

Book No. 36
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CURRICULUM
FOR
DIPLOMA IN COMPUTER SCIENCE
AND ENGINEERING
(FIRST TO SIXTH SEMESTER)



JULY 2002

CURRICULUM DEVELOPMENT CENTRE,
RAJIV GANDHI PROUDHYOGIKI VISHWAVIDYALAYA,
(Technological University of Madhya Pradesh)
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FOREWORD

Information Technology and Computer Science and Engg. have emerged as the most powerful tool for the rapid track economic growth of our country. India has undoubtedly done very well in this sector over the last decade. Global demand for IT professional is increasing. According to IT Task Force estimates, the Indian IT industry would reach a level of US \$100 billion by 2008 of which US \$50 billion is from software exports, US \$30 billion for domestic software consumption and US \$20 billion for the hardware sector. As such the Information Technology industry has emerged as one of the fastest growing industry in our country. Such a rapid growth of IT and Computer industry, however can be assured only if we are in a position to provide the necessary rapid track human resource development to meet the needs of industries in India and abroad.

Considering the urgent need for increasing the intake in the Information Technology and Computer Science and Engg. disciplines the Government of India have initiated several measures. These efforts have resulted into an addition of about 2000 seats at degree level in the IT and related disciplines and about 715 seats at diploma level in Information Technology in the state of Madhya Pradesh from the academic session 2000-2001. This figure Degree level IT programmes has further gone up by another 3000 from the academic session 2002-2003.

Though Information Technology is a new discipline of engineering but it is important to realise that this is an inter-disciplinary discipline. As such it requires an effective integration of the knowledge of basic sciences, computational methods and programming languages as well as communication and network technologies. The disciplines of Electronics and Communication and Computer Engineering are therefore closely associated with the discipline of Information Technology. With the addition of new Diploma programme in Information Technology it was necessary to formulate the course curriculum keeping in view the current and future requirements of knowledge and skill in this area of vital national importance. I am indeed delighted that in a short period of time, as is expected in an IT driven environment, RGPV has been able to formulate the course curriculum for Diploma in Information Technology and innovate the curriculum for diploma in Computer Science and Engg.

I am sure that the innovative curriculum developed for these programmes would serve the purpose of providing an optimal mix of up-to-date knowledge and requisite skills for these professionals for tomorrow's IT and Computer Engg. industries and IT enabled service organisations. The exercise of curriculum innovation carried out for these diploma programmes has also provided a base for curriculum innovation for other disciplines of diploma in engineering and technology currently in vogue in the polytechnics in the state of Madhya Pradesh. We wish to complete this curriculum innovation exercise during the current academic year for all the Diploma programmes being conducted in the state of Madhya Pradesh.

I may add that the curriculum innovation exercise for the degree programmes in engineering and technology including a new B.E. (Information Technology) programme has already been successfully completed by the University of Technology for the colleges of engineering in the state of

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Madhya Pradesh and the innovated curriculum has been implemented from the academic year 2000-2001. The innovated curriculum effectively integrates the knowledge and skills of IT in all engineering degree programmes while at the same time it promotes self-study and seminars so as to provide professional orientation to the students.

I wish to place on record our sincere acknowledgment of the support received from Shri Rakesh Shrivastava, CEO of MAP_IT in the development of the innovated curriculums. I also wish to express my very sincere appreciation of the efforts of the officers and staff of the university specially that of Shri S.K. Jain, Secretary, Shri Shamim Uddin, Coordinator, Shri K C Mahajan, Controller (Examn.), Shri T.R. Arora, Deputy Secretary, Dr. Sudhir Danej and Shri S.A.K. Rao, Research Officers in successfully developing these innovative curricula with the support of experts drawn from academic institutions, IT and computer industries.

Prof. P.B. Sharma

Vice-Chancellor,

Rajiv Gandhi Proudyogiki Vishwavidyalaya,

Bhopal

Dated: December 16, 2002.

ACKNOWLEDGEMENTS

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The curriculum development is an outcome of the team effort made during curriculum development workshop organised from 21st to 25th October 2002, in which participants from industries, higher institutions and polytechnic colleges actively participated. We would like to express our gratitude to Mrs. Rashmi Mehrotra, GM (EDP), Airtel, Bhopal for giving an enlightening keynote address on the opening day of workshop and for illustrating the current IT industry scenario. We also acknowledge the presence of Mr. Dheeman Sen, AGM (IFX), BHEL, Bhopal, who spared time, from his busy schedule to be present in the inaugural function. We are also grateful to Mr. Atul Bhasin, Managing Director, Tata Infotech Education Affiliate, Bhopal for giving valuable insights, on requirement of current skill sets for Computer Science professionals. We are also thankful to Prof. P.B. Sharma, Vice-chancellor, RGPV, Bhopal for his assistance and encouragement given to organise the workshop.

Our heartfelt thanks to the reviewers Shri Navneet Choudhury, System Analyst, Shri Sukhlal, Senior Lecturer and Shri Deepak Singh Tomar, Programmer, for providing valuable comments and suggestions on the draft curriculum document. We are thankful to the entire office staff for their support in organisation of curriculum innovation workshop. Shri Sanjay Kale also deserves special thanks, for providing online data entry support during the workshop.

SHAMIM UDDIN
CO-ORDINATOR, CDC

S K JAIN
SECRETARY

Dated: 10th December 2002

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Coordinator of the workshop
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Co-Coordinator of the workshop
T R ARORA, Deputy Secretary,

**CURRICULUM DEVELOPMENT CENTRE,
RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

DIPLOMA PROGRAMME IN COMPUTER SCIENCE AND ENGINEERING

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INTRODUCTION:

Advancement in the world of computer technology and communication systems is moving at an ever-increasing pace. The impact of technological developments has been immense. Computer Science and Engineering covers hardware and internal systems of computers. This includes all aspects of computer design and construction, as well as systems and software programming. Application area of computer science is very wide and it now covers such distinct areas like music, graphics, medical science, genetic engineering, biometrics and bio-informatics.

The global and local demand for IT and computer science professionals outstrips the supply. NASSCOM estimate of employment, in hardcore competencies of IT sector (i.e. Mostly about software development) by year 2008, is about 11 lakhs and 11 lakhs in IT enabled services. Currently India trains approx. 68,000 IT professionals. This creates a huge gap between demand and supply. IT professionals from India have been acclaimed world over, for their IT skills in the design of software are in great demand, in many developed countries of the world. Many of the topnotch software companies come to India for shopping of IT professionals. The country is also earning foreign exchange on account of software exports and by the year 2008 the software exports are targeted to reach US\$50 billion.

Present Industry Scenario:

Skilled IT manpower demand* – Demand, Supply, Shortfall and Projections:

	2001-2002	2004-2005	2008
Demand	10.16 lakhs	15.09 lakhs	22.00 lakhs
Supply (Availability)	8.20 lakhs	12.05 lakhs	15.90 lakhs
Shortfall	1.86 lakhs	3.04 lakhs	6.10 lakhs

*Source: Mckinsey – Nasscom 2002

The following remarks made by Chairman of Microsoft Corporation, Mr. Bill Gates on a recent tour to India, best describes the things to happen in the world of IT in near future:

- As far as IT potential is concerned, we have only scratched the surface.
- Like in the IT boom years, people had taken a short-term view of the things and in the excitement over estimated the potential, now (during the IT downturn), they are underestimating the future.
- CPUs are doubling every 18 months, speed of Optical Fibre Cable is tripling every two months, storage capacity has been growing for the past 10 years, tripling every 18 months and it would go to 1,000 GB within this digital decade.
- The magic of software has extended to digital music and photography. From 10 million in 90s, PCs have grown to 600 million at the end of this decade.
- Future systems shall be self-healing systems, with software that update itself.
- IT should be more reliable to use, than water systems or electricity.

- Software should know, what an e-mail should do, where junk mail should go, without taking up user's time.

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Government of Madhya Pradesh has an ambitious plan of putting the state on the IT map of the country through e-governance and by opening cyber kiosk in remote places of the state for dissemination of administrative and statistical information to the inhabitants of the state. The state government is aiming at contributing 5 to 10% of the Information Technology output of the country, by 2008. The government has a target of providing information access to all citizens at an affordable cost. Recently the state government has announced its plan of establishing a full-fledged University of Information Technology.

Three years Diploma in Computer Science and Engineering was first started in 1990-91 in few polytechnics of the state but later on from the academic session 2000-2001, more polytechnics were added with the result that, now total 10 polytechnics are offering this programme.

The programme aims to cater to the requirements of industry and business. Objectives of the programme have been chosen to enable the students to acquire skills in the core areas along with the latest thrust areas. Ministry of Information Technology, GOI in an exhaustive study (Source: Study team report on HR development for X Five year plan, 2002-2007) has identified following new thrust areas as against the existing skill-set demand of manpower; e-business systems, Data security, Web based computing, e-governance, Multi-media Technology, Data Mining, Networking Technology, e-learning and content development for distance education etc. The study team also projected the following IT skills in demand for 2002-2007;

Programmers/Engineers/Analysts/Computer Scientist	41%
Internet and e-commerce Application (Web-developers/Designers)	19%
Database Administrators/Developers	11%
Network Specialist/Developers/Communication Engineers	14%
Digital Media and Technical writing	5%
IT-enabled services	10%

The curriculum of Diploma programme in Computer Science and Engineering intends to cover major areas of knowledge and competence as identified above.

The challenge of curriculum innovation in Computer Science and Engineering was to innovate such a curriculum, which entails students to deal with people, processes and technology. However because of rapid developments in computer science and technology, it is not feasible to include everything in the curriculum and to teach the same in a programme of three years' duration. Therefore curriculum shall provide a strong base in Computer Science and Engineering to the students so that they can update their skills/knowledge in future in order to meet the demands of profession.

Salient features of the newly innovated curriculum are:

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- The curriculum has special focus on imparting business and communication skills.
- Industrial training is being made compulsory to expose students to the real world situations and to gain hands-on experience.
- Provision of a new course titled "Professional Activities" in each semester/term provides an opportunity to students for their professional and personality development.
- To inculcate good communication and proper presentation skills, a course on Business Communication has been introduced.
- To give more opportunity to students to work with their own hands and implement their own innovated ideas, project work has been divided in two parts: Minor and Major Project Work.
- Flexibility in the system, which gives wide choice to students for selection of elective courses at four levels.
- To expose students to the soft skills of the business, courses like Marketing management, Entrepreneurship and Total Quality Management have been introduced as an elective.
- For developing management skills, separate courses on Industrial Management and Office Management have been introduced.
- The course on Managing Information Technology introduces highly advanced concepts like ERP, Supply chain management, Customer relationship management, WAP, Data warehousing and mining, Knowledge Management. A chapter on legal and professional aspects of computing has also been included.
- Strong Laboratory and Project orientation, in which the use of new tools is emphasized. Most of the courses have an associated laboratory and it is expected that they will be equipped with latest software tools.
- Inherent facility in the system to incorporate future developments.
- It develops core competencies among the students and imparts skill of "learning to learn".

OBJECTIVES OF THE PROGRAMME:

1. To provide trained manpower in the areas of Computer Science and Engg. for employment in Industry, Business and Service sector.
2. To provide skilled manpower for managing networks, developing animation, and web design.
3. To train manpower as maintenance engineers for computer systems.
4. To provide train personnel for Marketing positions in hardware and software industry.
5. To provide skilled manpower for employment as system engineers.

JOB POSITIONS:

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The Computer Science and Engg. Diploma pass-outs fit for variety of jobs in hardware and software fields. The scope of employment is so wide that it is difficult to enumerate all the positions, which may be available for the pass-outs of Computer Science and Engg. However some of these are listed below :

- Programmer
- Data base administrator
- Multimedia developer
- Software Developer
- Software Documents' Writer
- System support engineer
- Hardware Maintenance Engineer
- Marketing Professionals for software & hardware products
- Teacher and Trainer (for Hardware and Software)
- Supervisor to e-commerce, Business Application and Data Communication fields

Some of the areas of self-employment may be:

- Software and Hardware maintenance
- Training Institute for software & hardware (Franchises)
- e – business
- Software development
- Web designing & hosting
- Marketing agency for software and hardware products.
- Cyber kiosk

JOB FUNCTIONS:

The pass-outs of Diploma Programme in Computer Science & Engg. shall be engaged in one or more of the following activities:

- Operate office automation software.
- Develop software for scientific, business and engg. applications.
- Do Web designing.
- Assist/design multimedia based teaching/learning modules.
- Data base management.
- Design/visualize graphics for multimedia development in various environment.
- Test software and hardware.
- Write modules for programmes.
- Sale and marketing of hardware & software products.
- Provide technical and field support for hardware and software operation.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALYA, BHOPAL

ORGANISATION OF COURSES IN DIPLOMA PROGRAMME IN COMPUTER SCIENCE AND ENGINEERING

(PROGRAMME CODE: C04, SYSTEM: SEMESTER, SCHEME: Dip.CS_JULY2002)

FIRST SEMESTER			SECOND SEMESTER			THIRD SEMESTER		
COURSE CODES	COURSE TITLES	HRS (TH+PR)	COURSE CODES	COURSE TITLES	HRS (TH+PR)	COURSE CODES	COURSE TITLES	HRS (TH+PR)
01	COMM. SKILL (0014)	4+0	CS-201	APPLIED MATHS (0010)	4+0	CS-301	MATHEMATICAL FOUNDATION FOR COMPUTERS (5007)	4+0
02	APPLIED SCIENCE (PHYSICS + CHEMISTRY) (2051)	(4+4)+4	CS-202	DIGITAL ELECTRONICS (5066)	3+2	CS-302	DATA STRUCTURE AND ALGORITHMS (5067)	4+2
03	INTRODUCTION TO P.C. (5001)	4+2	CS-203	BASIC PROGRAMMING IN 'C' (5005)	4+6	CS-303	DATA COMMUNICATION (5013)	4+2
04	P.C. UTILITIES AND OPERATING ENVIRONMENT (5002)	2+8	CS-204	BASIC ELECTRICAL ELECTRONICS AND MEASUREMENT (5006)	4+2	CS-304	MICROPROCESSOR & INTERFACES (5068)	4+4
05	PROFESSIONAL ACTIVITIES	0+2	CS-205	ELECTRONICS W/S PRACTICE	1+4	CS-305	OOP's TECHNIQUES USING C++ (5011)	3+4
		TOTAL= 18+16=34	CS-206	PROFESSIONAL ACTIVITIES	0+2	CS-306	SOFTWARE ENGG. (5069)	3+0
			TOTAL = 16+16=32			CS-307	PROFESSIONAL ACTIVITIES	0+2
			TOTAL = 18+16=34			TOTAL = 22+ 14=36		
FOURTH SEMESTER			FIFTH SEMESTER (13 WEEKS+3 WEEKS INDUSTRIAL TRAINING)			SIXTH SEMESTER		
COURSE CODES	COURSE TITLES	HRS (TH+PR)	COURSE CODES	COURSE TITLES	HRS (TH+PR)	COURSE CODES	COURSE TITLES	HRS (TH+PR)
101	OPERATING SYSTEMS (5008)	4+2	CS-501	BUSINESS COMMUNICATION (5022)	3+1	CS-601	GRAPHICS AND MULTIMEDIA (5023)	4+3
102	COMPUTER ARCHITECTURE (5070)	4+0	CS-502	JAVA PROGRAMMING (5019)	4+7	CS-602	LINUX (5074)	3+2
103	DATA BASE MANAGEMENT SYSTEMS (5071)	4+4	CS-503	HARDWARE INSTALLATION & MAINTENANCE (5072)	2+4	CS-603	MANAGING INFORMATION TECHNOLOGY (5075)	3+0
104	MINOR PROJECT	1+4	CS-504	COMPUTER NETWORKS (5073)	5+3	CS-604	MAJOR PROJECT	1+6
105	SELECTIVE-I (SELECT ONE)	3+0	CS-505	INDUSTRIAL MANAGEMENT (0362)	5+0	CS-611	ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS (5076)	3+2
106	ENVIRONMENTAL ENGG. (0262)		CS-506	INDUSTRIAL TRAINING THREE WEEKS	0+2	CS-612	E-COMMERCE (5025)	
107	MARKETING MANAGEMENT (0266)		CS-507	PROFESSIONAL ACTIVITIES	0+2	CS-621	DISTRIBUTED SYSTEMS (5021)	4+2
108	ENTREPRENEURSHIP (0271)		TOTAL = 19+17=36			CS-622	ADVANCED COMPUTER ARCHITECTURE (5077)	
109	OFFICE MANAGEMENT (5017)					CS-623	ADVANCED WEB TECHNOLOGY (5078)	
110	TOTAL QUALITY MANAGEMENT (5018)	3+2				CS-624	VISUAL & WINDOWS API PROGRAMMING (VB) (5079)	3+3
111	INTERNET & WEB TECHNOLOGY (5010)					CS-630	PROFESSIONAL ACTIVITIES	0+2
112	COMPUTERISED FINANCIAL ACCOUNTING (5016)					TOTAL=18+17=35		
113	OFFICE AUTOMATION (5003)							
114	PROFESSIONAL ACTIVITIES	0+2						
		TOTAL=19+14=33						

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ORGANISATION OF COURSES IN DIPLOMA PROGRAMME IN COMPUTER SCIENCE AND ENGINEERING
 (PROGRAMME CODE: C04, SYSTEM: MPEC, SCHEME: Dip.CS, JULY 2002)

FOUNDATION COURSES (FC) ALL COURSES ARE COMPULSORY		HARD CORE (HC) ALL COURSES ARE COMPULSORY		SOFT CORE (SC) TOTAL TWO TO BE OFFERED (ONE FROM EACH GROUP)	
COURSE CODES	TH+PR CRD	COURSE CODES	TH+PR CRD	COURSE CODES	TH+PR CRD
CS-101 COMM. SKILL (0014)	4+0 4	CS-201 DIGITAL ELECTRONICS (5068)	3+2 4	ELECTIVE-I (SELECT ONE)	3+0 3
CS-102 APPLIED SCIENCE (PHYSICS + CHEMISTRY) (2051)	(4+4)+4 10	CS-202 BASIC PROGRAMMING IN 'C' (5005)	4+6 7	CS-311 ENVIRONMENTAL ENGG. (0262)	
CS-103 INTRODUCTION TO P.C. (5001)	4+2 5	CS-203 ELECTRONICS W/S PRACTICE	1+4 3	CS-312 MARKETING MANAGEMENT (0269)	
CS-104 P.C. UTILITIES AND OPERATING ENVIRONMENT (5002)	2+8 6	CS-204 OPERATING SYSTEMS (5008)	4+2 5	CS-313 ENTREPRENEURSHIP (0271)	
CS-105 APPLIED MATHS (0010)	4+0 4	TOTAL = 19		CS-314 OFFICE MANAGEMENT (5017)	
CS-106 BASIC ELECTRICAL, ELECTRONICS AND MEASUREMENT (5006)	4+2 5			CS-315 TOTAL QUALITY MANAGEMENT (5018)	3+2 4
CS-107 MATHEMATICAL FOUNDATION FOR COMPUTERS (5007)	4+0 4			ELECTIVE-II (SELECT ONE)	
	TOTAL = 38			CS-321 INTERNET & WEB TECHNOLOGY (5010)	
				CS-322 COMPUTERISED FINANCIAL ACCOUNTING (5016)	
				CS-323 OFFICE AUTOMATION (5003)	
				TOTAL = 7	
BASIC TECHNOLOGY (BT) ALL COURSES ARE COMPULSORY		APPLIED TECHNOLOGY (AT) ALL COURSES ARE COMPULSORY		DIVERSIFIED COURSES (DC) ANY TWO TO BE OFFERED (ONE FROM EACH GROUP)	
COURSE CODES	TH+PR CRD	COURSE CODES	TH+PR CRD	COURSE CODES	TH+PR CRD
CS-401 DATA STRUCTURE AND ALGORITHMS (5067)	4+2 5	CS-501 BUSINESS COMMUNICATION (5022)	3+1 4	ELECTIVE-III (SELECT ONE)	3+2 4
CS-402 MICROPROCESSOR & INTERFACES (5068)	4+4 6	CS-502 JAVA PROGRAMMING (5019)	3+6 6	CS-611 ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS (5076)	
CS-403 SOFTWARE ENGG. (5069)	3+0 3	CS-503 HARDWARE INSTALLATION AND MAINTENANCE (5072)	1+4 3	CS-612 E-COMMERCE (5025)	
CS-404 COMPUTER ARCHITECTURE (5070)	4+0 4	CS-504 COMPUTER NETWORKS (5073)	4+2 5	ELECTIVE-IV (SELECT ONE)	4+2 5
CS-405 DATA BASE MANAGEMENT SYSTEMS (5071)	4+4 6	CS-505 INDUSTRIAL MANAGEMENT (0362)	4+0 4	CS-621 DISTRIBUTED SYSTEMS (5021)	
CS-406 OOP'S TECHNIQUES USING C++ (5011)	3+4 5	CS-506 INDUSTRIAL TRAINING * (5023)	THREE WEEKS 6	CS-622 ADVANCED COMPUTER ARCHITECTURE (5077)	
CS-407 DATA COMMUNICATION (5013)	4+2 5	CS-507 GRAPHICS AND MULTIMEDIA (5023)	4+3 6	CS-623 ADVANCED WEB TECHNOLOGY (5078)	
CS-408 MINOR PROJECT	1+4 3	CS-508 LINUX (5074)	3+2 4	CS-624 VISUAL AND WINDOWS API PROGRAMMING (VB) (5079)	3+3
	TOTAL = 37	CS-509 MANAGING INFORMATION TECHNOLOGY (5075)	3+0 3		
		CS-510 MAJOR PROJECT	1+6 4	TOTAL = 09	

PROFESSIONAL ACTIVITIES (PA)

NOTE: PROFESSIONAL ACTIVITIES IN EACH TERM IS TO BE COMPULSORILY OFFERED IN THE FOLLOWING SEQUENCE IN ADDITION TO THE NORMAL REGISTRATION OF THE COURSES IN A TERM.

FIRST TERM	SECOND TERM	THIRD TERM	FOURTH TERM	FIFTH TERM	SIXTH TERM
P.A.-I 0+2	P.A.-II 0+2	P.A.-III 0+2	P.A.-IV 0+2	P.A.-V 0+2	P.A.-VI 0+2

*Industrial training is to be offered in fifth term for three consecutive weeks. Timetable of V term should be so arranged, that designed teaching of 16 weeks per term is managed within 13 weeks, by proportionate increase in study hours per week of the individual course.

TOTAL CREDITS OF THE PROGRAMME = 38+19+07+37+45+09= 155

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

Programme Name : Three years Diploma in Computer Science and Engineering

Name of scheme: Dip.CS_JULY 2002

Implemented from Session 2002-2003

Scheme of Studies and Examinations for: FIRST SEMESTER

C O U R S E C O D E	COURSE TITLE	PAPER CODE	THEORY COMPONENT				PRACTICAL COMPONENT				T O T A L			
			CONTINUOUS EVALUATION		END OF THE TERM / SEMESTER EVALUATION		CONTINUOUS EVALUATION		END OF THE TERM/ SEMESTER EVALUATION			T O T A L		
			LECT- URES Hrs. PER WEEK	TERM WORK	PROG- RESSIVE TESTS (TWO)	THEORY PAPER		LAB. WORK	PRACICAL/ ORAL EXAMINATION (VIVA)	NO MARKS			DURA- TION (Hrs.)	
						NO.	MARKS					DUR- ATION (Hrs.)		MARKS
CS-101	COMMUNICATION SKILL	0014	4	20	10	10	1	100	3	-	-	-	-	140
CS-102	APPLIED SCIENCE (PHYSICS + CHEMISTRY)	2051	4+4	20	10	10	1	100	3	30	1	50	3	80
CS-103	INTRODUCTION TO PERSONAL COMPUTERS	5001	4	20	10	10	1	100	3	30	1	50	3	80
CS-104	P.C. UTILITIES & OPERATING ENVIRONMENT	5002	2	20	10	10	1	100	3	50	1	50	3	220
CS-105	PROFESSIONAL ACTIVITIES (P.A.)	-	-	-	-	-	-	-	-	-	-	-	-	100
TOTAL			18	80	40	40	4	400	-	140	4	200	-	340
GRADE TO BE AWARDED											GRAND TOTAL ▲			

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

Implemented from Session 2002-2003

Programme Name : Three years Diploma in Computer Science and Engineering

Name of scheme: Dip.CS_JULY 2002

Scheme of Studies and Examinations for: **SECOND SEMESTER**

C O U R S E C O D E	COURSE TITLE	PAPER CODE	THEORY COMPONENT				PRACTICAL COMPONENT				T O T A L						
			LECT- URES	CONTINUOUS EVALUATION		END OF THE TERM/ SEMESTER EVALUATION		P R A C T I C A L Hrs. Per Week	CONTINUOUS EVALUATION			END OF THE TERM/ SEMESTER EVALUATION	T O T A L				
				Hrs. PER WEEK	TERM WORK	PROG- RESSIVE TESTS (TWO)	NO.		MARKS	DUR- ATION (Hrs.)				LAB. WORK	NO	MARKS	DURA- TION (Hrs.)
CS-201	APPLIED MATHS	0010	4	20	10	10	1	100	3	-	-	-	-	-	-	140	
CS-202	DIGITAL ELECTRONICS	5066	3	20	10	10	1	100	3	25	25	1	50	3	75	215	
CS-203	BASIC PROGRAMMING IN 'C'	5005	4	20	10	10	1	100	3	25	25	1	50	3	75	215	
CS-204	BASIC ELECTRICAL, ELECTRONICS AND MEASUREMENT	5006	4	20	10	10	1	100	3	25	25	1	50	3	75	215	
CS-205	ELECTRONICS WORKSHOP PRACTICE	-	1	-	-	-	-	-	-	4	25	1	50	3	75	75	
CS-206	PROFESSIONAL ACTIVITIES (P.A.)	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	
TOTAL			16	80	40	40	4	400	-	560	16	100	4	200	-	300	860
											GRAND TOTAL ▲						

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

Programme Name : Three years Diploma in Computer Science and Engineering

Name of scheme: Dip.CS_JULY 2002

Implemented from Session 2003-2004

Scheme of Studies and Examinations for: THIRD SEMESTER

C O U R S E C O D E	COURSE TITLE	PAPER CODE	THEORY COMPONENT				PRACTICAL COMPONENT				T O T A L						
			LECT- URES PER WEEK	CONTINUOUS EVALUATION		END OF THE TERM/ SEMESTER EVALUATION		P R A C T I C A L Hrs. Per Week	CONTINUOUS EVALUATION			END OF THE TERM/ SEMESTER EVALUATION					
				TERM WORK	PROG- RESSIVE TESTS (TWO)	NO.	MARKS		DUR- ATION (Hrs.)	LAB. WORK		PRACICAL/ ORAL EXAMINATION (VIVA)	NO MARES	DURA- TION (Hrs.)			
															I	II	T O T A L
CS-301	MATHEMATICAL FOUNDATION FOR COMPUTERS	5007	4	20	10	10	1	100	3	140	-	-	-	-	140		
CS-302	DATA STRUCTURE AND ALGORITHMS	5067	4	20	10	10	1	100	3	140	2	25	1	50	3	75	215
CS-303	DATA COMMUNICATION	5013	4	20	10	10	1	100	3	140	2	25	1	50	3	75	215
CS-304	MICROPROCESSOR & INTERFACES	5068	4	20	10	10	1	100	3	140	4	25	1	50	3	75	215
CS-305	GOOP'S TECHNIQUES USING C++	5011	3	20	10	10	1	100	3	140	4	50	1	50	3	100	240
CS-306	SOFTWARE ENGG.	5069	3	20	10	10	1	100	3	140	-	-	-	-	-	-	140
CS-307	PROFESSIONAL ACTIVITIES (PA)	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	140
TOTAL			22	120	60	60	6	600	-	840	14	125	4	200	-	325	1165

GRAND TOTAL ▲

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

Programme Name : Three years Diploma in Computer Science and Engineering

Name of scheme: Dp.CS JULY 2002

Implemented from Session 2003-2004

Scheme of Studies and Examinations for: **FOURTH SEMESTER**

COURSE CODE	COURSE TITLE	PAPER CODE	THEORY COMPONENT				PRACTICAL COMPONENT				TOTAL						
			LICT-URES PER WEEK	CONTINUOUS EVALUATION		END OF THE TERM / SEMESTER EVALUATION THEORY PAPER	P R A C T I C A L	CONTINUOUS EVALUATION	END OF THE TERM/ SEMESTER EVALUATION	T O T A L							
				TERM WORK	PROG-RESSIVE TESTS (TWO)							NO.	MARKS	DUR-ATION (Hrs)	NO	MARKS	DURA-TION (Hrs.)
CS-401	OPERATING SYSTEMS	5008	4	20	10	10	1	100	3	140	2	25	1	50	3	75	215
CS-402	COMPUTER ARCHITECTURE	5070	4	20	10	10	1	100	3	140	-	-	-	-	-	-	140
CS-403	DATA BASE MANAGEMENT SYSTEMS	5071	4	20	10	10	1	100	3	140	4	25	1	50	3	75	215
CS-404	MINOR PROJECT	-	1	-	-	-	-	-	-	-	4	25	1	50	3	75	75
-	ELEC-FIVE-I (SELECT ONE)	-	3	20	10	10	1	100	3	140	-	-	-	-	-	-	140
-	ELECTIVE-II (SELECT ONE)	-	3	20	10	10	1	100	3	140	2	25	1	50	3	75	215
CS-430	PROFESSIONAL ACTIVITIES (P.A.)	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
TOTAL			19	160	50	50	5	500	-	700	14	100	4	200	-	300	1600

ELECTIVE-I (SELECT ONE)
 CS-411 ENVIRONMENTAL ENGG. (0262)
 CS-412 MARKETING MANAGEMENT (0269)
 CS-413 ENTREPRENEURSHIP (0271)
 CS-414 OFFICE MANAGEMENT (5017)
 CS-415 TOTAL QUALITY MANAGEMENT (5018)

ELECTIVE-II (SELECT ONE)
 CS-421 INTERNET & WEB TECHNOLOGY (5010)
 CS-422 COMPUTERISED FINANCIAL ACCOUNTING (5016)
 CS-423 OFFICE AUTOMATION (5003)

GRAND TOTAL ▲

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL.

Programme Name : Three years Diploma in Computer Science and Engineering

Name of scheme: Dip.C's JULY 2002

Implemented from Session 2004-2005

Scheme of Studies and Examinations for: **FIFTH SEMESTER (Duration: 13 weeks for class room instructions and 03 weeks for Industrial Training)**

C O U R S E	COURSE TITLE	PAPER CODE	THEORY COMPONENT				PRACTICAL COMPONENT				T O T A L					
			LICT- URES PER WEEK	CONTINUOUS EVALUATION	END OF THE TERM / SEMESTER EVALUATION		P R A C T I C A L	CONTINUOUS EVALUATION	END OF THE TERM/ SEMESTER EVALUATION							
					TERM WORK	PROG- RESSIVE TESTS (TWO)			NO.	MARKS		DUR- ATION (Hrs)	M A R K S	Hrs. Per Week		
															THEORY PAPER	
I	II			100	MARKE 100H (Hrs)											
CS-501	BUSINESS COMMUNICATION	5022	3	20	10	10	100	3	140	1	25	1	50	3	75	215
CS-502	JAVA PROGRAMMING	5019	4	20	10	10	100	3	140	7	25	1	50	3	75	215
CS-503	HARDWARE INSTALLATION AND MAINTENANCE	5072	2	20	10	10	100	3	140	4	25	1	50	3	75	215
CS-504	COMPUTER NETWORKS	5073	5	20	10	10	100	3	140	3	25	1	30	3	75	215
CS-505	INDUSTRIAL MANAGEMENT	0362	5	20	10	10	100	3	140	-	-	-	-	-	-	140
CS-506	INDUSTRIAL TRAINING (THREE WEEKS)	-	-	-	-	-	-	-	-	-	50	1	50*	3	100	100
CS-507	PROFESSIONAL ACTIVITIES (P.A.)	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
TOTAL			19	100	50	50	500	-	700	17	150	3	750	-	400	1700
											GRADE TO BE AWARDED				GRADE TOTAL ▲	

*Passing marks:50%

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

Implemented from Session 2004-2005

Programme Name : Three years Diploma in Computer Science and Engineering

Name of scheme: Dip-CS_JULY 2002

Scheme of Studies and Examinations for: **SIXTH SEMESTER**

COURSE CODE	COURSE TITLE	PAPER CODE	THEORY COMPONENT				PRACTICAL COMPONENT				T O T A L				
			LECT-URES PER WEEK	CONTINUOUS EVALUATION		END OF THE TERM / SEMESTER EVALUATION		P R A C T I C A L Hrs. Per Week	CONTINUOUS EVALUATION	END OF THE TERM/ SEMESTER EVALUATION		T O T A L			
				TERM WORK	PROG-RESSIVE TESTS (TWO)	THEORY PAPER				PRACTICAL/ ORAL EXAMINATION (VIVA)			NO	MARKS	DUR-ATION (Hrs.)
						NO.	MARKS								
CS-601	GRAPHICS AND MULTIMEDIA	5023	4	20	10	10	1	100	3	25	1	50	3	75	215
CS-602	LINUX	5074	3	20	10	10	1	100	3	25	1	50	3	75	215
CS-603	MANAGING INFORMATION TECHNOLOGY	5075	3	20	10	10	1	100	3	-	-	-	-	-	140
CS-604	MAJOR PROJECT	-	1	-	-	-	-	-	-	50	1	50	3	100	100
-	ELECTIVE-III (SELECT ONE)	-	3	20	10	10	1	100	3	25	1	50	3	75	215
-	ELECTIVE-IV (SELECT ONE)	-	4	20	10	10	1	100	3	25	1	50	3	75	215
CS-630	PROFESSIONAL ACTIVITIES (PA)	-	-	-	-	-	-	-	-	150	5	250	-	400	1100
TOTAL			18	100	50	50	5	500	-	700	17	250	-	400	1100

GRADE TO BE AWARDED

GRAND TOTAL ▲

ELECTIVE-III (SELECT ONE)
 CS-611 ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS (5076)
 CS-612 UNIX AND SHELL PROGRAMMING (5028)
 CS-613 E-COMMERCE (5025)

ELECTIVE-IV (SELECT ONE)
 CS-621 DISTRIBUTED SYSTEM (5021)
 CS-622 ADVANCED COMPUTER ARCHITECTURE (5077)
 CS-623 ADVANCED WEB TECHNOLOGY (5078)
 CS-624 VISUAL & WINDOWS API PROGRAMMING (VB) (5079) 3+3

4+2

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

ANALYTICAL DATA ABOUT CURRICULUM OF DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

(Name of scheme: Dip.CS_JULY 2002, SYSTEM: Semester, Implemented from Session: 2002-2003)

A). DISTRIBUTION OF MARKS:

S. No.	SEMESTER	TOTAL OF PRACTICAL COMPONENT										CONTINUOUS EVALUATION (1)+(2)+(5)+(8)	END OF THE SEM. EVALUATION (3)+(6)+(9)=	% RATIO OF THEORY (4): PRACTICAL (7+8+9)=	% RATIO OF CONT. EVALN. (10) : THE END OF THE SEM. EVALN. (11)	
		THEORY COMPONENT			PRACTICAL COMPONENT			INDUSTRIAL TRAINING								
		CONTINUOUS EVALUATION	END OF THE TERM/ SEMESTER EVALUATION	TOTAL	CONTINUOUS EVALUATION	END OF THE TERM/ SEMESTER EVALUATION	TOTAL	CONTINUOUS EVALUATION	END OF THE TERM/ SEM. EVALUATION	LAB WORK	END OF THE TERM/ SEM. EVALUATION					
		PROGRESSIVE TESTS Passing marks: nil	SESSIONAL MARKS Passing marks: 60%	THEORY PAPER Passing marks: 33%	LAB WORK Passing marks: 60%	PRACTICAL / ORAL EXAMINATION Passing marks: 40%	LAB WORK Passing marks: 60%	PRACTICAL / ORAL EXAMINATION Passing marks: 50%								
1.	FIRST	80	80	400	140	200	340	-	-	300	600	300	62:38	33:67		
2.	SECOND	80	80	400	100	200	300	-	-	260	600	260	55:35	30:70		
3.	THIRD	120	120	600	125	200	325	-	-	365	800	365	72:28	31:69		
4.	FOURTH	100	100	500	100	200	300	-	-	300	700	300	70:30	30:70		
5.	FIFTH	100	100	500	150	250	400	50	50	350	750	350	64:36	32:68		
6.	SIXTH	100	100	500	150	250	400	50	50	350	750	350	64:36	32:68		
	TOTAL	580	580	2900	715	1250	1965	50	50	1925	4200	1925	66:34	31:69		

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B). DISTRIBUTION OF TIME PER WEEK:

S. No.	Semester	THEORY	PRACTICAL	PROFESSIONAL ACTIVITIES #	INDUSTRIAL TRAINING	TOTAL	PERCENTAGE WISE DISRIBUTION OF THEORY (1) & PRACTICAL (2+3+4)
		(1)	(2)	(3)	(4)	(5)	(6)
1.	FIRST	18	14	02	-	34	53:47
2.	SECOND	16	14	02	-	32	50:50
3.	THIRD	22	12	02	-	36	61:39
4.	FOURTH	19	12	02	-	33	58:42
5.	FIFTH+	15	12	02	9	38	41:59
6.	SIXTH	18	15	02	-	35	51:49
	TOTAL	108	79	12	9	208	52:48

+Fifth semester is of 13 weeks duration in the institution and three weeks for industrial training, which is to be offered at a stretch.

#Two hours per week per semester, therefore total 12 hours for six semester in a regular Diploma programme of three years duration.

C). AWARD OF DIVISION IN FINAL DIPLOMA:

i. TOTAL OF FIFTH SEMESTER MARKS : 1100
 TOTAL OF SIXTH SEMESTER MARKS : 1100
 GRAND TOTAL : 2200

ii. GRADES OF PROFESSIONAL ACTIVITIES : Best of the two grades obtained in P.A. of fifth and sixth semester

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA BHOPAL

EQUIVALENCY CHART FOR COURSES OF DIPLOMA PROGRAMME IN COMPUTER SCIENCE AND ENGG.

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COURSE CODE: C04- COMPUTER SCIENCE

SYSTEM: SEMESTER

<u>COURSES IN REVISED SCHEME</u>		<u>EQUIVALENT COURSES IN SCHEME (Dip.CS JULY2002)</u>
NAME OF SUBJECT	PAPER CODE	
1st SEM REVISED		1st SEM. Dip.CS_JULY 2002
Applied Physics	0008	} APPLIED SCIENCE (2051)
Applied Chemistry	0015	
Communication Skill - I	0014	
Workshop practice		
2nd SEM REVISED		2nd SEM Dip.CS_JULY 2002
Applied Mechanics	0012	NE
Applied Mathematics - I	0010	APPLIED MATHS (0010)
Basic Engg. Drawing	0011	NE
Introduction to Computers	0013	INTRODUCTION TO PC (5001)
3rd SEM REVISED		3rd SEM Dip.CS_JULY 2002
Communication Skill - II	0021	NE
Computer Maths	1214	MATHEMATICAL FOUNDATION FOR COMPUTERS (5007)
Basic Electronics & Circuits	1215	BASIC ELECTRICAL, ELECTRONICS AND MEASUREMENT (5006)
Programming In Pascal	1216	NE
Digital Electronics	1217	DIGITAL ELECTRONICS (5066)
4th SEM REVISED		4th SEM Dip.CS_JULY 2002
Computer Architecture	1219 ✓	COMPUTER ARCHITECTURE (5077)
Microprocessor & Applications	1218	NE
Data Structure And Algorithms	1220	DATA STRUCTURE AND ALGORITHMS (5067)
PC Software	1221	NE
Minor Project		MINOR PROJECT
5th SEM REVISED		5th SEM Dip.CS_JULY 2002
System Analysis & Information System	1222	NE
Computer Communication And Networking	1224	DATA COMMUNICATION (5013)
Database Management System	1223	DATA BASE MANGEMENT SYTEMS (5071)
Programming - II	1225	BASIC PROGRAMMING IN 'C' (5005)
6th SEM REVISED		6th SEM Dip.CS_JULY 2002
Computer Aided Drafting	1226	NE
Operating System	1227	NE
Hardware Engineering	1228	HARDWARE INSTALLATION AND MAINTENANCE (5072)
Major Project		MAJOR PROJECT

NE- Not Equivalent

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CURRICULUM
FOR
DIPLOMA IN COMPUTER SCIENCE
AND ENGINEERING

(FIRST SEMESTER)

Scheme: Dip.CS_JULY2002

Implemented from session 2002-2003

Under semester system

JULY 2002

CURRICULUM DEVELOPMENT CENTRE
RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

36/25

SEMESTER: **FIRST**
COURSE CODE: **101**
NAME OF COURSE: **COMMUNICATION SKILL**

SCHEME: **Dip. CS JULY 2002**
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 & OTHERS
PAPER CODE: **0014**

RATIONALE

English occupies an important place in our curriculum. Besides functioning as one of the important library languages in India, it acts as a window to technical and scientific knowledge. After obtaining their Diploma and while in job they have to communicate with personnel belonging to different hierarchy. Therefore, acquiring proficiency in the language for effective communication is absolutely essential. Emphasis is being laid on the development of communication skills among the students.

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SEMESTER: FIRST
COURSE CODE: 101
NAME OF COURSE: COMMUNICATION SKILL

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 & OTHERS
PAPER CODE: 0014

Lectures: 4 Hrs. per Week

SKILLS TO BE DEVELOPED

(A) WRITING: -

- (a) Understand & use the vocabulary items of general use besides words from the register of physical and social sciences.
- (b) Given a passage use substitutes for identified words and expressions in an appropriate manner.
- (c) Ensure that the intended communication through a written passage occurs in practice.
- (d) Express ideas contained in the prescribed units.
- (e) Write both guided and free compositions based on the prescribed text.
- (f) Construct grammatically correct sentences in English.
- (g) Express ideas contained in passages outside the text.
- (h) Write paragraphs on topics of general interest like – Day to day happenings; Match that you have seen; Scene in a railway compartment; Picnic; Your parents' etc.

Paragraphs should be of descriptive nature avoiding those on abstract topics / proverbs.

(B) READING: -

- (a) Develop the ability to read silently as well as aloud.
- (b) Involve students in reading paragraphs from the prescribed text.
- (c) Recognize main ideas, supporting details, sequence of events and causal relationship.
- (d) Develop competence and habit of using dictionaries and other reference books.

(C) LISTENING: -

- (a) Ability to follow spoken instructions.
- (b) Develop competence in taking notes while listening.
- (c) Ability to listen to news bulletins – Radio, Doordarshan, B.B.C.

SEMESTER: FIRST
COURSE CODE: 101
NAME OF COURSE: COMMUNICATION SKILL

SCHEME: Dip. CS JULY 2002
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 & OTHERS
PAPER CODE: 0014

Lectures: 4 Hrs. per Week

(D) SPEAKING:

- (a) Develop the ability of Speaking in the class.
- (b) Develop the ability to ask pertinent questions as well as to answer them.
- (c) Develop the ability to assert one's point of view.
- (d) Develop the ability to use conversational skills in situations like;
 - (i) Introduction/Greetings.
 - (ii) Seeking/giving information.
 - (iii) Discussing weather.
 - (iv) Asking about arrivals/departure of trains.
 - (v) Making enquiries about health.
 - (vi) Making enquiries about market places/banks/ any other public places.
 - (vii) In order to develop the above, the following components of spoken English may be included.
 - Short answer; additions to remarks; agreement/disagreement with remarks;
 - question/tags; simple pr/pr. perfect; question words; phrasal verbs.

SEMESTER: FIRST
 COURSE CODE: 101
 NAME OF COURSE: COMMUNICATION SKILL

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 C03, M02, E01, I04 & OTHERS
 PAPER CODE: 0014

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SCHEME OF STUDIES

Lectures: 4 Hrs. per Week

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
	Section A			
1.	The Text			
	Part -I - Passages for comprehension	21	-	21
	Part -II - Short Stories.	11	-	11
	Part -III - Applied Grammar	16	-	16
	Section B			
2.	(a) Paragraph writing on topics of general interest.	8	-	8
	(b) Unseen passage.	8	-	8
	Total	64	-	64

NOTE: For spoken English integrated approach may be adopted.

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: **FIRST**
 COURSE CODE: **101**
 NAME OF COURSE: **COMMUNICATION SKILL**

SCHEME: **Dip. CS_JULY 2002**
 COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 & OTHERS
 PAPER CODE: **0014**

COURSE CONTENT

Lectures: **4 Hrs. per Week**

SECTION –A

S.No.	Detailed Course Content	Hours of study
	PART – I	
	PASSAGES FOR COMPREHENSION.	21
1.	Language of science.	
2.	My Thousandth Goal.	
3.	Rip Van winkle Comes to Tour.	
4.	Robotic Revolution.	
5.	Nondestructive Testing.	
6.	Designing a car.	
7.	The wonders of camera.	
8.	Desalination or Desalting process.	
9.	Non-conventional sources of Energy*.	
10.	Our Environment*.	
11.	Entrepreneurship*.	
12.	Safety*.	
	* Units against which asterisk marks have been made may be taught to students of II year Diploma in Engineering.	
	PART –II	
	SHORT STORIES	11
	(1) Selfish Giant – Oscar Wild.	
	(2) A letter to God – Gregario Lopex Y. Fuentes.	
	(3) An Astrologer's Day – R.K. Narayan.	
	(4) The Last Leaf – O' Henry.	
	(5) The Malefactor – Anton Chekov.	

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: **FIRST**
 COURSE CODE: **101**
 NAME OF COURSE: **COMMUNICATION SKILL**

SCHEME: **Dip. CS_JULY 2002**
 COMMON WITH PROGRAMME (S):
 C03, M02, E01, I04 & OTHERS
 PAPER CODE: **0014**

COURSE CONTENT

Lectures: **4 Hrs.** per Week

S.No.	Detailed Course Content	Hours of study
	PART – III APPLIED GRAMMAR.	16
1.	Determiners.	
2.	Auxiliaries.	
3.	Tenses.	
4.	Conditionals.	
5.	Passive.	
6.	Infinitives.	
7.	Modifiers.	
8.	Prepositions.	
9.	Subject – Verb Agreement.	
10.	Clauses & connectors.	
	SECTION – B Besides the topics included in the textbook, the course includes paragraph writing on topics of general interest and unseen passages.	8+8

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FIRST
 COURSE CODE: 101
 NAME OF COURSE: COMMUNICATION SKILL

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 C03, M02, E01, I04 & OTHERS
 PAPER CODE: 0014

SCHEME OF ASSESSMENT

Lectures: 4 Hrs. per Week

S.No.	Topic/Sub-Topics.	Distribution of marks
1.	Paragraph Writing on topics of general interest.	10
2.	Unseen Passages.	08
3.	The Text.	
	A Passages.	
	(a) One - word	08
	(b) Fill in the blanks with appropriate forms of listed words.	04
	(c) Single sentence answers.	12
	(d) Answers in 5-6 lines.	08
	(e) Essay type/Guided Comp.	10
	B. Short Stories.	
	(a) Answers in 5-6 lines.	06
	(b) Composition type.	09
	C. Applied Grammar.	25
	Total	100

RECOMMENDATIONS FOR AWARDING SESSIONAL MARKS:

In order to make the implementation of spoken English meaningful, the sessional marks of Comm. Skill be awarded as follows:

Term Work - 10 Marks.
 Testing of Spoken skills - 10 Marks.

SEMESTER: FIRST
COURSE CODE: 101
NAME OF COURSE: **COMMUNICATION SKILL**

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 & OTHERS
PAPER CODE: 0014

REFERENCES

- I. Communication Skills for Technical Students Book-I, M/s Somaiya Publications, Pvt.Ltd., Marathi Granth Sangrahalaya Marg, Dadar, Bombay.
- II. Living English structure, Allen.
- III. Practical English Grammar (Exercises I), Thomson & Martinet.
- IV. English Conversation Practice, Grant Taylor.

SEMESTER: FIRST
COURSE CODE: 102
NAME OF COURSE: APPLIED SCIENCE
(PHYSICS+CHEMISTRY)

SCHEME: Dip. CS JULY 2002
COMMON WITH PROGRAMME (S):
P05, I04
PAPER CODE: 2051

RATIONALE
(APPLIED PHYSICS)

Physics forms a foundation for all engineering courses. The syllabus in applied physics for the students of first year of three years Diploma programme in Information Technology has been developed to attain the following objectives

- To develop habit of Scientific enquiry
 - To understand basic phenomena of physics which are used in engineering.
 - To comprehend the required pre-requisite knowledge for technical subjects.
- The different topics in physics for the course have been identified on the following basis.
- (a) The attained level of students in physics at entry level in this course.
 - (b) Reference to various subjects of Production Engg.
 - (c) Continuity of sequence for logical development of the course.

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: **FIRST**
 COURSE CODE: **102**
 NAME OF COURSE: **APPLIED SCIENCE**
(PHYSICS+CHEMISTRY)

SCHEME: **Dip. CS_JULY 2002**
 COMMON WITH PROGRAMME (S):
 P05, I04
 PAPER CODE: **2051**

SCHEME OF STUDIES

(APPLIED PHYSICS)

S. NO.	TOPIC	SCHEME OF STUDIES	
		Hrs. of Study	
		Theory	Practical
1	S.I. Units	2	10
2	Motion	5	
3	Physics of fluids	8	
4	Simple Harmonic motion and waves	2	
5	Ultrasonics	2	
6	Heat and internal energy	3	6
7	Expansion of solids, liquids and gases	3	
8	Heat and work	3	
9	Measurement of high temperature	5	
10	Reflection of light at plane and spherical surface	5	10
11	Refraction of light at plane and spherical surface	5	
12	Dispersion of light	5	
13	Natural and artificial magnets, Electromagnet	7	6
14	Modern physics: Radio Activity Photoelectric Effect, x-rays, Laser	9	
	Total	64	32

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SEMESTER: FIRST
 COURSE CODE: 102
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 (PHYSICS+CHEMISTRY)

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):
 P05, 104
 PAPER CODE: 2051

COURSE CONTENT

S. No.	Detailed Course Content	Intended Learning Objectives	Hours of study
1.	<p>SI UNITS AND MEASUREMENTS</p> <ul style="list-style-type: none"> -Fundamental units -Derived units -SI units and their importance and notation -Measurement of length <p>-Principle of</p> <ol style="list-style-type: none"> a. Vernier b. Micrometer screw gauge c. Spherometer <p>-Measurement of mass, use of physical balance.</p> <p>-Measurement of time with stopwatch, electronic watches and atomic clock.</p>	<p>Understand units systems</p> <ul style="list-style-type: none"> -Define fundamental units. -Derive units for simple physical quantities. -State base S.I. units. <p>Know how to use the vernier micrometer, screw gauge and spherometer for taking measurements</p> <ul style="list-style-type: none"> -Explain importance of SI units. -Indicate symbols for important physical quantities and their SI units. -Define least count. -Calculate least count of a given vernier, micrometer, screw gauge and spherometer. -Measure dimensions accurately using the above (Relevant laboratory work to be incorporated) <p>Understand how to use physical balance.</p> <ul style="list-style-type: none"> -Explain the method of using physical balance. -Measure mass using a physical balance. <p>Understand the use of different devices for the measurement of time.</p> <ul style="list-style-type: none"> -Enumerate the time measuring devices. -Measure time durations with stop watch (time of rotation, time period of a plumb bob etc.) (Relevant laboratory experiment should be designed) 	2
2.	<p>MOTION</p> <ul style="list-style-type: none"> -Linear motion -Speed, velocity, acceleration. 	<p>Understand the concept related with linear motion</p> <ul style="list-style-type: none"> -Define velocities and acceleration. -Differentiate between velocity and speed. -Sketch time displacement and time speed graphs. -State equation of motion. -Apply equation of motion in solving numerical problems. -Solve simple problems of motion under gravity. <p>Understand the concept of mass, weight and weightlessness (State condition for weightlessness).</p> <ul style="list-style-type: none"> -Differentiate between mass and weight. -Explain apparent increase and decrease in weight in a moving lift. 	5
2.1	<p>Linear motion</p> <ul style="list-style-type: none"> -Speed time graph -Displacement-time graph -Equations of motion -Laws of motion -Motion under gravity. -Concept of mass, weight and weightlessness. 		
2.2	<p>Circular motion</p> <ul style="list-style-type: none"> -Motion of a particle on the circle with constant speed 	<p>Understand the concepts related with circular motion</p> <ul style="list-style-type: none"> -Define angular velocity and angular acceleration. 	

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S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
2.3	<ul style="list-style-type: none"> -Angular velocity and angular acceleration -Relation between linear and angular velocities -Centripetal and centrifugal forces -Relation between degrees and radians <p>Rotary motion</p> <ul style="list-style-type: none"> -Axis of rotation -Moment of inertia -Radius of gyration -Kinetic energy of rotation 	<ul style="list-style-type: none"> -State relation between linear velocity and angular velocity -Define centrifugal and centripetal forces and indicate their points of application -Relate time period with frequency. -Derive relation between degrees and radians. <p>Understand the concept of rotary motion</p> <ul style="list-style-type: none"> -Define axis of rotation. -Explain the phenomena of separation of liquids of different densities by rotation method. -Justify the position of mudguard on cycle wheels. -Define radius of gyration. -Derive an equation for K.E. of a rotating body. --Compare mass in translational motion with M.I. in rotational motion. 	
3	<p>PHYSICS OF FLUIDS</p> <ul style="list-style-type: none"> -Buoyancy Archimede's Principle -Laws of floatation 	<ul style="list-style-type: none"> -Understand the concept of buoyancy and Archimede's principle. -Define Buoyancy -State Archimede's Principle. -Verify Archimede's Principle experimentally. <p>Understand the laws of floatation</p> <ul style="list-style-type: none"> -State laws of floatation -Enumerate practical applications of this phenomenon. -Explain why iron piece dips in water while it floats in mercury. -Explain underlying principle of swimming. 	8

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S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
3.1	<p>Uphrust</p> <ul style="list-style-type: none"> -Pressure in liquids Pascal's law, -Hydraulic jacks 	<p>Understand Pascal's law</p> <ul style="list-style-type: none"> -State Pascal's law -Prove Pascal's law (Relevant laboratory experiments). -Differentiate between laboratory pressure and force, experiment. -Explain the working of Bramah's hydraulic press. 	2
3.2	<p>Atmosphere</p> <ul style="list-style-type: none"> -Pressure of fluids -Atmospheric pressure its units and measurement in terms of height of mercury column (simple Barometer) -Atmospheric pressure and altitude -Manometer -Pressure gauge 	<p>Understand the principle of barometer</p> <ul style="list-style-type: none"> -Explains the reason for about 70- 75 cms. height of mercury column in a simple barometer. -Give reason for change in barometer Pressures at different altitude. <p>Understand the reasons for using mercury in barometer.</p> <ul style="list-style-type: none"> -Explain why mercury is used as barometric substance -Estimate length of the glass tube required, if water is taken in place of Hg. -Measure absolute pressure and pressure difference. <p>Understand the working of pressure gauge.</p> <ul style="list-style-type: none"> -Describe the construction of pressure gauge -Explain working of pressure gauge -List at least five situation where pressure gauges are used. 	1

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S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
3.3	<p>Surface Tension</p> <ul style="list-style-type: none"> -Molecular force, cohesive and adhesive force -Definition of surface tension -Surface Energy -Examples showing existence of surface tension -Convex and concave meniscus of liquids -Angle of contact -Relation between surface tension and capillary rise. -Factors that affects surface tension. 	<p>Understand the concept of surface tension.</p> <ul style="list-style-type: none"> -Define cohesive and adhesive force -Explain why free surface of a liquid behaves like a stretched membrane. -Define surface tension and indicate its direction. -Define angle of contact <p>Understand the relation between surface tension and capillary rise.</p> <ul style="list-style-type: none"> -Derive relation between surface tension and capillary rise. -Give examples of existence of surface tension. -Explain the phenomenon of formation of droplets of water -Give reason why surface tension decreases with temperature -State factors, which affect capillary rise. -Sketch angles of contact for concave and convex meniscus -Sketch angles of contact for concave and convex meniscus -Determine surface tension by capillary rise method. -State how is the knowledge of surface tension helpful in practical life & engineering situations. 	

S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
3.4	<p>Viscosity</p> <ul style="list-style-type: none"> - Streamline and Turbulent flow -Velocity gradient -Viscous drag and coefficient of viscosity -Stokes law (statement) -Flow of liquids through narrow tubes. Poiseuille's law -Method for determining of coefficient of viscosity 	<p>Understand the concept of viscosity</p> <p>Differentiate between streamline and Turbulent flow.</p> <ul style="list-style-type: none"> -Define Velocity gradient -Derive relation for coefficient of viscosity <p>Understand Stokes law</p> <ul style="list-style-type: none"> -Give the statement of Stokes law -Define coefficient of viscosity -State Stoke formula and explain its notations <p>Know the method of determining coefficient of viscosity (Relevant experiment)</p> <ul style="list-style-type: none"> -Explain method of experimental determination of coefficient of viscosity <p>Understand effect of pressure and temperature on coefficient of viscosity.</p> <ul style="list-style-type: none"> -State effect of pressure and temperature on coefficient of viscosity -Describe the application of knowledge of viscosity. 	
4.	<p>SIMPLE HARMONIC MOTION AND WAVES</p> <ul style="list-style-type: none"> -Periodic motion -Simple Harmonic motion as a projection of uniform circular motion -Characteristics of S.H.M. -Definition of time period, amplitude and frequency. -Examples of simple pendulum, loaded springs, stretched strings . Waves on the surface of water and sound waves. -Longitudinal and transverse waves mechanism of wave propagation. -Knowledge of reflection, refraction, interference and diffraction of sound waves 	<p>Understand the characteristics of S.H.M. and its importance.</p> <ul style="list-style-type: none"> -Define S.H.M. and -State its importance -Define phase, amplitude and frequency -State characteristics of S.H.M. -State & use relation between time, length & gravity (giving time period for a pendulum bob) <p>Understand principle of formation of transverse and longitudinal waves. (Develop the topic treatment to explain the same for high waves also)</p> <ul style="list-style-type: none"> -Explain formation of transverse waves on the surface of water. 	2

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S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
		<ul style="list-style-type: none"> -Explain formation of longitudinal waves in air. -Differentiate movement of medium in two types of waves -Derive relation $V = n(\lambda)$ -Explain that it is the disturbance, which is transmitted, not the medium from one place to other. Understand the phenomena of reflection, refraction, interference and diffraction in case of sound, light and x-rays. -Explain qualitatively the existence of reflection, refraction, interference and diffraction of sound. -Predict the same effect for light and x-rays due to their wave nature 	
5.	ULTRASONICS -Audible frequencies, infrasonic and Ultrasonic -Production of ultrasonic waves magnetosriction and Piezo electric generators. -Uses of ultrasonics in industry Especially in cold welding, drilling and etching, aluminium welding, cleaning of narrow slots, measuring small thickness etc.	Know about ultrasonic waves and its uses in the engineering field. -State audible range of sound -Define ultrasonic waves -Explain production of ultrasonics -State applications of ultrasonics -State its importance in non-destructive testing.	2
6.	HEAT AND INTERNAL ENERGY -Concept of heat as molecular motion -Heat capacity and specific heat -Calorimetry -Latent heat	Understand the concepts related with heat energy. -Explain that heating increases internal energy of molecules -Relate temperature with heat energy -Define specific heat and thermal capacity -etc.	3

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S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
		know to find out heat lost or gained during a process -Calculate heat lost and heat gained -Explain change of state due to heat energy. -Define the term latent heat -Calculate latent heat quantity in transformation of state of water -Practical use of latent heat information. -State that quantity of heat is measured by calorimetry etc.	
7.	EXPANSION OF SOLIDS, LIQUIDS AND GASES -Definitions of coefficients of linear and volume expansions. Real and apparent expansions of liquids. -Anomalous expansion of water -Boyle's law and Charle's law -Standard temperature and pressure	-Define coeff. of linear and volume expansion -Differentiate between real and apparent expansion of liquids Know about changes in size due to application of heat. -Appreciate the anomaly in expansion of water as a boon of nature. Understand Boyle's and Charle's law. -State Boyle's law and Charle's law. -Define standard temperature & pressure -State how knowledge of standard temperature and pressure is useful in engineering situation.	3
8.	HEAT AND WORK -First law of thermodynamics -Mechanical equivalent of heat -Specific heat of gases -Relation ($CP-CV=R/J$) -Isothermal and adiabatic changes	Understand first law of thermodynamics -Explain the relation between work and heat energy -Define mechanical equivalent of heat Justify two specific heats of gases. -Name two specific heats of gases -Give reason for two specific heats of gases. -Describe why specific heat at constant pressure is more.	3

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S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
9.	<p>MEASUREMENT OF HIGH TEMPERATURE</p> <ul style="list-style-type: none"> -Gas thermometer -Platinum resistance thermometer -Seeback effect and thermoelectric thermometer thermocouple. Thermopile -Optical pyrometer -Comparative study for range and accuracy of above thermometers 	<p>Know about isothermal and adiabatic changes.</p> <ul style="list-style-type: none"> -Distinguish between isothermal and adiabatic changes. -State engineering applications where concept of C_p, C_v, adiabatic & isothermal expansion are used to understand underlying phenomena. <p>Know the relation between temperature and pressure.</p> <ul style="list-style-type: none"> -State the relation between pressure and temperature -Calculate temperature from pressure measurements <p>Understand the principle of resistance thermometer</p> <ul style="list-style-type: none"> -State the principle of resistance thermometer -Write the formula for temperature measurement using electrical resistance. <p>Understand the working principle of thermocouple.</p> <ul style="list-style-type: none"> -Define temperature of inversion and neutral temperature. -Relate thermo e.m.f. with temperature <p>Know about optical pyrometer</p> <ul style="list-style-type: none"> -Explain working of optical pyrometer -State the situation in which different thermometers may be used. -Compare merits and demerits of different thermometer. -Compare range & accuracy of gas, liquid thermoelectric and optical thermometers -State the fields of uses for each type of thermometer. 	5

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S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
10.	<p>REFLECTION OF LIGHT AT PLANE AND SPHERICAL SURFACES</p> <ul style="list-style-type: none"> -Laws of reflection, rotation of mirror, -Definition of centre of curvature, radius of curvature, principal axis. Principal focus and focal length. -Geometrical construction of ray diagram for the formation of images in concave and convex mirror. magnification, sign convention, uses of mirrors. 	<p>Understand laws of reflection at plane & spherical surfaces.</p> <ul style="list-style-type: none"> -Distinguish plane, concave and convex mirrors. -Define focal length. -State laws of reflection. -State the application of laws of reflection in practical life & engineering application. -Verify laws of reflection on plane mirrors -etc. Know the method of geometrical construction of ray diagrams. -Draw ray diagrams for the formation of image in concave and convex mirror. -Solve numerical, if any two quantities out of u, v, f are given (Mirror formula $1/f = 1/v + 1/u$, derivation not required). -Identify real and virtual image. 	5
11.	<p>REFRACTION OF LIGHT AT PLANE AND SPHERICAL SURFACE</p> <ul style="list-style-type: none"> -Refraction at a plane surface -Laws of refraction -Refractive index and its definition on the basis of speed of light -Critical angle and total internal reflection of light -Formation of images in convex and concave lens -Lens maker's equation -Combination of lenses -Power of lens -Simple and compound microscope (Magnification without proof) 	<p>Understand laws of refraction at plane & spherical surfaces.</p> <ul style="list-style-type: none"> -State laws of refraction. -Define refractive index. -Explain the phenomena such as mirage, brilliancy of diamonds. -State that light velocity is maximum in vacuum. -Explain the deviation due to change in velocity of light (Derivation of equation is not required). Know about the working and magnifying power of simple and compound microscope. -Draw ray diagrams for the simple and compound microscope. -Calculate magnifying power for given eyepiece and objective 	5

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S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
12.	DISPERSION OF LIGHT -Refraction through prism, angle of minimum deviation and their relation -Dispersion and spectrum dispersive power, pure and impure spectrum -Electromagnetic spectrum and its visible range.	<ul style="list-style-type: none"> - Sketch a compound (metallurgical) microscope. -Describe construction of metallurgical microscope. -State range of magnification of optical-metallurgical microscope. -Describe how different magnifications are obtained .etc. <p>Understand the phenomenon of dispersion of light</p> <ul style="list-style-type: none"> -Determine the angle of minimum deviation with the help of graph -State the orders of colours in a pure spectrum. -Distinguish between ultraviolet and Infra-red light -State visible range of wave lengths and frequencies. 	5
13.	MAGNETISM		7
13.1	NATURAL AND ARTIFICIAL MAGNET -Magnetic materials -Behaviour of earth as a huge magnet -Molecular Theory of magnetism -Coulomb's inverse square law -Magnetic lines of force -Magnetic Induction -Magnetic induction due to a bar magnet in two standard position -Uniform and non-uniform magnetic field - Behaviour of a magnet placed in a uniform magnetic field.	<p>Know about magnetic and non-magnetic materials</p> <ul style="list-style-type: none"> -Distinguish between magnetic material and non magnetic material -List two magnetic materials -State the direction of Earth Magnetic field. <p>Understand the molecular theory of magnetism and Coulombs inverse square law.</p> <ul style="list-style-type: none"> -Explain the magnetism on molecular theory -State coulomb's law -Define pole strength 	

S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
13.2	ELECTROMAGNETISM -Magnetic induction of a solenoid -Effect of placing soft iron core in solenoid. -Magnetic permeability -Relation between magnetic field developed and strength of electric current in a solenoid. -Magnetic particle test. -Magnetic Arc Blow.	-Give reason why magnetic lines of force do not cross each other Understand the concepts of magnetic induction -Calculate magnetic induction due to a bar magnet in standard positions. Represent uniform field with the help of lines of force Analyze the couple formed due to a uniform magnetic field. (Relevant demonstration in lab desired) -Derive the expression for couple due to a uniform magnetic field on a magnet placed in it. Know about magnetic effect of electric current and the factors, which influence magnetic field. -Indicate the directions of magnetic field with the direction of current. -State the factors, which influence magnetic field. -Compare the permeability of iron with other materials. Know about magnetic particle test and arc blow. -Suggest non-destructive testing method for a finished job -Explain the term magnetic arc blow.	
14.	MODERN PHYSICS	Understand the phenomenon -radio activity	9
14.1	RADIO ACTIVITY -Radioactive substances. -Properties of Alpha, Beta and x-rays -Radio activity- a nuclear phenomena -Simple disintegration, equation products	-Give names of at least four radio active substances -Distinguish particle as Helium nucleus and 'beta' electron and 'Gamma'-rays as very hard x-rays (light of very-very high frequency)	

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S.No.	Detailed Course Content	Intended Learning Objectives	Hours of stud
14.2	<p>-Half life and decay constant and their relation.</p> <p>PHOTOELECTRIC EFFECT</p> <p>-Photo sensitive material</p> <p>-Photo electron , photo electric effect</p> <p>-Photo cell</p> <p>-Plank quantum law</p> <p>-Einstein photo electric equation</p> <p>-Threshold frequency</p>	<p>-Write expression for Alpha, Beta disintegrations.</p> <p>-Define half life</p> <p>-State relationship between half life and Decay constant (without derivation)</p> <p>Understand photo electric effect</p> <p>-State names of few photosensitive materials</p> <p>-Explain photo emission</p> <p>-Draw circuit diagram for photo cell</p> <p>Understand Plank's quantum law</p> <p>-State Plank's quantum law</p> <p>-Write photo electric equation</p> <p>-Explain existence of threshold frequency</p> <p>Know use of photo cell</p>	
14.3	<p>X-RAYS</p> <p>-Accidental discovery of x-rays.</p> <p>-Production of x-rays Coolidge tube</p> <p>-Idea of x-rays diffraction photograph</p> <p>-use of x-rays in destructive testing in industry (metal castings, welding joints etc.)</p>	<p>Understand the phenomenon of x-rays</p> <p>-State uses of photo cell</p> <p>-State that x-rays are Electro magnetic radiation's like visible light of very high frequency</p> <p>-State properties of x-rays</p> <p>-Distinguish soft and hard x-rays wave lengths</p> <p>-Explain that x-ray diffraction gives very fine details of inner structure</p> <p>Know use of x-rays in engineering field</p> <p>-Explain use of x-rays in detecting defects in metal castings and welding joints.</p>	

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S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
14.4	LASER -Description of Maser and Laser -Definition of laser -Out line of the method of production of laser. -Use of laser in engineering cutting, making holes in ceramics and super-hard metals etc.	Know about laser and its uses in the field of engineering. -Explain abbreviations of the terms Maser and Laser. -Define laser. -Appreciate the enormous energy possessed by coherent highly parallel (channelised) light in same phase. -State situations in which Lasers are used.	2

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LIST OF EXPERIMENTS

(APPLIED PHYSICS)

Practicals: 2 Hrs. per week

S.No.	Name of experiments	Hours of study
	Heat -	Total 32 Hrs.
1.	To determine specific heat of solid by the method of mixture	
2.	Determination of latent heat of steam.	
3.	To verify Boyle's law.	
4.	To determine J by searle's method (friction-cone method)	
	Light -	
5.	To find focal length of a concave mirror by u-v method.	
6.	To calculate refractive index of glass with respect to air by drawing rays in a glass slab	
7.	To calculate focal length of convex lens by u-v method.	
8.	To determine refractive index of glass with respect to air by angle of incidence and angle of deviation curve method.	
	Magnetism	
9.	To locate neutral points by drawing lines of force of a bar magnet in two standard positions	
10.	To study the pole strength developed in an electromagnet with current	
11.	To determine time period for various lengths of simple pendulum and hence calculate 'g'	
12.	To measure capillary-rise and hence calculate surface tension with the help of a travelling microscope.	
13.	To determine coefficient of viscosity of water by capillary flow method (using Poiseuille's formula).	

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COMMON WITH PROGRAMME (S):

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3. Physics part I & part II, Halliday D. & Resnick R..
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5. Engineering Physics (SI Version), Rao B.V.N.
6. Modern Physics , part I & part II, Rao B.V.N.

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RATIONALE
(APPLIED CHEMISTRY)

As the knowledge of Chemistry is essential for a technician, the syllabus in applied chemistry for the students of three years Diploma programme in Information Technology has been developed in view of the following abilities required to be developed in the students.

- Develop habit of Scientific enquiry
- Understand the changes in structures, properties of matters and processes involved.
- Enable students to develop essential ability to investigate cause – effect relationship.
- Develop ability to predict results in different engineering applications under given conditions.
- Comprehend the required pre requisite knowledge for understanding technical subjects.
- understand the chemistry of essentials for various engineering materials.
- Topics like alloys, adhesives, polymers lubricants have been incorporated with special reference to the requirement of production engineering and information technology students.

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SCHEME OF STUDIES
 (APPLIED CHEMISTRY)

S. NO.	TOPIC	SCHEME OF STUDIES	
		Hrs. of Study	
		Theory	Practical
1	Atomic Structure	7	-
2	Periodic Classification of Elements	6	-
3	Heavy Metals	7	2
4	Alloys	7	2
5	Redoximetry	7	6
6	Electro' -Chemistry	3	2
7	Corrosion	9	5
8	Polymer	3	-
9	Chemistry of Paints & Varnishes.	4	5
10	Lubricants	6	5
11	Chemical - Bonding and Adhesives	5	5
	Total	64	32

COURSE CONTENT

S.No	Detailed Course Content	Intended Learning Objectives	Hours of study
1.	ATOMIC STRUCTURE:	Understand the atomic structure.	7
1.1	Discovery of Electron, Proton & Neutron.	(Film or Chart to be shown in the class) -Write the fundamental particles of atom.	
1.2	Rutherford model and modification of Boars.	Know about different experiments /research experiments conducted in the field of atomic structure.	
1.3	Bohrburry scheme of distribution of electron in various orbits. Sommerfield relativistic atom model.	- Explain the discovery of fundamental particles electrons, protons and neutron of an atom.	
1.4	Idea of S,P,d,f subshells.	- Explain arrangement of electrons around the nucleus. (Home Assignment to be given for drawing the electronic structure of few atoms)	
1.5	Electron cloud concept	- Explain the concept of the capacity of S, P, d, f orbitals. - Explain the concept of electron cloud.	
2.0	PERIODIC CLASSIFICATION OF ELEMENTS: - Introduction to periodic table - Periodic law based on atomic numbers. - Brief description of periodic table, groups and periods. - Periodicity and electron affinity. - Classification of elements based on S,P,d,f orbitals.	Understand the classification of elements. (Charts be shown depicting - Outermost orbit in full. - Outermost incomplete orbit. - Next to the outer most orbit incomplete etc. - Semimicro and spot test analysis of these metals in laboratory.) Describe the history and prediction about the undiscovered elements. - Define the term atomic number. - State periodic law based on atomic number. - Identify difference between groups and periods. - Explain arrangement of elements in periodic table. - Explain the terms electronegativity and periodicity.	6

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 COURSE CODE: 102

DIPLOMA IN COMPUTER SCIENCE & ENGG.
 NAME OF COURSE: APPLIED SCIENCE
 (PHYSICS+CHEMISTRY)

S.No.	Detailed Course Content	Intended Learning Objectives	Hours of
3.	HEAVY METALS: - Occurrence - Properties and engineering uses of Heavy Metals with special reference to Cu, Fe, Zn, Pb and Al.	- Identify the names of elements, which have electrons in S,P,d,f. orbital blocks. Know the physical and chemical properties of common metals. (Chart and model to be shown, Emphasis should be laid on the Chemical reactions taking place during various stages). -Write the physical and chemical-properties of Heavy Metals. -Correlate property variation with atomic number & placing of these elements in periodic table.	7
4.	ALLOYS: - Properties and Engineering uses of common alloys like Brass, Bronze, German Silver, Duralumine, Solder, Stainless steel, pressure & die Casting alloy. Bearing alloy	Know the properties and uses of common alloys (Various samples of the alloys may be demonstrated in the classroom.) -Enumerate properties of common alloys. -State uses of common alloys in the field of engineering. -Deduce variation of engineering properties by the addition of different elements in an alloy.	
5.	REDOXIMETRY: - Redoximetry with special reference to oxidising action. -and properties of cyanide, nitride, oxide, epoxide, carbonate, hydroxides and hydrides.	Understand the concept of Redoximetry. Explain the process of oxidation and reduction. -State the effects of the oxidising and /or reducing of the salts like Cyanides, Nitrides, Oxides, Epoxides, Carbonates, Hydroxides and hydrides used in the treatment of metals. -Describe the engineering application of salts. -State at least 4 methods of protection of metals against formation of salts.	

SEMESTER: FIRST
COURSE CODE: 102SCHEME: Dip. CS JULY 2002
NAME OF COURSE: APPLIED SCIENCE
(PHYSICS+CHEMISTRY)

S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
6.	<p>ELECTROCHEMISTRY</p> <ul style="list-style-type: none"> -Process of Electrolysis. -Laws of Electrolysis. -Electrolysis with special reference to Electroplating and Electrolysis -Introduction to Electrochemical series. 	<ul style="list-style-type: none"> -Explain the phenomenon of protection of metals against salts' formation Understand the process of electrolysis (Numerical examples to be given in the class) -Explain the process of electrolysis -State the law of Electrolysis - Name at least 5 commonly used electroplating processes (Film on the principles of Electrolysis and the process of Electroplating be shown in the class.) -State the fields of engg. application of each these electroplating processes -Apply the principles of electrolysis in the process of electroplating. -Suggest the ingredients and the conditions of Electroplating such as time, voltage, safety etc. for required thickness. -Explain the effect of reactions among the metals present in the electrochemical series. 	3
7.	<p>CORROSION :</p> <ul style="list-style-type: none"> - Meaning of corrosion. -Types of corrosion - Protection against corrosion. 	<ul style="list-style-type: none"> Understand the process of corrosion -State the definition of corrosion. -Correlate that to oxidation, which is one of the most important process of corrosion.. 	9

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SEMESTER: FIRST
COURSE CODE: 102

SCHEME: Dip. CS_JULY 2002
NAME OF COURSE: APPLIED SCIENCE
(PHYSICS+CHEMISTRY)

S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
	<p>- Protective coatings :</p> <p>(A) Inorganic coating</p> <ul style="list-style-type: none"> - Metal coating - Cladding - Electrodepositions - Nonmetallic coatings <p>(B) Organic coatings :</p> <ul style="list-style-type: none"> - Paints and - Varnishes - Enamels etc. 	<p>(Practically verify in laboratory the corrosion on metal parts by different mechanisms)</p> <ul style="list-style-type: none"> -State that corrosion can be due to stress concentration , erosion, electrochemical, direct chemical etc. -Infer that corrosion can be intergranular or grain boundary corrosion without change in concentration or chemical composition. -Give the examples of each type of corrosion in practical field. -State the methods of containing corrosion due to environmental effects. <p>Know about protection against corrosion</p> <ul style="list-style-type: none"> -State the different types of protective coatings on the surface (Perform corrosion protection on metal parts by at least one method in the laboratory). --Explain the procedure of the preparation of surface for hot dip galvanizing and tinning. -Describe the process of hot dipping in molten metal, cladding, metal spraying cementation, processes & vapour deposition, non-metal coating etc. -Explain the process of electrodeposition. -State the fields of application of each. -Explain the process of applying coatings of vitrumenous and porcelain enamels. -Enumerate various types of pigments resins, solvent and thinners used for coatings. - State the purpose of applying or using primers, thinners etc. 	

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NAME OF COURSE: APPLIED SCIENCE
(PHYSICS+CHEMISTRY)

S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
8.	<p>POLYMERS :</p> <ul style="list-style-type: none"> -Polymerisation and condensation. -Properties & uses of -Styrenes fluorocarbons, properties, and uses of ethene, ethylene, PVC, Polythene, Polyester, Polymides and Bakelite cellulose. 	<ul style="list-style-type: none"> -State that these non-metallic coatings are usually renewed at regular intervals under corrosive environment. Understand the process of Polymerisation and condensation (Student should be conversant with the fastly expanding list of plastics and their uses). -Define polymerisation and condensation. -Explain the process of preparation of various polymers. -State the properties of various polymers. -State the engineering uses of polymers such as Styrenes fluorocarbon, polypropeelene, Polyester., etc. 	3
9.	<p>CHEMISTRY OF PAINTS AND VARNISHES:</p> <p>Definition of paints</p> <ul style="list-style-type: none"> -Requisites of good constituent of paints. -Definition of varnish. -Types of varnish -Constituents of varnish. 	<ul style="list-style-type: none"> Know about the paints and varnishes. (A visit to plastics Industry). -List the various ingredients of various polymers. (Experimentally verify the metal protection by paint and/or varnish) -State the process for the preparation of various kinds of polymers. -Give the functions of paints and varnishes. (Practically do painting on a metal part in systematic manner noticing the chemical process and impact of each step) -Name the ingredients used for the preparation of paints and varnishes. -Enumerate at least five types of paints and varnishes. -State the characteristics of a good paint and varnish. -Describe at least two methods of applying paints. 	4

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FIRST
 COURSE CODE: 102

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SCHEME: Dip. CS JULY 2002
 NAME OF COURSE: APPLIED SCIENCE
 (PHYSICS+CHEMISTRY)

S.No.	Detailed Course Content	Intended Learning Objectives	Hours of stud
10.	<p>LUBRICANTS :</p> <ul style="list-style-type: none"> -Definition of lubricant. -Orientation of molecules of lubricating oil. -Types : fluid & boundary -Properties of lubricants -Significance of properties -Semisolid lubricants; Greases -Solid lubricants; graphite. -Selection of lubricants. 	<ul style="list-style-type: none"> -Give reasons for need of renewing paint coats at predetermined intervals of time.- State at last three engineering applications of varnishes -Compare paint protection with metal coating protection methods. <p>Know the functions and properties of lubricants. (Experiments must be performed on the properties of lubricating oil such Flash point, Fire point, Cloud and pour point, Emulsification etc.)</p> <ul style="list-style-type: none"> -Define the lubricant. -Define the viscosity, flash point, fire point, viscosity index etc. -List the properties to be looked into the selection of a proper lubricant for a particular set of machine parts/ assembly part. -Classification of lubricants into liquid, semisolid solid lubricants. -State at least 3 engg. application of each type of lubricant. -List different types of commercially available greases and lubricant oils. -Name the ingredients of these greases & lube-oils. -Describe the function of these ingredients. -Identify situation where lube oils are preferred over greases & vice-versa. 	6

SEMESTER: FIRST
 COURSE CODE: 102

SCHEME: Dip. CS JULY 2002
 NAME OF COURSE: APPLIED SCIENCE
 (PHYSICS+CHEMISTRY)

S.No.	Detailed Course Content	Intended Learning Objectives	Hours of study
11.	<p>CHEMICAL BONDING & ADHESIVES</p> <ul style="list-style-type: none"> -Combining capacity of an atom -Valency -Types of chemical bonding -Metallic bonding -Definition of Adhesives. -Types. of Adhesives -Engineering application of adhesives. -Condition affecting the binding power of adhesive. -Commercially available adhesive for metal to metal & nonmetals. 	<p>Understand the concepts related to chemical bonding (Perform adhesive joining of thin metal sheet & assess/find out its peel-strength)</p> <ul style="list-style-type: none"> -Explain the term combining capacity of an atom. -Explain the term valency. -List the types of valency. -Give the examples of different types of chemical bonding in compounds. -Explain the metallic and hydrogen bonding. <p>Know about adhesives and their applications in engineering fields.</p> <ul style="list-style-type: none"> -Explain the term adhesive. -List the types of adhesives. -Select the proper adhesives on the basis of their binding power. -Enumerate commercially available adhesives for metal-to-metal and metal with non-metal applications. 	5

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SEMESTER: FIRST
 COURSE CODE: 102
 NAME OF COURSE: APPLIED SCIENCE
 (PHYSICS+CHEMISTRY)

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 P05, 104
 PAPER CODE: 2051

LIST OF EXPERIMENTS
 (APPLIED CHEMISTRY)

Practical: 2 Hrs. per week

S.No.	Name of experiments	Hours of study
1.	Identification of one cation and one anion in a given sample of ore/ Powder/ Mixture.	32 Hrs.
2.	To determine percentage of copper on a given sample of brass iodometrically.	
3.	To determine the percentage of iron in an iron salt by Redoximetry.	
4.	Colourimetric estimation of metals in a given sample of an alloy.	
5.	To set up a denial-cell and interpret the electrochemical theory of corrosion.	
6.	To prepare common plastics such as Bakelite.	
7.	To find out flash point of dry and non-drying lubricating oil.	
8.	To find out fire point of dry and non-drying lubricating oil.	
9.	Determination of viscosity of lubricating oil By Red-wood viscometer.	

SEMESTER: FIRST

COURSE CODE: 102

NAME OF COURSE: APPLIED SCIENCE
(PHYSICS+CHEMISTRY)

SCHEME: Dip. CS_JULY 2002

COMMON WITH PROGRAMME (S):

P05, 104

PAPER CODE: 2051

REFERENCES

(APPLIED CHEMISTRY)

1. Applied Chemistry, Jain P. C.
2. Engineering Chemistry, Rao & Agrawal
3. Engineering Chemistry, Uppal
4. A textbook of Chemistry of Engineering Materials, Aalgar M. A. /Paul R.
5. Material Science, Narang B.S.
6. Chemistry of Engineering Materials, Agarwal C.L..
7. Systematic Inorganic Chemistry, Singh Nirranjan / Singh Joginder
8. Physical Chemistry, Glasstone
9. Applied Chemistry, Shrivastava & Shrivastava, Chandra Prakashan.
10. Modern Text Book of Applied Chemistry, Saxena, H.C., Jain Prakashan, Indore
11. Polytechnic Chemistry, Shrivastava & Shrivastava, PBS Publishing House, Bhopal.

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SEMESTER: FIRST
 COURSE CODE: 103
 NAME OF COURSE: INTRODUCTION TO P.C.

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S): 104
 PAPER CODE: 5001

RATIONALE

In the first semester of diploma in information technology, students should be well acquainted with the environment in which they shall work. This subject is designed to make student aware of operating systems: Dos, Windows and P.C. utilities. So that in subsequent semester, it would be easy for them to work in such environments.

1.1	Introduction to Personal Computers	1
1.2	Computer Hardware	14
1.3	Windows Computer	13
1.4	Computer Software	14
1.5	Programming Language	13
1.5.1	Introduction to MS-DOS & Windows	13
1.5.2	Computer System & Network Computer	13
1.6	Computer System & Control	13
1.6.1	Computer System & Control	13
1.6.2	Computer System & Control	13
1.7	Computer System & Control	13
1.7.1	Computer System & Control	13
1.7.2	Computer System & Control	13
1.8	Computer System & Control	13
1.8.1	Computer System & Control	13
1.8.2	Computer System & Control	13
1.9	Computer System & Control	13
1.9.1	Computer System & Control	13
1.9.2	Computer System & Control	13
2	COMPUTER DEVICES	24
2.1	Introduction to Input Devices	24
2.1.1	Computer Input Hardware	24
2.1.2	Input Device	24
2.1.3	Input Device - Card Reader, Scanning Device, Bar Code Reader, OCR, Character Reader, Smart Card	24
2.1.4	Voice Input Device	24

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FIRST
COURSE CODE: 103
NAME OF COURSE: INTRODUCTION TO P.C.

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S): 104
PAPER CODE: 5001

SCHEME OF STUDIES

Lectures: 4 Hrs per week
Practical: 2 Hrs. per week

S.NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of study		
		Theory	Practical.	Total
1	Introduction to Personal Computers	12	06	18
2	Computer Devices	14	08	22
3	Personal Computers	12	06	18
4	Computer Software	14	06	20
5	Programming Languages	12	06	18
	Total	64	32	96

SEMESTER: FIRST

COURSE CODE: 103

NAME OF COURSE: INTRODUCTION TO P.C.

SCHEME: Dip. CS_JULY 2002

COMMON WITH PROGRAMME (S): 104

PAPER CODE: 5001

COURSE CONTENT

Lectures: 4 Hrs. per Week

S. No.	Detailed Course Content	Hours of study
1.	INTRODUCTION TO COMPUTERS	
	1.1 Computer System Characteristics and capabilities	02
	1.1.1 – Speed.	
	1.1.2 – Accuracy	
	1.1.3 – Reliability	
	1.1.4 – Memory	
	Capabilities	
	1.1.5 – Repeatability	
	1.2 Types of Computers	01
	1.2.1 – Analog, Digital & Hybrid	
	1.2.2 – General & Special Purpose Computer	
	1.3 Computer Generations	02
	1.3.1 – Characteristics of Computer generation	
	1.3.2 – Computer Systems, Micros, Minis & Mainframes.	
	1.4 Computer Hardware & Software.	02
	1.4.1 – Block Diagram of Computer	
	1.4.2 – Different types of Software	
	1.5 Number System & Codes.	03
	1.5.1. – Decimal, Binary, Octal, Hexadecimal.	
	1.5.2. – Conversion from one System to other.	
	1.5.3. – Codes used –ASCII.	
	1.6 Data Processing	02
	1.6.1. – Data, Data Processing System.	
	1.6.2. – Processing & Storing Data.	
2.	COMPUTER DEVICES	04
	2.1. Introduction to Input Devices.	
	2.1.1. – Categorizing Input hardware.	
	2.1.2. – Key Board.	
	2.1.3. – Direct Entry – Card Readers, Scanning devices, Bar Code Readers, OCR, Character Scanners, Smart card.	
	2.1.4. – Voice Input Device.	

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

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 NAME OF COURSE: INTRODUCTION TO P.C.

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S. No.	Detailed Course Content	Hours of study
	2.1.5. – Pointing Device – Mouse, Light Pen. 2.1.6. – Touch Devices.	
	2.2. Storage Devices.	04
	2.2.1. – Storage Fundamentals.	
	2.2.2. – Primary & Secondary Storage.	
	2.2.3. – Data Storage & Retrieval methods. Sequential, Direct & Indirect.	
	2.2.4. – Tape storage & Retrieval Methods, Tape storage Devices, Characteristics & limitations, Floppy & their types.	
	2.2.5. – Direct access Storage for microcomputer – Hard Disk, Disk Cartridges, Direct access Storage Device for large Computer systems.	
	2.2.6. – Mass Storage Device Optical Disk & CD Rom, DVD.	
	2.3. Central Processing Unit.	02
	2.3.1. – The Microprocessor, Control, Unit, ALU, Registers, Buses.	
	2.3.2. – Main memory, RAM, ROM, PROM, EPROM	
	2.3.3. – Measuring the Processing Power of a Computer, Data Bus, Capacity, Address Bus, Control Bus, Clock Speed, Assembly language & Machine Language.	
	2.4. Out Put Devices.	04
	2.4.1. – Devices	
	2.4.2. – Concept of Soft & Hard Copy Out Put Devices, Printers, Plotters, Computer Out Put Microfilm.	
	2.4.3. – Soft copy output Device, Cathode Ray tube, Flat Screen technologies.	
	2.4.4. – Voice output System.	
	2.4.5. – Video output Systems.	

SEMESTER: FIRST

COURSE CODE: 103

NAME OF COURSE: INTRODUCTION TO P.C.

SCHEME: Dip. CS_JULY 2002

COMMON WITH PROGRAMME (S): 104

PAPER CODE: 5001

S.No.	Detailed Course Content	Hours of study
3.	PERSONAL COMPUTERS	
	3.1. Introduction to PC.	04
	3.1.1. - Microcomputer uses	
	3.1.2. - Microcomputer in Office	
	3.1.3. - Limitation of Micro computer	
	3.1.4. - Desk top Personal Computer	
	3.1.5. - Types of PC Systems.	
	3.1.6. - Pentium Series PC's	
	3.2. Maintenance of PC	04
	3.2.1. - Typical Causes of System Failure.	
	3.2.2. - Component Failure.	
	3.2.3. - Temperature & Humidity	
	3.2.4. - Dust proof environment	
	3.2.5. - Noise Interference.	
	3.2.6. - Power Problem.	
	3.2.7. - Frequency Variation.	
	3.2.8. - Magnetic Fields.	
	3.2.9. - Corrosion	
	3.2.10. - Trouble shooting	
	3.3. Computer Viruses.	
	3.3.0 - Introduction to Anti viruses.	
	3.3.1. - Some Reported Viruses.	
	3.3.2. - Aborting Viral Attack	
	3.3.3. - What the Virus Does & How	
	3.3.4. - Idea of some Viruses	
	3.3.5. - Removal of Anti Viruses.	

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FIRST
 COURSE CODE: 103
 NAME OF COURSE: INTRODUCTION TO P.C.

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S): 104
 PAPER CODE: 5001

S.No.	Detailed Course Content	Hours of study
4.	COMPUTER SOFTWARE	02
	4.1. System Softwares	01
	4.1.1. – System Software V/s Application Software.	01
	4.1.2. – Types of System Software.	02
	4.1.3. – Introduction & Types of Operating System Programs, Bootling loader, Diagnostic tests, Operating System Executive BIOS, Utility Programs, File Maintenance.	02
	4.1.4. – Language Processor, Assembler, Compiler and Interpreter.	02
	4.2. Application Software	01
	4.2.1. – Microcomputer software Inter acting with the system.	01
	4.2.2. – Trends in PC Software	01
	4.2.3. – Types of Application Software.	01
	4.2.4. – Difference between languages & Packages.	01
5	PROGRAMMING LANGUAGES.	01
	5.1 Over view of Programming Languages.	02
	5.2 Development of programming languages, First, Second, Third, & Fourth generation.	01
	5.3 Classification of Programming Language.	02
	5.4 Application of programming Languages in Scientific, Business, Artificial Intelligence and system Programming.	01
	5.5 Advantages & Disadvantages of High level Languages.	02
	5.6 Programming Language Evaluation & Selection.	01
	5.7 Popular Programming languages.	01
	5.8 Fourth Generation Languages.	01
	5.9 Different commonly used Software Packages.	01

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SEMESTER: FIRST
COURSE CODE: 103
NAME OF COURSE: INTRODUCTION TO P.C.

SCHEME: Dip. CS JULY 2002
COMMON WITH PROGRAMME (S): 104
PAPER CODE: 5001

LIST OF EXPERIMENTS

Practical: 2 per week

S.No.	Name of experiments	Hours of study
1.	Connection of various computer components like CPU, Keyboard, Mouse, Monitor, Printer and CVT. (Physical)	Total 32
2.	Installation of Dos and Windows 95 operating systems on PC. Study of procedure of installing various application softwares on windows.	
3.	Configuring monitor of PC, e.g. adjusting monitor resolution, monitor type, refresh rate, gamma setting etc.	
4.	Study of multimedia system; use of windows media player. Recording, editing playing sound and video files.	
5.	Prevention of computer from virus attack; installing antiviral software on PC, upgrading the vaccine from floppy / internet / CD.	
6.	Backup of data on tape, floppy & hard disk.	

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SEMESTER: FIRST
COURSE CODE: 103
NAME OF COURSE: INTRODUCTION TO P.C.

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S): 104
PAPER CODE: 5001

REFERENCES

1. Inside the IBM PC, Norton Peter
2. Hardware Bible, BPB Publication
3. Computer Hardware, Osborne Series
4. IBM PC & Clones, Balaguruswamy, Tata McGraw Hill

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SEMESTER: FIRST

COURSE CODE: 104

NAME OF COURSE: P.C. UTILITIES & OPERATING ENVIRONMENT

SCHEME: Dip. CS_JULY 2002

COMMON WITH PROGRAMME (S):104

PAPER CODE: 5002

RATIONALE

Information technologist has to use P.C. in various situations in the world of work. This course aims at developing skills of using Personal Computer in most commonly used operating environment i.e. DOS, Windows & their utilities.

Knowledge & comprehension of the course content will enable student to use P.C. efficiently & effectively.

Treatment of the content should be through exercises on computer beginning from brisk commands to the advanced features of P.C. Utilities.

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FIRST
 COURSE CODE: 104
 NAME OF COURSE: P.C. UTILITIES & OPERATING
 ENVIRONMENT

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5002

SCHEME OF STUDIES

Lectures: 2 Hrs. per week

Practical: 8 Hrs. per week

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1	Basics of Operating System	4	16	20
2	M.S. Disk Operating System	4	16	20
3	DOS Utilities	4	16	20
4	Additional features of DOS	4	16	20
5	Introduction to Windows	4	16	20
6	Working with Windows	4	16	20
7	Window Utilities	4	16	20
8	Sharing Information Between Programs	4	16	20
	Total	32	128	160

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

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SEMESTER: FIRST
 COURSE CODE: 104
 NAME OF COURSE: P.C. UTILITIES & OPERATING ENVIRONMENT

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5002

COURSE CONTENT

Lectures: 2 Hrs. per Week

S.No.	Detailed Course Content	Hours of study
1.	BASICS OF OPERATING SYSTEM	4
1.1	Functions	
1.2	Types	
1.2.1	Batch Systems	
1.2.2	Interaction Systems	
1.2.3	Multi Programming	
1.2.4	Time Sharing	
1.2.5	Multi Processing	
1.2.6	Multi Tasking	
2.	M.S. DISK OPERATING SYSTEM	4
2.1	Introduction, History and versions	
2.2	Fundamentals of Dos	
2.2.1	Physical structure of Disk	
2.2.2	Compatibility of Dries, Disk and Dos versions	
2.2.3	Preparing Disks for Use	
2.2.4	Device Names	
2.3.1	Booting Process	
2.3.2	System files and command.com	
2.4	Internal Dos commands – DIR, MD, CD, COPY, DEL, REM, VOL, DATE, TIME, CLS, PATH, TYPE.	
2.5	Files and Directories	
2.6	Elementary External Dos Commands – CHKDSK, MEM, X- COPY, PRINT, DISK COPY, DISKCOMP, DOSKEY, HELP, TREE, SYS, LABEL, ATTRIB.	

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FIRST
 COURSE CODE: 104
 NAME OF COURSE: P.C. UTILITIES & OPERATING ENVIRONMENT

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5002

Lectures: 2 Hrs. per Week

S.No.	Detailed Course Content	Hours of study
3	DOS UTILITIES	4
3.1	Disk Utilities : chkdsk, fdisk, formatting, scandisk, disk compression, retrieving deleted files, Unformat, fragmentation, Defragmentation utilities, Backup Utilities, partition, using fdisk, virus scanner.	
3.2	Memory: Mem maker Mem ; MSD	
3.3	System: System Information	
4.0	ADDITIONAL FEATURES OF DOS	4
4.1	Config.sys files	
4.2	Idea about ROM BIOS	
4.3	Different between .EXE, .COM, and .BAT files	
4.4	Creating Batch files	
4.5	Additional Commands – ECHO, PROMPT, MODE, GRAPHICS, EDIT, FORMAT, FDISK, BACKUP, RESTORE, MORE, SORT, APPEND.	
5.	INTRODUCTION TO WINDOWS	4
5.1	What is Windows Operating system?	
5.2	Introduction to Windows	
5.3	O.S.	
5.4	Getting acquainted with O.S.	
5.5	Files & Folder	
5.6	Handling function	

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SEMESTER: **FIRST**
 COURSE CODE: **104**
 NAME OF COURSE: **P.C. UTILITIES & OPERATING ENVIRONMENT**

SCHEME: **Dip. CS_JULY 2002**
 COMMON WITH PROGRAMME (S):**104**
 PAPER CODE: **5002**

Lectures: **2 Hrs. per Week**

S.No.	Detailed Course Content	Hours of study
6.	WORKING WITH WINDOWS	4
6.1	Working with task bar utilities	
6.2	Using start menu	
6.3	Using the run command	
6.4	Using my computer window	
6.5	Control panel, Recycle bin,	
6.6	Add/remove programmes,	
6.7	Programme icons	
6.8	Installing applications	
6.9	Uninstallation procedure	
6.10	Searching files and folders.	
		4
7.	WINDOWS UTILITIES	
7.1	Internet explorer	
7.2	Multimedia media utility	
7.3	Sound recorder	
7.4	Media player	
7.5	System tools,	
7.6	Backup	
7.7	Compression agent	
7.8	Disk defragmentor,	
7.9	Scandisk,	
7.10	System agent	
7.11	System monitor	
7.12	Creation of start up disk.	

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SEMESTER: FIRST

COURSE CODE: 104

NAME OF COURSE: P.C. UTILITIES & OPERATING ENVIRONMENT

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SCHEME: Dip. CS JULY 2002

COMMON WITH PROGRAMME (S):104

PAPER CODE: 5002

Lectures: 2 Hrs. per Week

S.No.	Detailed Course Content	Hours of study
8	SHARING INFORMATION BETWEEN PROGRAMS	4
8.1	Understanding OLE	
8.2	Embed / Link Using cut and paste	
8.3	Embed / Link using insert object	
8.4	Manage Embedded / Linked object	
8.5	Importing & Exporting Documents	
8.6	Windows Accessories	
	Starting and Exiting an Accessory	
	Calculator	
	Character Map	
	Games	
	Multimedia	
	Paint	
	Phone Dialer	
	Word Pad	
	Control Panel and related function	

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

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SEMESTER: FIRST

COURSE CODE: 104

NAME OF COURSE: P.C. UTILITIES & OPERATING ENVIRONMENT

SCHEME: Dip. CS JULY 2002

COMMON WITH PROGRAMME (S): 104

PAPER CODE: 5002

LIST OF EXPERIMENTS

Practical: 8 Hrs. per week

S.No.	Name of experiments	Hours of study
1.	Use of internal and external Dos Commands.	Total 128
2.	Making copies of lists, making system/rescue disk in Dos/Windows.	
3.	Study of control panel in windows.	
4.	Study of accessories in windows.	
5.	File management using explorer in windows	
6.	Use of internet and e-mail.	
7.	Use of search engines to find the required information.	
8.	Down load information from Web sites and WWW.	

The above list is suggestive, additional experiments may be added depending upon institutional facilities.

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SEMESTER: FIRST
COURSE CODE: 104
NAME OF COURSE: P.C. UTILITIES & OPERATING ENVIRONMENT

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5002

REFERENCES

1. Understanding windows, Chapman, BPB Publication.
2. Dos & Utilities, BPB Publication.
3. Learning windows in 24 hours, Sam Techmedia.

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

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SEMESTER: FIRST
COURSE CODE: 105
NAME OF COURSE: PROFESSIONAL ACTIVITIES

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S)

Practice Hours: 2 Hrs/week

RATIONALE

Professional Activities is not a descriptive course, as per conventional norms; therefore specific content for this course cannot be prescribed. It is a group of open-ended activities; where in variety of tasks are to be performed, to achieve objectives. However general guidelines for achieving the target and procedure for its assessment are given under the course content of course code 106 of first semester.

As the student has to practice this course in all the six semesters, the guidelines given therein are common and applicable to each semester.

OBJECTIVES:

- > To allow for professional development of students as per the demand of engineering profession.
- > To provide time for organisation of student chapter activities of professional bodies (i.e. Institution of engineers, ISTE or Computer Society of India etc.)
- > To allow for development of abilities in students for leadership and public speaking through organisation of student's seminar etc.
- > To provide time for organisation of guest lectures by expert engineers/eminent professionals of industry.
- > To provide time for organisation of technical quiz or group discussion or any other group activity.
- > To provide time for visiting library or using Internet.
- > To provide time for group discussion or solving case studies.
- > To provide time for personality development of students.
- > To provide time for working for a social cause like awareness for environment and ecology etc.

DETAILED INSTRUCTIONS TO CONDUCT 'PROFESSIONAL ACTIVITIES':

- A) Study hours, if possible should be given greater time slot with a minimum of two Hrs/week to a maximum of four Hrs/week.
- B) This course should be evaluated on the basis of GRADES & mark sheet of students, should have a separate mention of the grade awarded. There will be no pass/fail in Professional Activities (P.A.).
- C) Following grade scale for evaluation of performance in P.A. has been established.

<u>Grades</u>	<u>Level of performance</u>
A	Excellent
B	Good

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- C Fair
- D Average
- E Below expectations

- D) Grades once obtained in a particular examination shall become final and no chance for improvement in grades will be given to the students.
- E) Assessment of performance in P.A. is to be done internally by the institution, twice in a semester/term through a simultaneous evaluation of the candidate by a group of three teachers, of the deptt. concerned. Group of teachers will jointly award the grade to candidate in the assessment. Best of the grades obtained by the student in these two assessments shall be finally taken on the mark sheet of the respective semester/term.

Candidates abstaining from the prescribed course work and/or assessment planned at the institution shall be marked ABSENT in the mark sheet, instead of any grade.
- F) While awarding the grades for performance in P.A., examining teacher should reach the final consensus based on the attendance, punctuality, interest, presentation skills in seminar on the topic assigned (Collection of relevant data, Observations, Analysis, findings/Conclusion) and its written report, awareness of latest developments in the chosen programme of study.
- G) Institution shall maintain the record of grades awarded to all the students in P.A. for a period of one year.
- H) It shall be mandatory for students to submit a compendium of his P.A. in the form of a journal.
- I) Compendium shall contain following
 - i) Record of written quiz.
 - ii) Report/Write up of seminar presented.
 - iii) Abstract of the guest lectures arranged in the institution.
 - iv) Topic & outcome of the group discussions held.
 - v) Reports on the problems solved through case studies.
 - vi) Report on social awareness camps (organised for ecology & environment preservation).
 - vii) Report on student chapter activities of professional bodies like ISTE, I.E (India), CSI etc.
- J) P.A. is not a descriptive course to be taught in the classroom by a particular teacher. Various activities involved in the achievement of objectives of this course should be distributed to number of teachers so that the talents and creativity of group of teachers' benefits the treatment of the course content.

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These activities should preferably be conducted in English language to maintain continuity and provide reinforcement to skill development process.

Small groups shall be formed like in tutorials, group discussion, case studies, seminar, project methods, games, role-play & simulation to make the development of personality affective.

Treatment of P.A. demands special efforts, attention, close- co-operation and creative instincts on the part of teachers of the dept. concerned. Since this course is totally learner centered, many of the activities planned under this course shall come out from the useful interaction of students, among themselves and with the teachers. The guiding teacher/s shall best act as a facilitator of these creative hunts/exercises, which unfold many of the hidden talents of the students or brings out greater amount of confidence in them, to execute certain activity.

(SECOND SEMESTER)

DEPARTMENT OF EDUCATION

UNIVERSITY OF JODHPUR, JODHPUR

DEPARTMENT OF EDUCATION

CURRICULUM DEVELOPMENT CENTRE

RAJIV GANDHI PEDAGOGICAL VOUGHTS INSTITUTE, BHOPAL (M.P.)

CURRICULUM

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SEMESTER SECOND

COURSE CODE: 214

NAME OF COURSE: APPLIED MATHE

FOR

COURSE CODE: 214

COMBINATION WITH: ENGINEERING

SEMESTER: 2ND

PAPER CODE: 214

**DIPLOMA IN COMPUTER SCIENCE
AND ENGINEERING**

Mathematics is the backbone of science and technology. It is a discipline that provides a logical and systematic approach to the study of the physical world. The study of mathematics is essential for the development of a student's logical thinking and problem-solving skills. It is a subject that is both challenging and rewarding. The curriculum for this course is designed to provide a solid foundation in mathematics and its applications. The subjects included in this course are: Algebra, Geometry, Trigonometry, Calculus, and Probability. The course is designed to be completed over a period of two semesters. The first semester covers the topics of Algebra, Geometry, and Trigonometry. The second semester covers the topics of Calculus and Probability. The course is designed to be completed over a period of two semesters. The first semester covers the topics of Algebra, Geometry, and Trigonometry. The second semester covers the topics of Calculus and Probability.

(SECOND SEMESTER)

Scheme: Dip.CS_JULY2002

Implemented from session 2002-2003

Under semester system

**CURRICULUM DEVELOPMENT CENTRE
RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL (M.P.)**

SEMESTER: SECOND
 COURSE CODE: 201
 NAME OF COURSE: APPLIED MATHS

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 M05, E03, C04, I02 & I04
 PAPER CODE: 0010

RATIONALE

Mathematics is the backbone of all areas of technology and hence occupies an important place in the curriculum of polytechnic education. The subject is equally important for the future self-development of polytechnic students. In designing the curriculum for first year, the admission level to polytechnics has been considered as 10th Board Examination, and mathematical needs of technical subjects have been given due importance. Integration of teaching of mathematics with technical subject is essential. Therefore as far as possible problems of practical and applied nature have been included in the teaching of mathematics.

Sl. No.	Topic	Objectives	Learning Outcomes
1	COORDINATE GEOMETRY	Coordinate systems, Distances, Division of a line segment, Standard form of the equation of a straight line, Area of a triangle	Cartesian and polar coordinates, Distance between two points, Division of a line segment, Locus, Standard form, General form of a straight line, Area of a triangle
2	DIFFERENTIAL CALCULUS	Functions, Limits, Differentiation by the principle	Dependence and independent variables, Differentiation, Concept of limit and its evaluation, Differentiation by the principle of product, Quotient, reciprocal and implicit functions

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: **SECOND**
 COURSE CODE: 201
 NAME OF COURSE: **APPLIED MATHS**

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
M05, E03, C04, I02 & I04
 PAPER CODE: 0010

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 4 Hrs. per week
 Practical: -- Hrs. per week

S. No	TOPIC	CONTACT HOURS PER WEEK			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		THEORY	PRACTICAL	TOTAL	
1.	Algebra	09	-	09	13
2.	Trigonometry	11	-	11	18
3.	Coordinate Geometry	20	-	20	30
4.	Differential Calculus	10	-	10	15
5.	Vector Algebra	11	-	11	19
6.	Introduction to Integral Calculus	03	-	03	05
Total		64	Nil	64	100

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SEMESTER: SECOND
 COURSE CODE: 201
 NAME OF COURSE: APPLIED MATHS

SCHEME: Dip. CS, JULY 2002
 COMMON WITH PROGRAMME (S):
 M05, E03, C04, I02 & I04
 PAPER CODE: 0010

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO	TOPIC	SUB.-TOPICS	CONTENT DETAILS
1.	ALGEBRA	Determinants Mean & RMS Value. Quadratic equation	Concept and principles of determinants. Properties of determinants. Computation of mean & RMS Value. General equation of second degree, Nature of roots, Formation of equation.
2.	TRIGONOMETRY	Trigonometrical ratios of multiple and sub-multiple angles. Trigonometrical equations	Half angles, double angles, triple angles. General solution of Trigonometrical equations.
3.	COORDINATE GEOMETRY	Coordinate systems Distance, Division. Standard forms of the equation of a straight line Change of axes Circle Conic Sections	Cartesian and polar coordinates. Distance between two points, Division of a line segment. Locus, Standard forms, General equation of a straight line and its reduction to structural forms. Straight line through one and two points. Transformations of coordinates when the origin is shifted or axes are rotated. Definition, Standard forms, General equation, Centre and Radius. Parabola, Ellipse
4.	DIFFERENTIAL CALCULUS.	Functions Limit Differentiation by first principle	Independent and dependent variables, different types of function. Concept of limit and its evaluation. Differentiation by first principle of Algebraic, Trigonometrical, exponential and logarithmic function.

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: SECOND
 COURSE CODE: 201
 NAME OF COURSE: APPLIED MATHS

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):
 M05, E03, C04, I02 & I04
 PAPER CODE: 0010

Lectures: 4 Hrs. per week

S. NO	TOPIC	SUB.-TOPICS	CONTENT DETAILS
5.	VECTOR ALGEBRA	Methods of differentiation. Introduction of Vector Addition of Vector Component of Vectors Multiplication of Vectors	Differentiation of sum, product and quotient of two functions and function of a function. Concept of vector and scalar quantities. Understand the principles of addition, subtraction of vectors. Component of vectors, standard unit Vector J, K. Scalar product and its applications. Vector product and its applications.
6.	INTRODUCTION TO INTEGRAL CALCULUS.	Integration	Definition of Integration and Fundamental properties of Integration.

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SEMESTER: **SECOND**
COURSE CODE: 201
NAME OF COURSE: **APPLIED MATHS**

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):
M05, E03, C04, I02 & I04
PAPER CODE: 0010

REFERENCES

1. Mathematics for Polytechnic volume I, TTTI publication.
2. Applied Mathematics, PBS Publication, Bhopal.
3. Applied Mathematics, Deepak Prakashan, Gwalior.
4. Differential Calculus, Gorakh Prasad.
5. Integral Calculus, Gorakh Prasad.
6. Coordinate Geometry, S. L. Loney.

SEMESTER: SECOND
 COURSE CODE: 202
 NAME OF COURSE: DIGITAL ELECTRONICS

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5066

RATIONALE

Digital electronics forms the foundation of various functional modules of a computer. This course aims at systematically introducing the basics of digital electronics to the aspiring computer expert. Combinational and sequential logic circuits provide an understanding about the working of computer hardware.

Sl. No.	Topic	Weightage	Practical
1.1	Introduction to Digital Electronics	5	
1.2	Logic Gates and Boolean Algebra	5	
1.3	Combinational Logic Circuits	5	
1.4	Sequential Logic Circuits	5	
2.0	Computer Organization	8	
2.1	Half Adder, Full Adder, Subtractor, Comparators, Decoders, Encoder, Binary Code Converter, Multiplexers, Demultiplexers, Implementation of Logic Circuits using these devices with ICs.		
2.2	Shift Registers		
3.0	Memory Devices	10	
3.1	RAM (SR, DR, EPROM, EEPROM, ROM, SRAM, DRAM, Cache & Main Memory, ROM Decoder)		
3.2	ROM (ROM Decoder, ROM Encoder, ROM Decoder, ROM Encoder, ROM Decoder, ROM Encoder)		
4.0	Microprocessors & Microcontrollers	10	
4.1	Architecture of Microprocessors (8085, 8086, 8088, 8080)		
4.2	Microprocessors (8085, 8086, 8088, 8080) & their applications		
4.3	Microprocessors Logic Families & their applications (TTL, CMOS, ECL, BiCMOS, PMOS, NMOS, CMOS)		

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SEMESTER: SECOND
 COURSE CODE: 202
 NAME OF COURSE: DIGITAL ELECTRONICS

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5066

SCHEME OF STUDIES SPECIFICATION TABLE

Lectures: 3 Hrs. Per week
 Practical: 2 Hrs. per week

S. N O.	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER	
		Hrs. of Study				
		Theory	Practical	Total		
1.	Fundamentals of digital electronics	8	}	8	20	
2.	Combinational circuits	8		8	25	
3.	Sequential circuits	12		32	12	25
4.	Wave shaping circuits & logic families	10		10	10	
5.	Classification & characteristics of memories	10		10	20	
Total		48	32	80	100	

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SEMESTER: SECOND

COURSE CODE: 202

NAME OF COURSE: DIGITAL ELECTRONICS

SCHEME: Dip. CS JULY 2002

COMMON WITH PROGRAMME (S):

PAPER CODE: 5066

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	FUNDAMENTALS OF DIGITAL ELECTRONICS:	8
1.1	Number Systems: Binary, Octal, Hexadecimal, radix conversion, (r-1)'s and r's complement, addition, subtraction, multiplication	
1.2	Binary codes: BCD, Excess-3, Gray, ASCII, Parity and Hamming Codes.	
1.3	Logic Levels and their transitions- rise-time, fall time, pulse	
1.4	characterizations Boolean Algebra: Logic gates – OR, AND, NOT, XOR, X-NOR, universal gate implementation. Rules & Theorems of Boolean Algebra, Simplification of Boolean Functions, Minimization techniques- minterms and maxterms, K-Maps and its realization.	
2.0	COMBINATIONAL CIRCUITS:	8
2.1	Half Adder, Full Adder, Subtractors, Comparators, Decoders, Encoders, Binary Code Converters, Multiplexers, Demultiplexers, Implementation of simple circuits using these combinational units.	
2.2	Tristate Logic	
3.0	SEQUENTIAL CIRCUITS:	12
3.1	Flip-flops: –RS, D, T, JK, Master Slave-RS & JK, Edge & Level Clocking, Race Around Condition	
3.2	Registers:– Buffer, Serial, Parallel, Shift Registers.	
3.3	Counters:– Synchronous , asynchronous, Binary, Ripple, BCD, Ring, Up-Down counters	
4.0	WAVE SHAPING CIRCUITS & LOGIC FAMILIES:	10
4.1	Fundamentals of multivibrators:-Mono stable, Bistable, Astable	
4.2	D/A Converters, A/D Converters, Sample & Hold circuits	
4.3	Introduction to Logic Families & their comparisons : RTL, DTL, TTL, ECL, PMOS, NMOS, CMOS	

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: SECOND
 COURSE CODE: 202
 NAME OF COURSE: DIGITAL ELECTRONICS

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5066

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
5.0	CLASSIFICATION & CHARACTERISTICS OF MEMORIES:	10
5.1	ROM, Static & Dynamic RAM, 2D and 2 ^{1/2} D RAM, SD-RAM, Flash RAM, PROM, EPROM, EEROM, EAROM, Cache, Auxiliary storage devices	
5.2	Memory organization – Concept of Address- Register, Line, Page	
5.3	Memory Mapping – I/O mapped I/O, Memory mapped I/O	

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

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SEMESTER: SECOND
COURSE CODE: 202
NAME OF COURSE: DIGITAL ELECTRONICS

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5066

LIST OF EXPERIMENTS

Practical: 2 Hrs. per week

S. NO.	Name of experiments	Hours of Study
1.	Verification of Truth Table of NOT, AND, OR, NAND, NOR, EX-OR, EX-NOR Gates.	
2.	Verification of Truth Table of Half Adder & Full Adder.	
3.	Verification of Truth Table of Half Subtractor & Full Subtractor.	
4.	Circuit Realization using GATEs after minimization of a Boolean Function and its verification.	
5.	Circuit realization for Flip-Flops (RS, D, T, JK) using NOR and NAND Gate and verification of Truth Table.	
6.	4-Bit configuration and verification of Truth Table for Serial Shift Register and visualize the output waveform on Scope.	
7.	4-Bit configuration and verification of Truth Table for Parallel Shift Register and visualize the output waveform on Scope.	
8.	6-Bit Ring Counter configuration using flip-flops and verification of Truth-Table	
9.	Min. 3-Bit UP / DOWN Counter using flip-flops and verification of Truth Table and visualize the output waveform on Scope.	
10.	Implementation of code conversion for 7-Segment Display Module.	
Total		32

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: **SECOND**
COURSE CODE: **202**
NAME OF COURSE: **DIGITAL ELECTRONICS**

SCHEME: **Dip. CS_JULY 2002**
COMMON WITH PROGRAMME (S):
PAPER CODE: **5066**

REFERENCES

TEXT BOOKS:

- Malvino and Leach, Digital Principles and Applications, TMH.

REFERENCE BOOKS:

- Morris Mano, Principle of Digital Electronics, PHI Publications.
- Gothman, W.H., Digital Electronics, PHI Publications.
- Bartee, Digital Computer Fundamentals, TMH.
- Jain R.P., Modern Digital Electronics, TMH.
- Fletcher, An Engg. Approach to Digital Design, PHI.

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SEMESTER: SECOND

COURSE CODE: 203

NAME OF COURSE: BASIC PROGRAMMING IN 'C'

SCHEME: Dip. CS_JULY 2002

COMMON WITH PROGRAMME (S):104

PAPER CODE: 5005

RATIONALE

Since the development of computer programming languages, many languages have come and become defunct. Nowadays, it is 'C' and its upgraded version like C++ which are most popular and commonly used for programming. C is a general purpose and relatively low programming language with features of expression, modern control flow and data structures. The 'C' language has been used to write operating system like UNIX.

To give understanding of concepts of programming, algorithms and use of C programming language, this course has been kept in second semester.

A course having more advance features of 'C' has been kept in third semester.

Sl. No.	Topic	Weightage
1.	INTRODUCTION OF C LANGUAGE	10%
2.	OPERATOR & EXPRESSIONS	15%
3.	LIBRARY FUNCTIONS	15%
4.	POINTER & INPUT OUTPUT	15%
5.	CONTROL STATEMENT: BRANCHING & LOOPING	15%

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

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SEMESTER: **SECOND**
COURSE CODE: 203
NAME OF COURSE: **BASIC PROGRAMMING IN 'C'**

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5005

SCHEME OF STUDIES

Lectures: 4 Hrs. per Week
Practical: 6 Hrs. per week

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1	Program Development	8	-	08
2	The Function of Turbo C editor	2	-	02
3	Overview of C Language	4	-	04
4	Operator & Expressions	10	08	18
5	Decision Making, Branching & Looping	14	26	40
6	Array	6	10	16
7	Function	12	36	38
8	Basic concept of structure, union, pointer and files.	8	16	24
Total		64	96	160

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SEMESTER: **SECOND**

COURSE CODE: **203**

NAME OF COURSE: **BASIC PROGRAMMING IN 'C'**

SCHEME: **Dip. CS JULY 2002**

COMMON WITH PROGRAMME (S): **104**

PAPER CODE: **5005**

COURSE CONTENT

Lectures: 4 Hrs. per Week

S. No.	Detailed Course Content	Hours of study
1.	PROGRAM DEVELOPMENT History of 'C' Languages Steps in Program Development, Algorithm, Flowcharts, Flowcharts symbols, Advantages & Disadvantages of flow chart, Some examples of Flowcharts, Pseudocode, Characteristics of Good Program, Error diagnostics, Logical debugging.	08
2.	THE FUNCTION OF TURBO 'C' EDITOR File menu, Edit menu, Run menu, Compile menu, Debug menu, and Watch/Break menu, Procedure for editing, Compiling, Linking/running, Making exe of programs and debugging programs in TC, Trace.	02
3.	OVERVIEW OF C LANGUAGE The function of main, Pre Processor directories, comment, C character set, identifiers and keywords. Constants, Variables, Data Types –Integer variable, short, long, unsigned, signed, float, double, Character, string their declaration syntax, constant-hexadecimal, Decimal, Octal., ASCII character set.	04
4.	OPERATOR & EXPRESSIONS Arithmetic's, Relational, Equality, Logical connectives, Unary and Ternary operators , Arithmetic's Expressions & their evaluation LIBRARY FUNCTIONS Cell, floor, exp, log, pow, fmod, getchar, putchar, abs, fabs, rand, srand, toupper, tolower, toascii. FORMATTING INPUT OUTPUT scanf, printf, gets, printf, puts, putc, different formating symbols and their meaning.	10
5.	DECISION MAKING, BRANCHING & LOOPING if else statement, nested if, switch statement, its comparison, continue, break, default, exit, go to statement, comma operator, for loop, while loop, do while loop, nested looping.	14

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 SEMESTER: SECOND
 COURSE CODE: 203
 NAME OF COURSE: BASIC PROGRAMMING IN 'C'

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5005

COURSE CONTENT

Lectures: 4 Hrs. per Week

S. No.	Detailed Course Content	Hours of study
6.	<p>ARRAY</p> <p>Defining an array, Initializing arrays, one & two-dimensional array, processing an array reading and writing string, string based library function.</p>	06
7.	<p>FUNCTION</p> <p>Concept, principal and objective of structured programming language, Top-down & Bottom-up designing, defining a Function, Accessing a Function, Passing Arguments to a Function, The scope and life of variable – actual, formal, local and global parameter, passing array as parameter to a function, Recursion, call by value, call by reference, storage classes – static, auto, extern, register.</p>	12
8.	<p>BASIC CONCEPT OF STRUCTURE, UNION, POINTER AND FILES</p>	08

36/96

SEMESTER: SECOND

COURSE CODE: 203

NAME OF COURSE: BASIC PROGRAMMING IN 'C'

SCHEME: Dip. CS_JULY 2002

COMMON WITH PROGRAMME (S):104

PAPER CODE: 5005

LIST OF EXPERIMENTS

Practical: 6 Hrs. per week

S. No.	Name of experiments	Hours of study
1.	Program related to Library function & formatted I/O	08
2.	Program related to Conditional Statement	08
3.	Program related to Looping Statement	10
4.	Program using Switch Statement	04
5.	Program using Continue, Break, Exit.	04
6.	Program using Single dimensional and Two-dimensional array.	10
7.	Program using Function.	18
8.	Program using call by Value & Call by reference	04
9.	Program to Pass array as argument to a function.	02
10.	Program using Static, Auto, & Extern function.	12
11.	Program using Structure & Union.	12
12.	Program using Pointer & Files.	04
Total		96

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SEMESTER: SECOND
 COURSE CODE: 203

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5005

NAME OF COURSE: BASIC PROGRAMMING IN 'C'

REFERENCES

1. Theory and problems of programming with 'C', Gottfried., Schaum's series.
2. Programming in C, Balaguruswami.
3. Let us "C" , Y. Kanetker.

Sl. No.	Reference
1	1. Theory and problems of programming with 'C', Gottfried., Schaum's series.
2	2. Programming in C, Balaguruswami.
3	3. Let us "C" , Y. Kanetker.

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SEMESTER: SECOND

COURSE CODE: 204

NAME OF COURSE: BASIC ELECTRICAL,

ELECTRONICS & MEASUREMENTS

SCHEME: Dip. CS_JULY 2002

COMMON WITH PROGRAMME (S): 104

PAPER CODE: 5006

RATIONALE

Electricity finds its base as basic energy for modern industrial activities and so is the case of Electronics, which is being extensively used today, in all Industries, Power System Operation, Communication Systems, Computers and information Technology. Hence it has become absolutely necessary for all Diploma Holders to have basic understanding of: -

- (a) Basic Laws of electricity & magnetism.
- (b) Power in A.C. Circuit.
- (c) Electronic Components, their functions & applications.
- (d) Measurements & Control etc.

This will form the base for handling various types of Equipments used in I.T. Industry and

will facilitate in operation & maintenance of equipments to carry out his/her job functions effectively.

The practical work to be performed in this course will help in developing skills of operation, repairs and testing of components, and various gadgets.

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: SECOND
 COURSE CODE: 204
 NAME OF COURSE: BASIC ELECTRICAL,
 ELECTRONICS & MEASUREMENTS

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S): 104
 PAPER CODE: 5006

SCHEME OF STUDIES

Lectures: 4 Hrs per week
 Practical: 2 Hrs per week

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1	Review of General Topics	06	-	06
2	Electromagnetism	06	06	12
3	A.C. Theory	06	-	06
4	General Electrical Machines	06	08	14
5	Introduction to Electronics.	02	-	02
6	Semi Conductor Physics	06	-	06
7	Semi Conductor Diodes	06	04	10
8	Transistors	06	04	10
9	Regulated Power Supply	04	04	08
10	Measuring Instruments	06	06	12
	Tutorials	4+6	-	10
	Total	64	32	96

SEMESTER: SECOND

COURSE CODE: 204

NAME OF COURSE: BASIC ELECTRICAL,
ELECTRONICS & MEASUREMENTS

SCHEME: Dip. CS_JULY 2002

COMMON WITH PROGRAMME (S): 104

PAPER CODE: 5006

COURSE CONTENT

S. No.	Detailed Course Contents	Hours of study
1.0	REVIEW OF FOLLOWING	6
1.1	Atomic Structure of Conducting and Semi-Conducting materials.	
1.2	Behavior of materials with electricity.	
1.3	Concept of unit of Electric current and Voltage	
1.4	Ohm's Law, Concept of Resistance, Conductance, Resistivity and Conductivity. Their units and dependence on temperature.	
1.5	Power & Energy, heating effect of electric current and conversion of units (Mechanical to Electrical)	
1.6	Kirchoff's Voltage and current Laws & their applications in simple DC Circuits.	
1.7	Series & Parallel combination of resistance and wattage, Consideration with Simple Problems.	
2.0	ELECTROMAGNETISM	6
2.1	Concept of magnetic field production by flow of current, concept of m, f, flux, reluctance, permeability, Analogy between electrical & magnetic circuits.	
2.2	Faraday's Laws of electromagnetic induction, self and mutually induced e m fs, simple numerical problems.	
3.0	A.C. THEORY	6
3.1	Concept of alternating voltage and current, difference between AC and DC.	
3.2	Concept of cycle, frequency, period, amplitude, instantaneous value, average value, r.m.s. value and peak value, form factor (definitions only.)	
3.3	Concept of impedance, phase angle, numerical problems, RL & RLC series circuits.	
4.0	GENERAL ELECTRICAL MACHINES	6
4.1	Introduction, definition of motor & generator and common features of static & rotating electrical machines.	
4.2	Transformer- Construction- core type, shell type, transformation ratio and e.m.f. equation.	

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: SECOND
 COURSE CODE: 204

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S): 104
 PAPER CODE: 5006

NAME OF COURSE: BASIC ELECTRICAL,
 ELECTRONICS & MEASUREMENTS

Lectures: 4 Hrs. per week

S. No.	Detailed Course Contents	Hours of study
5.0	INTRODUCTION TO ELECTRONICS	2
5.1	Voltage and current sources, Constant voltage and current sources and their graphical representation. Conversion of voltage source into current source and vice-versa.	
6.0	SEMI-CONDUCTOR PHYSICS.	6
6.1	Conducting materials, effect of temperature conductivity in Germanium and Silicon.	
6.2	Extrinsic Semi-Conductors, doping, P-N type Semi-Conductor, majority and minority carriers, effects of temperature.	
6.3	P-N junction, drift and diffusion currents, depletion layer, potential barrier, effects of forward and reverse biasing of P-N junction. Energy band diagrams, breakdown mechanism.	
7.0	SEMI CONDUCTOR DIODES.	6
7.1	Use of diode as half wave and full wave (Centre tapped and bridge type) rectifiers. Relation between d.c. output and a.c. input voltage.	
7.2	Concept of ripples, filter circuits, Shunt capacitor, Series inductor & ' filters and their applications.	
7.3	Zener diode and its V-I Characteristics.	
8.0	TRANSISTORS.	6
	Construction of bi-polar junction transistor with respect to :-	
8.1	Working-principle of transistor, forward and reverse biasing.	
8.2	Transistor Configuration-Common Base (CB), Common Emitter (CE) and Common Collector (CC), their Comparison of configuration and applications. General introduction of UJT, FET and SCR.	
9.0	REGULATED POWER SUPPLY.	4
9.1	Need of regulated power supply, regulation, stabilisation of voltage by Zener diode, its limitations.	
9.2	Block diagram of regulated power supply, transistorised regulated power supply and short circuit protection.	

SEMESTER: SECOND

SCHEME: Dip. CS_JULY 2002

COURSE CODE: 204

COMMON WITH PROGRAMME (S): 104

NAME OF COURSE: BASIC ELECTRICAL,

PAPER CODE: 5006

ELECTRONICS & MEASUREMENTS

Lectures: 4 Hrs. per week

S. No.	Detailed Course Contents	Hours of study
10.0	ELECTRICAL & ELECTRONIC MEASUREMENT.	6
10.1	Working principle and Construction of Ammeters and Voltmeter, difference between them, extension of range and simple numerical problems.	
10.2	Principle and working of Watt meter (dynamometer type) and Energy meter (Induction type)	
10.3	Digital measuring instruments, Seven-segment display and its applications	

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SEMESTER: SECOND
COURSE CODE: 204

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S): 104
PAPER CODE: 5006

NAME OF COURSE: BASIC ELECTRICAL,
ELECTRONICS & MEASUREMENTS

LIST OF EXPERIMENTS

Practical: 2 Hrs. per week

S. No.	Name of experiments	Hours of study
		Total 32 Hrs.
1.	Verification of Ohm's law.	
2.	Verification of Kirchoff's laws.	
3.	To find out the value of capacitance of corrector.	
4.	Plotting V-I characteristics of semi-conductor diode.	
5.	Plotting V-I characteristics of Zener diode and finding it's reverse breakdown voltage.	
6.	Observation of output wave shapes and input wave shapes of Full wave/Half wave rectifier.	
7.	Plotting input/output characteristics of CE configuration of transistor.	
8.	To measure voltage, current, power and energy in single phase AC circuit.	
9.	Colour coding of resistance and units of capacitance.	

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SEMESTER: SECOND

COURSE CODE: 204

NAME OF COURSE: **BASIC ELECTRICAL,
ELECTRONICS & MEASUREMENTS**

SCHEME: Dip. CS_JULY 2002

COMMON WITH PROGRAMME (S): 104

PAPER CODE: 5006

REFERENCES

1. Electrical Technology, E. Admiralty.
2. Electrical Engineering Basic Technology, Hubscher, Klaue Pfloger, Appelt, Willey Eastern Ltd., New Delhi.
3. Electrical Engineering, Gupta J.B.
4. Experiments in Basic Electrical Engineering, Bhattachrya S. K., Rastogi K. M., New Age International Pvt. Ltd., New Delhi.
5. Problems in Electrical Engineering, Smith P.

SEMESTER: SECOND
 COURSE CODE: 205
 NAME OF COURSE: ELECTRONICS WORK SHOP PRACTICE

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: -

RATIONALE

Expertise in Hardware maintenance requires a basic understanding of electronic components, circuitry and various testing equipment, this course strives to provide a hands-on experience in testing of electronic components.

Students are introduced to the basics of Hardware maintenance through the principle of "Learning by Doing".

Sl. No.	Topic	Hours	Practicals
1	Introduction to Electronics & PCB	10	1
2	Identification of Electronic components, applications (Resistors, Capacitors, Inductors, Diodes, Transistors, ICs, LEDs, LCDs etc.)	10	1
3	PCB Processes	10	1
4	CABLES & SOCKETS	10	1
Total		40	4

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: SECOND

COURSE CODE: 205

NAME OF COURSE: **ELECTRONICS WORK SHOP PRACTICE**

SCHEME: Dip. CS JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: -

SCHEME OF STUDIES

Lectures: 1 Hrs per week
Practical: 4 Hrs per week

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1	Measuring Equipment & Tools	4	20	24
2	Electronics Devices & PCB	5	20	25
3	Cables & Sockets	3	08	11
4	Rectifiers & Power Supply	4	16	20
	Total	16	64	80

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

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SEMESTER: SECOND

COURSE CODE: 205

NAME OF COURSE: ELECTRONICS WORK SHOP
PRACTICE

SCHEME: Dip. CS_JULY 2002

COMMON WITH PROGRAMME (S):

PAPER CODE: -

COURSE CONTENT

Lectures: 1 Hrs. per week

Practical: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
1	MEASURING EQUIPMENT AND TOOLS	4+20
1.1	Introduction to Electronics Measurement & testing tools/equipment (Multi-meter, Oscilloscope, Meg-ohm Meter, Earth Tester, Signal Generator etc.)	
1.2	Basic Tools used is Electronics W/S Soldering Iron, De-soldering Pump, Soldering Station, Wire Stripper, Wire Cutter, Crimping Tools.	
1.3	Soldering and De-soldering Techniques (Soldering Materials, Flux)	
2	ELECTRONIC DEVICES & PCB	5+20
2.1	Identification of electronic devices/values, applications (Resistance, Capacitance, Inductance, Diodes, Transistor, ICs, LDRs, LED, LCD etc.)	
2.2	Introduction to PCB Types of PCB: Single Layer, Double Layer, Multi-Layer.(Paper Punch, Epoxy Glass, Paper Phenol, Paper Resin), Vera Board, Bread Board.	
2.3	PCB Processes: Layout Designing, Transfer of design on Copper clad, PCB etching, Drilling, Tinning and Masking	
3	CABLES & SOCKETS	3+08
3.1	Various Types of Cables	
3.23.3	Electrical Cable, Single Core, Two Core, Three Core, High Power Cable and their specifications. Domestic Power Cable (3-Core), Two Core Flat, Two Core Flexible Cable and their specifications	

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: SECOND
 COURSE CODE: 205

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: -

NAME OF COURSE: ELECTRONICS WORK SHOP
 PRACTICE

COURSE CONTENT

Lectures: 1 Hrs. per week
 Practical: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
3.3	Communication Cable Co-axial Cable, Twisted Pair Cable, Fibre Optic Cable, Compensation Cable.	4+16
3.4	Sockets Electrical Sockets, Lugs, Connectors, Switches. Computer/Communication Sockets: RS232, DIN, D-Type, USB, RJ 45 and RJ 11, BNC	
4	RECTIFIERS & POWER SUPPLY	
4.1	Assembler circuit of HW/FW Rectifier	
4.2	Circuit of Zener regulated Rectifier	
4.3	Circuit of IC Regulated Dual Power Supply for $\pm 5V$, $\pm 12V$ etc. Using Vera board, Wired board, Designed PCB with Filter Circuit.	
4.4	SMPS, Principle of Working	
4.5	UPS and its Working.	

SEMESTER: **SECOND**
 COURSE CODE: **205**
 NAME OF COURSE: **ELECTRONICS WORK SHOP PRACTICE**

SCHEME: **Dip. CS_JULY 2002**
 COMMON WITH PROGRAMME (S):
 PAPER CODE: -

LIST OF EXPERIMENTS

Practical: 4 Hrs. per week

S. NO.	Name of experiments	Hours of Study
1.	Use of Multimeter, Capacitance Meter, Inductance Meter	05
2.	Use of Oscilloscope, Signal Generator	05
3.	Use of Earth Tester, Meg-Ohm Meter	02
4.	Soldering Techniques	06
5.	De-soldering of components and devices from an-assembled PCB	04
6.	Artwork Preparation of small circuits	14
7.	Preparation of PCB	08
8.	Preparation of Networking Cable (Co-axial RJ-45/ CAT-5)	06
9.	Various Cable Preparations with different types of connector.	05
10.	Preparation of Dual Power supply using 78XX and 79XX	03
11.	Preparation of Regulated Dual power supply using LM329/327	03
12.	Design & Test Circuit, using diode as a switch.	02
13.	Design & Test Clipper Circuit, using diode.	03
14.	Design & Test Clamper Circuit, using diode.	03
15.	Study of SMPS	03
16.	Study of UPS	02
Total		64

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SEMESTER: SECOND
COURSE CODE: 205
NAME OF COURSE: ELECTRONICS WORK SHOP
PRACTICE

SCHEME: Dip. CS JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: -

REFERENCES

- Boshart, PCB Design, TMH
- Manufacturer's Manuals of Testing Equipment.
- Bhattacharya and Rastogi, Experiments in Basic Electrical Engg., New Age International Pvt. Ltd., New Delhi.
- Chatty P., Switching Mode Powers Supply Design, BPB.
- Cooper D., Electronics Instrumentation.

SEMESTER: SECOND

COURSE CODE: 206

NAME OF COURSE: PROFESSIONAL ACTIVITIES

SCHEME: Dip. CS_JULY 2002

COMMON WITH PROGRAMME(S):104

Practice Hours: 2 Hrs/week

RATIONALE

Professional Activities is not a descriptive course, as per conventional norms; therefore specific content for this course cannot be prescribed. It is a group of open-ended activities; where in variety of tasks are to be performed, to achieve objectives. However general guidelines for achieving the target and procedure for its assessment are given under the course content of course code 106 of first semester.

As the student has to practice this course in all the six semesters, the guidelines given therein are common and applicable to each semester.

OBJECTIVES:

- To allow for professional development of students as per the demand of engineering profession.
- To provide time for organisation of student chapter activities of professional bodies (i.e. Institution of engineers, ISTE or Computer Society of India etc.)
- To allow for development of abilities in students for leadership and public speaking through organisation of student's seminar etc.
- To provide time for organisation of guest lectures by expert engineers/ eminent professionals of industry.
- To provide time for organisation of technical quiz or group discussion or any other group activity.
- To provide time for visiting library or using Internet.
- To provide time for group discussion or solving case studies.
- To provide time for personality development of students.
- To provide time for working for a social cause like awareness for environment and ecology etc.

DETAILED INSTRUCTIONS TO CONDUCT 'PROFESSIONAL ACTIVITIES':

- A) Study hours, if possible should be given greater time slot with a minimum of two Hrs/week to a maximum of four Hrs/week.
- B) This course should be evaluated on the basis of GRADES & mark sheet of students, should have a separate mention of the grade awarded. There will be no pass/fail in Professional Activities (P.A.).

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C) Following grade scale for evaluation of performance in P.A. has been established.

<u>Grades</u>	<u>Level of performance</u>
A	Excellent
B	Good
C	Fair
D	Average
E	Below expectations

D) Grades once obtained in a particular examination shall become final and no chance for improvement in grades will be given to the students.

E) Assessment of performance in P.A. is to be done internally by the institution, twice in a semester/term through a simultaneous evaluation of the candidate by a group of three teachers, of the deptt. concerned. Group of teachers will jointly award the grade to candidate in the assessment. Best of the grades obtained by the student in these two assessments shall be finally taken on the mark sheet of the respective semester/term.

Candidates abstaining from the prescribed course work and/or assessment planned at the institution shall be marked ABSENT in the mark sheet, instead of any grade.

F) While awarding the grades for performance in P.A., examining teacher should reach the final consensus based on the attendance, punctuality, interest, presentation skills in seminar on the topic assigned (Collection of relevant data, Observations, Analysis, findings/Conclusion) and its written report, awareness of latest developments in the chosen programme of study.

G) Institution shall maintain the record of grades awarded to all the students in P.A. for a period of one year.

H) It shall be mandatory for students to submit a compendium of his P.A. in the form of a journal.

I) Compendium shall contain following

- i) Record of written quiz.
- ii) Report/Write up of seminar presented.
- iii) Abstract of the guest lectures arranged in the institution.
- iv) Topic & outcome of the group discussions held.
- v) Reports on the problems solved through case studies.
- vi) Report on social awareness camps (organised for ecology & environment preservation).

- vii) Report on student chapter activities of professional bodies like ISTE, I.E. (India), CSI etc.

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- J) P.A. is not a descriptive course to be taught in the classroom by a particular teacher. Various activities involved in the achievement of objectives of this course should be distributed to number of teachers so that the talents and creativity of group of teachers' benefits the treatment of the course content.

These activities should preferably be conducted in English language to maintain continuity and provide reinforcement to skill development process.

Small groups shall be formed like in tutorials, group discussion, case studies, seminar, project methods, games, role-play & simulation to make the development of personality affective.

Treatment of P.A. demands special efforts, attention, close- co-operation and creative instincts on the part of teachers of the dept. concerned. Since this course is totally learner centered, many of the activities planned under this course shall come out from the useful interaction of students, among themselves and with the teachers. The guiding teacher/s shall best act as a facilitator of these creative hunts/exercises, which unfold many of the hidden talents of the students or brings out greater amount of confidence in them, to execute certain activity.

CURRICULUM

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FOR

**DIPLOMA IN COMPUTER SCIENCE
AND ENGINEERING**

(THIRD SEMESTER)

Scheme: Dip.CS_JULY2002

Implemented from session 2003-2004

Under semester system

JULY 2003

**CURRICULUM DEVELOPMENT CENTRE
RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL (M.P.)**

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

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SEMESTER: THIRD
 COURSE CODE: 301

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5007

NAME OF COURSE: **MATHEMATICAL FOUNDATION
 FOR COMPUTERS**

RATIONALE

Mathematical foundations provide tools to computer scientist/engineers for abstract reasoning. The aim of the course is to develop skills in the use of logical arguments and reasoning. This will be helpful to students, in various other courses of study.

Sl. No.	Topic	Hours	Credits
1.1	Introduction to Set Theory	20	2
1.2	Mathematical Induction	20	2
1.3	Relations	20	2
1.4	Functions	20	2
2.1	Introduction to Matrices	20	2
2.2	Addition and Subtraction of Matrices	20	2
2.3	Multiplication of Matrices	20	2
2.4	Transpose of a Matrix, Symmetric & Diagonal Matrices	20	2
2.5	Adjoint of a Square Matrix, Inverse of Matrix	20	2
2.6	Solution of Simultaneous Linear Equations	20	2
2.7	Rank of a Matrix	20	2
2.8	Consistency of Linear Systems	20	2
3.1	Mathematical Analysis	20	2
3.2	Real Numbers, Real Functions, Continuity, Differentiability	20	2
3.3	Integration, Indefinite, Definite, Double, Triple Integrals, Applications	20	2
3.4	Differential Equations, Ordinary, Partial, Linear, Non-linear, Applications	20	2

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: THIRD
COURSE CODE: 301
NAME OF COURSE: MATHEMATICAL FOUNDATION
FOR COMPUTERS

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5007

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 4 Hrs. per week
Practical: - Hrs. per week

S. NO.	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Set Theory	08	-	08	10
2.	Matrices	08	-	08	15
3.	Numerical Analysis	16	-	16	25
4.	Statistics	16	-	16	25
5.	Linear Programming	08	-	08	15
6.	Graph Theory	08	-	08	10
Total		64	-	64	100

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**DIPLOMA IN COMPUTER SCIENCE & ENGG.**

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SEMESTER: **THIRD**SCHEME: **Dip.CS JULY 2002**COURSE CODE: **301**COMMON WITH PROGRAMME (S):**104**NAME OF COURSE: **MATHEMATICAL FOUNDATION
FOR COMPUTERS**PAPER CODE: **5007****COURSE CONTENT**

Lectures: 4 Hrs. per week

S. NO	Course Content	Hours of Study
1.	SET THEORY	
1.1	Review of Theory of sets; Types of Sets, Subsets, Equal Sets, Universal Set	02
1.2	Operations; Union of two sets, Intersection of two sets, Disjoint sets, Complement of sets	02
1.3	Relations; Binary Relation, Properties of Binary Relation, Equivalence Relation	02
1.4	Functions: Various kinds of functions, Constant functions, Identity functions, Equal functions.	02
2.	MATRICES	
2.1	Introduction; Definition, Special Matrices	01
2.2	Addition and Subtraction of Matrices	01
2.3	Multiplication of Matrices	01
2.4	Transpose of a Matrix, Symmetric & Skew Symmetric Matrix	01
2.5	Ad joint of a Square Matrix, Inverse of Matrix	01
2.6	Solution of Simultaneous linear equations	01
2.7	Rank of a Matrix	01
2.8	Consistency of Linear System of equations	01
3.	NUMERICAL ANALYSIS	
3.1	Iterative Methods; Bisection Method, False Position Method, Newton-Raphson Method	05
3.2	Interpolation; Introduction, Difference Tables & Difference Calculus, Interpolation by Difference Tables for equal intervals, Lagrange's Interpolation	04
3.3	Numerical Integration & Differentiation; Introduction, Numerical Differentiation up to first order, Numerical integration by Trapezoidal Rule & Simpson's Rule	04
3.4	Solution of Simultaneous Algebraic Equations; Introduction, The Gauss elimination method, The Gauss-Seidel iterative method.	03

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SEMESTER: THIRD
 COURSE CODE: 301
 NAME OF COURSE: MATHEMATICAL FOUNDATION
 FOR COMPUTERS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5007

COURSE CONTENT

Lectures: 4 Hrs. per week

S. No.	Course Content	Hours of study
4.	STATISTICS	
4.1	Frequency Distributions; Introduction, Graphical Representation in Histogram, Frequency Polygon & Curves	02
4.2	Measure of Central Tendency; Arithmetic Mean, Median, Mode	03
4.3	Measure of Dispersion; Range, Quartile Deviation, Mean Deviation, Standard Deviation, Root-Mean Square Deviation	04
4.4	Curve fitting; Method of least square, Normal Equations of Regression, Fitting of Straight lines, Fitting of curve of the type $y=ax^b$, $y=ae^{-bx}$	04
4.5	Probability; Types of Events, Probability & its Laws, Probability by Binomial Distribution	03
5.	LINEAR PROGRAMMING	
5.1	Definition, Linear In-equations in two variables	01
5.2	Graphs of In-equations	01
5.3	System of In-equations and its solution	01
5.4	Terms in Linear Programming such as objective function, constraints, feasible regions extreme values, ISO Profit Line	01
5.5	Linear Programming Problems & its Solution	02
5.6	Mathematical formulation of L.P.P. and optimal solution by graphical method	02
6.	GRAPH THEORY	08
	Definition, Incidence, degree, Isomorphism, Subgroups. Union of graphs, connectedness, walks, paths & Circuits. Shortest path Algorithms, Eulerian graph, Hamiltonian graph, necessary and sufficient conditions, Traveling Salesman Problem, Bipartite graph.	

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

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SEMESTER: THIRD

COURSE CODE: 301

**NAME OF COURSE: MATHEMATICAL FOUNDATION
FOR COMPUTERS**

SCHEME: Dip.CS_JULY 2002

COMMON WITH PROGRAMME (S):104

PAPER CODE: 5007

REFERENCES

TEXT BOOKS:

- Sastry S.S., Introductory Method of Numerical Analysis, PHI.
- Ray & Sharma, Mathematical Statistics.
- Liu C L, Discrete Mathematics, Tata McGraw Hill.
- Srinath L.S. , Linear Programming , East-West Press.

REFERENCE BOOKS:

- Seymour Lipachutez, Set Theory and Related Topics Schum's, Out line Series, McGraw Hill Book Co., New Delhi.
- Saxena H C, Finite Differences and Numerical Analysis.
- Sharma & Seth, Modern Algebra, Ram Prasad & Sons.
- Raja Raman V, Computer Oriented Numerical Methods, PHI.

SEMESTER: THIRD
 COURSE CODE: 302
 NAME OF COURSE: DATA STRUCTURE &
 ALGORITHMS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5067

RATIONALE

Data Structure & Algorithms is one of the key courses in computer programming. The course serves as the foundation upon which many other computer science fields are built. The knowledge of data structures is a must for any person, who wishes to work in design implementation, testing or maintenance of virtually any software system. The course gives clear idea about mapping various processes or operation into the algorithms. The same can be tested on paper for faithfulness, correctness, termination and complexity before coding it into any programming language. The subject is independent of programming language and is supported by many modern compilers.

Sl. No.	Topic	Theory	Practical	Internal	External
1	Introduction to Data Structures and Algorithms	20	10	30	20
2	Linear Data Structures: Lists	30	15	45	30
3	Non-linear Data Structures: Trees and Graphs	30	15	45	30
4	Algorithms: Complexity Analysis	30	15	45	30
TOTAL					100

4.1	Type of queue-Linear queue, circular queue, Dequeue	10			
4.2	Applications of queue: Graphical user interface and priority queues. Evaluation of postfix expression using stack.	20			
5	LINKED LISTS		10		
5.1	Single linked list, searching in list				
5.2	Linked stacks and queues.				
5.3	Polynomial representation and multiplication using linked list.				
5.4	Circular linked list.				
5.5	Doubly linked list.				
5.6	Generalized list.				
5.7	Sparse Matrix representation using generalized list.				

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: **THIRD**
 COURSE CODE: 302
 NAME OF COURSE: **DATA STRUCTURE & ALGORITHMS**

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SCHEME: **Dip.CS_JULY 2002**
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5067

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lecturers: 4 Hrs. Week
 Practical: 2 Hrs. Per Week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Basic concepts of data representation	03	--	03	05
2.	Introduction to algorithm design and data structure	04	01	05	10
3.	Arrays	05	06	11	10
4.	Stacks and queues	07	06	13	10
5.	Linked lists	08	06	14	10
6.	Storage allocation and garbage collection.	05	01	06	05
7.	Trees	08	04	12	10
8.	Symbol tables	04	01	05	10
9.	Searching and sorting algorithms	10	04	14	10
10.	Strings and their features	04	01	05	10
11.	Graphs	06	02	08	10
TOTAL		64	32	96	100

SEMESTER: THIRD
 COURSE CODE: 302
 NAME OF COURSE: DATA STRUCTURE &
 ALGORITHMS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5067

COURSE CONTENT

Lectures: 4 Hrs. per week

S. No.	Course Content	Hours of study
1	BASIC CONCEPTS OF DATA REPRESENTATION	03
1.1	Abstract and system defined, data types	
1.2	Representation, primitive data structures	
2.	INTRODUCTION TO ALGORITHM DESIGN AND DATA STRUCTURE	05
2.1	Design and analysis of algorithm	
2.2	Top-down and bottom-up approaches to algorithm design	
2.3	Analysis of Algorithm: Frequency count, complexity measures in terms of time and space	
2.4	Structured approach to programming	
3.	ARRAYS	05
3.1	Representation of arrays : single and multidimensional arrays	
3.2	Address calculation using column and row major ordering.	
4.	STACKS AND QUEUES	07
4.1	Representation of stacks and queues using arrays	
4.2	Type of queues-Linear queue, circular queue, Dequeue	
4.3	Applications of stacks: Conversion form infix to postfix and prefix expressions, Evaluation of postfix expression using stacks.	
5	LINKED LISTS	08
5.1	Singly linked list : operations on list	
5.2	Linked stacks and queues.	
5.3	Polynomial representation and manipulation using linked lists	
5.4	Circular linked lists.	
5.5	Doubly linked lists.	
5.6	Generalized lists.	
5.7	Sparse Matrix representation using generalized list structure.	

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SEMESTER: THIRD
 COURSE CODE: 302
 NAME OF COURSE: DATA STRUCTURE &
 ALGORITHMS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5067

COURSE CONTENT

Lectures: 4 Hrs. per week

S. No.	Course Content	Hours of study
6.	STORAGE ALLOCATION AND GARBAGE COLLECTION.	05
6.1	Memory allocation strategies: First fit and best-fit approaches, Boundary tag method: memory freeing algorithm in each case.	
7.	TREES	08
7.1	Basics of Trees: Binary tree traversal methods, Preorder traversal, In-order traversal, Post-order traversal, Recursive and non recursive Algorithms for above mentioned, Traversal methods.	
7.2	Representation of trees and its applications: Binary tree, Representation of a tree, Conversion of forest into tree.	
7.3	Threaded binary trees.	
7.4	Decision and game trees.	
7.5	Algorithms for minimum spanning tree: Frims and kruskal's.	
8	SYMBOL TABLES	04
8.1	Static symbol table.	
8.2	Hash tables-resolution techniques.	
8.3	Binary search tree	
8.4	Dynamic tree tables: Height balanced (AVL) tree, B-trees.	
9.	SEARCHING AND SORTING ALGORITHMS	10
9.1	Searching Algorithm: Sequential search, binary searches, Indexed search, Hashing schemes.	
9.2	Sorting Algorithm: Insertion sort, selection sort, bubble sort, Quick sort, merge sort, Heap sort, Radix sort, Sorting on multiple keys and their analysis.	

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SEMESTER: THIRD
 COURSE CODE: 302
 NAME OF COURSE: DATA STRUCTURE &
 ALGORITHMS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5067

COURSE CONTENT

Lectures: 4 Hrs. per week

S. No.	Course Content	Hours of study
10.	STRINGS AND THEIR FEATURES.	04
10.1	String representation.	
10.2	String manipulation using arrays and lists.	
10.3	String matching algorithms.	
11.	GRAPHS	06
11.1	Basics of Graphs	
11.2	Graph representation: Adjacency matrix, Adjacency lists, Adjacency Multi-lists.	
11.3	Traversal schemes: Depth first search, Breadth first search.	
11.4	Shortest path Algorithms: Single source shortest path, all pair shortest path.	

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SEMESTER: THIRD
 COURSE CODE: 302
 NAME OF COURSE: DATA STRUCTURE &
 ALGORITHMS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5067

LIST OF EXPERIMENTS

Practical: 2 Hrs. per week

S. NO.	Name of experiments	Hours of Study
1.	Programme implementation for a) Reading and printing of single array and multidimensional array. b) Matrix manipulation, stack and queries, Postfix and prefix. c) For one dimensional, 2D & 3D array.	
2.	Program implementation for creating, updating, deleting, traversing, searching and sorting of arrays, linear and circular link, lists, doubly link list, stacks and queues, trees.	
3.	Program implementation for manipulation of strings and match algorithms.	
4.	Program implementation for agency matrix, traversing and searching.	
Total		32

Note: All Algorithms should be developed in C/C++

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SEMESTER: **THIRD**
COURSE CODE: **302**
NAME OF COURSE: **DATA STRUCTURE &
ALGORITHMS**

SCHEME: **Dip.CS_JULY 2002**
COMMON WITH PROGRAMME (S):
PAPER CODE: **5067**

REFERENCES

TEXT BOOKS:

- Sahani, Data structure & Algorithms, TMH.
- Tennebaum, Data structure using C/C++.
- Rowe, Introduction to Data Structure and Algorithms with C++, PHI.

REFERENCE BOOKS:

- Drozdek Adams, Data Structures and Algorithms in C++, Vikas Publishing House Pvt. Ltd.
- Kunth D. E., Art of Computer Programming and Fundamentals of Algorithms, Vol.-I, Narosa.
- Kunth, Art of computer programming, Vol.-III, Sorting searching.
- Wirth Niklaus, Algorithm + Data = Program, PHI
- Drozdek Adams, Data structures & Algorithms in Java, Vikas.
- Lipschutz, Data structure, Schaum out line series, TMH.
- Kruse, Leung & Tondo, Data structure & Program design in C, PHI
- Kutti & Pandye, Data Structures in C++, PHI
- Thomas A Staudish, Data Structure Techniques.
- Sanjeev Sofat, Data structure in C and C++, Khanna Book Publishing Co.

SEMESTER: **THIRD**
 COURSE CODE: **303**
 NAME OF COURSE: **DATA COMMUNICATION**

SCHEME: **Dip.CS_JULY 2002**
 COMMON WITH PROGRAMME (S): **104**
 PAPER CODE: **5013**

RATIONALE

The Field of data Communication is passing through development phase and is contributing enormously to the growth of Computer Networking. Developments during the last decade have also brought remarkable changes in the perspective of the course, which now focuses on the integrated approach to data and Computer Communication.

Study of the course will enable student to understand various data Communication techniques, which are used in the field of information technology.

Sl. No.	Topic	Hours	Credits
1	Introduction to Data Communication	10	1
2	Transmission Media	10	1
3	Switching Techniques	10	1
4	Local Area Networks	10	1
5	Wide Area Networks	10	1
6	Modulation and Data Coding	10	1
7	Flow Control	10	1
8	Error Control	10	1
9	Multiple Access	10	1
10	Security	10	1
11	Summary	10	1
TOTAL		110	11

3.3	Amplitude, Phase Keying, Frequency Shift Keying, Quadrature Phase Shift Keying	10	1
	Differential PSK (DPSK)	10	1
3.4	Single, Half Duplex, Full Duplex	10	1
4.0	MULTIPLEXING		
	Introduction to	10	1
4.1	Frequency division multiplexing	10	1
4.2	Time division multiplexing	10	1
5.	ERROR CONTROL		
5.1	Transmission Error, Types of error detection methods Error correction methods	10	1
5.2	Forward error correction	10	1
5.3	Reverse error correction	10	1

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SEMESTER: THIRD
 COURSE CODE: 303
 NAME OF COURSE: DATA COMMUNICATION

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S): 104
 PAPER CODE: 5013

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 4 Hrs. per week
 Practical: 2 Hrs. per week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Data Communication Concept & Technology	08	-	08	06
2.	Transmission Media	10	20	30	20
3.	Modulation and Data Modems	10	06	16	20
4.	Multiplexing	08	-	08	12
5.	Error Control	07	-	07	12
6.	Data Networks	07	-	07	05
7.	Fibre Optic Communication	07	-	07	10
9.	Introduction to Mobile Technology and Satellite Communication	07	06	13	15
TOTAL		64	32	96	100

SEMESTER: THIRD
 COURSE CODE: 303
 NAME OF COURSE: DATA COMMUNICATION

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S): 104
 PAPER CODE: 5013

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	DATA COMMUNICATION CONCEPT & TECHNOLOGY Data Representation, Data Transmission, Modes of Data Transmission- Analog Data, Digital Data, Communication Channels, Synchronous & Asynchronous Data & Communication, Series & Parallel data Communication	08
2.	TRANSMISSION MEDIA	10
2.1	Introduction to Transmission Media i.e. Twisted Pairs Cable Co-axial Cable, UTP, STP, Radio, UHF & Microwaves, Satellite link, Optical fibre, RS-232-C with pros and cons of each	
2.2	Transmission line Characteristics	
3.	MODULATION AND DATA MODEMS	10
3.1	Concept of modulation and demodulation	
3.2	Digital modulation methods: PCM	
3.3	Amplitude, Shift-keying, Frequency Shift-keying, Quadrature PSK (QPSK) Differential PSK (DPSK)	
3.4	Simplex, Half Duplex, Full Duplex	
4.0	MULTIPLEXING Introduction to	08
4.1	Frequency division multiplexing	
4.2	Time division multiplexing	
5.	ERROR CONTROL	07
5.1	Transmission Error, types of error detection methods (Error correction methods)	
5.2	Forward error correction	
5.3	Reverse error correction	

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SEMESTER: THIRD
 COURSE CODE: 303
 NAME OF COURSE: DATA COMMUNICATION

SCHEME: Dip.CS JULY 2002
 COMMON WITH PROGRAMME (S): 104
 PAPER CODE: 5013

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO	Course Content	Hours of Study
6.	DATA NETWORKS	07
6.1	Switching Techniques: Circuit Switching, Packet Switching	
6.2	Introduction of PABX, FAX, Topologies, ISDN	
7.	FIBRE OPTIC COMMUNICATION	07
7.1	Introduction	
7.2	Types of Optical Sources and detectors	
7.3	Mode of propagation of data in fibre	
7.4	FON, FDDI	
7.5	Introduction of WDM	
8.	INTRODUCTION TO MOBILE TECHNOLOGY & SATELLITE COMMUNICATION	07
8.1	GSM, General Packet Radio Service (GPRS)	
8.2	Satellite Communication, VSAT	
8.3	Enhanced data rates for global evaluator (EDGE)	
8.4	Universal Mobile Telephone System (UMTS)	
8.5	CD _{ma2000}	
8.6	HDR Technology	
8.7	Wide Band CD _{ma} (W_CD _{ma}) Technology	
8.8	Comparison of W_CD _{ma} & CD _{ma2000}	

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SEMESTER: **THIRD**
COURSE CODE: **303**
NAME OF COURSE: **DATA COMMUNICATION**

SCHEME: **Dip.CS_JULY 2002**
COMMON WITH PROGRAMME (S): **104**
PAPER CODE: **5013**

LIST OF EXPERIMENTS

Practical: 2 Hrs. per Week

S. NO.	Name of experiments	Hours of Study
1.	Study and preparation of various Transmission Media like -Coaxial Cable, UTP Cable, and RS-232 C etc.	20
2.	Study of Data Communication System i.e. Fax, Telephone etc.	06
3.	Study of different types of Modem	06
Total		32

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SEMESTER: THIRD
COURSE CODE: 303
NAME OF COURSE: DATA COMMUNICATION

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5013

REFERENCES

- Bartee, Data Communication, Network and Systems, BPB Publication
- Prakash Gupta, Data Communication
- Donald L. Schilling and Herbert Taub, Principles of Communication Systems, TMH.
- Dr. Agrawal D.C., Satellite Communication(1996), Khanna Publishers, New Delhi.
- Information Technology Magazine, June 2001.

SEMESTER: THIRD
 COURSE CODE: 304
 NAME OF COURSE: MICROPROCESSOR AND INTERFACES

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5068

RATIONALE

As a computer professional, one should be capable of understanding internal function of the computer system and he should be able to handle the minor faults and repairs.

The course content is outlined in such a way that the students may understand the basic functions and programming of 8085 family along with 8086/8088 based systems, for actual functioning of computer. The student will also develop the logic for low-level language programming.

This also gives an overview of the history of evolution of Microprocessor and Microcomputer along with further developments in this field.

After completion of this course, the student will be able to understand the functioning of each part of a Microcomputer and the peripheral devices attached.

Sl. No.	Topic	Hours	Weightage
1	Introduction to Microprocessors	10	10%
2	8085 Microprocessor Architecture and Assembly Language Programming	20	20%
3	8086/8088 Microprocessors Architecture and Assembly Language Programming	20	20%
4	8085/8086 Microprocessors Interfacing with Memory and I/O Devices	20	20%
5	8085/8086 Microprocessors Interfacing with Peripheral Devices	20	20%
TOTAL		100	100%

1.1	Introduction to Microprocessors	10	10%
1.2	8085 Microprocessor Architecture and Assembly Language Programming	20	20%
1.3	8086/8088 Microprocessors Architecture and Assembly Language Programming	20	20%
1.4	8085/8086 Microprocessors Interfacing with Memory and I/O Devices	20	20%
1.5	8085/8086 Microprocessors Interfacing with Peripheral Devices	20	20%
TOTAL		100	100%

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SEMESTER: THIRD
 COURSE CODE: 304
 NAME OF COURSE: MICROPROCESSOR AND INTERFACES

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5068

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 4Hrs. Per week
 Practical: 4 Hrs. per week

S. N O	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Introduction to microprocessor and microprocessor applications	04	}		04
2.	Microprocessor architecture and microcomputer systems	08			10
3.	8085 microprocessor architecture and memory interfacing	06			10
4.	Introduction to programming 8085	14		64	12
5.	Architectures & programming of 8086/8088	12			20
6.	Peripherals and interfacing	12			20
7.	Arithmetic co-processor	04			04
8.	Other microprocessors.	04			20
TOTAL		64	64	128	100

SEMESTER: THIRD
 COURSE CODE: 304
 NAME OF COURSE: MICROPROCESSOR AND INTERFACES

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5068

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
1	INTRODUCTION TO MICROPROCESSOR AND MICROPROCESSOR APPLICATIONS	4
1.1	Introduction to Microprocessor	
1.2	Schematic block diagram of a microprocessor based system and functions of each sub-system: microprocessor, memory, I/O and bus.	
1.3	Bit, byte, word, instruction, program, software and hardware	
1.4	Application of Microprocessors in various industrial and communication field.	
2	MICROPROCESSOR ARCHITECTURE AND MICROCOMPUTER SYSTEMS	8
2.1	Microprocessor architecture	
2.2	Various operations of a microprocessor: microprocessor initiated operations Internal data operations Peripheral operations	
2.3	Memory, memory mapping and addressing	
2.4	Review Mapping of Input and Output (I/O) Devices	
3	8085 MICROPROCESSOR ARCHITECTURE AND MEMORY INTERFACING	6
3.1	8085 MPU Architecture Hardware specification. Functional Block Diagram Logic diagram; pin diagram and registers Connecting buffers/Latches to Address and data buses Bus timings and instruction fetch	
3.2	Interfacing memory with 8085	
3.3	Interfacing I/O Devices	
3.4	Basic Interfacing Concepts Interfacing Output Displays	

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 SEMESTER: THIRD
 COURSE CODE: 304
 NAME OF COURSE: MICROPROCESSOR AND
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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5068

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
	Interfacing Input Devices	
4	INTRODUCTION TO PROGRAMMING 8085	14
4.1	Instruction classification & Instruction format	
4.2	Instruction set of 8085	
4.3	Addressing modes	
4.4	Steps in simple programming :Flow chart, Mnemonics & Assembly	
4.5	Programming Examples of 8085	
4.6	Stacks and subroutine	
4.7	Interrupts: The 8085 Interrupts, 8085 vectored Interrupts Restart as software instruction	
5	ARCHITECTURES & PROGRAMMING OF 8086/8088	12
5.1	Intel 8086/8088 Architecture Functional Block Diagram of 8086/8088 Logic diagram; pin diagram and registers Connecting buffers/Latches to Address and data buses Functioning of Intel 8086/8088	
5.2	Timing diagram for READ/WRITE bus cycle, WAIT/READY state Mode of operation of 8086 and 8088 Distinction between "Min" & "Max" mode of operation	
5.3	8086 instructions and programming	
5.4	Memory Interfacing RAM/ ROM interface to 8086/8088 Interfacing memory to 8/16/32 bit data bus techniques	
5.5	Basic I/O Interface and "Hand-shaking"	

SEMESTER: THIRD
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COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
6	PERIPHERALS AND INTERFACING	12
6.1	Programmable peripheral interface - 8255 (PPI) Block diagram, modes of operation of (PPI) 8255 Assigning I/O ports and writing control word Interfacing program for stepper motor controller/7-segment display etc. or any such.	
6.2	Programmable keyboard/display controller 8279, pin diagram of 8279 and function of each pin Need of keyboard interfacing and display interfacing	
6.3	Programmable serial communication interface 8251-A Synchronous & Asynchronous serial/data USART and its function. Schematic block diagram of 8251-A and its pin diagram.	
6.4	Programmable Counter/Interval Timer 8253/8254. Pin & schematic diagram of 8253/8254. Operational modes of 8253/8254. Control word register	
6.5	Direct Memory Address and DMA controllers. Block diagram, pin diagram and operation of Direct Memory Address Controller 8237. DMA request and acknowledge to and from a Microprocessor.	
6.6	Microprocessor based Data Acquisition system. Data-Acquisition systems and its utility in industry. Review of Analog to Digital Converter and Digital to Analog converter Various DAC ICs.	
6.7	Introduction to Multitasking and Distributed system. Various buses i.e. Local Bus, Shared Bus etc. Block diagrams showing local and shared buses.	

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SEMESTER: THIRD
COURSE CODE: 304
NAME OF COURSE: MICROPROCESSOR AND INTERFACES

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SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5068

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
7	ARITHMETIC CO-PROCESSOR Arithmetic Co-processor and its need, advantages. Convert data between decimal and data type allowed for arithmetic co-processor. Distinction between BCD and Floating point Numbers. Architecture of 8087 & various Arithmetic co-processor ICs.	4
8	OTHER MICROPROCESSORS. 80186/80188 and 80286 Microprocessor. Hardware and software enhancements of 80186/80188 compared to 8086/8088. Internal schematic diagram of 80186 and 80286, 80386, 80486 & Pentium Microprocessor Advanced features of Pentium over previous Microprocessor family.	4

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SEMESTER: THIRD
COURSE CODE: 304
NAME OF COURSE: **MICROPROCESSOR AND INTERFACES**SCHEME: **Dip.CS_JULY 2002**
COMMON WITH PROGRAMME (S):
PAPER CODE: 5068**LIST OF EXPERIMENTS**

Practical: 4 Hrs. per week

S. NO.	Name of experiments	Hours of Study
1.	Study of Numeric keyboard/Display Interfacing	
2.	Study various parts and incorporated ICs of 8085 Microprocessor system.	
3.	Study various parts and incorporated ICs of 8086/8088 Microprocessor system	
4.		
5.	Write & execute a programme to add two 8-bit binary numbers and store result and carry.	
6.	Write and execute a programme to add two 16-bit binary numbers using 8085 and 8086/8088.	
7.	Write & execute a programme to multiply two 8-bit binary numbers using 8085.	
8.	Write & execute a programme to transfer a block of 16 bytes of data using 8085.	
9.	Write and execute a programme to multiply two 16-bit binary numbers to give a 32-bit result for 8086/8088.	
10.	Write and execute a programme to store data in a memory segment of 8086/8088	
11.	Write and execute a programme to define a key, 'display the key' and the key, "ends the programme" for 8086/8088 (For key Assignment).	
12.	Write and execute a programme to transfer a group of data to memory location using PUSH and POP instructions.	
13.	Prepare Hardware interface for Numeric Keyboard/Display for 8085/8086/8088, writes a programme and execute it.	
14.	Configure a Microprocessor for 7-segment LED Display,	
15.	Write the programmes, prepare functional table for decimal number 0-9 and execute it.	
16.	Using 8255, interface a stepper motor to microprocessor.	
	TOTAL	64

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SEMESTER: THIRD
COURSE CODE: 304
NAME OF COURSE: MICROPROCESSOR AND INTERFACES

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5068

REFERENCES

TEXT BOOKS:

- Ramesh S. Gaonkar, Microprocessor Architecture, Programming and Applications with 8085, Penram International Pub.
- Hall, V. D., Microprocessor & Interfacing, TMH.
- Berry, Microprocessor & Peripherals: H/W, S/W, Interfacing & Application, 2001, CBS Pub.
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- B. Ram, Advance Microprocessors: Architecture, Programme & Interfacing, TMH, New Delhi.
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- Douglas V. Hall, Microprocessors and Interfacing Programming and Hardware, TMH

36/141

SEMESTER: THIRD
COURSE CODE: 305
NAME OF COURSE: OOP's TECHNIQUES
USING C++

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S): 104
PAPER CODE: 5011

RATIONALE

The key concepts of Object-Oriented Programming (OOP) in C++ are introduced in this course. The syllabus continues the development of C and C++ from the Types and Object modules. The course will enable the student to acquire:

- Knowledge and understanding of the principles of OOP's and appreciation of its benefits compared with other approaches.
- practical ability using C++ for coding applications software derived via object-oriented approach.
- ability to design with a method to support the process of object orientation.

C++ is a powerful modern language that combines the power, elegance and flexibility of C and the features of object-oriented programming. With its object-oriented capabilities such as data abstraction, inheritance and polymorphism, C++ offers significant software engineering benefits over C. Programming pundits expect that C++ will replace C as a general-purpose programming language. C++ is the language of future.

Sl. No.	Topic	Hours	Percentage
1	Operator Precedence, Operator Overloading	10	10%
2	Operator Overloading, Type Cast Operator, Operator Overloading	10	10%
3	Operator Precedence, Operator Overloading	10	10%
4	FUNCTIONS IN C++	10	10%
5	Main Function, Function Prototyping, Call by Reference, Call by Value, Scope	10	10%
6	Function Defaults, Recursion, Call Arguments	10	10%
7	Data Structure: Concepts of Array, Stack, Queue, Link List	10	10%
8	Strings	10	10%
TOTAL		100	100%

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

36/142
 SEMESTER: THIRD
 COURSE CODE: 305
 NAME OF COURSE: OOP's TECHNIQUES
 USING C++

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5011

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 3 Hrs. per week
 Practical: 4 Hrs. per week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Principles of Object-Oriented Programming	02	05	07	05
2.	Beginning with C++	02	-	02	05
3.	Overview of Token, Expressions and Control Structures	06	10	16	05
4.	Functions in C++	04	08	12	10
5.	Classes and Objects	08	10	18	15
6.	Constructors and Destructors	04	06	10	10
7.	Operators & Function Overloading	04	-	04	10
8.	Inheritance	06	05	11	10
9.	Pointers, Virtual Functions and Polymorphism	04	10	14	10
10.	I/O Systems	06	10	16	10
11.	Special Classes	02	-	02	10
TOTAL		48	64	112	100

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SEMESTER: THIRD
 COURSE CODE: 305
 NAME OF COURSE: OOP's TECHNIQUES
 USING C++

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5011

Lectures: 3 Hrs. per week

COURSE CONTENT

S. No.	Course Content	Hours of study
1.	<p>CONCEPTS OF OBJECT-ORIENTED PROGRAMMING</p> <p>Conventional Programming vs. Object-Oriented Programming, Basic Concepts of OOP's, Abstraction, Encapsulation, Information Hiding & Reusability, Advantages of OOP's, Applications of OOP's, Object-Oriented Languages.</p>	02
2.	<p>BEGINNING WITH C++</p> <p>Basics of C++, Structure of C++ Program, Creating, Compiling, Linking and executing a C++ program, C++ Preprocessor directive, # define, # include, # pragma, # line, # undef, # error, Compiler directives.</p>	02
3.	<p>OVERVIEW OF TOKEN, EXPRESSIONS AND CONTROL STRUCTURES IN C++</p> <p>Tokens, Keywords, identifiers, Basic data types, User-Defined Data Types, Derived Data Types, Symbolic Constants, Type Compatibility, Variable Declaration, Dynamic Initialization of Variables, Reference Variables, Operators in C++, Scope Resolution Operator, Memory Management Operators, Manipulators, Type Cast Operators, Operator Overloading, Operator Precedence, Control Structures.</p>	06
4.	<p>FUNCTIONS IN C++</p> <p>Main Function, Function Prototyping, Call by Reference, Call by Value, Inline Functions, Defaults Arguments, Const Arguments.</p> <p>Data Structure: Concepts of Arrays, Stack, Queue, Link_List (Circular and Doubly) only.</p>	04

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SEMESTER: THIRD
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 USING C++

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5011

COURSE CONTENT

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
5.	CLASSES AND OBJECTS Specifying a Class, Defining Member Functions, Making a Outside Function Inline, Nesting of Member Functions, Private Member Functions, Arrays within a Class, Memory Allocation for Objects, Static Data Members, Static Member Functions, Array of Objects, Objects as Function Arguments, Returning Objects, Pointers to Members, Concept of Garbage Collection.	08
6.	CONSTRUCTORS AND DESTRUCTORS Constructors, Parametric Constructors, Multiple Constructors in a Class, Constructors with Default Arguments, Dynamic Initialization of Objects, Copy Constructor, Dynamic Constructor, Destructors.	04
7.	OPERATORS AND FUNCTIONS OVERLOADING Definition, Overloading Unitary Operators, Binary Operators, Binary Operators using friends, Rules for Overloading Operators, Function Overloading, Friend and Virtual Functions, Overloading of special operators (viz. [], (), ->, comma operator).	04
8.	INHERITANCE Defining Derived Classes, Single Inheritance, Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance, Hybrid Inheritance Virtual Base Classes, Abstract Classes, Constructors in Derived Classes, Member Class: Nesting of Class.	06
9.	POINTERS, VIRTUAL FUNCTIONS AND POLYMORPHISM Pointers to Objects, This Pointer, Pointers to Derived Classes, Virtual Functions, Pure Virtual Functions.	04

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 USING C++

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5011

COURSE CONTENT

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
10.	<p>I/O SYSTEMS</p> <p><i>Console I/O:</i> C++ Streams, C++ Stream Classes, Unformatted I/O Operations, Formatted Console I/O Operations, Setting the Format Flags, Clearing Format Flags, An Overloaded Form of setf(), Examining the Formatting Flags, Setting All Flags, Using : width(), Precision(), fill(), Using Manipulators to Format I/O, Overloading << and >>: Creating Your Own Inserters, Creating Your Own Extractors, Creating Parameter-less Manipulators, Creating Parameterized Manipulators.</p> <p><i>File Operations :</i> f stream, h and the File Classes, Opening and Closing a File, Reading and Writing a Text File, Binary I/O, More get() Functions, gateline(), Detecting EOF, The ignore() Function, peek() and putback(), flush(), Random Access, I/O Status, Customized I/O and File, The Array-Based Classes, Creating an Array-Based Output Stream, Using an array as Input, Using Binary I/O, I/O Array-Based Streams, Random Access Within Arrays, Using Dynamic Arrays, Manipulators Array-Based I/O, Custom Extractors and Inserters, Use for Array-Based Formatting.</p>	06
11.	<p>SPECIAL CLASSES</p> <p><i>String classes:</i> Defining the string type, the string class, constructor, destructor functions, I/O on string assignment functions, concatenation, substring subtraction, relational operators.</p> <p><i>Linked List Class:</i> Doubly Linked List based classes, Displaying the list, changing and finding an object in list.</p>	02

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 COURSE CODE: 305
 NAME OF COURSE: OOP's TECHNIQUES
 USING C++

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5011

LIST OF EXPERIMENTS

Practical: 4 Hrs. per Week

S. No.	Name of experiments	Hours of study
	C++ programs based on course contents:	
1.	Problems involving sequence, selection and iteration for flow-charting and pseudo code representations.	
2.	Small problems mainly computational to illustrate expression and operator precedence.	
3.	Iterative algorithms such as: GCD, Sum of series, Fibonacci Series, Even and Odd series, Finding root of a function, Sequence of a numbers, Checking prime number, Largest among given number etc.	
4.	Problem relating to arrays: Print, Reverse, Sum, Maximum and Minimum, Insert and Delete elements etc.	
5.	Implementations of Searching, Sorting, Stack, Queue, Linked List	
6.	Moderately large problems for which the solutions should be represented by coordinating modules. Formatting a text, replacing a given word in a text with another, counting the number of words, in a text.	
7.	Files related problems. Concerned faculty should assign a problem (small project), which will incorporate the properties of OOP's (viz.: data hiding, encapsulation, inheritance, polymorphism, overloading etc.) and will be compulsory part of practical assignments.	
Total		64

SEMESTER: THIRD
COURSE CODE: 305
NAME OF COURSE: OOP's TECHNIQUES
USING C++

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5011

REFERENCES

TEXT BOOKS

- Balguruswamy E. (2001), Object-Oriented Programming with Turbo C++, 3rd edition, TMH.
- Lafore Rober, (2001), Object-Oriented Programming in Turbo C++, 3rd edition, Galgotia Publications.

REFERENCE BOOKS

- Cohoon And Davidson, 2001, C++ Program Design, TMH.
- Stevens, Teach Yourself C++, BPB
- Schildt H, 1997, C++ Complete Reference, TMH
- Kanetkar Y, Programming in C++ ,BPB.
- Mahapatra P.B, Thinking in C++, Khanna Publisher.
- Bruce Euckel , Thinking in C++.

SEMESTER: THIRD
 COURSE CODE: 306
 NAME OF COURSE: SOFTWARE ENGINEERING

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5069

RATIONALE

Software Engineering deals with reliability and quality assurance of the software under development. The course enables the students to write specifications for systems, understand the importance of good software, design and develop test plans from design specifications. The course also covers other important aspects of software engg. like software lifecycle, requirement analysis and documentation, characteristics of good design, design techniques, testing, project management etc. Software Engg. provides framework for development of quality software product.

Sl. No.	Topic	Prerequisites	Co-requisites	Weightage
1	Introduction to Software Engineering			10
2	Software Engineering Process			10
3	Software Requirements			10
4	Software Analysis			10
5	Software Design			10
6	Software Testing			10
7	Software Maintenance			10
8	Software Project Management			10
9	Software Quality Assurance			10
10	Software Security			10

- 1. ANALYSIS CONCEPT, PRINCIPLE AND MODELING
 Analyse principle, system, software, software requirement specifications, functional requirement specifications, software process specifications, use modeling, use the concepts, models of analysis and analysis for software.
- 2. OBJECT-ORIENTED CONCEPT, PRINCIPLE AND ANALYSIS
 Object-Oriented Concepts, Diagrams Of Object Modeling, Management Of Object-Oriented Software Projects, Object-Oriented Analysis, Domain Analysis, OOA Process, Object-Oriented Models.
- 3. DESIGN CONCEPT, PRINCIPLE AND METHOD
 Design Process, Design Paradigms, Design Concepts, Testing Method Design, Design Documentation, Architectural Design, and Architectural Design Process - Optimization, Product Design.

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SEMESTER: THIRD
 COURSE CODE: 306
 NAME OF COURSE: SOFTWARE ENGINEERING

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5069

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 3 Hrs. per week

Practical: - Hrs. per week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Basics of Software Engineering	2	-	2	05
2.	Software project planning	4	-	4	10
3.	System engineering.	4	-	4	10
4.	Analysis concept, principle and modeling	8	-	8	15
5.	Object –oriented concept, principle and analysis	8	-	8	15
6.	Design concept principle and methods	6	-	6	10
7.	Object –oriented design	6	-	6	10
8.	Software Testing	3	-	3	10
9.	Software Quality	2	-	2	05
10.	Project Management	5	-	5	10
TOTAL		48	-	48	100

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

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SEMESTER: **THIRD**
 COURSE CODE: **306**

SCHEME: **Dip.CS_JULY 2002**
 COMMON WITH PROGRAMME (S):
 PAPER CODE: **5069**

NAME OF COURSE: **SOFTWARE ENGINEERING**

COURSE CONTENT

Lectures: **3 Hrs. per week**

S. NO.	Course Content	Hours of Study
1.	BASICS OF SOFTWARE ENGINEERING Software characteristics, components, application; process, methods, tools & view of S/E; software process, models, linear sequential model, RAD model, evolution software process models, fourth generation model.	2
2.	SOFTWARE PROJECT PLANNING Project planning Objective, Software scope, Resources, Software project estimation, Decomposition techniques, Estimation models, Make-buy decision	4
3.	SYSTEM ENGINEERING Computer – based systems, The system Engineering hierarchy, Information Engg. Information strategy Planning, Business area analysis, Production engineering.	4
4.	ANALYSIS CONCEPT, PRINCIPLE AND MODELING Analysis principles, system specification, software requirement specifications, functional requirement specifications, software prototyping, specification, data modeling, data flow diagrams, mechanics of structured analysis, data dictionary.	8
5.	OBJECT –ORIENTED CONCEPT ,PRINCIPLE AND ANALYSIS Object Oriented Concepts, Elements Of Object Modeling, Management Of Object Oriented Software Projects, Object Oriented Analysis, Domain Analysis, OOA Process, Object –Relationship Model	8
6.	DESIGN CONCEPT PRINCIPLE AND METHODS Design Process, Design Principles, Design Concepts, Effective Modular Design, Design Documentation, Architectural Design, and Architectural Design Process - Optimization, Procedural Design.	6

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: **THIRD**
 COURSE CODE: **306**
 NAME OF COURSE: **SOFTWARE ENGINEERING**

SCHEME: **Dip.CS_JULY 2002**
 COMMON WITH PROGRAMME (S):
 PAPER CODE: **5069**

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
7.	OBJECT-ORIENTED DESIGN Conventional v/s OO Approach, Design issue, OOD Landscape OOD Process: Object Description, Algorithm & Data Structures, Program Components & Interface.	6
8.	SOFTWARE TESTING Software Testing Fundamentals: Principles & objectives, Testability (Operability, Observability, Controllability, Decomposability, Simplicity, Stability, Understandability), Attribute of Test. <i>Testing Methodology:</i> Unity Test, Integration Test, white Box Testing, Black Box Testing, Validation, System Testing, Debugging & reliability Analysis.	3
9.	SOFTWARE QUALITY Concepts of S/W Quality and Assurance Software Reliability Formal approach to SQA and Plan. ISO 9000, 9001, Standard SEI -CMM.	2
10.	PROJECT MANAGEMENT. Planning S/W Project, Work Break Down Structure. Integrating S/w Design & Project Planning, S/w Project Teams, Estimating, scheduling & Costing of a project, Project Monitoring & Control.	5

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SEMESTER: THIRD
COURSE CODE: 306
NAME OF COURSE: SOFTWARE ENGINEERING

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5069

REFERENCES

TEXT BOOKS:

- Roger S. Pressman, (1999), 4/e, Software Engineering A Practitioner's Approach, McGraw Hill,

REFERENCE BOOKS:

- Rajaraman V, (2001), 2/e, Analysis and Design of Information System, PHI.
- Gazzi, (2001), Fundamental of Software Engineering, PHI.
- Jalot Pankaj, Software Engineering, Narosa.
- Maryhauser Anneliese Von, (1990), Software Engineering Methods Management, Academic Press.
- Juliff Peter, 4/e, Programme Design, PHI.
- Rajeev Mall, (2001), Fundamental of Software Engineering, PHI.
- Stephen R Schach, (1997), 4/e, Software Engineering with JAVA, McGraw Hill.
- Wirts Brock Elal, Designing object oriented software, PHI.
- Patton, Software Testing, BPB.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

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SEMESTER: **THIRD**
COURSE CODE: 307
NAME OF COURSE: **PROFESSIONAL ACTIVITIES**

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104

Practice Hours: 2 Hrs/week

RATIONALE

Professional Activities is not a descriptive course, as per conventional norms; therefore specific content for this course cannot be prescribed. It is a group of open-ended activities; where in variety of tasks are to be performed, to achieve objectives. However general guidelines for achieving the target and procedure for its assessment are given under the course content of course code 106 of first semester.

As the student has to practice this course in all the six semesters, the guidelines given therein are common and applicable to each semester.

OBJECTIVES:

- To allow for professional development of students as per the demand of engineering profession.
- To provide time for organisation of student chapter activities of professional bodies (i.e. Institution of engineers, ISTE or Computer Society of India etc.)
- To allow for development of abilities in students for leadership and public speaking through organisation of student's seminar etc.
- To provide time for organisation of guest lectures by expert engineers/eminent professionals of industry.
- To provide time for organisation of technical quiz or group discussion or any other group activity.
- To provide time for visiting library or using Internet.
- To provide time for group discussion or solving case studies.
- To provide time for personality development of students.
- To provide time for working for a social cause like awareness for environment and ecology etc.

DETAILED INSTRUCTIONS TO CONDUCT 'PROFESSIONAL ACTIVITIES':

- A) Study hours, if possible should be given greater time slot with a minimum of two Hrs/week to a maximum of four Hrs/week.
- B) This course should be evaluated on the basis of GRADES & mark sheet of students, should have a separate mention of the grade awarded. There will be no pass/fail in Professional Activities (P.A.).

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Following grade scale for evaluation of performance in P.A. has been established.

<u>Grades</u>	<u>Level of performance</u>
A	Excellent
B	Good
C	Fair
D	Average
E	Below expectations

- D) Grades once obtained in a particular examination shall become final and no chance for improvement in grades will be given to the students.
- E) Assessment of performance in P.A. is to be done internally by the institution, twice in a semester/term through a simultaneous evaluation of the candidate by a group of three teachers, of the dept. concerned. Group of teachers will jointly award the grade to candidate in the assessment. Best of the grades obtained by the student in these two assessments shall be finally taken on the mark sheet of the respective semester/term.
- Candidates abstaining from the prescribed course work and/or assessment planned at the institution shall be marked ABSENT in the mark sheet, instead of any grade.
- F) While awarding the grades for performance in P.A., examining teacher should reach the final consensus based on the attendance, punctuality, interest, presentation skills in seminar on the topic assigned (Collection of relevant data, Observations, Analysis, findings/Conclusion) and its written report, awareness of latest developments in the chosen programme of study.
- G) Institution shall maintain the record of grades awarded to all the students in P.A. for a period of one year.
- H) It shall be mandatory for students to submit a compendium of his P.A. in the form of a journal.
- I) Compendium shall contain following
- Record of written quiz.
 - Report/Write up of seminar presented.
 - Abstract of the guest lectures arranged in the institution.
 - Topic & outcome of the group discussions held.
 - Reports on the problems solved through case studies.
 - Report on social awareness camps (organised for ecology & environment preservation).
 - Report on student chapter activities of professional bodies like ISTE, I.E. (India), CSI etc.

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J) P.A. is not a descriptive course to be taught in the classroom by a particular teacher. Various activities involved in the achievement of objectives of this course should be distributed to number of teachers so that the talents and creativity of group of teachers' benefits the treatment of the course content.

These activities should preferably be conducted in English language to maintain continuity and provide reinforcement to skill development process.

Small groups shall be formed like in tutorials, group discussion, case studies, seminar, project methods, games, role-play & simulation to make the development of personality affective.

Treatment of P.A. demands special efforts, attention, close- co-operation and creative instincts on the part of teachers of the dept. concerned. Since this course is totally learner centered, many of the activities planned under this course shall come out from the useful interaction of students, among themselves and with the teachers. The guiding teacher/s shall best act as a facilitator of these creative hunts/exercises, which unfold many of the hidden talents of the students or brings out greater amount of confidence in them, to execute certain activity.

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CURRICULUM

FOR

DIPLOMA IN COMPUTER SCIENCE

AND ENGINEERING

(FOURTH SEMESTER)

Scheme: Dip.CS_JULY2002

Implemented from session 2003-2004

Under semester system

CURRICULUM DEVELOPMENT CENTRE
RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL (M.P.)

SEMESTER: FOURTH
 COURSE CODE: 401
 NAME OF COURSE: OPERATING SYSTEMS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5008

RATIONALE

The heart of a computer is based around its Operating System. The processor deals with request coming from all directions asynchronously. The operating system has to deal with the problems of contention, resource management and both program and user data management, and provide a useful no-wait user interface. The concept of Operating System is discussed through case studies of UNIX, LINUX, WINDOWS NT.

The course provides clear vision, understanding and working of Operating Systems.

Sl. No.	Topic	1	2	3	4	5	6
2	FILE MANAGEMENT SYSTEMS	15	20	15	15	15	15
2.1	File System Structure, File System Parameters, File System Implementation, File System Security, File System Methods (Configuration, File Compression & its variants, File Allocation, File Sharing, Efficiency and performance), Case study of Dos, Unix, Linux, Windows NT on File Systems.						
2.2	Directory Structure, Protection, Subsystem of a File System, Windows NT File System, File System Implementation, File System Security, File System Methods (Configuration, File Compression & its variants, File Allocation, File Sharing, Efficiency and performance), Case study of Dos, Unix, Linux, Windows NT on File Systems.						
3	PROCESS MANAGEMENT						
3.1	Concepts of Processes, Process state state diagram, Process scheduling & PCB, Creation of Processes, Thread.						
3.2	Process Scheduling & Algorithms: First Come, Scheduling, Scheduling Algorithms: FCFS, SJF, Priority, RR, Multiple Queues, Multiple processor Scheduling, Real time Scheduling.						
3.3	Dead Locks: First Concept of deadlock, detection, avoidance, prevention & A scheduling avoiding deadlock's algorithm.						
3.4	Case study of Dos, Unix, Linux, Windows NT on Process Management.						
4	MEMORY MANAGEMENT						
4.1	Concept of Memory Management, Local vs. Physical address, Cache Memory, Swapping, Advanced Techniques, Program Loader & Compression.						

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: **FOURTH**
 COURSE CODE: **401**
 NAME OF COURSE: **OPERATING SYSTEMS**

SCHEME: **Dip.CS_JULY 2002**
 COMMON WITH PROGRAMME (S): **104**
 PAPER CODE: **5008**

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: **4 Hrs. per week**
 Practical: **2 Hrs. per week**

S. NO.	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Introduction to Operating System	06	04	10	10
2.	File System	12	06	18	22
3.	Process Management	14	06	20	18
4.	Memory Management	15	06	21	18
5.	Device Management	11	06	17	16
6.	Protection & Security	06	04	10	16
TOTAL		64	32	96	100

Note: Case study of DOS, UNIX, LINUX, WINDOWS NT have been included in the respective chapter.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

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SEMESTER: FOURTH
 COURSE CODE: 401
 NAME OF COURSE: OPERATING SYSTEMS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5008

COURSE CONTENT

Lectures: 4 Hrs. per week

S. No.	Course Content	Hours of study
1.	INTRODUCTION TO OPERATING SYSTEM	06
1.1.	Basics of Operating System & its functions; Objectives, Types of Operating System	
1.2	Introduction of time sharing, Introduction of real time, Parallel and Distributed Operating System	
1.3	Structure of Operating System; System components, Operating System services, System calls and Programs , System Structure.	
2.	FILE MANAGEMENT SYSTEM	12
2.1	File System interface; File Concepts, Types of Files, Access Methods, Directory Structure, Protection	
2.2	File System Implementation; File System Structure, Allocation Methods (Contiguous, Non Contiguous & its variants, index allocations), Free space Management (Fragmentation & compaction), Directory implementation, File-sharing, Efficiency and performance. Case study of Dos, Unix, Linux, Windows NT on File Systems.	
3.	PROCESS MANAGEMENT	14
3.1	Concepts of Processes; Process state (state diagram), Process scheduling & PCB, Operation on Processes, Threads.	
3.2	Process Scheduling & Algorithms; Basic Concepts, Scheduling criteria, Scheduling Algorithms; FCFS, SJF, Priority, RR, Multiple Queues, Multiple processor Scheduling, Real time Scheduling.	
3.3	Dead Locks; Basic Concept of deadlock, deadlock detection, prevention & handling excluding Banker's algorithm.	
3.4	Case study of Dos, Unix, Linux, Windows NT on Process Management.	
4.	MEMORY MANAGEMENT	15
4.1	Concept of Memory Management; Logical v/s Physical address, Cache Memory, Swapping, Allocation Techniques, Fragmentation & Compaction.	

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SEMESTER: FOURTH
 COURSE CODE: 401
 NAME OF COURSE: OPERATING SYSTEMS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5008

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
4.2	Concepts of paging and segmentation; Paging, Segmentation, Paged Segmentation & Segmented Paging.	11
4.3	Concepts of Virtual Memory; Demand Paging, Page replacement and its Algorithms, Allocation of frames, Thrashing, Demand Segments.	
4.4	Case study of Dos, Unix, Linux, Windows NT on Memory Management.	
5.	DEVICE MANAGEMENT	
5.1	I/O Systems, I/O Hardware & Interface, Kernel I/O Sub System, I/O request.	06
5.2	Disk Management; Disk Structure, Disk Scheduling, Storage Management, Swapped Space Management	
5.3	Case study of Dos, Unix, Linux, Windows NT on Device Management.	
6.	PROTECTION AND SECURITY	06
	Goal of Protection, Domain of Protection, Access Matrix, Security Problems	
	Authentication, Computer security classification, Encryption. Case study of Windows / Unix.	

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH
 COURSE CODE: 401
 NAME OF COURSE: OPERATING SYSTEMS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5008

LIST OF EXPERIMENTS

Practical: 2 Hrs. per Week

S. NO.	Name of experiments	Hours of Study
1.	Implementation of DOS Commands	
2.	Installation of DOS & Windows	
3.	Installation of Unix	
4.	Use of File Management Commands, Shell Programming, Administration Commands, System Calls, Unix Utilities, Pipes, Redirection Files.	
5.	Simulation of CPU Scheduling Algorithms (FCFs, STF, RR) Taking simple examples around addressing T.A. and average waiting time.	
6.	Simulation of memory allocation, relocation and solving problems of external fragmentation using compaction.	
Total		32

SEMESTER: FOURTH
COURSE CODE: 401
NAME OF COURSE: OPERATING SYSTEMS

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5008

REFERENCES

TEXT BOOKS

- Peterson, (1999), Operating Systems, Wiley Eastern.
- Godbole A.S., (1996), Operating Systems, TMH New Delhi.
- Prata, (1999), Advance Unix Programming, BPB.

REFERENCE BOOKS

- Beach M.J., Operating System, PHI
- Milankovic, (1999), Operating Systems, TMH
- Ray Dunkan, (1999), Advance Dos Programming, BPB.
- Donovons & Mendric, Operating Systems, TMH.

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SEMESTER: FOURTH

COURSE CODE: 402

NAME OF COURSE: COMPUTER ARCHITECTURE

SCHEME: Dip.GS_JULY2002

COMMON WITH PROGRAMME (S):

PAPER CODE: 5070

RATIONALE

Diploma holders in Computer Science and Engg. have to be conversant with computer, its terminology and functioning. Computer architecture is concerned with the structure and behavior of the various functional modules of the computer and their interaction, the course provides the necessary understanding of the hardware operation of digital computers.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGG.

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SEMESTER: FOURTH
 COURSE CODE: 402
 NAME OF COURSE: COMPUTER ARCHITECTURE

SCHEME: Dip.CS_JULY2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5070

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 4Hrs. Per week
 Practical: - Hrs. per week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Computer Architecture	06	-	06	12
2.	Basic Computer Organization And Design	06	-	06	13
3.	Programming The Basic Computer	14	-	14	20
4.	Central Processing Unit	14	-	14	20
5.	Input Output Organization	14	-	14	20
6.	Memory Organization	10	-	10	15
	TOTAL	64	-	64	100

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGG.

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SEMESTER: FOURTH

COURSE CODE: 402

NAME OF COURSE: COMPUTER ARCHITECTURE

SCHEME: Dip.CS_JULY2002

COMMON WITH PROGRAMME (S):

PAPER CODE: 5070

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO	Course Content	Hours of Study
1.	COMPUTER ARCHITECTURE	6
1.2	Register Transfer and Micro operations	
1.3	Register Transfer: Bus and Memory Transfers, Three-State Bus Buffers Memory Transfer	
1.4	Arithmetic Micro operations: Binary Adder, Binary Adder Subtractor, Binary Incrementer, Arithmetic Circuit	
1.5	Logic Micro operations: List of Logic Micro operations, Hardware Implementation, Some Applications	
1.6	Shift Micro-operations: Hardware Implementation	
1.7	Arithmetic Logic Shift Unit	
2.	BASIC COMPUTER ORGANIZATION AND DESIGN	6
2.1	Instruction Codes: Stored Program Organization, Indirect Address	
2.2	Computer Registers: Common Bus System	
2.3	Computer Instruction: Instruction Set Completeness	
2.4	Timing and Control	
2.5	Instruction Cycle: Fetch and Decode, Determine the Type of Instruction, Register-Reference Instructions	
2.6	Memory-Reference Instructions: AND to AC, ADD to AC, LDA : Load to AC, STA : Store AC, BUN : Branch Unconditionally, BSA : Branch and Save Return Address, ISZ : Increment and Skip if Zero, Control Flowchart	
2.7	Input-Output and interrupt: Input-Output Configuration, Input-Output Instructions, Program Interrupt, Interrupt Cycle	
2.8	Complete Computer Description	
2.9	Design of Basic Computer: Control Logic Gates, Control of Registers and Memory, Control of Single flip-flops, Control of Common Bus	
2.10	Design of Accumulator Logic: Control of AC Register, Adder and Logic Circuit, Character Manipulation, Program Interrupt	

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
3	PROGRAMMING THE BASIC COMPUTER	14
3.1	Introduction	
3.2	Machine Language	
3.3	Assembly Language: Rules of the Language, Translation to Binary	
3.4	The Assembler: Representation of Symbolic Program in Memory, First Pass Assembler, Second Pass Assembler	
3.5	Program Loops	
3.6	Programming Arithmetic and Logic Operations: Multiplication Program, Double-Precision Addition, Logic Operations, Shift Operations	
3.7	Subroutines: Subroutines Parameters and Data Linkage	
3.8	Input Output Programming: Character Manipulation, Program Interrupt	
4	CENTRAL PROCESSING UNIT	14
4.1	Introduction	
4.2	General Register Organization: Control Word	
4.3	Stack Organization: Register Stack, Memory Stack, Reverse Polish Notation, Evaluation of Arithmetic Expressions	
4.4	Instruction Formats: Three Address Instructions, Two Address Instructions, One Address Instructions, Zero Address Instructions, RISC Instructions	
4.5	Addressing Modes	
4.6	Data Transfer and Manipulation: Data Transfer Instructions, Data Manipulation Instructions, Arithmetic Instructions, Logical and Bit Manipulation Instructions, Shift Instructions	
4.7	Program Control: Status Bit Conditions, Conditional Branch Instructions Subroutine Call and Return, Program Interrupt, Types of Interrupts	
4.8	Reduced Instruction Set Computer (RISC): CISC Characteristics, RISC Characteristics, Overlapped Register Windows	
5	INPUT OUTPUT ORGANIZATION	14
5.1	Peripheral Devices: ASCII Alphanumeric Characters	
5.2	Input-Output Interface: I/O Bus and Interface Modules, I/O Versus Memory Bus, Isolated versus Memory-Mapped I/O	

SEMESTER: FOURTH
 COURSE CODE: 402
 NAME OF COURSE: COMPUTER ARCHITECTURE

SCHEME: Dip.CS_JULY2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5070

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
5.3	Asynchronous Data Transfer: Strobe Control, Handshaking, Asynchronous Serial Transfer, Asynchronous Communication Interface	
	First-In, First-Out, Buffer	
5.4	Modes of Transfer: Interrupt-Initiated I/O, Software Considerations	
5.5	Priority Interrupt: Daisy-Chaining Priority, Parallel Priority Interrupt, Priority Encoder, Interrupt Cycle, Software Routines, Initial and Final Operations	
5.6	Direct Memory Access (DMA): DMA Controller, DMA Transfer	
5.7	Input-Output Processor: CPU-IOP Communication	
5.8	Serial Communication: Character-Oriented Protocol, Data Transparency Bit-Oriented Protocol	
6	MEMORY ORGANIZATION	10
6.1	Memory Hierarchy	
6.2	Main Memory: RAM and ROM Chips, Memory Address Map, Memory Connection to CPU	
6.3	Auxiliary Memory: Magnetic Disks, Magnetic Tape	
6.4	Associative Memory: Hardware Organization, Match Logic, Read Operation, Write Operation	
6.5	Cache Memory: Associative Mapping, Direct Mapping, Set-Associative Mapping, Writing into Cache, Cache Initialization	
6.6	Virtual Memory: Address Space and Memory Space, Address Mapping Using Pages, Associative Memory Page Table, Page Replacement	
6.7	Memory Management Hardware: Segmented-Page Mapping, Memory Protection	

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SEMESTER: FOURTH
COURSE CODE: 402
NAME OF COURSE: COMPUTER ARCHITECTURE

SCHEME: Dip.CS_JULY2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5070

REFERENCES

- Morris Mano. M., Computer System Architecture, PHI.
- Tanenbaum, 4/e, Structured Computer Organisation, PHI.
- Hwang & Brigg, Advanced Computer Architecture, McGraw Hill.
- Stallings, 4/e, Computer Organisation & Architecture, PHI.

DIPLOMA IN COMPUTER SCIENCE AND ENGG.

SEMESTER: FOURTH
 COURSE CODE: 403
 NAME OF COURSE: DATA BASE MANAGEMENT SYSTEMS

SCHEME: Dip.CS_JULY2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5071

RATIONALE

Data Storage is a major activity during the Data Processing activity to store and manage data properly.

DBMS (RDBMS) is the major Database Management System that we are using for the general data processing and WEB based data processing. Today, we are not only working in conventional manner but the technology has changed towards object-oriented design of databases.

1.1	Introduction to Database Management Systems		
1.2	Types of Database Management Systems		
1.3	Components of a DBMS		
1.4	Structure of a DBMS		
1.5	Advantages and Disadvantages of DBMS		
2	File Organization		
2.1	Introduction: Storage Device Characteristics, Organization of a File System		
	Specification of storage of a file, Quantum, address, organization, storage		
	File Retrieval		
2.2	Direct File		
2.3	Sequential File		
2.4	Index Sequential File, Indexed File, Link pointing, Multilevel indexing		
	Advantages (Index, Sequential), Disadvantages (Index, Sequential)		
2.5	Direct File, External File, Hashing		
3	DATA MODELS		
3.1	INTRODUCTION		
3.2	Data Abstraction: Entities, Attributes, and Relationships, Relationships among Entities, Representability of Relationships and Properties		
3.3	Data Models Classification		
3.4	Entity-Relationship model: Entities, Attributes, Relationships, Relationships among Entities, Representation of Relationships and Constraints and Application, Advantages		
3.5	Relational Model: Attributes and Constraints, Query, Advantages and Disadvantages, Advantages, Disadvantages, Advantages, Disadvantages, Advantages, Disadvantages		
3.6	Operational, Integrity Rules		

SEMESTER: FOURTH
 COURSE CODE: 403
 NAME OF COURSE: **DATA BASE MANAGEMENT SYSTEMS**

SCHEME: Dip.CS_JULY2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5071

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 4 Hrs. per week
 Practical: 4 Hrs. per week

S. NO.	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Introduction to Database	06	} 64		10
2.	Data Models	10			15
3.	Relational Algebra & Normalization	15			25
4.	SQL	25			40
5.	Distributed & Object Databases	08			10
Total		64	64	128	100

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGG.

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SEMESTER: FOURTH

COURSE CODE: 403

NAME OF COURSE: DATA BASE MANAGEMENT SYSTEMS

SCHEME: Dip.CS_JULY2002

COMMON WITH PROGRAMME (S):

PAPER CODE: 5071

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	INTRODUCTION TO DATABASE	06
1.1.	Basic Concept	
1.1.1	Data Modeling for a Database: Entities and their Attributes, Relationships	
1.1.2	Records and Files	
1.1.3	Abstraction and Data integration	
1.1.4	Three-level Architecture: Mapping between views, Data Independence	
1.1.5	Components of a DBMS: Classification of DBMS Users, DBMS Facilities, Structure of a DBMS, Database Access	
1.1.6	Advantages and Disadvantages of DBMS	
1.2	File Organisation	
1.2.1	Introduction: Storage Device Characteristics, Constituents of a File, Formal Specification of storage of a file, Operation on files: logical Access, Primary key Retrieval	
1.2.2	Serial Files	
1.2.3	Sequential Files	
1.2.4	Index-Sequential Files: Implicit index, Limit indexing, Multi-level indexing schemes (Basic Techniques), Structure of index sequential Files, VSAM	
1.2.5	Direct File: Extendable Hashing	
2	DATA MODELS	10
2.1	Introduction	
2.2	Data Associations: Entities, Attributes, and Associations, Relationships among Entities, Representation of Associations and Relationships	
2.3	Data Models Classification:	
2.4	Entity-relationship model: Entities, Relationships, Representation of Entities, Representation of Relationship set, Generalisation and Aggregation, specialization	
2.5	Relational Model: Attributes and Domains, Tuples, Relations and Their schemes, Relations Representation, Keys, Relationship, Relational Operations, Integrity Rules	

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SEMESTER: FOURTH
 COURSE CODE: 403
 NAME OF COURSE: DATA BASE MANAGEMENT SYSTEMS

SCHEME: Dip.GS_JULY2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5071

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
3	RELATIONAL ALGEBRA AND NORMALIZATION	15
3.1	Relational Algebra: Basic Operations, Additional Relational Algebra Queries, Some Relational Algebra Queries	
3.2	Relational Database Design: Normalization, Referential Integrity, Functional Dependency, Decomposition, Normal form-First, Second, Third, BCNF, Fourth, Fifth.	
4	SQL	25
4.1	Data Definition SQL	
4.2	Data Manipulation SQL: Basic Data Retrieval, Condition Specification, Arithmetic and Aggregate Operators, SQL Join: Multiple Tables Queries, Set Manipulation, Categorization, Updates	
4.3	Views: SQL	
4.3.1	Views and Update	
5	DISTRIBUTED DATABASES	08
5.1	Distributed and object Databases: Advantages and Disadvantages of Data Distribution, Fragmentation, Replication, Transparency, System Catalogs	
5.2	Object Databases: Object-Oriented Features, Database, Class and Objects, Class Relationships, Comparison between Conventional and Object-Oriented Databases	
5.3	Client-Server Architecture	
5.4	Codd-Rules	
5.5	Data security	

SEMESTER: **FOURTH**
 COURSE CODE: **403**
 NAME OF COURSE: **DATA BASE MANAGEMENT SYSTEMS**

SCHEME: **Dip.CS JULY2002**
 COMMON WITH PROGRAMME (S):
 PAPER CODE: **5071**

LIST OF EXPERIMENTS

Practical: 4 Hrs. per Week

S. NO.	Name of experiments	Hours of Study
1	Create tables with primary & foreign key.	
2	Execute SQL for insert, retrieval, update & delete data from single & multiple tables. sorting & grouping.	
3	Creating & dropping indexes,	
4	Creating users, Granting & Revoking permissions set Roles to users.	
5	PL/SQL program using flow control statements functions.	
6	Creating Triggers, Stored Procedures and Cursors.	
7	Importing/Exporting data.	
8	Design a prototype of small DBMS projects using above concept. Suggested relational database tools like Oracle, SQL Server, Sybase etc.	
Total		64

SEMESTER: FOURTH
COURSE CODE: 403
NAME OF COURSE: DATA BASE MANAGEMENT
SYSTEMS

SCHEME: Dip.CS_JULY2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5071

REFERENCES

TEXT BOOKS:

- Alex lion, Data Base Management System (2002), Vikas Publishing House.
- Desai Bipin C., (2001), An Introduction to Database Systems, Galgotia Publications Pvt. Ltd., New Delhi

REFERENCE BOOKS:

- Date C.J., An Introduction to Database System, Narosa.
- Silber Schatz A. and Korth H., Database System Concept, TMH.
- Martin James, Computer Database Organisation, PHI.
- Leon, SQL complete reference, TMH.
- Loney, Oracle 8: PL/SQL Programming, TMH.
- Stephens, Database design, Techmedia.
- Jenkins, Client/Server Unleashed, Techmedia.

SEMESTER: FOURTH
 COURSE CODE: 404
 NAME OF COURSE: MINOR PROJECT

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):

RATIONALE

The aim of the course is to provide practical experience in project planning of a software system for small applications. The course gives first hand experience to students in designing software for the real life applications. In continuation of this course, a major project in final semester has been included to give knowledge of total software/interface design for specific applications. This course will lead students to accept challenges, which they are required to face during their initial carrier span, while developing live projects. Also they will understand the concepts of subjects, which they have studied in theory. The student will have an opportunity to put their knowledge in presentable and practical form through this course.

i) The student must submit outline and task plan for the project (including SRS, ERD, UML) and the same approved by the concerned faculty.

ii) The project development must be carried out according to following steps and sub-steps should have the same sequence.

- > Project objectives.
- > Selection of tools (Hardware and Software)
- > Analysis of project. Input requirement analysis, SRS, Data Dictionary, Data Base, Flow Chart, Structure analysis, Algorithm, Program analysis, Module and Pseudocode flow.
- > Coding, Testing of projects including source code control.
- > Designing a formal user manual.
- > System requirement for designed software/ hardware.
- > Future scope and suggestion.

iii) The project must be implemented with the help of following software/hardware

- > COBOL language
- > Visual packages
- > Graphic packages
- > Also design supporting packages and tools (MS-DOS, MS-WORD, etc.)

SEMESTER: FOURTH
COURSE CODE: 404
NAME OF COURSE: MINOR PROJECT

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):

SCHEME OF STUDIES

Lectures: 1 Hr. per week
Practical: 4 Hrs. per week

S. No.	TOPIC	CONTACT HOURS PER WEEK		
		THEORY	PRACTICAL	TOTAL
1.	Minor Project	16	64	80
	Total	16	64	80

SEMESTER: FOURTH
 COURSE CODE: 404
 NAME OF COURSE: MINOR PROJECT

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):

COURSE GUIDELINES

Lectures: 1 Hr. per week
 Practical: 4 Hrs. per week

SR	Detailed Course Guidelines	STUDY HRS
1	<p>Minor Project Guidelines: The focus of the project is not to write lot of codes, but to have a complete working system developed, using proper system planning and analysis. The student should select some real life problems for the project and maintain proper documentation such as requirement's specification, design, test plan, overall plan etc. The student must submit a written copy of the minor project along with a soft copy. The faculty and student should work according to following schedule:</p> <p>i) The student must submit outline and action plan for the project execution (time schedule) and the same approved by the concerned faculty.</p> <p>ii) The project development must be carried out according to following steps and write-up should have the same sequence.</p> <ul style="list-style-type: none"> ➤ Project objective. ➤ Selection of tools. (Hardware and Software) ➤ Analysis of project. (Input requirement analysis, DFD, Data Dictionary Data Bases. Flow Chart, Structured language, Algorithm, Program modules, Master and Transaction files) ➤ Coding, Testing of projects (including source code listing). ➤ Designing a small user manual. ➤ System requirement for designed software/interface. ➤ Future scope and suggestion. <p>iii) The project must be implemented with the help of following s/w (or advanced s/w)</p> <ul style="list-style-type: none"> ➤ OOPs Languages ➤ Visual packages ➤ Graphic packages ➤ Web Design supporting packages and tools (HTML, DHTML, XML etc.) 	16+64 = 80

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):

SEMESTER: FOURTH
COURSE CODE: 404
NAME OF COURSE: MINOR PROJECT

COURSE GUIDELINES

Lectures: 1 Hr. per week
Practical: 4 Hrs. per week

S. No.	Detailed Course guidelines	Hours of study
	<p>iv) Suggested areas of project</p> <ul style="list-style-type: none">> Window based applications> Application software> Database management systems> Graphic based application> Automation> Simple port programming	

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SEMESTER: FOURTH
COURSE CODE: 411 (Elective-I)
NAME OF COURSE: ENVIRONMENTAL ENGG.

SCHEME: Dip.CS JULY 2002
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
PAPER CODE: 0262

RATIONALE

Engineering and Scientists from a number of related disciplines have been involved over years in the development of an academic basis for the understanding and management of the environment.

The purpose of keeping the Environment Engineering in soft core is to introduce a unique approach to the overall concept of environmental engineering an approach that emphasizes the relationship between the principles observed in natural purification processes and those employed in engineered processes.

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: **FOURTH**
 COURSE CODE: **411 (Elective-I)**
 NAME OF COURSE: **ENVIRONMENTAL ENGG.**

SCHEME: **Dip.CS_JULY 2002**
 COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
 PAPER CODE: **0262**

SCHEME OF STUDIES

Lectures: **3 Hrs. per week**
 Practical: **- Hrs. per week**

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	Introduction	2	-	2
2.	Air Quality, Definitions, characteristics and perspectives.	5	-	5
3.	Meteorology and natural purification processes.	6	-	6
4.	Engineered systems for Air pollution control.	6	-	6
5.	Engineered system for resource and energy recovery.	5	-	5
6.	Noise pollution and control	5	-	5
7.	Industrial waste.	6	-	6
8.	Environment & Pollution control laws.	6	-	6
9.	Global warming.	1	-	1
10.	Air pollution from thermal power plants etc.	4	-	4
11.	Water contamination in ocean.	2	-	2
Total		48	-	48

SEMESTER: **FOURTH**
 COURSE CODE: **411 (Elective-I)**
 NAME OF COURSE: **ENVIRONMENTAL ENGG.**

SCHEME: **Dip.CS_JULY 2002**
 COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
 PAPER CODE: **0262**

COURSE CONTENT

Lectures: **3 Hrs. per week**

S. NO.	Course Content	Hours of Study
1.	<p>INTRODUCTION:</p> <p>The Environment, the impact of human beings upon the environment, the impact of the Environment upon human beings, improvement of Environment quality, the role of the Environmental Engineer.</p>	02
2.	<p>AIR QUALITY: DEFINITION, CHARACTERISTIC & PERSPECTIVES</p> <p>Air Pollution- Historical overview, global implication of Air Pollution, Units of measurement, sources of pollutants.</p> <p>Classification of Pollutants – Particulate, hydrocarbons, carbon monoxide, oxides of sulphur, Oxides of Nitrogen, Photochemical Oxidants, Indoor air pollution measurements of above pollutants.</p> <p>Air quality Management concepts</p>	05
3.	<p>METEOROLOGY & NATURAL PURIFICATION PROCESSES:</p> <p>Elemental properties of the atmosphere- Scales of motion, heat pressure, wind, moisture, relative humidity</p> <p>Devices used for the measurement of above properties</p> <p>Influence of Meteorological phenomena on air quality & dispersion, Pressure system & Dispersion winds & dispersion moisture and dispersion, modeling.</p> <p>Effects of air Pollution on Meteorological conditions- changes on the Meso scale & Micro scale, changes on Macro scale</p>	06
4.	<p>ENGINEERED SYSTEMS FOR AIR POLLUTION CONTROL:</p> <p>Atmospheric cleansing processes, approaches to contaminant control.</p> <p>Central devices for particulate contaminants Gravitational setting chambers, centrifugal collectors, wet collectors, fabric filters (Bag house filters), Electrostatic precipitators (ESP), control devices for gaseous contaminants- adsorption, absorption, condensation, combustion, Automotive emission control.</p>	06

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SEMESTER: FOURTH
COURSE CODE: 411 (Elective-I)
NAME OF COURSE: ENVIRONMENTAL ENGG.

SCHEME: Dip.CS JULY 2002
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
PAPER CODE: 0262

COURSE CONTENT

S. No.	Course Content	Hours of study
5.	ENGINEERED SYSTEMS FOR RESOURCE AND ENERGY RECOVERY	05
5.1	Processing techniques- mechanical size alteration, Mechanical component separation, magnetic and Electro-mechanical separation, Drying and De-watering.	
5.2	Materials recovery systems- Materials specifications, Processing and recovery systems.	
5.3	Recovery of biological conversion products- Composting (Aerobic conversion), Anaerobic Digestions.	
5.4	Recovery of thermal conversion products-combustion of waste materials, Incineration with heat recovery, uses of refuse derived fuels (RDF), Gasification, Pyrolysis.	
5.5	Recovery of energy from conversion products-energy-recovery System. Efficiency-factors, Determination of energy output and efficiency.	
5.5	Materials and Energy-Recovery Systems	
6.	NOISE POLLUTION AND CONTROL Sources of noise Pollution, control of noise Pollution, unit of noise measurement, noise controls devices and their working principles. Noise intensity level-allowable limit for different situations. Noise measurement, The problems of noise pollution and legal measures for its control.	05
7.	INDUSTRIAL WASTE Industrial waste treatment economics of waste treatment, Benefits of Pollution abatement (primary, secondary and intangible benefits), difficulties in achieving, Pollution abatement through industrial waste treatment, theories of waste treatment volume reduction, strength reduction, neutralization and proportioning, treatment of specific industrial waste such as textile, dairy, paper and pulp, and distillery wastes.	06

SEMESTER: FOURTH
 COURSE CODE: 411 (Elective-I)
 NAME OF COURSE: ENVIRONMENTAL ENGG.

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 C03, M02, E01, I04 AND OTHERS
 PAPER CODE: 0262

COURSE CONTENT

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
8.	ENVIRONMENT & POLLUTION CONTROL LAWS Air (Prevention and control of pollution) Act, 1981 & Air (Prevention and control of pollution) Rules, 1982- short title, extent and commencement, definitions. The Environment (Protection) Act.1986-Short title, extent and commencement, definitions- measures to protect and improve environment.	06
9.	GLOBAL WARMING- Reasons.	01
10.	AIR POLLUTION FROM THERMAL POWER PLANTS ETC. Nuclear power plants, fertilizer and chemical plants, acid rain. methods of prevention.	04
11.	WATER CONTAMINATION IN OCEAN- Reasons, its effects, methods of prevention.	02

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH
COURSE CODE: 411 (Elective-I)
NAME OF COURSE: ENVIRONMENTAL ENGG.

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
PAPER CODE: 0262

REFERENCES

- Perkins, Air pollution
- Nelson L. Vemerow, Liquid waste of industry, theories, practices and treatment
- Flint off, Management of solid waste in Developing Countries
- Peave Howards, Environmental Engineering (International Edition), McGraw Hill series in Environmental Engg.
- Keneth work and Warmer, Air Pollution-its origin and control, W.H.O. Publication.
- Namit , Industrial Waste
- Jennings H. Burgess, Thermal Environment
- Malik Vijay , Environment & Pollution Control Laws, BBC Publication Pvt. Ltd., Lucknow
- Diwan Paras, Environment Protection- Problems, policy Administration Law, Deep & Deep Pub..

SEMESTER: **FOURTH**
 COURSE CODE: **412 (Elective-I)**
 NAME OF COURSE: **MARKETING MANAGEMENT**

SCHEME: **Dip.CS_JULY 2002**
 COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
 PAPER CODE: **0269**

RATIONALE

In the days of competitive business, a course in Marketing Management is of great importance to the entrepreneurs, industrialisation and to the persons working in Marketing related departments. Now a days it is said, that to produce something is not difficult, but to make people come forward to buy it, is very difficult. This point itself emphasizes the need and of this course.

Marketing is a very basic function and it cannot be seen in isolation from other activities of the business. It begins before the product exists and continues long after the product is sold. It is the discipline used by business to convert people's need into profitable company opportunities.

The high technology won't be bought until it is shaped to meet the wants the specific consumer groups and consumer's co. Ltd., in a fashion and at a price and with levels of service that are sufficient to motivate the market.

Sl	UNIT	MARKS	TOTAL
	Physical Environment, Technological Environment, Sales and Culture Environment and Competitive Environment.	20	
1-	MARKETING PLANNING AND ORGANIZATION	70	
	Nature and Content of marketing Plan- Executive summary, market analysis, situation, opportunity and threat analysis, marketing strategy, marketing program, projected profit and sales statement, control, periodic marketing mix, flexibility of marketing mix		
	Market Segmentation - General approach, primary, secondary, third, tertiary, secondary and tertiary market, requirements for effective segmentation.		
	Marketing Organization, Structure, types, relation with other departments, Department of marketing and location of marketing		

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SEMESTER: FOURTH
 COURSE CODE: 412 (Elective-I)
 NAME OF COURSE: MARKETING MANAGEMENT

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 C03, M02, E01, I04 AND OTHERS
 PAPER CODE: 0269

SCHEME OF STUDIES

Lectures: 3 Hrs. per week

Practical: - Hrs. per week

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	Marketing and its application	03	-	03
2.	Marketing system and environment	05	-	05
3.	Marketing planning and organisation	10	-	10
4.	Understanding consumers	04	-	04
5.	Product Management	05	-	05
6.	Marketing strategies	05	-	05
7.	Marketing functions	12	-	12
8.	Market measurement, distribution and control strategy	04	-	04
Total		48	-	48

SEMESTER: **FOURTH**
 COURSE CODE: **412 (Elective-I)**
 NAME OF COURSE: **MARKETING MANAGEMENT**

SCHEME: **Dip.CS_JULY 2002**
 COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
 PAPER CODE: **0269**

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	<p>MARKETING AND ITS APPLICATION</p> <p>-Introduction to Marketing</p> <p>-Role of Marketing in today's organization</p> <p>-Concept of Marketing – Needs, wants and demands, components and Basic characteristics of objectives of Marketing, significance and Benefits of Marketing, Essentials of modern Marketing.</p>	03
2.	<p>MARKETING SYSTEM AND ENVIRONMENT</p> <p>Marketing system;-</p> <p>Business Marketing institutions, produces and manufacturers, intermediaries, competitors, Facilitating institutions and public.</p> <p>Marketing Environment;</p> <p>Demographic Environment, Economic Environment, Political Environment</p> <p>Physical Environment, Technological Environment, Socio and Cultural Environment and Competitive Environment.</p>	05
3.	<p>MARKETING PLANNING AND ORGANISATION</p> <p>Nature and Content of marketing Plan;- Executive summary, current Marketing situation, opportunity and Issue analysis, objectives, marketing strategy, Action programs, projected profits and loss statement, control, planning a Marketing mix, Elements of marketing mix.</p> <p>Market Segmentation; – General approach, pattern, procedure, Bases for segmenting consumer and industrial markets, requirements for effective segmentation.</p> <p>Marketing Organisation;-Structure, types, relations with other departments, Departments of marketing unit, function of marketing.</p>	10

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SEMESTER: FOURTH
COURSE CODE: 412 (Elective-I)
NAME OF COURSE: MARKETING MANAGEMENT

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
PAPER CODE: 0269

COURSE CONTENT

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
	Marketing research and its Application Scope, process, signification and objectives of marketing research characteristics of a good marketing research, Procedures in marketing research.	
4.	UNDERSTANDING CONSUMERS Major factors influencing consumer behaviors – Cultural, Social, personal and Psychological factors, Buying Decision process Types of buying behavior, Indian consumer markets.	04
5.	PRODUCT MANAGEMENT What is a product, product classification schemes, product mix and product line decisions, service product decisions nature characteristics and classification of services, Extent and importance of Marketing in the service sector product life cycle. Development of New Products Planning, product life cycles, idea generation and screening, concept development and testing, business analysis, product development and market testing, branding and packaging.	05
6.	MARKETING STRATEGIES Marketing strategies in different stages of product life cycle- Introduction stage, growth stage, maturity stage, decline stage market-leader, market-challenger and market follower strategies Pricing policies and practices- setting the price, modifying the price, initiating and responding to price changes.	05

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**DIPLOMA IN COMPUTER SCIENCE & ENGG.**

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SEMESTER: FOURTH
COURSE CODE: 412 (Elective-I)
NAME OF COURSE: MARKETING MANAGEMENT**SCHEME: Dip.CS_JULY 2002**
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
PAPER CODE: 0269**COURSE CONTENT**

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
7.	MARKETING FUNCTIONS Introduction, classification, Marketing Marketing communications- Process, objectives Advertising- Definition and objectives, types of advertising, pre-requisites of advertising, deciding on the advertising budget; Sales response and decay model, Adaptive control model and competitive share model, deciding on the message; message generation, message evolution and selection message execution. Deciding on the media- Deciding on the reach, frequency and impact. Selection of major media types, selecting specific media vehicles, deciding on media timing, evolution of effectiveness of advertising communication effect research, sales effect research. Sales Promotion; Objectives, tools of sales promotion, development , presentation, implementation and control of sales promotion programme, Evaluation of sales promotion programmes, Publicity; Objectives, Selection of publicity message and vehicle, implementation and evaluation of publicity programmes.	12
8.	MARKET MEASUREMENT, DISTRIBUTION AND CONTROL STRATEGY Demand Forecasting;- Objectives, estimate of current and Future demand, distribution Strategies, Objective, significance, types. Marketing channels; Definition and types of channels, factors affecting the choice of channels.	04

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: **FOURTH**

COURSE CODE: **412 (Elective-I)**

NAME OF COURSE: **MARKETING MANAGEMENT**

SCHEME: **Dip.CS_JULY 2002**
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
PAPER CODE: **0269**

REFERENCES

- Kotler Philp ,Marketing management-Analysis, Planning and control, Prentice Hall of India, New Delhi.
- Mamoria C.B. and Joshi R L, Principles and practice of marketing in India, Kitab Mahal, Allahabad.
- Louis & Boone , Kurtz L. David , Contemporary marketing, Dryden Press Hinsdale, Illinois.
- Koontz, Essentials of management, McGraw Hill.

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: **FOURTH**
COURSE CODE: **413 (Elective-I)**
NAME OF COURSE: **ENTREPRENEURSHIP**

SCHEME: **Dip.CS_JULY 2002**
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
PAPER CODE: **0271**

RATIONALE

Since long entrepreneurship has been recognised as an essential ingredient of economic development. Concept of entrepreneurship has varied from time to time suit the changing ethos of socio-economic reality. It was applied to business for the first time in 18th century, to designate a dealer, who buys and sells goods at uncertain prices. Later on an entrepreneur was considered a dynamic agent of change; or the catalyst, who transformed increasingly physical, natural and human resources, into corresponding production possibilities. In recent years, managerial aspects of entrepreneurship are being emphasized. It employs innovativeness, an urge to take risk in the face of uncertainties, and intuition, i.e. a capacity of seeing things in a way, which afterwards proves to be true.

The course is kept in soft core under DCE, DME and DEE to bring to surface certain common characteristics such as perception of economic opportunity, technical and organizational skills, managerial competence, and motivation to achieve result.

1. Introduction to Entrepreneurship	1
2. Planning for Business Start-Up	1
3. Achievement Motivation	1

1. Introduction to Entrepreneurship	1
2. PLANNING FOR BUSINESS START-UP	1
3. ACHIEVEMENT MOTIVATION	1

SEMESTER: **FOURTH**
 COURSE CODE: **413 (Elective-I)**
 NAME OF COURSE: **ENTREPRENEURSHIP**

SCHEME: **Dip.CS_JULY 2002**
 COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
 PAPER CODE: **0271**

SCHEME OF STUDIES

Lectures: **3 Hrs. per week**
 Practical: **- Hrs. per week**

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	Entrepreneur –His qualities and functions	04	-	04
2.	Small scale industry- Its growth and significance	06	-	06
3.	Support Agencies for promoting and developing entrepreneurship	06	-	06
4.	Planning an Industrial Unit	06	-	06
5.	Achievement motivation	04	-	04
6.	Project cost and its financing	08	-	08
7.	Planning and preparing of project report	14	-	14
Total		48		48

SEMESTER: **FOURTH**
 COURSE CODE: **413 (Elective-I)**
 NAME OF COURSE: **ENTREPRENEURSHIP**

SCHEME: **Dip.CS_JULY 2002**
 COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
 PAPER CODE: **0271**

Lectures: 3 Hrs. per week

COURSE CONTENT

S. NO.	Course Content	Hours of Study
1.	ENTREPRENEUR –HIS QUALITIES AND FUNCTIONS; Concept of Entrepreneur, Types of Entrepreneur, Qualities of an Entrepreneur, Example of Entrepreneur.	04
2.	SMALL SCALE INDUSTRY – ITS GROWTH AND SIGNIFICANCE; Definition of SSI ancillary, Growth of SSI in India, in different sectors. Government policies for SSI, Importance of SSI, Contribution of SSI in economic development. Entrepreneurship in an industrially backward area.	06
3.	SUPPORT AGENCIES FOR PROMOTING AND DEVELOPING ENTREPRENEURSHIP Government and non-Government schemes, Non-institutionalised benefits and incentives, Infrastructure, Technical consultancy, Marketing- Government institutionalized, private, Requirements for setting up an industrial unit, various organisations fulfilling the requirements. Entrepreneurship promotional schemes of Government like Trysem IRDP, NRER.	06
4.	PLANNING AN INDUSTRIAL UNIT Project Environment, Project selection- factors of selection, Tools for selections, Limitation of selection, Market surveys and Analysis, Project formulation and scheduling, Projections and economic indicators, Process formalities for setting up of a SSI.	06
5.	ACHIEVEMENT MOTIVATION Objectives, Goals and motivation, Importance of the Objectives, need for achievement motivation, reinforcement with the help of games, quizzes, and films, planning process- result oriented.	04

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH
 COURSE CODE: 413 (Elective-I)
 NAME OF COURSE: ENTREPRENEURSHIP

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 CG3, M02, E01, I04 AND OTHERS
 PAPER CODE: 0271

COURSE CONTENT

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
6.	<p>PROJECT COST AND ITS FINANCING</p> <p>Estimation of cost production, cost volume profit relationship at different levels, financial concepts of business, institutionalized and non-institutionalized sources, fund flow statements, model loan application from with check list for appraisal.</p>	08
7.	<p>PLANNING AND PREPARING OF PROJECT REPORT</p> <p>Selection of project, scheduling of activities involved, model format, preparation of action plan for implementation, preparation of project. Project planning cases- illustrate some real cases.</p> <p>In addition to above, the students are advised to-</p> <ol style="list-style-type: none"> I. Visit few small-scale industries situated in the city in a near by industrial area. II. Discuss the problems related to SSI with Entrepreneurs. III. Collect information about the market rates; quality, quantity of the goods of their choice. IV. Develop logical and analytical approach to purchase the raw materials/finished goods. V. Prepare a project report for the industry they are willing to start. 	14

SEMESTER: FOURTH
COURSE CODE: 413 (Elective-I)
NAME OF COURSE: ENTREPRENEURSHIP

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
PAPER CODE: 0271

REFERENCES

- Sinha A.K. & Sinha Rama, Project Engineering and Management
- Developing New Entrepreneurs, Entrepreneurship Development Institute of India, Ahemdabad.
- Vadal Prach & Rao T.V. , Developing Entrepreneurship- A hand book.

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH
COURSE CODE: 414 (Elective-I)
NAME OF COURSE: OFFICE MANAGEMENT

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5017

RATIONALE

Office management occupies an important position in the management of any organisation, because all the important functions of management are carried out through office only. Office makes business policies, plans and executes them. It is perceived that after passing the diploma programme in engineering, some students may be entrusted with additional responsibility of office management. Few may choose to establish their own enterprise. Sometimes, it may also happen that they might have to operate various equipment during meetings, seminars, presentations etc., Therefore acquaintance with office management skills and procedures is essential, which will lead to his/her proficiency and enhanced employability.

Study of the course on Office Management, would enable the students to:

- I. Describe the role of office in organisational administration.
- II. Explain the features of key office resources.
- III. Draft routine business communications.
- IV. Describe work practices for monitoring safety within the work place
- V. Explain the principles of good interpersonal relations.

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH
 COURSE CODE: 414 (Elective-I)
 NAME OF COURSE: OFFICE MANAGEMENT

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5017

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 3 Hrs. per week
 Practical: NIL

S. N O.	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Introduction to Office Management	07	-	07	15
2.	Managing Human Resources	07	-	07	15
3.	Record Management & Reproduction of Management Information	10	-	10	20
4.	Office Equipment	07	-	07	15
5.	Communication in the Office	07	-	07	15
6.	Workflow in organisations and Official procedure	10	-	10	20
Total		48	-	48	100

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

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SEMESTER: FOURTH
 COURSE CODE: 414 (Elective-I)
 NAME OF COURSE: OFFICE MANAGEMENT

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5017

COURSE CONTENT

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
1.	INTRODUCTION OF OFFICE MANAGEMENT	07
1.1	Concept of office management	
1.2	Need and importance of office management, role of office manager	
1.3	Organization of office and different forms of organization.	
1.4	Office layout	
1.5	Selection of Office Building and Furniture	
1.6	Need of good Office Environment	
1.7	Health, Safety and Security Measures for Office; Legislation, General rules for dealing with hazards and emergencies, types of fire equipment, methods of minimising hazards.	
2.	MANAGING HUMAN RESOURCES	07
2.1	Need of Human resources	
2.2	Recruitment and selection of manpower.	
2.3	Job Specification and work distribution	
2.4	Placement method	
2.5	Induction and Training	
2.6	Reward or Remuneration and perks.	
2.7	Performance Appraisal and motivation	
3.	RECORD MANAGEMENT AND REPRODUCTION OF MANAGEMENT INFORMATION	10
3.1	Purpose of keeping Record and Information	
3.2	Method of Keeping Record-files, filing system, filing equipment, Indexing and its method	
3.3	Office Forms, Design of forms, Business Stationary	
3.4	Retention, use and disposal of records, Microfilm, Reprographic services	

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH
 COURSE CODE: 414 (Elective-I)
 NAME OF COURSE: OFFICE MANAGEMENT

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5017

COURSE CONTENT

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
4.	OFFICE EQUIPMENT	07
4.1	Need and Identification of Office Equipment	
4.2	Use of Office Equipment e.g. Typewriter, word processor, photocopier, Binding M/C, Overhead Projector, Laminating Machine, collating Machine, Joggers, Franking Machine, Hole punches, Paper shredder etc.	
4.3	Maintenance of Office Equipment	
4.4.	Office supplies, rules and procedures	
5.1	COMMUNICATION IN THE OFFICE	07
	Types of Communication : Written , Oral , Formal, Informal, Downward and	
5.2	Upward communication	
5.3	Essential features of holding discussions, Factors affecting the performance	
5.4	of individuals and teams.	
5.5	Barriers in communication	
5.6	Reasons for conflicts and disagreements, and their resolution.	
5.7	Devices of communication: Telephone, EPABX System, Answering M/C, Facsimile Transmission (Fax), Telex, Electronic mail.	
6.	WORK FLOW IN ORGANIZATIONS AND OFFICE PROCEDURE	10
6.1	Office system and Procedure	
6.2	Official Letters: Types of Official Letters, Government letters, Demi official letters (DO), Circular, Memo.	
6.3	Office Manuals or Directory	
6.4	Office meeting and its organization, seminar, workshops, symposiums, group discussion	
6.5	Preparation of agenda and minutes	
6.6	Preparation of reports.	
6.7	Use of Audio-visual resources: tape-records, projectors: OHP, On line Computer data projector, slide projector, VCR and T.V.	

SEMESTER: FOURTH
COURSE CODE: 414 (Elective-I)
NAME OF COURSE: OFFICE MANAGEMENT

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5017

REFERENCES

TEXT BOOKS:

- RAO V.S P and NARAYANA P.S., Office management, Tata McGraw-Hill Publishing Co. Ltd., N. Delhi

REFERENCE BOOKS:

- Chhabra T.N. (Year 1998), Modern Office , Dhanpatarai & Co.(P) Ltd., N. Delhi
- Agrawal R.C. and Agrawal Sanjay, Office Management, Sahitya Bhavan, Agra (Hindi)

SEMESTER: FOURTH

COURSE CODE: 415 (Elective-I)

NAME OF COURSE: TOTAL QUALITY MANAGEMENT

SCHEME: Dip.CS_JULY 2002

COMMON WITH PROGRAMME (S):104

PAPER CODE: 5018

RATIONALE

Total Quality Management is often used to denote any collection of changes, techniques and programs that management chooses to implement in the name of continuous improvement. In short Total Quality Management is as much about the quality processes as it is about quality result or quality products.

The course emphasises the need for radical reappraisal of traditional management practices, so that, organisations can respond effectively to the competitive demands of the industry due to globalisation in the market place. Key to a successful implementation, is to design it right in the first place. The course views total quality management as an enabling philosophy underpinned by a series of tools and methodologies. Together these are utilised to enhance an organisation's capability to improve its performance continuously and to develop excellence for its customers.

SEMESTER: FOURTH
 COURSE CODE: 415 (Elective-I)
 NAME OF COURSE: TOTAL QUALITY MANAGEMENT

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5018

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 3 Hrs. per week
 Practical: - Hrs. per week

S. NO.	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
		02	-	02	05
1.	Introduction	06	-	06	15
2.	Principles of TQM	06	-	05	10
3.	Leadership	04	-	05	10
4.	Customer Satisfaction	05	-	05	10
5.	Employee Involvement	07	-	07	15
6.	Continuous Process Improvement	05	-	05	10
7.	Supplier Partnership	06	-	06	10
8.	Quality Systems and Cost of Quality	07	-	07	15
9.	Management Tools				
	Total	48	-	48	100

SEMESTER: **FOURTH**

COURSE CODE: **415 (Elective-I)**

NAME OF COURSE: **TOTAL QUALITY MANAGEMENT PAPER CODE: 5018**

SCHEME: **Dip.CS_JULY 2002**

COMMON WITH PROGRAMME (S):**104**

COURSE CONTENT

Lectures: **3 Hrs. per week**

S. NO.	Course Content	Hours of Study
1.	INTRODUCTION Traditional approach to quality management: Inspection and rejection, Quality assurance, Need for Total Quality.	02
2.	PRINCIPLES OF TQM Definition, Origin and growth of concept of TQM, Approaches of the Gurus: W Edwards Deming, Joseph Juran and Philips Crosby for implementation of TQM, Basic approach of TQM, Benefits of TQM, Quality awards; The Deming prize, The Balridge award, Quality Function Deployment (QFD): Introduction, Benefits of QFD, House of quality, QFD process.	06
3.	LEADERSHIP Concepts, Implementation, management role, Quality council, Core values and concepts, Shared values, Ethics, Quality statements: Mandate, Vision, Mission, Strategic planning, Communications, Decision making, The 7 habits of highly effective people, Characteristics of leaders.	06
4.	CUSTOMER SATISFACTION Introduction, Definition of a customer, Customer perception of quality, Feedback, Using customer complaints, Service quality, Translating needs into requirements, Customer retention.	04
5.	EMPLOYEE INVOLVEMENT Introduction, Motivation, Empowerment, Teams, Suggestion system, Recognition and reward, Gain-sharing, Performance appraisal, Unions and employee involvement, Benefits of employee involvement.	05

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH

SCHEME: Dip.CS_JULY 2002

COURSE CODE: 415 (Elective-I)

COMMON WITH PROGRAMME (S):104

NAME OF COURSE: TOTAL QUALITY MANAGEMENT PAPER CODE: 5018

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
6.	CONTINUOUS PROCESS IMPROVEMENT Introduction, Process, The Juan trilogy, Improvement strategies, Types of problems, The Plan-DO-Check-Act cycle, Problem solving method, Kaizen, Reengineering, Benchmarking: Definition, reasons to benchmark, Process.	07
7.	SUPPLIER PARTNERSHIP Introduction, Partnering, Sourcing, Supplier selection, Principles of Customer/Supplier relations, Supplier certification/audits, Supplier training, Supplier rating, relationship development.	05
8.	QUALITY SYSTEMS AND COST OF QUALITY Introduction, ISO 9000 series of standards, Other quality systems (Only introduction), Implementation, Documentation, Elements of ISO 9000, Writing the documents, Internal audits, registration, Cost of quality: Cost of conformance, cost of non-conformance.	06
9.	MANAGEMENT TOOLS Introduction, SWOT analysis, Pareto diagram, Process flow diagram, Cause-and-Effect diagram, Check sheets, Histogram, Forced field analysis, Nominal group technique, Affinity diagram, Tree diagram, Matrix diagram, Scatter diagram Note: Students are expected to carryout case study on significance & advantages of Total Quality Management, in each topic, but there will not be any theory examination based on case studies.	07
TOTAL		48

SEMESTER: FOURTH

COURSE CODE: 415 (Elective-I)

NAME OF COURSE: TOTAL QUALITY MANAGEMENT PAPER CODE: 5018

SCHEME: Dip.CS_JULY 2002

COMMON WITH PROGRAMME (S):I04

REFERENCES

TEXT BOOK:

- Besterfield H. Dale, Basterfield-Michna Carol, Besterfield H Glen, Baterfield-sacre Mary, Total Quality Management, second edition (Low price), 1999 (first Indian reprint 2001), Pearson Education Inc., Asia (Original Pub: Addison Wesley Longman (Singapore) Pte. Ltd, Delhi, India.

REFERENCE BOOKS:

- Pike John, Barnes Richard, TQM in Action, Second edition, Chapman & Hall
- Greg Bounds, Lyle Yorks, Mel Adams & Gipsie Ranney, Beyond Total Quality Management; Mc Graw-Hill international edition
- Peter Mears; Quality Improvement Tools & Techniques; McGraw Hill Inc.
- TQM for Sales and Marketing Management
- ISTE Journal
- IEEE Journal

SEMESTER: FOURTH

SCHEME: Dip.CS JULY 2002

COURSE CODE: 421 (Elective-II)

COMMON WITH PROGRAMME(S):104

NAME OF COURSE: INTERNET & WEB TECHNOLOGY PAPER CODE: 5010

RATIONALE

This Course will let the students appreciate the power of Internet. Understanding of various web protocols like TCP/IP, http, smtp, pop, ftp, TELNET will help in the better use of Internet. Student will get practical skills in the use of a number of Internet tools and in web site development. Study of E-Mail operation will allow the student to use the E-Mail, which is the most popular application of the Internet. Students will find interesting to design Web Pages using HTML and upload it on Web Server.

Sl. No.	Topic	Hours	Level	Prerequisites	Grade
1	Introduction to Internet	4	1	None	C
2	World Wide Web	8	1	None	C
3	WWW, HTTP, FTP, SMTP, POP, TELNET, WWW, Proxy, Web Page, Home Page, Web Site, Web Server	16	1	None	A
4	WWW, HTTP, FTP, SMTP, POP, TELNET, WWW, Proxy, Web Page, Home Page, Web Site, Web Server	16	1	None	B
5	WWW, HTTP, FTP, SMTP, POP, TELNET, WWW, Proxy, Web Page, Home Page, Web Site, Web Server	16	1	None	C
6	WWW, HTTP, FTP, SMTP, POP, TELNET, WWW, Proxy, Web Page, Home Page, Web Site, Web Server	16	1	None	D
7	WWW, HTTP, FTP, SMTP, POP, TELNET, WWW, Proxy, Web Page, Home Page, Web Site, Web Server	16	1	None	E
8	WWW, HTTP, FTP, SMTP, POP, TELNET, WWW, Proxy, Web Page, Home Page, Web Site, Web Server	16	1	None	F
9	WWW, HTTP, FTP, SMTP, POP, TELNET, WWW, Proxy, Web Page, Home Page, Web Site, Web Server	16	1	None	G
10	WWW, HTTP, FTP, SMTP, POP, TELNET, WWW, Proxy, Web Page, Home Page, Web Site, Web Server	16	1	None	H

- 3. WORLD WIDE WEB
 - 3.1 Web browser and their capabilities
 - 3.2 Search Engine and their applications
 - 3.3 Web Service, Proxy Server
- 4. COMMUNICATION USING INTERNET
 - 4.1 Concept of email
 - 4.2 Steps of sending, Handling & Printing Email
 - 4.3 POP and other related email
 - 4.4 Attachments, Downloading
 - 4.5 Email Protocols, SMTP and POP 3
 - 4.6 Address Book, Mailing list
 - 4.7 Email clients and their configuration, Outlook express, Thunderbird
 - 4.8 Opening an Email account
 - 4.9 Email etiquette

SEMESTER: **FOURTH**

COURSE CODE: **421 (Elective-II)**

NAME OF COURSE: **INTERNET & WEB TECHNOLOGY** PAPER CODE: **5010**

SCHEME: **Dip.CS_JULY 2002**

COMMON WITH PROGRAMME (S):**104**

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: **3 Hrs.** per week

Practical: **2 Hrs.** per week

S. NO.	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Basic Internet Concepts	06	2	08	05
2.	Connecting to Internet	02	2	04	10
3.	World Wide Web	12	8	20	25
4.	Communication using Internet	09	7	16	15
5.	Web Protocols	03	3	06	10
6.	Web Publishing	13	8	21	25
7.	Introduction to IT Enabled Services	03	2	05	10
Total		48	32	80	100

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH

SCHEME: Dip.CS_JULY 2002

COURSE CODE: 421 (Elective-II)

COMMON WITH PROGRAMME(S):104

NAME OF COURSE: INTERNET & WEB TECHNOLOGY

PAPER CODE: 5010

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO	Course Content	Hours of Study
1.	BASIC INTERNET CONCEPTS	06
1.1	History of Internet	
1.2	Internet architecture	
1.3	Various applications, e.g. WWW, E-Mail, Internet news, chatting and conferencing, FTP.	
1.4	Internet, Intranet and Extranet	
1.5	Internet Terminology; Modem, Network, Client, Server, Protocols, TCP/IP, http, DNS, URL, IP Address, WWW, Portals, Web Page, Home Page, Web Sites, E-Mail, HTML Shell and TCP/IP Accounts, Browser, Search engines, WAP.	
2.	CONNECTING TO INTERNET	02
2.1	Types of Connectivity; Dial-up, leased line, ISDN, VSAT.	
2.2	IP-Address, Domain Name System (DNS)	
2.3	Internet Security	
3.	WORLD WIDE WEB	12
3.1	Web browsers and their functions	
3.2	Search Engine and their applications	
3.3	Web Server, Proxy Server	
4.	COMMUNICATION USING INTERNET	09
4.1	Concept of e-mail	
4.2	Basics of Sending, Receiving & Printing E-Mail	
4.3	POP and Web based e-mail	
4.4	Attachments, Downloading	
4.5	e-mail Protocols; SMTP and POP-3	
4.6	Address Book, Mailing lists	
4.7	e-mail clients and their configuration, Outlook express, Messengers	
4.8	Opening an e-mail account	
4.9	e-mail etiquette	

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH

SCHEME: Dip.CS JULY 2002

COURSE CODE: 421 (Elective-II)

COMMON WITH PROGRAMME S):104

NAME OF COURSE: INTERNET & WEB TECHNOLOGY PAPER CODE: 5010

COURSE CONTENT

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
5.	WEB PROTOCOLS Basic concept of HTTP, FTP, TCP/IP, PPP, TELNET, Netbui, IPX/SPX	03
6.	WEB PUBLISHING	13
6.1	HTML, Tags; Attributes of Tags, Body, Head, Title, Paragraph formatting, Text; Font, Color etc, List Tags, Linking of web page; Anchor tag, Linking tags, Table Tags,	
6.2	Images on Web pages; GIF, JPEG, JPG, TIFF, Image map, Linking of images	
6.3	Frame and their types, Cascading style sheet, Controlling element positions	
6.4	HTML Editors	
6.5	FTP Client software for uploading web page	
7.	INTRODUCTION TO IT ENABLED SERVICES e- business, e- commerce, e- governess	03

SEMESTER: FOURTH

SCHEME: Dip.CS_JULY 2002

COURSE CODE: 421 (Elective-II)

COMMON WITH PROGRAMME(S):104

NAME OF COURSE: INTERNET & WEB TECHNOLOGY PAPER CODE: 5010

LIST OF EXPERIMENTS

Practical: 2 Hrs. per Week

S. NO.	Name of experiments	Hours of Study
1.1	Configuring modem	
2.2	Configuring Internet Connection	
3.1	Configuring Browser with emphasis on security	
3.2	Using Browser; Internet Explorer / Netscape Navigator	
3.3	Internet Surfing	
3.4	Using Search Engines	
3.5	Using Advanced Search Techniques	
4.1	Create an e-mail account for yourself	
4.2	Using your e-mail account to send e-mail	
4.3	Download the latest cartoon from amul.com and send it as an attachment to your friends	
4.4	Creating and maintaining address book	
4.5	Creating and maintaining mailing list	
4.6	Configuring e-mail Clients	
4.7	Receiving and printing e-mail	
5.	Download using FTP	
6.1	Creating of HTML Pages using popular HTML editor such as Front Page with the use of advanced topics like frames, image map, cascading style sheets etc.	
6.2	Uploading a Web Page on Server	
6.3	Design a personal home page including image and give a five-page write up on it.	
7.	Using e-commerce sites	
Total		32

SEMESTER: FOURTH
COURSE CODE: 421 (Elective-II)
NAME OF COURSE: INTERNET & WEB TECHNOLOGY

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME(S):104
PAPER CODE: 5010

REFERENCES

TEXT BOOKS:

- Allen D.W. & Steve Johnson; the Learning Guide to Internet; B.P.B. Publication.

REFERENCE BOOKS:

- Alexis Leon and Matthew Leon; Internet for every one; Vikas publishing house Pvt. Ltd., New Delhi
- Internet for Dummy, Pustak Mahal, New Delhi
- Dixit Manish (1999); Internet, An Introduction, CISTems TMH Series , Tata McGraw Hill publishing company limited, New Delhi.
- Design Web Pages, BPB Publication.

SEMESTER: FOURTH
COURSE CODE: 422 (Elective-II)
NAME OF COURSE: COMPUTERISED FINANCIAL ACCOUNTING

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME(S):104
PAPER CODE: 5016

RATIONALE

Financial Accounting is one of the major areas of Computer Application. Every organisation is required to prepare all the accounts statements. The Course will familiarise students with manual accounting, prior to its computerisation. This course will enable student to prepare & maintain accounts accurately on computer with drastic saving of time.

1	Introduction to Financial Accounting	1
2	Accounting cycle	2
3	Journal and Ledger	3
4	Journal and Ledger	4
5	Journal and Ledger	5
6	Journal and Ledger	6
7	Journal and Ledger	7
8	Journal and Ledger	8
9	Journal and Ledger	9
10	Journal and Ledger	10
11	Journal and Ledger	11
12	Journal and Ledger	12
13	Journal and Ledger	13
14	Journal and Ledger	14
15	Journal and Ledger	15
16	Journal and Ledger	16
17	Journal and Ledger	17
18	Journal and Ledger	18
19	Journal and Ledger	19
20	Journal and Ledger	20
21	Journal and Ledger	21
22	Journal and Ledger	22
23	Journal and Ledger	23
24	Journal and Ledger	24
25	Journal and Ledger	25
26	Journal and Ledger	26
27	Journal and Ledger	27
28	Journal and Ledger	28
29	Journal and Ledger	29
30	Journal and Ledger	30
31	Journal and Ledger	31
32	Journal and Ledger	32
33	Journal and Ledger	33
34	Journal and Ledger	34
35	Journal and Ledger	35
36	Journal and Ledger	36
37	Journal and Ledger	37
38	Journal and Ledger	38
39	Journal and Ledger	39
40	Journal and Ledger	40
41	Journal and Ledger	41
42	Journal and Ledger	42
43	Journal and Ledger	43
44	Journal and Ledger	44
45	Journal and Ledger	45
46	Journal and Ledger	46
47	Journal and Ledger	47
48	Journal and Ledger	48
49	Journal and Ledger	49
50	Journal and Ledger	50
51	Journal and Ledger	51
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89	Journal and Ledger	89
90	Journal and Ledger	90
91	Journal and Ledger	91
92	Journal and Ledger	92
93	Journal and Ledger	93
94	Journal and Ledger	94
95	Journal and Ledger	95
96	Journal and Ledger	96
97	Journal and Ledger	97
98	Journal and Ledger	98
99	Journal and Ledger	99
100	Journal and Ledger	100

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: **FOURTH**
 COURSE CODE: **422 (Elective-II)**
 NAME OF COURSE: **COMPUTERISED FINANCIAL ACCOUNTING**

SCHEME: **Dip.CS_JULY 2002**
 COMMON WITH PROGRAMME(S):**104**
 PAPER CODE: **5016**

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: **03 Hrs. per week**
 Practical: **02 Hrs. per week**

S. NO.	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Account Entries	13	05	18	20
2.	Cash Book and Bank Book	05	05	10	20
3.	Subsidiary Books and Final Accounts	14	05	19	30
4.	Inventory Accounting	05	-	05	10
5.	Accounting Software Packages	11	17	28	20
Total		48	32	80	100

SEMESTER: FOURTH

SCHEME: Dip.CS_JULY 2002

COURSE CODE: 422 (Elective-II)

COMMON WITH PROGRAMME(S):104

NAME OF COURSE: COMPUTERISED FINANCIAL ACCOUNTING

PAPER CODE: 5016

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	ACCOUNT ENTRIES	13
1.1	Types of Accounts	
1.2	Journal ; Meaning of Journal , Format of Journal , Rules for Journalising the Transactions	
1.3	Ledger ; Meaning of Ledger, Necessity of Ledger , Draw column's of Ledger List rules for Posting , Closing the balances of accounts	
2.	CASH BOOK AND BANK BOOK	05
2.1	Meaning of cash book and bank book	
2.2	Types of cash book and bank book	
2.3	Formats of cash book and bank book	
2.4	Balancing of cash book and bank book	
3.	SUBSIDIARY BOOKS AND FINAL ACCOUNTS	14
3.1	Purchase Book; Preparation of Purchase Book	
3.2	Sales Book; Preparation of Sales Book	
3.3	Purchase & Sales Return Book	
3.4	Trial Balance ; Meaning of Trial Balance , Object of Making Trial Balance Subject Matter of Trial Balance, Methods of Preparing Trial Balance	
3.5	Trading Account; Format & Preparation of Trading Account	
3.6	Profit & Loss Account; Format & Preparation of Profit & Loss Account	
3.7	Balance Sheet ; Format & Preparation of Balance Sheet	
3.8	Bank re-conciliation statement	
4.	INVENTORY ACCOUNTING	05
4.1	Inventory Accounts & records of stock	
4.2	Methods of Preparing inventory accounts	

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH
 COURSE CODE: 422 (Elective-II)
 NAME OF COURSE: COMPUTERISED FINANCIAL ACCOUNTING

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME(S):104
 PAPER CODE: 5016

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
5.	ACCOUNTING SOFTWARE PACKAGES	11
	Study and operation of accounting software packages (Tally) based on following features;	
5.1	Installation of the Software.	
5.2	Concept of Computerised Accounting.	
5.3	Starting of the software package.	
5.4	Configuring the accounting software.	
5.5	Creation of accounts' heads.	
5.6	Vouchers' entry	
5.7	Invoice Entry & Creation	
5.8	Handling Multiple & Group companies' accounts	
5.9	Managing Inventory through the software	
5.10	Display & Printing of various account books and statements	
5.11	Know the salient features of other popular accounting software packages (like Wings 2000, Ex Next Generation, Fact, Simply Accounting etc). Compare them with the studied accounting software package on the basis of following; Data safety, ease in use, cost, on-line help and documentation, installation size. Additional features and shortcomings of these software.	
TOTAL		48

SEMESTER: FOURTH

COURSE CODE: 422 (Elective-II)

NAME OF COURSE: COMPUTERISED FINANCIAL ACCOUNTING

SCHEME: Dip.CS_JULY 2002

COMMON WITH PROGRAMME(S):104

PAPER CODE: 5016

LIST OF EXPERIMENTS

Practical: 2 Hrs. per Week

S. NO.	Name of experiments	Hours of Study
1.	Manual Practice of Journal ledger and posting of entries	04
2.	Manual Preparation of Various Types of Cash Books	04
3.	Manual Preparation of Subsidiary Books	04
4.	Manual Preparation of Final Account	01
5.	Installation of accounting software	02
6.	Study of Starting Screen and interface of the accounting software	03
7.	Creation of Accounts' heads	03
8.	Addition, Modification and Deletion of vouchers	03
9.	Invoice entry and Creation of Invoice	02
10.	Prepare Ledger, Cash Book, bank book and take printout	03
11.	Prepare Profit & Loss Account, Trial balance, balance sheet and bank reconciliation statement. Take printouts of above.	03
Total		32

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH
COURSE CODE: 422 (Elective-II)
NAME OF COURSE: COMPUTERISED FINANCIAL
ACCOUNTING

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME(S):104
PAPER CODE: 5016

REFERENCES

- Gupta R.R., Book-Keeping & Accountancy , S. Chand & Sons, New Delhi
- Grewal T.S. , Double Entry Book-Keeping , S. Chand & Sons, New Delhi
- Shukla S.M., Financial Accounting, Sahitya Bhavan, Agra
- Shukla S.M., Financial Accounting, Sahitya Bhavan, Agra
- Manual of various software
- Smart Computing, June 2001, Jasubhai Digital Media, Page 70-79.

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH
 COURSE CODE: 423 (Elective-II)
 NAME OF COURSE: OFFICE AUTOMATION

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME(S):104
 PAPER CODE: 5003

RATIONALE

The contents of this course have been developed keeping in view the modern office management practices being exercised in present IT revolution. All modern office software packages used in offices have been included in the course. Inclusion of presentation techniques will make the contents rich in features. After studying this course the student should be able to:

1. Make project report
2. Present report
3. Create balance sheet
4. Draft business, personal and technical letters.

Sl. No.	Learning Objectives	Assessment Methods	Weightage
1	Make project report	Project Report	10%
2	Present report	Oral Presentation	10%
3	Create balance sheet	Assignment	10%
4	Draft business, personal and technical letters.	Assignment	10%

IDENTIFYING THE DOCUMENT

Sorters, Finders, Filers, Indexing, Marking, etc. are the basic functions of a filing system. Sorting is done on the basis of subject, date, etc. Marking is done on the basis of subject, date, etc. Indexing is done on the basis of subject, date, etc. Marking is done on the basis of subject, date, etc.

INTRODUCTION

This study will help you to understand the basic concepts of office automation. It will help you to understand the basic concepts of office automation. It will help you to understand the basic concepts of office automation.

WORKING WITH WORD PROCESSING AND SPREADSHEET

Students will learn to use word processing software for creating, editing, and formatting documents. They will also learn to use spreadsheet software for creating and editing spreadsheets. They will also learn to use presentation software for creating and editing presentations.

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH
 COURSE CODE: 423 (Elective-II)
 NAME OF COURSE: OFFICE AUTOMATION

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME(S):104
 PAPER CODE: 5003

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 3 Hrs. per week
 Practical: 2 Hrs. per week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1	Introduction	6	4	10	10
2	Basics of Word Processing	7	5	12	20
3	Enhancing the document	7	5	12	10
4	Spread Sheet	8	5	13	20
5	Working with formulae and calculation	7	4	11	10
6	Creative and editing charts	7	5	12	15
7	Presentations	6	4	10	15
Total		48	32	80	100

SEMESTER: **FOURTH**
 COURSE CODE: **423 (Elective-II)**
 NAME OF COURSE: **OFFICE AUTOMATION**

SCHEME: **Dip.CS_JULY 2002**
 COMMON WITH PROGRAMME (S):**104**
 PAPER CODE: **5003**

COURSE CONTENTS

Lectures: **2 Hrs. per Week**

S. No.	Detailed Course Content	Hours of study
1.	INTRODUCTION Role of office automation, modern office environment, Manpower, Furniture, Computers, Equipment, Office automation Software; Word processors, spreadsheets and Presentation Software.	6
2.	BASICS OF WORD PROCESSING Selection of text, creating documents, cursor control, Printing documents, Print Setup, Print Preview, Page setup, Editing the text (copy, delete, cut, move, paste etc). Finding text, spell check, Grammar checks facility, font size and type.	7
3.	ENHANCING THE DOCUMENT Borders, Headers, Footers, Inserting objects (images, text, drawing & symbols), setting up tables with multiple columns and rows. Table Characteristics, Margins, Placements, Style, Boundaries, Auto sum feature, Merging document, Creating tables, graphics and using templates. Word Processing under DOS.	7
4.	SPREADSHEET Data entry cells, Entry of text, formulae, numbers; moving, deleting, copying, editing data in a worksheet selecting data range. Applying formulae to select range. Tool Bars, Menus, Cell refreshing saving & quitting.	8
5.	WORKING WITH FORMULAE AND CALCULATIONS Efficient data display with data formatting (Number formatting, Date formatting, Currency formatting etc.). Using auto fill in worksheets, Working with ranges, worksheet printing, Print Preview, Print set up Page setup.	7

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH
COURSE CODE: 423 (Elective-II)
NAME OF COURSE: OFFICE AUTOMATION

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5003

Lectures: 2 Hrs. per Week

S. No.	Detailed Course Content	Hours of study
6.	CREATING AND EDITING CHARTS Creating embedded chart using chart wizard. Updating/editing charts; bar charts, histogram pie charts etc. changing chart types Adding titles, legends and guidelines, printing charts.	7
7.	PRESENTATIONS Basic presentation creation, Adding objects, applying transition, animation effects and linking. Modifying visual elements. Printing handouts.	6

SEMESTER: FOURTH
 COURSE CODE: 423 (Elective-II)
 NAME OF COURSE: OFFICE AUTOMATION

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5003

LIST OF EXPERIMENTS

Practical: 2 Hrs. per Week

S. No.	Name of experiments	Hours of study
1	Drafting letters in professional, business and corporate styles.	09
2	Preparing balance sheets in different styles.	10
3	Making project reports using tables & graphs.	09
4	Preparing multimedia in presentation using Power point ®, Lotus freelance graphics ®	04
		32

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FOURTH
COURSE CODE: 423 (Elective-II)
NAME OF COURSE: OFFICE AUTOMATION

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5003

REFERENCES

- Microsoft Office 97, Gin Conrter & Aunette Marquis, BPB Publication.
- Excel for windows, Prince. (1999), Galgotia.
- Essential guide; Word for Windows, Eckols. (1999), Galgotia.

SEMESTER: FOURTH
COURSE CODE: 430
NAME OF COURSE: PROFESSIONAL ACTIVITIES

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104

Practice Hours: 2 Hrs/week

RATIONALE

Professional Activities is not a descriptive course, as per conventional norms; therefore specific content for this course cannot be prescribed. It is a group of open-ended activities; where in variety of tasks are to be performed, to achieve objectives. However general guidelines for achieving the target and procedure for its assessment are given under the course content of course code 106 of first semester.

As the student has to practice this course in all the six semesters, the guidelines given therein are common and applicable to each semester.

OBJECTIVES:

- > To allow for professional development of students as per the demand of engineering profession.
- > To provide time for organisation of student chapter activities of professional bodies (i.e. Institution of engineers, ISTE or Computer Society of India etc.)
- > To allow for development of abilities in students for leadership and public speaking through organisation of student's seminar etc.
- > To provide time for organisation of guest lectures by expert engineers/eminent professionals of industry.
- > To provide time for organisation of technical quiz or group discussion or any other group activity.
- > To provide time for visiting library or using Internet.
- > To provide time for group discussion or solving case studies.
- > To provide time for personality development of students.
- > To provide time for working for a social cause like awareness for environment and ecology etc.

DETAILED INSTRUCTIONS TO CONDUCT 'PROFESSIONAL ACTIVITIES':

- A) Study hours, if possible should be given greater time slot with a minimum of two Hrs/week to a maximum of four Hrs/week.
- B) This course should be evaluated on the basis of GRADES & mark sheet of students, should have a separate mention of the grade awarded. There will be no pass/fail in Professional Activities (P.A.).
- C) Following grade scale for evaluation of performance in P.A. has been established.

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<u>Grades</u>	<u>Level of performance</u>
A	Excellent
B	Good
C	Fair
D	Average
E	Below expectations

D) Grades once obtained in a particular examination shall become final and no chance for improvement in grades will be given to the students.

E) Assessment of performance in P.A. is to be done internally by the institution, twice in a semester/term through a simultaneous evaluation of the candidate by a group of three teachers, of the deptt. concerned. Group of teachers will jointly award the grade to candidate in the assessment. Best of the grades obtained by the student in these two assessments shall be finally taken on the mark sheet of the respective semester/term.

Candidates abstaining from the prescribed course work and/or assessment planned at the institution shall be marked ABSENT in the mark sheet, instead of any grade.

F) While awarding the grades for performance in P.A., examining teacher should reach the final consensus based on the attendance, punctuality, interest, presentation skills in seminar on the topic assigned (Collection of relevant data, Observations, Analysis, findings/Conclusion) and its written report, awareness of latest developments in the chosen programme of study.

G) Institution shall maintain the record of grades awarded to all the students in P.A. for a period of one year.

H) It shall be mandatory for students to submit a compendium of his P.A. in the form of a journal.

I) Compendium shall contain following

- i) Record of written quiz.
- ii) Report/Write up of seminar presented.
- iii) Abstract of the guest lectures arranged in the institution.
- iv) Topic & outcome of the group discussions held.
- v) Reports on the problems solved through case studies.
- vi) Report on social awareness camps (organised for ecology & environment preservation).
- vii) Report on student chapter activities of professional bodies like ISTE, I.E. (India), CSI etc.

J) P.A. is not a descriptive course to be taught in the classroom by a particular teacher. Various activities involved in the achievement of objectives of this course should be distributed to number of teachers so that the talents and creativity of group of teachers' benefits the treatment of the course content.

These activities should preferably be conducted in English language to maintain continuity and provide reinforcement to skill development process.

Small groups shall be formed like in tutorials, group discussion, case studies, seminar, project methods, games, role-play & simulation to make the development of personality affective.

Treatment of P.A. demands special efforts, attention, close- co-operation and creative instincts on the part of teachers of the dept. concerned. Since this course is totally learner centered, many of the activities planned under this course shall come out from the useful interaction of students, among themselves and with the teachers. The guiding teacher's shall best act as a facilitator of these creative hunts/exercises, which unfold many of the hidden talents of the students or brings out greater amount of confidence in them, to execute certain activity.

Schools: D.D. College, P.A. Talim

Implemented from session 2014-15

Under principal's orders

JULY 2014

CURRICULUM DEVELOPMENT CENTRE

RAJY SANGH PROUDYOGI VIKASAPITALAYA, BHOPAL (M.P.)

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CURRICULUM

FOR

DIPLOMA IN COMPUTER SCIENCE

AND ENGINEERING

(FIFTH SEMESTER)

Scheme: Dip.CS_JULY2002

Implemented from session 2004-2005

Under semester system

JULY 2004

CURRICULUM DEVELOPMENT CENTRE
RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL (M.P.)

SEMESTER: FIFTH
COURSE CODE: 501
NAME OF COURSE: BUSINESS COMMUNICATION

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5022

RATIONALE

The aim of teaching the subject Business Communication is to develop communication skills (speaking, listening, reading and writing) among polytechnic students. The foundation has already been laid by teaching them communication skills in first semester. It has been observed that diploma holders in the world of work have to carryout variety of activities requiring command over above skills.

The course on Business Communication will enable students to

- Learn techniques of communication;
- Increase awareness of the importance of communication at work;
- Avail opportunities for practicing some of the key skills.

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FIFTH
COURSE CODE: 501
NAME OF COURSE: BUSINESS COMMUNICATIONSCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5022

SCHEME OF STUDIES AND SPECIFICATION TABLE

Course duration: 13 weeks
Lectures: 3Hrs. Per week

S. NO.	TOPIC	SCHEME OF STUDIES			SUGGESTED DISRTIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Communication	03	-	03	10
2.	Oral Communication	08	03	11	20
3.	Written Communication	12	03	15	30
4.	Inter Office Communication	05	02	07	10
5.	Reports	08	03	11	20
6.	Telecommunication	03	02	05	10
Total		39	13	52	100

SEMESTER: FIFTH
 COURSE CODE: 501
 NAME OF COURSE: BUSINESS COMMUNICATION

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5022

COURSE CONTENT

Course duration: 13 weeks
 Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	COMMUNICATION Definition: Communication as a tool Need for Business Communication Methods of Business Communication Essentials of communication Communication process Barriers to Communication and ways to overcome them Principles of effective Communication Difference between literary & technical style of writing Features of technical writing	04
2.	ORAL COMMUNICATION Development of Oral Communication skill through following tools/devices: Face to face Communication Using Telephones Interviews Speaking in Public Group discussion Conference	10
3.	WRITTEN COMMUNICATION Business Letters Need and essentials of effective Business Letters Types and practice of writing following Business Letters: Letter of enquiry and replies Placing order Credit and Status enquiry Complaint	14

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FIFTH
 COURSE CODE: 501
 NAME OF COURSE: BUSINESS COMMUNICATION

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5022

COURSE CONTENT

Course duration: 13 weeks
 Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
	Correspondence with Bank and Insurance Company Drafting Advertisement and Tender Notices Application for job Bio-data & CV Interview Call Drafting of Notice for meeting Agenda formation and minutes of meeting Press release	05
4.	INTER OFFICE COMMUNICATION Meaning Drafting following types of Inter Office Communication Office Memorandum, Office Orders, Office Circulars, Office Notes	10
5.	REPORTS Meaning Importance Characteristics of a good Report Categories base on- a) Nature: Periodic/routine reports, Progress reports, Examination reports & Survey reports, Statistical reports, Recommendation reports b) Number of person involved in reporting: Individual, Group c) Legal formalities: Formal reports, Informal reports	05
6.	TELECOMMUNICATION Drafting Telegrams Facsimile & e-mail messages On line interaction over network	

SEMESTER: FIFTH
 COURSE CODE: 501
 NAME OF COURSE: BUSINESS COMMUNICATION

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5022

LIST OF EXPERIMENTS

Practical: 1 Hr per week

S. NO.	Name of experiments	Hours of Study
1.	Conduct some oral communication exercises in a group for given situations.	
2.	Write few business letters on different matters.	
3.	Student should prepare their CV, /bio-data and also draft application for a job against an advertisement.	
4.	Prepare drafts for some inter office communication	
5.	Show some samples of good inter office communication of reputed organisation and discuss their features.	
6.	Prepare reports of meetings, progress of work, given incident, accidents, absence from work, explanation notices etc.	
6.	Draft sample telegrams, e-mail and FAX messages.	
7.	Demonstrate/conduct telephonic talk.	
8.	Deliver a lecture on a given topic.	
9.	Familiarisation with business etiquette	
Total		13

SEMESTER: FIFTH
COURSE CODE: 501
NAME OF COURSE: BUSINESS COMMUNICATION

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5022

REFERENCES

TEXT BOOKS:

- Dr. Rajendra Pal & J.S. Korlahalli, Essentials of Business Communication, Sultan Chand & Sons, New Delhi.
- Shirley Taylor, Communication for Business, Longman, England.
- Technical English Book II - Compiled by Curriculum Development Centre, TTTI, Somaiya Publications, Bombay.

REFERENCE BOOKS:

- Verma K. C., The Art of Communication, Associated Publishing House.
- M. V. Rodrigues, Effective Business Communication, Concept Publishing Company, New Delhi.
- David Silk, How to Communicate in Business, The Institution of Electrical Engineers, London.
- Madhukar R K, (2001), Business communication and customer relations, Vikas Publishing House, New Delhi.

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SEMESTER: FIFTH
COURSE CODE: 502
NAME OF COURSE: JAVA PROGRAMMING

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5019

RATIONALE

With the enormous growth-taking place in Internet and World Wide Web, Java is rapidly becoming the dominant application development language and system programming language. Java is most appropriate language for integrating Internet into the information system of organisations

The course introduces students to the design of Java language, syntax of Java, programming applets and applications that can perform multiple action in parallels. It also introduces the Java technology that enables Java programs to access databases and explores server side of Java.

CS	CS	CS	CS
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CS	CS	CS	CS
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CS	CS	CS	CS

SEMESTER: FIFTH
 COURSE CODE: 502
 NAME OF COURSE: JAVA PROGRAMMING

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5019

SCHEME OF STUDIES AND SPECIFICATION TABLE

Course duration: 13 weeks
 Lectures: 4 Hrs. per week
 Practical: 7 Hrs. per week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Overview of Java Language	04	08	12	10
2.	Classes, Objects & Methods	05	08	13	15
3.	Arrays, Strings & Vectors	05	08	13	10
4.	Multithreaded Programming	10	18	28	20
5.	Applet Programming	10	18	28	20
6.	JDBC	06	10	16	10
7.	JSP	12	21	33	15
TOTAL		52	91	143	100

SEMESTER: FIFTH
 COURSE CODE: 502
 NAME OF COURSE: JAVA PROGRAMMING

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5019

COURSE CONTENT

Course duration: 13 weeks
 Lectures: 4 Hrs. per week

S. NO	Course Content	Hours of Study
1.	<p>OVERVIEW OF JAVA LANGUAGE</p> <p>JAVA and its support systems, JAVA environment.</p> <p>JAVA program structure, Tokens, Statements, JAVA virtual machine, C++ Versus JAVA, Constants & Variables, Data Types, Declaration of Variables, Scope of Variables, Symbolic Constants, Type Casting ,</p> <p>Operators: Arithmetic, Relational, Logical Assignments, Increment & Decrement, Conditional, Bit wise, Special, Expressions & its Evaluation.</p> <p>Control statements: If statements and its variant, Switch statement,? Operator, While loop, Do while loop, For loop, Break and continue, Labeled Loops.</p>	04
2.	<p>CLASSES, OBJECTS & METHODS</p> <p>Defining a Class, Adding Variables & Methods, Creating Objects, Accessing Class Members , Constructors, Methods Overloading, Static Members, Nesting of Methods,</p> <p>Inheritance: Extending a Class, Overriding Methods, Concept of public, private and protected, Final Variables & Methods, Final Classes, Finalizer Methods, Abstract methods & Classes, Static class, Visibility Control.</p>	05
3.	<p>ARRAYS, STRINGS & VECTORS</p> <p>Arrays : One Dimensional & two Dimensional, strings, Vectors, wrapper Classes, Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interfaces Variables, Systems Packages, Using System Packages, Naming Conventions, Creating Packages, Accessing a Package, Using Package, Adding a Class to a Package, Hiding Classes</p>	05
4.	<p>MULTITHREADED PROGRAMMING</p> <p>Creating Threads, Extending the Threads Class, Stopping & Blocking a Thread, Life Cycle of a Thread, Using Thread Methods, Threads Exceptions,</p>	10

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SEMESTER: FIFTH
COURSE CODE: 502
NAME OF COURSE: JAVA PROGRAMMING

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5019

COURSE CONTENT

Course duration: 13 weeks
Lecturers: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
	Thread Priority, Synchronization, Implementing the Runnable Interface.	
5.	<p>APPLET PROGRAMMING</p> <p>Local & Remote Applets, Applets Vs Applications, Writing Applets, Applets Life Cycle, Creating an Executable Applet, Designing a Web Page, Applet Tag, Adding Applet to HTML File, Running the Applet, Passing Parameters to Applets, Aligning the Display, HTML Tags & Applets, Getting Input from the User.</p>	10
6.	<p>JDBC</p> <p>Understanding JDBC, JDBC Architecture ,types of JDBC driver, Register JDBC driver, establish a database connection, execute an SQL statement, process the result , close the data base connection</p>	06
07	<p>JSP</p> <p>Introduction , compare it with CGI, ASP, JAVA SCRIPT, VBSCRIPT, SERVLET, JAVABEANS – beans properties, set property get property, is property directives – page , include Scripting element-declarative , scriptlet, expression, standard action – JSP use bean.</p>	12

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

36/238

SEMESTER: FIFTH
COURSE CODE: 502
NAME OF COURSE: JAVA PROGRAMMING

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5019

Course duration: 13 weeks
Practical: 8 Hrs. per week

LIST OF EXPERIMENTS

S. NO.	Name of experiments	Hours of Study
1	Programs using various decision making & looping statements of JAVA.	
2	Programs to demonstrate the use of array, Class & packages.	
3	Programs using Concept of public, private and protected, Final Variables & Methods.	
4	Programs using Final Classes, Finalizer Methods, Abstract methods & Classes, Static class, Visibility Control.	
5	Program for creating & extending thread.	
6	Programs to demonstrate the use of multiple threads.	
7	Programs to create an applet for "HELLO " & call this in HTML.	
8	Programs to demonstrate the use of various applet tags, Designing data entry forms using various building blocks at client side.	
9	Program to connect single & multiple database using JDBC concept.	
10	Program to view the online catalog using JSP, JDBC & database.	
11	Program using JSP to prevent user from bypassing login.	
TOTAL		91

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SEMESTER: FIFTH
COURSE CODE: 502
NAME OF COURSE: JAVA PROGRAMMING

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5019

REFERENCES

TEXT BOOKS:

- E. Balaguruswami, Programming in Java, 2nd Edition, TMH Publications
- Paul Tremblett, Instant Java Server Pages, TMH Publications

REFERENCE BOOKS:

- Peter Norton , Peter Norton Guide to JAVA Programming, Techmedia Publications.
- Stroker, Plew, 1998, An introduction to JAVA, Thomson learning.

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SEMESTER: FIFTH
COURSE CODE: 503
NAME OF COURSE: **HARDWARE INSTALLATION AND MAINTENANCE**

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5072

RATIONALE

Hardware Installation and Maintenance is subject to give exposure to student for installing maintaining and troubleshooting of various hardware networking and peripheral devices. By studying and doing practical exercises student will able to work as per the industry need.

Hardware and Maintenance of PC is the most inevitable part for a computer professional. It is always expected that a computer professional must have an optimum knowledge of hardware parts; it's working and compatibility with the system and peripherals. It is also advisable that one should have an idea about the minor maintenance activities to be carried out for optimum working of a PC.

The objective of the subject Hardware Installation and Maintenance is to impart essential knowledge about hardware, installation of H/W, installation of driver software, installation of application packages and its fine tuning to the student of computer science and engineering .It is quite normal that for minor fault and breakdown most of the computer professional fully rely on maintenance and services personnel, rather then doing their own. Therefore it is also visualized by the expert that one must be self-reliant in minor maintenance and repairing of the computer systems.

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SEMESTER: FIFTH
 COURSE CODE: 503
 NAME OF COURSE: HARDWARE INSTALLATION
 AND MAINTENANCE

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5072

SCHEME OF STUDIES AND SPECIFICATION TABLE

Course duration: 13 weeks
 Lectures: 2Hrs. Per week
 Practical: 4 Hrs. per week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISRTIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	PC Fundamentals	3	4	07	15
2.	Motherboard	4	8	12	15
3.	Buses and Interfaces	2	4	06	10
4.	CPU	3	4	07	10
5.	Main Memory	2	4	06	10
6.	Secondary Memory	3	6	09	10
7.	Video Adapter and Sound Board	2	4	06	08
8.	Keyboard and Mouse	2	4	06	05
9.	Assembling	2	8	10	07
10.	Troubleshooting	3	6	09	10
TOTAL		26	52	78	100

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SEMESTER: FIFTH
 COURSE CODE: 503

NAME OF COURSE: **HARDWARE INSTALLATION
 AND MAINTENANCE**

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5072

COURSE CONTENT

S. No.	Course Content	Hours of Study
1	<p>PC FUNDAMENTALS:</p> <p>Classification of cases (chassis), power supply, power connectors, motherboards, expansion slot, CPU, main memory, BIOS, chipset, Video system, sound system, Drive system, MODEM, disassembly and Reassemble Notes, Tips for working inside a PC, form factors- LPX, ATX, NLX and WTX.</p>	3
2	<p>MOTHERBOARD:</p> <p>Batteries:- charging, rating, CMOS backup Batteries, Backup Battery replacement, Backup Battery trouble shooting.</p> <p>BIOS:- BIOS features, BIOS Shadowing, BIOS Bugs, BIOS Trouble Shooting, replacing BIOS CHIP.</p> <p>Chipset:- Concept, comparison of Intel 850, Intel 840, Intel 820, Intel 810E, 440BX, 440ZX chipsets.</p> <p>CMOS: - Role of CMOS, configurations of CMOS, entering CMOS setup, BIOS Auto configuration, CMOS Maintenance, CMOS password ,trouble shooting, CMOS Battery Maintenance.</p> <p>Active, passive and modular motherboard sockets and slots.</p>	4
3	<p>BUSES AND INTERFACES:</p> <p>Buses- ISA, 16 bit ISA ,PCI and AGP buses.</p> <p>USB, Firewire, Infrared</p>	2
4	<p>CPU:</p> <p>Buses, processor mode, CISC vs. RISC CPUs, processor speed, CPU socket comparison, Architectural performance features:- Super scalar architectures, Pipelining, Super pipelining, multiprocessing, MMX.</p> <p>Intel CPU's- 8086/8088, 80186, 80286, 80486, Pentium, Pentium pro, Pentium mmx, Pentium II, Pentium III, Pentium IV, Overclocking, Controlling heat.</p>	3

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SEMESTER: FIFTH
 COURSE CODE: 503
 NAME OF COURSE: HARDWARE INSTALLATION
 AND MAINTENANCE

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5072

COURSE CONTENT

S. NO.	Course Content	Hours of Study
5.	<p>MAIN MEMORY:</p> <p>Memory packages and structures: DIP, SIP, SOJ, TSOP, CSP.</p> <p>Memory modules: SIMM, DIMM, RIMM, logical memory organization.</p> <p>Conventional memory, Extended memory (EMS), Expanded memory(EMS), UMA, High memory, Memory Speed, types of memory, memory techniques, parity.</p> <p>Installing memory, memory systems and solutions.</p>	2
6.	<p>SECONDARY MEMORY:</p> <p>Drive adapter-IDE, ATA, ATAPI features, understanding 528 MB IDE limit and understanding LBA, Drive support, data transfer rate, controller installation.</p> <p>Hard Disk-Basic concepts, platters and media, airflow and head flight, data density, latency and seek, track, cylinder, sector. Zoned recording, sector sparing, landing Zone, Interleave.</p> <p>IDE Drive standards and features: IDE/ATA, ATAPI, ATA-2, ATA-3, ATAPI-4, ATAPI-5, ATAPI-6.</p> <p>Data transfer modes, Bus mastering DMA, SMART technology.</p> <p>Drive preparation: Partitioning, FAT16, FAT-32, Drive capacity limits, Drive installation, Drive testing and troubleshooting.</p> <p>SCSI Concepts, Firewire interface.</p> <p>Floppy drives- magnetic storage concept, comparison of 1.2 MB and 1.44 MB Drive, floppy drive interface installation.</p> <p>Compact Disk-CD media, CD data, CD standards, CD-ROM caching, bootable CD-ROM, CD-ROM mechanics, CD-ROM software, CD-ROM installation and replacement. Recordable CD (CD-R), modes of writing, creating bootable CD Troubleshooting.</p>	3
7.	<p>VIDEO ADAPTER AND SOUND BOARD:</p> <p>Video Adapter: Concept, MDA, CGA, EGA, PGA, MCGA, VGA, 8514 and SVGA. Video Speed Factors, Installation of Video adapter. AGP concept. Basic Video troubleshooting.</p> <p>Monitor: types, installation and troubleshooting.</p> <p>Sound Board: Installing/Upgrading a sound board, Troubleshooting.</p>	2

SEMESTER: FIFTH
 COURSE CODE: 503
 NAME OF COURSE: HARDWARE INSTALLATION
 AND MAINTENANCE

SCHEME: Dip.CS JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5072

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COURSE CONTENT

Course duration: 13 weeks
 Lectures: 2 Hrs. per week

S. NO.	Course Content	Hours of Study
8.	KEYBOARD AND MOUSE: Keyboard: Concept, Types of Keyboard, installation, troubleshooting Mouse: Concept, Types of Keyboard, installation, troubleshooting	2
9.	ASSEMBLING: Boot process Creating DOS Boot Disk Booting problems and solutions.	2
10.	TROUBLESHOOTING: Error codes -Beep Codes, POST Codes. Windows 9x Troubleshooting- clean boot troubleshooting, rebuilding the system.ini file, managing MSDOS.SYS, restoring the windows 98 system, startup troubleshooting, shut down troubleshooting. Data recovery- Causes of data loss, protecting drives and data, recovering files and folders, using SCANDISK, recovering the MBR, Data Recovery Troubleshooting.	3

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SEMESTER: FIFTH
 COURSE CODE: 503
 NAME OF COURSE: **HARDWARE INSTALLATION
 AND MAINTENANCE**

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5072

LIST OF EXPERIMENTS

Course duration: 13 weeks
 Practical: 4 Hrs. per week

S. NO	NAME OF EXPERIMENT	HOURS OF STUDY
1.	Disassemble and reassemble PC	
2.	Identification of parts	
3.	Motherboard Identification	
4.	CMOS Setup	
5.	Memory Chip identification, installation and troubleshooting	
6.	Hard disk installation	
7.	CD-drive installation	
8.	Floppy Drive installation	
9.	Video Drive installation	
10.	Sound Card installation	
11.	Key board and mouse installation	
12.	Assemble a PC, Software installation	
13.	Error Code Identification	
14.	Windows trouble shooting	
15.	Recovery of lost Data	
	Total	52

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SEMESTER: FIFTH
COURSE CODE: 503
NAME OF COURSE: **HARDWARE INSTALLATION
AND MAINTENANCE**

SCHEME: Dip.CS JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5072

REFERENCES

TEXT BOOKS:

- Stephen J. Bigelow, Troubleshooting, Maintaining and Repairing PCs, Fifth edition
TMH.

REFERENCE BOOKS:

- Subhadeep Choudhary, The A-Z of PC Hardware & Maintenance part I and II.
- Govindrajalu, IBM PC and Clones.
- Balasubramanyam, Computer Installation and Servicing.

36/247

SEMESTER: FIFTH
 COURSE CODE: 504
 NAME OF COURSE: **COMPUTER NETWORKS**

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5073

RATIONALE

The merging of computer and communication has had a profound influence on the way computer systems are organised. The old model of single computer serving all of the organisations' computational needs has been replaced by one in which a large number of separate but interconnected computers do the job. These systems are called computer networks. The computer networks are widely used by companies and people.

The course gives an understanding of IP addressing, Internal multicasting and various applications. By studying the course, students will develop knowledge and practical experience of technical advances and changes in the field of communication and networking.

Sl. No.	Topic	Hours	Practicals
1	Introduction to Computer Networks	2	
2	Network Components	2	
3	Network Topologies	2	
4	LAN & WAN	2	
5	IP Addressing	2	
6	Internal Multicasting	2	
7	Applications	2	
8	Summary	2	
Total		16	

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FIFTH
 COURSE CODE: 504
 NAME OF COURSE: COMPUTER NETWORKS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5073

SCHEME OF STUDIES AND SPECIFICATION TABLE

Course duration: 13 weeks
 Lectures: 5 Hrs. per week
 Practical: 3 Hrs. per week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISRTIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Introduction to Computer Network	5			8
2.	Network Essentials	5			04
3.	Internet addresses	6			08
4.	ARP/RARP	6			15
5.	Internet protocol	6			15
6.	Subnet and supernet address extension	4			10
7.	UDP & TCP	8			08
8.	Routings	4			10
9.	Internet multicasting	4			05
10.	Socket interface	6			07
11.	DNS	6			05
12.	Applications	5			05
	Total	65	39	104	100

SEMESTER: FIFTH
 COURSE CODE: 504
 NAME OF COURSE: COMPUTER NETWORKS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5073

COURSE CONTENT

Course duration: 13 weeks
 Lectures: 5 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	INTRODUCTION TO COMPUTER NETWORK	05
1.1	Need and advantages of computer Network	
1.2	LAN, MAN and WAN	
1.3	Criteria for selecting Computer Network in an organization	
1.4	Network Architecture; Basics of Network Architecture Point to Point, Broadcasting, Store and forward	
1.5	Network Models; OSI Reference Models, TCP/IP Network Model	
1.6	LAN Topologies; BUS, STAR, RING, TREE, MESH	
2.	NETWORK ESSENTIALS	05
2.1	NETWORK COMPONENTS basics of following; NIC, Hubs (Active & Passive), Repeaters, Types of switches Connectors, Bridges, Routers & Gateways, Structured Cabling	
2.2	LAN ACCESS TECHNIQUES Network Protocols, MAC Sub layer access Protocols ALOHA, CSMA, CSMA/CD (Introduction), IEEE 802.2, 802.3, 802.4, 802.5 & their Comparison	
3.	NET ADDRESSES IP addresses, Network and broadcast addresses, Internet addressing technology : Advantages and Disadvantages, Dotted decimal notation, Loop back addresses	06
4.	ARP/ RARP Address resolution problem Resolution through : Direct mapping, Dynamic binding, Reverse address resolution protocol	06

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FIFTH
 COURSE CODE: 504
 NAME OF COURSE: COMPUTER NETWORKS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5073

COURSE CONTENT

Course duration: 13 weeks
 Lectures: 5 Hrs. per week

S. NO.	Course Content	Hours of Study
5	INTERNET PROTOCOL	06
5.1	Virtual Network, Connectionless delivery system, Data gram Format: Data gram	
5.2	size, Network MTU and Fragmentation,	
5.3	Timestamp Option, IP Routing Algorithm ICMP: Introduction, Message Format, Ping	
6.	SUBNET & SUPERNET ADDRESS EXTENSION Proxy ARP, Subnet Addressing, Subnet Mask, Supernet Addressing	04
7.	UDP & TCP Introduction to User Data gram Protocol, Format of UDP Message, Pseudo Header, Multiplexing & Demultiplexing, Introduction to Transmission Control Protocol, Ports, Collections And Endpoints, TCP Segment Format, Checksum Computation, Establishing a TCP Connection	08
8.	ROUTING Vector Distance, Gateway-To-Gateway Protocol(GGP), Routing Information Protocol(RIP), Open SPF Protocol	04
9.	INTERNET MULTICASTING H/w Broadcast, H/w Multicast, IP Multicast & Address, Mapping IP Multicast to Ethernet Multicast, IGMP and Message Format	04
10.	SOCKET INTERFACE Creating a Socket, Specifying Local Address, Sending, Receiving data	06
11.	DOMAIN NAME SYSTEM (DNS) Mapping DNS Addresses, Domain Server Message Format	06
12.	APPLICATIONS Telnet, FTP	05

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SEMESTER: FIFTH
 COURSE CODE: 504
 NAME OF COURSE: COMPUTER NETWORKS

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5073

LIST OF EXPERIMENTS

Course duration: 13 weeks
 Practical: 3 Hrs. per week

S. NO.	Name of experiments	Hours of Study
1.	Case study of Network Operating system: Windows2000, Window NT and Novell Network, Primary domain Controllers.	14
2.	Installation and configuring of Novell and NT sever	5
3.	Use IP addressing in networking	
4.	Design a network system for an organisation with TCP/IP network using a. Class A address b. Class B address c. Class C address	3
5.	Write a program for demonstrating – a. Telnet b. FTP c. Ping	8
6.	Network administration, Network security, Securing server and pass word	5
7.	Use Socket Programming for : a. Client b. Server	4
Total		39

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: FIFTH
COURSE CODE: 504
NAME OF COURSE: COMPUTER NETWORKS

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5073

REFERENCES

TEXT BOOKS:

- Douglas E. Comer, 2001, Internetworking With TCP/IP, Volume-I, Third Edition, PHI New Delhi.

REFERENCE BOOKS:

- Andrew S. Tanenbaum, 2001, Computer Networks, PHI New Delhi.
- W. Richard Stevens, TCP/IP Illustrated, Volume-1, Addison -Wesley.
- Gerd E. Keiser (1997), Local Area Network, Tata McGraw-Hill Company Ltd. New Delhi.
- Matt Hayden, Teach yourself Network in 24 Hours, Sam's Publishing Tech. Media.
- Christa Anderson, Mastering LAN, BPB Publication New Delhi.
- Long, (2001), IP Network Design, TMH.
- Taylor, Networking Handbook, TMH.

36/253

SEMESTER: FIFTH
COURSE CODE: 505
NAME OF COURSE: INDUSTRIAL MANAGEMENT

SCHEME: Dip.CS JULY 2002
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
PAPER CODE: 0362

RATIONALE

Many diploma pass outs are engaged in shop floor supervisory work. It has been found necessary to impart to the diploma student at the final year level certain concepts, principles, procedures and 'understanding' of management techniques so that he is brought to a fairly high level of competency in 'Supervisor ship'. If he supplements this background with a minimum of experience there can be no reason as to why he wouldn't make as effective supervisor. Engineering students have been earmarked for this course since the shop floor provides the majority of opportunities available for employment.

The course has two faces: a coinage of ' Behavioral Science', where the student is exposed to the principles of Group behavior, to factors which help motivate the workers, the influences which arise out of an organisations structure, and finally an idea of how communication transfer is effected from the highest to lowest level.

The second face to the course deals what is now a days popularly known as the 'Mathematical Approach towards management'. Of-course the use of mathematics-statistics in particular-in planning and controlling production; inventory and project work is common.

Modern management concepts like CPM and PERT, Value Analysis, Inventory control and economic batch size determination, operation - research form the topic concerned under the mathematical approach. It is now realised in all industry that these techniques pay back well on implementation. Detailed coverage of those areas will not only prepares the student needing in the future but would also help him to pay his role in the introduction of these techniques.

The whole course has been introduced through at chapter on 'Systems thinking'. It is felt that considerable time is spent in problem identification and alternative selection when a young engineer encounters problematic situations on the shop floor. A systematic frame of thinking and a proper problem-solving attitude is excellent equipment for the young shop floor engineer.

It is hoped that this course will evoke considerable interest in the diploma student and will help him to get jobs earlier.

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SEMESTER: FIFTH
COURSE CODE: 505
NAME OF COURSE: INDUSTRIAL MANAGEMENT

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
PAPER CODE: 0362

SCHEME OF STUDIES

Course duration: 13 weeks
Lectures: 5 Hrs. per week

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	What is management?	02	-	02
2.	System Thinking.	03	-	03
3.	Materials Management.	10	-	10
4.	Production planning and control.	08	-	08
5.	Value analysis.	02	-	02
6.	Project planning by Network	10	-	10
7.	Industrial Relations.	06	-	06
8.	Supervision and Leadership.	06	-	06
9.	Organisational Dynamics.	08	-	08
10.	Operation Research.	06	-	06
11.	Computers in Management	04	-	04
TOTAL		65	-	65

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**DIPLOMA IN COMPUTER SCIENCE & ENGG.**

36/255

SEMESTER: FIFTH
COURSE CODE: 505
NAME OF COURSE: INDUSTRIAL MANAGEMENTSCHEME: Dip.CS JULY 2002
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
PAPER CODE: 0362**COURSE CONTENT**Course duration: 13 weeks
Lectures: 5 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	WHAT IS MANAGEMENT Management definition, activities, Theories- Decision, quantitative, mathematical, Behavioural Sciences.	02
2.	SYSTEM THINKING System definition, parameter, production system, Non-production system, objective, system design, procedure system variables, different types of model under system thinking.	03
3.	MATERIALS MANAGEMENT Introduction, function, purchase system, correlation stock turn over, order quantity, time purchase cycle, inventory, need of inventory control, Economic order quantity, simple numerical problems on E.O.Q., Safety stock, function of Inventory control and different techniques of inventory control A.B.C. analysis, simple treatment only. Stores Management: -Definition and importance Storing procedure and store records.	10
4.	PRODUCTION PLANNING AND CONTROL Production system, concept of planning, meaning of PPC, classification, characteristics of each type, function of PPC, place of PPC in the organisation, production and consumption rate, Batch and mass production, Batch size, Buffer stock, Production cost components, concept of production scheduling, loading and scheduling Difference, Gantt chart scheme, advantages and preparation of GANTT chart, interpret updating, critical ratio scheduling. Gap phasing and phasing.	08

36/256
 SEMESTER: FIFTH
 COURSE CODE: 505
 NAME OF COURSE: INDUSTRIAL MANAGEMENT

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 C03, M02, E01, I04 AND OTHERS
 PAPER CODE: 0362

COURSE CONTENT

Course duration: 13 weeks
 Lectures: 5 Hrs. per week

S. NO.	Course Content	Hours of Study
5.	<p>VALUE ANALYSIS Concept of Cost and Concept of value, objectives, components and types of value, V. A. procedure and V. A. Test. DARA SIRI method, value improvement procedures.</p>	02
6.	<p>PROJECT PLANNING BY NET WORK Net work definition, objectives, different techniques, activities, events, Network formation. PERT & CPM, representation of activities and event on network, rules for drawing network diagram, Fulkerson's rule, Dependency of activities, Dummy activities duration, EST, LST, EPO, LPO, Free float, total float, and Network analysis on tabular form, updating of network, control through updating. Main power loading and calculation on load smoothing.</p>	10
7.	<p>INDUSTRIAL RELATIONS Scope, definition, needs objective and function of personnel management. Job analysis, job description and its constituents, man power as resource, recruitment, selection, training and terminal behaviour of man in an organisation, communication in Industry its need and importance, classification, technique and barriers in communication and their effects, Grievances, its meaning, factors responsible for grievances, process and condition for handling of grievances, strikes and lockouts, conditions, conciliation and adjudication machinery, workforce, human need, motivation, meaning and its benefits, factors responsible for lack of motivation, techniques to boost the motivation in workers, moral - definition, scope and important factors responsible for high moral, ideal working conditions, employer and employee relations, job satisfaction, social and economic values, factors influencing job satisfaction.</p>	06

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SEMESTER: FIFTH
 COURSE CODE: 505
 NAME OF COURSE: INDUSTRIAL MANAGEMENT

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 C03, M02, E01, I04 AND OTHERS
 PAPER CODE: 0362

COURSE CONTENT

Course duration: 13 weeks
 Lectures: 5 Hrs. per week

S. NO.	Course Content	Hours of Study
8.	SUPERVISION AND LEADERSHIP Meaning and Role of supervisor in an industry, need of supervision, older workers and their supervision, concept of leadership, qualities of a good leader, managerial style-motivational power and employees relations, effectiveness of leadership system.	06
9.	ORGANISATIONAL DYNAMICS Organisation structure, characteristic and principle of organisation, Modern organisation approach, Types of organisation, meaning and significance of various types, organisation charts resistance to change, employees and attitude, factors for reducing the resistance to change.	08
10.	OPERATION RESEARCH : Definition and concept of O.R., methods of O.R., linear programming problem formulation and Graphical methods Simplex method of linear programming.	06
11.	COMPUTERS IN MANAGEMENT Role of computers in Management, introduction to computer system, personal computer and its uses- introduction to management information system (MIS).	04

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SEMESTER: FIFTH
COURSE CODE: 505
NAME OF COURSE: INDUSTRIAL MANAGEMENT

SCHEME: Dip.CS JULY 2002
COMMON WITH PROGRAMME (S):
C03, M02, E01, I04 AND OTHERS
PAPER CODE: 0362

REFERENCES

- Learning package on Industrial Management, T.T.T.I., Bhopal
- L. S. Srinath, CPM and PERT -Principles and application.
- Buffa, Modern Production Management, Willey International.
- Kuntz, Essentials of Management, McGraw Hill.
- Khanna O. P., Industrial Engineering and Management, Khanna Pub., New Delhi.
- Ahuja, Industrial organization and management.
- Miles, Value Analysis.
- Diwedi R. S., Manpower Management, Prentice Hall of India, New Delhi.
- Davar R.S., Personnel Management and Industrial Relations.
- Ray Wild, Production and operations Management, GASSELL.
- Meredith Jack R., Management of operations, John Wiley & Sons
- Production and Operations Management-Contemporary policy for managing operating, Tata McGraw Hill.

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SEMESTER: FIFTH
COURSE CODE: 506
NAME OF COURSE: INDUSTRIAL TRAINING

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):

RATIONALE

Technological Developments are taking place at a very fast pace. Indian industries are adopting new technologies to compete with time. Declining competence of technical pass outs has seriously forced academicians, to bring changes and improve instructional strategies.

It has been emphasised at all levels that pass outs of Polytechnics must have exposure of Industrial scenario during their studies. To provide them real work awareness, it is therefore essential to provide them opportunities through "INDUSTRIAL TRAINING". Regular and well-planned "INDUSTRIAL TRAINING" can help students to broaden their views and appreciate the importance of practical work in their life. This will also help in enriching and reinforcing classroom learning.

Successful implementation of the INDUSTRIAL TRAINING programme is teamwork and administrative support from its conception to completion stage is a prerequisite. The administrative support at all levels must therefore be ensured.

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SEMESTER: FIFTH
 COURSE CODE: 506
 NAME OF COURSE: INDUSTRIAL TRAINING

SCHEME: Dip.CS_JULY 2002
 COMMON WITH PROGRAMME (S):

SCHEME OF STUDIES

Duration: 3 weeks

SCHEME OF EXAMINATION

For the assessment of industrial training undertaken by the students, following components are considered with their weightage.

(a) Lab work

<u>In Industry</u>	Marks allotted
1. Attendance and General Discipline	10
2. Daily diary Maintenance	10
3. Initiative and participative attitude during training	10
4. Assessment of training by Industrial Supervisor	20
<hr/>	
TOTAL	50

(b) Practical/Oral Examination (Viva-Voce)

<u>In Institution</u>	Marks allotted
1. Training Report	25
2. Seminar and cross questioning (defense)	25
<hr/>	
TOTAL	50

Marks of various components in industry should be awarded to the students, in consultations with the Training and Placement Officer/Faculty of Institute and I/c of training from Industry. During training students will prepare a first draft of training report in consultation with section in-charge. After training they will prepare final draft with the help of T.P.O./Faculty of the institute. Then they will present a seminar on their training and they will face viva-voce on training in the institute.

SEMESTER: FIFTH
COURSE CODE: 506
NAME OF COURSE: INDUSTRIAL TRAINING

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):

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1.1 OBJECTIVE OF INDUSTRIAL TRAINING

Industrial training of the students is essential to bridge the wide gap between the classroom and industrial environment. This will enrich their practical learning and they will be better equipped to integrate the practical experiences with the classroom learning process.

1.2 LEARNING THROUGH INDUSTRIAL TRAINING

During industrial training students must observe following to enrich their learning:

- Industrial environment and work culture.
- Organisational structure and inter personal communication.
- Machines/ equipment/ instruments - their working and specifications.
- Product development procedures and phases.
- Project planning, monitoring and control.
- Quality control and assurance.
- Maintenance system.
- Costing system.
- Stores and purchase systems.
- Layout of Computer/ EDP/MIS centres.
- Roles and responsibilities of different categories of personnel.
- Customer services.
- Problems related to various areas of Work etc.

Faculty and TPO are supposed to plan industrial training in such a manner that students get exposure on most of the above arena in the field (world of work). Students are supposed to acquire the knowledge on above by -

1. Observation,
2. Interaction with officials at the workplace
3. Study of Literature at the workplace (e.g. User Manual, standards, maintenance schedules, etc.)
4. "Hand's on" experience
5. Undertaking / assisting project work.
6. Solving problems at the work place.
7. Presenting a seminar.
8. Participating in-group meeting/ discussion.
9. Gathering primary and secondary data/ information through various sources, Storage, retrieval and analysis of the gathered data.
10. Assisting officials and managers in their working.
11. Undertaking a short action research work.

12. Consulting current technical journals and periodicals in the library.
13. Discussing with peers.

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1.3 GUIDANCE TO THE FACULTY/TPO FOR PLANNING AND IMPLEMENTING THE INDUSTRIAL TRAINING

The industrial training programme, which is spread to 3 weeks' duration, has to be designed in consultation with the authorities of the work place, keeping in view the need of the contents.

Following are some of the salient points:

- Spelling out the objectives of the industrial training in behavioral terms and same is informed in advance to the 1) students, 2) authorities of the work place and 3) supervising faculty members.
- Discussing and preparing students for the training for which meetings with the students has to be planned.
- Meeting with industrial personnel and orienting them regarding the objective of the training and the expectations of the Polytechnic system.
- Correspondence with the authorities of the work place.
- Orientation classes for students on how to make the training most beneficial - monitoring daily diary, writing weekly reports, how to interact with various categories of industrial personnel, how to behave and undertake responsibilities, how to gather information from the workplace, ethics etc.
- Guiding students to make individual plans (week wise/ day wise) to undertake industrial training
- Developing a system of maintaining training records, by teachers for every batch of students for convenient retrieval.
- Inviting industrial personnel to deliver lectures on some aspects of training.

1.4 ACTION PLAN FOR PLANNING STAGES AT THE INSTITUTION LEVEL

S.No.	Activity	Commencing Week	Finishing week	Remarks
1.	Meeting with Principal			
2.	Meeting with Colleagues			
3.	Correspondence with work place (Industries concerned)			
4.	Meeting with authorities of work place			
5.	Orientation of students for industrial training			
6.	Scrutinizing individual training plan of students			
7.	Commencement of industrial training			
8.	First monitoring of industrial training			
9.	Second monitoring of industrial training			
10.	Finalization of Training report			
11.	Evaluation of performance at Industry level			
12.	Evaluation of industrial programme in the institution.			

1.5 INDUSTRIAL TRAINING

DAILY DIARY

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Name of the Trainee:.....Polytechnic:.....
Industry/Work place:.....Week No.:.....
Department/Section:.....Date:.....

Dates Brief of observations made, work done, problem/project undertaken, discussion held, literature-consulted etc.

Signature of Supervisor
(TPO/Faculty)

Signature of Trainee

Signature of Official In-charge for
Training in Industry

1.6 SUPERVISION OF INDUSTRIAL TRAINING

- One polytechnic faculty member or TPO will plan Industrial training of students in consultation with training manager of the industry (work place) as per the predefined objectives of training.
- During training students will maintain a proper daily diary (format enclosed). Main purpose of daily diary is to inculcate the habit of systematic recording of learning experiences and events etc. Section in-charge of the industry is requested to sign the daily diary at the end of the week and offer his comments about the initiative and participative attitude of trainee during training. Details about how to write daily diary will be provided by the institute.
- Attendance record of each trainee may please be kept in the industry. Absence without permission may please be communicated to the Polytechnic.
- Monitoring visits will be made by training and placement officer/faculty in-charge for the group of students, of the Polytechnic during training.

SEMESTER: FIFTH
COURSE CODE: 507
NAME OF COURSE: PROFESSIONAL ACTIVITIES

SCHEME: Dip.CS_JULY 2002
COMMON WITH PROGRAMME (S):104

Practice Hours: 2 Hrs/week

RATIONALE

Professional Activities is not a descriptive course, as per conventional norms; therefore specific content for this course cannot be prescribed. It is a group of open-ended activities; where in variety of tasks are to be performed, to achieve objectives. However general guidelines for achieving the target and procedure for its assessment are given under the course content of course code 106 of first semester.

As the student has to practice this course in all the six semesters, the guidelines given therein are common and applicable to each semester.

OBJECTIVES:

- To allow for professional development of students as per the demand of engineering profession.
- To provide time for organisation of student chapter activities of professional bodies (i.e. Institution of engineers, ISTE or Computer Society of India etc.)
- To allow for development of abilities in students for leadership and public speaking through organisation of student's seminar etc.
- To provide time for organisation of guest lectures by expert engineers/eminent professionals of industry.
- To provide time for organisation of technical quiz or group discussion or any other group activity.
- To provide time for visiting library or using Internet.
- To provide time for group discussion or solving case studies.
- To provide time for personality development of students.
- To provide time for working for a social cause like awareness for environment and ecology etc.

DETAILED INSTRUCTIONS TO CONDUCT 'PROFESSIONAL ACTIVITIES':

- A) Study hours, if possible should be given greater time slot with a minimum of two Hrs/week to a maximum of four Hrs/week.
- B) This course should be evaluated on the basis of GRADES & mark sheet of students, should have a separate mention of the grade awarded. There will be no pass/fail in Professional Activities (P.A.).

C) Following grade scale for evaluation of performance in P.A. has been established.

<u>Grades</u>	<u>Level of performance</u>
A	Excellent
B	Good
C	Fair
D	Average
E	Below expectations

D) Grades once obtained in a particular examination shall become final and no chance for improvement in grades will be given to the students.

E) Assessment of performance in P.A. is to be done internally by the institution, twice in a semester/term through a simultaneous evaluation of the candidate by a group of three teachers, of the deptt. concerned. Group of teachers will jointly award the grade to candidate in the assessment. Best of the grades obtained by the student in these two assessments shall be finally taken on the mark sheet of the respective semester/term.

Candidates abstaining from the prescribed course work and/or assessment planned at the institution shall be marked ABSENT in the mark sheet, instead of any grade.

F) While awarding the grades for performance in P.A., examining teacher should reach the final consensus based on the attendance, punctuality, interest, presentation skills in seminar on the topic assigned (Collection of relevant data, Observations, Analysis, findings/Conclusion) and its written report, awareness of latest developments in the chosen programme of study.

G) Institution shall maintain the record of grades awarded to all the students in P.A. for a period of one year.

H) It shall be mandatory for students to submit a compendium of his P.A. in the form of a journal.

- I) Compendium shall contain following
- i) Record of written quiz.
 - ii) Report/Write up of seminar presented.
 - iii) Abstract of the guest lectures arranged in the institution.
 - iv) Topic & outcome of the group discussions held.
 - v) Reports on the problems solved through case studies.
 - vi) Report on social awareness camps (organised for ecology & environment preservation).

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vii) Report on student chapter activities of professional bodies like ISTE, I.E. (India), CSI etc.

J) P.A. is not a descriptive course to be taught in the classroom by a particular teacher. Various activities involved in the achievement of objectives of this course should be distributed to number of teachers so that the talents and creativity of group of teachers' benefits the treatment of the course content.

These activities should preferably be conducted in English language to maintain continuity and provide reinforcement to skill development process.

Small groups shall be formed like in tutorials, group discussion, case studies, seminar, project methods, games, role-play & simulation to make the development of personality affective.

Treatment of P.A. demands special efforts, attention, close- co-operation and creative instincts on the part of teachers of the dept. concerned. Since this course is totally learner centered, many of the activities planned under this course shall come out from the useful interaction of students, among themselves and with the teachers. The guiding teacher/s shall best act as a facilitator of these creative hunts/exercises, which unfold many of the hidden talents of the students or brings out greater amount of confidence in them, to execute certain activity.

CURRICULUM

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FOR

**DIPLOMA IN COMPUTER SCIENCE
AND ENGINEERING**

(SIXTH SEMESTER)

Scheme: Dip.CS_JULY2002

Implemented from session 2004-2005

Under semester system

**CURRICULUM DEVELOPMENT CENTRE
RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL (M.P.)**

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SEMESTER: SIXTH
COURSE CODE: 601
NAME OF COURSE: GRAPHICS & MULTIMEDIA

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S): 104
PAPER CODE: 5023

RATIONALE

Graphics deals with the theory & technology for computerised image synthesis. Stunning visual effects are often achieved by using a combination of computer graphics & image processing techniques. Objective of teaching this course is to enable students to develop & design interactive protocols that make effective use of devices & graphics in a user-friendly way, (easy, intuitive, efficient etc.) The course covers hardware, graphics languages & graphics applications.

Multimedia technology is bringing together several existing products such as PC, telephone & television and combining them in such a way that the borders & definition that make a television recognisable as such will rapidly disappear.

The course deals with this revolution owing to developments in PC Technology, Video and Audio compression, telecommunications & many other disciplines.

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SEMESTER: SIXTH
 COURSE CODE: 601
 NAME OF COURSE: GRAPHICS & MULTIMEDIA

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5023

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 4 Hrs. per week
 Practical: 3 Hrs. per week

S. NO.	TOPIC	SCHEME OF STUDIES			SUGGETSED DISRTIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Overview of Graphics	3	02	05	05
2.	Graphical Devices	5	02	07	05
3.	Graphics primitives	8	06	14	15
4.	Transformations	8	06	14	10
5.	Shading and Colour Modules	6	03	09	10
6.	Graphic User Interface (GUI)	8	06	14	10
7.	Concept of Multimedia	5	02	07	08
8.	Multimedia Building Blocks	8	06	14	12
9.	Multimedia Applications	8	10	18	15
10.	Multimedia Software	5	05	10	10
Total		64	48	112	100

SEMESTER: SIXTH

COURSE CODE: 601

NAME OF COURSE: GRAPHICS & MULTIMEDIA

SCHEME: Dip. CS JULY 2002

COMMON WITH PROGRAMME (S):104

PAPER CODE: 5023

COURSE CONTENT

Lectures: 4 Hrs. per week

S. No.	Course Content	Hours of study
1.	OVERVIEW OF GRAPHICS Introduction, Terminology, Fundamentals of Raster and Random Graphics	3
2.	GRAPHICAL DEVICES Video Display Devices, CRT, LCD, Plasma Panel Input Devices: Keyboard, Mouse, JoyStick, Digitizer, Scanners, Touch panels, Light pens, Voice Systems. Hard Copy Devices: Printer and Plotters (Classification & Types)	5
3.	GRAPHICS PRIMITIVES Points, Lines and Circles, Drawing algorithm: DDA algorithm, Bresenham's Line Algorithm, Circles Graphics algorithms: Properties of Circles, Midpoint Circles algorithm	8
4.	TRANSFORMATIONS Basic Transformations: Translations, Rotations, Scaling, Other Transformations: Reflection & Shear.	8
5.	SHADING AND COLOR MODULES Light sources (Basics), Basic illumination Models: Ambient Light, Diffuse & specular reflection Introduction of Color models	6
6.	GRAPHIC USER INTERFACE (GUI) Event driven Programming Types of Events User interface tools: Menus, Command Button, Text Box, List Box, Combo Box, Dialogue Box, Check Box, Radio Button.	8

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: SIXTH
 COURSE CODE: 601
 NAME OF COURSE: GRAPHICS & MULTIMEDIA

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5023

COURSE CONTENT

Lectures: 4 Hrs. per week

S. No.	Course Content	Hours of study
7.	CONCEPT OF MULTIMEDIA Introduction to Multimedia, User of multimedia, Components of Multimedia, Multimedia Elements, Analog and Digital signals.	5
8.	MULTIMEDIA BUILDING BLOCKS Graphics, Text, Video, Sound, Tools and Process of: Text, Sound, images, Animations Video & Graphics elements. Morphing & Tweaking	8
9.	MULTIMEDIA APPLICATIONS Project Planning, Costing, Designing, Developing, Testing, Delivering CD ROM Technology & DVD	8
10.	MULTIMEDIA SOFTWARE Introduction to popular Multimedia Software and their features.	5

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SEMESTER: SIXTH
 COURSE CODE: 601
 NAME OF COURSE: GRAPHICS & MULTIMEDIA

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5023

LIST OF EXPERIMENTS

Practical: 3 Hrs. per week

S. No.	Name of Experiments	Hours of study
1.	(a) Draw a Line (b) Draw a Triangle (c) Draw a Circle	
2.	Fill colours in various closed shaped objects	
3.	Make use of translation, rotation & scaling for different objects	
4.	Create an object and animate in a view port.	
5.	Make use of Morphing using the object created in experiment no. 4	
6.	Case Study: Students have to submit a report, which incorporates project planning, costing, designing, developing and testing by using any popular Multimedia software.	
Total		48

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SEMESTER: SIXTH
COURSE CODE: 601
NAME OF COURSE: GRAPHICS & MULTIMEDIA

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5023

REFERENCES

TEXT BOOKS:

- Hearn & Baker, Computer Graphics, PHI New Delhi.
- Tay Vaughn, Multimedia-making it works, Tata McGraw Hills.

REFERENCE BOOKS:

- S. Harrington, Computer Graphics - A programming, Tata McGraw Hills.
- M. Morris, Computer Graphics & CAD Fundamentals, Wheeler Publishing, Allahabad.
- John Villamil Casanova, Multimedia an Introduction, PHI New Delhi.
- Ian Sinclair, Multimedia on the PC, BPB Publications.
- Shuman E James, Multimedia in Action, Vikas Publishing House Pvt. Ltd.

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SEMESTER: SIXTH
 COURSE CODE: 602
 NAME OF COURSE: LINUX

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5074

RATIONALE

Linux is a powerful, fast and freely distributable UNIX clone for personal computers etc., it is a UNIX compatible operating system that runs on P.C and larger servers and is valued for its networking strengths. The course will enable students to acquire knowledge of open source operating system, concept of shell programming, system administration, networking services on Linux and security features using Linux. The course shall also familiarize students with use of freeware based on LINUX.

Sl. No.	Topic	Weightage	Total
1	Introduction to Linux	10	10
2	Linux Architecture	10	20
3	Linux File System	10	30
4	Linux Shell Programming	10	40
5	Linux System Administration	10	50
6	Linux Networking	10	60
7	Linux Security	10	70
8	Linux Troubleshooting	10	80
9	Linux Performance Tuning	10	90
10	Linux Case Studies	10	100

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SEMESTER: SIXTH
 COURSE CODE: 602
 NAME OF COURSE: LINUX

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5074

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 3 Hrs. Per week
 Practical: 2 Hrs. per week

S. NO.	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Introduction	08	02	10	12
2.	Shell & Linux commands	10	08	18	23
3.	Shell programming	08	08	16	20
4.	System administration	08	06	14	18
5.	Networking services on Linux	08	04	12	15
6.	Security administration using Linux	06	04	10	12
TOTAL		48	32	80	100

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SEMESTER: SIXTH
 COURSE CODE: 602
 NAME OF COURSE: LINUX

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5074

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	<p>INTRODUCTION:</p> <p>Linux introduction and file system – Basic Features, Advantages, Installing requirement, Basic Architecture of Unix/ Linux system, Kernel, Shell.</p> <p>Linux File system – Boot block, super block, Inode table, data blocks, File access in Linux, Linux Standard directories , Commands for files and directories cd, ls, cp, md, rm, mkdir, rmdir, more, less, creating and viewing files, using cat, file comparisons, View files, disk related commands, checking disk free spaces.</p> <p>Partitioning the Hard drive for Linux Installing the Linux system, System startup and shut-down.</p>	08
2.	<p>SHELLS & LINUX COMMANDS:</p> <p>Essential Linux commands Understanding shells, Processes in Linux process fundamentals, connecting processes with pipes, Redirecting input output, manual help, Background processing, managing multiple processes, changing process priority, scheduling of processes at command, batch commands, kill, ps, who, sleep, Printing-commands, grape, fgrep, find, sort, Cal, banner, touch, file, file related commands-ws, sat, cut, grep, dd, etc.</p> <p>Mathematical commands – bc, expr, factor, units.</p> <p>vi, joe, vim editor.</p>	10
3.	<p>SHELL PROGRAMMING:</p> <p>Basic of shell programming, Various types of shell, shell programming in bash, conditional and looping statements, case statements, parameter passing and arguments, Shell variables, shell keywords, Creating Shell programs for automate system tasks and report printing, use of grep in shell, awk programming.</p>	08

DIPLOMA IN COMPUTER SCIENCE AND ENGG.

SEMESTER: SIXTH
 COURSE CODE: 602
 NAME OF COURSE: LINUX

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SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5074

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
4.	<p>SYSTEM ADMINISTRATION:</p> <p>Common Administrative tasks, identifying administrative files – configuration and log files, Role of system administrator, Managing user accounts –adding & deleting users, changing permissions and ownerships, Creating and managing groups, modifying group attributes, Temporary disable user's accounts, creating and mounting file system, checking and monitoring system performance file security & Permissions, becoming super user using su.</p> <p>Getting system information – host name, disk partitions & sizes, users, kernel.</p> <p>Backup and restore files, linuxconf. Utility in GUI, reconfiguration hardware with kudzu.</p> <p>Configure desktop –X configurator, understanding XF86config file, starting & using X desktop, KDE & Gnome graphical interfaces changing X settings.</p>	08
5.	<p>NETWORKING SERVICES ON LINUX:</p> <p>Server –side setup, configuration, and basic administration of common networking services:</p> <p>Sambha</p> <p>DNS</p> <p>NIS</p> <p>Apache</p> <p>SMB</p> <p>DHCP</p> <p>Sendmail</p> <p>FTP</p> <p>Other common services: tftp, pppd, proxy</p>	08

DIPLOMA IN COMPUTER SCIENCE AND ENGG.

SEMESTER: SIXTH
COURSE CODE: 602
NAME OF COURSE: LINUX

SCHEME: Dip. CS JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5074

Lectures: 3 Hrs. per week

COURSE CONTENT

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S. NO.	Course Content	Hours of Study
6.	SECURITY ADMINISTRATION USING LINUX: Introduction to security Developing a security policy Preparation Local Security Files and file system security Password security Kernel security, Basic elements of a firewall, Linux – based security tools	06

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DIPLOMA IN COMPUTER SCIENCE AND ENGG.

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SEMESTER: SIXTH
COURSE CODE: 602
NAME OF COURSE: LINUX

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5074

LIST OF EXPERIMENTS

Practical: 2 Hrs. per Week

S. No.	Name of experiments	Hours of study
1	Directory related commands, file related command.	
2	Vi editor, cat editor.	
3	Uses of some filters, pipes and redirection and tee.	
4	System calls of process, files, kill, fork-join etc.	
5	Using utilities: grep, set, awk, tr, sysadm etc.	
6	Writing shell scripts.	
7	Simple 'C' programming to use system calls.	
8	Implement security features like file permission, group creation, group change etc.	
9	Installation of web server on Linux.	
TOTAL		32

SEMESTER: SIXTH
COURSE CODE: 602
NAME OF COURSE: LINUX

SCHEME: Dip. CS JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5074

REFERENCES

TEXT BOOKS:

- Jack Tackett, David Gunter, Using Linux, PHI, EEE Edition
- Christopher Negus, Red Hat Linux-7.X Bible, IDG Books India Ltd.

REFERENCE BOOKS:

- Nicholas Wells, Linux Installation and Administration, Course Technology, Vikas Publishing, New Delhi.
- Sumitaba Das, Unix.
- Yashwant Kanetkar, Unix Shell Programming, BPB Publications.
- Red Hat Linux Unleashed Techmedia, (BPB Publications)
- Wells Technology, Linux Networking and Security –Course, Vikas Publishing, New Delhi.

36/281

SEMESTER: SIXTH
 COURSE CODE: 603
 NAME OF COURSE: MANAGING INFORMATION TECHNOLOGY

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5075

RATIONALE

This course introduces latest advancements in Information technology, which will enable students to grasp the latest technology. The course introduces advance concepts such as Enterprise Resource Planning, Supply Chain Management, Customer Relationship Management, Data Warehousing And Data Mining, Knowledge Management and Internet Technologies (Blue tooth), and their application in industry, business and commerce. The course also gives an idea about Legal And Professional Aspects Of Computing to make them aware with latest laws governing IT applications.

Sl. No.	Topic	Hours
1	Supply Chain Management - Introduction	2
2	Supply Chain Management - Applications	2
3	Customer Relationship Management - Introduction	2
4	Customer Relationship Management - Applications	2
5	Data Warehousing and Data Mining - Introduction	2
6	Data Warehousing and Data Mining - Applications	2
7	Knowledge Management - Introduction	2
8	Knowledge Management - Applications	2
9	Internet Technologies (Blue tooth)	2
10	Legal And Professional Aspects Of Computing	2
TOTAL		20

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SEMESTER: SIXTH

SCHEME: Dip. CS_JULY 2002

COURSE CODE: 603

COMMON WITH PROGRAMME (S):

NAME OF COURSE: MANAGING INFORMATION TECHNOLOGY

PAPER CODE: 5075

SCHEME OF STUDIES SPECIFICATION TABLE

Lectures: 3 Hrs. Per week

Practical: - Hrs. per week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Enterprise Resource Planning	6	-	6	15
2.	Supply Chain Management	8	-	8	15
3.	Customer Relationship Management	8	-	8	10
4.	Data Warehousing And Data Mining	6	-	6	15
5.	Knowledge Management	4	-	4	15
6.	Internet Technologies (Blue tooth)	8	-	8	15
7.	Legal And Professional Aspects Of Computing	8	-	8	15
TOTAL		48	-	48	100

SEMESTER: SIXTH
 COURSE CODE: 603
 NAME OF COURSE: MANAGING INFORMATION
 TECHNOLOGY

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5075

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	ENTERPRISE RESOURCE PLANNING Understanding ERP ERP Technology ERP Benefits Applications of ERP - Current and Future	6
2.	SUPPLY CHAIN MANAGEMENT Supply Chain Decisions Supply Chain Modeling Approaches Basics of Supply Chain Management The Seven Principles of Supply Chain Management Payment Potential for Supply Chain Management Benefits of Supply Chain Management Supply Chain Management - Applications	8
3.	CUSTOMER RELATIONSHIP MANAGEMENT Understanding CRM Examples of companies that have implemented CRM Types of CRM Systems Making a Business Case for CRM Implementing CRM Step-by-step approach to CRM Implementation	8
4.	DATA WAREHOUSING AND DATA MINING Understanding Data Warehousing and Data Mining Use of Data Mining Advantages of Data Warehousing/Mining Applications of DW - Current and Future	6

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SEMESTER: SIXTH
 COURSE CODE: 603
 NAME OF COURSE: MANAGING INFORMATION TECHNOLOGY

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5075

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
5	KNOWLEDGE MANAGEMENT Understanding KM Knowledge Management Scenarios Knowledge Management Requirements Implementing Knowledge Management Generating Knowledge from Data The Roles of Knowledge Professionals	4
6	INTERNET TECHNOLOGIES (BLUETOOTH) Introduction Understanding Internet Technologies Understanding Blue tooth Technology Working of Blue tooth Technology Advantages and Applications of Blue tooth Technology	8
7	LEGAL AND PROFESSIONAL ASPECTS OF COMPUTING IT policy of Govt. of India and Madhya Pradesh State. Sources of laws, Computer related laws, Intellectual property rights, copy rights, design and patents, Trademarks, Confidentiality, Contract laws, Data protection and computer misuse, Indian IT Act.	8

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DIPLOMA IN COMPUTER SCIENCE & ENG

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SEMESTER: SIXTH

COURSE CODE: 603

NAME OF COURSE: MANAGING INFORMATION TECHNOLOGY

SCHEME: MAY 15, 2017

COURSE WITH PROVISIONAL ID

PAPER CODE: 603

REFERENCES

TEXT BOOKS

- 1. David Strubbe, Managing Information Technology, New Publishing House, New Delhi

SEMESTER: SIXTH
COURSE CODE: 604
NAME OF COURSE: MAJOR PROJECT

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):

RATIONALE

The objective of the course 'Major Project' is

- To provide students with a comprehensive experience for applying the knowledge gained so far by studying various courses.
- To develop an inquiring aptitude and build confidence among students by working on solutions of small industrial problems.
- To give students an opportunity to do some thing creative and to assimilate real life work situation in institution.
- To adapt students for latest developments and to handle independently new situations.
- To develop good expressions power and presentation abilities in students.

Students already have a glimpse of project work as they have worked on Minor Project Work in IV semester/term. The search for project work starts from the fifth semester/term itself when the students are sent for industrial training. This gives the students an occasion to observe the work on real life projects and select some application area in which he/she will be undertaking project. External guide from industry can also be selected for project work along with an internal guide to prepare innovative and real projects. Students also have the flexibility of extending the minor project work into Major project, if the area has a scope for that.

The purpose of providing one hour per week for lectures is to orient the student's in-groups on the following objectives:

- Provide general guidelines regarding execution of work.
- Impart instructions regarding write-up work and preparation of project documents.
- Sharing and solving common problems associated with execution of project work.
- Monitor and evaluate the progress of project work.

SEMESTER: SIXTH
COURSE CODE: 804
NAME OF COURSE: MAJOR PROJECT

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):

SCHEME OF STUDIES

Lectures: 1 Hr. per week
Practical: 6 Hrs. per week

S. No.	TOPIC	CONTACT HOURS PER WEEK		
		THEORY	PRACTICAL	TOTAL
1.	Major Project	16	96	112
	Total	16	96	112

SEMESTER: SIXTH
 COURSE CODE: 604
 NAME OF COURSE: MAJOR PROJECT

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):

COURSE GUIDELINES

Lectures: 1 Hr. per week
 Practical: 6 Hrs. per week

S. No.	Detailed Course Guidelines	STUDY HRS.
1	<p>Major Project Guidelines: The focus of the Major Project is on preparing a working system (e.g. software system/Interface, hardware/software interface design etc.), using system analysis tools and design techniques and submit it in the form of a write-up i.e. detail project report. The student should select some real life problems for their project and maintain proper documentation of different stages of project such as requirement specification, objectives, work plan, analysis, design, implementation and test plan. Each student is required to prepare a project report and present the same at the final examination with a demonstration of the system.</p> <p>The faculty and student should work according to following schedule:</p> <p>i) Each student undertakes substantial and individual project in an approved area of the subject and supervised by a member of staff.</p> <p>ii) The student must submit outline and action plan for the project execution (time schedule) and the same be approved by the concerned faculty.</p> <p>iii) The project development must be carried out according to following steps and final write-up should have the same sequence.</p> <ul style="list-style-type: none"> ➤ Project objectives. ➤ Requirement gathering. ➤ Modeling of project should be done in any well-known modeling tools like Flow Chart, DFD, UML, E-R etc. ➤ Analysis of project. ➤ Design of project. ➤ Implementation of project. ➤ Testing of project. ➤ Quality consideration of software/interface. ➤ Designing a small user manual. ➤ System requirement for designed software/interface. 	<p>16+96 = 112</p>

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SEMESTER: SIXTH
 COURSE CODE: 604
 NAME OF COURSE: MAJOR PROJECT

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):

COURSE GUIDELINES

Lectures: 1 Hr. per week
 Practical: 6 Hrs. per week

S. No.	Detailed Course Guidelines	STUDY HRS.
	<ul style="list-style-type: none"> ➤ Estimating the cost of the project. ➤ Future scope and suggestions. <p>iii) The above project should be implemented by using OOPs Languages, Visual tools, Graphic tools, RDBMS, AI systems, Web Design supporting packages and tools etc.</p> <p>iv) Suggested areas of project</p> <ul style="list-style-type: none"> ➤ Web Technology based applications ➤ Database management systems ➤ Communication and Network ➤ Graphic based application ➤ System software ➤ Automation ➤ Embedded systems ➤ Data acquisition systems ➤ AI based systems ➤ Control systems etc. 	

ACTION PLAN FOR MAJOR PROJECT WORK AND EVALUATION SCHEME #

(SUGGESTIVE):

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TASK/PROCESS	WEEK	EVALUATION	MARKS #
• Orientation of students by HOD/Project supervisor	1 st	-	-
• Literature survey and resource collection	2 nd		10
• Selection and finalisation of topic before a committee*	3 rd	Seminar -I	10
• Detailing and preparation of project (Modeling, Analysis and Design of project work)	4 th to 5 th	-	10
• Development stage	6 th to 10 th	-	20
• Testing, improvements, quality control of project	11 th	-	10
• Acceptance testing	12 th	-	10
• Report writing	13 th to 15 th	-	15
• Presentation before a committee (including user manual)	16 th	Seminar-II	15
	16 weeks	-	100

*Committee comprises of HOD, all project supervisors including external guide from industry (if any).

The above marking scheme is suggestive, it can be changed to alternative scheme depending on the type of project, but the alternative scheme should be prepared in advance while finalising the topic of project before a committee and explained to the concerned student as well.

NOTE: Marks for continuous evaluation (i.e. Lab work) to be awarded after II seminar.

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SEMESTER: SIXTH
COURSE CODE: 611 (Elective-III)
NAME OF COURSE: ARTIFICIAL INTELLIGENCE
AND EXPERT SYSTEMS

SCHEME: Dip. CS JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5076

RATIONALE

Until recently Artificial Intelligence (AI) has confined its work to research laboratory, where various pilot experiments modeled different kinds of interesting intelligent behavior. Many of these experiments have been brought into practical domains and their effects are automobile production lines and monitoring of complex instrument expert system is branch of A.I. These, Systems incorporate knowledge and problem-solving skills of a human expert, such as physicist, nuclear scientist or automotive engineer.

The course contents enables students to gain knowledge about Artificial Intelligence, problem solving and control strategies, search techniques, game playing, knowledge representations, Natural language processing and expert systems.

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SEMESTER: SIXTH
 COURSE CODE: 611 (Elective-III)
 NAME OF COURSE: ARTIFICIAL INTELLIGENCE
 AND EXPERT SYSTEMS

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5076

SCHEME OF STUDIES

Lectures: 3 Hrs. per week
 Practical: 2 Hrs. per week

S. NO.	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	General Issues and overview of A.I.	4	32		10
2.	Problem solving and control strategies	6			10
3.	Heuristic search techniques	8			15
4.	Game playing	8			15
5.	Knowledge Representation	8			20
6.	Natural Language processing	8			20
7.	Expert system	6			10
TOTAL		48	32	80	100

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SEMESTER: SIXTH
 COURSE CODE: 611 (Elective-III)
 NAME OF COURSE: ARTIFICIAL INTELLIGENCE
 AND EXPERT SYSTEMS

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5076

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
1	GENERAL ISSUES AND OVERVIEW OF AI: The AI problems, what is an AI technique, characteristics of AI program.	4
2	PROBLEM SOLVING AND CONTROL STRATEGIES: General problem solving, production systems. Control strategies forward and backward chaining, exhaustive searches, depth first, breadth first search.	6
3	HEURISTIC SEARCH TECHNIQUES: Hill climbing, branch and bound techniques best first search and algorithm, AND OR graphics problem reduction & AO algorithm, constraint satisfaction problems.	8
4	GAME PLAYING: Mini max as search procedure, alpha-beta cut offs, additional requirements.	8
5	KNOWLEDGE REPRESENTATIONS: First order predicate calculus synchronization, resolution principle & refraction interface, Representing Simple facts in Logic, representing instance & ISA relationships, semantic networks, frame systems and value inheritance, scripts conceptual dependency.	8
6	NATURAL LANGUAGE PROCESSING: Parsing techniques, Context free grammar, recursive transitions nets (RTN), augmented transition nets (ATN), CSE and logic grammars, semantic analysis.	8
7	EXPERT SYSTEMS: Definition & Characteristics of expert system, representing & using domain	6

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SEMESTER: SIXTH
COURSE CODE: 611 (Elective-II)
NAME OF COURSE: ARTIFICIAL INTELLIGENCE
AND EXPERT SYSTEMS

SCHEME: Dip. CS JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5076

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
	Knowledge, expert system shells. Knowledge Engineering, knowledge Acquisition, Expert system Life cycle & Expert system tools, MYCIN & DENDRAL examples of expert system	

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SEMESTER: SIXTH
 COURSE CODE: 611 (Elective-III)
 NAME OF COURSE: ARTIFICIAL INTELLIGENCE
 AND EXPERT SYSTEMS

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5076

LIST OF EXPERIMENTS

Practical: 2 Hrs. per Week

S. NO.	Name of experiments	Hours of Study
1.	Develop system in prolog to demonstrate the use of domain, predicate and clause section	
2.	Develop system in prolog to demonstrate the use of readln and write	
3.	Develop system in prolog to demonstrate the use of facts and rules	
4.	Develop system in prolog to demonstrate the use of controls	
5.	Develop system in prolog to implement the water jug problem	
6.	Develop system in prolog for medical diagnosis model/Chemical Syntheses	
Total		32

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DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: SIXTH

COURSE CODE: 611 (Elective-III)

NAME OF COURSE: ARTIFICIAL INTELLIGENCE
AND EXPERT SYSTEMS

SCHEME: Dip. CS_JULY 2002

COMMON WITH PROGRAMME (S):

PAPER CODE: 5076

REFERENCES

TEXT BOOKS:

- Rich and Knight, Artificial Intelligence, TMH.

REFERENCE BOOKS:

- Andrew. S. Paterson, c, PHI.
- Nelson N J, Artificial Intelligence, Narosa.

36/297

SEMESTER: SIXTH
COURSE CODE: 612 (Elective-III)
NAME OF COURSE: E-COMMERCE

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5025

RATIONALE

Electronic commerce is one of the most common business terms in use as we embark on the 21st Century. E-commerce is a compact word for a wide array of interconnected business concepts, technologies & cultural phenomena.

The course covers both the theory & practice of doing business over the Internet & World Wide Web. The pervasive connectivity of the Internet & the attractive graphical user interface of WWW present enormous opportunities for business of all kinds. Together, the Internet and Web support growth opportunities in selling, customer relation ships product/service design, user support, geographic expansion, logistic & supply chain integration.

The course also covers the risks perceived in using E C tools & measures to counter these risks.

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SEMESTER: SIXTH
 COURSE CODE: 612 (Elective-III)
 NAME OF COURSE: E-COMMERCE

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5025

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 3 Hrs. per week
 Practical: 2 Hrs. per week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Review of e-commerce	10	04	14	20
2.	IT strategy	08	04	12	20
3.	Inter organisational e-commerce	10	04	14	20
4.	e-commerce technologies	12	16	28	25
5.	e-commerce security	08	04	12	15
Total		48	32	80	100

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SEMESTER: SIXTH
COURSE CODE: 612 (Elective-III)
NAME OF COURSE: E-COMMERCE

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SCHEME: Dip. CS JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5025

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	REVIEW OF E-COMMERCE	10
1.1	Scope, definition, trade cycle, e-markets, electronics data interchange, e-commerce, e-customer relationship management (crm).	
1.2	Value chain- supply chain, porters value chain models, inter organisational value chains.	
1.3	Competitive advantages - competitive strategy, porter's model , first mover advantage, sustainable competitive advantage, competitive advantage using e-commerce, application of e-commerce and future trends.	
2.	IT STRATEGY Introduction, strategic implication of Information Technology, business environment, business capabilities, existing business strategy , inter organisation transaction- credit transaction, trade cycle, variety of transaction, strategy formulation and implementation, Planning e-commerce implementation and evaluation.	08
3.	INTER ORGANISATIONAL E-COMMERCE Introduction, Definition of EDI, Example of EDI, EDI Technology, Benefits of EDI, Standards for Communication implementation, Agreement , EDI Security, Purchasing on line, On line after sales support.	10
4.	E-COMMERCE TECHNOLOGIES E-shopping, Internet banking, virtual auction, e-visibility, online payments, delivery of the goods, after sales service, advantages and disadvantages of consumer e-commerce, web site evaluation model.	12
5.	E-COMMERCE SECURITY Public key infrastructure, digital certification, digital signature.	08

361300

SEMESTER: SIXTH
 COURSE CODE: 612 (Elective-III)
 NAME OF COURSE: E-COMMERCE

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5025

LIST OF EXPERIMENTS

Practical: 2 Hrs. per week

S. NO.	Name of experiments	Hours of Study
1.	Case Study of one of the popular e-commerce application: Example: Airline Booking System, Web Booking System, online share dealing etc.	08
2.	Develop a small e-commerce application.	24

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SEMESTER: SIXTH
COURSE CODE: 612 (Elective-III)
NAME OF COURSE: E-COMMERCE

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):104
PAPER CODE: 5025

REFERENCES

TEXT BOOKS:

- David Whitely (2002), e-Commerce Strategy, Technologies & Applications, Tata McGraw Hills Edition.

REFERENCE BOOKS:

- Faisal Haque, e-enterprise business models, architecture and components, SIGS books.
- Daniel Minoli, Emma Minoli (1999), Web commerce technology handbook, Tata McGraw Hill edition.
- Napier, Judd, Rivers and Wagner, Creating a winning e-business, Vikas Publishing House Pvt. Ltd.

36/302

SEMESTER: SIXTH
 COURSE CODE: 621 (Elective-IV)
 NAME OF COURSE: DISTRIBUTED SYSTEMS

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5021

RATIONALE

Distributed system has grown in last two or three decade such as inter process communication, distributed file system, distributed transaction machine etc to provide runtime infrastructure support in network application.

The course content enables students to gain knowledge about how distributed systems functions, what are their components. How it could be implemented.

Sl. No.	Topic	Hours	Weightage
1	Introduction to Distributed Systems	10	10
2	Distributed File System	10	10
3	Transaction & Concurrency Control	10	10
4	Replicated Database Systems	10	10
5	Mobile Computing	10	10
6	Summary	10	10
TOTAL			60

2.1	Introduction	10
4	DISTRIBUTED FILE SYSTEM	10
4.1	Introduction	10
4.2	File System & Accessory	10
4.3	Self-Healing File System	10
4.4	The Andrew File System	10
5	TRANSACTION & CONCURRENCY CONTROL	10
5.1	Introduction	10
5.2	Transaction	10
5.3	Serializability	10
5.4	Locks	10
5.5	Optimistic Concurrency Control	10
5.6	Timestamp Ordering	10

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SEMESTER: SIXTH
 COURSE CODE: 621 (Elective-IV)
 NAME OF COURSE: DISTRIBUTED SYSTEMS

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5021

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 4 Hrs. per week
 Practical: 2 Hrs. week

S. No.	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1	Characterization of Distributed Systems	04	-	-	05
2	System Models	04	-	-	10
3	Distributed Objects	07	-	-	15
4	Distributed File System	07	32	-	15
5	Transaction & Concurrency Control	10	-	-	20
6	Distributed Transaction	12	-	-	15
7	Distributed Multi-media system	10	-	-	10
8	Distributed Sheared Memory	10	-	-	10
TOTAL		64	32	78	100

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SEMESTER: SIXTH

SCHEME: Dip. CS_JULY 2002

COURSE CODE: 621 (Elective-IV)

COMMON WITH PROGRAMME (S):104

NAME OF COURSE: DISTRIBUTED SYSTEMS

PAPER CODE: 5021

COURSE CONTENT

Lectures: 4 Hrs. Week

S. No.	Course Content	Hours of study
1	CHARACTERIZATION OF DISTRIBUTED SYSTEM	04
1.1	Introduction	
1.2	Examples of Distributed System	
1.3	Resource sharing & WWW	
1.4	Challenges	
2	SYSTEM MODELS	04
2.1	Architectural Models	
2.2	Fundamental Models	
3	DISTRIBUED OBJECTS	07
3.1	Introduction	
3.2	Objects & Communication between it	
3.3	Remote Procedure Calls	
3.4	Event & Notification	
4	DISTRIBUED FILE SYSTEM	07
4.1	Introduction	
4.2	File Services & Architecture	
4.3	SUN Network File System	
4.4	The Andrew File System	
5	TRANSACTION & CONCURRENCY CONTROL	10
5.1	Introduction	
5.2	Transactions	
5.3	Nested transaction	
5.4	Locks	
5.5	Optimistic Concurrency Control	
5.6	Timestamp Ordering	

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SEMESTER: SIXTH
 COURSE CODE: 621 (Elective-IV)
 NAME OF COURSE: DISTRIBUTED SYSTEMS

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5021

COURSE CONTENT

Lectures: 4 Hrs. Week

S. No.	Course Content	Hours of study
6	DISTRIBUTED TRANSACTION	12
6.1	Type of Distributed Transaction	
6.2	Atomic Commit Protocols	
6.3	Concurrency Control in Distributed Transaction	
6.4	Distributed Dead Locks	
6.5	Transaction recovery	
7	DISTRIBUTED MULTI-MEDIA SYSTEM	10
7.1	Introduction	
7.2	Characteristic of Multi Media Data	
7.3	Quality of Service Management	
7.4	Resources Management	
7.5	Stream adaptation	
8	DISTRIBUTED SHEARED MEMORY	10
8.1	Introduction	
8.2	Issues on Design & Implementation	
8.3	Sequential Consistency	
8.4	Release Consistency & Munin	

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SEMESTER: SIXTH
 COURSE CODE: 621 (Elective-IV)
 NAME OF COURSE: DISTRIBUTED SYSTEMS

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):104
 PAPER CODE: 5021

LIST OF EXPERIMENTS

Practical: 2 Hrs. Per Week

S. NO.	Name of experiments	Hours of Study
1	Case study of SUN RPC.	
2	Case Study of Java RMI.	
3	Case Study of SUN NFS	
4	Case Study of Windows NT NFS	
5	Case Study of CORBA RMI & Services.	
	Total	32

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SEMESTER SIXTH

SCHEME No. 08 JULY 2000

COURSE CODE: 607 (Elective-III)

COURSE WITH PROGRAMME (S) No.

NAME OF COURSE: DISTRIBUTED SYSTEMS

PAPER CODE: 607

REFERENCES

TEXT BOOKS

- 1. Coulter G., Gallivan Jack, Korbeg Tom, 2001, In. Distributed Systems: Concept & Design, Pearson Education Asia.

36/308

SEMESTER: SIXTH
COURSE CODE: 622 (Elective-IV)
NAME OF COURSE: ADVANCED COMPUTER ARCHITECTURE

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5077

RATIONALE

Advanced computer architecture is centered on the concept of parallel processing. State of the art parallel computer systems can be characterized in to three structural classes; pipe lined computers, array processors, multi processor's system.

The development and application of these computer systems require a broad knowledge of the underlying hardware and software structures, and close interactions between parallel computing algorithms and the optimal allocation of machine resources.

This course provides the necessary knowledge to design a new computer system; to improve an existing one; to develop fast computing algorithms; and to allocate hardware – software resources in solving Advanced computing problems.

Sl. No.	Topic	Hours	Percentage
1	Introduction to Parallel Computing	10	10
2	Parallel Processing	10	10
3	Array Processors	10	10
4	Multi-Processors	10	10
5	Cache Coherence	10	10
6	Interconnect Networks	10	10
7	Parallel Algorithms	10	10
8	Performance Evaluation	10	10
9	Summary	10	10
10	TOTAL	100	100

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SEMESTER: SIXTH
 COURSE CODE: 622 (Elective-IV)
 NAME OF COURSE: ADVANCED COMPUTER
 ARCHITECTURE

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5077

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 4Hrs. Per week
 Practical: 2 Hrs. per week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Introduction and Classification of Parallel Computers	06	}		10
2.	Pipelined and Vector Processors	08			15
3.	Scaler & Super Scaler Processors	06			10
4.	SIMD or Array Processor Systems	10		32	15
5.	MIMD and Multi processor System	10			15
6.	PRAM model of Parallel Computing and basic algorithms	08			10
7.	Parallel Algorithms for Multi processor Systems	12			20
8.	VLSI Computation	04			05
TOTAL		64	32	96	100

SEMESTER: SIXTH
 COURSE CODE: 622 (Elective-IV)
 NAME OF COURSE: ADVANCED COMPUTER ARCHITECTURE

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5077

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
1	INTRODUCTION AND CLASSIFICATION OF PARALLEL COMPUTERS Parallel processing terminology Flynn's and Handler's classifications Amdahl's law	6
2	PIPELINED AND VECTOR PROCESSORS Instruction pipelining Reservation table Data and control hazards and methods to remove them	8
3	SCALER & SUPER SCALER PROCESSORS Scaler Processor, Scaler Processor with pipelining Super Pipelining Scaler Processor with super Pipelining Super Scaler Processors with Pipelining Super Scaler Processors with super Pipelining	6
4	SIMD OR ARRAY PROCESSORS Various interconnection networks Data routing through various networks Comparison of various networks	10
5	MIMD AND MULTI PROCESSOR SYSTEM Uniform and non uniform memory access multi processors Scheduling in multi process system Load balancing in multi processor systems	10
6	PRAM MODEL OF PARALLEL COMPUTING AND BASIC ALGORITHMS PRAM model and its variations Relative powers of various PRAM models	8

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SEMESTER: SIXTH
 COURSE CODE: 622 (Elective-IV)
 NAME OF COURSE: **ADVANCED COMPUTER ARCHITECTURE**

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5077

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
7	PARALLEL ALGORITHMS FOR MULTI PROCESSOR SYSTEMS Basic constructs for representing PRAM algorithms Parallel reduction algorithm Parallel prefix computing Parallel list ranking Parallel merge	12
8	VLSI COMPUTATIONS VLSI ERA VLSI Computing Structure: - The Systolic Array Architecture, VLSI Matrix Arithmetic Processors.	4

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SEMESTER: SIXTH
 COURSE CODE: 622 (Elective-IV)
 NAME OF COURSE: ADVANCED COMPUTER ARCHITECTURE

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5077

LIST OF EXPERIMENTS

Practical: 2 Hrs. per week

S. NO.	Name of experiments	Hours of Study
	Case Study* of	
1	Vector Processors	
2	Array Processors	
3	Multi processor System	
4	Super Scalar Processors	
TOTAL		32

*Student before the examination must submit case study with the following write up:

- Introduction.
- Theory.
- Technology behind it.
- Diagram Application, Current and future scope.
- References used.

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SEMESTER: SIXTH
COURSE CODE: 622 (Elective-IV)
NAME OF COURSE: ADVANCED COMPUTER
ARCHITECTURE

SCHEME: Dip. CS_JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5077

REFERENCES

TEXT BOOKS:

- Hwang & Briggs, Computer Architecture & Parallel Processing, McGraw-Hill

REFERENCE BOOKS:

- J.P. Hayes, Computer Architecture & Organisation, McGraw-Hill
- William Stalling, Computer Organisation & Architecture, PHI

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

36/314

SEMESTER: SIXTH

COURSE CODE: 623 (Elective-IV)

NAME OF COURSE: ADVANCED WEB TECHNOLOGY PAPER CODE: 5078

SCHEME: Dip. CS JULY 2002

COMMON WITH PROGRAMME (S):

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 4 Hrs. per week

Practical: 2 Hrs. per week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1	Introduction	05	-	05	10
2	Over View of HTML	09	08	16	16
3	Active Server Page	12	08	16	20
4	ASP Component	16	04	16	20
5	Accessing databases with ASP and ADO	16	08	20	24
6	JSCRIPT	06	04	08	10
Total		64	32	80	100

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SEMESTER: SIXTH

COURSE CODE: 623 (Elective-IV)

NAME OF COURSE: ADVANCED WEB TECHNOLOGY PAPER CODE: 5078

SCHEME: Dip. CS JULY 2002

COMMON WITH PROGRAMME (S):

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
1	INTRODUCTION HTML, ASP, DHTML, JSP, CGI, JSCRIPT, VBSCRIPT, ISAPI, XML, XSC	5
2	OVER VIEW OF HTML (HYPERTEXT MARKUP LANGUAGE) Various Tag, Hyper link, image linking, link to mail, List- Order, Unorder List, Table, FORM-Text Box, Pass word, Multi Line Text Box, Radio Button, Check Box, File etc., Image Mapping, Frames Use of Local language font with in HTML	9
3	ACTIVE SERVER PAGE Benefits of ASP, Comparison between HTML & ASP Web server-IIS, PWS Logical Path vs. Physical Path ASP Requirements Intrinsic ASP object- Request, Response, Application, Server, and Session Query string, Global ASA file, Server Variable object, map path Include file Cookies File Access with ASP- File System Object (FSO)	12
4	ASP COMPONENT Browser capability Component Ad-rotator Component Sending and Receiving email with ASP - CDONTS, SMTP	16
5	ACCESSING DATABASES WITH ASP AND ADO Database handling through ADO data through form - Save, retrieval, Searching, update, Delete etc, controlling Transaction in ASP Active X control – use of in built & user defined Active X control in ASP	16

SEMESTER: SIXTH

COURSE CODE: 623 (Elective-IV)

NAME OF COURSE: ADVANCED WEB TECHNOLOGY PAPER CODE: 5078

SCHEME: Dip. CS_JULY 2002

COMMON WITH PROGRAMME (S):

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Lectures: 4 Hrs. per week

COURSE CONTENT

S. NO.	Course Content	Hours of Study
6	JSCRIPT Client side validation through conditional, looping statements, Function Jscript, alert, prompt, events- onSubmit, onBlur, mouseOver, mouseOut, onLoad, onUnLoad, popwindow etc	6

SEMESTER: SIXTH
 COURSE CODE: 623 (Elective-IV)
 NAME OF COURSE: ADVANCED WEB TECHNOLOGY

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5078

LIST OF EXPERIMENTS

Practical: 2 Hrs. per Week

S. NO.	Name of experiments	Hours of Study
1.	Installation of Personal WEB Server/Internet Information Server	
2.	Design HTML pages with the uses of hyperlink, table, list, Image, frame	
3.	Design and develop data entry form using HTML	
4.	Client side validation in form using javascript	
5.	Demonstrate the use of Request, Response, Session, Application Object	
6.	ASP program to call server variable by server object.	
7.	ASP program to check the capabilities of Client Browser	
8.	ASP program to display advertisement through Ad-Rotate component	
9.	ASP program to send and receive email through SMTP and CDONT	
10.	ASP program to send the data from browser (client end) to database Through ADO	
11.	ASP program to retrieve data from database to browser (client end) Through ADO	
12.	Program to demonstrate the use of JSCRIPT events	
Total		32

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SEMESTER: SIXTH

COURSE CODE: 623 (New/old)

NAME OF COURSE: ADVANCED WEB TECHNOLOGY PAPER CODE: 623

SCHEME: 04/05/2007

CONTROL: WITH PROGRAMME (N)

REFERENCES

TEXT BOOKS:

- 1. Mastering Active Server Pages 2, O'Reilly Publications & Russell Jones

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

36/319

SEMESTER: SIXTH
 COURSE CODE: 624
 NAME OF COURSE: VISUAL AND WINDOWS API
 PROGRAMMING (VB)

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5079

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 3 Hrs. per week
 Practical: 3 Hrs. per week

S. NO	TOPIC	SCHEME OF STUDIES			SUGGESTED DISTRIBUTION OF MARKS FOR THEORY PAPER
		Hrs. of Study			
		Theory	Practical	Total	
1.	Introduction	09	03	12	16
2.	Basic Building Blocks	09	13	22	24
3.	Testing & Debugging	03	03	06	08
4.	OLE , Graphics & Menu	08	10	18	18
5.	Accessing & controlling Data	09	13	22	24
6.	API	10	06	16	10
TOTAL		48	48	96	100

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: SIXTH
 COURSE CODE: 624
 NAME OF COURSE: VISUAL AND WINDOWS API
 PROGRAMMING (VB)

SCHEME: Dip. CS JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5079

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
1	INTRODUCTION Integrated Development Environment(IDE),User Intc:face Designing, Basis of Event Driven Programming ,Form Designing -Events, Methods, Properties Loading showing & hiding form , controlling one form with other Declaring variable , Converting variable types , Array , control array , string functions-mid, Instr, left , right, like Decision maker statements-If , Select case , Do While loop , For Next , Exit for , Exit do Function ,Procedure , Basic module, arguments	9
2	BASIC BUILDING BLOCKS Property, methods, project explorer, property window, immediate window Basic Active-X Control:- Textbox, Label, combo box , list box, radio button , check box , scroll bar, OLE , Timer, Drive list box , Dir list box, File List box , Picture , Image, grouping control Advance active-X control:-Common Dialog Control Input box , Message box Events:- Mouse events, keyboard events , Drag drop Events ,Set focus , Lost focus , Got Focus Creating EXE of project	9
3	TESTING & DEBUGGING Types of error, error handling methods and functions, Debugging, Trace, watch, breakpoint	3
4	OLE , GRAPHICS & MENU OLE control method ,properties, OLE implementation ,Graphics - form fill , Exchanging object through clipboard ,Drawing, Line , Rectangle , Circle, Text Designing menu , Programming menu commands, using access & short cut keys , SDI & MDI forms	8

SEMESTER
 COURSE
 NAME OF

Lectures: 3

S. NO.	
5	AD
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6	API
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	Allo
	Rea
	Det
	Det

SEMESTER: SIXTH
 COURSE CODE: 624
 NAME OF COURSE: VISUAL AND WINDOWS API
 PROGRAMMING (VB)

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5079

COURSE CONTENT

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
5	<p>ACCESSING & CONTROLLING DATA</p> <p>Data entry form, form validation, Visual Data Manager, SQL , ODBC, ADO, connection , command , recordset & their methods , cursor ,page size ,cache size, fetching, searching, sorting , counting records, save & update database, Multiple Table handling , DBGRID</p> <p>Data Environment Designer – Creating connection & command object , Data-Bound Control, Data Report Designer</p>	9
6	<p>API</p> <p>Getting or creating Device context</p> <p>Use of Window API graphics</p> <p>Handling the mouse through API Function</p> <p>BITBIT Function for Copying bitmap</p> <p>Getting a Window for any window on the screen</p> <p>Playing sound with API function</p> <p>Allocating Memory and storing Data through API</p> <p>Reading Data from memory and De-allocating memory</p> <p>Determining Free and Total disk space</p> <p>Determining the windows Directory</p>	10

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RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE & ENGG.

SEMESTER: SIXTH
 COURSE CODE: 624
 NAME OF COURSE: VISUAL AND WINDOWS API
 PROGRAMMING (VB)

SCHEME: Dip. CS_JULY 2002
 COMMON WITH PROGRAMME (S):
 PAPER CODE: 5079

LIST OF EXPERIMENTS

Practical: 3 Hrs. per week

S. NO.	Name of experiments	Hours of Study
1	Develop programs using flow controls- If , Select case , Do While loop , For Next , Exit for . Exit do Function ,Procedure , Basic module, arguments	
2	Designing data entry forms using various Active-X control	
3	Use of OLE/Graphics .	
4	Development of menu using SDI and MDI	
5	Connecting Backend to Front end using Data Control, ADO, Data Environment.	
6	Report Creation.	
7	Develop Programs using API Viewer	
8	Develop Programs using API functions	
Total		48

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SEMESTER: SIXTH
COURSE CODE: 624
NAME OF COURSE: VISUAL AND WINDOWS API
PROGRAMMING (VB)

SCHEME: Dip. CS, JULY 2002
COMMON WITH PROGRAMME (S):
PAPER CODE: 5079

REFERENCES

TEXT BOOKS:

- Jain V. K., Introduction to OOP and VB, Vikas Publication.
- Steven Holzter, Visual Basic-6 Programming Black Book, Dreamtech Press publishing.

REFERENCE BOOKS :

- McBride D, Programming in Visual Basic, BPB Publication.
- Herbert Shidt, Window 98 Programming, TMH.
- Simon, Windows 95 API Bible (All three volumes), BPB.
- Simon, Windows 2000 API Super Bible, BPB.
- Simon, Windows NT Win32 API Super Bible, BPB.

SEMESTER: SIXTH

COURSE CODE: 630

NAME OF COURSE: PROFESSIONAL ACTIVITIES

SCHEME: Dip.CS JULY 2002

COMMON WITH PROGRAMME (S):104

Practice Hours: 2 Hrs/week

RATIONALE

Professional Activities is not a descriptive course, as per conventional norms; therefore specific content for this course cannot be prescribed. It is a group of open-ended activities; where in variety of tasks are to be performed, to achieve objectives. However general guidelines for achieving the target and procedure for its assessment are given under the course content of course code106 of first semester.

As the student has to practice this course in all the six semesters, the guidelines given therein are common and applicable to each semester.

OBJECTIVES:

- To allow for professional development of students as per the demand of engineering profession.
- To provide time for organisation of student chapter activities of professional bodies (i.e. Institution of engineers, ISTE or Computer Society of India etc.)
- To allow for development of abilities in students for leadership and public speaking through organisation of student's seminar etc.
- To provide time for organisation of guest lectures by expert engineers/eminent professionals of industry.
- To provide time for organisation of technical quiz or group discussion or any other group activity.
- To provide time for visiting library or using Internet.
- To provide time for group discussion or solving case studies.
- To provide time for personality development of students.
- To provide time for working for a social cause like awareness for environment and ecology etc.

DETAILED INSTRUCTIONS TO CONDUCT 'PROFESSIONAL ACTIVITIES':

- A) Study hours, if possible should be given greater time slot with a minimum of two Hrs/week to a maximum of four Hrs/week.
- B) This course should be evaluated on the basis of GRADES & mark sheet of students, should have a separate mention of the grade awarded. There will be no pass/fail in Professional Activities (P.A.).

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C) Following grade scale for evaluation of performance in P.A. has been established.

<u>Grades</u>	<u>Level of performance</u>
A	Excellent
B	Good
C	Fair
D	Average
E	Below expectations

D) Grades once obtained in a particular examination shall become final and no chance for improvement in grades will be given to the students.

E) Assessment of performance in P.A. is to be done internally by the institution, twice in a semester/term through a simultaneous evaluation of the candidate by a group of three teachers, of the deptt. concerned. Group of teachers will jointly award the grade to candidate in the assessment. Best of the grades obtained by the student in these two assessments shall be finally taken on the mark sheet of the respective semester/term.

Candidates abstaining from the prescribed course work and/or assessment planned at the institution shall be marked ABSENT in the mark sheet, instead of any grade.

F) While awarding the grades for performance in P.A., examining teacher should reach the final consensus based on the attendance, punctuality, interest, presentation skills in seminar on the topic assigned (Collection of relevant data, Observations, Analysis, findings/Conclusion) and its written report, awareness of latest developments in the chosen programme of study.

G) Institution shall maintain the record of grades awarded to all the students in P.A. for a period of one year.

H) It shall be mandatory for students to submit a compendium of his P.A. in the form of a journal.

I) Compendium shall contain following

- i) Record of written quiz.
- ii) Report/Write up of seminar presented.
- iii) Abstract of the guest lectures arranged in the institution.
- iv) Topic & outcome of the group discussions held.
- v) Reports on the problems solved through case studies.
- vi) Report on social awareness camps (organised for ecology & environment preservation).

vii) Report on student chapter activities of professional bodies like ISTE, I.E. (India), CSI etc.

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J) P.A. is not a descriptive course to be taught in the classroom by a particular teacher. Various activities involved in the achievement of objectives of this course should be distributed to number of teachers so that the talents and creativity of group of teachers' benefits the treatment of the course content.

These activities should preferably be conducted in English language to maintain continuity and provide reinforcement to skill development process.

Small groups shall be formed like in tutorials, group discussion, case studies, seminar, project methods, games, role-play & simulation to make the development of personality affective.

Treatment of P.A. demands special efforts, attention, close- co-operation and creative instincts on the part of teachers of the dept. concerned. Since this course is totally learner centered, many of the activities planned under this course shall come out from the useful interaction of students, among themselves and with the teachers. The guiding teacher/s shall best act as a facilitator of these creative hunts/exercises, which unfold many of the hidden talents of the students or brings out greater amount of confidence in them, to execute certain activity.

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**RESOURCE REQUIREMENTS FOR CONDUCTING
DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING**

A) HARDWARE REQUIREMENTS:

S. No.	Description	No.	Approximate Cost Per Unit	Approximate Price* (In Rupees)
1.	Servers	03	1,00,000	3,00,000
2.	Workstation- 1no. for every two students	15	50,000	7,50,000
3.	Notebook computer	01	1,00,000	1,00,000
4.	STRUCTURED LAN (Rack, Switch, Patch panel, Patch card, I/O)	01	30,000	30,000
5.	MODEM (ISDN and Dial up modem)	01	20,000	20,000
6.	PRINTERS			
6.a.	DMP	03	20,000	60,000
6.b.	INKJET (Colour)	02	6,000	12,000
6.c.	LASER (Mono)	01	20,000	20,000
6.e.	LINE PRINTER	01	1,00,000	1,00,000
7.	SCANNER	02	10,000	20,000
8.	CD - Writer	01	8,000	8,000
8.	WEB CAMERA	06	3,000	18,000
9.	MULTIMEDIA PROJECTOR (LCD)	02	2,00,000	4,00,000
10.	8086 BASED MICROPROCESSOR KIT	06	10,000	60,000
11.	DIGITAL TRAINER KIT	15	20,000	3,00,000
12.	SMPS TRAINER KIT	4	5,000	20,000
13.	UPS TRAINER KIT	2	10,000	20,000
14.	DIGITAL CRO	1	1,50,000	1,50,000
15.	UPS (5KVA)	3	50,000	2,10,000
16.	AIR CONDITIONER (1.5 tonne)	6	25,000	1,50,000
17.	TOOLS & ACCESSORIES (DVD, CD-Writer, Oscilloscope, Digital Multi-meter, Cable, Tester, Wiring Tools, Function Generators, Soldering De-soldering work station, PCB-Clad, Megger, Earth Tester, connectors cables NIC, VGA PAL, Converter, AGP Card, Flat Panel Monitor (LCD) 6 nos., Vacuum Cleaner.			5,00,000
18.	Simputer	05	6,500	32,500
19.	DIGITAL CAMERA	01	20,000	20,000

B) SOFTWARE REQUIREMENTS:

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LATEST VERSION OF THE SOFTWARE SHOULD BE PURCHASED

S. No.	Software	No.	Approximate Cost Per Unit	Approximate Price* (In Rupees)
1.	Linux*/Win 2000 Server (License for 25 users)	1	50,000	50,000
2.	My SQL* (RDMS for Linux platform)			
3.	Linux open server with application kit (25 users)	1	20,000	20,000
4.	Open Office*/MS Office XP/2000 (15 users)	1	16,000	16,000
5.	Page Maker	1	36,000	36,000
6.	Corel Draw	1	25,000	25,000
7.	Macromedia Author ware (Director X)	1	1,44,000	1,44,000
8.	Adobe Photoshop	1	40,000	40,000
9.	Visual Studio	1	45,000	45,000
10.	Oracle 9i/SQL server	1	55,000	55,000
11.	Hardware Diagnostic S/W	1	10,000	10,000
12.	Animation software (Flash, Dreamweaver etc.)	1	50,000	50,000
13.	C++ Compiler*	1	8,000	8,000
14.	Tally	1	15,000	15,000
15.	Anti-virus software	1	5,000	5,000
16.	Prolog	1	5,000	5,000

* Freeware based on Linux platform.

- The list shows approximate price of the items at the time of preparation of list, institutions are advised to consult latest prices before buying or recommending any of the items listed above.
- The list shows minimum number of hardware/software items required to run a Diploma programme in Information Technology. Depending on the current requirements of Information Technology industries, institutions may add certain items to provide more skills to the students,

APPENDIX-II

Proforma: 1

(Feedback regarding curriculum of the Diploma Programmes presently being conducted in your institution)

- Note: 1) Please use separate sheet for each diploma programme.
2) Please give component-wise feedback, use additional sheets if the space is short.

Name of the Diploma Programme	Scheme MPECS/ Semester/ Year	Duration	Year of implementation in your institution	Comments on curriculum document		
				Scheme of Studies	Scheme of Examination	Industrial training (In-plant training)/Vocational training/Practical training component etc.

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Proforma: 2

Course-wise feedback regarding existing Diploma programme

Name of Diploma programme:

S. No.	Name of Subject/Course/Laboratory	Name of Topic/Laboratory Experiments	Addition/Deletion	Content	Remarks

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