

SCOPE OF DIPLOMA IN INFORMATION TECHNOLOGY.

Information Technology is emerging as a driving force in education, commerce and industry. In this era of Information Technology revolution, the computer systems are playing an important role in every aspect of human life for automation, from simple office automation to decision support systems, production planning to e-commerce, communication, online education etc. To ensure effective/ proper utilization of these computer systems by the software professionals it is necessary that the electronic components of the computer system and its associated peripheral devices and network, work efficiently without breakdown. This demands technicians having good knowledge and skills of computer engineering in maintaining computer hardware easily and quickly. In addition, the continuous changing technologies in the field of Microelectronics, Communication technology and Computer Technology have created newer and changing demands for new knowledge and skills in Diploma pass-outs implying a positive attitude towards self-learning and adaptability.

Therefore, this Diploma in Information Technology programme envisages in developing competent technicians with a number of professional skills who can perform their jobs in the industry or as an entrepreneur effectively and efficiently. In the industry or in small business/ educational establishments the technician with necessary skills will be able to plan, procure and install computer hardware and software, test and certify them.

The programme will develop the competency required to assemble computer system, maintain the computer resources in running condition and troubleshoot and repair the computer hardware in the case of breakdown. The technicians will also be able to install and manage computer networks. As an entrepreneur he will be to manage his computer-related enterprise and market his products and services. At the same time the skills related to software that are required to manage the computer hardware and networks will also be developed. The basic competencies that are required for designing and developing software systems will also be developed in the technicians in case he wants to take it as a career. This programme apart from developing the above mentioned professional skills would also develop some of the soft skills like communication skills, social skills and life-long learning skills that are required by the industry.

AREAS OF EMPLOYMENT/WORK

S. No.	Type of industries/ organizations	Capacity (Designation) in which employed
i)	Entrepreneur	Proprietor
ii)	Industrial Corporation	Assist. Programmer/Computer Software Engineer/Database Administrator Network Administrator
iii)	Financial Corporation, Banks	Assist. Programmer/Computer Software Engineer/Database Administrator Project Manager, Network Administrator
iv)	Internet service provider	Network Technician, Customer support Engineer, Web application developer Network Administrator
v)	S/W development firm	S/W Testing/Trainee/Customer Support Programmer, Network Administrator Database Administrator Web Application developer
vi)	Hardware/ Service sector	Customer support Engineer, Supervisor
vii)	Hardware Support Firm	H/W maintenance Engineer
viii)	Electronics & Telecomm. Industry	Trainee Engineers

JOB FUNCTIONS

Sr. no.	Designations of the diploma holders in various employment	Job functions
i)	Entrepreneur	<ul style="list-style-type: none"> • Project Management • Plan, estimate, procure and install hardware and software systems. • Analyse and design systems • Administer and manage networks • Marketing skills
ii)	Database Administrator	<ul style="list-style-type: none"> • Identify database requirement planning, designing. • Implementing database design. • Maintaining database server. • Backup recovery.
iii)	Programmer	<ul style="list-style-type: none"> • Study the design of complete system • Choose / write appropriate algorithm to solve the problem • Implement the design using various design tools/programs / Language/Application Software

iv)	System Network administrator	<ul style="list-style-type: none"> • Planning implementing Network. • Working in Heterogeneous network. • Implementing switches, Leased lines, Routers, Hubs etc • Backing up data. • Network Security
v)	Web Application Developer	<ul style="list-style-type: none"> • Study the design of complete system • Choose / write appropriate algorithm to solve the web based problem • Implement the design using various design tools/programs / Language/Application Software • Web Server administration • Web based application development • Documentation qualities
vi)	Customer Support	<ul style="list-style-type: none"> • Communication Skills • Marketing Skills • Test and certify Software systems • Software installation • Trouble shooting of Software and hardware • Network planning • Estimation of cost • Solution proving on different aspects

PROGRAMME AIM

IDENTIFIED COMPETENCIES FOR DIPLOMA IN INFORMATION TECHNOLOGY

- Use and operate computers for data processing and communication.
- Efficient use of software packages.
- Diagnose the faults/viruses and remove it.
- Maintain the computer system and Network.
- Project management Skills.
- Plan, estimate, procure and install Hardware and Software.
- Analyze and design systems.
- Administrate and Manage Networks.
- Programming Skills.
- Web based application skills.
- Web server administration skills.
- Entrepreneurial skills.
- Life long learning and ability to acquire new knowledge and skills on self-learning basis.
- Ability to work in multidisciplinary and multinational teams.
- Positive attitude towards work and social responsibility.
- Develop S/W using open software Technology

- Develop S/W using .NET technology

SALIENT FEATURES OF CURRICULUM

- Developing competencies
- Team Building
- Entrepreneurial skills.
- Learning to learn/ Self Learning
- Information collection, processing, use and management.

STRATEGY ADOPTED FOR CURRICULUM DEVELOPMENT

INTRODUCTION

Curriculum development is a dynamic process, which is governed by the contemporary needs of the user-system. All the activities in any academic institution are guided by the curricula operating in the institution. Design of curricula and their implementation therefore requires utmost attention of one and all for its effectiveness.

It was felt that design, review/revision should be based on scientific principles of educational technology and theories of learning and it must reflect the needs, expectations and aspirations of stakeholders/ clients in the technician education system. These needs of user system mainly fall in the following four domains namely

- Personal development domain
- Social development domain
- Continued learning skills domain
- 'Earning to live' or 'Professional Skills' development domain

Curriculum is designed on competency based. All competencies needed for IT diploma holder is first listed. Based on this structure of curriculum is prepared. Attempts have been made in this document to address to the expectations of the user system from the Diploma pass outs. If implemented in right spirit, it would pay much better dividends, it is hoped.

APPROACH TO DESIGN OF CURRICULUM

This Curriculum has been designed on the systematic approach based on competency-based curriculum of educational technology and theories of learning. The data is collected in following ways

- Feedback of alumni
- Feedback of staff
- Past experience of 3 years.
- Through observational records
- By study of documents used in industries, expert reports, newspapers and trade literatures etc., their views on different aspects of the curriculum.

- Through a series of discussions in programme committee.

Taking into account the knowledge, skills/competencies, attitudes etc. required to be possessed by the diploma pass outs the content of different courses is designed.

While designing the curriculum emphasis is given on following points.

- New/emerging technologies being used in the world of work.
- Personal values and social skills required to be possessed.
- Skills related to life-long learning and independent study.
- Professional skills required for different jobs along a career path.

Describing roles/ functions of a technician

A technician, say for example in a medium size engineering enterprise, working at middle level management position may have to carry out jobs in different departments. These are identified as

- Installation, inspection, production & control
- Repair & maintenance
- Marketing and sales
- Purchase & Store
- Observation at Site
- Analysis, Design and Costing.
- Research & development

Designing content of each curriculum area

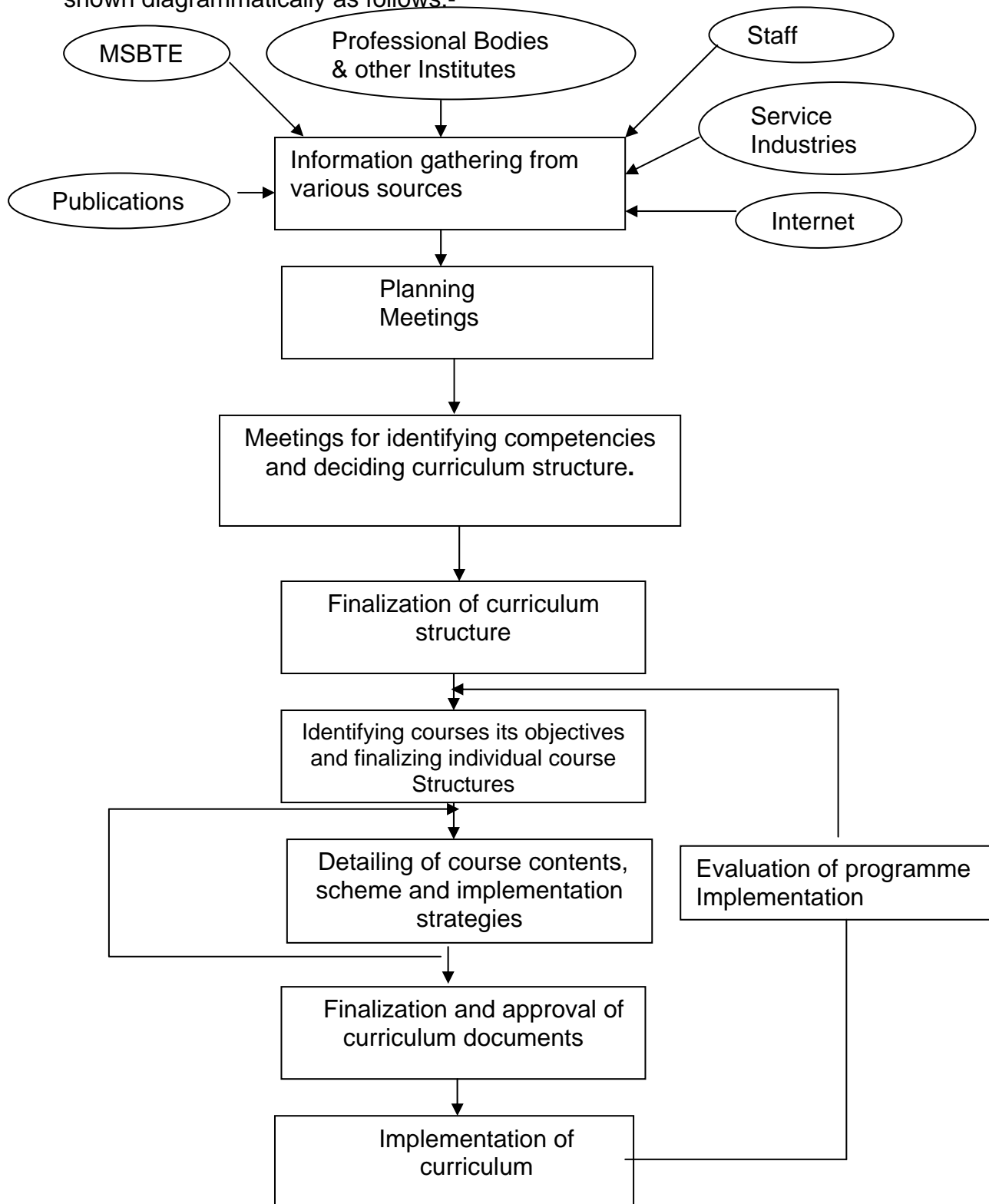
- Different courses are categorized as
 - Foundation Level
 - Basic Level
 - Allied Level
 - Applied Level
 - Diversified Level
- Curriculum scheme of each course along with course code is given at the beginning
- Competencies to be developed are identified and written.
- Rationale of each course is highlighted.
- Objectives of each course are highlighted and written.
- Content outline in descriptive form was derived. Generally the content outline of a subject was divided into chapters and then from chapters into topic outline.
- Having derived the total content outline i.e. Theory. At the end of the theory content list of practical is added for each course, following were arrived at by consensus-
 - Time required by a teacher to teach the prescribed theory and practical parts
 - Number of courses per term to be taken.
 - Total no. of hours required to teach the entire course.
 - Total no. of lectures and practicals per week.

- Approach to the assessment of student's learning and types of assessment techniques to be used were decided. An assessment scheme was designed, which is a suitable mix of (a) continuous evaluation of term-work (b) progressive test (c) Term end examination.
- Implementation strategies for each subject were identified.
- Learning resources for students were prescribed such as
 - Teacher's lecture notes
 - Basic text-book covering most of the topics in the curriculum and other books
 - Monographs, handbooks, periodicals, articles, journals etc.
 - Data-books, manuals, standards etc

In all these activities, views of senior teachers regarding relevance of course contents and implementation strategies being presently followed are sought.

DEVELOPING/ FINALISING A PROGRAMME STRUCTURE

Programme structure consisting of teaching and examination schemes was finally arrived at through consensus. The approach followed for curriculum development is shown diagrammatically as follows:-



PROGRAMME STRUCTURE

SR. NO	LEVELS	COMPULSORY COURSES	OPTIONAL COURSES	CREDITS COMP. + OPTIONAL	MARKING SCHEME		
					COMPULSORY COURSES	OPTIONAL COURSES	TOTAL
1	Foundation	08	--	32	800	-	800
2	Basic	14	--	74	1700	-	1700
3	Allied	01	03/20	12	100	100	200
4	Applied	07	01/05	42	850	100	950
5	Diversified	04	02/07	30	500	250	750
	TOTAL	34	06/32	190	3950	450	4400

[Sample paths](#)

Scheme at a glance:

Total number of courses offered : 40

Number of Compulsory courses : 34

Number of Optional course : 06/31

Total courses to be opted : 40/65

LEVEL- I: (FOUNDATION LEVEL COURSES)

COURSE CODE	COURSE TITLE	PRE REQ	TEACHING SCHEME				EXAMINATION SCHEME					
			TH	PR	CR	TERM	PT	TH	PR	TW	OR	TOTAL
GE151	Communication skill		2	2	4		25	50		25	25	125
GE152	Basic Mathematics		4		4		25	75				100
GE153	Engineering Mathematics		4		4		25	75				100
GE156	Workshop Practice			4	4					50		50
GE158	Basics of computer systems		1	2	3				50	50		100
IT151	Basic Electronic Dev. and Circuits		3	2	5		25	50	25	25		125
IT152	Physics		2	2	4		25	50		25		100
IT153	Computer Workshop		2	2	4					50	50	100
	TOTAL		18	14	32		125	300	75	225	75	800

Scheme at a glance:

Total number of courses offered	: 08
Number of compulsory courses	: 08
Number of optional courses	: Nil
Total number of courses to be opted	: 08/08

[Back](#)

LEVEL II: (BASIC LEVEL COURSES)

COURSE CODE	COURSE TITLE	PRE REQ	TEACHING SCHEME				EXAMINATION SCHEME					TOTAL
			TH	PR	CR	TERM	PT	TH	PR	TW	OR	
IT251	Digital Electronics		4	2	6		25	75	25	25		150
IT252	Computer Architecture Troubleshooting & maintenance		3	3	6		25	50	50	25		150
IT253	Electrical Engineering		4	2	6		25	75	25	25		150
IT254	Fundamentals of web designing		2	2	4		25	50	25	25		125
IT255	Multimedia Application		2	4	6		25	50		25		100
IT256	Fundamentals of programming using "c"		4	2	6		25	75	25	25		150
IT257	Data Structures		4	2	6		25	75	25	25		150
IT258	Microprocessor & Peripherals		4	2	6		25	75	25	25		150
IT259	Application softwares			4	4				25	25		50
IT260	Computational Techniques		4	2	6		25	75	25	25		150
IT261	Database management system		4	2	6		25	75	25	25		150
IT262	Visual basic Programming			4	4				25	50		75
IT263	E-learning			4	4					50		50
IT264	Computer Networks		4		4		25	75				100
	TOTAL		39	35	74		275	750	300	375	-	1700

Scheme at a glance:

Total number of courses offered :14
 Number of compulsory courses :14
 Number of optional courses : Nil
 Total number of courses to be opted : 14/14

[BACK](#)[NEXT](#)

LEVEL - III: (ALLIED LEVEL COURSES)

COURSE CODE	COURSE TITLE	PRE REQ	TEACHING SCHEME				EXAMINATION SCHEME					
			TH	PR	CR	TERM	PT	TH	PR	TW	OR	TOTAL
IT351	Entrepreneurship Development		2	3	5					100		100
Any one of following												
GE371	Material Management		3		3		25	75				100
GE372	Financial Management		3		3		25	75				100
GE373	Marketing Management		3		3		25	75				100
GE374	Production Management		3		3		25	75				100
GE375	Industrial Management		3		3		25	75				100
IT352	Business Processes		3		3		25	75				100
Any two of following												
GE351	Entrepreneurship Development			2	2							
GE352	Sewing Machine Maintenance			2	2							
GE353	Electronic Maintenance			2	2							
GE354	Two Wheeler Maintenance			2	2							
GE355	Electrical Maintenance			2	2							
GE356	Hobby Electronics			2	2							
GE157	Computer H/W Maintenance			2	2							
GE358	Music			2	2							
GE359	Yoga			2	2							
GE360	Spoken English			2	2							
GE361	Indian Classical Dance			2	2							
GE362	Personality Development			2	2							
GE363	Aerobic Exercise			2	2							
GE364	Foreign Language			2	2							
GE365	Reserved											
	Total		05	07	12		25	75		50	50	200

Scheme at a glance:

Total number of courses offered	:04
Number of compulsory courses	:01
Number of optional courses	:3/20
Total number of courses to be opted	:04/21

[BACK](#)[NEXT](#)

LEVEL-IV: (APPLIED LEVEL COURSES)

COURSE CODE	COURSE TITLE	PRE REQ	TEACHING SCHEME				EXAMINATION SCHEME					
			TH	PR	CR	TERM	PT	TH	PR	TW	OR	TOTAL
	Compulsory Courses											
IT451	Operating Systems		4	2	6		25	75		25	25	150
IT452	Object Oriented Programming using C++		4	2	6		25	75	25	25		150
IT453	Software Engineering		4		4		25	75				100
IT454	Software Development Tools			4	4					50	50	100
IT455	Management Information Systems		4	2	6		25	75		25	25	150
IT456	Projectwork -I & Seminar			6	6					75	25	100
IT457	Projectwork –II			6	6					50	50	100
Optional Courses (Any one)												
IT459	Introduction to ERP		2	2	4		25	50		25		100
IT460	Computer Graphics		2	2	4		25	50		25		100
IT461	Artificial Intelligence		2	2	4		25	50		25		100
IT462	Advanced Networks		2	2	4		25	50		25		100
IT463	VB.NET		2	2	4		25	50		25		100
	Total		18	24	42		125	350	25	275	175	950

Scheme at glance:

Total number of courses offered	: 08
Number of compulsory courses	: 07
Number of optional courses	: 01/05
Total number of courses to be opted	:08/12

[BACK](#)[NEXT](#)

LEVEL-V: (DIVERSIFIED LEVEL COURSES)

COURSE CODE	COURSE TITLE	PRE REQ	TEACHING SCHEME				EXAMINATION SCHEME					
			TH	PR	CR	TERM	PT	TH	PR	TW	OR	TOTAL
	Compulsory Courses											
IT551	Java Programming		4	2	6		25	75	25	25		150
IT552	Web Technologies		4	2	6		25	75	25	25		150
IT553	Network Administration		2	4	6				50	50		100
IT554	Advanced Software Development Tools		1	3	4					50	50	100
	Optional Courses (Any two)											
IT555	ASP.NET		2	2	4		25	50		25	25	125
IT556	Image processing		2	2	4		25	50		25	25	125
IT557	Object Oriented modeling & Design		2	2	4		25	50		25	25	125
IT558	Embedded System		2	2	4		25	50		25	25	125
IT559	E-commerce		2	2	4		25	50		25	25	125
IT560	Windows Programming		2	2	4		25	50		25	25	125
IT561	Software Quality		2	2	4		25	50		25	25	125
	Total		15	15	30		100	250	100	200	100	750

Scheme at glance:

Total number of courses offered : 06
 Number of compulsory courses : 04
 Number of optional courses : 02/07
 Total number of courses to be opted :06/11

[BACK](#)[NEXT](#)

SAMPLE PATH (10TH PASS STUDENTS)

Year-I		Year-II		Year-III	
Odd	Even	Odd	Even	Odd	Even
Basic Mathematics (04) GE152	Communication Skill (04) GE151	Data Structures (06) IT257	Computer Networks (04) IT264	Projectwork-1 & seminar (06) IT456	Project work-II (06) IT457
Physics (04) IT152	Engineering Mathematics (04) GE153	Microprocessor and peripherals (06) IT258	Object Oriented Programming using C++ (06) IT452	Web Technologies (06) IT552	Entrepreneurship Development (05) IT351
Digital Electronics (06) IT251	Fundamentals of Programming using 'C'. (06) IT256	Computational Techniques (06) IT260	Computer Architecture Troubleshooting & maintenance (06) IT252	Java Programming (06) IT551	Network Administration (06) IT553
Basic Electronic devices and circuits (05) IT151	Electrical Engineering (06) IT253 /	Database Management System. (06) IT261	Operating Systems (06) IT451	Soft ware Engineering (04) IT453	Management Information System (06) IT455
Basics of Computer Systems (03) GE158	Fundamentals of Web Designing. (04) IT254	Visual Basic Programming (04) IT262	Software Development Tools (04) IT454	Advanced Software Development Tools-II (04) IT554	E Learning (04) IT263
Computer workshop (04) IT153	Application softwares (04) IT259		Multimedia Applications (06) IT255		
Workshop Practice (04) GE156	Non exam credit course (2) Any one From GE352 to GE365	Non exam credit course (2) Any one From GE352 to GE365	Optional Courses (Any one)	Optional Courses (Any one)	Optional Courses (Any two)
			Material Management (03) GE371	Introduction to ERP (04) IT459	ASP.NET (04) IT555
			Financial Management (03) GE372	Computer Graphics (04) IT460	Image Processing (04) IT556
			Marketing Management (03) GE373	Artificial Intelligence (04) IT461	Object Oriented Modeling & Design (04) IT557
			Industrial Management (03) GE375	Advanced Networks (04) IT462	Embedded Systems (04) IT558
			Business Processes (03) IT352	VB.NET (04) IT463	E-commerce (04) IT559
					Windows Programming (04) IT560
					Software Quality (04) IT561
(30)	(30)	(30)	(35)	(30)	(35)

SAMPLE PATH (FOR 12TH VOCATIONAL COURSE –D9)**SAMPLE PATH (FOR 10TH ITI /MCVC)****SAMPLE PATH (FOR 12TH Technical With Workshop Technology)****SAMPLE PATH (FOR 12TH with Electronics (C2)**

SAMPLE PATH (FOR 12TH VOCATIONAL COURSE –D9)

Year-II		Year-III	
Odd	Even	Odd	Even
Data Structures (06) IT257	Computer Networks (04) IT264	Projectwork-1 & seminar (06) IT456	Project work-II (06) IT457
Basic Electronic devices and circuits (05) IT151	Object Oriented Programming using C++ (06) IT452	Web Technologies (06) IT552	Entrepreneurship Development (05) IT351
Computational Techniques (06) IT260	Computer Architecture Troubleshooting & maintenance (06) IT252	Java Programming (06) IT551	Network Administration (06) IT553
Database Management System. (06) IT261	Operating Systems (06) IT451	Software Engineering (04) IT453	Management Information System (06) IT455
Visual Basic Programming (04) IT262	Software Development Tools (04) IT454	Advanced Software Development Tools-II (04) IT554	E Learning (04) IT263
Electrical Engineering (06) IT253	Multimedia Applications (06) IT255	Optional Courses (Any one)	
Non exam credit course (2) Any one From GE352 to GE365	Fundamentals of Web Designing. (04) IT254	Introduction to ERP (04) IT459	Optional Courses (Any two)
	Application Softwares (04) IT259	Computer Graphics (04) IT460	ASP.NET (04) IT555
		Artificial Intelligence (04) IT461	Image processing (04) IT556
		Advanced Networks (04) IT462	Object Oriented Modeling & Design (04) IT557
		VB.NET (04) IT463	Embedded Systems (04) IT558
		Optional Courses (Any one)	E-commerce (04) IT559
		Material Management (03)GE371	Windows programming (04)IT560
		Financial Management (03)GE372	Software Quality (04) IT561
		Marketing Management (03)GE373	
		Industrial Management (03)GE375	
		Business Processes (03)IT352	
(35)	(40)	(33)	(35)

[BACK](#)

SAMPLE PATH (FOR 10TH ITI /MCVC)

Year-II		Year-III	
Odd	Even	Odd	Even
Data Structures (06) IT257	Computer Networks (04) IT264	Project work-I & seminar(06) IT456	Project work-II (06) IT457
Basic Electronic devices and circuits (05) IT151	Object Oriented Programming using C++ (06) IT452	Web Technologies (06) IT552	Entrepreneurship Development (05) IT351
Computational Techniques (06) IT260	Multimedia Applications (06) IT255	Java Programming (06) IT551	Network Administration (06) IT553
Database Management System. (06) IT261	Software Development Tools (04) IT454	Software Engineering (04) IT453	Management Information System (06) IT455
Visual Basic Programming (04) IT262	Engineering Mathematics (04) GE153	Advanced Software Development Tools-II (04) IT554	E Learning (04)IT263
Basic Mathematics (04) GE152	Fundamentals of Web Designing. (04) IT254	Microprocessor and peripherals (06)IT258	Operating Systems (06) IT451
Digital Electronics (06) IT251	Computer Architecture Troubleshooting & maintenance (06) IT252		
Non exam credit course (2) Any one From GE352 to GE365	Optional Courses (Any one)	Optional Courses (Any one)	Optional Courses (Any two)
	Material Management (03)GE371	Introduction to ERP (04)IT408	ASP.NET (04) IT555
	Financial Management (03)GE372	Computer Graphics (04)IT409	Image processing (04) IT556
	Marketing Management (03)GE373	Artificial Intelligence (04)IT410	Object Oriented Modeling & Design (04) IT557
	Industrial Management (03)GE375	Advanced Networks (04)IT411	Embedded Systems (04) IT558
	Business Processes (03)IT352	VB.NET (04)IT412	E-commerce (04) IT559
			Windows programming (04)IT560
			Software Quality (04) IT561
(39)	(37)	(36)	(41)

[BACK](#)

SAMPLE PATH (FOR 12TH Technical With Workshop Technology)

Year-II		Year-III	
Odd	Even	Odd	Even
Data Structures (06) IT257	Computer Networks (04) IT264	Project-work-1 & seminar(06) IT456	Project work-II (06) IT457
Basic Electronic devices and circuits (05) IT151	Multimedia Applications (06) IT255	Web Technologies (06) IT552	Entrepreneurship Development (05) IT351
Computational Techniques (06) IT260	Software Development Tools (04) IT454	Java Programming (06) IT551	Network Administration (06) IT553
Database Management System. (06) IT261	Fundamentals of Programming using 'C'. (06)IT256	Soft ware Engineering (04) IT453	Management Information System (06) IT455
Visual Basic Programming (04) IT262	Fundamentals of Web Designing. (04)IT254	Advanced Software Development Tools-II (04) IT554	E Learning (04) IT263
Microprocessor and peripherals (06)IT258	Computer Architecture Troubleshooting & maintenance (06) IT252	Optional Courses (Any one)	
Digital Electronics (06)IT251	Application softwares (04) IT259	Introduction to ERP (04)IT408	Object Oriented Programming using C++ (06)IT452
	Operating Systems (06) IT451	Computer Graphics (04)IT409	
		Artificial Intelligence (04)IT410	
Non exam credit course (2) Any one From GE352 to GE365		Advanced Networks (04)IT411	Optional Courses (Any two)
		VB.NET (04)IT412	ASP.NET (04) IT555
		Optional Courses (Any one)	Image processing (04) IT556
		Material Management (03)GE371	Object Oriented Modeling & Design (04) IT557
		Financial Management (03)GE372	Embedded Systems (04) IT558
		Marketing Management (03)GE373	E-commerce (04) IT559
		Industrial Management (03)GE375	Windows programming (4)IT560
		Business Processes (03)IT352	Software Quality (04) IT561
(39)	(40)	(35)	(41)

[BACK](#)

SAMPLE PATH (FOR 12TH with Electronics (C2))

Year-II		Year-III	
Odd	Even	Odd	Even
Data Structures (06) IT257	Computer Networks (04) IT264	Project-work-1 & seminar(06) IT456	Project work-II (06) IT457
Computational Techniques (06) IT260	Multimedia Applications (06) IT255	Web Technologies (06) IT552	Entrepreneurship Development (05) IT351
Database Management System. (06) IT261	Software Development Tools (04) IT454	Java Programming (06) IT551	Network Administration (06) IT553
Visual Basic Programming (04) IT262	Fundamentals of Programming using 'C'. (06)IT256	Soft ware Engineering (04) IT453	Management Information System (06) IT455
Microprocessor and peripherals (06)IT258	Fundamentals of Web Designing. (04)IT254	Advanced Software Development Tools-II (04) IT554	E Learning (04)IT263
	Computer Architecture Troubleshooting & maintenance (06) IT252	Optional Courses (Any one)	
	Application softwares (04) IT259	Introduction to ERP (04)IT408	Object Oriented Programming using C++ (06)IT452
	Operating Systems (06) IT451	Computer Graphics (04)IT409	
		Artificial Intelligence (04)IT410	
Non exam credit course (2) Any one From GE352 to GE365		Advanced Networks (04)IT411	Optional Courses (Any two)
		VB.NET (04)IT412	ASP.NET (04) IT555
		Optional Courses (Any one)	Image processing (04) IT556
		Material Management (3)GE371	Object Oriented Modeling & Design (04) IT557
		Financial Management (3)GE372	Embedded Systems (04) IT558
		Marketing Management (3)GE373	E-commerce (04) IT559
		Industrial Management (3)GE375	Windows programming (4)IT560
		Business Processes (3)IT352	Software Quality (04) IT561
(30)	(40)	(33)	(41)

[BACK](#)

COURSE CODE: GE 151
COURSE NAME: COMMUNICATION SKILL

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				
Marks	Prog. Test	End Exam.	--	25	25	125
	25	50				
	1	2				

RATIONALE:

A technician has to communicate with his peers, assistants and official every now and then. He must know how to communicate with them effectively. This subject aims at imparting skills of written as well as oral communication.

OBJECTIVES:

To help students to:

1. Learn new words
2. Learn different communication skills
3. Draft business letters
4. Write technical reports
5. Learn pictorial representation
6. Comprehend the given passage

CONTENTS:**Topic (A)****(M- 13 H-08)**

1. Communication: definition, importance and use
2. Elements of communication process
3. Concept of communication process
4. Types of communication
5. Oral and written communication
6. Body language

(Learning material: A handbook of Teachers training programme TTTI, Bhopal)

----- **First Progressive Test** -----

Topic (B) Technical Report Writing**(M- 13 H-08)**

1. A report on repairing
2. A report on selection of site
3. A report on fall/rise in production
4. A report on work progress
5. A report on accident

(Learning material: Technical English-Book II. Compiled by TTTI, Bhopal Somaiya Publications, Mumbai)

Topic (C) Letter Writing**(M- 13 H-08)**

1. Application
2. Quotation or Answer to the quotation
3. Order

----- **Second Progressive Test** -----

4. Complain
5. Answer to the complain

Topic (D) Pictorial representation

(M- 6 H-06)

1. Tables
2. Graphs
3. Bar graph
4. Pie chart

Topic (E) Comprehension

(M- 5H-02)

Students are expected to write answers of the questions given on the passage and explain new words in their own language.

----- **Third Progressive Test** -----

LIST OF PRACTICALS :

Practical: 2 Hrs./Week (For each batch of 20 students)

1. Loud reading-2 Pr.
 2. Speech-2 Pr.
 3. Debate -2 Pr.
 4. Telegram writing-2 Pr.
 5. Memo writing-2 Pr.
 6. Situational conversation-2 Pr.
 7. Group discussion-2 Pr.
 8. Dialogues-2 Pr.
-

[BACK](#)

NEXT

COURSE CODE: GE 152
COURSE NAME: BASIC MATHEMATICS

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	--				
Marks	Prog. Test	End Exam.	--	--	--	100
	25	75				
Duration	1	3				

RATIONALE:

The subject is classified under basic sciences and intends to teach students basic facts, concepts and principles of mathematics, as a tool to analyze Engineering problems. Mathematics lies down the foundation to understand core technology subjects.

OBJECTIVE:

The students will be able to:

1. Develop process of logical thinking
2. Comprehend the principles of other subjects
3. Solve problems by using analytical and systematic approach.

CONTENTS:

Unit: 1 Algebra (M- 24 H-24)

Topic 1 Determinant (M- 6 H-6)

- 1.1 Definition of Determinant, Order of Determinant
- 1.2 Expansion of Determinant of order 2&3
- 1.3 Properties of Determinant
- 1.4 Cramer's Rule (solution of simultaneous equations in two & three Unknowns)

Topic 2 Partial fractions (M- 6 H-8)

- 2.1 Definition of Partial fraction, proper & improper fractions, rational fractions
- 2.2 To resolve given rational fraction into partial fractions
- 2.3 Denominator containing Non repeated linear factors
- 2.4 Denominator containing repeated linear factors
- 2.5 Denominator containing irreducible non-repeated quadratic factors

Topic 3 Matrices (M- 12 H-10)

- 3.1 Definition of matrix
- 3.2 Type of matrix: viz.- null, row, column, square, diagonal, scalar, unit, Triangular.
- 3.3 Algebra of matrices –addition, subtraction & multiplication
- 3.4 Transpose of a matrix

(Topic 1 to Art.3.4 of Topic3)

- 3.5 Adjoint of a matrix
- 3.6 Inverse of matrix by adjoint method

----- **First Progressive Test** -----

Unit: 2 Trigonometry (M- 27 H-24)

Topic: 4 Trigonometric Ratios (M- 5 H-4)

- 4.1 Trigonometric Ratios of any angle (0 to 360 degrees)
- 4.2 Fundamental identities
- 4.3 Procedure for use of fundamental identities

Topic: 5 Trigonometric Ratios of allied, compound & multiple angles (M- 12 H-10)

Trigonometric Ratios of allied angles

- 5.1 Trigonometric Ratios of compound angles
- 5.2 Trigonometric Ratios of multiple angles
- 5.3 Product, sum & difference formulae

Topic:6 Inverse circular functions (M- 4 H-5)

- 6.1 Definition of Inverse circular functions
- 6.2 Principle values of Inverse circular functions
- 6.3 Simple problems

(Art.3.5 of Topic 3 to Topic 6)

Topic: 7 Properties of Triangles (M- 6 H-5)

- 7.1 Sine rule, Cosine rule, Tangent rule (without proof)
- 7.2 Simple problems

----- **Second Progressive Test**-----

Unit: 3 Calculus (M- 24 H-16)

Topic: 8 Functions (M- 8 H-6)

- 8.1 Definition of variable, constant, intervals such as open, closed, semi-open
- 8.2 Definitions of Function & notation, values of functions
- 8.3 Types of Function & simple problems

Topic: 9 Limits (M- 16 H-10)

- 9.1 Definition & concept of limit
- 9.2 Limits of algebraic functions
- 9.3 Limits of trigonometric functions

(Topic 7 to Art.9.3 of Topic 9)

- 9.4 Limits of exponential functions
- 9.5 Limits of logarithmic functions

----- **Third Progressive Test**-----

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	S.P.Deshpande	Mathematics for polytechnic students for first year	
02	G.V.Kumbhojkar	Mathematics for polytechnic students for first year	
03	TTTI Bhopal	Mathematics for polytechnics	
04	By Gore and Patil	Applied Mathematics	
05	Loney	Trigonometry Part I	

[BACK](#)

2.6 Simple problems on Definite integral

Topic:3 Differential Equations**(M- 16 H-14)**

- 3.1 Definition of differential equation, order & degree.
- 3.2 Formation of differential equation.
- 3.3 Solution of differential equation of first order first degree such as
 - 3.3.1 variable separable.
 - 3.3.2 Homogeneous equation.
 - 3.3.3 exact diff.equation.
 - 3.3.4 linear diff.equation

Topic:4 Statistics**(M- 15 H-14)**

- 4.1 Measures of central tendency: Mean, median, mode for grouped and ungrouped frequency distribution
- 4.2 Graphical representation: Histogram and give curve to find mode and median
----- **Third Progressive Test**-----
- 4.3 Measures of dispersion: Range, mean deviation and standard deviation

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	S.P.Deshpande	Engineering Mathematics for second year	
02	Grewal	Higher Engineering Mathematics	
03	Gore and Patil	Mathematics for Electronics	
04	TTTI Bhopal	Mathematics for polytechnics	
05	S.C. Gupta and Kapoor	Fundamentals of Mathematical Statistics	

COURSE CODE:GE 156
COURSE NAME: WORKSHOP PRACTICE

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	0	4				
Marks	Prog. Test	End Exam.	--	50	--	50
	-	-				
Duration	-	-				

COMPENTENCY STATEMENT :

“TO PERFORM BASIC WORKSHOP PROCESSES”.

RATIONALE :

The knowledge of different tools, and different processes such as turning, grinding, welding, gas welding, tapping etc. is the basic requirement of the diploma technician. These are the basic & fundamental operations encountered in workshop. At this level it is essential to impart the practical feel of these basic operations & processes to the students. With this intention this course is being introduced.

COURSE:

At the end of the practical student will be able to practically understand & appreciate the use of Different hand tools and passive processes e.g. smithy, forging, carpentry, welding, plumbing, fitting.

LIST OF PRACTICALS :

Each candidate is required prepare the job in various sections as mentioned below and to submit the term work.

1. **SMITHY & FORGING** :- One composite job involving cutting, bending, drawing operations.
2. **CARPENTRY** :- Different types of joints (min. two joints) used in furniture, wooden items with the use of teak wood, combination of wood & steel frames, plywood, sunmica.
3. **WELDING** :- One commercial composite job involving operations such as Lap, Butt, welding joints.
4. **FITTING & FILLING** :-
 - i) One composite job of male & female fitting.
 - ii) Demo of Aluminum section fittings such as glass windows, partitions etc.
5. **PLUMBING** :- One practical job on pipe bending and threading.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	B.S. Raghuwanshi.	Workshop technology Vol. 1	
02	S.K.Hajra Choudhary	Workshop technology Vol. 1	
03	R.K. Jain	Production technology	

COURSE CODE: GE158
COURSE NAME: BASICS OF COMPUTER SYSTEMS

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	1	2				
Marks	Prog. Test	End Exam.	50	50	--	100
	-	-				
Duration	-	-				

COMPETENCY STATEMENT (S):

- To understand working & use of Computer for day-to-day use.
- To use computer for word processing, accounting related applications
- To prepare professional presentations.
- To understand and use Internet.

RATIONALE:

With rapid development of Technology and competitive economy, computers play very important role in the diversified fields such as CAD, CAM, power generation, image processing, telecommunication modeling and simulation etc.

The built in characteristics of computers have made them inevitable in different applications areas. So it is essential for a Diploma Technician to have a knowledge regarding computers and develop a skill to handle different software's available. It is always essential for a technician to update their knowledge to cope up with the fast development in software's. Considering this in view and duties to be performed by Diploma Technician in professional life, following curriculum is suggested.

COURSE OBJECTIVES:

Student should able to,

- Understand working of computers
- Get knowledge of various components of computers.
- Understand concept & functions of Operating System.
- Perform file management operations using My computer & Windows Explorer
- Print the letter using MS Word
- Perform worksheet operations using MS Excel
- To prepare professional presentations using MS PowerPoint
- Use Internet for Create E-mail id, receive & send E-mail with attachment
- Search for the information on Internet.

CONTENTS:**1. Fundamentals****(H-02)**

Uses, Types of computer, Block Diagram showing components of computer, Input devices, output devices, CPU, Primary Memory, Secondary memory., processor and its speed, RAM, Monitor, Display card, Hard Disk, Floppy drives, CD drive, Sound card, etc. (Use of each) Hard ware and software, Types of software. Concept of Operating System: Definition, functions and examples of operating system (like DOS, WINDOWS, Linux,) used on different types of computers.

- 2. Dos & Windows (H-03)**
DOS:
Bios, Power on self-test, Dos & its functions. Concept of file & directory, rules for file & directory names, Types of files-system files, data files, Program files, text files, Config.sys, Autoexec.bat, Batch files. File attributes, Wild cards.
DOS commands:
Internal Commands: DATE, TIME, CLS, DIR, COPY, DEL, REN, CD, MD, RD, PROMPT, PATH
External Commands: FORMAT, CHKDSK, DISKCOPY
WINDOW 98/2000/XP
Introduction :
Starting Windows, Desktop, Icons, Task bar, Short cuts, The start Button, arranging windows, Shutting down windows
Windows Explorer: Creating, renaming, deleting Folders/ file. Copying, moving, deleting, renaming files, Using Send to, Search files and folders, Recycle bin
Windows Setting: Date format, adding printer.
Windows Accessories: Calculator, Notepad, paint, word pad.
- 3. Ms-Word (H-03)**
Introduction to word processing, Introduction to MS word. Opening, Saving, closing a file. Page setup: Changing Margins, layout, and paper size. Formatting Text: Tables: Insert table, enter and edit data into table.
Printing: Print preview, selecting printer, and print options.
- 4. Ms-Excel (H-04)**
Introduction to electronic spreadsheet. Introduction to MS Excel.
Components of MS Excel window like Title bar, Menu bar, Formula Bar, Status bar, Worksheet area, Sheet Tabs, Columns, rows. Hiding and viewing Toolbars like standard and formatting tool bars. Entering data, copying, moving, Editing cell entries use of auto fill Saving, closing and opening file.
Page setup: Changing Margins, layout, and paper size. Enter formula, copy formula using fill handle Inserting functions.
Use of functions like SUM, AVERAGE, MIN, IF, COUNT, LOG, SIN, COS, ROUND, SQRT, PI etc.
Formatting data: Change number format, alignment, borders, font, size etc. Use auto Format, Restructuring worksheet: Inserting and deleting the columns and rows. Changing column width, row height.
Charts (Graphs): Types of charts, creating and modifying charts, printing charts.
- 5. PowerPoint : (H-02)**
Overview, Using design template and auto content wizard, creating presentation, slides and its types, slide operations, modifying & running presentation, adding & editing objects, creating tables, charts & Diagram, save & print option ,custom presentation, applying transition & animation effects.
- 6 Internet : (H-02)**

Introduction :uses of internet, Resources required using Internet. Internet Service Provider : Need & Duties of ISP, Connecting to Internet, Domain &addresses, Internet Browsers, Search engines ,Email, Chat,

Teaching Methodology:

- Lecture method without media.
- Lecture method-using media.
- Demonstration using LCD projector.

Teaching Resources:

- Overhead projector
- LCD projector.

LIST OF PRACTICALS/EXPERIMENTS:

(If required specify minimum number of practicals to be conducted from the following)

1. List and identify the peripheral devices of a PC. Connect the keyboard, mouse, printer, monitor, and scanner to a computer. Get the information about the manufacturers and prices of various components of a PC.
2. **Dos:** Use various Internal & External commands of DOS mentioned in chapter Two.
3. **Windows**
 - I. Start and shutdown of windows. Starting different applications. Using applications like calculator, paint, word
 - II. Observe various features of windows like menus, push buttons, drop down list, check boxes, option buttons etc.
 - III. Perform file management operations such copying, deleting, renaming, creating folders, renaming folders using My computer , Windows Explorer, searching files and folders.
 - IV. Change windows format such as wall paper, date & time format, Installing printer, installing & removing programs by using add /remove programs, change display properties
4. **Microsoft Word**
 - I. Prepare a sample bio data
 - II. Write an application for job
 - III. Prepare a time table in tabular format.
5. **Microsoft Excel**
 - I. Create a sample result sheet of your class.
 - II. Create salary sheet for Employees (Apply Excel formulae/ functions to solve problems.)
6. **Internet**
 - I. Creation of email account
 - II. Send E-mail, Receive E-Mail. (use attachment)
 - III. Management of email account.
 - IV. Searching information on internet
7. **PowerPoint**
 - I. Creating PowerPoint presentation, Running presentation.
 - II. Applying design template, background, transition effects, animation to slide.
 - III. Preparing custom presentations and using pack and go features.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
1	Subhas Mehta	DOS made simple	Galgotia Publications
2	P.K.Sihna	Fundamentals of Computers	BPB Publication
3	Greg Perry	Teach Yourself Windows 98	Techmedia
4	Cassel & Hart	Teach Yourself Windows 98	BPB Publication
5	Alen Simpson	Windows 98 Bible	BPB Publication
6	Ed Bott Woody Ceonhard Prentice Hall India	MS Office 2000	
7	Ron Mansfield	Microsoft Office	BPB Publication
8	Greg Perry	Teach Yourself MS Office 97	Techmedia
9	Herbert Schildt	DOS made easy	McGraw Hill

COURSE CODE : IT151
COURSE NAME : BASIC ELECTRONIC DEVICES AND CIRCUITS

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	3	2				
Marks	Prog. Test	End Exam.	25	25	--	125
	25	50				
Duration	1	2				

COMPETENCY STATEMENT:

- 1) To identify and interpret circuit and its function from circuit diagram.
- 2) To identify the function of individual components in the circuits.
- 3) To Construct and test analog circuits using discrete devices.

RATIONALE:

This course forms the foundation for all courses in Electronics, Computer, Communication and Information Technology. It prepares students to understand construction, operation, characteristics and application of electronics devices

OBJECTIVES:

1. To understand the construction and operation of electronics devices
2. To understand working of electronics circuits, using discrete devices
3. To verify the characteristics of electronics devices.

CONTENTS:

1. **Rectifiers and filters.** **(H-09, M-09)**
 Process of rectification, rectification efficiency, ripple factor, comparison of rectifiers. Filters: Necessity of filtering. Types
 2. **Bipolar junction transistor (BJT)** **(H-08, M-08)**
 Types, construction, operating principle, and configurations: CB, CE and CC.
- Progressive Test-1 -----
3. **Transistor biasing.** **(H-06, M-06)**
 DC load line, operating point, voltage divider bias, bias stabilization, expression for stability factor.
 4. **Voltage amplifiers.** **(H-06, M-06)**
 Single stage CE amplifier and its analysis, frequency response. Input resistance, output resistance, voltage and current gains.
 5. **The Junction Field Effect Transistor.** **(H-06, M-06)**
 Types, construction, operating principle, mechanism of current flow
 MOSFET: Construction, types, characteristics.
- Progressive Test-2 -----
6. **Devices.** **(H-05, M-05)**
 Construction, principle of operation and simple applications of SCR, TRIAC,
 7. **Oscillators.** **(H-04, M-06)**
 Barkhausen criterion for sustained oscillations. Hartley oscillators
 Crystal oscillator, Wien bridge oscillator.
 8. **Amplifiers: AF power amplifier.** **(H-04, M-04)**
 Types of power amplifiers, classes of operation, performance of various classes of power amplifier.

----- Progressive Test-3 -----

LIST OF EXPERIMENTS: (minimum 10 experiments)

1. Study of different types of resistances
2. Study of different types of capacitors and inductors
3. Regulation characteristics of half wave, full wave rectifier, with & without filter
4. Regulation characteristics of Bridge wave rectifier find the ripple factor.
5. Comparison of L, C, LC, pie type filter
6. To plot the characteristic of transistor in CE configuration
7. Measurement of voltage gain, current gain of CE emitter amplifier.
8. Measurement of input resistance & O/P impedance of CE emitter amplifier
9. To plot the characteristic of JFET.
10. To plot the characteristic of SCR.
11. To study the lamp dimmer circuit using DIAC & TRIAC
12. To plot the Frequency response of AF amplifier.
13. Measurement of frequency LC oscillator.
14. Measurement of frequency RC oscillator.
15. Measurement of frequency of crystal oscillator.

REFERENCE BOOKS :

Sr. No.	Author	Title	Publisher
01	Millan & Halkies.	Integrated Electronics	
02	Mottershed	Electronics Devices and circuits	
03	R.S. Sedha	Applied Electronics	B.Chand Publication

COURSE CODE : IT 152
COURSE NAME : PHYSICS

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				
Marks	Prog. Test	End Exam.		25	--	100
		25				
Duration	1	2				

COMPETENCY STATEMENT (S) :

1. Acquire knowledge and understanding the terms, symbols and concepts pertaining to engineering disciplinary areas.
2. Develop Scientific Temper and attitude.
3. Develop ability for solving numerical and problems.
4. Draw and identify electrical circuits.
5. Identify the function of individual components in the circuits.
6. Interpret the circuit and its function.

RATIONALE:

This course forms the foundation for all courses in electronics and electrical as well as computer, communication and information technology. It prepares students to understand construction, operation, characteristic and application of electronics devices.

COURSE OBJECTIVES:

Students will be able to

1. Explain the fundamentals and laws of science.
2. Understand the atomic structure and semiconductor theory.
3. Differentiate the electric and magnetic circuits.

CONTENTS :

1. **Atomic Structure** **(H-5, M-9)**
Rutherford's atomic model, Bohr's atomic theory, Atomic particles, Atomic numbers, atomic mass numbers, energy levels, sub energy levels, quantum numbers, Binding energy, problems based on it.
 2. **Semiconductor Theory** **(H-5, M-9)**
Conductivity, Receptivity, classification of conductors, insulators, semiconductors, P-N type semiconductors, P-N junction, space charge region, Barrier Potential, biasing of P-N junction, Diode as rectifier and its characteristics, reverse saturation current, cut in voltage, diode capacitance. Zener diode as voltage regulator and its characteristics,
- **Progressive Test-1** -----
3. **Electrostatics and Capacitance** **(H-7, M-12)**
Electric charge, Coulombs law, electric field, electric intensity, electric lines of force, flux and flux density, Electric potential and its concept, potential difference between two points, Electric capacitance, series and parallel condensers, energy stored in condensers. Problems based on it.
 4. **Principle of Electrical Circuits** **(H-7, M-10)**
Ohms law, Resistivity, (Specific Resistance) , variation of resistance with temperature, Platinum resistance thermometer, Resistance in series ,

resistance in parallel, Conversion of galvanometer into voltmeter, and ammeter, Principle of Potentiometer,

----- **Progressive Test- 2** -----

Comparison of EMF of two cells by single cell method. Comparison of EMF of two cells by sum and difference method. Internal resistance of cell using potentiometer. Whetstone's bridge.

5. Magnetism & Electromagnetism

(H-8, M-10)

Coulombs inverse square law in magnetism, Magnetic field and intensity of magnetic field, Magnetic lines of force, Magnetic lines of induction, magnetic flux, Magnetic flux density,(Magnetic induction B) Magnetic effects of electric current,(Oersted Experiment) Biot Savarts's law(Laplaces's law) . Magnetic induction at the center of circular coil carrying current. Force acting on conductor placed in magnetic field. Fleming's left hand rule, Expression for force acting on a conductor placed in magnetic field. Couple acting on a coil placed in magnetic field. Concept of working of Galvanometer.

----- **Progressive Test- 3** -----

LIST OF PRACTICALS: (Any ten of the following)

1. Study experiment on atomic structure.
2. Verification of Ohm's law and calculation of specific resistance.
3. Verification of law of resistance in series
4. Verification of law of resistance in parallel
5. Measurement of internal resistance of a cell by potentiometer.
6. To plot the forward and reverse characteristics of Germanium diode Find knee voltage.
7. To plot the forward and reverse characteristics of Silicon diode Find knee voltage.
8. To plot the forward and reverse characteristics of Zener diode Find breakdown voltage of given diode.
9. Zener diode as a voltage regulator.
10. Test zener diode and semiconductor diode using Multimeter.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	B. G. Bhandarkar	Applied Physics	Vrinda Publication Jalgaon
02	Narkhede	Applied Chemistry	
03	Chondekar	Applied Physics	Piga Publications, Aurangabad
04	Prakash Manikpure	Applied Physics	S Chand Pub. New Delh
05	White and Webber	Applied Physics	
06	B.G. Bhandarkar	Practical Physics	
07	R.S.Sedha	A textbook of Applied Electronics	

[BACK](#)

COURSE CODE: IT 153**COURSE NAME: COMPUTER WORKSHOP**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				
Marks	Prog. Test	End Exam.		50	50	100
	-	-				
Duration	-	-				

COMPETANCY STATEMENT(S):

1. To understand working & use of Computer for day-to-day use.
2. To understand basic components of computers
3. To connect peripheral devices
4. To maintain the computer systems

RATIONALE:

This subject is essential for creating awareness of computers for the students. It gives handling experience of computers to the students. It introduces basic components of computers and connecting them to the system. Since the dirt can affect reliability and Performance of various components, cleaning of components become one of the essential activity of basic maintenance. This subject demonstrates steps in cleaning and handling various components, handling problems with component connections. This subject gives the basic knowledge required for Pc architecture and maintenance.

COURSE OBJECTIVES:

After studying this subject, the student will be able to --

1. Understand basic components of computers
2. Connect peripheral devices
3. Clean various devices like Keyboard, mouse, printers, motherboard
4. Park and eject the papers over the printer
5. Write Data on the CD
6. Scan documents and images
7. Understand front panel and back panel connections.
8. Connection of Pen drives and DVD
9. Define preventive maintenance
10. Identify importance of PC preventive maintenance
11. Identify types of PC preventive maintenance products
12. Identify types of PC preventive maintenance procedures
13. Identify maintenance activities that can be mechanized
14. Identify the need for creating preventive maintenance schedule
15. Create preventive maintenance schedule
16. Learn when and how to implement these safety measures

CONTENTS

1. **Introduction to Various External Peripheral Devices (H-06)**
Types of Computers PDAs, Types of PC Cases, Safety and Care and ESD, Parts of a PC, System Board Overview Expansion Bus, Storage Devices, SCSI, Preparing Your Hard Drive, CD-ROMs Tape Backup Devices, Floppy Drives. Different types of keyboards Different types of Mouse Different types of Scanners Different types of Modems Different types of printers CD writers, speakers, CD read /write drive Microphones, LCD projectors, Pen drives, DVD drive Different types of Monitor
2. **Introduction to Various Internal Devices (H-04)**

Different makes of hard disks
Different types of network Interface cards
Different types of cables such as data cables, printer cables, network cables, power cables etc.
Different types of floppy disk
Motherboard connection
Graphics Card connection
Network Interface card connection

3. **Physical Connections of different peripheral Device** (H-04)
Connection of Mouse to different ports
Connection of keyboards to different ports
Connection of Monitors
Connection of Printers
Different switch settings of printers
Printer's self test
Jumper settings of hard disks
Attaching FDD, HDD and CD drives
Attaching Pen Drives and DVDs
Attaching Scanners
4. **Introduction to the System Architecture:** (H-06)
System Architecture Overview, Components of a Motherboard, The CPU, Characteristics of a CPU, CPU Sockets, BIOS & CMOS, Types of Memory, Memory Packages, RAM's Integral Part of the Computer System, IRQs, DMA Channels, Common I/O Addresses, COM Port Addresses, Cable Connections, Serial vs. Parallel, Computer Port Identification A Brief History The ATX Form Factor Expansion Bus Architecture Slots and Sockets PC Card (PCMCIA)
5. **OS Basics:** (H-04)
MS-DOS Structure, MS-DOS Commands, Windows 9x Structure, Windows XP Structure, File Systems, Boot Environment Drivers, Applications and Printers,
6. **PC Preventive Maintenance Issues** (H-08)
Introduction, Importance of Preventive Maintenance, Preventive Maintenance Products, Preventive Maintenance Procedures, Implementing preventive measures on PC Components: Keyboard, mouse, Drives, Floppy drive, CD ROM drive, Hard Disk drive, Monitor, & Printer.

TEACHING METHODOLOGY:

1. Lecture method without media.
2. Lecture method-using media.
3. Demonstration using LCD projector.

TEACHING RESOURCES:

1. Overhead projector
2. LCD projector

PRACTICAL ASSIGNMENTS:

1. Observe all the peripheral devices available in the lab. Describe them in detail.
2. Demonstration of system configuration using CMOS setup.
3. Study of different ports such as serial, parallel, PS/2, NIC ports.
4. Assignment on how to write data on CDs
5. Observe different printer settings on different types of printers available in your lab. Write down the function of each switch.
6. Demonstration of printer's self test.
7. Assignment on connection of speakers and microphones.
8. Assignment on different types of cables in your lab.
9. Assignment on cleaning procedures of Mouse, Keyboard and motherboard.
10. Assignment on how to connect scanner and scan document and pictures on the scanner available in your lab.
11. Assignment on making jumper settings on hard disk.
12. Assignment on different types of cards such as graphics card, LAN card, multimedia cards etc.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Mr. David Stone & Alfred Poor	Troubleshooting Your PC	Prentice Hall India
02	David Groth	A+ Complete	BPB Publication
03	Balasubramaniam	Computer Installation and servicing	Tata McGraw Hill
04	Manuals	Reference Manuals of PC Troubleshooting and maintenance	--

COURSE CODE: IT251
COURSE NAME - DIGITAL ELECTRONICS

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	2				6
Marks	Prog. Test	End Exam.	25	25	--	150
	25	75				
Duration	1	3				

COMPETENCY STATEMENT (S):

1. Perform mathematical operations, conversion of digital codes.
2. Connect, test, & verify the basic digital circuits

RATIONALE:

In the field of communication and information technology digital signal has its own importance due to its typical characteristics. Trends are toward the digitization of analog signals. Complex digital systems are built using basic building blocks. Digital electronics and microprocessor is the foundation of the computer-based systems, communication systems and information technology. This course covers basic concepts of digital signals, related IC's their operation, function and applications.

COURSE OBJECTIVES: Students will be able to

1. Understand the concept of digital circuits.
2. Understand different codes, types and their conversion.
3. Test and verify different digital circuits
4. Understand different types of memories and their working

CONTENTS:

1. **Number systems & codes:** **(H-10, M-10)**
Binary, octal, hexadecimal, BCD numbers system and their conversion. 1's and 2's compliment, Binary arithmetic operations, signed numbers, Alphanumeric code, EBCDIC, ASCII.
 2. **Digital signals & Logic Gates:** **(H-10, M-12)**
Logic levels, Characteristics of digital signals, Basic Logic gates- Inverter, AND, OR, NAND, NOR, EXOR, EXNOR, Characteristic of digital IC's, TTL, ECL, CMOS IC's their comparison and applications.
- Progressive Test-1 -----
3. **Boolean Algebra:** **(H-08, M-08)**
Boolean operations, Logic expressions, Rules and laws of Boolean algebra, Demorgan's theorem, Simplification of Boolean expressions.
 4. **Logical functions:** **(H-08, M-08)**
Standard representation of logical functions, Minterm & Maxterm representation of logical function, Simplification of logical functions using K-map (up to 4 variables), Don't care condition.
 5. **Combinational Circuits:** **(H-07, M-10)**
Adders, Subtractors, Decoders, encoders, multiplexers, demultiplexers.

----- Progressive Test-2 -----

- 6. Flip-flops:** (H-08, M-08)
Concept of sequential circuits, 1- Bit memory cell, Clocked SR flip-flop, J-K, Master Slave JK flip flop, D, T type flip flops, Edge triggered and pulse triggered flip flops, Tristate devices, Buffers, Latches.
- 7. Registers:** (H-04, M-06)
Types of registers, SISO, SIPO, PIPO, PISO, bi-directional shift registers,
- 8. Counters:** (H-05, M-08)
Synchronous / Asynchronous counters, up/down counters, Decade counters, Mod3, mod 5 counters, presettable counters, ring counter.
- 9. Semiconductor memories:** (H-04, M-05)
Memory concept, ROM, PROM, EPROM, EAROM, RAM, Memory expansion.

----- **Progressive Test-3** -----

LIST OF PRACTICALS: (Minimum 10 Experiments to be performed.)

1. Verify truth tables of logic gates.
2. Construct and verify Boolean expressions using AND/OR/NOT logic and NAND/NOR gates.
3. Verify half and Full adder's truth table.
4. Verify half and Full subtractor's truth table.
5. Verify the operation of BCD to seven-segment display
6. Verify the truth table and operations of multiplexer and demultiplexer.
7. Verify truth table of SR-FF, T-FF and D-FF.
8. Verify truth table of Master-Slave JK Flip-Flop.
9. Connect and verify 7490 as decade counter
10. Connect and verify operation of 7490 as up/down counter.
11. Design of modulo 3, 7 counter using 7490
12. Verify operation of shift register and its different types.
13. Study of different types of memories

IMPLEMENTATION STRATEGY:

Pin out diagram, Internal logic diagram and internal working of IC's in theory not expected.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	R.P.Jain	Modern Digital Electronics	TMH
02	Malvino Leach	Digital Electronics & Principal	TMH
03	Floyd	Digital Fundamentals	Universal Book Stall

[BACK](#)

COURSE CODE: IT252
COURSE NAME: COMPUTER ARCHITECTURE TROUBLESHOOTING AND MAINTENANCE

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	3	3				
Marks	Prog. Test	End Exam.	50	25	--	150
	25	50				
Duration	1	2				

COMPETENCY STATEMENT (S):

1. To handle & maintain computer systems.
2. To troubleshoot computer system.

RATIONALE:

Knowledge of Computer and its peripherals is essential for information technology students. Students must aware of specifications, types, varieties and vendors supplying different peripherals of computer systems. Installing and testing of these peripherals will help students to diagnosis the minor hardware problems and to rectify the same immediately. This will increase the confidence of students of handling hardware and software problems simultaneously.

COURSE OBJECTIVES: Students will be able to:

1. Understand different computers and its peripherals
2. Understand the working of peripherals.
3. Test, Connect and install the peripherals.
4. Diagnose and locate problem in computers.

CONTENTS:

- 1. Hardware Basics (H-06, M-06)**
Hardware components, the processor, memory, memory addressing, types of memory, memory speed and wait state, memory access, input and output ports, interrupts, the system bus, the clock, the timer direct memory access, AT compatible and 80286, 80386, 80846, Pentium microprocessor(Introductory level), memory map, expanded memory, high memory area.
- 2. The Power Supply (H-06, M-04)**
Power supply basics, power supply requirement, testing of power supply, Diagnosing problem, Types of power supplies. Stabilizer, UPS
- 3. Motherboard (H-06, M-6)**
Motherboard construction, mother board components, memory parity, memory Bank, chip sets, motherboard connectors, and connection, mother board configuration, memory configuration

----- **Progressive Test-1** -----

CMOS setup for AT compatibles, ROM shadowing, fitting expansion cards, care conflicts, upgrading memory, performance enhancements, Diagnosing problems.

- 4. Keyboard & Mouse (H-03, M- 04)**

Keyboard basic, XT, AT & Window keyboards, mouse types, operation and problems. Connection and installation.

5. The Display (H-03, M-04)

Monitor basic, digital and analog, Resolution, types of monitors, laptop display, monitor selection, testing ,monitor and adapter related problems.

6. Diskette Drives: (H-06, M-05)

Diskette basics, types of diskette, diskette drives, drive configuration, the diskette drive controller, diagnosing problems, drive misalignment, drive failure, disk drive problems, problems regarding reading and writing mechanism, diskette problem, diskette drive installation.

7. Hard Disk (H-06, M-06)

Hard disk basic, specifications, types, recording media, head actuators, head parking, recording methods ,hard disk interface. Hard disk controller, drive types

----- **Progressive Test-2** -----

Hard disk cards, low-level formatting, inter leave, removal, and preparing hard disk, dealing with bad sectors. File recovery, Hard disk problems.

8. Serial And Parallel Ports, Modems And Printers (H-06, M-06)

Serial port basics, serial port hardware, driving serial port, handshaking, s/w handshaking, diagnosing problems. The parallel port, Network interface card (NIC), types, installation of NIC, Modem types, Installation, type of printers: Impact and non impact printers, dot matrix printer, laser printer, ink jet printer, daisy wheel printer problems with printer and diagnosing their problems.

9. CD-ROM & Multimedia (H-03, M-04)

Basics of CD-ROM drive, sound card, speaker, joystick, installation of sound card, driver software and CDRom drive Troubleshooting & Maintenance of multimedia system.

10. Preventive Maintenance (H-03, M-05)

Weekly, monthly, yearly maintenance, back up batteries for UPS, performance of Hard disk, printers mouse operation and cleaning and mouse problems, , Spike suppressor.

----- **Progressive Test-3** -----

LIST OF PRACTICALS: (Any twelve) -

1. Demonstration of different connections of peripherals to computer, types of ports and diagnosis of most common problems related to external connections to computer.
2. Study of motherboards, Identify types of motherboard, Identification of ports, switches, sockets, slots, memories, bios, crystal clock, bios supply, CPU Compatibility of CPU and motherboards, Identification of different components on motherboard.
3. General diagnosis of common problem related to connection of hardware and peripheral parts.
4. Identification of types of power supply. Measurement of typical voltages, Power supplies connectors. Trouble shooting of power supply.
5. Identification of Hard disks, connecting, removing, installing, formatting & partitioning of hard disk. Connecting hard disk in master slave configurations. Trouble shooting of hard disk problem with software packages.

6. Rectification of symptoms such as hard drive is completely dead, You see a drive activity but computer does not start from hard drive, error occurs during drive read or write, hard drive is formatted accidentally, hard drives root directory is damaged, hard drive is not accessible but light remains on continuously,, sector not found message, error reading drive “c” appears, hard disk controller failure, disk boot failure, , file allocation table bad.
Diagnosis of drive controller card
7. Connecting drive to controller, Assigning a letter to drive, swapping a drive, Drive cleaning, Track –00 test, Error code and beep code.
- 8 Symptoms of failure floppy drive is completely dead, Floppy drive does not read or write to diskette, O.S. reports an error “cant read from drive A”, when a new diskette is inserted new from a previous diskette appears, and display controller card.
9. Connect, install configure different printers
10. Installation of modem and testing a modem.
- 11 Installation of Scanner and its driver, scanning a document on scanner
- 12 Study and comparison of different types of monitors. Display adapter driver installation and settings. General failures and common trouble shooting of display adapters.
13. Checking of keyboard with QAPLUS fault diagnosis and its connections.
14. Installation of CD ROM Drive
15. Installation of sound card and multimedia tools.
16. Disassembling of personal computer.
17. Assembling of personal computer.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	J.V Moss	Servicing and supporting IBM PCs and compatibles	
02	Mark Minasi	The complete PC upgrade and maintenance guide	
03	Biaglow	P. C. Upgrading & Maintenance	TMH
04	B Govind Rajalu	IBM PC and Clones	TMH 2000

[BACK](#)

COURSE CODE: IT 253**COURSE NAME: ELECTRICAL ENGINEERING**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	2				
Marks	Prog. Test	End Exam.	25	25	--	150
	25	75				
Duration	1	3				

COMPETENCY STATEMENT:

1. Select, connect and operate Electrical-measuring instruments/equipments.
2. Develop ability for solving numerical problems
3. Explain the fundamentals and laws electrical engineering
4. Differentiate the electric and magnetic circuits.
5. Understand the construction and operation of electrical machines and transformer.

RATIONALE:

Electricity is the basis for operation of any computer, electronic and communication equipments. Hence it is essential for students of diploma program in information technology to study the basic electrical engineering. Thus, a separate paper is included in the syllabus of diploma program in information technology. Basic electrical engineering is essential to learn basic concepts in electrical engineering such as voltage, current, resistance, Electric and Magnetic circuits, AC fundamentals, Single phase and three phase circuits, Single-phase transformer and DC machines.

COURSE OBJECTIVES:

Student should able to,

3. Understand basic concept of electrical engineering.
4. Get knowledge of various terminologies used in electrical engg.
5. Understand concept of circuit diagram & can draw and read various circuit diagrams
6. Perform simple SC and OC test on transformer.

CONTENTS:**1 D .C.Circuits****(H-06,M-08)**

Electric current ,Electric potential, Potential difference between two points, Ohm's law, Resistance ,Resistance in series and parallel , Specific Resistance, Effect of temp on Resistance Kirchhoff's laws.

2 Magnetic Circuits**(H-10,M-11)**

Concept of magnetic flux, flux density, mmf, permeability, comparison between magnetic and electric circuit, B-H curve, Electromagnetism, electromagnetic induction, Faraday's laws of electromagnetic induction, Lenz law, Fleming's right hand rule, self and mutual inductance.

3 Electrostatics**(H-08,M-10)**

Electric Charge, Electric flux , flux density, intensity, permittivity , Capacitance of parallel plate capacitor ,Capacitors in series and parallel, simple numerical based on it.

- 4 A .C. Circuits (H-12, M-12)**
Generation of a. c. voltage, equation of sinusoidal a .c. quantities, Important definitions, Current, Voltage and power, Concept of reactance, impedance and power factor, simple a. c. series circuit and numerical based on it.
- 5 Single Phase Transformer (H-10, M-12)**
Working principle, construction and e.m.f. equation of single phase transformer, types of transformer on voltage basis and on construction basis, simple numerical based on it. Transformation ratio, S. c and O.C test of transformer, efficiency and regulation of transformer.
- 6 Three Phase Circuit (H-08, M-10)**
Advantages of three phase over single phase, Phase sequence relation between line & phase voltage and line & Line & phase current in star & delta connections, Simple numerical based on it.
- 7 A.C.Motors (H-10,M-12)**
Working principle, Operation and application of three phase and single phase induction motors, Universal motor, servomotor.

LIST OF PRACTICAL .(ALL COMPULSORY)

1. Study Of Ammeter, Voltmeter, And Wattmeter And Their Connection In Circuit.
2. To Plot B-H Curve.
3. Verification Of Ohm's Law.
4. Verification Of Kirchhoff's Laws.
5. Study Of R-L Series Circuit And Find Their Parameters.
6. To Find Out Transformation Ratio Of Single Phase Transformer.
7. To Perform S.C Test On Transformer.
8. To Perform S.C Test On Transformer.
9. To Verify Relation Between Line And Phase Values Of Voltage And Current In Star Connection.
- 10.To Verify Relation Between Line And Phase Values Of Voltage And Current In Delta Connection.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	B.L.Theraja	Electrical technology- Vol 1	---
02	B.H.Deshmukh	Elements of electrical Engg.	---
03	V.K.Mehta	Principles of electrical engineering	---

Teachers Material :

Reference books, laboratory manual, electrical machines and equipments, models, chart, etc.

Students Material :

Notes, reference books, laboratory manuals etc.

[BACK](#)

COURSE CODE: IT 254
COURSE NAME: FUNDAMENTALS OF WEB DESIGNING

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				
Marks	Prog. Test	End Exam.	24	25	--	125
	25	50				
Duration	1	2				

COMPETENCY STATEMENT (S) :

1. To understand working & use of web pages.
2. To use computer for HTML, Front Page related application
3. To prepare professional presentations.

RATIONALE:

It is estimated that across the Internet, over 100 million domain names are in use. which fast and cheap broadband Internet connections available to the masses, online users now exceeding 500 millions. Tens of million of users are now creating personal Web sites. It is a practical oriented subject which will enable student to develop Web sites.

COURSE OBJECTIVES: Students will be able to

1. Design simple web pages –using HTML
2. Organize information using Tables , collect information from users using forms and present information using frames.
3. Use style sheets to gain full control of formatting within Web page.

CONTENTS:

1. **Introduction To Html** **(H-5,M-8)**
 Components of HTML: Tags, Elements, Attributes, Closed and open tags. Structure tags. Standard HTML, tags: HTML, Header, Title and body. Block level tags: Block Formatting, Heading, Paragraph, Comments, Breaks, Center, Text Alignment and font size, Text Level Tag. Bold, Italic, Mooncape, Underlined, strike-through, superscript, subscript, Horizontal Rules. Colors in Web page.: Background color, Text color, Link color. Special characters.: Lists. Ordered lists. Unordered lists. Definition list. Nesting lists. The Meta tag.
2. **Linking Html Documents.** **(H-4,M-6)**
 URLs.Types of URLs Absolute URLs, Relative URLs,LinkingHTML] documents. The Anchored tag. Linking to document in same folder. Linking to document in different folder, Linking to document on the Web Linking to specific location within document. Inserting E-mail links.
3. **Including Images** **(H-4,M-7)**
 Image formats: GIF, JPEG, PNG. Effect of physical size and file size of image on downloading

----- **Progressive Test-1** -----

The Inline Image, Image Alternatives. Image Alignment Height and Width HSPACE and VSPACE Wrapping Text Image as a link. Image Maps: Server side image Map Client-side image map

- 4. Developing Tables: (H-4,M-6)**
Creating Basic tables. Tags, table, tr, td, th. Editing of Rows & Column of table. Adding caption. Formatting tables using attributes border, border color, back ground, align, width, no wrap, cell spacing cell highting.
- 5. Creating Frames (H-3,M-5)**
Introduction to frames, Advantages and disadvantages of using frames. Creating Basic Frames, Frame targeting.

----- **Progressive Test-2** -----

- 6. Developing Html Forms. (H-5,M-6)**
Creating Forms., Form controls: Text controls, Password fields, Radio buttons, Check boxes, Reset and submit buttons. Forms control selection, option processing, hidden fields, and cookies.
- 7. Introduction to Front Page 2000 Basics (H-7,M-12)**
Setup a Web Site, Create new site, Title a page, Format Text, Change Fonts, Change Text Weight, change text color, align text, indent text, create lists, create links to new pages, view site in browser, Link back to the home page, Link pages to each other, Use images as links, Change page and link colors, Change background color of page, Change link colors

----- **Progressive Test-3** -----

LIST OF PRACTICAL (ANY TEN)

1. Design Web page and apply some block level tags and text level tags.
2. Include horizontal rules and special character in web page.
3. Design web page and include different lists.
4. Include links in web page.
 - a. Local page in same folder
 - b. Page in different folder
 - c. Page on the Web
 - d. Specific location within document
5. Include image with different alignments and wrapped text in web page. also include image as link in the web page.
6. Design a web page and set background colour and document wide text colour.
7. Design a web page with background image, different text colour for different paragraphs, and set colours for links ,active links and visited links.
8. Create HTML table, format contents in table cells and span the rows and columns
9. Create basic frameset and format the frames within the frameset using attributes, also use frame targeting.
10. Create a basic form using different input controls and pull down menu.
11. Use table to lay out form with different form controls and generalized buttons.
12. Create a web page and apply style sheet properties (font, text, box properties).
13. Create a web page to get watermark effect using style rules.

REFERENCE BOOKS**FOR FRONT PAGE 2000**

	Author	Title	Publisher
01	Martin Matthew	Front Page 2000: The Complete Reference	McGrawa Hill
02	Alexis Gutzman Computing	Front page 2000 Answers	McGrawa Hill
03	Sherry London	Front Page 2000 Get Professional Results	McGrawa Hill

**REFERENCE BOOKS
FOR HTML**

Sr. No.	Author	Title	Publisher
01	Sybex	Mastering HTML 4	Premium Edition
02	Ian S. Graham	THE HTML 4.0 SOURCEBOOK	--
03	William H. Murray, Chris H. Pappas	Html 4.0 User's Resource: User's Resource (Paperback)	--
04	Thoma s a. Powell	HTML: The Complete Reference -	Tata McGraw Hill
05	D.S.Ray and E. J.Ray	Mastering HTML	BPB Publications

[BACK](#)

COURSE CODE: IT255**COURSE NAME: MULTIMEDIA APPLICATIONS**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	4				
Marks	Prog. Test	End Exam.		25	--	100
	25	50				
Duration	1	2				

COMPETENCY STATEMENT (S):

1. Student will create multimedia presentations and applications

RATIONALE:

For effective communication, teaching, presentation multimedia is the essential feature. This not only adds the power to presets but also helps a lot in presenting most complex ideas, concepts, and applications in simplified manner by proper careful design in allotted time. This subject covers all these media such as text, sound, video, image, and animation in integrated manner.

COURSE OBJECTIVES: Students will be able to

1. Select appropriate hardware and s/w for given presentation
2. Understand multimedia concepts and different medias
3. Select and use different medias with appropriate software tools
4. Record, edit, convert and maintain audio, video and images.

CONTENTS:

1. **Introduction To Multimedia:** (H-02, M-03)
Definition, multimedia application areas, multimedia requirements, multimedia skills and training.
2. **Basic Tools:** (H-04, M -06)
Text editing and word processing tools, OCR s/w, painting and drawing tools. 3-D animation and modeling tools. Image editing tools, Sound editing tools, Animation, Video and digital movie tools.
3. **Making Instant Multimedia:** (H-03, M-06)
Linking multimedia objects, office suites, and word processors: MS word, Word perfect, WordPro. Spreadsheets: Lotus, Excel, Databases: Access Visual FoxPro. Presentation Tools: Power point, freelance graphics, media studio pro.

----- Progressive Test-1 -----

4. **Multimedia Authoring Tools** (H-04, M-06)
Types of authoring tools, selecting right tools, different features of tools such as editing, organizing, programming, interactivity, performance tunings, play back, delivery, cross platforms, card base authoring tools – tool book, visual basic (windows) any one, icon base authoring tools, time base authoring tools, object oriented authoring tools
5. **Text:** (H-03, M-04)
Fonts, faces, using text in multi-media, managing fonts, fonts editing, hyper media, hypertext.
6. **Sound:** (H-03, M-06)

Sound basics, MIDI v/s Digital audio, making digital audio and MIDI audio, audio file formats, working with sound in windows, adding sounds to multi-media projects, audio recording, editing, keeping track of the sound, testing, evaluation

----- **Progressive Test-2** -----

- 7. Images:** (H-03, M-05)
Planning and organizing before starting to create image. Multiple monitors, making still images – bitmaps, vector drawing, 3-D drawing and rendering. Color natural light and color, computerized color, color palettes, image file formats – windows formats
- 8. Animation:** (H-03, M-04)
Power of motion, principal of animation, animation techniques, animation file formats, simple animation like rolling balls, dancing balls
- 9. Video:** (H-04, M-07)
Using video, obtaining video clips, how video works, broadcasts video standards NTSC, PAL, SECAM, HDTV, shooting and editing video clips, lighting, chroma key, blue screen, composition, recording formats, S-VHS video, component (YUV), component digital, composite digital, video hardware resolution, digital video compression
- 10. Designing for World Wide Web:** (H-03, M-03)
Working on the web, text images, sound animation for the web

----- **Progressive Test-3** -----

LIST OF PRACTICAL (Any ten practical)

1. Using advanced text editing features of word and WordPro
2. Using basic tools to create instant multimedia.
3. Using PowerPoint features to create one complete multimedia presentations.
4. Scanning and editing a photographs by using adobe Photoshop or similar tools
5. Interconversion of various different video file formats.
6. Using different video compression techniques
7. Conversion of analog audio/video signals (VCR tape recorded) in to CD format.
8. Capture of Video signals using TV Tuner card and Grabber card.
9. Preparation of multimedia presentation using any authoring tools
10. Recording, editing and adding special effects of sound files.
11. Creating web based multimedia application.
12. Using different audio and video players (three each)

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Tay Vaughan	Multimedia Making it Work	Tata McGraw Hill
02		Manual of adobe products, Microsoft office suite, lotus smart ,suites, authoring tools, audio, video, images editing software's	

COURSE CODE : IT 256**COURSENAME: FUNDAMENTALS OF PROGRAMMING USING 'C'**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	2				6
Marks	Prog. Test	End Exam.	25	25	--	150
	25	75				
Duration	1	3				

COMPETENCY STATEMENT(S) :

1. To draw Flowchart and write algorithm for simple problems.
2. Develop simple 'C' programs and execute them on machine.

RATIONALE :

To develop programming skills in the students using a popular structured programming language "C". The students will learn the step-by-step procedure (i.e.) Algorithm and flowcharting for program development.

COURSE OBJECTIVES : Students will be able to

1. Develop the ability of programming in HLL
2. Understand and use standard structures in programming
3. Prepare algorithms and flowcharts
4. Coding, testing and debugging a program
5. Understand the concepts of functions, pointers and structures
6. Will create, read and modify the data files(text & binary)

CONTENTS:

1. **Introduction To 'C' Programming.** (H-03, M-04)
Introduction, History and features of C, Algorithms, Flowcharts, Structured Programming concept.
2. **Operations and Expression.** (H-03, M-04)
Character set of C. Operators and expressions. Arithmetic, Relational, logical assignment operators, variables, constants, and data types expressions, key words, hierarchy of operators.
3. **Input and Output statements.** (H-04, M-05)
'C' programme structure, type declaration, Input and output (printf, scanf, getchar, putchar, getch, putch) conversion specifiers in format control string, library functions Maths functions.
4. **Control Statements.** (H-06,M-07)
Unconditional branching goto statement. Conditional branching statements. If statement, if- else, Nested 'if'. Multiple branching statements, switch, case statement.

----- Progressive Test-1 -----
5. **Control Loop Statements.** (H- 06, M-07)
Loop statements : 'for' statement, 'while' statement, 'do-while' statement, break, continue statement.
6. **Arrays and strings** (H-07, M-08)
Arrays: Concept of one dimensional, two dimensional and multi dimensional array, array declaration, array and initialization operations on one and two

dimensional arrays. String manipulations. :Strings, gets, puts, string operations, string function (concatenation, comparison, length of a string).

- 7. Functions. (H-08, M-10)**
Library and user-defined functions, concepts of library functions, uses-define functions, local and global variables, storages class, parameter passing mechanisms.

----- **Progressive Test-2** -----

- 8. Pointers. (H-08, M-10)**
Concept of pointer, pointer operation, array of pointers, call by reference concept, passing and returning parameters using pointers, pointer to function, pointer to pointer

- 9. Structures: (H-07, M-08)**
Importance, declaration, Memory allocation, array of structures, structure with in a structure, structure and pointers, passing and returning a structure, typedef, unions

- 10 File Handling: (H-12, M-12)**
Sequential files, Random files, Text files and binary files. Standard streams, Concept of file pointer, File operations reading, writing & appending a file. File handling functions such as getc(), putc(), fgets(), fputs(), fscanf(), fprintf(), fread(), fwrite(), eof(), fseek(), ferror(), ftell()

----- **Progressive Test-3** -----

LIST OF ASSIGNMENT / PRACTICALS. (Any 10)

Assignments should cover almost entire curriculum of the course

1. Assignment to prepare general algorithms and flowchart.
2. Assignment to write character, operators symbols of c language, to identify valid and invalid, variables, constants and expressions.
3. Assignment to convert arithmetic expression to expression in 'c' language.
4. Program based on Input/Output statements.
5. Program based on Arithmetic expression.
6. Program based on library functions.
7. A program based on goto statement.
8. A program based on "if" and "nested if".
9. Program based on 'switch case' statement .
10. Programs based on, 'for', 'while', 'do-while', break continue statement.
11. Programs based on array (e.g. – matrix addition, matrix multiplications).
12. Programs based on string operations.
13. Programs based on functions.
14. Programs based on pointers
15. Programs based on simple structures, nested structure, structure and pointer, passing and returning structures to functions
16. Reading, writing, appending sequential files
17. Reading, writing and appending random files

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Mullish Cooper –2000	The Spirit of C	Jaico publication
02	Balguruswami 2 nd edition	Programming in 'C'	Tata MG- GrawHill
03	2 nd edition- Schavis	Programming with 'C'	Tata Mc-GrawHill
04	3 rd edition Yashwant Kanetkar	Let us C	BPB publication

[BACK](#)

COURSE CODE: IT257**COURSE NAME: DATA STRUCTURES**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	2				
Marks	Prog. Test	End Exam.	25	25	--	150
	25	75				
Duration	1	3				

COMPENTANCY STATEMENT (S):

1. To learn different Data Structures
2. To implement different Data Structures using "C" Language.

RATIONALE:

The study of data structure is an essential part of computer science. In system programming, application programming the method & techniques of data structures are widely used. The study of data structure helps the diploma IT students in developing a logic & structured programs.

COURSE OBJECTIVES:

Student will be able to

1. Understand concepts of arrays, stacks, queues and lists
2. Apply them in programming and Algorithms.

CONTENTS:

1. **Introduction to data structure.** (H-06, M-08)
General concept of Data, Data Types, Data variables, constants and their storage representation. Data structure and their types. Linear data type, Non-linear data type, primitive data type, Non primitive data type.
2. **Searching and Sorting.** (H-08, M-10)
Searching: Linear search, Binary search, and Hash search. Sorting: Bubble sort, Selection sort, Merge sort, Radix sort, Bucket sort, and Heap sort.
3. **Arrays.** (H-08, M-10)
Arrays and their types: one-dimensional, two-dimensional, multi-dimensional, Defining an array and physical allocation, Operations on arrays: Searching, Sorting.
----- Progressive Test-1 -----
4. **Stacks.** (H-08, M-12)
Definitions and example of stack, Primitive operations: Push, Pop, Overflow and Underflow of stack, Representing stacks in C as an array. Applications of stack: In-fix, Post-fix, Pre-fix. Converting in-fix to post-fix and pre-fix, Concept of recursion (with examples such as factorial, fibonnaci sequence etc)
5. **Queues.** (H-10, M-10)
Introduction to queues. Definition of queues, Concept of queues. Front, Rear, FIFO, Over Flow, Under Flow, Operations on queue: Searching, Insertion, Deletion. Types of queue: Priority queue, circular queue.
----- Progressive Test-2 -----
6. **Linked List.** (H-10, M-10)
Introduction, Terminologies: Node, Address, and Pointer. Information, Next, Null pointer, Empty list. Operations on list: Searching, Insertion and deletion. Types of lists: Linked list, circular list, Array, stacks, queues, and implementation-using list.

7. Trees.**(H-10, M-10)**

Introduction, Terminology: tree, sub-tree, root leaf node left right, parent, child, ancestor, descendant, brother, level and depth. Types of trees: Binary tree, Height balanced tree and weight-balanced tree. Operations on trees: Searching: (Depth-first search, Breadth – first search. Traversing: Preorder, In-order, And Post-order. Insertion, deletion., representation of tree in 'C'.

8. Files.**(H-04, M-05)**

Files, random and sequential organizations, Index Techniques, File organization: Sequential, Random, And Linked. Types of Files. Inverted files, Storage management.

----- Progressive Test-3 -----**LIST OF ASSIGNMENTS / PRACTICAL.**

(Programs should be written using 'C' language).

1. Assignments on searching and sorting.
2. Sorting an array
3. Searching a particular element in array.
4. Program based on structure union.
5. Recursion using stack.
6. Infix to postfix or infix to prefix using stack concept.
7. Program based on queue and their operations for an application.
8. Program based on list operations for any one application.
9. Program based on pointer in C
10. One program on file operations.

REFERENCE BOOKS.

Sr. No.	Author	Title	Publisher
01	Lafore	Teach yourself data structure and Algorithms in 24 Hrs	BPB pub.
02	Tanenbaum	Data Structure using C ++	PHI.
03	Yashwant Kanetkar.	Data Structure using C	
04	Shukla	Data Structure using C Lab work	BPB pub
05	Gregory Heilman	Data structures, Algorithms and oops	Mc-GrawHills
06	Trembly and Sorenson –	An Introduction to Data Structures with Applications	2 nd edition McGraw Hill.
07	Horowitz and Sahani.	Fundamentals of data structures	

[BACK](#)

COURSE CODE: IT258
COURSE NAME – MICROPROCESSOR & PERIPHERALS

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	2				
Marks	Prog. Test	End Exam.	25	25	--	150
	25	75				
Duration	1	3				

COMPENTANCY STATEMENT (S):

- 1 To develop programming skill in assembly language
- 2 To program the microprocessor peripherals.
- 3 To test and build microprocessor based system.

RATIONALE:

Microprocessor is the heart of any computer systems, communication equipments and control systems. It helps in understanding the different concepts involved in interfacing of peripherals, programming of peripherals and building microprocessor based systems. It will clear the concepts of writing assembly language, coding and executing the programs on microprocessor kits. It gives basic idea of minimum configuration of computer system, it's functioning.

COURSE OBJECTIVES: Students will be able to

1. Understand the internal architecture of microprocessor
2. Understand interfacing of peripheral devices with microprocessor
3. Understand the functioning of microprocessor

CONTENTS

- 1. Microprocessor, Microcomputer & Assembly Language (H-08, M-07)**
Microprocessor as programmable device, memory, input, output, microprocessor as CPU, Organization of microprocessor based system, how does microprocessor work. Microprocessor instruction set and computer languages, m/c language, assembly language, high-level language
- 2. Microprocessor architecture & microcomputer systems (H-12, M-18)**
Microprocessor architecture, Memory map & addresses, input & output device, peripherals mapped I/O & memory mapped I/O. Pin out details and the function of each pin. Microprocessor communication & bus timings. 8085 m/c cycle & bus timings, control signals, memory read & writes. Memory interfacing, basic concepts, address decoding, interfacing of 8155-memory section.
- 3. Assembly language program. (H-14, M-16)**
Instruction classification, instruction format, 1,2,3 byte instructions, addressing modes, data transfer, arithmetic, logical, branch, input/output, m/c controls instructions. Writing & executing assembly language programs.
- 4. Programming Techniques. (H-14, M-12)**
Looping, counting, indexing, rotate, compare, 16-bit instruction, counters, time delays, stacks & subroutines. Interrupts: EI, DI instructions, RST instructions, Vectored interrupts & priorities
- 5. Peripheral chips & Interfacing (H-08, M-12)**
Functional block diagram, pin configuration & modes of IC chips 8255, 8275, 8279
- 6. Microprocessor based system. (H-08, M-10)**

Stepper motor control, temperature control, traffic light control, A to D and D to A conversion

LIST OF PRACTICAL: (Minimum 10)

1. Introduction to Microprocessor kit, instruction manual, writing simple assembly language program.
2. 1's Complement, addition. Subtraction, multiplication of 16 bit.
3. Finding smallest, largest numbers from given list of numbers
4. Arranging numbers in Ascending and descending orders
5. Display of real clock on microprocessor kit.
6. Interfacing of LED and relays using 8255
7. Interfacing with ADC
8. Interfacing of DAC.
9. Keyboard interfacing with 8085.
10. Interfacing with 8255.
11. Code conversion, program (Binary to BCD) (BCD to Binary)
12. Checking even or odd numbers finding numbers of zeros in a given no.
13. Demonstration of 8085 simulators and its feature.
14. Writing simple program using 8085 simulators.
15. Keyboard interfacing.

IMPLEMENTATION STRATEGIES:

This course is introduced at the third semester of diploma level. The subject is at conceptual and introductory level. No complicated and difficult programs in assembly language are expected. Little Emphasis must be given on interfacing of different peripherals to microprocessor, Programming different peripheral devices. Data transfer and control of data transfer. Students must become familiar with overall operation and different concepts involved at microprocessor level.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Gaonkar	Microprocessor Architecture, programming and app	
02	B.Ram	Microprocessor & microcomputers	
03	Ajit Pal	Microprocessor principle & application	
04		Workshop for Microprocessor based 1998 lab experiments.	YCMOU Publisher.
05	Douglas Hall.	Microprocessor interfacing and programming	

[BACK](#)

COURSE CODE: IT259
COURSE NAME: APPLICATION SOFTWARES

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	-	4				
Marks	Prog. Test	End Exam.	25	25	--	50
	-	-				
Duration	-	-				

COMPETENCY STATEMENT (S):

1. To use application software's for image, text, sound and video creation & editing
2. To create, edit and enhance the images using application software's
3. To prepare presentations using macromedia flash
4. To use Adobe Acrobat reader
5. To use PDF converter.

RATIONALE:

Any application development needs to handle different medias. Audio, video, images and text are the basic medias. Students should understand the basic of this medias. They should properly select the file formats. If required they should able convert one file format to other formats. This will make understanding of GUI better.

This course will form the basic foundation for any S/W developments. They will acquire the desired competencies for creating, editing and enhancing the medias. They will develop the skill of self-learning of similar application S/W.

COURSE OBJECTIVES:

Student should able to,

1. To learn and use application software's
2. To inculcate the habit of using application S/W by self-learning.
3. To use Adobe Photoshop for image creation, editing and enhance
4. To use macromedia flash for professional presentations
5. To use PDF creator and PDF converter
6. To compress the files

CONTENTS:**LIST OF PRACTICALS/EXPERIMENTS: (Adobe Photo-Shop)**

- Looking at the Work Area
- Getting Images into Photoshop and Image Ready
- Working with Color Modes
- Producing Consistent Color
- Making Color and Tonal Adjustments
- Selecting
- Editing and Retouching
- Painting and Drawing
- Using Channels and Masks (Photoshop)
- Using Layers
- Designing Web Pages
- Creating Animations (Image Ready)

- Optimizing Images for the Web
- Saving and Exporting Images
- Printing (Photoshop)
- Automating Tasks

Flash

- Overview of flash work area: Introduction, features, Application, Installation, Flash Interface, Flash work area, movies, scene, layers, frames, import, saving a file.
- Introduction to tools: Creating basic shape, modifying shape, adding colours
- Basic lines and curves: Creating lines, Features of inline brush, dropper and eraser tools, working with text in flash
- Layers and frames: Introduction, working, twining of shape, motion guide layer, layer working, colour animation
- Introduction to symbols: Library in flash, creating symbols, features and effects of symbols
- Working with sound: Introduction, working with sound, importing sound, adding to movie, Adding sound button, editing sound, stating and stopping at key frames, compressing and exporting sound in flash movie.
- Preparation of presentation using images, clips, animation, sound, video and text.

Acrobat Reader:

- Looking at work area
- Creating PDF file using Adobe PDF maker
- Creating PDF file using Adobe acrobat(web pages, word, excel, access files)
- Adding security to adobe PDF documents
- Editing adobe documents
- Adding header footer, digital signature, watermark, background in PDF files

Introduction to WIN ZIP utility

Installation, Views, zipping, unzipping files and folders

[BACK](#)

COURSE CODE: IT 260
COURSE NAME: COMPUTATIONAL TECHNIQUES.

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	2				
Marks	Prog. Test	End Exam.	25	25	--	150
Duration	1	3				

COMPENTANCY STATEMENT (S):

1. To solve Engineering problem by using principles of mathematics and statistics.
2. To write the programs in higher level language
3. To get knowledge of mathematical foundation of computer science & develop logical thinking

RATIONALE:

This course introduces the mathematical of computer science and statistical methods for solving different types of equations. This is required for understanding computer arithmetic for computations.

COURSE OBJECTIVES:

Students will be able to

1. Understand the concepts and methods of numerical differentiations and Integration.
2. To Study of polynomial, Simultaneous Equation, Interpolation.
3. Developing and implementing algorithms for different numerical methods
4. To understand the concept of Sets, Graphs.

CONTENTS:

1. **Computer Arithmetic** (H-10 M-15)
Fixed point & Floating point Representation of number, Normalized floating point representation, Error in Arithmetic, Concept of Significant Digit, Total Error, Inherent error, Round off Errors, Numerical errors, Truncation Errors, Modeling, Blunders, Absolute and Relative error and their significance.
2. **Solution of Algebraic Equations** (H-10 M-10)
Introduction, Iterative Method, Starting & Stopping Iterative Method, Bisection method, Regula falsi method, Newton – Raphson Method.

----- Progressive Test-1 -----

3. **Solution Of Simultaneous Equations** (H-12 M-15)
Introduction, Gauss Elimination method, Gauss Elimination with pivoting, Gauss Jordan method, Gauss Jardon with Pivoting, Jacobi Method, Gauss–seidel iterative method.
4. **Interpolation** (H-10 M-10)
Introduction, Concept of difference table, Lagrange's interpolation method, Newton's interpolation methods.

----- Progressive Test-2 -----

5. **Numerical Differentiation & Integration** (H-12 M-12)
Numerical differentiation using difference table formula, Numerical integration

Trapezoidal rule, Simpson's One-Third rule

6. Set and Prepositions (H-5 M-6)

Combination of sets, finite sets, Unaccountability infinite sets, Mathematical Induction, principle of inclusion & exclusion, Propositions, Multisets.

7. Graphs (H-5 M-7)

Basic terminology, Multigraphs, Weighted graphs, Paths, Circuits & Shortcut Path in weighted graph, Hamiltonian paths & Circuits, the traveling sales person problem.

----- Progressive Test-3 -----

TERM WORK & PRACTICAL: (Any ten programs)

It will consist of a record of laboratory experiments consists of implementation of algorithms in 'C' language

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	E.V. Krishnamurty & S.K.Sen	Numerical Algorithms	East West Prep
02	V. Rajaraman	Comp.Oriented Numerical methods	PHI
03	S.S.Sastry	Introductory Methods of numerical Analysis.	PHI
04	Balguruswamy	Numerical methods	TMH pub
05	C.L.Liu	Elements of discrete mathematics:	2 nd edition McGraw Hill

[BACK](#)

COURSE CODE : IT261
COURSE NAME : DATABASE MANAGEMENT SYSTEM

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	2				6
Marks	Prog. Test 25	End Exam. 75	25	25	--	150
Duration	1	3				

COMPENTANCY STATEMENT (S):

1. Student will able to create database & maintain database.
2. Write & execute SQL queries
3. Normalize the database
4. Develop concepts of data modeling, security and integrity

RATIONAL:

Every organization / establishment/ office / shops needs to keep records of day-to-day activities. If these records are kept on computer then it will be very easy for maintenance and quick retrieval. It will help to make correct and quick decision. Regular as well as adhoc reports can be quickly generated. This helps low, middle and even top level management of an organization for decision making.

COURSE OBJECTIVES:

Students should be able to

1. Create databases and maintain database.
2. Understand DBM and RDBM systems.
3. Understand concepts of database system and client server architecture
4. Design database applying normalization rules
5. Understand and use power of SQL
6. Apply database integrity, constraint and security

CONTENTS :

- 1. An Overview of Database Management (H-06 M-08)**
Introduction to database, what is database system?, why database? Characteristics of database, Database management system Data Model: Relational, hierarchical ,schema & subschema.
- 2. Architecture of a Database System (H-04 M-06)**
Three level architecture, mapping, database administrator,client/server architecture. Utilities, distributed system
- 3. An Introduction To Relational Databases (H-04 M-06)**
Relational system, relational model, base tables & views, optimization, query optimization.
- 4. Relational Data Objects (H-04 M-04)**
Domain & relation: domains, relation & kinds of relation, relation & predicates, relational database

----- Progressive Test-1 -----

- 5. Relational Data Integrity (H-04 M-06)**

Keys & its type: candidate keys, primary key & alternate keys, foreign key & data integrity constraint rules

6. The Entity /Relationship Model. (H-06, M-07)

Introduction, the overall approach, An overview of the E/R model, E/R diagrams, Database design with the E/R Model.

7. SQL language (H-16 M-18)

Introduction, data definition, data manipulation, Retrieval operation, data manipulation, update operation, Table expression, conditional expression scalar expression, embedded SQL.

----- Progressive Test-2 -----

8. Functional Dependencies (H-06 M-06)

Introduction, basic definition, trival&nontrivial dependencies, closure of a set attributes, inducible set of dependencies

9 Normalization (H-08 M-06)

Introduction, functional dependencies, (1NF, 2NF, 3NF) first, second & third forms, Dependency preservation, Boyce - Codd Normal Form(BCNF).

10. Database Security. (H-06, M-08)

Introduction, authentication, Access control, enforcement.

----- Progressive Test-3 -----

LIST OF PRACTICAL:

1. Creation Of Database Using Ms-Access.
2. Running Ddlcommands In Sql Like Create,Delete,Update Etc..
3. Dml Commands In Sql Like Select,Groupby,Orderby,Having Clause Etc..
4. Additional Function In Sql
5. Operator In Sql Like Arithmetic,Logical,Pattern(Like),Range Operatoretc..
6. Aggregate Function In Sql
7. Application On Data Constaints Using Primarykey,Foreignkey Etc...
8. Mini Project On Above Application

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Henry Kurth	Database system concepts	Tata McGraw Hill
02	Navin Prakash	Introduction to Database Management system	Tata McGraw Hill
03	William Page Jr.And Nathen Hughes Abraham stlberschaty	Using Oracle 8	Prentice Hall of India
04	C.J.Date	An Introduction toData Base System	Addison Wesley publication
05	Swapna Kishore..	SQL Professional TMH	
06	Bipin Desai	Database Management System	

[BACK](#)

COURSE CODE: IT262**COURSE NAME: VISUAL BASIC PROGRAMMING**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit		4				
Marks	Prog. Test	End Exam.	25	50	--	75
	-	-				
Duration	-	-				

COMPETENCY STATEMENT(S):

1. To understand working of Visual Basic
2. To use computer for Visual Basic related applications
3. To prepare professional projects.

RATIONALE:

This subject has to understand the principle and the techniques involved in developing application with Visual Basic. The course contents is designed to understand and implement the event driven architecture of Visual Basic programming. The student would be able to identify and use different categories of controls ,learn working with forms and different data identify the categories and identify the categories of ActiveX controls and creating them.

COURSE OBJECTIVES:

Students will be able to

1. Use GUI tools of Visual Basic Programming.
2. Use basic and advance VB tools.
3. Interface back-end and front-end
4. Generate report using Data Report and Crystal Report
5. Build Visual Basic application.

CONTENTS:**1. INTRODUCTION TO VISUAL ENVIRONMENT**

Concepts of visual programming , object, features Environment of VB – Menu bar, toolbar, project explorer, toolbox, properties window, form designer, form layout, immediate window .Concept of project, elements of projects, form et

2. INTRODUCTION TO VISUAL BASIC

Data types, variables, constants, arrays, collections, procedures, Arguments, function return values, control flow statements, loop statements, Nested control structures, The exit statement, math operators & formulas, logical operators, string functions, special functions available in VB like Input Box (), Message Box (), Format ().

3. CONTROLS AND EVENTS

Text box, list Box , Combo Box , Scroll Bar and slider Control. ,Container – picture box, frame ,Option button, checkbox, command button, images. ,OLE controls ,File controls .Designing a form using controls, concepts of event & properties, changing properties (runtime & design time) Important events of each control & creating applications using controls , Timer.

4. ADVANCE CONTROLS & EVENTS

Common Dialog Box controls, The Tree view and List, View controls, the rich textbox controls., Windows common controls – status Bar, Tab control, image list control, ms chart control, slider control., Important properties, changing properties at design or run, time event handling.

5. MODULE, CLASS MODULE MDI, MENU EDITOR AND GRAPHICS

Concept of module, class module, MDI, how to use them.,Creating own menu using menu editor, popup menu.,Graphics :-,Basic controls – Line & shape control , line method, circle method, Pset method, RGB () Functions, Paint picture () method, Load picture () function.

6. DATABASE AND REPORT GENERATION

Concept of database, Record, Record set, Data control & its important properties, validating data, entering data, visual data manager, data bound grid control, DB List, DB combo., Programming with ADO (Active data objects) ADO, Objects, connection, command, record set , parameter, Creating & closing a connection; executing a command, Object, executing a stored procedure from a command ,Object, creating record sets objects, cursor Location, Cursor types, lock types., Report generation using data report.

TERM WORK:-

Minimum 8 experiment should be conducted during the course out of which one should be mini project. And the record (journal)for the same shall be submitted

- 1) Design a form for arithmetic operations using textbox, label, command button.
- 2) Design a form for speed control program using scroll bars.
- 3) Design a form to display a picture using image box/picture box selected from a file in file list box directory list box, drive list box.
- 4) Design a form using shape control to display signal and change it timely using timer control.
- 5) Design a simple application using OLE control.
- 6) Design form to create a font dialog box using combo/ list, text, option buttons, and check box control.
- 7) Design a form using Tab control, image list, status bar, tool bar, which facilitates different arithmetic operations
- 8) Design a form using menu editor, MDI, common dialog box which has standard format like Notepad. (eg. File , Edit , format) open copy, font, save and cut.
- 9) Design a simple database application which covers all database concepts.(Data control, DAO ,RDO,ADO, DB-list , DB combo and generate the relevant report) controls,
- 10) Design the interface to perform following operation on file like create open read ,write ,delete ,search.

ORAL/PRACTICAL EXAM:-

Practical will be of 4 hours. The practical examination shall consist of performing an experiment based on the practical work done during the course, the record of the experiments submitted by the candidate and viva-voce based on the term work.

GUIDELINES FOR TEACHER:-

In practical hours teacher should clear all the theoretical and practical features of student of respective course.

REFERENCE BOOKS:

Sr.	Author	Title	Publisher
01	Evangelos Petront Sos	Mastering VB6	BPB publications
02	Nel Jerka	The complete reference VB6	Tata Mcgraw Hill publishing

[BACK](#)

COURSE CODE: IT263
COURSE NAME: E- LEARNING

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit		4				4
Marks	Prog. Test	End Exam.		50	--	50
	-	-				
Duration	-	-				

COMPETENCY STATEMENT(S):

1. To search and find solutions of challenging task
2. To explorer various available resources such as internet, books, reference books, magazines, e-library.

RATIONALE:

Every software professional has to face some challenging task. There are many situations where he has to take help from experts. Obvious solution is internet. This course is introduced with this intention. Here students should not panic or loose heart. He must remember that there is a solution to every problem. He must explore best possible alternative systematically and scientifically.

COURSE OBJECTIVES:

Students will be able to

1. Understand and analyse the problem
2. Search for best possible solution with all available resources
3. Get help from experts
4. Put the problem on internet and seek solutions
5. Develop habit of solving difficulties of own and others

CONTENTS:

In this course subject teacher is expected to give any five challenging assignments in software fields. More specifically programming task which are likely to be faced by individuals during software development phase in real life situations. These assignments should not be repeated in subsequent semesters unless and otherwise essential. Task list may be added throughout the course

Task may be included as follows

1. Designing own control in any programming language
2. Connecting and accessing data from different types of databases such as dbase, Foxpro, MS-access, sql-server, oracle, excel, text files
3. Designing parameter driven reports using crystal report through Visual Basic
4. Generation of ASP pages using database applications
5. Implemntation of Tic-Tac-toe game application using any programming language
6. Implementation of Help files as available in most of application softwares
7. Development of upload and download module on a website
8. Implementation of backup solutions.
9. Implementation of different searching and sorting techniques
10. Development of security module in database applications in Visual basic

Students are expected to develop working modules to meet the expectations of task which may be further specified in detailed manner by teacher. These assignments may be from any course preferably hardware or software areas.

[BACK](#)

COURSE CODE: IT264
COURSE NAME: COMPUTER NETWORKS

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	-				
Marks	Prog. Test	End Exam.				100
	25	75		--	--	
Duration	1	3				

COMPETENCY STATEMENT (S)

1. To Understand concepts of data communication.
2. To understand theoretical concepts related to design, protocol, interface and configure the computer network

RATIONALE:

In the age of information technology the day-to-day business transaction in banks, Railway reservation, industrial sales, purchase, & educational environments all depend on computer which are connected in networks. This subject will enable the students to learn the basic concepts of digital communication, computer networks & its applications, topologies, communication media, protocols used and OSI & TCP/IP Reference model.

COURSE OBJECTIVES:

Students will be able to

- 1.To provide basic overview of computer networking and computer communication.
- 2.To introduce LAN, WAN, Modem and their applications.
- 3 .To Study of protocols with respect to different layer of OSI/ISO Reference Model.

CONTENTS:

- 1. Introduction. (H-08, M-10)**
A communication Model, data communication, data communication networking, analog & digital transmission, Network goals and applications. Introduction to Network structure, design issues for layers, connection-oriented & connectionless services, OSI model. Physical layer, Data link layer, Network layer, Transport layer, Session layer, Presentation layer, and Application layer.
- 2. Network structure and architecture. (H-08, M-08)**
LAN, WAN, MAN And Network Topologies. Definitions, Types of Networks, Comparison of different topologies, Comparison of different networks, TCP/IP Reference model, Comparison between OSI and TCP/IP models. Example of connection oriented networks X.25 Frame Relay and ATM.
- 3. Physical Layer. (H-08, M-12)**
Transmission media: Magnetic media, Twisted pair, Base band coaxial cable, Communication satellite, microwave transmission

----- **Progressive Test-1** -----

Data transmission: the theoretical basis for data communication, the maximum data rate of a channel. Structure of the telephone system, modems, ADSL, & wireless, Transmission and switching: FDM and TDM. Circuit switching. Packet switching. ISDN: ISDN system Architecture (Introduction only).

- 4. Medium Access Sub Layer. (H-08, M-10)**
LAN and MAN: Static channel allocation in LAN and MAN, Dynamic channel

allocation in LANS and MANS. ALOHA Protocols: Pure Aloha & Slotted ALOHA protocols. (Description only).

LAN Protocols: Persistent and non-persistent CSMA, CSMA with collision detection, Collision free protocols. Ethernet cabling, Manchester encoding, Ethernet MAC sub layer Protocol, introduction to fast Ethernet & Gigabit Ethernet, IEEE 802.2, data link layer switching: introduction & functions of repeaters, Hubs, bridges, Switches, Routers & Gateways.

5. The Data Link Layer. (H - 10, M-10)

DLC layer design issue: Services provided to network layer, Framing, Error Control, Flow control, Link management. Error detection and correction: Error correcting codes, Error detecting codes. Elementary data link protocols, sliding window protocols. Examples of Data link protocol: High-level Data link control (HDLC) protocol, PPP protocol.

----- Progressive Test-2 -----

6. Network Layer. (H-12,M- 12)

Network Layer design issues: Internal organization of network layer, Routing, Congestion, and Inter Networking.

Routing algorithm: Characteristics, Shortest path routing, flooding. Congestion Control Algorithms: General principles, Congestion prevention policies.

Network layer in Internet: The IP protocol, IP addresses, and Internet control protocols.

7. The Transport Layer. (H-04, M-07)

Services provided to the upper layers, the Internet Transport protocols UDP, the Internet Transport protocols TCP: introduction, the TCP Protocol, segment header, TCP congestion control.

8. The Application Layer. (Introductory level) (H-06, M-06)

DNS (Domain Name system.), Electronic Mail, File Transfer Protocol. HTTP the hypertext transfers protocol.

----- Progressive Test-3 -----

Teaching Methodology:

- Lecture method without media.
- Lecture method-using media.
- Demonstration using LCD projector.

Teaching Resources:

- Overhead projector
- LCD projector

REFERENCE BOOKS.

Sr. No.	Author	Title	Publisher
01	Andrew S.	Computer Networks by –	4 th edition. PHI
02	William Stallings	Data and Computer Communication	5 th edition
03		Computer Networks, Protocols, standards and Interfaces	Uyless black
04		Local Area Networks.	John McNamearn, PHI.

[BACK](#)

COURSE CODE: IT351**COURSE NAME: ENTERPRENURESHIP DEVELOPMENT**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	3				
Marks	Prog. Test	End Exam.		100	--	100
	-	-				
Duration	-	-				

COMPETANCY STATEMENT (S):

Student will be able to start his own business

RATIONALE:

After completion of Diploma in IT, students are expected to start their own small business as an entrepreneur. This course gives basic information, opportunities, rules, regulations, procedure which will need to know to start a business. For becoming successful entrepreneur some important tips, guide lines, scientific ways of a running business are outlined in this course. This is human Science Subject, students to make aware about Entrepreneurships development to each student the basic concept, principles and procedures related to the Entrepreneurships. To expose student to the real life problems. By case study and visit to the successful, enterprisers

COURSE OBJECTIVES:

1. Understand concept and principle.
2. Understand real life problems.
3. Understand and acquire knowledge and procedures related to the Entrepreneurships.

CONTENTS:

1. **Introduction** (H-4)
The concept of Entrepreneurships, Entrepreneur, opportunity, innovations, characteristics and Entrepreneur. Information gathering for identification of opportunity.
2. **The Information Sources For Business Opportunity** (H-4)
The unexpected success failure, innovations, based on process need change in industrial structure, changes in perception mood and nonscientific, discussion for sources.
3. **Information Gathering** (H-2)
Study of different Information Gathering Techniques,
4. **Product Identification** (H-2)
Identification And Product Or Service For Getting Business.
5. **Market survey** (H-2)
Product And Services, Specifications Industries To Be Surveyed, Principles Of Market Survey.
6. **Product Survey** (H-2)
Analysis Of Survey, Data And Product/Service Design.
7. **Project Formulation** (H-4)
Project formulation for establishment own business or starting service. system concept and project based on job design for manufacturing product or creating service capabilities.
8. **Estimation of a project** (H-4)
The procedure of estimation of resources required for establishing the

enterprise or starting service business space, equipment, human resources
financial resources

- 9. Collection of additional information (H-4)**
Approach for resources, collecting list of suppliers, building material, construction machineries
- 10. Accounting maintenance (H-4)**
The concept of management of enterprise, budgeting and accounting the expenditure for running enterprise.

PRACTICALS:

1. Collect the information for product/services from newsletters, Magazine other literature or use Internet.
2. Prepare Document on any one product/service, inclusive of its, used manufacturing qualities, its market, (Local, state level, national, International).
3. Collect information regarding product services from 2-3 industries to on data analysis.
4. Preparation of perform project report (visit to, D I C, MIDC, MSFC, Banks etc.)
5. Prepare sample specifications like land, building machinery and men power.
6. Visit to successful entrepreneur and collect information regarding pit-fall in the business, Govt. rules and regulations, subsidies and other related parameters.
7. Student should prepare report (hand written) & deliver a seminar on all Practical mentioned above and submit the same as term-work. Report may contain
 - Project summary (one page)
 - Introduction (Promoters, market scope/ requirements)
 - Project concept & details of product
 - Details of all promoters (Qualification, Experience, financial strength)
 - Manufacturing/ Development Process and technology
 - Plant and machinery requirements
 - Location and infrastructure requirement
 - Manpower (managerial, skilled, unskilled)
 - Raw materials, consumables and utilities
 - Working capital requirements
 - Market survey (demand & supply)
 - Cost of project & source of finance
 - Project profitability and break even analysis
 - Conclusion.

REFERENCE BOOKS.

Sr.No.	Author	Title	Publisher
01	J S Saini B S Rathod	Entrepreneurship Theory and Practice	Wheeler pub. New Delhi
02		Entrepreneurship Development	Tata Mc Hill
03	J B patel & D. G. AllamPally	Manual on How to prepare a project report EDI Study material Ahmedabad www.ediindia.org	

[BACK](#)

COURSE CODE: 1T352
COURSE NAME: BUSINESS PROCESSES

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	3	-				3
	Prog. Test	End Exam.				
Marks	25	75		--	--	100
Duration	1	3				

COMPETENCY STATEMENT :

1. To understand business process.
2. To understand different management practices such as marketing, financial, industrial

RATIONALE :

While developing any software package it is very essential that developer should have clear idea of basic processes involved in it. Then these physical processes can be systematically converted in to logical flow in terms of computer operations. Major emphasis is given on process mapping. Four major steps of process mapping covered are Process identification, Information gathering, Interviewing and mapping techniques and analysis of system. Researching concepts is also covered in brief.

COURSE OBJECTIVES: Student should be able to –

1. Understand business process
2. Understand business process mapping
3. Understand the principles of & functions of management.
4. Understand the types of organization.
5. Understand the subsystems of the management and its qualities.

CONTENTS:

1. **Business Process:** (H-04 M-07)
Concept of business process, Illustration with example, Scope of a process, Process outline, Key Processes.
2. **Process Mapping:** (H-05 M-08)
Steps of process mapping Process Identification, Information gathering, Interviewing and mapping, Analysis.
3. **Steps of Researching:** (H-05 M-08)
Definition of subject, Objectives, Scope of the research, Data gathering, Trend Analysis
4. **Management Concept :** (H-05 M-08)
Various definitions of managements, difference between management, administration and organization, functions of management, scientific management, principles of scientific management.
5. **Financial Management:** (H-08M-10)
Necessity of finance, Fixed and working capitals. Factors affecting working capital, Sources of finance, shares, debentures, public deposits, loans from banks and financial institutions. assets and liabilities, key financial ratios and their significance, Financial statements like profit and loss, balance sheet.

- 6. Personnel Management: (H-05,M-08)**
Personnel Department, its objectives and functions like recruitment, selection and training of employees, industrial hygiene, welfare and safety of personnel, motivation of employees.
- 7. Materials Management: (H-06,M-08)**
Objectives, concept of subsystems of material management like purchase, stores, inventory management. Purchase procedure, quotations, tendering, types of inventories, inventory control, objectives of inventory control, economic order quantity, ABC analysis. Recent inventory management techniques like just in time, etc.
- 8 Marketing Management: (H-06,M-10)**
Definition, concepts of marketing,, benefits of marketing concept, Functions of marketing management, Market research, its objectives and importance, sales forecasting, advertising and sales promotion.
- 9 Quality Management: (H-04,M-08)**
Concept of quality, standardization, merits and demerits. Types of standards, quality policy. Introduction to ISO 9001-2000.

[BACK](#)

COURSE CODE : GE 371**COURSE NAME : MATERIAL MANAGEMENT**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	3	-				
Marks	Prog. Test	End Exam.		--	--	100
	25	75				
Duration	1	3				

COMPETENCY STATEMENT :

To understand the concept of the materials management, Purchase management, its formalities, inventory management, and its practices in industry.

RATIONALE :

Material Management plays a vital role in industrial cost (70%). An effective management of materials plays a direct role in cost saving and its reduction. Modern industries involve a wide range of materials. Material involves various elements like purchasing, stores and inventories. The subject gives an inside into various subsystems of material management, existing practices and key features to manage the materials effectively.

COURSE OBJECTIVES : After completion of the course student should be able to –

1. Know about materials management concept and function.
2. Understand about types of materials in industries.
3. Know about purchasing and purchasing functions in industry.
4. Know about various inventories and inventory control.
5. Understand about stores and stores management.

CONTENTS:

- 1. Management Concept :** (H-05,M-08)
Various definitions of managements, difference between management, administration and organization, functions of management, scientific management, principles of scientific management.
- 1. The Organization:** (H-05,M-07)
Definition and Scope of organization, Steps in organisation, Necessity of organisation, Types of organisation structure like line, functional, line and staff organisation, their advantages, limitations and applications.
- 2. Material Management concept and scope :** (H-08,M-12)
Organization and importance of materials management, scope of materials management, classes of material, functions of materials department, variety reduction in materials management.
- 3. Purchasing Management :** (H-08,M-10)
Importance, objectives and principles of purchasing, centralize and decentralized purchasing, purchasing cycle, condition of contract, pricing theory, negotiation, make or buy decision, purchasing budget. Vendor development, organization of purchase department.
- 4. Inventory Management :** (H-09,M-16)
 - Definition, objectives, need and importance of inventory management,
 - Selective controls, classification methods ABC – analysis, XYZ – analysis, HML Classification, VED, SDE, SOS classification.
 - Economic Ordered Quantity, its calculation, ordering point, safety stock, etc.
 - Types of inventories – Raw material, functions of Raw materials.

- Spare parts inventory and its management; work in process inventory, finished good inventory. Inventory cost, carrying cost involving insurance taxes, obsolescence, wages and salaries cost of overstocking, stock out costs. Concept of stock level & control – effect of low stock holding and high stock holding, fixing of stock level minimum and maximum level.
- JUST IN TIME techniques, need of it in modern production industry, related economics, advantages and disadvantages, logistics and applications.

5. Stores Management :**(H-08,M-14)**

Stores function, receipts and inspection, storage of materials-general care and preservation. Warehouse design considerations, stores records and account, stock verification, over stock and scrap management.

Store department and organization, duties of storekeeper, centralize and decentralized stores, types of store, codification concepts for store items standardization and reduction method. Safety and security aspects in stores, issue systems.

6. Computers in materials management :**(H-05,M-08)**

Advent of computers, data / input / output, electronic data processing (EDP), ideal areas for computerization, requirements for a good information system, concept of management information system with reference to materials management.

REFERENCE BOOKS :

Sr. No.	Author	Title	Publisher
01	O. P. Khanna	Industrial Engineering & Management	
02	Jain & Agrawal	Production Planning & Control of Industrial Management	
03	Banga Sharma	Industrial Management & Organization	
04	N. M. Shah	Integrated Approach to Materials Management	

[BACK](#)

COURSE CODE : GE 372
COURSE NAME : FINANCIAL MANAGEMENT

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	3	-				
Marks	Prog. Test	End Exam.		--	--	100
	25	75				
Duration	1	3				

COMPETENCY STATEMENT:

“To understand and about the principles and concepts of financial management.”

RATIONALE :

Financial management is obviously the most important area of the management. Hence the students of diploma program should study the financial management.

COURSE OBJECTIVES: Student should be able to –

1. State the various sources of finance.
2. State the functions of finance management
3. Understand the capital market.
4. Appreciate the roll of financial controls.
5. Make the ratio analysis.
6. Make profit planning.

CONTENTS:

1. **Management Concept :** (H-05,M-08)
Various definitions of managements, difference between management, administration and organization, functions of management, scientific management, principles of scientific management.
2. **The Organization:** (H-05,M-07)
Definition and Scope of organization, Steps in organization, Necessity of organization, Types of organization structure like line, functional, line and staff organization, their advantages, limitations and applications.
3. **Introduction to Financial Management:** (H-07,M-10)
Concept and definition of financial management, objectives of financial management, Scope and function of financial management, A's of financial management.
4. **Sources of Finance :** (H-08,M-13)
Long Term Financing : Introduction, Need for long term financing, sources of long term financing.
Short Term Financing : Introduction sources of shot term financing, short term v/s long term financing.
5. **Business Finance :** (H-07,M-12)
Contribution of finance in business, Introduction and characteristics of financial planning, functional area of financial management, working capital management,
6. **Financial Forecasting:** (H-07,M-10)
Introduction, tools of financing forecasting, advantages and disadvantages of financial forecasting, balance sheet, forecasting, cost of production and profit.
7. **Financial Controls:** (H-09,M-15)
Budgetary controls – budget and budgetary control, organization structure and budgetary control, administration of budgetary control, the budgeting process, policy guidelines, advances of budgetary control.
Ratio Analysis – structural ratios, working capital ratios, profitability ratios R.O.I., Limitations of ratio analysis.

Profit planning – Role of management in profit in profit planning and budgeting, systems approach to profit planning.

Breakeven analysis – introduction, uses of breakeven analysis.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	P.V.Kulkarni, B.G Satyaprasad..	Financial Management	
02	Fransis, Cherunilam	Industrial Economics	
03	Om Prakash	Ratio analysis for management in new perspective	
04	S.A. Sherlekar.	Modern business organization and management	
05	E.M.Awad	E-commerce	

[BACK](#)

COURSE CODE : GE 373**COURSE NAME : MARKETING MANAGEMENT**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	3	-				
Marks	Prog. Test	End Exam.		--	--	100
	25	75				
Duration	1	3				

COMPETENCY STATEMENT:

To understand the principles and practices of marketing.

RATIONALE :

The Marketing Management is having its own importance in the management studies. In fact, it is the area of management which required due consideration as it decides the future of the business. Hence every students of diploma programme in engineering should study the marketing management if he wants know more about it.

COURSE OBJECTIVES: Student should be able to –

1. Understand functions of management.
2. Understand the organization and it's types.
3. State functions of marketing management.
4. State the importance, objectives and process of marketing research.
5. Explain the importance of sales promotion in marketing.
6. Understand emergence of global marketing and procedure of export.

CONTENTS:

1. **Management Concept :** (H-05,M-08)
Various definitions of managements, difference between management, administration and organization, functions of management, scientific management, principles of scientific management.
1. **The Organization:** (H-05,M-07)
Definition and Scope of organization, Steps in organization, Necessity of organisation, Types of organisation structure like line, functional, line and staff organisation, their advantages, limitations and applications.
3. **Market & Marketing Management:** (H-08,M-12)
The Market, types of market, kinds of goods, modern definition of marketing, marketing process, marketing, functions, concepts of marketing, benefits of marketing concept, selling vs. marketing concept, marketing management, responsibilities of marketing management, marketing mix, elements of marketing mix, marketing organization, system approach for marketing.
4. **Market Segmentation :** (H-04,M-06)
Marketing Segmentation, benefits of market segmentation, segmentation success criteria, bases for market segmentation, People oriented approach, product oriented approach.
5. **Marketing Information & Marketing Research :** (H-10,M-15)
Information system, information management, marketing information system, characteristics of information system, components of information system, marketing research, elements of marketing research, importance of Marketing research, Areas of Marketing research, Objectives of Marketing research, Marketing research process, Methods of data collection, Primary and Secondary

data, Survey method, Uses of survey method, Types of survey, observation approach, panel research, experimental research, scope for marketing research in India.

- 6. Sales Management :** **(H-04,M-07)**
Sales Marketing, functions of sales management, duties and responsibilities of sales manager, importance of sales organization, sales forecasting, uses of sales forecasting, methods of forecasting.
- 7. Sales Promotion and Distribution:** **(H-06,M-10)**
What is a sale Promotion? Objectives of Promotion, Uses of promotion, limitations of promotion, kinds of promotion, joint promotion, definition of advertising, importance of advertisement in marketing, Media selection, channels of distribution, Role of channel of distribution, channel decision, Middle men in distribution, Wholesale Vs Retail trade.
- 8. Global Marketing:** **(H-06,M-10)**
Emergence of global marketing, international marketing environment, Multinational companies, foreign trade, difficulties in foreign trade, procedure of export, export promotion measures in India.

REFERENCE BOOKS :

Sr. No.	Author	Title	Publisher
01	S.A. Sherlekar V.A. Sherlekar.	Modern Business Organization & Management	
02	Bellur & Berkman	Readings in Marketing Management	
03	Bellur	Marketing Research Theory & Practice	
04	S.A. Sherlekar	Marketing Management	
05	Philip Kotler	Marketing Management	

[BACK](#)

COURSE CODE : GE 375**COURSE NAME : INDUSTRIAL MANAGEMENT**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	3	-				3
Marks	Prog. Test	End Exam.		--	--	100
	25	75				
Duration	1	3				

COMPETENCY STATEMENT :

To understand administrative and managerial principles and practices in industry.

RATIONALE :

The Diploma engineers are working at various levels in the managerial hierarchy. He is required to utilize various resources like man, machine and materials, effective and economic utilization of these resources leads to increase the productivity and profitability.

The diploma engineers must know the principles of management and the organizational environment. Take up the marketing management is having its own importance in the management studies. The course structure encompasses principles, functions of management, and types of ownership. The general features of financial, materials, personnel and marketing are also covered in the course. On eve of liberalization and globalization, the changing horizons on industrial scenario are also been taken care of in the course. In this context the quality aspects of the management are also considered.

COURSE OBJECTIVES:

Student should be able to –

1. Understand the principles of & functions of management.
2. Understand the types of organization.
3. Understand the subsystems of the management.
4. Quality the subsystems of the management.

CONTENTS:

1. **Management Concept :** (H-05,M-08)
Various definitions of managements, difference between management, administration and organization, functions of management, scientific management, principles of scientific management.
2. **The Organization:** (H-05,M-07)
Definition and Scope of organization, Steps in organisation, Necessity of organisation, Types of organisation structure like line, functional, line and staff organisation, their advantages, limitations and applications.
2. **Site selection and plant layout :** (H-05,M-08)
Importance, factors affecting site selection,. Selection of actual site, rural Vs urban plant sites, its advantages and limitations, economic survey of site selection.
Plant layout, objectives and principles, types of plant layout like process, product, combination layout, its advantages and disadvantages.
3. **Forms of ownership:** (H-04,M-06)
Types of ownership, individual ownership, partnership, joint stock companies, co-operative organization, Government undertakings (State ownership), their relative advantages and disadvantages.
4. **Financial Management:** (H-08,M-12)

Necessity of finance, Fixed and working capitals. Factors affecting working capital, Sources of finance, shares, debentures, public deposits, loans from banks and financial institutions. assets and liabilities, key financial ratios and their significance, Financial statements like profit and loss, balance sheet.

- 5. Personnel Management:** (H-05,M-08)
Personnel Department, its objectives and functions like recruitment, selection and training of employees, industrial hygiene, welfare and safety of personnel, motivation of employees.
- 6. Materials Management:** (H-06,M-08)
Objectives, concept of subsystems of material management like purchase, stores, inventory management. Purchase procedure, quotations, tendering, types of inventories, inventory control, objectives of inventory control, economic order quantity, ABC analysis. Recent inventory management techniques like just in time, etc.
- 7. Marketing Management:** (H-06,M-10)
Definition, concepts of marketing,, benefits of marketing concept, Functions of marketing management, Market research, its objectives and importance, sales forecasting, advertising and sales promotion.
- 8. Quality Management:** (H-04,M-08)
Concept of quality, standardization, merits and demerits. Types of standards, quality policy. Introduction to ISO 9001-2000.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	S.A.Sherlekar & V.A. Sherlekar	Modern Business Organization & Management	
02	O.P.Khanna	Industrial Organization and Management	
03	Banga Sharma	Industrial Organization and Management	

[BACK](#)

COURSE CODE:IT 451**COURSE NAME: OPERATING SYSTEMS**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	2				
Marks	Prog. Test	End Exam.		25	25	150
		25				
Duration	1	3				

COMPETENCY STATEMENT(S):

- To understand internal architecture of operating System.
- To work on different types of Operating system.

RATIONAL:

To meet the ever-increasing need of computers, network and internet study of operating system is compulsory. Operating system is the interface between the user and the computer system; It is the first piece of software to run on a computer system when it is booted. Its job is to coordinate and provide services for the execution of application software's, This is core technology subject and the knowledge of which absolutely essential for computer engineers. It is familiarize the student with the concept and function of operating system.

This subject provides the knowledge to develop system using advance operating system concepts.

COURSE OBJECTIVES:

Student will be able to

1. Understand the features and function of operating system as provided by the various system calls.
2. Understand process , deadlock and the concept of context switching and multiprogramming.
3. Use memory management and file management techniques.
4. Understand the tools and the components of the operating system.
5. Implement various algorithms of scheduling.
6. Compare an contrast the various standards solutions to operating system problems.
7. Make best use of facilities that computer system offers them for solving problems.

CONTENTS:**1. Introduction (H-05,M-05)**

Introduction to an operating system. ,Evolution of operating systems. Sequential processing ,Batch processing ,Multi programming ,Real time.Multi tasking,Multi threading., Multi programming operating system ,Hardware requirements

2. Process management. (H-12,M-15)

The process model, process states, (Process Control Block) PCB, Inter process communication (IPC) Race conditions, critical sections, mutual exclusion with busy, waiting, sleep & wakeup. Semaphores, event counters, monitors, message, passing. Process scheduling. Round robin scheduling, priority scheduling, multiple queues, shortest job first, two level scheduling.

3. I/O Management (H-12,M-10)

Principles of I/O, Hardware: I/o devices, I/o controllers, Principles of I/O, S/w: Goal Of I/o software, device drivers,

----- **Progressive Test-1** -----

Deadlock resources, deadlock modeling, detection ,& recovery, deadlock prevention, deadlock avoidance.

4. UNIX File Systems (H-12,M-15)

The user view of the file, file system, file basics, directories and file system design ,Disk space management , file storage directory structure ,shared file ,file System reliability & performance , file servers : interface level ,automatic update concurrency control transaction ,security environment ,flaws ,generic security attacks user authentication , protection mechanism

5. Memory Management (H-08,M-10)

Basics of Memory Management, Memory Management without Swapping & Paging Virtual memory ,Swapping, Multiple partition,

----- **Progressive Test-2** -----

Paging, Segmentation Design issues for paging system, Fragmentation.

6. Case Study (H-15,M-20)

History and development of UNIX, Features of UNIX, Structure of UNIX, History and development of LINUX, Kernel, Shell, Applications Utilities., User Interface, Classes of user, Operational users, Programmers, End users, Types of Interface, General, Command language, Command , structure, system calls, Shell, Windows, Icons slide bars, title bars, users and user accounts

----- **Progressive Test-3** -----

TERM WORK / PRACTICAL

A minimum of Eight programs /assignment should be conducted during the course based on above syllabus and a record for the same shall be submitted.

- 1 Identify the major desktop components, interfaces and their functions
Differentiate the various Windows operating System(Windows 9x, windowsNT, windows 2000 & windows XP.).
- 2 Use of file & directories manipulation commands.
3. Use of text processing & communication command.
4. Use of general purpose & process commands.
5. Use of vi editor & perform all editor commands
- 6 Write and execute shell script to display followings output.
Menu: a) List of files b) process of users
c) Today date d) user of the system.
7. To check every argument & carry out the following
 - i)If Argument is a directory then display the number of files & directories present in that directory.
 - ii)If argument is a file then display the size of file.
 - iii) If argument does not exist then create the directory.
8. Write & execute the program to implement Round Robin Scheduling.
9. Write & execute the program to implement Priority Scheduling.

REFERENCES BOOKS :

Sr. No.	Author	Title	Publisher
01	Tananbaum	Operating Systems	
02	William Stallings	Operating Systems	PHI
03	Milenkovic	Operating Systems	Tata McGraw Hill Publication
04	Achyut S. Godbole	Operating Systems	Tata McGraw Hill Publication, N.Delhi
05	Stephan Prata	Advanced program reference guide	

[BACK](#)

COURSE CODE: IT452**COURSE NAME :OBJECT ORIENTED PROGRAMMING USING C++**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	2				
Marks	Prog. Test	End Exam.	25	25	--	150
Duration	1	3				

COMPETANCY STATEMENT (S):

Students will be able to write Object oriented programs, which will be more compact, portable, efficient and easier to maintain.

RATIONALE:

Object Oriented Programming approaches real - life situations more closely than any other programming methodologies. C++ was the first language to implement Object oriented Programming and is still considered to be the most elegant language for Object Oriented Programming.

COURSE OBJECTIVES: Students will understand

1. Features of oops.
2. Understand the power of C++, which makes them most powerful for project management and maintenances.
3. Understand bottom-up approach.
4. Understand OOP's based S/W packages, languages with little additional efforts on their own.

CONTENTS:

1. **Introduction To C++** (H-06,M-08)
Using cin and cout for input-output, Writing comments with // and /* ... */, String Variables, constants, and expressions, Data types in C++, Revision of concepts of functions and pointers, Structure.
2. **Introduction To Object Oriented Programming** (H-04,M- 06)
Need of Object Oriented Programming, Characteristics of Object Oriented Programming, Classes and objects, Accessing members of Objects.
3. **Advanced Functions** (H-10,M-10)
I)Function: Declaration, Definition, Calling Function, Passing Argument as Constants, Variables, Returning Values from Function, Passing Arrays to Function, Passing parameter by value and Reference, Overloaded Function, Default Argument.
II)Advanced Function: Constructor, Constructor with Parameter, Copy Constructor, Dynamic Constructor, Constructor Overloading, Constructor and Destructor Functions, Friend Functions, Static member Function, Inline Functions, Inline Functions within a Class.

----- Progressive Test-1 -----

4. **Using Objects** (H-04,M- 06)
Passing Objects & Returning Objects from Functions, Arrays of Objects, Pointers to Objects.
5. **Operator Overloading** (H-10,M-10)
Friend Function, Friend Class, 'this' Pointer Concept, Introduction to Operator Overloading, Unary Operator Overloading, Binary Operator Overloading, Unary Operator Overloading using Friend Functions, Binary

Operator Overloading using Friend Function. Overloading Insertion & Extraction Operator. Conversion between Objects & Basic data types.

- 6. Inheritance (H-10,M-10)**
Deriving a Class from a Base Class, Protected members. Single Inheritance, Multilevel Inheritance, Multiple Inheritances, Hierarchical Inheritance, Hybrid Inheritance, Function overridden, Derived class Constructor, Virtual Base Class.

----- **Progressive Test-2** -----

- 7. Polymorphism (H-06,M- 08)**
Pointer to a Base Class to access Derived Objects, Virtual Functions and Run-time Polymorphism, Pure Virtual Functions and Abstract Classes.
- 8. File Handling (H-07,M-08)**
Sequential & Random access, File Operations, Opening & Closing of Files, File Modes, File Functions.
- 9. Template & Exception Handling (H-07,M-09)**
I) Template: Class Template, Class Templates with Multiple Parameters, Function Templates, Function Templates with Multiple Parameters, Overloading of Templates.
II) Exception Handling: Need of Exception handling, Mechanism of Exception Handling (Throwing, Catching, Rethrowing), Multiple Exceptions, Exception with Arguments

----- **Progressive Test-3** -----

LIST OF PRACTICALS:

(Any fifteen programs from the following covering entire syllabus of the above)

1. Simple examples covering concepts of cin & cout and Output formatting.
2. Simple programs using structures, structure returning values, returning structure.
3. Simple programs using array in structure, structure with in a structure
4. Programs where a structure is defined using other structures
5. Simple programs using classes and objects
6. Programs with private member variables and public member functions to illustrate concepts of encapsulation and data integrity
7. Simple programs using constructor and destructor functions with Parameters
8. Programs explaining concepts of overloaded functions, function with default function arguments, inline functions.
9. Programs that pass objects as parameters to functions
10. Programs based on arrays of objects
11. Programs using pointers to objects
12. Simple programs that overload arithmetic operators using friend functions
13. Programs using the 'this' pointer
14. Simple programs based on reference parameters in overloaded operator functions
15. Simple programs that define a base class and a derived class (and objects of the derived class)
16. Programs that use public, private, and protected members
17. Simple programs to illustrate how pointer to a base class can be used to access objects of derived class
18. Programs that define virtual functions and use run-time polymorphism
19. Programs using pure virtual function
20. Programs that overload insertion and extraction operators.
21. Program define Class Templates, class Templates with multiple Parameter,

22. Program defines Function Templates, Function Templates with Multiple Parameter.

23. Program explaining the Concept of Exception Handling

REFERENCES BOOKS:

Sr. No.	Author	Title	Publisher
01	Robert Lafore	Programming in C++	GALGOTIA Pub
02	Balguruwami	Object Oriented Programming	TMH
03	Ravichandran	Object Oriented Programming	TMH
04	Aklecha	Comprehensive Guide to C++	BPB
05		Object Oriented Programming with C	BPB Parsons
06	Stevens	Teach Yourself C++	

[BACK](#)

COURSE CODE: IT453
COURSE NAME: SOFTWARE ENGINEERING

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	0				
Marks	Prog. Test	End Exam.		--	--	100
Duration	1	3				

COMPETENCY STATEMENT (S):

Students will develop software as per engineering and scientific approach.

1. Explain the techniques used in software process, Analyze the phases of software Engg.
2. Outline the role of software evolution & its characteristics
3. Summarize project management process
4. Discuss project-planning objectives
5. Explain software cost estimation
6. Explain software design principles
7. Study the concepts for testing process

RATIONALE:

This course introduces the engineering approach for analysis, design, testing, implementing any computerized system. Every IT professional should know from basic to advance techniques of software development. Develop software will be tested and estimated scientifically to ensure the quality of the software.

COURSE OBJECTIVES: Students will be able to

1. Understand the concepts of the methods used in the development of software
2. Understand engineering approach for software design
3. Plan and manage the software development activity
4. Understanding costing and scheduling methods of software
5. Appreciate the responsibilities of team members
6. Understand the system design
7. Know the concepts involved in coding
8. Familiarize with the various testing methods

CONTENTS:**1 Software Engineering****(H-06,M-08)**

Introduction Software & Software Engineering, Evolving Role of software, characteristics, components & Applications, Definition of software engg. Driving factors of software engg, Phases of software engg. Requirement, analysis, Software design, coding, Testing, Maintenance, Effort distribution with phases S/W crisis, S/W myths, introduction to re-engineering and reverse engineering

2. Different approaches to software**(H-08,M-08)**

Software process, software process model, linear sequential model, proto typing model, evolutionary software process model, the incremental model, spiral model, 4GT, & data oriented approach.

3. System Engineering**(H-11,M-12)**

Definition of system, element of the system, characteristic of the system, system

development life cycle, functions and role of system analyst. System analysis, requirement analysis, system requirement specifications, feasibility study,

----- **Progressive Test-1** -----

project goals, examining alternative solutions, evaluation of proposed solutions, cost benefit analysis, feasibility report .System design & implementation – structure tools for system design, DFD, data dictionary, decision tree, decision tables, structure English, case tools

4. Managing Software Project (H-08,M-10)

Software scope, problem decomposition, software process & project metrics-major metrics and indicators, software measurements, size oriented metrics, function oriented metrics, extended function point metrics, metrics for software quality, measuring quality, defect removal efficiency.

5. Software project planning (H-08,M-10)

Project planning objectives, software scope resources, s/w project estimation, decomposition techniques – s/w sizing, problem based estimation, example of LOC and FP based estimation, process based estimation, empirical estimation models, structure of estimation model, the COCOMO model, s/w equation, automated estimation tools.

----- **Progressive Test-2** -----

6. Project scheduling (H-04,M-05)

Basic principles, relationship between people and efforts, degree of rigor, selecting s/w engineering tasks, time line charts, tracking the schedule

7. Software Quality Assurance (H-03, M-04)

Quality concepts, quality control, quality assurance, cost of quality, s/w quality assurance, ISO 9000, quality standards, s/w quality assurance plan

8. Software Design (H-10, M-12)

Design process, design principles, design concepts – abstraction, refinement, modularity, s/w architecture, control hierarchy, data structure, information hiding, effective modular design-functional independence, cohesion, coupling, design documentation, architectural design – mapping requirement into a s/w architecture, transform flow, transaction flow, user interface design, how to present information, tabular, graphics form, color, reports, screen and windows, design system controls – input control, processing control, output control

9. Software testing (H-06, M-06)

Testing fundamental, testing objectives, testing principles, testability, white box testing, basis path testing, black box testing, control structure testing, testing for specialized environment, architecture and applications. A strategic approach to software testing, unit testing, integration testing, validation testing, system testing.

----- **Progressive Test-3** -----

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Roger Pressman	Software Engg	practionar's approach McGraw Hill fourth/Fifth edition – Roger Pressman
02	Elias Awad	System Analysis & Design	
03	Senn	Analysis & Design of Information System	
04	Ian Sommerville	Software Engineering	
05	Jolate	An Integrated approach to software	

[BACK](#)

COURSE CODE: IT454**COURSE NAME: SOFTWARE DEVELOPMENT TOOLS**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	0	4				
Marks	Prog. Test	End Exam.		50	50	100
	-	-				
Duration	-	-				

COMPETENCY STATEMENT (S):

1. Use software packages
2. Develop programming skills
3. Develop the mini project using software.

RATIONALE:

While working on computers students must be familiar with different operating systems available; S/W they support inbuilt facilities. They should understand select suitable front end and backend for the assigned work. They should acquire enough practical experience and expertise on a given s/w so that they can handle it independently.

COURSE OBJECTIVES: Students will be able to

1. Understand all the features in development tools and able to use them for developing small live projects.
2. Use any one of the software. e.g. Visual basic, Vc ++ / Java with backend databases as oracle/ SQL Server

TERM WORK:

Minimum 6 experiments should be conducted during the course out of which one should be mini – project. The record (journal) for the same shall be submitted.

ORAL/PRACTICAL EXAM. :

Practical will be of 3 hours. The oral will be based on term work done during the course, The journal record of the experiments submitted by the candidate and a viva-voce based on the respective term work.

GUIDELINES FOR TEACHER.

In practical hours teacher should clear the theoretical/practical features of respective course (Software Package) so that student will undertake and complete given mini project.

[BACK](#)

COURSE CODE: IT455**COURSE NAME: MANAGEMENT INFORMATION SYSTEMS**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	2				
Marks	Prog. Test	End Exam.		25	25	150
		25				
Duration	1	3				

COMPETENCY STATEMENT (S):

1. Student will analyze, design and implement the system.
2. Student will identify and design decision support systems,
3. Student will learn concepts of ERP, EMS, MIS, CRM, BPO & Data Warehousing, and Data Mining.

RATIONALE:

Information system is an integral part of any organization. Therefore person working with any organization must have knowledge of information systems. An effort is made through this subject to introduce basic concepts and design of information system. Knowledge of DSS, various subsystems of MIS and importance of information as an asset and its management, audit, security and testing is essential for an IT professional.

COURSE OBJECTIVES: Students will be able to

Understand information as an asset. Hence will take care of managing it.

1. Learn decision-making process.
2. Understand the function of DSS.
3. Describe important role of management information system in modern organization
4. Describe the function of business process Outsourcing, processes in Customer Relationship management.
5. Use data warehouse, data mining for DSS.
6. Prepare a report of any practical MIS system of real life situation.

CONTENTS:**1. Introduction to MIS****(H-10,M-12)**

Definition of MIS, MIS as evolving concepts, MIS & other academic disciplines managerial accounting operation research, management & organization theory, computer science. Sub-system of MIS – organization function sub-system, activity, sub-system. Strategic Management of Business: concept of corporate planning, types of strategies, tools of planning.

2. Concept of Information**(H-12,M-15)**

Definition of information, types of information, information in the mathematical theory of communication, information presentation, quality of information, value of information in the decision, value of information other than in a decision, application of information, INTEGRATION OF INFORMATION: Enterprise Resource Planning (ERP)-basic features, benefits, selection & implementation) Enterprise Management System (Introduction), Customer Relationship Management (CRM- concept, three phases of CRM, Benefits) Business Process Outsourcing(Introduction). E-Commerce (Introduction).

----- **Progressive Test-1** -----

3. Information Gathering (H-05,M-06)
Strategy to gather information, information source, method of searching for information, interviewing techniques, questionnaires, other methods of information search.

4. Decision Making Process (H-12,M-13)
Phases in decision-making process, intelligent & design phases, concept of decision-making, decision support system (concept, components, development, risk), behavioral model of organizational decision-making, Data Warehouse (concept, Design, Architecture, Organization & Management, Implementation), Data in Data Warehouse, Introduction to Data Mining.

5. Information Based Support System (H-05,M-08)
Support system for planning, control and decision-making, decision support system, characteristics of DSS, classes of DSS,

----- **Progressive Test-2** -----

6. Information System Requirement (H-04,M-05)
Planning of MIS, contents of information system master plan.

7. Control Audit and Security of Information System (H-12,M-10)
Control in information systems(Physical, Electronic, Software, Management Controls), audit of information systems, testing of information systems, and Security of Information Systems: viewing Versus security, Risk, Threats & Vulnerability, Assessing Risks , Common Threats (Natural disaster, employee Error, Computer Crime, Fraud, Abuse, Program Bugs), Ethical & Contractual Behaviors, Privacy, Access & Accuracy Issues Property Issues.

8. System Design Case Study (human resource) (H-04,M-06)
Employee database, recruitment, employee appraisal, employee training, leave accounting, Payroll ,salary calculation & reporting, Income tax calculation & reporting, Loan accounting, PF & gratuity, Bonus, incentives, super anuation, Arrears calculation

----- **Progressive Test-3** -----

LIST OF PRACTICAL:

Student should complete 1 small project, similar to following system listed using MIS/software Engg. Concepts. Student should collect material on ERP, EMS, CRM, BPO & write assignment on the same . Write one Assignment on data warehousing & data mining.

List of software projects– banking system, inventory system, sales & purchase, payroll, electricity billing systems, passenger reservation system, journal acquisition system (maximum 2 students may work on a selected project).

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Gordon B. Devis, Margrethe H. Olson	Management Information System	McGraw Hill Pub. (2 nd Edition)
02	V. Rajaraman	Analysis & Design of Informaiton System	PHI Pub.
03	H. C. Lucas	The Analysis Design & Implementation	McGraw Hill Pub.of Information System
04		Management Information Systems	Tata McGrraw Hill (5 th edition) Robert Schulthis & Mary Sumner
05		Management Information Systems	Tata McGrraw Hill (5 th edition) O' Brien
06		Management Information Systems	Tata McGrraw Hill (2 nd edition) Jawadekar

Web sites:

1. www.en.wikipedia.org
2. www.dwinfocenter.org
3. www.outsourceing.com/bpo

[BACK](#)

COURSE CODE: IT456
COURSE NAME – PROJECT WORK-I & SEMINAR

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	-	6				
Marks	Prog. Test	End Exam.		75	25	100
	-	-				
Duration	-	-				

COMPETENCY STATEMENT (S):

1. Student will be able to deliver a seminar using advanced seminar tools such as audio, video, multimedia presentations, learning materials, and OHP slides.
2. Student will develop communication, presentation stage courage skills.
3. Student will identify and analyze real life problems based on S/W , H/W, S/W & H/W and multidisciplinary project.
4. Student will be able to write system documentation, select a topic, submit the abstract of the topic, Collect information regarding the project, Identify the data structures to be used to implement the project, Identify the hardware & software requirements to implement, Design the Data flow diagrams & flow charts
5. Prepare a project and seminar report .

RATIONALE:

Project work is the important aspect of any curriculum. Here the students has unlimited scope to integrate his knowledge and skills. This course is essential to understand the system development process i.e. analysis and design. This will help the students to acquire the skill and attitude to work as programmer, system analyst or systems administrator. He is expected to observe all-important steps of software development cycle. He is also encouraged to take industry based real life problems and develop a solution for the same.

For effective participation in project or team management each student must have good communication skill. With a give time limit he should able to express his ideas, through research work in front of his colleagues. He is expected to show above skills during his entire presentation.

OBJECTIVES: Student will be able to

1. Search latest information regarding technological advancement from journals, magazines, industrial visits, Internet.
2. Develop life learning skill (Independent study techniques)
3. Present the ideas, concepts in his own words
4. Use effectively advance seminar presentation tools
5. Work in groups, plan the work and coordinate the work
6. Develop leadership qualities
7. Develop Innovativeness in experimentation,
8. Select project having industrial potentials,
9. Develop logic and design,
10. Develop system design and its documentation,
11. Develop modular design of software,
12. Analyze the different types of case studies

13. Write project report with SRS specifications

GUIDELINES FOR SELECTION OF SEMINARS

1. Students are expected to select the advanced topic for the seminar from the Journals, magazines, Internet, text books, reference books etc or
2. Each student required to deliver seminar independently

GUIDELINES FOR PRESENTING SEMINARS

1. Student should prepare presentation using multimedia, charts, and OHP slides.
2. Seminar must be delivered within allotted time.

GUIDELINES FOR ASSESSING A SEMINAR(Total marks for seminar are 50)

1. Topic selection
2. Information collection.
3. Contents of seminar
4. Multimedia presentation
5. Actual delivery of a seminar
6. Response to Question/Answer
7. Seminar report

The candidate shall deliver the seminar on the selected topic, which will be assessed by the staff of the department along with his guide. Seminar should be conducted throughout the semester as per the guide lines given by HOD.

Project Selection: Student may select S/W, H/W, S/W & H/W or multidisciplinary project. Repetition of project should be avoided as far as possible.

Project can be from any of the areas from followings:

- Develop application software for hospital/shopping mall, cinema theatres, commercial complex, educational institute, industry, financial organizations etc
- Case studies related to industries
- Information processing systems
- Web based applications using web technologies
- Network monitoring system
- System program based systems like compilers, editors, mini database systems, spreadsheets
- Microprocessor based system development.
- Add on cards for Microcomputer.
- Transducers interfacing with Computer.
- RDBMS and system development.
- Software development in latest application soft wares
- Expert system development
- Interfacing multimedia and generating effects
- Online system software development

GUIDELINES FOR PROJECT WORK-I(Term work-25, Oral based on report: 25)

1. The subject for the project should be approved by project guide / HOD / Sponsoring agency.
2. Group of maximum four is allowed.
3. Each member of the project group should maintain the diary of weekly working duly signed by the project guide with his suggestions, remarks & the steps taken for the same.
4. The students and guides are expected to search for the sponsor ship for funding & technical support from industry and Experts.

5. The students should plan his project report completion, exhibitions & presentations with audio visual aid & power point presentation.
6. One copy of the project report should be submitted along with information collected, systems study, feasibility report, SRS specifications, input, output designs, data flow diagrams/flowcharts and any relevant material/information to the Department.

Project Report Format

Students should submit the project reports (hand written) at the end of fifth semester as per following format:

1. Title Page of the project
2. Acknowledgement page if any.
3. Background of the subject & Criteria for selecting project topic
4. Objectives
5. Up-to- date development of the subject/recent trends.
6. Defining the scope of the project.
7. Feasibility report
8. Assumptions.
9. System/ program formulations.
10. Functional block diagram's, routing, networking, functional descriptions, based hardware, simulations, programming & simulated hardware/software validations.
11. Collection of data and data formats
12. Logic: Logic of each program file layout, Program flow chart, System flow charts, Mathematical coverage, Controls etc.
13. References

[BACK](#)

COURSE CODE: IT457
COURSE NAME – PROJECT WORK-II

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	-	6				
Marks	Prog. Test	End Exam.		50	50	100
	-	-				
Duration	-	-				

COMPETENCY STATEMENT (S):

Student will develop/implement approved projects as per project report

RATIONAL:

Project work is the important aspect of any curriculum. Here the students has unlimited scope to integrate his knowledge and skills. He acquired during his three years Diploma. He can develop computerized system or solutions to assigned problems. He is accepted to observe all-important steps of software development cycle. He is also encouraged to take industry based real life problems and develop a solution for the same.

COURSE OBJECTIVES: Students will be able to

1. Integrate the knowledge and skills acquired in the past two and half years of the diploma.
2. Develop a computerize system for real life problems.
3. Take challenges from industries / software firms and developed a solution for it.
4. Develop innovative ideas
5. Develop skills to use latest technologies in computer/ information technology fields
6. Write a project report
7. Understand the implementation of system development i.e. planning, scheduling, coding, costing, debugging, testing.

MINIMUM ELIGIBILITY FOR REGISTERING A PROJECT WORK-II:

Student must have obtained 110 credits before registering a project course.

PROJECT DEVELOPMENT: In this course students are expected to utilize their time for actual planning, coding, debugging and testing a project.

- Each member of the project group should maintain the diary of weekly working duly signed by the project guide with his suggestions, remarks & the steps taken for the same.
- He should prepare activity chart and follow the same through out the semester
- Independent module development is necessary.
- There must be continuous assessment of project development.
- Prototype model may be developed and tested.

Project Report Format

Students should submit the project report (typed/computer output) at the end of sixth semester as per following format:

1. Title Page of the project
2. Acknowledgement page if any.
3. Certificate page in standard format

4. If sponsored project, sponsor ship certificate and satisfactory completion of project from sponsorer.
5. Index page
6. Background of the project & Criteria for selecting project topic (abstract of project 1 -2 pages)
7. Objectives
8. Introduction of project (2-3 pages)
9. Up-to-date development of the subject/recent trends.
10. Defining the scope of the project.
11. Feasibility report
12. Assumptions.
13. System/ program formulations.
14. Functional block diagram's, routing, networking, functional descriptions, based hardware, simulations, programming & simulated hardware/software validations.
15. Collection of data and data formats
16. Logic: Logic of each program file layout, Program flow chart, System flow charts, Mathematical coverage, Controls etc.
17. Sample of computer outputs
18. Output designs (layout charts)
19. Sample outputs for each program.
20. Specific uses of these programs.
21. Note or specific contribution, if any.
22. Appendices of chart, tables etc
23. Transparencies, charts, models, video clips, software based video clips, programs, sample outputs, for exhibitions and presentations
24. User manual
25. Limitations/future developments
26. Costing
27. Conclusion
28. References
29. Appendices (if any)
30. Project source code with entire set of accessories such as database, drivers etc. in form of CD.
31. Data sheets of only uncommon, (main Integrated Circuits) Main I/C e.g. Speech synthesizer IC and not of common I/C like 8085. There is no need of any explanation of common I/C and their interfacing.

1.

Project Valuation Marks Distribution: (For Term Work)

1. Innovative idea	15%
2. Project Design (Perfections modular designs)	15%
3. Working Model	10%
4. Continuous Assessment	25%
5. Future projections, marketing potentials, and cost Effectiveness, Entrepreneurship culture	10%
6. Documentations,	15%
7. Latest knowledge of developments in the field and recent trends.	10%
8. Oral Examination Oral of project	50Marks

IMPLEMENTATION The guide are expected to motivate and encourage the students for implementation of project.

GUIDELINES:

1. Head of respective department is expected to assign the project guides to all the students by issuing formal office order to the staff members and notifying the same to the students.
2. Normally maximum 4 projects should be assign to the teacher as a project guide.
3. Maximum eligible staff members from the department should be assigned duty of project guide. It is not necessary that the staff teaching to third year only should be given the duty of project guide.
4. The respective project guides should carry out weekly progressive assessment.
5. Authenticated assessment record should be kept in the form of registers and should be produce at the time of project examination.

[BACK](#)

COURSE CODE:IT459
COURSE NAME: INTRODUCTION TO ERP

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				4
Marks	Prog. Test	End Exam.		25	--	100
	25	50				
Duration	1	2				

COMPETENCY STATEMENT (S):

1. Student will understand implementation of Enterprise Resource Planning in Industry.
2. Student get knowledge about ERP software.

RATIONALE:

Technology plays a key role in today's business environment. Many companies greatly rely on computers and software to provide accurate information to effectively manage their business. It is becoming increasingly necessary for all businesses to incorporate information technology solutions to operate successfully. One way that many corporations have adopted information technology on a large scale is by installing Enterprise Resource Planning (ERP) systems to accomplish their business transaction and data processing needs. This subject help student how to denote the planning and management of resources in an enterprise. It also denotes a software system that can be used to manage whole business processes, integrating purchasing, inventory, personnel, customer service, shipping, financial management and other aspects of the business. Enterprise Resource Plan Software that integrates departments and functions across a company into one computer system.

COURSE OBJECTIVES: Students will be able to

1. Understand a how to capture data organization wide with minimum redundancy.
2. Knowledge about ERP software package.
3. Knowledge about effectively forecasting, planning & scheduling competitive advantage to run a business more effectively.

CONTENTS:**1. Introduction to ERP****(H-5,M-8)**

Evolution of ERP, what is ERP, Reasons for the growth of the ERP market, The advantages of ERP, why are ERP packages being used now, Integrated management information, Business modeling, Integrated data model.

2. ERP and Related Technologies**(H-6,M-10)**

Business process Reengineering, Management information system, Decision support system, Executive information system, Data warehousing, Data mining, Online analytical processing.

----- **Progressive Test-1** -----**3. ERP Module****(H-4,M-6)**

Introduction, Finance, Plant maintenance, Quality Management, Material Management.

4. ERP Implementation**(H-5,M-8)**

Overview, Role of consultant's vendors and users, customization, precautions, post Implementations, ERP Implementations methodology and guidelines for ERP implementation.

----- **Progressive Test-2** -----

5. ERP Implementation Lifecycle

(H-5,M-8)

Introduction, Pre-evaluation screening, Package evolution, Project planning phase, Gap analysis Reengineering, Testing, Going live, end user training, post- Implementation

6. Benefits Of ERP

(H-7,M-10)

Introduction, Reduction of lead-time, Reduction in cycle time, Improved Resources Utilization, Better customer satisfaction, Improved supplier performance, Increased Flexibility, Reduced quality costs, Improved information accuracy and decision –making capability.

----- **Progressive Test-3** -----

LIST OF PRACTICALS:

Assignments/practicals based on above course content using ERP based S/W package.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Vinod Kumar Garg, N. K. Venkita Krishanan	Enterprise Resource planning, Concepts and Practice	PHI
02	Y Leon	Enterprise Resource Planning	TMH
03	Devid Olson	Managerial issues of enterprise Resource Planning System	TMH

[BACK](#)

COURSE CODE: IT460
COURSE NAME: COMPUTER GRAPHICS

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				
Marks	Prog. Test	End Exam.		25	--	100
Duration	1	2				

COMPETENCY STATEMENT (S):

1. Students will be able to develop graphics packages/projects.

RATIONALE:

Graphics feature is one of the important features of any computerized systems. To use images, pictures in any systems one needs the understanding of generation, editing, processing and conversion of it into other types of images. This course introduces the necessary background, the basic algorithms & the applications of computer graphics.

COURSE OBJECTIVES: The student will be able to.

1. Explain the working of computer graphics systems.
2. Use the algorithms like DDA, Bresenham's, mid-point line drawing algorithm, mid-point circle drawing, transformation algorithms, clipping, algorithms.
3. Understand animations, 2D-Projections & clipping.

COURSE CONTENTS:**1 Computer Graphics System****(H-05, M-10)**

Video display devices, raster scan displays, video controller, random-scan displays, direct view storage tubes, flat panel displays, LCD display and virtual reality system. Input Devices: Keyboards, mouse, track ball & space ball, Joysticks, Data, glove, digitizers, image scanners, light pens, voice system.

2 Graphics output primitives and their attributes.**(H-12, M-20)**

Points & lines, Line drawing algorithms: DDA Algorithms bresenham's line algorithm,

----- Progressive Test-1 -----

parallel line algorithm, line functions, line attribute, type, width, pen and brush option, Circle generation algorithm, properties of circles, mid-point circle algorithm. Pixel addressing & Geometric properties of displayed objects pixel phasing, color and Grayscale levels, pixel lighting

3 Two Dimensional Transformations.**(H-08, M-10)**

Basic Transformations: Translation, Rotation, Scaling,

----- Progressive Test-2 -----

Transformation & from world to viewing co-ordinating projections. Clipping, view port clipping, clipping in Homogeneous coordinates.

4 Computer Animations.**(H-07, M-10)**

Design of Animation sequence, general computer animation functions, and computer animation language. Key frame systems, goal directed systems. (Introduction with one example)

----- Progressive Test-3 -----

LIST OF EXPERIMENTS/PRACTICAL:

Minimum of 8 programs / experiments (using C/C++ language) should be conducted on the course & minimum of 2 assignments should be added in the journals on computer graphics systems & computer animation.

1. Write a simple program on geometrical objects using graphics function.
2. Write a program to implement line using DDA algorithms.
3. Write a program to Bresenham's line drawing algorithms.
4. Write a program to Midpoint circle algorithms.
5. Write a program to transform an object(translation)
6. Write a program to transform an object (scale).
7. Write a program to transform an object (rotation).
8. Write a program to implement clipping algorithms.
9. Write any program using computer animation.
10. Hands on Autocad package.
11. Implement one mini project using Flash s/w

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Donald Hearn, M. Pauline Baker	Computer Graphics	PHI Publication
02	Newman & Strowell	Interactive Computer Graphics	McGraw Hill
03	Steven Harrington	Computer Graphics: A programming Approach	McGraw Hill
04	J D. Foley & A.V. Dam	Fundamentals of Interactive Computer Graphics	(Addition weselly pub.)

[BACK](#)

COURSE CODE : IT 461
COURSE NAME : ARTIFICIAL INTELLIGENCE

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				
Marks	Prog. Test	End Exam.		25	--	100
	25	50				
Duration	1	2				

COMPETENCY STATEMENT(S):

1. Provide a general introduction to artificial intelligence, its techniques and its main sub fields.
2. Give an overview of key underlying ideas, such as knowledge representation, rule based systems, search, and learning.
3. Demonstrate the need for different approaches for different problems.
4. Provide a foundation for further study of specific areas of artificial intelligence.

RATIONALE:

This module provides a general introduction to artificial intelligence, its techniques, and main sub fields. The principal focus of the module will be on the common underlying ideas, such as knowledge representation, rule based systems, search, and learning. It will provide a foundation for further study of specific areas of artificial intelligence.

COURSE OBJECTIVES:

Students will be able to

1. Recognise the important features of AI systems, and structure the field of AI into its main sub fields
2. Explain some of the most important knowledge representation formalisms and why they are needed
3. Apply these knowledge representation formalisms to simple unseen examples.

CONTENTS:

1 Introduction to Artificial Intelligence: (H-06 ,M-12)
 Definition. A.I Applications, A I representation. What is an A.I. Technique, Tic-Tac-Toe

2 Problem, problem space, and search. (H-08,M-12)
 Defining the problem as a state space search,

----- Progressive Test-1 -----

Production system, Problem characteristics, and Production system characteristics.

3 Heuristic Search Techniques. (H-08,M-13)
 Generate – and Test, Best – first search, Problem Reduction,

----- Progressive Test-2 -----

Means – Ends Analysis.

4 Knowledge Representation. (H-10,M-13)
 Representation and mapping. , Approaches to knowledge representation, Issues in knowledge representation, Using predicate logic: Representing simple facts in

logic, Representing Instance. And its Relationships. Representing knowledge using rules- Procedural versus declarative knowledge. Forward versus Backward Reasoning, Matching.

----- **Progressive Test-3** -----

LIST OF PRACTICAL/ASSIGNMENT (MINIMUM -08)

- 1.To manipulate of Prolog menus.
- 2.Introduction to domains ,predicates & clauses
- 3.Write a program on Inference depending on a particular rule
4. Write a program on recursion
5. Write a program on backtracking
6. Write a program on basic graphic predicates in prolog
- 7.Working with Windows in prolog
- 8.Working with String & files
- 9 Implement A* algorithm
10. Implement AO* algorithm
11. Implementation of Min/MAX search procedure for game Playing

REFERENCE BOOKS

Sr. No.	Author	Title	Publisher
01	Eugene, Charniak, Drew Mcdermott	Introduction to artificial intelligence	
02	Elaine Rich and Kerin Knight	Artificial Intelligence	
03	Kishen Mehrotra, Sanjay Rawika, K Mohan	Artificial Neural Neetwork	

[BACK](#)

COURSE CODE: IT462
COURSE NAME: ADVANCED NETWORKS

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				4
Marks	Prog. Test	End Exam.		25		100
	25	50				
Duration	1	2				

COMPETENCY STATEMENT (S):

1. Student will learn wireless personal area and local area networks, mobile data networks, mobile networking issues and applications.
2. Student will understand network operation and Planning, mobility management, radio resources, power management, and security of wireless networks
3. Student will understand cellular telephone and mobile data networks based on CDMA, TDMA, and GSM.
4. A unified foundation for understanding and building any wireless network.
Students will use true systems approach to wireless networking

RATIONALE:

This course presents a unified common foundation for understanding and building any contemporary wireless network, voice or data—from PCS to wireless LANs, Blue tooth to IMT-2000 3G. Using extensive practical examples, present a true systems approach, illuminating the principles, commonalities, key differences, and specific implementation issues associated with virtually every leading wireless system.

This course also examines wireless personal area and local area networks, mobile data networks, mobile networking issues and applications.

COURSE OBJECTIVES

After successful completion of this course the student should be able to:

1. Understand the concepts of networking protocols.
2. Understand the operation of contemporary local area networks e.g. 10Gpbs Ethernets.
3. Familiarize with the set up and configuration of local area networks.
4. Understand physical layer constraints in wireless medium, different multiple access methods and other aspects in wireless personal area and local area networks, and cellular networks;
5. Understand the infrastructures of contemporary and emerging wireless telecommunications systems, including TDMA, CDMA, GPRS, and 3G systems;
6. Understand the topologies and operations of popular wireless personal area and local area networks, including IEEE 802.11x and Bluetooth;
7. Understand issues in mobile networking such as Mobile IP, security threats and security protocols.
8. Understand the application support to provide mobile Internet services.

CONTENT :**1. Introduction to Networking****(H-07,M-12)**

The Fundamentals of Internet Connectivity: Overview of High-Speed and Dialup Connectivity, TCP/IP Configuration, Testing Connectivity with Ping, Web Browsers And Plug-Ins **Networking Fundamentals:** Networking Terminology, Digital Bandwidth, Analogies That Describe Digital Bandwidth. Networking Models. **Ethernet Fundamentals:** History and Evolution of Ethernet. Ethernet Operation.

Collision Domains and Broadcast Domains, 10-Mbps and 100-Mbps Ethernet.

Gigabit, 10-Gb, and Future Ethernet. Ethernet Switching.

2. **TCP/IP Protocol Suites and IP Addressing** (H-03,M-06)
Introduction to TCP/IP, IP Addresses, IP Address Assignment, Acquisition, and Hierarchy.

----- **Progressive Test-1** -----

3. **Virtual LANs** (H-04,M-06)
Broadcast Domains with VLANs and Routers, VLAN Operation, End-to-End VLANs, Geographic VLANS, Benefits of VLANs, Change Management, VLANs and Security, Using Hubs with VLANs, VLAN Types, VLAN Frame Identification.

4. **WIRELESS TECHNOLOGIES** (H-06,M-10)
Brief overview of 2G wireless networks: GSM, TDMA and CDMA networks. 2.5G wireless networks: GPRS, EDGE. 3G wireless network: W-CDMA, cdma2000. Overview of wireless personal area and local area standards: IEEE 802.11x and Bluetooth. **Wireless LANs:** IEEE 802.11 protocol. Wireless Radio Technology. Wireless Topologies. Access Points.

----- **Progressive Test-2** -----

5. **MOBILITY MANAGEMENT** (H-03,M-03)
Location update, handoff strategies and roaming management.

6. **MOBILE IP** (H-03, M-04)
Agent discovery, registration and IP packet tunneling. Uses of dynamic host configuration protocol (DHCP). Mobility support in IPv6.

7. **NETWORK AND WIRELESS SECURITY** (H-04,M-06)
Security Requirement and attack,Threats,Authentication methods,Encryption,Introduction to data encryption standard(DES),Public key encryption and digital signature(Introduction only).,Introduction to security protocols(e.g.WEP,IP SEC)

8. **WIRELESS APPLICATIONS AND SERVICES** (H-02, M-03)
Location based services and mobile messaging services.

----- **Progressive Test-3** -----

LIST OF PRACTICAL:

Student should complete minimum four practical / assignments which will be based on above topics They are expected to visit commercial sites where wireless networks are in operation. Write a report on it. Student should visit to BSNL/MTNL/VSNL office & observe working of mobile networks & Wi-Fi system.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Kaveh Pahlavan, Prashant Krishnamurthy	Principles of Wireless Networks	
02	William Stalling	Wireless communications and Networks	PHI Pub
03	M S Gast,	802.11 wireless networks – the	O'Reilly, 2002.
04	GilHeld	Data Over Wireless networks Held	McGraw Hill Bluetooth/ WAP/ Wireless LAN Gil Held
05	R K Nichols	Wireless security – models, threats & solutions	McGraw Hill, 2002.
06	G Le Bodice,	Mobile messaging technologies & services – SMS, EMS & MMS	Wiley 2003
07	CISCO press	Cisco Networking Academy Program CCNA 1 and 2 Companion Guide	Third Edition, Cisco Press
08	Millium Stalling	Data and Encryption communication	PHI

[BACK](#)

COURSE CODE: IT463
COURSE NAME: VB.NET

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				
Marks	Prog. Test	End Exam.		25	--	100
	25	50				
Duration	1	2				

COMPETENCY STATEMENT (S):

To use VB .NET as the programming platform to develop business applications.

RATIONAL:

In order to professionally design and handle the various software related projects and situations in the practical field, it is almost essential that continuous regular exposure to the current application software's is necessary. VB.NET acts as vital and effective logical tools in order to develop the situation based programs and projects. This will concurrently generate related basic competencies required for designing and developing future practical and lifetime major projects.

COURSE OBJECTIVES:

Student will be able to,

1. Use GUI tools of dot net framework
2. Use basic and advance dotnet controls
3. Interface back-end and front-end
4. Build applications integrated with VB.Net framework
5. Transfer code from VB to VB.Net

COURSE CONTENTS**1. Introduction to VB.NET (H-06,M-10)**

Introduction to Microsoft.Net Framework, Building blocks in .Net, Drawback of previous languages, Understand .Net, VB.Net: VB.Net overview, Difference between VB and VB.Net, Introduction to .NET: Types of application architecture,.Net initiative Net framework: Components of .Net framework, Advantages, Requirement of .Net

2. Introduction and implementation (H-08,M-14)

Introduction to VB.Net: Features, VB.Net IDE, Data types, Loops, Control structures, Cases, Operators, Creating forms, Procedures and functions, Form Controls.

----- **Progressive Test-1** -----

Implementation of OOP: Creation of class and objects, Inheritance, Constructors, Exception Handling, Component based programming: Working with Private assembly, Shared assembly, Using COM components developed in VB or other language.

3. Introduction to ADO.Net (H-10,M-13)

Introduction to ADO.Net: Database, Writing XML file, ADO.Net architecture, Creating connection, Dataset and Datareader, Types of data adapter and ADO controls.

----- **Progressive Test-2** -----

Reading data into dataset and data adapter, Binding data to controls, Data table and Data row.

4. Accessing and manipulating data

(H-08,M-13)

Selecting data, Insertion, deletion, updation, sorting, Filling dataset with multiple tables, Multi-threading: Working with multithreading, Synchronization of threads, Migrating from VB 6.0 to VB.Net: Updating the applications developed in VB to VB.Net, ADO.NET and Stored Procedures, Benefits of using Stored Procedures.

----- Progressive Test-3 -----

LIST OF PRACTICALS

1. Introduction to .Net framework
2. Design Login form with validation
3. Design registration form with validation of email address, data of birth, blank field, telephones and mobile numbers etc.
4. Design form, make it a class, create its object and access it from another form
5. Design student class, marks class, inherit it in result class and access it using form
6. Create instance of class using new operator of above example
7. Design marksheet of student using XML file and dataset
8. Design employee details with help of database (back-end) using data adapter, datareader and datasets. Use datagrid to display result.
9. Generation of database (data table) of employee or student with help of data tables of .Net
10. To use multiple table design example of employee and department

REFERENCE BOOKS

Sr. No.	Author	Title	Publisher
01	Clayton Croots II	Learning Visual Basic.Net Through Applications	
02	Dave Grundgeiger	Programming Visual Basic.Net, O'Reilly	
03	Jesse Liberty	Learning VB.Net, O'Reilly	
04	Duncan Mackenzie, Kent Sharkey-Sams	Yourself Visual Basic.Net in 21 Days	SAMS
05	ThwanThai, Hoang Lan	Net Frame Work Essential, O'reilly	

[BACK](#)

COURSE CODE : IT551
COURSE NAME : JAVA PROGRAMMING

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	2				
Marks	Prog. Test	End Exam.	25	25	--	150
	25	75				
Duration	1	3				

COMPETENCY STATEMENT (S):

1. To understand basic JAVA concept.
2. To use computer for java based application.
3. To prepare professional project

RATIONAL:

JAVA language enhances and refines the object oriented paradigm. Essential to adopt to refinement and improvement in the art of the programming . JAVA support development of dynamic network base application , which are secured , reliable ,portable ,extensible and reusable. This subject knowledge is essential for development of customize and web base applications. JAVA being platform independent language and free ware software , The measure business applications world wide being based on JAVA technology , learning JAVA become essential.

Further this subjects which include learning core java forms a foundation for learning advanced java.

COURSE OBJECTIVES:

After study this subject, the student will be able to

1. Design and implement classes and methods .
2. Understand and implement basic programming constructs
3. Apply object oriented features to real time entities
4. Differentiate between primitive data type and class data type and implement conversion between them
5. Understand and implement a concept of reusability and extensibility
6. Create packages and interface and use it in programs
7. Design and implement multithreaded programs
8. Mange error and exceptions
9. Design and implement applet and graphics programming
10. Make use of data string in program
11. Write program by combining all features of java

COURSE CONTENTS**1. An Introduction To Java Programming (H-06,M-08)**

Definition of JAVA ,Getting started with JAVA , rules & Structure of JAVA ,java features:compiled&interpreted,platformindependent,portable,objectoriented,distributed ,multithreaded

2. Java Basics (H-09,M-10)

variable and data types , declaring variables, variables assigning, literal :,number literal, Boolean literal , expression & operators-arithmetic operator, relational operator, logical operator,

assignment operator, increment & decrement operator, operator precedence ,
Arrays, declaring array variable ,creating array objects , accessing array elements
multidimensional array ,string functions
Decision making statement :, if statement, if-else statement, Switch statement,
Decision making & loop statement: for loops , while & do loops , while lops . do..
While loops , breaking out of loops.

3. Classes & Object (H-09,M-10)

Defining classes , creating instance & class variables , creating a classes,
Defining Objects passing arguments ,passing arguments JAVA programmes,

----- **Progressive Test-1** -----

inheritance: creating subclasses, single inheritance ,multilevel inheritance, hierarchical inheritance

4. More About Methods (H-10,M-15)

Method overloading, method overriding, constructor, this keyword,
final keyword, super keyword, finalize method , abstract method & class
JAVA application & command line arguments, garbage collector

5 Interface & Packages, (H-08,M-08)

Interface: Defining interface, Extending interface,
implementing interface, accessing interface variable.
Packages: creating packages, accessing packages, adding class to
a packages, putting classes together

----- **Progressive Test-2** -----

6. Java Applet Basics (H-08,M-10)

Introduction to applets & application ,How applets & application are different, applet
life cycle, applet tag, creating applets & parameters to applets.

7. Creating Graphics & Colors (H-06,M-06)

graphical class ,lines, rectangle, circle & ellipse, drawing arc, drawing & fillings text &
font, creating font objects, using color objects

8. Multithreaded Programming & Exception Handling (H-08,M-08)

creating thread, extend ding a thread class, stopping & blocking a thread, life cycle of
thread, using thread method, thread exception, thread priority synchronization,
implementing Runnable interface, Creating animation in JAVA, writing applets with
threads. managing errors & Exception: wrapper classes, types of error, exception,
exception handling using try-catch statements, throws

----- **Progressive Test-3** -----

LIST OF PRACTICALS

1. Write a simple java program .
2. Write a java program using Statements, Expression Operator & Function ,
Condition, Loop, Switch, Array
3. Write a java program to demonstrate use of Classes With Objects.
4. Write a java program to demonstrate use of Subclasses.
5. Program To Create Instance & Class Variable, Method.
6. Write a java program to demonstrate use of Command Line Argument.
7. Write a java program Using Method Overriding.
8. Write a Simple Program On Applets.
9. Write a java program Using Graphics To Draw ,Fill, Use Color.
10. Write a java program to implement concept of threading
11. Write a java program to implement concept of Exceptional handling
12. Create Small Application For Animation Including All Concepts Of Java.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Patrick Naughton, Herbert Schildt	Complete reference for java	
02	E. Balaguruswami.	Programming with java	
03	Laura & charles.	Teach yourself java in 21 days	

[BACK](#)

COURSE CODE: IT552
COURSE NAME: WEB TECHNOLOGIES

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	4	2				
Marks	Prog. Test	End Exam.	25	25	--	150
	25	75				
Duration	1	3				

COMPETENCY STATEMENT (S):

Students will learn Advanced Java, JavaScript, VBScript and ASP

RATIONAL:

This subject is essential for providing knowledge and hands on experience over the issue of managing data on web, developing powerful GUI based friendly user interface, server side programming. Advanced Java enhances Java programming. In order to professionally design and handle web site, knowledge of web languages and scripting is necessary. After learning this subject student will be able to develop projects required in curriculum as well as industry.

COURSE OBJECTIVES: Student will be able to

1. Learn Java Script, VBScript
2. Create dynamic pages in web site
3. Work with advanced Java techniques.

COURSE CONTENTS

1. **Introduction To Web Design** **(H-4,M-5)**
 Web page and Web site: Web publishing Process of Web, publishing, planning, organizing, Hierarchical, Linear, Webbed. Implementing, Testing, Maintenance.
2. **Advanced Java Techniques** **(H-15,M-25)**
 Introduction to AWT: Working with Windows and AMT, AWT classes, Windows Fundamentals, Working with frame windows, Creating a frame window in applet, Creating windowed program, Display information within a window. Working with graphics: Working with color, Setting the paint mode, Working with fonts, Managing text output using font metrics, Exploring text and graphics. Using AWT Controls, Layout Managers and Menus: Control fundamentals, Labels, Using Button, Applying Check Boxes, Checkbox Group, Choice Controls, Using lists, Managing scroll Bars, Using a Text Field, Using a Text Area, Understanding Layout Managers, Menu Bars and Menu, Dialog boxes, File Dialog, Handling events by Extending AWT Components, Exploring the Controls.

----- **Progressive Test-1** -----

Menus and Layout Managers Servlets: Background, Life Cycle of a servlet, Java Servlet Development Kit, Simple Servlet, Servlet API, Javax Servlet Package, Reading Servlet Parameters, Reading Initialization Parameters.

3. **Java Script** **(H-8,M-8)**
 Embedding JavaScript in HTML document, Variables, Constants, Adding

comments, Operators: Assignment, Arithmetic and comparison operators
Control structures and looping: if, if..Else, for, for..in, while, do..while, break and continue.

4. **Including Animation** (H-7,M- 6)
Creating GIF animation using GIF animator, Controlling GIF animation through internal setting of GIF animator, Creating banner using GIF animator Creating smooth transition between Gif animation frames using twinning.

5. **VBScript** (H-10,M-13)
VBScript Constants, Variables and Data types, Creating Variable, Using Arrays, Variable-Checking Functions, Array Functions, Mathematical Operations, Logical operators. Looping and Decision Structures If/Then/Else structure, For//Next structure, Select / Case structure, Do/Loop structure, While/Wend structure.

----- Progressive Test-2 -----

Functions - Conversion Functions, String Manipulation functions: Changing the Case of String, Returning the length of a String (Len), Returning the Beginning and End of a String (Left, Right), Extracting Characters From the Middle of a String (Mid), Finding a Particular Word (InStr), Trimming Text, Built-in Object.

6. **Active Server Pages** (H-15,M-14)
Introduction to Active Server Pages: What is Dynamic Web Page? Requirements to run ASP, Active Server Components (in brief), Ad Rotator, Browser Capabilities, Content Linking, Content Rotator, Counters, Logging Utility, My Info, Page Counter, Permission Checker, Tools. Server-Side Includes: #config Directive, #echo Directive, #exec Directive, #lastmod Directive, #fsize Directive, #include Directive. The Request and Response Objects: Sending Information to the Server, Request Object Collections, Properties and Methods of Request Objects, Methods of Response Objects. Cookies Collection: Creating Cookies, Deleting Cookies. The Application Object and The Session Object: Variables, Understanding global.asa, Collections and Methods of Application object, Collections, Methods and Properties Session object. Data Store Access: Databases, ODBC, OLE-DB, ActiveX Data Objects (ADO), And The ADO Object Model. Connection object and Record set Object: The Connection Object, The Properties Collection, The Errors Collection, Creating a Record set Object, Executing Query, Opening Record set, navigating in a Record set, Editing Records in a Record set, Adding New Records, Creating Record set.

7. **Publishing The Site** (H-5,M-4)
Uploading Web pages: Using FTP and using Web Page Editor, Web hosting, Shared hosting Running a Local Web server.

----- Progressive Test-3 -----

LIST OF PRACTICALS

1. Write a program to design a form using components textbox, textfield, checkbox, buttons, list and handle
2. Write a program to design a calculator using Java components and handle various events related to each component and apply proper layout to it.
3. Write a program to demonstrate use of Grid Layout.
4. Write a program to demonstrate use of Flow Layout.
5. Write a program to demonstrate use of Card Layout.
6. Write a program to demonstrate use of Border layout.

7. Write a program to create a menu bar with various menu items and sub menu items. Also create a checkable menu item. On clicking a menu, display a suitable Dialog Box
8. Write a servlet for demonstrating the generic servlet class.
9. Using VBScript, write one script using controls structure and looping.
10. Using Java Script, write one script using controls structure and looping
11. Create GIF animation using GIF animator and incorporate in web page.
12. Create Banner Ad and incorporate in web page.
13. Write a program in ASP to illustrate concept of database connectivity.
14. Write a program to upload web page.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Patrick Naughton Herbert Schildt	The Complete Reference Java 2	Tata-Macgraw hill
02	Keyur Shah	Java2 Programming	TMH
03	Dave Mercer	ASP	TMH

[BACK](#)

COURSE CODE: IT553**COURSE NAME: NETWORK ADMINISTRATION**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	4				
Marks	Prog. Test	End Exam.	50	50	--	100
	-	-				
Duration	-	-				

COMPETENCY STATEMENT (S):

1. To installed & maintained Network Operating System
2. To acquire the knowledge of Open source Technology Linux Operating System

RATIONALE:

The objective of this subject is to improve practical skills in the relating network .Installation, Administration and Management. The focus is on the practical aspects of networking of Windows 2003 Server and Linux operating system. This Subject will give hands-on manage and administer the network resources or Device.

COURSE OBJECTIVES: Students will be able to

1. Understand the Operating System
2. Install & maintained the Operating system such as Windows 2003 & Linux.
3. Plan the user Account Groups & security.
4. Manage the Printer Services and Internet Information Server.

CONTENTS:**1. Introduction to Network Operating System-Windows NT, Windows 2003(H-06)**

Networking Terms and concept, Models of Network computing-centralized, Distributive and collaborative /co-operative computing its characteristics. Introduction to Windows NT, Windows NT its Composition with DOS, Windows 95, Windows 98 operating system. Feature of Windows Server 2003, Windows Server 2003 family feature. Preparing to install Windows Server 2003. File system and Disk subsystem feature, Primary Domain Controller. Backup Domain Controller, Special purpose servers, Application Server, Internet Server.

2. Installing Windows 2003 Server (H-05)

Installing Windows 2003 Server, Using Active Directory and Domain Controllers, The Industry Before the Active Directory, The Benefits of the Active Directory, The Active Directory's Logical Structure, The Active Directory's Physical Structure, Active Directory Names and DNS. Reason for Creating Multiple Domains, Creating Domain Trees and Forests, Demoting a Domain Controller, Managing Multiple Domains.

3. Managing Users, Groups, and Computer (H-04)

Working with Active Directory User Accounts, Working with Active Directory Group Accounts, Working with Computer Accounts, Advanced User, Group and Computer Management.

4. Managing Disks, Web Services Printing (H-06)

Using Disk Management Utility, Using the Disk Part Command-Line Utility, Recovering from Disk Failure. Benefits of Using IIS, IIS Security, Installing IIS, IIS Backup. Setting up Printers, Managing Printer Properties, managing Printing through Command-Line Utility and Scripts.

5. Installing Linux as Server (H-04)

Hardware Requirements, Installing Red Hat Linux Packages, Portioning Disk &

ext2, ext3, swap partition, Using GRUB or LILO boot loader. Desktop Environment.

6. Setting up Users and Backing up (H-03)

Creating user Accounts, Setting user Default, Deleting User Accounts, Modifying User Account. Selecting Backing up Strategy, Backing up to Hard Drive, Baking up Files.

7. Server Setup (H-04)

Configuring LAN, Understanding IP Address, Trouble Shooting IP Address, Connecting LAN to Internet, Print Server: Setting up Print Server, Managing Printing, Print Command, Configuring Print Server, Setting up NFS & samba file Server, Setting up Apache Web Server, Setting up DHCP server & Client, Understanding Network Information Service.

LIST OF PRACTICALSA: (ANY TEN)

1. Installing Windows Server 2003 as A domain Controller
2. Installing Windows XP Professional as a part of a Windows 2003 Domain.
3. Joining an Existing Windows XP Professional Computer to a Windows 2003 Domain.
4. Activating Windows Server 2003.
5. Setting Password Security Setting and User Rights Assignments.
6. Creating Active Directory User, Group, Deleting, Disabling & Renaming User Group.
7. Changing a User's Password, Creating user profiles,
8. Disk management (creating partition, editing a drive letter).
9. Enabling Web Service Extensions, Creating New web sites, managing websites.
10. Creating a printer, Sharing Existing Printer, Managing Advanced printer Properties, Assigning print Permissions.
11. Installing Red Hat Linux as Server concept of ext2,ext3 & swap Partition.
12. Configuring LAN, Assigning IP Address, Trouble Shooting IP Address.
13. Setting Print Server, Apache Web Server, DHCP Server & Client

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Lisa Donald Suzan Sage London and James Chellis	Windows Server 2003 Environment [MCSE]	BPB
02	Anil Desal, James Chellis	Windows Server 2003 Active Directory[MCSE]	BPB
03	Christopher Negus WILEY	Red Hat Linux 9 Bible	
04	Michael Truner and Steve Shah	Red Hat Linux Administration A Beginner Guide	

[BACK](#)

COURSE CODE:IT554
COURSE NAME: ADVANCED SOFTWARE DEVELOPMENT TOOLS

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	1	3				
Marks	Prog. Test	End Exam.		50	50	100
	-	-				
Duration	-	-				

COMPETENCY STATEMENT (S):

Students will create Dynamic Web applications using Open source Technology PHP and MYSQL Database.

RATIONALE:

This course acquires the knowledge fro creating attributes for dynamic web pages & Principles. From this course contents technique for developing small to medium scale web database application that store manage & retrieve data. The principle focus of the module will be on the common ideas such as knowledge of open source technology & web based System. This will increase the confidence of student of handling open sourceTechnology Linux, PHP Scripting Language & MySQL Database.

COURSE OBJECTIVES:

Student will able to

1. Design web page using PHP, HTML, XML, and Java S
2. Knowledge about MYSQL Database.
3. Understand the concept of Open Source Technology.

CONTENTS:**1. Introduction to PHP****(H-01)**

What is PHP, Why use PHP, PHP works, Basic Syntax, Sending data to browser, Testing script, Sending text to Browser, Adding Comments, Variables, Numbers, String, Regular Expression, Type Casting, Arrays Predefined Variables.

2. Control Structures**(H-01)**

The If Conditional, else, Else if, The Switch Conditional, The While Loop, The While Loop, The For loop, Do While. Arrays: Creating Array, Adding items to an Array, Accessing array Elements, Transforming Between String &Array, Creating array from a Form, Creating Multidimensional Array, Built-in PHP Array.

3. Reusing PHP Code**(H-02)**

Inserting code in your script, Include files, Storing include files, Selecting up Include Directories.

Function: Creating & using simple Function, Creating & Calling Function that take Arguments, Returning a value, Default argument, Function & variable Scope (Global, Local variable, static variable), Static Member Function, Using built in Function.

4. Object Oriented Programming With PHP**(H-01)**

classes & Objects, Setting Properties using \$this, Adding methods, Writing The Constructor, Making properties & method private, Inheritance, Throwing & Catching, Exception, Copying Objects, Destroying Objects.

5. Web Based Application**(H-02)**

Creating Simple form using GET OR POST, Receiving data from a form in PHP, Navigating web sites with multiple pages (Echoing links, using forms, Relocating

Users), Moving Information from page to page (Adding information to URL, Passing information using HTML form).

6. Files & Directories (H-01)

File permission, Writing Files File Open, File Read, File Close, Directories, Handling uploads, Remaining & Deleting Files & Directories.

7. Using Session Control in PHP (Cookies, HTTP Session) (H-02)

Session: Basic Session Functionality, Implementing Simple session, Configuring Session Control.

Cookies: The setCookie () function, Deleting Function, Reading Cookies. HTTP: Sending HTTP Headers, Redirection, and Authentication.

8. PHP with JavaScript & XML (H-02)

JavaScript: Outputting JavaScript with PHP, Where to use JavaScript, Dueling Objects Static versus Dynamic JavaScript, Dynamically generated forms, Passing Data back from JavaScript.

XML: What is XML, Working with XML, Documents & DTD (Structure, Validating Parsers) Simple API for XML (SAX), Document Object Model (DOM).

9. SQL and MYSQL (H-02)

Introduction Relational Database, Data Base Terminology, MYSQL command Interpreter, Database connectivity: Connecting to MYSQL, Listing database on Server, Listing tables in Database, Creating new Database, Deleting Database, Inserting Data in to Table, Creating Record Addition form & Script, Selecting & Displaying Data, Planning & Creating Administrative Menu.

10. Database Driven User Authentication (H-02)

Creating User Table, Adding user to table, Creating Login Form, Creating Authentication Script, Using Session: Understanding Session Variables, Managing User with Session, Putting New Information to Database, Uploading Records in the Database, Disconnecting from Database.

LIST OF PRACTICALS: (ANY TEN)

1. Installing PHP & MySQL on Windows & Configuring PHP on LINUX.
2. Creating web page using PHP basic tags.
3. Write a program to sending data to browser.
4. Crating page that explain array from a form.
5. Write a program to explain the concept of function, calling function, Returning function.
6. Write a program to explain the concept of function & variable(Global, Local).
7. Create the web page that explain the concept of classes and Objects.
8. Create a web page to explain the concept of one type of Inheritance.
9. Create the web page to explain the concept of Throwing & catching Exception.
10. Create a simple form using GET or POST.
11. Create a form how to implement the session.
12. Create a page to explain the concept of Cookies.
13. Write a Program that explain how to generate Dynamically forms.
14. Create a web page that uses API for XML.
15. Write a to Outputting JavaScript with PHP.
16. Write a program that create a Database & Deleting item from database.
17. Create a dynamic web site for small scale Organization.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Hugh E. Williams & David Lane	Web Database Applications with PHP and MySQL	(2 nd Edition) O'REILLY Publication
02	John Horn & Michel Grey	MySQL Essential Skills	Interstate Software
03	Vikram Vaswani	The Complete Reference	TMH

[BACK](#)

COURSE CODE: IT555
COURSE NAME: ASP.NET

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				
Marks	Prog. Test	End Exam.		25	25	125
	25	50				
Duration	1	2				

COMPETENCY STATEMENT (S):

Students will create robust, scalable, and dynamic Web applications using ASP.NET platform.

RATIONAL:

This subject is technology subject, the prerequisite subject for this subject is knowledge of Fundamentals of Web Page Design. Creating dynamic web pages in a website is challenging task today. To fulfill that task, .NET platform is used. ASP.NET Technology is used to configure, build, debug, deploy and secure enterprise-wide applications including collecting end user data from the Internet, integrating multiple data sources, creating new Web Services, and integrating existing Web Services.

COURSE OBJECTIVES: Students will be able to

- Differentiate between ASP and ASP.Net
- Study of ASP.NET fundamentals
- How to read and write XML documents in ASP.NET
- Do ASP transaction
- Build net based applications.

CONTENTS**1. Introduction to ASP.NET****(H-04,M-07)**

Overview of the .NET framework, Difference between ASP and ASP. Net, Introduction to IIS, What is web application and why it is used, ASP.Net IDE, Creation of web forms, Using web form controls.

2. ASP.Net Objects and components**(H-09,M-15)**

Response object, Server object, Application object, Session object, ASP.Net scope, state, view state, post back and configuration, Object Creation: Scripting, Drive, Folder, File, Use of object, Server Components: Ad Rotator, Content Linker, Browser Capabilities

----- **Progressive Test-1** -----

Use and Creation of global.asa file, Application object: Events, Methods and collections, Example, Session object: Enabling and disabling of session, Event, Properties, Method, Collection, Example.

3. ADO.Net**(H-09,M-13)**

ADO.Net in ASP. Net: Connection, Dataset and datareader, Datatable and datarow, Web.config introduction, Binding data with data grid, Accessing and manipulating data, ADO. Net: Server control templates and data binding techniques,

Data access in .Net using ADO.Net, Server control templates available for data binding like repeater, data list and data grid controls.

----- **Progressive Test-2** -----

4. ASP Transactions and e-mail

(H-06,M-07)

Transactions, Transaction db design, CDONTS object, Email sending web page creation.

5. Working with XML in ASP.NET

(H-04,M-08)

Basics of XML, XML support in .NET, XML Validation Overview, XML Parsing API's in .NET, Parsing XML with the XmlTextReader, Parsing XML using DOM Objects, Generating XML with the XmlTextWriter, Introduction to XSLT, Transforming XML using .NET's XSLT classes, Viewing relational data as XML, Dataset XML Properties and Methods, Using the XmlDataDocument Class Syncing between DataSets and XmlDataDocuments.

----- **Progressive Test-3** -----

LIST OF PRACTICALS

1. Design registration form of college using text box, text area, radio list, check list, button etc. using Autopostback property.
2. Simple application for following function: (1) Login (2) Surfing (3) Logout taking into considerations (Application, Session, Server object, global.asa file and their events, methods and collection) also demonstrate enabling and disabling of session).
3. Creation of file, entry, reading data from a file.
4. Using components create:
 - (1) Advertisement (using Adrotator)
 - (2) Book example (using Next function)
 - (3) Find capabilities of browser (Browser object capabilities)
5. Online application (student, employee, product, shopping mall)
 - (a) Using dataset, datareader
 - (b) Same application using datatable and datarow (use datagrid to display data)
 - (c) Bind data to datagrid using properties/templates
 - (d) Display details (student, employee, product, etc.) using data list (4 cols per line)
6. Application which sends email.
7. Using the XmlTextReader to Parse XML
8. Creating XML Documents with the XmlTextWriter
9. Examining the Web.config File
10. Configuring the ASP.NET Development Environment

REFERENCE BOOKS

Sr. No.	Author	Title	Publisher
01	Stephen Walther	ASP.Net Unleashed, SAMS	
02	Jesse Liberty	DanHurwitz-Programming ASP.Net	
03	G.Andrew Duthie	Microsoft ASP.Net Step	Step, Microsoft .Net
04	Scott Warley	ASP.Net, New Riders	
05	Dave Mercer-	ASP.Net	TMH.

[BACK](#)

COURSE CODE: IT556
COURSE NAME: IMAGE PROCESSING

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				
Marks	Prog. Test	End Exam.		25	25	125
	25	50				
Duration	1	2				

COMPETENCY STATEMENT (S):

Students will process the images using images processing techniques.

RATIONAL:

Image processing techniques find applications in many fields viz. are remote services, military robotics, industries, medical etc. So this diversified course is necessary to learn for IT students.

COURSE OBJECTIVES: Students will be able to

1. Understand the digital techniques of images processing.
2. Understand different types of image files.
3. Use digital images processing software tools.

CONTENTS:

1. **Introduction.** **(H-03 M-08)**
Image processing problems & Applications. Digital Image Representation, Fundamentals steps in Image processing. Elements of Digital Image Processing System.
2. **Digital Image Fundamentals.** **(H-09 M-15)**
Elements of visual perception. Simple image model. Sampling and quantization. Some basic relationships between pixels. Some basic transformation. Perspective transformation. Photographic film.
3. **Image Transforms.** **(H-05 M-07)**
Introduction. Notation & Definitions. Fourier Transform & Discrete F.T. Some Properties of the two dimensional Fourier transform. No mathematical treatments)
4. **Image Enhancement (No. Mathematical Treatments)** **(H-08 M-10)**
Spatial Domain methods, treatments frequency domain methods. Enhancements by point processing. Some simple intensity transformation. Image subtraction. Image Averaging. Image Averaging. Spatial filtering. Background, smoothing filters, sharpening filters. Enhancement in the frequency domain. Low pass filtering, High pass filtering. Color Image processing, color fundamentals.
5. **Image Compression.** **(H-07 M-10)**
Fundamentals: Coding redundancy, inter pixel, redundancy, and psycho visual redundancy, fidelity criteria. Image compression models, the source encoder and decoder, the channel encoder and decoder. Error free compression. Loss len predictive coding. Lossy compression. Lossy predictive coding.

LIST OF PRACTICALS (minimum six.)

Assessment / practical / demos on Image processing and development software such as adobe photo shop, adobe illustrator.

[BACK](#)

COURSE CODE : IT557**COURSE NAME : OBJECT ORIENTED MODELING AND DESIGN.**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				
Marks	Prog. Test	End Exam.		25	25	125
	25	50				
Duration	1	2				

COMPETENCY STATEMENT(S):

1. To understand OBJECT ORIENTED MODELLING AND DESIGN
2. To understand the analysis design patterns and their use

RATIONALE:

Object oriented modeling and design present an Object approach to software development. It is a modeling objects from the real world and then using the model to build a language-independent design. This subject shows analysis through design implementation by using different models. The graphical notation i.e. described in subject helps the software developer to visualize before going for implementation. This subject will be useful for the student to understand the concept of OOPS and to model this concept using UML for any application, before actually going for coding part.

COURSE OBJECTIVES:

Students will be able to

1. Interpret the meaning of Object Oriented concepts.
2. Understand different modeling methodology.
3. Prepare an object model for a given problem statement.
4. Prepare dynamic for a given problem statement.
5. describe and design the concept of class diagram, object diagram, interaction diagram, sequence diagram collaboration, use case diagram, state diagram activity.
6. Usage of any one design tool.

CONTENTS:**1.Review of Object Modeling :** (H-06 M-10)

Object oriented thinking - rethinking, Objects and classes, Links and association, Inheritance, Grouping Concepts, aggregation, abstracts classes, Polymorphism, Metadata, Constraints, Reuse, Dynamic Modeling events states, Operations, Concurrency.

2.Importance of modeling: (H-08 M-12)

brief overview of Object Modeling Technology(OMT) by Rumbaugh, Booch Methodology

----- Progressive Test-1 -----

USE CASE drive approach (OOSE) by Jacobson, Overview of CRC card method by Cunningham.

3.Overview of UML: (H- 05 M-08)

OMG approval for UML, scope of UML, Conceptual model of UML, architecture - Meta model, mechanisms, Unified software Development lifecycle, UML diagrams.

4.UML Diagrams: (H-09 M-12)

Terms and Concepts, relationship, diagrams.

----- Progressive Test-2 -----

Advanced class Diagram: Advanced relationship, interface types and rules, packages common modeling techniques, modeling groups of elements, modeling architectural views.

5. Introduction XML

(H- 04 M- 08)

Basic of XML, XML support in .NET ,XML validation overview, XML Parsing XML with the XML text Reader ,Parsing XML using DOM object,generating XML with XML text writer .

----- Progressive Test-3 -----

TERM WORK / PRACTICAL

A minimum of Eight programs /assignment should be conducted during the course based on above syllabus and a record for the same shall be submitted.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Booch/rambaugh , Jachobson	UML User guide	Addison Wesley
02	Sinon alhair	UML In a Shell	
03	Rambaugh	Object Oriented modeling and design	PHI
04		Booch, Object Oriented analysis and design with applications	
05	B Meyer	Object Oriented software Constructions	PHI

[BACK](#)

COURSE CODE: IT558
COURSE NAME: EMBEDDED SYSTEMS

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				
Marks	Prog. Test	End Exam.		25	25	125
		25				
Duration	1	2				

COMPENTANCY STATEMENT (S): student will able to

1. Perform software analysis, design. Implementation, testing, Debugging For embedded systems.
2. Design and develop simple embedded systems
3. Programming using Microcontroller kit

RATIONALE:

The study of embedded system is essential part of Computer science. It deals with computer hardware with software embedded in it. This subject will enable student to develop logical and use of "Firmware". It is practical oriented subject having theoretical prerequisites of Microprocessor, Digital Techniques, Data Structure and Computer Architecture, Student will be able to develop Real Time System, Device Drivers, use interrupt Service mechanism, program timing and counting devices and develop embedded C-Program for Microcontroller.

COURSE OBJECTIVES:

Students will be able to

1. Access embedded systems hardware units like processor, I/O device,
 - a. On-chip and Off-chip device power supply etc.
2. Interface various devices using ports.
3. Write embedded program.
4. Develop programmable interrupt controller
5. Perform software analysis, design. Implementation, testing, Debugging For embedded systems.

CONTENTS:

1. 8051- Micro controllers

(H-04, M-04)

Overview of 8051 family, Architecture, Memory organization, Functional pin, ports(Theory topic & Circuit), Addressing Modes.

2 . Hardware Overview

(H-03 M-04)

Study of interrupt structure, Port structure & Programming, Study of SBUF, TCON, MOD, SMOD, SCON Register, Timer/Counter & Serial Communication Programming.

3. Serial communication & Parallel communication

(H-05 M-08)

Serial communication-RS-230,I²C,CAN,Parralle communication –ISA,PCI PCI-X, Advance I/P O/P buses, Study of RS-232 Pin out

----- **Progressive Test-1** -----

4. Embedded system (H-05 M-08)
Introduction, Processor in the System, Different Hardware Units, Software Embedded into System, Exemplary Embedded system, System On-chip (SOC) & VLSI system

5. Memory Management (H-05 M-08)
Structure unit in processor, Processor selection, Memory devices & selection, Allocation of Memory, DMA, Interfacing processor & I/O O/P devices.

----- **Progressive Test-2** -----

6. Device Driver & Interrupts Servicing Mechanism (H-05 M-08)
Device Drivers, Parallel port device driver, Serial port device driver, Internal Programmable timing devices, Interrupts handling Mechanism, Context Switching.

7. RTOS & Interprocess communication (H-05 M-10)
Concepts of RTOS, Requirements, Need, Specification of RTOS in Embedded systems, Multitasking, Task synchronization & Multiple Process, Problem of sharing data by Multiple task and routines, Interprocess communication.

----- **Progressive Test-3** -----

TERM WORK & PRACTICAL: (Any ten programs)

1. Write a program on Block Move
2. Assume 1 Hz frequency pulse connected to I/P P3.4 Write a program to display count on LCD kit.
3. Write a program to find the frequency of square wave generated on pin p1.0.
4. Write a program to generated a square wave of 50 Hz. Frequency on pin p1.2 using interrupt for timer.
5. Write a program to connect INT 1 pin to a switch that is normally high whenever it goes low LED should turn ON which is connected to p1.3 & LED is normally OFF. LED should be ON as long as switch is pressed.
6. Write a program to transfer message "yes" serially at 9600 baud rate 8-bit, data, 1 stop-bit & do this continuously.
7. Write a program for interfacing ADC & DAC.
8. Write a program to interfacing keyboard.
9. Write a program to Interface LCD.
10. Write a program to Interface stepper, motor.
11. Miniproject: This project should be at least of level interfacing some devices. "C" Programming language can be used for development of project.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Raj Kamal	Embedded system	TMH
02	Primer David E. Simon	An Embedded Software	Pearson Education
03	Muhammad Ali Mazidi and Janice Gillispie Mazidi	The 8051 Micro controller and Embedded Systems	Pearson Education
04	John Wiley Introduction (Frank Vahid, Tony Givargis)	Embedded System Design: A unified Hardware/Software	
05		Embedded Linux Craig Hollabaugh	Pearson Education
06	Danil Lewis	Fundamentals of Embedded Software	Pearson Education
07	Barneet, Cox, O'Cull	Embedded C Programming and the Atmel AVR	Thomson Learning
08	Myke Predko	Programming and Customizing the 8051 Microcontroller:	THM

[BACK](#)

COURSE CODE : IT559
COURSE NAME : E-COMMERCE

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				4
Marks	Prog. Test	End Exam.	--	25	25	125
	25	50				
Duration	1	2				

COMPENTANCY STATEMENT (S):

Student will understand e-commerce for business application.

RATIONALE:

Internet has brought world close, shipping, business & communication how possibly by sitting at home. This course focuses on developments in the field of E-commerce. This covers opportunity, threats & security on web transactions.

COURSE OBJECTIVES:-

The course provides the knowledge about Business transactions using new Technologies

CONTENTS**1. Introduction to Electronics Commerce (H-04,M-05)**

Defining Electronics Commerce, potential benefits of Electronics Commerce, Needs of Electronics Commerce, ,Types of Electronics Commerce., three waves of E-commerce

2. Introduction to cyber Laws (H-02, M-05)

Introduction cyber law, cyber law act, cyber law section

3. EDI,E-commerce & internet (H-04,M-08)

Introduction to EDI,EDI system, EDI system & Internet security concerns,

----- Progressive Test-1 -----

Internet trading relationships, benefits, role of internet & WWW in E-commerce, impact of ecommerce on E-business

4. Electronics Payment Systems (H-06 ,M-08)

Overview of the Electronics payment technology, Electronics cash, Electronics checks, online credit cards based system, other emerging financial instruments. bar code

5. Electronics Commerce and banking (H-04,M-06)

Home Banking, Banking via the PC using Internet/Intranet, Banking via online services, Banking via Web.

----- Progressive Test-2 -----

6. Web Based Marketing (H-06,M-10)

The scope of marketing, product, price, place, promotion, personalization, internet marketing techniques, on line advertising mechanisms

7 .Risk Management (H-06, M-08)

Overview of risk associated with internet transaction, Internet associated risk, risk to customer, risk to selling agents, risk associated with business transaction, Risk associated with virus & malicious code, Management of above risk

----- Progressive Test-3 -----

LIST OF PRACTICAL

1. Visit To Different E-Commerce Site On Website. Like www.amazon.com
2. Online Ordering

3. Finding Desired Item On E-Sites ,Finding Specification.
4. Case Study On Any Commercial E-Commerce Website
5. Identification Of Secured Sites.
6. Using Credit Card For E-Commerce Application.
7. Online Advertisements..
- 8 Design Web Based Small E-Commerce Application.

REFERENCE BOOKS:

Sr. No.	Author	Title	Publisher
01	Dr Ravi Kalkota	E-Business	Addison Wesley (Pearson Education Asia).
02	David Kosiur	Electronic Commerce	Microsoft Press
03	Ravi Kalakota and Andrew B Whinston	Electronic Commerce	
04	Greenstein Feinman	Electronic Commerce	

[BACK](#)

COURSE CODE: IT560**COURSE NAME: WINDOWS PROGRAMMING**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				
Marks	Prog. Test	End Exam.				125
	25	50		25	25	
Duration	1	2				

COMPENTANCY STATEMENT (S): Student will be able to

1. Use of programming language.
2. Apply different logics to solve given problem.
3. Write program using different implements for the same problem
4. Identify different types of errors as syntax semantic, fatal, linker and logical
5. Debugging of programs.
6. Understanding different steps to develop program such as
7. Proper handling of computer system.

RATIONALE:

Microsoft window is a graphical environment. Window provides rich programming environment that supplies extensive support for developing easy to use and consistent user interface. Windows provides device independent graphics thereby allowing you to write programs without having details knowledge of the hardware platform on which they will eventually run.

Visual c++ has powerful features for writing windows applications such as class wizards and ActiveX controls. Class wizards write code for you in the industry this type of program is often referred to as a CASE (computer aided software engineering). ActiveX controls are pieces of software that you can easily "plug" in to your visual C++ programs.

This subject covers from basics to writing codes for keyboard & mouse handling.

COURSE OBJECTIVES:

Student will be able to -

1. Use visual environment.
2. Write simple programs using VC++.
3. Develop program for drawing dot, lines and shapes
4. Handle keyboards and mouse input through programs.
5. Create checkbox, scroll bars etc.

CONTENT**1. Overview of windows messaging****(H-6,M-12)**

The Windows Environment, History Of Windows, Aspects Of Windows Programming Option, Apis And Memory Models, The Programming Environment, Your First Windows Program, The Message box function A brief history of character sets 20 American standards, wide characters and C, the char data type windows string function, using printf in windows, formatting message box, Registering The Window, The Message Loop, The Window Procedure.

2. GDI and Basic Drawings**(H-8,M-12)**

An Introduction To GDI, The Structure Of GDI, The GDI Philosophy, The GDI Primitives, The Device Context, Drawing Dots And Lines, Setting Pixels, Filling In The Gaps, Drawing Filled Area The GDI Mapping Mode Rectangles,

Regions, And Clipping.

3. The Keyboard

(H-6,M-08)

Keyboard basics, Keystrokes and characters, Using Keystroke messages, character messages, keyboard messages and character sets, the KEYVIEW1 program, The Foreign Language Keyboard Problem, the caret (Not the cursor), The caret functions.

4. The Mouse

(H-6,M-08)

Mouse Basics, client area mouse messages, simple mouse processing: an example, mouse double clicks, nonclient area mouse messages, The Hit Test Message, A sample Program. Emulating the mouse with the keyboard, using child windows for Hit-Testing, capturing the mouse.

5. Client Window Control :

(H-6,M-10)

The button class, creating the child Windows, push buttons, check boxes, Radio Buttons, group boxes, changing the button text, visible and enabled buttons, buttons and input focus, the WM_CTLCOLORBTN message, The scroll bar class 383 the COLORS1 Programme coloring the background, coloring the scroll bars and static text, the List box class, List box styles, putting strings in the list box, selecting and extracting entries, a simple list box application

LIST OF PRACTICAL:

1. Demonstration of Visual Environment
2. Writing simple VC++ programs
3. Writing programs on drawing dots, lines, rectangles, filling different shapes
4. Program on reading keystrokes from keyboard
5. Program on displaying text at desired window
6. Finding size, resizing windows
7. Program on handling mouse
8. Creating different controls (such as checkbox, scrollbar, etc)
9. Program on timer demonstration

REFERENCE BOOK:

Sr.No.	Author	Title	Publication
1	Charles petzold	Programming windows	Microsoft press
2	Brent E. Rector Joseph M. Newcomer	Win32 programming	Addison Wesley

Video cassettes / CDs

IS / International Codes, Handbooks, Datasheets.

Website

[http://www.elvis.rowan.edu/~kay/cpp/vc6 tutorial](http://www.elvis.rowan.edu/~kay/cpp/vc6_tutorial)

<http://www.onesmartclick.com/programming/visual-cpp.html>

<http://www.functionx.com/visualc/>

[BACK](#)

COURSE CODE:IT561**COURSE NAME: SOFTWARE QUALITY**

Particulars	Theory	Practical	Practical	T.W.	Oral	Total
Credit	2	2				4
Marks	Prog. Test	End Exam.	--	25	25	125
	25	50				
Duration	1	2				

COMPETENCY STATEMENT (S):

Students will develop software as per engineering and scientific approach.

- 1 Explain the techniques used in software Testing.
- 2 Study the concepts for testing process
- 3 Understanding importance of testing while managing Projects

RATIONALE:

This course introduces the engineering approach for analysis, design, testing, implementing any computerized system. Every IT professional should know from basic to advance techniques of software development. Develop software will be tested and estimated scientifically to ensure the quality of the software.

COURSE OBJECTIVES:

Students will be able to

1. Understand the concepts of all the methods used in the testing of software
2. Understand engineering approach for software quality
3. Familiarize with the various testing methods

CONTENT

- 1. Basics Of Software Testing** (H-01,M-03)
Quality assurance, quality control.
- 2. Testing Introduction & Terminology** (H-03,M-05)
What is testing, why testing is necessary, objectives of testing, software development & software testing life cycle.
- 3. Verification & Validation** (H-04,M-05)
- 4. Levels Of Testing** (H-03,M-04)
Unit testing, integration testing, system testing, acceptance testing
- 5. Testing Techniques** (H-02,M-04)
White box testing, Black box testing
- 6. Black Box Methods** (H-03,M-04)
Equivalence partitioning, boundary value analysis, error guessing
- 7. Different Types Of Testing** (H03-,M-05)
Installation testing, Usability testing, Regression testing, Performance testing, Load testing, Stress testing, Security testing
- 8. Web Testing** (H-02,M-03)
- 9. Test Planning & Documentation Using Test Director** (H-05,M-06)
Test plans, test case, test data
- 10. Defect Management Using Test Director** (H-02,M-05)
Defect reporting, tracking work flow
- 11. . Test Reporting** (H-02,M-02)
- 12. Automate Testing Activities** (H-02,M-04)

PRACTICALS:

Student should Test minimum one software project which covers all type of testing & student should submit report on it.

REFERENCE BOOK:

Sr. No.	Author	Title	Publisher
01	Roger Pressman	Software Engineering	

[BACK](#)