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**CURRICULUM**  
**FOR**  
**DIPLOMA IN INFORMATION TECHNOLOGY**  
**(THIRD AND FOURTH SEMESTER)**



**JULY 2001**

**CURRICULUM DEVELOPMENT CENTRE,**  
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(FORMERLY M. P. BOARD OF TECHNICAL EDUCATION, BHOPAL.)  
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## FOREWORD

Information Technology has emerged as one of the most powerful tool for the rapid track economic growth of our country. India has undoubtedly done very well in the Information Technology sector over the last decade. The current IT export from India is around US \$ 5 billion which is projected to grow to a staggering figure of US \$ 50 billion by the year 2008 as per the NASSCOM survey. The indigenous consumption of software is also poised to increase to around US \$ 40 billion by the same time. As such the Information Technology industry has emerged as one of the fastest growing industry in our country. Such a rapid growth of IT 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 IT industries in India and abroad.

Considering the urgent need for increasing the intake in the Information Technology disciplines the Government of India has initiated several measures. These efforts have resulted into an addition of about 2000 seats at degree level in the IT related disciplines and about 715 seats at diploma level in Information Technology in the state of Madhya Pradesh from the academic session 2000-2001.

Though Information Technology is a new discipline of engineering but it is important to realise that IT is an inter-disciplinary area. 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.

I am sure that the innovative curriculum developed for Diploma in IT would serve the purpose of providing an optimal mix of up-to-date knowledge and requisite skills for the IT professionals for tomorrow's IT industries and IT enabled service organisations. The exercise of curriculum innovation carried out for diploma in IT 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 courses for which the Board is organizing the academic and examination activities.

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 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



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- degree programmes while at the same time it promotes self-study and seminars so as to provide professional orientation to the students.

The encouragement and support received from Shri Rakesh Shrivastava, CEO of MAP\_IT has gone a long way in the assessment of the needs of manpower for IT industries. I wish to place on record our sincere acknowledgment of the support received from Shri Shrivastava in the development of the innovated curriculum in IT. I also wish to express my very sincere appreciation of the efforts of the officers and staff of the Board of Technical Education specially that of Shri S.K. Verma, Secretary, Shri Shamim Uddin, Coordinator, Shri T.R. Arora, Deputy Secretary, Dr. Sudhir Danej and Shri S.A.K. Rao, Research Officers in successfully developing innovative curriculum for the Diploma in IT with the support of experts drawn from academic institutions and IT industries.

**Prof. P.B. Sharma**

Bhopal

Vice-Chancellor,

19-11-2000

Rajiv Gandhi Proudhyogiki Vishwavidyalaya,



## ACKNOWLEDGEMENTS

The second Curriculum Development workshop for developing course contents of III and IV semester courses for Diploma programme in Information Technology was organised from 25<sup>th</sup> to 29<sup>th</sup> June 2001 in S V Polytechnic, Bhopal. This curriculum document has been produced through contributions of faculty of polytechnic, representative of industries and higher institutions.

We are highly thankful to Honorable Prof. P.B. Sharma, Vice-chancellor, RGPV, Bhopal for the wholehearted support, guidance and encouragement given, which paved the way for successful conduction of workshop. We are indebted to Dr. S R Madan, Principal, S V Polytechnic, Bhopal for taking extra pains to make necessary arrangements for conduction of workshop in the polytechnic.

Thanks are also due to industries and other organisation namely BHEL, OPTEL, NIC and Bhopal Engineering College, which rightly recognised the importance of stakeholders' involvement in curriculum design and have sent their representatives to the workshop. We would also like to individually acknowledge the contribution of experts from industries like Mr. B B Kandir of BHEL, Mr. Subhash Mishra of OPTEL, Mr. Sunil Jain of NIC and Mr. Mahesh Motwani of Bhopal Engg. College. The faculty of polytechnic also deserves special mention, as it is they, who brought draft of various courses along with them and worked hard for five days to generate this final curriculum document after elaborate discussions.

We have special thanks for Prof. R K Shrivastava, CEO, MAP\_IT, whose inspiring key-note address and later on free discussions with participants provided the much needed framework for development of curriculum.

No work of this nature is possible without the support and co-operation of office staff. We would like to thank them all.

**SHAMIM UDDIN**  
CO-ORDINATOR,  
Curriculum Development Centre  
RGPV, Bhopal.

## PARTICIPANTS IN SECOND CURRICULUM INNOVATION WORKSHOP

### INDUSTRIES AND HIGHER INSTITUTIONS:

1. Shri Binay B. Kandir, Manager,  
Informatics Centre (IFX), BHEL, Bhopal
2. Shri Sunil Jain, Manager, NIC,  
M P Project Office,  
C-Wing, Vindiyachal Bhavan, Bhopal.
3. Shri Subhash Mishra, Deputy Manager,  
Optel Telecommunications Ltd., Bhopal
4. Shri Mahesh Motwani, Lecturer,  
Bhopal Engineering College, Bhopal

### POLYTECHNIC FACULTY:

1. Shri K P Agarwal, Principal  
Govt. Women Polytechnic, Chindwara.
2. Smt. Juhi Jain, I/c HOD,  
Computer Application Deptt.  
S V Polytechnic, Bhopal
3. Shri Navneet Chaudhry, Sysytem Analyst,  
Shri Vaishnav Polytechnic, Indore
4. Shri S K Gandhi, Lecturer,  
Computer Application Deptt ,  
S V Polytechnic, Bhopal
5. Ku. Nirmla Malani, Lecturer,  
Computer Science Deptt.,  
Govt. Women Polytechnic, Gwalior
6. Shri Deepak Singh Tomar, Programmer  
Govt. Women Polytechnic, Bhopal
7. Shri Prakash Vijavargiya, Programmer,  
Rajiv Gandhi Proudhyogiki Vishawavidyalaya, Bhopal
8. Smt. Rashmi Gupta, Programmer,  
S V Polytechnic, Bhopal
9. Shri R S Panth, Programmer,  
Sahodra Roy Govt. Women Polytechnic, Sagar
10. Shri Anil Mishra, Programmer,  
Govt. Polytechnic, Ashoknagar.
11. Shri N K Sahu, Programmer,  
Govt. Polytechnic, Damoh

12. Shri M Mehto, Programmer,  
Govt. Polytechnic, Korba
13. Shri D K Chaurishi,  
Govt. Women Polytechnic, Hoshangabad.
14. Shri S C Soni, Programmer,  
Govt. Polytechnic, Dhamtari.
15. Shri Muzaffar Munshi, Programmer,  
Govt. Women Polytechnic, Indore.
16. Shri M M Khan, programmer,  
Govt. Women Polytechnic, Jabalpur.
17. Shri Haridas Patil, Programmer,  
Govt. Polytechnic, Khirsadoh.
18. Shri S S Mukati, Programmer,  
Govt. Women Polytechnic, Khargone.

**POLYTECHNIC FACULTY FOR MISCELLENEOUS COURSES:**

For course on Office Management

1. Dr M S Baig, HOD, MOM,  
Govt. Women Polytechnic, Bhopal
2. Dr Akhil Sitokhe, Sr. Lecturer, MOM  
S V Polytechnic, Bhopal

For course on Mathematical Foundations for Computers

1. Shri Anil Bakhru, Sr. Lecturer, Mathematics  
S V Polytechnic, Bhopal

**Coordinator of the workshop**

SHAMIM UDDIN, Coordinator,

**Co-Coordinator of the workshop**

T R ARORA, Deputy Secretary,



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**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
(FORMERLY M. P. BOARD OF TECHNICAL EDUCATION, BHOPAL)

**DIPLOMA IN INFORMATION TECHNOLOGY**

**INTRODUCTION:**

Information technology is growing rapidly. Increasing applications of computers in almost all areas of human endeavor has led to a vibrant computer software industry with concurrent rapid change in technology. Information technology now is being considered as fifth need of human beings after air, water, food and shelter.

The global and local demand for IT 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 accaclaimed world over, for their IT skills in the design of software and 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 because of software exports and by the year 2008 the software exports are targeted to reach US\$50 billion.

Information technology is a generic term which encompasses all activities connected with computer based acquisition, storage, transmission, retrieval and processing of information to support the communication of knowledge in technical economic and social fields. It includes computers, consumer electronics, electronics mass media, satellite telecommunication and reprography . IT is an enabling technology, it has already contributed in the economic and social development by introducing e-banking, e-governance, ATM facilities, computerised reservation in railways, buses and airlines, networking of libraries databases, simulation of real life situations, modeling etc. There are many IT enabled business like call centres, medical transcription, back office operations, insurance claims processing maintenance of legal databases etc., which have origin in US but have been diverted by the big business houses to India, because of availability of trained manpower and low cost of operations.

In the present scenario, the state 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.

To cater to the burgeoning demand of IT professionals, a three years Diploma in Information Technology has been proposed in many polytechnics of the state from academic session 2000-2001. The programme has been designed to meet the requirements of various users of IT. The objectives of the programme have been



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chosen so that it enables the students to acquire skills from lowest level to that of industry's current standard.

The large chunk of I T services lies in the application areas and in developing softwares for industry or business requires understanding of conduction of business

Thus the challenge in designing a curriculum is to identify the areas of core-competence which is reasonably stable and provide sufficient number of electives and laboratories to accommodate changes, as the skill sets required in IT professionals are changing at a fast pace. The curriculum shall provide basic skills of learning to the students so that skills/knowledge is being continuously updated as and when required to meet the demand of profession. Consequently the curriculum has a strong laboratory and project orientation in which the use of new tools are emphasized. Most of the courses will have an associated laboratory and it is expected that they will be equipped with latest software tools.

#### **OBJECTIVES OF THE PROGRAMME:**

1. To provide trained manpower for consumption in IT sector and IT enabled services.
2. To provide skill sets in core competencies of Information Technology like programming in single user and multi-user environments, Networking, Database designing and use of communication technologies etc.
3. To provide skills in developing applications or software for which no prior computer based solutions exist.

#### **JOB POSITIONS:**

The diploma pass-outs fits into variety of jobs in IT sector and IT enabled services. The scope of employment is so wide that it is difficult to enumerate all the positions which may be available to a diploma IT pass out, however some of them are listed below:

1. Programmer.
2. Network Supervisor.
3. Assistant to Database Administrator.
4. e-commerce Supervisor.
5. Web programmer/application developer.
6. Teacher / Trainer.
7. Salesman for IT products.

IT sector offers tremendous opportunities of self-employment with incredibly small investments. Venture capitalists are pouring money at a fast pace in innovative ideas and there are many success stories of IT entrepreneurs, who started from scratch and have created big companies.

Some of the areas of self-employment may be

- Software developer.
- ISP provider.
- Training institute.
- e-business.
- Web design and hoisting.
- Video conferencing business.

## **JOB FUNCTIONS:**

The growth of IT has triggered growth in many other sectors as well, therefore IT professionals have wide spectrum of services with variety of functions to perform. Some of the functions he/she is expected to carry out in teams, while others require independent operations. These are listed below:

The pass outs of Diploma in Information technology shall be able to

- Work on different platforms of OS like DOS, Windows, NT, UNIX, LINUX etc.
- Use office automation and DTP application packages such as MS office, PAGE maker.
- Develop scientific and business applications using high level programming languages such as C, C++.
- Develop RDBMS for given applications using latest back end tool such as ORACLE and front-end tools like VB.
- Do web designing using HTML editor, JAVA script, ASP.
- Design/visualise graphics for multi-media development in various environments using PhotoShop, Printshop.
- Supervise/manage networking technologies using co-axial cables, Ethernet twisted pairs.
- Assist Data Base Administrator in maintenance of large databases.
- Manage/customise in-house software.
- Advise organisations in procurement of appropriate hardware/software to suit their needs.
- Test software that have been out sourced.
- Do/assist in computer aided designs or manufacture.
- Write operational manuals for software.
- Assist/Design multi-media based teaching/learning packages.
- Operate/manage IT systems used in entertainment industry.
- Sales and marketing of IT products.
- Technical and field support for IT applications.



**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
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Programme Name: Three years Diploma in Information Technology. Name of scheme: Dip.IT\_SEPT.:2000 W.e.f. Session 2000-2001

Scheme of Studies and Examinations for semester: FIRST

C O U R S E  C O D E	COURSE TITLE	THEORY COMPONENT				PRACTICAL COMPONENT				T O T A L						
		CONTINUOUS EVALUATION		END OF THE TERM / SEMESTER EVALUATION	T O T A L  M A R K S	P R A C T I C A L  H r s. P e r W e e k	CONTINUOUS EVALUATION	END OF THE TERM/ SEMESTER EVALUATION	T O T A L							
		LECT- URES	Hrs. PER WEEK	PROG- RESSIVE TESTS (TWO)				THEORY PAPER			LAB. WORK	PRACTICAL/ ORAL EXAMINATION (VIVA)				
					NO.	MARKS	DUR- ATION (Hrs.)		NO				MARKS	DUR- ATION (Hrs.)		
101	COMMUNICATION SKILL	4	20	10	10	1	100	3	140	-	-	-	-	140		
102	APPLIED SCIENCE (PHYSICS + CHEMISTRY)	4+4	20	10	10	1	100	3	140	4	30	1	50	3	80	300
103	INTRODUCTION TO PERSONAL COMPUTERS	4	20	10	10	1	100	3	140	2	30	1	50	3	80	220
104	P.C. UTILITIES & OPERATING ENVIRONMENT	2	20	10	10	1	100	3	140	8	50	1	50	3	100	240
105	PERFORMANCE IN PROFESSIONAL ACTIVITIES (PPA)									2						
	TOTAL	18	80	40	40	4	400	-	560	16	140	4	200	-	340	900

S.No.	Total marks	Passing marks
A	400	Theory : 33%
B	200	Practical : 40%
C	-	Ind. Trg. : 50%
	TOTAL	600
		Sessional : 60%

D. Total of Practical + Industrial Training + Sessional + Progressive Test = 500  
Ratio of (A) : (D) : 1:1.25  
Ratio of time allotted for theory and practical portion of the courses in a programme: 1:0.89

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Programme Name: Three years Diploma in Information Technology.

Name of scheme: Dip.IT\_SEPT.'2000

W.e.f. Session 2000-2001

Scheme of Studies and Examinations for semester: SECOND

2011

COURSE TITLE	THEORY COMPONENT				PRACTICAL COMPONENT				TOTAL						
	LECTURES	CONTINUOUS EVALUATION		END OF THE TERM / SEMESTER EVALUATION	PRACTICAL EVALUATION	END OF THE TERM/ SEMESTER EVALUATION	LAB. WORK	CONTINUOUS EVALUATION							
		Hrs. PER WEEK	TERM WORK							PROGRESSIVE TESTS (TWO)	THEORY PAPER	NO.	MARKS	DURATION (Hrs.)	
															I
201 APPLIED MATHS	4	20	10	10	1	100	3	140	-	-	-	-	140		
202 OFFICE AUTOMATION	2	20	10	10	1	100	3	140	6	25	1	50	3	75	215
203 COMPUTER ORGANISATION	3	20	10	10	1	100	3	140	2	25	1	50	3	75	215
204 BASIC PROGRAMMING IN 'C'	4	20	10	10	1	100	3	140	6	25	1	50	3	75	215
205 BASIC ELECTRICAL, ELECTRONICS & MEASUREMENT	4	20	10	10	1	100	3	140	2	25	1	50	3	75	215
206 PERFORMANCE IN PROFESSIONAL ACTIVITIES (P.P.A.)	17	100	50	50	5	500	-	700	18	100	4	200	-	300	1000
<b>TOTAL</b>															

S.No.	Total marks	Passing marks
A THEORY	500	Theory : 33%
B PRACTICAL	200	Practical : 40%
C Industrial Training	-	Ind. Trg. : 50%
<b>TOTAL</b>	<b>700</b>	Sessional : 60%

D. Total of Practical + Industrial Training + Sessional + Progressive Test = 500  
Ratio of (A) : (D) : 1:1

Ratio of time allotted for theory and practical portion of the courses in a programme: 1: 1.06

**GRAND TOTAL ▲**

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(FORMERLY M.P. BOARD OF TECHNICAL EDUCATION, BHOPAL.)

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Programme Name: Three years Diploma in Information Technology.

Name of scheme: Dip.IT\_SEPT.'2000

W.e.f. Session 2000-2001

Scheme of Studies and Examinations for semester: **THIRD**

C O U R S E  C O D E	COURSE TITLE	THEORY COMPONENT						PRACTICAL COMPONENT								
		CONTINUOUS EVALUATION		END OF THE TERM / SEMESTER EVALUATION		T O T A L  M A R K S	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	DURA TION (Hrs.)	T O T A L				
		LECT- URES	Hrs. PER WEEK	TERM WORK	PROG- RESSIVE TESTS (TWO)								NO.	MARKS	DUR- ATION (Hrs.)	LAB. WORK
						I	II									
301	MATHEMATICAL FOUNDATION FOR COMPUTERS	4	20		10	10	1	100	3	140	-	-	-	-	-	140
302	OPERATING SYSTEMS	4	20		10	10	1	100	3	140	25	1	50	3	75	215
303	DATA BASE MANAGEMENT SYSTEMS	4	20		10	10	1	100	3	140	25	1	50	3	75	215
304	INTERNET & WEB TECHNOLOGY	2	20		10	10	1	100	3	140	50	1	50	3	100	240
305	OOPS TECHNIQUES USING C++	3	20		10	10	1	100	3	140	50	1	50	3	100	240
306	PERFORMANCE IN PROFESSIONAL ACTIVITIES (P.P.A.)															
	TOTAL	17	100		50	50	5	500	-	700	150	4	200	-	350	1050

S.No.	Total marks	Passing marks
A	500	Theory : 33%
B	200	Practical : 40%
C	-	Ind. Trg. : 50%
	TOTAL	700

D. Total of Practical + Industrial Training + Sessional + Progressive Test = 550

Ratio of (A) : (D) : 1: 1: 1

Ratio of time allotted for theory and practical portion of the courses in a programme : 1: 1: 2



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Programme Name: Three years Diploma in Information Technology. Name of scheme: Dip.IT\_SEPT.'2000 W.e.f. Session 2000-2001

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

C O U R S E	COURSE TITLE	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								
		LECT- URES	Hrs. PER WEEK	PROG- RESSIVE TESTS (TWO)	THEORY PAPER	P R A C T I C A L	LAB WORK	NO MARKS	DUR- ATION (Hrs.)							
											I	II	NO MARKS	DUR- ATION (Hrs.)		
401	SYSTEM ANALYSIS & DESIGN	4	20	10	10	1	100	3	140	-	-	-	-	140		
402	DATA COMMUNICATION	4	20	10	10	1	100	3	140	2	25	1	50	3	75	215
403	LAN DESIGN & ITS IMPLEMENTATION	4	20	10	10	1	100	3	140	2	25	1	50	3	75	215
404	MINOR PROJECT	1	-	-	-	-	-	-	-	8	50	1	50	3	100	100
405	ELECTIVE - I (Select one course)	3	20	10	10	1	100	3	140	2	25	1	50	3	75	215
406	ELECTIVE - II (Select one course)	3	20	10	10	1	100	3	140	-	-	-	-	-	-	140
407	P.P.A.									2						
	TOTAL	19	100	50	50	5	500	-	700	16	125	4	200	-	325	1025

S.No.	THEORY	PRACTICAL	Industrial Training	TOTAL
	500	200	-	700
	Passing marks	Theory : 33%	Practical : 40%	
		Ind. Trg. : 50%	Sessional : 60%	

D. Total of Practical + Industrial Training + Sessional + Progressive Test = 525  
Ratio of (A) : (D) : 1:1.05  
Ratio of time allotted for theory and practical portion of the courses in a programme : 1:0.84

405-ELECTIVE - I (TH:3+PR:2)  
(1) DESK TOP PUBLISHING  
(2) COMPUTERISED FINANCIAL ACCOUNTING

406-ELECTIVE - II (TH:3+PR:0)  
(1) ENVIRONMENTAL ENGG.  
(2) MARKETING MANAGEMENT  
(3) ENTREPRENEURSHIP  
(4) OFFICE MANAGEMENT  
(5) TOTAL QUALITY MANAGEMENT

**Elective - I**  
• D.T.P 5015  
• Computerised Financial Accounting - 5016  
• Environmental Engineering - 5017

**Elective - II**  
• Environment - 0262  
• Marketing Management - 6269  
• Entrepreneurship - 0271  
• Office Management - 5017

• T.Q.M - 5018

GRAND TOTAL

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**CURRICULUM**

**FOR**

**DIPLOMA IN INFORMATION TECHNOLOGY**

**(THIRD SEMESTER)**

Scheme: Dip. IT\_September 2000

Implemented from session 2000-2001

Under semester system

JULY 2001

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: THIRD  
COURSE CODE: 301

SCHEME: Dip. IT September' 2000  
COMMON WITH PROGRAMME (S):  
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.



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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: THIRD**  
**COURSE CODE: 301**

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

**SCHEME: Dip. IT, September' 2000**  
**COMMON WITH PROGRAMME (S):**  
**PAPER CODE: 5007**

**SCHEME OF STUDIES**

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

S. NO.	TOPIC	SCHEME OF STUDIES		
		Theory	Practical	Total
1.	Set Theory	08	-	08
2.	Matrices	08	-	08
3.	Numerical Analysis	16	-	16
4.	Statistics	16	-	16
5.	Linear Programming	08	-	08
6.	Graph Theory	08	-	08
	<b>Total</b>	<b>64</b>	<b>-</b>	<b>64</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

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

SCHEME: Dip. IT September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5007**

**SPECIFICATION TABLE**

Lectures: **4** Hrs. per week

S. NO.	TOPIC	LECT. HOURS.	MARKS ALLOTTED (Approximate)
1.	Set Theory	08	10
2.	Matrices	08	15
3.	Numerical Analysis	16	25
4.	Statistics	16	25
5.	Linear Programming	08	15
6.	Graph Theory	08	10
<b>TOTAL</b>		<b>64</b>	<b>100</b>

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**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
(FORMERLY M. P. BOARD OF TECHNICAL EDUCATION, BHOPAL.)

**DIPLOMA IN INFORMATION TECHNOLOGY**

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

SCHEME: Dip. IT September 2000  
COMMON WITH PROGRAMME (S):  
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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## DIPLOMA IN INFORMATION TECHNOLOGY

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

SCHEME: Dip. IT September' 2000  
 COMMON WITH PROGRAMME (S):  
 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 $y=ax^b$ , $y=ae^{-dx}$	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.	

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**DIPLOMA IN INFORMATION TECHNOLOGY**

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

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
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.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: THIRD**  
**COURSE CODE: 302**  
**NAME OF COURSE: OPERATING SYSTEMS**

**SCHEME: Dip. IT September 2000**  
**COMMON WITH PROGRAMME (S):**  
**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.



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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: THIRD**  
**COURSE CODE: 302**  
**NAME OF COURSE: OPERATING SYSTEMS**

**SCHEME: Dip. IT September' 2000**  
**COMMON WITH PROGRAMME (S):**  
**PAPER CODE: 5008**

**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 Operating System	06	04	10
2.	File System	12	06	18
3.	Process Management	14	06	20
4.	Memory Management	15	06	21
5.	Device Management	11	06	17
6.	Protection & Security	06	04	10
	<b>Total</b>	<b>64</b>	<b>32</b>	<b>96</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **THIRD**  
COURSE CODE: **302**  
NAME OF COURSE: **OPERATING SYSTEMS**

SCHEME: Dip. IT September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5008**

**SPECIFICATION TABLE**

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

S. NO.	TOPIC	LECT. HOURS.	MARKS ALLOTTED (Approximate)
1.	Introduction to Operating System	06	10
2.	File System	12	22
3.	Process Management	14	18
4.	Memory Management	15	18
5.	Device Management	11	16
6.	Protection & Security	06	16
Note: Case study of DOS, UNIX, LINUX, WINDOWS NT have been included in the respective chapter.			
<b>TOTAL</b>		<b>64</b>	<b>100</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **THIRD**  
COURSE CODE: **302**  
NAME OF COURSE: **OPERATING SYSTEMS**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5008**

**COURSE CONTENT**

Lectures: 4 Hrs. per week

S. No.	Course Content	Hours of study
1.	<b>INTRODUCTION TO OPERATING SYSTEM</b>	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.	<b>FILE MANAGEMENT SYSTEM</b>	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.	<b>PROCESS MANAGEMENT</b>	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.	<b>MEMORY MANAGEMENT</b>	15
4.1	Concept of Memory Management; Logical v/s Physical address, Cache Memory, Swapping, Allocation Techniques, Fragmentation & Compaction.	



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## DIPLOMA IN INFORMATION TECHNOLOGY

SEMESTER: **THIRD**  
 COURSE CODE: **302**  
 NAME OF COURSE: **OPERATING SYSTEMS**

SCHEME: Dip. IT September 2000  
 COMMON WITH PROGRAMME (S):  
 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.	
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.	11
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.	

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **THIRD**  
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NAME OF COURSE: **OPERATING SYSTEMS**

SCHEME: Dip. IT September' 2000  
COMMON WITH PROGRAMME (S):  
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.	
	<b>Total</b>	<b>32</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: THIRD**  
**COURSE CODE: 302**  
**NAME OF COURSE: OPERATING SYSTEMS**

**SCHEME: Dip. IT \_September' 2000**  
**COMMON WITH PROGRAMME (S):**  
**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 Duncan, (1999), Advance Dos Programming, BPB.
- Donovons & Mendric, Operating Systems, TMH.



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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: <b>THIRD</b>	SCHEME: Dip. IT, September, 2000
COURSE CODE: <b>303</b>	COMMON WITH PROGRAMME (S):
NAME OF COURSE: <b>DATA BASE MANAGEMENT SYSTEMS</b>	PAPER CODE: <b>5009</b>

**RATIONALE**

In most businesses and organisations, database system plays a vital role in maintaining information and making it available on demand. This course intends to develop basic skills in the design and development of databases.

DBMS is the major Database Management System that is used for general data processing and WEB based data processing. Particular emphasis is given on the relational model i.e. RDBMS. Today due to technological changes we are working on object oriented design of databases, which include all the features that can enforce the size of databases, integrity and functional dependency.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **THIRD**  
COURSE CODE: **303**  
NAME OF COURSE: **DATA BASE MANAGEMENT SYSTEMS**  
SCHEME: Dip. IT September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5009**

**SCHEME OF STUDIES**

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

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	Introduction to Database	13	10	23
2.	Data Models	13	-	13
3.	Relational Algebra & Normalization	14	10	24
4.	SQL	14	22	36
5.	Distributed & Object Databases	10	22	32
	Total	64	64	128

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: THIRD**  
**COURSE CODE: 302**  
**NAME OF COURSE: DATA BASE MANAGEMENT SYSTEMS**

**SCHEME: Dip. IT September' 2000**  
**COMMON WITH PROGRAMME (S):**  
**PAPER CODE: 5009**

**SPECIFICATION TABLE**

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

S. NO.	TOPIC	LECT. HOURS.	MARKS ALLOTTED (Approximate)
1.	Introduction to Database	13	20
2.	Data Models	13	20
3.	Relational Algebra & Normalization	14	20
4.	SQL	14	20
5.	Distributed & Object Databases	10	20
<b>TOTAL</b>		<b>64</b>	<b>100</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **THIRD**  
COURSE CODE: **303**  
NAME OF COURSE: **DATA BASE MANAGEMENT SYSTEMS**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5009**

**COURSE CONTENT**

Lectures: **4 Hrs.** per week

S. NO	Course Content	Hours of Study
1.	INTRODUCTION TO DATABASE	13
1.1	Basic Concept; <ul style="list-style-type: none"> <li>- Data Modeling for a Database, Entities and their Attributes, Relationships</li> <li>- Records and Files</li> <li>- <u>Abstraction and Data integration</u></li> <li>- Three-level Architecture; Mapping between views, Data Independence</li> <li>- Components of a DBMS, Classification of DBMS Users, DBMS Facilities, Structure of a DBMS, Database Access</li> <li>- Advantages and Disadvantages of DBMS</li> </ul>	
1.2	File Organisation <ul style="list-style-type: none"> <li>- Introduction, Storage Device Characteristics, Constituents of a File, Formal Specification of storage of a file, Operation on files: logical Access, Primary key retrieval</li> <li>- Serial Files</li> <li>- Sequential Files</li> <li>- Index-Sequential Files; Implicit index, Limit indexing, Multi-level indexing schemes: Basic Techniques, Structure of index sequential Files, VSAM</li> <li>- Direct File, Hashing</li> </ul>	
2.	DATA MODELS	13
2.1	Introduction	
2.2	Data Associations, Entities, Attributes, and Associations, Relationships among Entities, Representation of Associations and Relationships	

DIPLOMA IN INFORMATION TECHNOLOGY

SEMESTER: THIRD  
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SCHEME: Dip. IT\_September' 2000  
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 PAPER CODE: 5009

COURSE CONTENT

Lectures: 4 Hrs. per week

S. No.	Course Content	Hours of study
2.3	Data Models' Classification ✓	
2.4	Entity-Relationship model; Entities, Relationships, Representation of Entities, Representation of Relationship set, Generalisation and aggregation	
	Relational Model; Attributes and Domains, Tuples, Relations and Their schemes, Relation Representation, Keys, Relationship, Relational Operations, Integrity Rules.	
3.	RELATIONAL ALGEBRA AND NORMALIZATION	14
3.1	Relational Algebra; Basic Operations, Additional Relational Algebraic Operations, Some Relational Algebra Queries.	
3.2	Relational Database Design; Normalization, Referential Integrity, Functional Dependency, Decomposition, Normal form:1NF, 2NF, 3NF, BCNF, 4NF, 5NF	
4.	SQL	14
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, View and Update	
5.	DISTRIBUTED AND OBJECT DATABASES	10
5.1	Distributed 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	

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **THIRD**  
 COURSE CODE: **303**  
 NAME OF COURSE: **DATA BASE MANAGEMENT SYSTEMS**

SCHEME: Dip. IT\_September' 2000  
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 PAPER CODE: **5009**

**LIST OF EXPERIMENTS**

Practical: 4 Hrs. per Week

S. NO.	Name of experiments	Hours of Study
1.	Creation of table in different ways	
2.	Define Primary Key and relate with another table by foreign key	
3.	Enter Data into Various tables by designing schemes	
4.	Create referential integrity and generate relational diagram and its related queries	
5.	Generate query by using tables	
6.	Write report to generate output from table as well as query	
7.	Prepare macros by using MS-Access	
8.	Write query and generate table by wizard	
9.	Import data from various Databases and text files	
10.	Export data to text files	
	<b>Note: Conduct all experiments using MS-Access.</b>	
	<b>Total</b>	<b>64</b>



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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: THIRD**  
**COURSE CODE: 303**  
**NAME OF COURSE: DATA BASE MANAGEMENT SYSTEMS**

**SCHEME: Dip. IT \_September' 2000**  
**COMMON WITH PROGRAMME (S):**  
**PAPER CODE: 5009**

**REFERENCES**

**TEXT BOOKS:**

- 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.
- Silber Schatz A. and Korth H., Database System Concept
- Martin James, Computer Database Organisation.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: THIRD**  
**COURSE CODE: 304**  
**NAME OF COURSE: INTERNET & WEB TECHNOLOGY**

**SCHEME: Dip. IT September 2000**  
**COMMON WITH PROGRAMME (S):**  
**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.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: THIRD**  
**COURSE CODE: 304**  
**NAME OF COURSE: INTERNET & WEB TECHNOLOGY**

SCHEME: Dip. IT September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: 5010

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**SCHEME OF STUDIES**

Lectures: 2 Hrs. per week  
Practical: 6 Hrs. per week

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	Basic Internet Concepts	6	4	10
2.	Connecting to Internet	2	4	06
3.	World Wide Web	4	29	33
4.	Communication using Internet	6	19	25
5.	Web Protocols	3	08	11
6.	Web Publishing	8	27	35
7.	Introduction to IT Enabled Services	3	05	08
	<b>Total</b>	<b>32</b>	<b>96</b>	<b>128</b>



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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **THIRD**  
COURSE CODE: **304**  
NAME OF COURSE: **INTERNET & WEB TECHNOLOGY**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5010**

**SPECIFICATION TABLE**

Lectures: 2 Hrs. per week  
Practical: 6 Hrs. per week

S. NO.	TOPIC	LECT. HOURS.	MARKS ALLOTTED (Approximate)
1.	Basic Internet	6	05
2.	Connecting to Internet	2	10
3.	World Wide Web	4	25
4.	Communication using Internet	6	15
5.	Web Protocols	3	10
6.	Web Publishing	8	25
7.	Introduction to IT Enabled Service	3	10
	<b>TOTAL</b>	<b>32</b>	<b>100</b>

DIPLOMA IN INFORMATION TECHNOLOGY

SEMESTER: THIRD  
COURSE CODE: 304

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: 5010

NAME OF COURSE: INTERNET & WEB TECHNOLOGY

COURSE CONTENT

Lectures: 2 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	04
3.1	Web browsers and their functions	
3.2	Search Engine and their applications	
3.3	Web Server, Proxy Server	
4.	COMMUNICATION USING INTERNET	06
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 INFORMATION TECHNOLOGY

SEMESTER: THIRD  
COURSE CODE: 304  
NAME OF COURSE: INTERNET & WEB TECHNOLOGY

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: 5010

COURSE CONTENT

Lectures: 2 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	08
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



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**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
(FORMERLY M. P. BOARD OF TECHNICAL EDUCATION, BHOPAL.)

**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **THIRD**  
COURSE CODE: **304**  
NAME OF COURSE: **INTERNET & WEB TECHNOLOGY**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5010**

**LIST OF EXPERIMENTS**

Practical: 6 Hrs. per Week

S. NO.	Name of experiments	Hours of Study
1.1	Configuring modem	4
2.2	Configuring Internet Connection	4
3.1	Configuring Browser with emphasis on security	5
3.2	Using Browser; Internet Explorer / Netscape Navigator	2
3.3	Internet Surfing	6
3.4	Using Search Engines	6
3.5	Using Advanced Search Techniques	10
4.1	Create on e-mail account for yourself	4
4.2	Using your e-mail account to send e-mail	5
4.3	Download the latest cartoon from amul.com and send it as an attachment to your friends	2
4.4	Creating and maintaining address book	2
4.5	Creating and maintaining mailing list	2
4.6	Configuring e-mail Clients	2
4.7	Receiving and printing e-mail	2
5.	Download using FTP	8
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.	20
6.2	Uploading a Web Page on Server	4
6.3	Design a personal home page including image and give a five-page write up on it.	3
7.	Using e-commerce sites	5
	<b>Total</b>	<b>96</b>

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**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: THIRD

COURSE CODE: 304

NAME OF COURSE: INTERNET & WEB TECHNOLOGY

SCHEME: Dip. IT\_September' 2000

COMMON WITH PROGRAMME (S):

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 Mc-graw Hill publishing company limited, New Delhi.
- Design Web Pages, BPB Publication.

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**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
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**DIPLOMA IN INFORMATION TECHNOLOGY**

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

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
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 pandits expect that C++ will replace C as a general-purpose programming language. C++ is the language of future.



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**DIPLOMA IN INFORMATION TECHNOLOGY**

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

SCHEME: Dip. IT September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: 5011

Lectures: 3 Hrs. per week  
Practical: 5 Hrs. per week

**SCHEME OF STUDIES**

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	Principles of Object-Oriented Programming	02	08	10
2.	Beginning with C++	02	-	02
3.	Overview of Token, Expressions and Control Structures	06	12	18
4.	Functions in C++	04	10	14
5.	Classes and Objects	08	12	20
6.	Constructors and Destructors	04	08	12
7.	Operators & Function Overloading	04	-	04
8.	Inheritance	06	06	12
9.	Pointers, Virtual Functions and Polymorphism	04	12	16
10.	I/O Systems	06	12	18
11.	Special Classes	02	-	02
<b>Total</b>		<b>48</b>	<b>80</b>	<b>128</b>

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**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
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**DIPLOMA IN INFORMATION TECHNOLOGY**

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

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5011**

**SPECIFICATION TABLE**

Lectures: **3 Hrs. per week**  
Practical: **5 Hrs. per week**

S. NO.	TOPIC	LECT. HOURS.	MARKS ALLOTTED (Approximate)
1	Principles of Object-Oriented Programming	02	5
2	Beginning with C++	02	5
3	Overview of Token, Expressions and Control Structures	06	5
4	Functions in C++	04	10
5	Classes and Objects	08	15
6	Constructors and Destructors	04	10
7	Operators & Function Overloading	04	10
8	Inheritance	06	10
9	Pointers, Virtual Functions and Polymorphism	04	10
10	I/O Systems	06	10
11	Special Classes	02	10
	<b>Total</b>	<b>48</b>	<b>100</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: THIRD

COURSE CODE: 305

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

SCHEME: Dip. IT\_September' 2000

COMMON WITH PROGRAMME (S):

PAPER CODE: 5011

**COURSE CONTENT**

Lectures: 3 Hrs. per week

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 &amp; 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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## DIPLOMA IN INFORMATION TECHNOLOGY

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

SCHEME: Dip. IT September 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5011**

### COURSE CONTENT

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
5.	<b>CLASSES AND OBJECTS</b> 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.	<b>CONSTRUCTORS AND DESTRUCTORS</b> Constructors, Parametric Constructors, Multiple Constructors in a Class, Constructors with Default Arguments, Dynamic Initialization of Objects, Copy Constructor, Dynamic Constructor, Destructors.	04
7.	<b>OPERATORS AND FUNCTIONS OVERLOADING</b> 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.	<b>INHERITANCE</b> 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.	<b>POINTERS, VIRTUAL FUNCTIONS AND POLYMORPHISM</b> Pointers to Objects, This Pointer, Pointers to Derived Classes, Virtual Functions, Pure Virtual Functions.	04

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## DIPLOMA IN INFORMATION TECHNOLOGY

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

SCHEME: Dip. IT September' 2000  
 COMMON WITH PROGRAMME (S):  
 PAPER CODE: 5011

## COURSE CONTENT

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
10.	<p><b>I/O SYSTEMS</b></p> <p><u>Console I/O</u>: 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, <u>Overloading &lt;&lt; and &gt;&gt;</u>: Creating Your Own Inserters, Creating Your Own Extractors, Creating Parameter-less Manipulators, Creating Parameterized Manipulators.</p> <p><u>File Operations</u> : 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><b>SPECIAL CLASSES</b></p> <p><u>String classes</u>: Defining the string type, the string class, constructor, destructor functions, I/O on string assignment functions, concatenation, substring subtraction, relational operators.</p> <p><u>Linked List Class</u>: Doubly Linked List based classes, Displaying the list, changing and finding an object in list.</p>	02

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**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
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**DIPLOMA IN INFORMATION TECHNOLOGY**

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

SCHEME: Dip. IT September 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5011**

**LIST OF EXPERIMENTS**

Practical: 5 Hrs. per Week

S. No.	Name of experiments	Hours of study
1.	C++ programs based on course contents: 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.	
	<b>Total</b>	<b>80</b>



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**DIPLOMA IN INFORMATION TECHNOLOGY**

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

SCHEME: Dip. IT \_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5011**

**REFERENCES**

**TEXT BOOKS**

- Balguruswamy E. (2001), Object-Oriented Programming with Turbo C++, 3<sup>rd</sup> edition, TMH.
- Lafore Rober, 2001), Object-Oriented Programming in Turbo C++, 3<sup>rd</sup> 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++.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: THIRD**  
**COURSE CODE: 306**  
**NAME OF COURSE: PROFESSIONAL ACTIVITIES**

**SCHEME: Dip. IT September' 2000**  
**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 can not 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.

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**CURRICULUM**

**FOR**

**DIPLOMA IN INFORMATION TECHNOLOGY**

**(FOURTH SEMESTER)**

Scheme: Dip. IT\_September 2000  
Implemented from session 2000-2001  
Under semester system

JULY 2001

**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**  
**COURSE CODE: 401**  
**NAME OF COURSE: SYSTEM ANALYSIS AND DESIGN**

**SCHEME: Dip. IT \_September' 2000**  
**COMMON WITH PROGRAMME (S):**  
**PAPER CODE: 5012**

**RATIONALE**

The course emphasizes on study of phases involved in the analysis of existing system, determining its shortcomings and provides tools for designing new system.

Study of this course will enable students to analysis, design, develop, implement and maintain computer based information systems. The course leads to awareness with various system development methodologies. A case study applying these tools will enable learner to put theoretical knowledge into practical context, which will consequently result into optimized, bugs free software packages.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **401**  
NAME OF COURSE: **SYSTEM ANALYSIS AND DESIGN**

SCHEME: Dip. IT September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5012**

**SCHEME OF STUDIES**

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

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		Total
		Theory	Practical	
1.	System Concepts and SDLC	11	-	11
2.	Planning and Analysis	18	-	18
3.	System Design	14	-	14
4.	Implementation and Testing	11	-	11
5.	Software Engineering	10	-	10
6.	Case Study (Assignment)	-	-	-
	<b>Total</b>	<b>64</b>	<b>-</b>	<b>64</b>

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**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**  
**COURSE CODE: 401**  
**NAME OF COURSE: SYSTEM ANALYSIS AND DESIGN**

SCHEME: Dip. IT \_September 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: 5012

**SPECIFICATION TABLE**

Lectures: 4 Hrs. per week

S. NO.	TOPIC	LECT. HOURS.	MARKS ALLOTTED (Approximate)
1.	System Concepts and SDLC	11	15
2.	Planning and Analysis	18	25
3.	System Design	14	25
4.	Implementation and Testing	11	20
5.	Software Engineering	10	15
6.	Case Study (Assignment)	-	-
<b>TOTAL</b>		64	100



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**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **401**  
NAME OF COURSE: **SYSTEM ANALYSIS AND DESIGN**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5012**

**COURSE CONTENT**

Lectures: 4 Hrs. per week

S. NO	Course Content	Hours of Study
1.	SYSTEM CONCEPT AND SDLC	11
1.1	System Concept; Definition, Characteristics, Elements, Types	
1.2	SDLC; Preliminary Investigation, Determination of System Environment, Design of System, Development of Software, System Testing, Implementation, Evaluation and Maintenance	
1.3	Roles And Responsibilities Of Programmer, System Analyst And Project Leader	
2.	PLANNING AND ANALYSIS	18
2.1	Initial Investigation; Need Identification, Determining user requirement, Problem Definition and Project Initiation, Background Analysis.	
2.2	Information Gathering; Types of Information, Levels of Information, Tools of Information Gathering	
2.3	Analysis; Structured Analysis Definition, Tools for Structure Analysis viz. DFD, Data Dictionary, Decision Tree, Decision Table, Structured English, Pros and Cons of each tool.	
2.4	Feasibility Study; Feasibility Considerations, Steps involved in Feasibility Analysis, Feasibility Report, Oral Presentation	
2.5	Cost-Benefit Analysis, Tangible or Intangible costs & benefits, Direct or indirect costs & benefits, Fixed or variable costs & benefits	
3.0	SYSTEM DESIGN	14
3.1	Process and Stages of System Design	
3.2	Logical and Physical Design	
3.3	Design Methodologies	
3.4	Audit Consideration	
3.5	Process Control & Data Validations	
3.6	Input output and form design ;Form definition, Classification , Types.	

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DIPLOMA IN INFORMATION TECHNOLOGY

SEMESTER: FOURTH  
 COURSE CODE: 401  
 NAME OF COURSE: SYSTEM ANALYSIS AND DESIGN

SCHEME: Dip. IT\_September' 2000  
 COMMON WITH PROGRAMME (S):  
 PAPER CODE: 5012

**COURSE CONTENT**

Lectures: 4 Hrs. per week

S. NO	Course Content	Hours of Study
4.0	IMPLEMENTATION AND TESTING	11
4.1	Hardware and Software Selection System security	
4.2	Control Measures	
4.3	System Testing: Alpha and Beta Testing, Module and integration testing, Black box and white box testing	
5.0	SOFTWARE ENGINEERING	10
5.1	Software quality	
5.2	Quality considerations	
5.3	Quality Assurance	
5.4	Quality Control	
5.5	Concept of Software Engineering	
5.6	Layered Technology	
5.7	Software Engineering Models	
6.0	<p><b>Case Study:</b> Students are expected to compulsorily submit a case study as a part of assignment, to put into practical context, the tools of analysis and design learned during the course, and suggest strategies for system improvements. The cases must be drawn from real life situations and reflect practical problems. Some of the examples for doing case study are inventory, office automation, examination, and admission, library Management etc.</p> <p><b>Note:</b> There will be no questions in theory examination from this topic.</p>	

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**

COURSE CODE: **401**

NAME OF COURSE: **SYSTEM ANALYSIS AND DESIGN**

SCHEME: Dip. IT\_September' 2000

COMMON WITH PROGRAMME (S):

PAPER CODE: **5012**

**REFERENCES**

**TEXT BOOK:**

- Eward E.A., System Analysis and Design, Galgotia Publication

**REFERENCE:**

- Pressman R., Software Engineering- A Practitioner Approach, Mc Graw Hill
- Senn A.M., System Analysis and Design



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**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: FOURTH  
COURSE CODE: 402  
NAME OF COURSE: DATA COMMUNICATION

SCHEME: Dip. IT September' 2000  
COMMON WITH PROGRAMME (S):  
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.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **402**  
NAME OF COURSE: **DATA COMMUNICATION**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5013**

**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.	Data Communication Concept & Technology	08	-	08
2.	Transmission Media	10	20	30
3.	Modulation and Data Modems	10	06	16
4.	Multi-channel Data Communication	08	-	08
5.	Error Control	06	-	06
6.	Data Networks	04	-	04
7.	Fibre Optic Communication	06	-	06
8.	Data Communication System	06	06	12
9.	Introduction to Mobile Technology	06	-	06
	<b>Total</b>	<b>64</b>	<b>32</b>	<b>96</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **402**  
NAME OF COURSE: **DATA COMMUNICATION**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5013**

**SPECIFICATION TABLE**

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

S. NO.	TOPIC	LECT. HOURS.	MARKS ALLOTTED (Approximate)
1.	Data Communication Concept & Technology	08	06
2.	Transmission Media	10	20
3.	Modulation and Data Modems	10	20
4.	Multiplexing	08	12
5.	Error Control	07	12
6.	Data Networks	07	05
7.	Fibre Optic Communication	07	10
8.	Introduction to Mobile Technology & Satellite Communication	07	15
	<b>TOTAL</b>	64	100



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**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
(FORMERLY M. P. BOARD OF TECHNICAL EDUCATION, BHOPAL.)

**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: FOURTH  
COURSE CODE: 402  
NAME OF COURSE: DATA COMMUNICATION

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
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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## DIPLOMA IN INFORMATION TECHNOLOGY

SEMESTER: FOURTH  
 COURSE CODE: 402  
 NAME OF COURSE: DATA COMMUNICATION

SCHEME: Dip. IT\_September' 2000  
 COMMON WITH PROGRAMME (S):  
 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 <sub>ma2000</sub>	
8.6	HDR Technology	
8.7	Wide Band CD <sub>ma</sub> (W_CD <sub>ma</sub> ) Technology	
8.8	Comparison of W_CD <sub>ma</sub> & CD <sub>ma2000</sub>	

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **402**  
NAME OF COURSE: **DATA COMMUNICATION**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
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
	<b>Total</b>	<b>32</b>



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SEMESTER: FOURTH

COURSE CODE: 402

NAME OF COURSE: DATA COMMUNICATION

SCHEME: Dip. IT \_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: 5013

**REFERENCES**

- Barte, 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.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**  
**COURSE CODE: 403**  
**NAME OF COURSE: LAN DESIGN & ITS IMPLEMENTATION**  
**SCHEME: Dip. IT September' 2000**  
**COMMON WITH PROGRAMME (S):**  
**PAPER CODE: 5014**

**RATIONALE**

It is an era of Networking and Internet. Both play an important role in the field of Information Technology that's why a course on LAN finds its place in the curriculum of I.T. education. The course gives an understanding of the major features and application of computer networks.

By studying this course, students will develop knowledge and practical experience of networks and related topics so as to enable them, design LAN and use internet.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**  
**COURSE CODE: 403**  
**NAME OF COURSE: LAN DESIGN & ITS IMPLEMENTATION**  
**SCHEME: Dip. IT \_September' 2000**  
**COMMON WITH PROGRAMME (S):**  
**PAPER CODE: 5014**

**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 Computer Network	08	02	10
2.	Transmission Media	10	10	20
3.	Network Component	05	08	13
4.	LAN Access Techniques	10	-	10
5.	Network Interconnection	08	02	10
6.	Network Operating System	15	08	23
7.	Network Administration and Security	08	02	10
	<b>Total</b>	<b>64</b>	<b>32</b>	<b>96</b>



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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: FOURTH  
COURSE CODE: 403  
NAME OF COURSE: LAN DESIGN & ITS IMPLEMENTATION  
SCHEME: Dip. IT September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: 5014

**SPECIFICATION TABLE**

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

S. NO.	TOPIC	LECT. HOURS.	MARKS ALLOTTED (Approximate)
1.	Introduction to Computer Network	08	10
2.	Transmission Media	10	15
3.	Network Component	05	10
4.	LAN Access Techniques	10	20
5.	Network Interconnection	08	15
6.	Network Operating System	15	15
7.	Network Administration and Security	08	15
<b>TOTAL</b>		<b>64</b>	<b>100</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**

COURSE CODE: **403**

NAME OF COURSE: **LAN DESIGN & ITS IMPLEMENTATION**

SCHEME: Dip. IT\_September' 2000

COMMON WITH PROGRAMME (S):

PAPER CODE: **5014**

**COURSE CONTENT**

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	INTRODUCTION TO COMPUTER NETWORK	08
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; Study of following Network Architecture Point to Point , Broad Casting , Store and forward	
1.5	Study of following Network Models; OSI Reference Models , TCP/IP Network Model	
1.6	LAN Topologies; BUS, STAR, RING, TREE, MESH	
2.	TRANSMISSION MEDIA	10
	Twisted pair, RS-232, X-2.5, Co-axial Cable (Base band, broad band), UTP/STP Fibre optics, Limitation and capabilities of each	
3.	NETWORK COMPONENT	05
3.1	Study of following; NIC, HUBs (Active & Passive)	
3.2	Repeaters	
3.3	Types of switches	
3.4	Connectors	
4.	LAN ACCESS TECHNIQUES	10
4.1	Network Protocols	
4.2	MAC Sub layer access Protocols	
4.3	ALOHA, CSMA, CSMA/CD (Introduction)	
4.4	IEEE 802.2, 802.3, 802.4, 802.5 & their Comparison	
4.5	IP Addressing	

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DIPLOMA IN INFORMATION TECHNOLOGY

SEMESTER: FOURTH

COURSE CODE: 403

NAME OF COURSE: LAN DESIGN & ITS IMPLEMENTATION

SCHEME: Dip. IT\_September' 2000

COMMON WITH PROGRAMME (S):

PAPER CODE: 5014

COURSE CONTENT

Lectures: 4 Hrs. per week

S. NO.	Course Content	Hours of Study
5.0	NETWORK INTERCONNECTION	08
5.1	Bridges, Routers & Gateways	
5.2	Structured Cabling	
6.0	NETWORK OPERATING SYSTEM (Case Study)	15
6.1	Windows 2000, Windows NT	
6.2	PDC (Primary Domain Controller)	
6.3	Installation of Internet Information Server	
7.0	NETWORK ADMINISTRATION AND SECURITY	08
7.1	Administrating Network	
7.2	Network Security	
7.3	Securing Server, work station and Password	



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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: FOURTH

COURSE CODE: 403

NAME OF COURSE: LAN DESIGN & ITS IMPLEMENTATION

SCHEME: Dip. IT\_September' 2000

COMMON WITH PROGRAMME (S):

PAPER CODE: 5014

**LIST OF EXPERIMENTS**

Practical: 2 Hrs. per Week

S. NO.	Name of experiments	Hours of Study
1.	Study of LAN Topologies	02
2.	Study of LAN Components	06
3.	Preparation of Different Cables	04
4.	Preparation of cross Cable	04
5.	Testing of Cables & NIC	02
6.	Hub installation	02
7.	Study of Structured Cabling	02
8.	Installation of Windows Network Operating System	04
9.	Practical implementation of File Sharing, Program Sharing, Printer Sharing using Network Operating System	04
10.	Learning of server Administrative utilities e.g. user creation, Resource Management.	02
	<b>Total</b>	<b>32</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: FOURTH

COURSE CODE: 403

NAME OF COURSE: LAN DESIGN & ITS IMPLEMENTATION

SCHEME: Dip. IT\_September' 2000

COMMON WITH PROGRAMME (S):

PAPER CODE: 5014

**REFERENCES**

**TEXT BOOK:**

- Gerd E. Keiser (1997), Local Area Network, Tata Mc Graw-Hill Company Ltd. New Delhi.
- Michael Dortch (1990), The ABC of Local Area Network, BPB Pub. New Delhi

**REFERENCE:**

- Matt Hayden, Teach you Self Network in 24 Hours, Sam's Publishing Tech. Media.
- Christa Anderson, Mastering LAN, BPB Publication New Delhi.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

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

SCHEME: Dip. IT\_September' 2000

**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 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.



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**DIPLOMA IN INFORMATION TECHNOLOGY**

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

SCHEME: Dip. IT\_September' 2000

**SCHEME OF STUDIES**

Lectures: **1 Hr.** per week  
Practical: **8 Hrs.** per week

S. No.	TOPIC	CONTACT HOURS PER WEEK		
		THEORY	PRACTICAL	TOTAL
1.	Minor Project	16	128	144
	<b>Total</b>	16	128	144

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**

SCHEME: Dip. IT\_September' 2000

COURSE CODE: **404**

NAME OF COURSE: **MINOR PROJECT**

**COURSE GUIDELINES**

Lectures: **1 Hr.** per week

Practical: **8 Hrs.** per week

SR	Detailed Course Guidelines	STUDY HRS
1	<p><b>Minor Project Guidelines:</b> 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) Outline and action plan for the project execution (time schedule) must be submitted by the student 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"><li>&gt; Project objective.</li><li>&gt; Selection of tools. (Hardware and Software)</li><li>&gt; Analysis of project. (Input requirement analysis, DFD, Data Dictionary Data Bases. Flow Chart, Structured language, Algorithm, Program modules, Master and Transaction files)</li><li>&gt; Coding, Testing of project (including source code listing).</li><li>&gt; Designing a small user manual.</li><li>&gt; System requirement for designed software.</li><li>&gt; Future scope and suggestion.</li></ul> <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"><li>&gt; OOPs Languages</li><li>&gt; Visual packages</li><li>&gt; Graphic packages</li><li>&gt; Web Design supporting packages and tools (HTML, DHTML, XML etc.)</li></ul>	16+128 = 144

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DIPLOMA IN INFORMATION TECHNOLOGY

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

SCHEME: Dip. IT \_September' 2000

COURSE GUIDELINES

Lectures: 1 Hr. per week  
Practical: 8 Hrs. per week

S. No.	Detailed Course guidelines	Hours of study
	iv) Suggested areas of project <ul style="list-style-type: none"><li>➤ Window based applications</li><li>➤ Web Technology based applications</li><li>➤ Database management systems</li><li>➤ Graphic based application</li><li>➤ Automation</li></ul>	



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DIPLOMA IN INFORMATION TECHNOLOGY

SEMESTER: FOURTH

COURSE CODE: 405 (Elective-I)

NAME OF COURSE: DESK TOP PUBLISHING

SCHEME: Dip. IT SEPTEMBER'2000  
COMMON WITH PROGRAMME (S) :  
PAPER CODE: 5015

RATIONALE

This course is aimed at enabling the student to become creative designer, an effective taskmaster or a good publisher. Hence, this subject is of vital importance to polytechnic students from the viewpoint of job potential.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**  
**COURSE CODE: 405 (Elective-I)**  
**NAME OF COURSE: DESK TOP PUBLISHING**

**SCHEME: Dip. IT SEPTEMBER'2000**  
**COMMON WITH PROGRAMME (S) :**  
**PAPER CODE: 5015**

**SCHEME OF STUDIES**

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

S. NO	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		Total
		Theory	Practical	
1.	INTRODUCTION TO DTP	02	02	04
2.	PAGE MAKER	16	10	26
3.	COREL DRAW	18	10	28
4.	ADOBE PHOTO SHOP	08	06	14
5.	SCANNING AND PRINTING	04	04	08
	<b>Total</b>	<b>48</b>	<b>32</b>	<b>80</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**

**COURSE CODE: 405 (Elective-I)**

**NAME OF COURSE: DESK TOP PUBLISHING**

SCHEME: Dip. IT SEPTEMBER'2000  
COMMON WITH PROGRAMME (S) :  
PAPER CODE: 5015

**SPECIFICATION TABLE**

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

S. NO.	TOPIC	LECT. HOURS.	MARKS ALLOTTED (Approximate)
1.	Introduction to DTP	02	15
2.	Page Maker	16	25
3.	Corel Draw	18	25
4.	Adobe Photo Shop	08	20
5.	Scanning and Printing	04	15
<b>TOTAL</b>		<b>48</b>	<b>100</b>



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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **405 (Elective-I)**  
NAME OF COURSE: **DESK TOP PUBLISHING**

SCHEME: Dip. IT SEPTEMBER'2000  
COMMON WITH PROGRAMME (S) :  
PAPER CODE: **5015**

**COURSE CONTENT**

Lectures: **3 Hrs.** per week

S. No.	Course Content	Hours of study
1.	INTRODUCTION TO DTP	02
1.1	Concept of DTP	
1.2	Advantages of DTP	
1.3	Use of DTP in Advertisement, Publication, Newspaper, Magazines etc.	
1.4	Hardware & Software requirements for DTP	
2.	PAGE MAKER	16
	Study following features:	
2.1	Introduction:	
2.2	Page maker Icon & Help	
2.3	Tools, ToolBox, Styles, Menu etc.	
2.4	Different screen views.	
2.5	Page layout concept.	
2.6	Fonts, Point size, Spacing etc.	
2.7	Importing/Exporting Text & Graphics.	
2.8	Autoflow, columns, Master Pages & Stories.	
2.9	Story Editor	
2.10	Menu Commands & short cut Commands.	
2.11	Formatting Viz.Tab, Paragraph, Hypernation	
2.12	Typography & Indents Working with multiple files.	
3.	COREL DRAW	18
	To make student conversant with following :-	
3.1	Introduction :	
3.2	Creating logos and Drawing Complex	
3.3	Art works, Special Text effects like Extrude, Lenses, Perspective etc.	
3.4	Vector Curve Drawing	
3.5	Utility Tools	

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## DIPLOMA IN INFORMATION TECHNOLOGY

SEMESTER: FOURTH  
 COURSE CODE: 405 (Elective-I)  
 NAME OF COURSE: DESK TOP PUBLISHING

SCHEME: Dip. IT SEPTEMBER'2000  
 COMMON WITH PROGRAMME (S) :  
 PAPER CODE: 5015

## COURSE CONTENT

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
3.6	Creating and Editing shapes	
3.7	Colour Palette	
3.8	Typography and Calligraphy	
3.9	Creating Graphical layout and 3 D- effect	
4.	<b>ADOBE PHOTO SHOP</b>	08
	To make student conversant with following	
4.1	Introduction	
4.2	Understanding, Various, Image forms, BMP, JPEG, TIF, PCX, GIF, etc.	
4.3	Various Layouts	
4.4	Controlling Brightness and contrast, RGB Setting.	
4.5	Embossing, Blur Effect, chisel, wax coating.	
4.6	Transparent, Background, perform-rotation, resizing.	
4.7	Apply various filters, apply digital effects over image.	
4.8	Create four colour CYMK Separations	
5.	<b>SCANNING AND PRINTING</b>	04
5.1	Scanning	
5.1.1	Understanding use of scanner	
5.1.2	Knowledge of Scanning and cropping a picture	
5.1.3	Importing scanned image to Page maker and Corel Draw	
5.2	Printing	
5.2.1	Introduction	
5.2.2	Types of Printing	
5.2.3	Knowledge of offset Printing	
5.2.4	Awareness with Transparent printout, Negative & Positive for plateware making	
5.2.5	Advantages of Laser Printer in DTP	

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **405 (Elective-I)**  
NAME OF COURSE: **DESK TOP PUBLISHING**

SCHEME: Dip. IT SEPTEMBER'2000  
COMMON WITH PROGRAMME (S) :  
PAPER CODE: **5015**

**LIST OF EXPERIMENTS**

Practical: 2 Hrs .Per Week

S.No.	Name of experiments	Hours of Study
1	Using Corel Draw and Page maker for Designing and Printing pages. with simple layout, multiple columns and with inlay graphics.	
2.	Using Scanner and images Handling tools for scanning & Cropping Images.	
3.	Creating various image effects using Adobe Photo Shop.	
4.	Importing images/pictures from other DTP related software like thumbs Instant Artist etc. to Page Maker	
5.	Design Brochures, Visiting cards, Invitation cards, Greeting cards:	
	5.1 Collect matter for Brochures, Visiting cards, Invitation cards, Greeting cards etc.	
	5.2 Design above matter into PageMaker using related s/w (viz. Coreldraw,Thumbs etc)	
	5.3 Print the final shape of above matter .	
	5.4 Print the above matter on transparent sheet.	
	5.5 Prepare plates for offset/Screen printing.	
	5.6 Take final printout on cards/sheets.	
	<b>Total</b>	<b>32</b>



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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: FOURTH

COURSE CODE: 405 (Elective-I)

NAME OF COURSE: DESK TOP PUBLISHING

SCHEME: Dip. IT SEPTEMBER'2000

COMMON WITH PROGRAMME (S) :

PAPER CODE: 5015

**REFERENCES**

TEXT BOOK:

- Sharma M.C., Desktop Publishing on PC, BPB Publication
- Altman, Mastering Page maker for Windows, , BPB Publication,
- Altman, Mastering Corel Draw for Windows, BPB Publication.
- Matt straznitskas, Mastering PhotoShop, BPB Publication.

REFERENCE:

- Vishnu Priya Singh , 'O' level computer course.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**  
**COURSE CODE: 405 (ELECTIVE-I)**  
**NAME OF COURSE: COMPUTERISED FINANCIAL ACCOUNTING**

**SCHEME: Dip. IT, September, 2000**  
**COMMON WITH PROGRAMME (S):**  
**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.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **405 (ELECTIVE-I)**  
NAME OF COURSE: **COMPUTERISED FINANCIAL  
ACCOUNTING**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5016**

**SCHEME OF STUDIES**

Lectures: **03** Hrs. per week

Practical: **02** Hrs. per week

S. NO.	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	Account Entries	13	05	18
2.	Cash Book and Bank Book	05	05	10
3.	Subsidiary Books and Final Accounts	14	05	19
4.	Inventory Accounting	05	-	05
5.	Accounting Software Packages	11	17	28
	<b>Total</b>	48	32	80



**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
(FORMERLY M. P. BOARD OF TECHNICAL EDUCATION, BHOPAL.)

**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**  
**COURSE CODE: 405 (ELECTIVE-I)**  
**NAME OF COURSE: COMPUTERISED FINANCIAL ACCOUNTING**

SCHEME: Dip. IT \_September\_ 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: 5016

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

**SPECIFICATION TABLE**

S. NO.	TOPIC	LECT. HOURS.	MARKS ALLOTTED (Approximate)
1.	Account Entries	13	20
2.	Cash Book and Bank Book	05	20
3.	Subsidiary Books and Final Accounts	14	30
4.	Inventory Accounting	05	10
5.	Accounting Software Packages	11	20
<b>TOTAL</b>		<b>48</b>	<b>100</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: FOURTH  
COURSE CODE: 405 (ELECTIVE-I)  
NAME OF COURSE: COMPUTERISED FINANCIAL  
ACCOUNTING

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
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	Formates 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 Preparaing 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 INFORMATION TECHNOLOGY

SEMESTER: FOURTH  
COURSE CODE: 405 (ELECTIVE-I)  
NAME OF COURSE: COMPUTERISED FINANCIAL ACCOUNTING

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
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.	
	<b>TOTAL</b>	48



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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **405 (ELECTIVE-I)**  
NAME OF COURSE: **COMPUTERISED FINANCIAL ACCOUNTING**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
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
	<b>Total</b>	<b>32</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: FOURTH

COURSE CODE: 405 (ELECTIVE-I)

NAME OF COURSE: **COMPUTERISED FINANCIAL  
ACCOUNTING**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: 5016

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- Shukla S.M., Financial Accounting, Sahitya Bhavan, Agra
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- Smart Computing, June 2001, Jasubhai Digital Media, Page 70-79.

20/90

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **406 (ELECTIVE-II)**  
NAME OF COURSE: **ENVIRONMENTAL ENGG.**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
**C03, M02, E01 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.



20/91

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **406 (ELECTIVE-II)**  
NAME OF COURSE: **ENVIRONMENTAL ENGG.**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
**C03, M02, E01 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
	<b>Total</b>	<b>48</b>	<b>-</b>	<b>48</b>

20/92

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **406 (ELECTIVE-II)**  
NAME OF COURSE: **ENVIRONMENTAL ENGG.**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
**C03, M02, E01 AND OTHERS**  
PAPER CODE: **0262**

**COURSE CONTENT**

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	<p><b>INTRODUCTION:</b></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><b>AIR QUALITY: DEFINITION, CHARACTERISTIC &amp; PERSPECTIVES</b></p> <p>Air Pollution- Historical overview, global implication of Air Pollution, Units of measurement, sources of pollutants.</p> <p>Classification of Pollutants – Particulates, 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><b>METEOROLOGY &amp; NATURAL PURIFICATION PROCESSES:</b></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 &amp; dispersion, Pressure system &amp; Dispersion winds &amp; dispersion moisture and dispersion, modeling.</p> <p>Effects of air Pollution on Meteorological conditions- changes on the Meso scale &amp; Micro scale, changes on Macro scale</p>	06
4.	<p><b>ENGINEERED SYSTEMS FOR AIR POLLUTION CONTROL:</b></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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## DIPLOMA IN INFORMATION TECHNOLOGY

SEMESTER: FOURTH  
 COURSE CODE: 406 (ELECTIVE-II)  
 NAME OF COURSE: ENVIRONMENTAL ENGG.

SCHEME: Dip. IT\_September' 2000  
 COMMON WITH PROGRAMME (S):  
 C03, M02, E01 AND OTHERS  
 PAPER CODE: 0262

## COURSE CONTENT

Lectures: 3 Hrs. per week

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, use 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 control 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



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## DIPLOMA IN INFORMATION TECHNOLOGY

SEMESTER: FOURTH  
COURSE CODE: 406 (ELECTIVE-II)  
NAME OF COURSE: ENVIRONMENTAL ENGG.

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
C03, M02, E01 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

20/95

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: FOURTH  
COURSE CODE: 406 (ELECTIVE-II)  
NAME OF COURSE: ENVIRONMENTAL ENGG.

SCHEME: Dip. IT \_September' 2000  
COMMON WITH PROGRAMME (S):  
C03, M02, E01 AND OTHERS  
PAPER CODE: 0262

**REFERENCES**

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- Nelson L. Vernerow, Liquid waste of industry, theories, practices and treatment
- Flint off, Management of solid waste in Developing Countries
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- Jennings H. Burgess, Thermal Environment
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20/96

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**

**COURSE CODE: 406 (ELECTIVE-II)**

**NAME OF COURSE: MARKETING MANGEMENT**

**SCHEME: Dip. IT \_September' 2000**

**COMMON WITH PROGRAMME (S):**

**C03, M02, E01 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.



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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **406 (ELECTIVE-II)**  
NAME OF COURSE: **MARKETING MANGEMENT**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
**C03, M02, E01 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
	<b>Total</b>	<b>48</b>	<b>-</b>	<b>48</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: FOURTH  
COURSE CODE: 406 (ELECTIVE-II)  
NAME OF COURSE: MARKETING MANGEMENT

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
C03, M02, E01 AND OTHERS  
PAPER CODE: 0269

**COURSE CONTENT**

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	<p><b>MARKETING AND ITS APPLICATION</b></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><b>MARKETING SYSTEM AND ENVIRONMENT</b></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><b>MARKETING PLANNING AND ORGANISATION</b></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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## DIPLOMA IN INFORMATION TECHNOLOGY

SEMESTER: **FOURTH**  
COURSE CODE: **406 (ELECTIVE-II)**  
NAME OF COURSE: **MARKETING MANGEMENT**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
**C03, M02, E01 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.	<b>UNDERSTANDING CONSUMERS</b> Major factors influencing consumer behaviors – Cultural, Social, personal and Psychological factors, Buying Decision process Types of buying behavior, Indian consumer markets.	04
5.	<b>PRODUCT MANAGEMENT</b> 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.	<b>MARKETING STRATEGIES</b> 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



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## DIPLOMA IN INFORMATION TECHNOLOGY

SEMESTER: FOURTH

COURSE CODE: 406 (ELECTIVE-II)

NAME OF COURSE: MARKETING MANGEMENT

SCHEME: Dip. IT\_September' 2000

COMMON WITH PROGRAMME (S):

C03, M02, E01 AND OTHERS

PAPER CODE: 0269

### COURSE CONTENT

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
7.	<p><b>MARKETING FUNCTIONS</b></p> <p>Introduction, classification, Marketing</p> <p>Marketing communications- Process, objectives</p> <p>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.</p> <p>Deciding on the media- Deciding on the reach, frequency and impact.</p> <p>Selection of major media types, selecting specific media vehicles, deciding on media timing, evolution of effectiveness of advertising communication effect research, sales effect research.</p> <p>Sales Promotion; Objectives, tools of sales promotion, development , presentation, implementation and control of sales promotion programme, Evaluation of sales promotion programmes,</p> <p>Publicity; Objectives, Selection of publicity message and vehicle, implementation and evaluation of publicity programmes.</p>	12
8.	<p><b>MARKET MEASUREMENT, DISTRIBUTION AND CONTROL STRATEGY</b></p> <p>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.</p>	04

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **406 (ELECTIVE-II)**  
NAME OF COURSE: **MARKETING MANGEMENT**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
**C03, M02, E01 AND OTHERS**  
PAPER CODE: **0269**

**REFERENCES**

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- 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, Mc Graw Hill.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**  
**COURSE CODE: 406 (ELECTIVE-II)**  
**NAME OF COURSE: ENTREPRENEURSHIP**

**SCHEME: Dip. IT\_September' 2000**  
**COMMON WITH PROGRAMME (S):**  
**C03, M02, E01 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 18<sup>th</sup> 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.



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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: FOURTH  
COURSE CODE: 406 (ELECTIVE-II)  
NAME OF COURSE: ENTREPRENEURSHIP

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
C03, M02, E01 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
	<b>Total</b>	48		48

20/104

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **406 (ELECTIVE-II)**  
NAME OF COURSE: **ENTREPRENEURSHIP**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
**C03, M02, E01 AND OTHERS**  
PAPER CODE: **0271**

**COURSE CONTENT**

Lectures: 3 Hrs. per week

S. NO.	Course Content	Hours of Study
1.	<b>ENTREPRENEUR –HIS QUALITIES AND FUNCTIONS;</b> Concept of Entrepreneur, Types of Entrepreneur, Qualities of an Entrepreneur, Example of Entrepreneur.	04
2.	<b>SMALL SCALE INDUSTRY – ITS GROWTH AND SIGNIFICANCE;</b> 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.	<b>SUPPORT AGENCIES FOR PROMOTING AND DEVELOPING ENTREPRENEURSHIP</b> 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.	<b>PLANNING AN INDUSTRIAL UNIT</b> 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.	<b>ACHIEVEMENT MOTIVATION</b> 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 INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**  
**COURSE CODE: 406 (ELECTIVE-II)**  
**NAME OF COURSE: ENTREPRENEURSHIP**

**SCHEME: Dip. IT \_September' 2000**  
**COMMON WITH PROGRAMME (S):**  
**C03, M02, E01 AND OTHERS**  
**PAPER CODE: 0271**

**COURSE CONTENT**

Lectures: 3 Hrs. per week

S. No.	Course Content	Hours of study
6.	<b>PROJECT COST AND ITS FINANCING</b> 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.	08
7.	<b>PLANNING AND PREPARING OF PROJECT REPORT</b> 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. In addition to above, the students are advised to- 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



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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**

**COURSE CODE: 406 (ELECTIVE-II)**

**NAME OF COURSE: ENTREPRENEURSHIP**

SCHEME: Dip. IT \_September 2000  
COMMON WITH PROGRAMME (S):  
C03, M02, E01 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.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**  
**COURSE CODE: 406 (Elective-II)**  
**NAME OF COURSE: OFFICE MANAGEMENT**

**SCHEME: Dip. IT \_September' 2000**  
**COMMON WITH PROGRAMME (S):**  
**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 INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**  
**COURSE CODE: 406 (Elective-II)**  
**NAME OF COURSE: OFFICE MANAGEMENT**

SCHEME: Dip. IT September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: 5017

**SCHEME OF STUDIES**

Lectures: 3 Hrs. per week  
Practical: NIL

S. NO	TOPIC	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	Introduction to Office Management	07	-	07
2.	Managing Human Resources	07	-	07
3.	Record Management & Reproduction of Management Information	10	-	10
4.	Office Equipment	07	-	07
5.	Communication in the Office	07	-	07
6.	Workflow in organisations and Official procedure	10	-	10
	<b>Total</b>	<b>48</b>	<b>-</b>	<b>48</b>



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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**  
**COURSE CODE: 406 (Elective-II)**  
**NAME OF COURSE: OFFICE MANAGEMENT**

**SCHEME: Dip. IT, September' 2000**  
**COMMON WITH PROGRAMME (S):**  
**PAPER CODE: 5017**

**SPECIFICATION TABLE**

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

S. NO.	TOPIC	LECT. HOURS.	MARKS ALLOTTED (Approximate)
1.	Introduction to Office Management	07	15
2.	Managing Human Resources	07	15
3.	Record Management & Reproduction of Management Information	10	20
4.	Office Equipment	07	15
5.	Communication in the Office	07	15
6.	Workflow in Organizations and Official procedure	10	20
	<b>TOTAL</b>	<b>48</b>	<b>100</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **406 (Elective-II)**  
NAME OF COURSE: **OFFICE MANAGEMENT**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5017**

**COURSE CONTENT**

Lectures: **3 Hrs.** per week

S. No.	Course Content	Hours of study
1.	<b>INTRODUCTION OF OFFICE MANAGEMENT</b>	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.	<b>MANAGING HUMAN RESOURCES</b>	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.	<b>RECORD MANAGEMENT AND REPRODUCTION OF MANAGEMENT INFORMATION</b>	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 INFORMATION TECHNOLOGY

SEMESTER: FOURTH  
COURSE CODE: 406 (Elective-II)  
NAME OF COURSE: OFFICE MANAGEMENT

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
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.	



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**DIPLOMA IN INFORMATION TECHNOLOGY**

**SEMESTER: FOURTH**

**COURSE CODE: 406 (Elective-II)**

**NAME OF COURSE: OFFICE MANAGEMENT**

SCHEME: Dip. IT \_September' 2000  
COMMON WITH PROGRAMME (S):  
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)

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: FOURTH  
COURSE CODE: 406 (Elective-II)  
NAME OF COURSE: TOTAL QUALITY MANAGEMENT

SCHEME: Dip. IT \_September' 2000  
COMMON WITH PROGRAMME (S):  
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.

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **406 (Elective-II)**  
NAME OF COURSE: **TOTAL QUALITY MANAGEMENT**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5018**

**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	02	-	02
2.	Principles of TQM	06	-	06
3.	Leadership	06	-	05
4.	Customer Satisfaction	04	-	05
5.	Employee Involvement	05	-	05
6.	Continuous Process Improvement	07	-	07
7.	Supplier Partnership	05	-	05
8.	Quality Systems and Cost of Quality	06	-	06
9.	Management Tools	07	-	07
	<b>Total</b>	<b>48</b>	<b>-</b>	<b>48</b>



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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**

COURSE CODE: **406 (Elective-II)**

NAME OF COURSE: **TOTAL QUALITY MANAGEMENT**

SCHEME: Dip. IT\_September' 2000

COMMON WITH PROGRAMME (S):

PAPER CODE: **5018**

**SPECIFICATION TABLE**

Lectures: **3 Hrs.** per week

Practical: - Hrs. per week

S. NO.	TOPIC	LECT. HOURS.	MARKS ALLOTTED (Approximate)
1.	Introduction	02	05
2.	Principles of TQM	06	15
3.	Leadership	06	10
4.	Customer Satisfaction	04	10
5.	Employee Involvement	05	10
6.	Continuous Process Improvement	07	15
7.	Supplier Partnership	05	10
8.	Quality Systems and Cost of Quality	06	10
9.	Management Tools	07	15
	<b>Total</b>	<b>48</b>	<b>100</b>

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **406 (Elective-II)**  
NAME OF COURSE: **TOTAL QUALITY MANAGEMENT**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5018**

**COURSE CONTENT**

Lectures: **3 Hrs. per week**

S. NO.	Course Content	Hours of Study
1.	<b>INTRODUCTION</b> Traditional approach to quality management: Inspection and rejection, Quality assurance, Need for Total Quality.	02
2.	<b>PRINCIPLES OF TQM</b> 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.	<b>LEADERSHIP</b> 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.	<b>CUSTOMER SATISFACTION</b> Introduction, Definition of a customer, Customer perception of quality, Feedback, Using customer complaints, Service quality, Translating needs into requirements, Customer retention.	04
5.	<b>EMPLOYEE INVOLVEMENT</b> 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 INFORMATION TECHNOLOGY

SEMESTER: FOURTH  
COURSE CODE: 406 (Elective-II)  
NAME OF COURSE: TOTAL QUALITY MANAGEMENT

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
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
	<b>TOTAL</b>	<b>48</b>



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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**

COURSE CODE: **406 (Elective-II)**

NAME OF COURSE: **TOTAL QUALITY MANAGEMENT**

SCHEME: Dip. IT\_September' 2000  
COMMON WITH PROGRAMME (S):  
PAPER CODE: **5018**

**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

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**DIPLOMA IN INFORMATION TECHNOLOGY**

SEMESTER: **FOURTH**  
COURSE CODE: **407**  
NAME OF COURSE: **PROFESSIONAL ACTIVITIES**

SCHEME: Dip. IT\_September' 2000  
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 can not 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 in first semester are common and applicable to each semester.

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## APPENDIX-I

### RESOURCE REQUIREMENTS FOR CONDUCTING DIPLOMA IN INFORMATION TECHNOLOGY

#### A) HARDWARE REQUIREMENTS:

S. No.	Description	Approximate price* (In rupees)
1.	Server for WIN NT	1,25,000
2.	Server for LINUX	1,25,000
3.	Hubs 30 port ( Minimum)	10,000
4.	Cable Cat 5, 1 Bundle	2,000
5.	Connectors, 100 Nos.	800
6.	Modems	3,500
7.	Workstation-1 no. for every 2 students	@ 50,000 per work station
8.	Scanner	8,000
9.	Printers: Laser- 1 no. Inkjet- 2 no. (@5,000 per printer) DMP - 3 no. (@ 10,000 per printer) (Dot Matrix Printer)	30,000 10,000 30,000
10.	CD writer	10000
11.	LCD Projector	2,50,000
12.	UPS 2 KVA - 2 nos. (@10,000 per UPS)	20,000
13.	Miscellaneous	10,000
14.	Air Conditioners - 4 nos.	1,20,000
15.	Vaccum Cleaner	15,000



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**B) SOFTWARE REQUIREMENTS:**

LATEST VERSION OF THE SOFTWARE SHOULD BE PURCHASED

S. No.	Description	Approximate price* (In rupees)
1.	WINDOWS (Latest edition)	7,000
2.	WIN NT, Server 5 clients	32,000
3.	M. S. Office- Professional edition	22,000
4.	Autocad (Professional)	90,000
5.	PageMaker	38,000
6.	CorelDraw	27,000
7.	Adobe Photoshop	42,000
8.	Compiler for Turbo C++	8,000
9.	Visual Studio- Professional (Latest edition)	45,000
10.	Oracle- Standard	16,000
11.	SQL Anywhere 5.5, 4 user	23,500
11.	Hardware Diagnostic Software	10,000
12.	Tally	23,000
13.	Anti Virus software (Norton pcANYWHERE V 8.0) (For DOS/WIN/WIN 95/NT CD)	12,000
14.	Animation software (Flash and Dream Weaver)- Latest edition	50,000

- 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, institutions may add certain items to provide more skills to the students, depending on the current requirements of Information Technology industries

## APPENDIX-II

Proforma: 1

(Feedback regarding curriculum of the Diploma Programmes presently being conducted in your institution)

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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 existing		
				Scheme of Studies	Scheme of Examination	Industrial training(In-plant training)/Vocational training/Practical training etc.

Proforma : 2

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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