, 2 Channels with additional external trigger input, Large 15 Cm. colour display, 20 automatic measurement & 4 math function advance triggering selectable video, mask test,USB inter face for PC Connectivity	2	3	–	–	2	3	2	3	30000	60000	90000
3.	CRO dual trace 30 MHz. Accuracy +3%, Variable Cont. For Stable triggering, Slope Positive or Negative Trace Rotation adjustable on front panel, CRT 140 mm Z Modulation	4	4	2	3	8	10	6	7	15000	90000	105000
4.	Multimeter, 20 K Ohm/volt sensitivity, 1% accuracy in D.C. voltage range, Max. D.C. voltage range 2500 V, A.C Curr-ent.	4	6	–	–	6	10	6	8	3500	21000	28000
5.	Multimeter,Digital hand held 3.5/4.5digit, 0.3% accuracy 1000 V D.C. and 20 m ohm res-istance range protected against transients.	4	6	2	4	8	14	8	10	3500	28000	35000
6.	Logic Probe	30	35	10	15	40	50	40	50	500	20000	25000
7.	Logic board/trainer including +5 Volt, 1Amp + 15 V, 0.3 Amp. power supply and bread board and flexible leads.	20	28	–	–	20	28	20	28	5000	100000	140000
8.	Microprocessor trainer kits with 8085 system (EC 85 or similar).	–	–	16	20	16	20	16	20	12000	192000	240000
9.	Component rack 144 tray (small) & 24 large tray.	4	4	2	2	6	6	6	6	8000	48000	48000
10.	Consumable material such as components ICs, resistors transistors etc.	LS	LS	LS	LS	LS	LS	LS	LS	--	80000	
11.	Miscellaneous	LS	LS	LS	LS	LS	LS	LS	LS	--	100000	
12.	Micro Controller Kits/PLC	LS	LS	LS	LS	LS	LS	LS	LS	--	50000	
13.	Trainer Kits of Universal Shift Register (SISO,SIPO,PIPO,PISO) Decade Counter, Universal Counter(Up, Down & Updown) & Different Flip Flops	LS	LS	–	–	LS	LS	LS	LS	--	50000	
14.	Dual power supply (0-30v/.5amp)	–	–	–	–	4	6	4	6	5000	20000	30000
15.	Minimum 12 line electronic telephone exchange with teleph-one instrument sets and power supply (Cardless)	–	–	–	–	2	2	2	2	50000	100000	100000
16.	Mobile Phone-GSM 3G/HSDPA Supported with Wi-Fi, Bluetooth Connectivity,Abdroid 2.3 Operating System Supported with Colour Display TFT Screen	–	–	–	–	8	8	8	8	15000	120000	120000

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S.No.	Name of the Equipment/ Board/Kit Etc.	Principles of Digital Eltx. Lab.		Micropro-cessors & Applicat-ion Lab.		Total		Total No. Recommen-ded		Rate per Piece	Total Cost	
		Intake		Intake		Intake		Intake		@ Rs.	Intake	
		60	75	60	75	60	75	60	75		60	75
	with SD Memory Card, Battery 1300 mAH or Higher											
17.	Tablet PC-Min 7 inch Capactive Touch Screen,Android 4.0 or Upper Operating System,2D/3D Graphic Processor, 4GB internal Memory Expendable upto 40GB with Front Camera , Battery 2800 mAH or Higher	-	-	-	-	8	8	8	8	1000	8000	8000
18.	Experimental Kits for demonstr-ating ASK, FSk, PSK circuits	-	-	-	-	2	2	2	2	80000	160000	160000
19.	Experimental Kits for Optical Fibre Communication	-	-	-	-	LS				LS	100000	
20.	Mobiles Phones Trainer Kit with Fault Finding Facilities, Various Test Point Faculties	-	-	-	-	4	4	2	2	25000	50000	50000
21.	Computers System Dual Core i5/i7 with internet connection and UPS	-	-	-	-	2	2	2	2	50000	100000	100000
22.	Microprocessor Training Kit of 8086	-	-	12	15					LS	100000	
23.	Fax Machine (Multi Function)	-	-	-	-	2	3	2	3	10000	20000	30000
24.	Universal Data Book	1	1	1	1	1	1	1	1	5000	5000	5000
25.	Software	-	-	-	-	-	-	-	-	LS	200000	

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7. LEARNING RESOURCE MATERIALS

1.	LCD Projector with Screen	1	--	20000
2.	Handicam	1	--	30000
3.	Cutting, Binding & Stitching equipment.	1	--	30000
4.	Desk Top Computer with Internet Core i5/i7- 760, Processor, Genuine Windiw 7, Professional 18 inch HD, Flat Panel Monitor Optical Mouse, Key Board & all related media or latest version	1	--	40000
5.	Home Theater Support Disc type CD. CDR/CDRW DVDR/DVDRW, VCD Supported with USB Port Support-DIVX/JPEG/MP3	1	--	25000
6.	Commerical P A System 16 W-220W output, AC & 24V DC Operated, 5 Mic. & 2 Auxilary input, Speaker output 4 Ohm, 8 Ohm, 17 V & 100 V	1	--	20000
7.	Interactive Board	1	--	50000

ote :

1. This center will be only one at the institute level irrespective of all branches.

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INSTITUTE OF RESEARCH,DEVELOPMENT AND TRAINING U.P.KANPUR -208024

SUBJECT: Questionnaire for ascertaining the job potential and
            activities of diploma holder in Information Technology
            (Semester System).

PURPOSE: To design and develop Three Year (Six Semester)
            diploma curriculum in Information Technology (Semester
            System).

NOTE: 1.Please answer the questions to the points given in
            the questionnaire.
            2.Any other point or suggestion not covered in this
            questionnaire may be written on a separate paper and
            enclosed with the questionnaire.

1.Name of the organisation:_____
                           _____

2.Name & Designation of the officer _____
  filling the questionnaire   _____

3.Name of the department/section/   _____
  shop   _____

4.Importent functions of the   _____
  department/section/shop   _____

5.Number of diploma holder employees
  under your charge in the area of _____
  Information Technology.

6.Please give names of modern equipments/machines handled by a
  diploma holder in Information Technology.

      1.   2.   3.

      4.   5.   6.

7.What proficiencies are expected from a diploma holder in
  Information Technology.

      1.   2.   3.

      4.   5.   6.

8.Mention the approximate percentage of the following desired in
  Diploma teaching.

      1. Theoretical knowledge   -------------%
      2. Practical knowledge   -------------%
      3. Skill Development   -------------%

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9. Do you think " on the job training" / Industrial training
should form a part of curriculum.   (Yes/ No)
if yes then
(a) Duration of training   --------------
(b) Mode of training   1. Spread over different semesters

                            2. After completion of course

                            3. Any other mode

10. What mode of recruitment is followed by your organisation.

    1. Academic merit
    2. Written test
    3. Group discussion
    4. Interview
    5. On the job test.

11. Mention the capabilities/ Qualities looked for while recruiting
    diploma holder in Information Technology.
    (a) Technical knowledge   ------------
    (b) Practical skill   ------------
    (c) Etiquettes and behaviour   ------------
    (d) Aptitude   ------------
    (e) Health, habit and social background --------------
    (f) Institution where trained   --------------

12. Does your organisation have   Yes/No
    any system for the survey of Home
    articles of different countries/States.

13. Does your organisation conduct field   Yes/No
    survey to know users views regarding.
    1. Home Articles for different
       age groups and sex.
    2. Effect of climatic conditions
    3. Any other
       If yes ; Please give brief account of each.

14. Which type of assignment do you suggest for an entrepreneur
    in Information Technology.

15. In which types of organisations can a diploma holder in
    Information Technology can work or serve.

    1   2   3

    4   5   6

16. Job prospects for the diploma holder in   Information
    Technology the next ten years in the state / country.

17. In your opinion what should be the subjects to be taught to
    a diploma student in Information Technology.

     Theory   Practical

18. Kindly mention particulars regarding topics/areas which
    should be given more emphasis in the curriculum .

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```
          Theory                      Practical

19.   Kindly state whether your organisation      Yes/ No
      can contribute towards improvement of
      curriculum in above field.
      If yes : Please give names of experts in
      your organisation to whom contact.

20.   Kindly give your valuable suggestions for being
      considered at the time of finalisation of curriculum.

21.   What changes in technologies are to be incorporated
      in the development of curriculum in Information Technology.




                                           ( Signature )


      Kindly mail the above questionaire duly filled to:-

              Litil Kumar
              Assistant Professor
              Institute of Research,Development & Training,U.P.
              Kanpur-208024
( Please note that all information in this survey is confidential
for the use of curriculum design only )
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All the students of second year after annual examination will undergo in industrial training for a period of four week in Industries dealing with computers. It will in all respect end by the end of summer vacation. It will be arranged and supervised by institute staff . The performa for preparing a report of his stay. There in the industry given below can be taken as a guide for the purpose.

1. Name & Address of the organisation

2. Nature of the industry and its activity.

3. Date of

    i. Joining

    ii. Leaving

4. Details of the sections of the industry visited.

    i. Name of tools, equipments instruments in use.

    ii. Activities of the section

    iii. Study of the components, devices used in complete assemblies.

    iv. Soldering and de-soldering techniques used in circuit fabrication.

    v. Study of PCB Lay out developing and preparation.

    vi. Checking and testing of the components used.

    vii. Final checking of the product.

    viii. Discription of quality control measures taken in industry.

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