



**UNIVERSITY OF PUNE**  
**Department of Commerce & Research Centre**  
**Master of Commerce (E-Commerce) Programme**  
**(Semester Pattern with Credit System)**

---

The M.Com E-Commerce (Semester pattern with Credit System) degree Programme of Department of Commerce & Research Centre, University of Pune shall be building on expansion of undergraduate studies on one hand and the other, focusing on modern practices and Strategies followed in Commerce System, resulting into a 'Commercial Professional'; who is able to operate in any role in commerce and business worldwide. This in turn contributes to the advancement of professionalism in trade, commerce and industry. However the specific objectives of the Programme are:

- (a) To prepare students competent enough to take up to employment and self-employment opportunities in E-Commerce and M-Commerce fields
- (b) To provide adequate knowledge and understanding about E-Commerce practices to the students
- (c) To provide adequate exposure for the students to environment and operations in the field of E-Commerce
- (d) To inculcate amongst the student training and practical approach by exposing them to modern technology in Commercial Operations

**Eligibility and admission**

A student who has passed Bachelor's degree from recognized University i.e.B.Com/BBA/BBM/BCA/BA in Commerce with minimum 50% marks (45% in case of Reserved Category) shall be held eligible for admission to M.Com degree. The admission will be based on performance in the Entrance Test, consisting of objective type questions in (a) General Commercial Knowledge (b) English (c) Analytical ability (d) Test of Reasoning, to be conducted by the University Department.

## Duration and Structure of Programme

The M.Com E-Commerce (Semester pattern with Credit System) degree Programme will be of 2 years' duration divided into two parts, Part I and Part II, and 4 semesters. (At each Part there will be 28 courses of studies carrying 100 marks and having weightage of 4 credits each. Two kinds of courses are offered i.e. Core courses and Elective courses. The Contents of the courses will be subject to change after every 4 years.)

Semester-I		Semester-II	
Subject Code	Name of the subject	Subject Code	Name of the Subject
<b>Core</b>		<b>Core</b>	
101	Fundamental of Information Technology	201	Business Process and Practices
102	Statistical Methods and Analysis	202	Introduction to Operating System
103	Programming Principles and Algorithms	203	Database Management System
104	System Analysis and Design	204	Programming in C
105	Practical (F.I.T and P.P.A)	205	Practical (DBMS & Programming C)
<b>Elective</b>		<b>Elective</b>	
106	Business Communication	206	Human Resource Management
107	Perspectives of Commercial and Business Growth	207	Financial and Management Accounting methods
108	Management Information System	208	Cyber Law
109	Financial and Investment Analysis using Tally	209	Information System Security
<b>Semester-III</b>		<b>Semester-IV</b>	
Subject Code	Name of the subject	Subject Code	Name of the Subject
301	Business Models for E-Commerce	401	Internet and Web Designing
302	E-Banking and Financial Services	402	Accounting Information System
303	Software Project Management	403	Business Research and Analysis
304	Relational Data Base Management System	404	M-Commerce
305	Practical (C++ & RDBMS)	405	Practical (Internet and Web Designing)
<b>Elective</b>		<b>Elective</b>	
306	Software Testing	406	Enterprise Resource Planning (ERP)
307	Business and Professional Skills for Excellence	407	Multimedia Systems
308	Programming in C++	408	Digital Marketing
309	Project (Small Dummy Project)	409	Project

### **Scheme of examination and evaluation**

The evaluation of students in each course shall consist of (a) Internal Examination that will be continuous; in the form of study assignments, Class Tests and Seminar carrying 50 marks and (b) External evaluation Semester – end examination consisting of written paper of 2 hour's duration carrying 50 marks each. For Project Report evaluation will be of 50marks for Viva-voce based on Project Report and 50 marks for written evaluation of Project Report work. The total marks obtained in each course by the student will be converted into Grade points and Credits. Each course will carry 4 credits. The Grades will be determined on the basis of credits earned by the students. The rules as regards Examination, transfer of credits, declaration of result, award of class, ATKT etc. will be the same as followed by the University Departments in Social Sciences and Humanities. They are as under:-

- 1) There will be no separate Passing head for internal & external examination. The marks of internal examination & marks of external examination shall have a 50:50 pattern.
- 2) A Student shall have to score 40% marks out of 100 together in internal & external examinations taken together.
- 3) A Student who fails to get 40 marks out of 100 shall be allowed to improve his marks in the concerned subject by appearing for backlog Examination.

### **Awards of credits**

Each course of M.Com E-Commerce will be of 4 credits and every student will have to appear for all the credits of the respective semester. The students can appear for maximum 32 credits in all semester.

### **Completion of Degree Programme**

The students have to obtain minimum 112 credits to be deemed to have completed the required means of the M.Com E-Commerce degree programme. The policies and procedures determined by the University will be followed for the conduct of Examinations and declaration of the result of a candidate.

### **Medium of Instruction**

The medium of instruction will be in English

**Dr. Sanjay Kaptan**

**Prof. & Head**

## Structure of M.Com (E-Commerce) Programme

Semester	E.C.	Title of the Paper	Hours per Week	Credit	Marks		
					CA	UA	Total
Semester I	<b>Core</b>						
	101	Fundamental of Information Technology	4	4	50	50	100
	102	Statistical Methods and Analysis	4	4	50	50	100
	103	Programming Principles and Algorithms	4	4	50	50	100
	104	System Analysis and Design	4	4	50	50	100
	105	Practical (F.I.T. & PPA)	4	4	50	50	100
	<b>Elective</b>						
	106	Business Communication	4	4	50	50	100
	107	Perspectives of Commercial and Business Growth	4	4	50	50	100
	108	Management Information System	4	4	50	50	100
109	Financial and Investment Analysis Using Tally	4	4	50	50	100	
Semester II	<b>Core</b>						
	201	Business Process and Practices	4	4	50	50	100
	202	Introduction to Operating Systems	4	4	50	50	100
	203	Database Management System	4	4	50	50	100
	204	Programming in C	4	4	50	50	100
	205	Practical (DBMS & C)	4	4	50	50	100
	<b>Elective</b>						
	206	Human Resource Management	4	4	50	50	100
	207	Financial and Management Accounting Methods	4	4	50	50	100
	208	Cyber Law	4	4	50	50	100
209	Information System Security	4	4	50	50	100	
Semester III	<b>Core</b>						
	301	Business Models for E-Commerce	4	4	50	50	100
	302	E-Banking and Financial Services	4	4	50	50	100
	303	Soft Project Management	4	4	50	50	100
	304	Relational Data Base Management System	4	4	50	50	100
	305	Practical (RDMBS)	4	4	50	50	100
	<b>Elective</b>						
	306	Software Testing	4	4	50	50	100
	307	Business and Professional Skills for Excellence	4	4	50	50	100
	308	Programming C++	4	4	50	50	100
309	Project	4	4	50	50	100	
Semester IV	<b>Core</b>						
	401	Internet and Web Designing	4	4	50	50	100
	402	Accounting Information System	4	4	50	50	100
	403	Business Research and Analysis	4	4	50	50	100
	404	M-Commerce	4	4	50	50	100
	405	Practical	4	4	50	50	100
	<b>Elective</b>						
	406	Enterprise Resource Planning (ERP)	4	4	50	50	100
	407	Multimedia Systems	4	4	50	50	100
	408	Digital Marketing	4	4	50	50	100
409	Project	4	4	50	50	100	

**Note:**

Minimum Credit: 28

Maximum Credit: 32

Core subject is compulsory and from the list of elective courses a student can select two courses for minimum credit and three for maximum credit.

**Legend:**

CA = Continuous Assessment

UE = University Examination

## LIST OF LEARNING ACTIVITIES AND ALLOCATION OF PERIODS

### Semester - I

#### M.Com (E-Commerce)

#### E.C.101: Fundamental of Information Technology

Objective	To acquaint the students with the basics of Information Technology	
Unit No.	Topics	Instructional Hours
1	Number System and Introduction to 8085: Digital Signals and Logic gates; Number System: Binary, octal and hexadecimal number systems, signed binary number, binary arithmetic, 2's complement arithmetic; Microprocessors: Introduction, system Bus, Architecture and operation of 8085 microprocessor and instruction set.	12
2	Introduction to software: Software types and software development activities (Requirement, Design (algorithm, flowchart, decision table and tree), Coding, testing, installation, Maintenance), Low and high level language, assemblers, compilers, interpreters, linkers.	12
3	Introduction to Graphics primitives: Display devices: Refresh cathode Ray Tube, Raster Scan Display, Plasma Display, Liquid Crystal Display, Plotters, Printers, Keyboard, Trackball, Joystick, Mouse, Light Pen, Tablet and Digitizing Camera. External Storage devices.	12
4	Operating System: Introduction to operating system, different types of operating systems and its working, DOS commands, file structure and storage, Introduction to process management: process, threads, scheduling and synchronization. Introduction to Database Management System and its types.	12
<b>Books Recommended</b>	<ol style="list-style-type: none"> <li>1. Norton Peter, Introduction to computers, TMH, 4<sup>th</sup> Edition, 2006</li> <li>2. Simon Haykins, Communication system, John Wiley &amp; Sons, 2006</li> <li>3. B.Basaraj, Digital Fundamentals, Vikas Publication, 1999</li> <li>4. V.Rajaraman, Introduction to Information Technology, PHI, 2006</li> <li>5. V.Rajaraman, Fundamentals of Computers, PHI, 5<sup>th</sup> edition, 2006</li> <li>6. David Anfinson and Ken Quamme, IT Essentials PC Hardware and Software Component of Guide, Pearson, 3<sup>rd</sup> edition, 2008</li> </ol>	

List of Learning Activities

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Commerce)**  
**E.C.102: Statistical Methods and Analysis**

<b>Objective</b>	<ol style="list-style-type: none"> <li>1. To understand and master the concepts, techniques and application of statistical methods</li> <li>2. To develop the skills of solving real life problem using statistical methods</li> <li>3. To make students to understand the art of applying statistical techniques to solve some real life problems</li> <li>4. To gain knowledge of statistical computations</li> </ol>	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	Multiple correlation and Regression, Partial Correlation (for trivariate data): Introduction, simple correlation and simple regression, trivariate sample data and notion; meaning of multiple and partial correlation, calculation of multiple and partial correlation coefficient when: simple correlation coefficients are given, sum of squares and products are given; meaning of multiple regression, equation of multiple regression equations when means, standard deviations and simple correlation coefficients are given, interpretation of regression coefficient, examples and problems.	12
2	Simulation: Introduction, discrete random variable, binomial and poison distribution (p.m.f., problems on computation of probabilities); Definition and scope of simulation, advantages and disadvantages of simulation; Monte-Carlo simulation, Examples and problems.	12
3	Normal Distribution: Introduction, concept of continuous random variable with examples; Definition of normal distribution with mean “m” and variance; standard normal variate (SNV); properties of normal distribution (without proof); additive property of two independent normal variates (without proof), problems on evaluation of probabilities and to find mean and variance, examples and problems.	12
4	Testing of hypothesis: Large Sample Test: Introduction, concept of hypothesis, statistical hypothesis, null hypothesis, alternative hypothesis, two types of errors, level of significance, test of significance, critical region and acceptance region; Concept of a large test for testing: $H_0: M=M_0$ vs $H_A: M \neq M_0$ $H_0: M_1 = M_2$ vs $H_A: M_1 \neq M_2$ $H_0: P=P_0$ vs $H_A: P \neq P_0$ $H_0: P_1=P_2$ vs $H_A: P_1 \neq P_2$ with examples Small Sample Test: Chi-square ( $X^2$ ) test of goodness of fit Chi-square ( $X^2$ ) test of independence of two attributes – 2x2 contingency table and m x n contingency table. t-test for $H_0: M=M_0$ vs $H_A: M \neq M_0$ t-test for $H_0: M_1=M_2$ VS $H_A: M_1 \neq M_2$ , paired t-test, t-test for	12

	$H_0: \rho = 0$ vs $H_A: \rho \neq 0$ (test of significance of correlation coefficient) F-test for testing $H_0: \sigma_1^2 = \sigma_2^2$ V/S $H_A: \sigma_1^2 \neq \sigma_2^2$ with examples	
<b>Books Recommended</b>	<ol style="list-style-type: none"> <li>1. S.C. Gupta – Fundamentals of statistics</li> <li>2. J.S. Chandran – Statistics for Business and Economics</li> <li>3. S.P. Gupta – Statistical Methods</li> <li>4. S.C. Gupta, Gupta Indra – Business Statistics</li> <li>5. Amir D Aczel, JayavelSunderpandian – Complete Business Statistics</li> <li>6. D.N. Elhance – Fundamental of Statistics</li> </ol>	

### List of Learning Activities

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Commerce)**  
**E.C.103: Programming Principles and Algorithms**

<b>Objective</b>	1. To acquaint the student with the basics of Programming Principles	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Introduction</b> 1.1 Concept: problem solving, algorithm 1.2 Program development cycle 1.3 Characteristics of an algorithm 1.4 Time complexity: Big-Oh notation 1.5 Flowcharts 1.6 Simple Examples: Algorithms and flowcharts	08
2	<b>Simple Arithmetic Problems</b> 2.1 Addition / Multiplication of integers 2.2 Determining if a number is +ve / -ve / even / odd 2.3 Maximum of 2 numbers, 3 numbers 2.4 Sum of first n numbers, given n numbers 2.5 Integer division, Digit reversing, Table generation for n 2.6 Factorial, nCr , Pascal Triangle 2.7 Prime number, Factors of a number 2.8 Other problems such as Perfect number, GCD of 2 numbers etc (Write algorithms and draw flowcharts)	12
3	<b>Recursion</b> 3.1 Concept 3.2 Multiplication 3.3 Factorial 3.4 Ackerman function 3.5 Fibonacci series 3.6 Permutation Generation <b>Algorithms using arrays</b> 4.1 Maximum and minimum of array, reversing elements of an array 4.2 Mean and Median of n numbers 4.3 Row major and Column major form of array representation 4.4 Matrices: Addition, Multiplication, Transpose, Symmetry, upper/lower triangular	16
4	<b>Sorting and Searching</b> 5.1 Insertion sort 5.2 Bubble sort 5.3 Selection sort 5.4 Quick sort 5.5 Merge sort 5.6 Counting Sort 5.7 Sequential and Binary search	12
<b>Books Recommended</b>	1. How to solve it by Computer – R. G. Dromy 2. Fundamentals of Data Structures – Horowitz and Sahani 3. Introduction to algorithms – Cormen, Leiserson, Rivest, Stein	



### List of Learning Activities

<b>Sr. No.</b>	<b>Activities</b>	<b>Learning Hours</b>
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Commerce)**  
**E.C.104: System Analysis and Design**

<b>Objective</b>	<ol style="list-style-type: none"> <li>1. To gain broad understanding of software engineering</li> <li>2. To understand software requirements</li> <li>3. To build significant team work</li> </ol>	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>System concepts:</b> Introduction to system, characteristics of system, system elements, types of system, categories of information; Process models: SDLC, Waterfall model, prototyping model, spiral model	12
2	<b>System analysis Tools and Techniques:</b> System Analysis, System Analysis and its role, feasibility study, fact finding techniques, System design tools and techniques: Decision tree, decision table, ER diagram, data dictionary, pseudo code, input and Output design	12
3	<b>System testing and quality assurance:</b> Definition, testing principles, testing process, types of testing, McCall's Quality factors	12
4	<b>System implementation:</b> Implementation approaches, incremental, traditional, implementation steps, post implementation review; System maintenance: Types of maintenance, side effects of maintenance, reverse engineering, re-engineering.	12
<b>Books Recommended</b>	<ol style="list-style-type: none"> <li>1. Parthsarty, Khalkar, System analysis and design</li> <li>2. Elias Awad, System analysis and Design</li> <li>3. James Senn, System analysis and Design of Information system Roger Pressman, Software engineering</li> </ol>	

**List of Learning Activities**

<b>Sr. No.</b>	<b>Activities</b>	<b>Learning Hours</b>
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Commerce)**  
**E.C.106: Business Communication**

<b>Objective</b>	1. To develop the concept, process and importance of communication 2. To develop an integrative approach where reading, writing, presentation skills are used together to enhance the students' ability to communicate and write effectively 3. To create awareness among students about Methods and media of communication 4. To make students familiar with information technology and improve job seeking skills	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Fundamentals of communication:</b> Meaning, definition, process, importance, principles of effective communication, Role of communication in business, forms of communication, media of communication, barriers of communication	12
2	<b>Listening skills:</b> Importance, types of listening, barriers to effective listening, how to make listening effective, commandments of listening	12
3	<b>Business correspondence:</b> Need of business correspondence, components, essentials, types of letter, sales, collection, letter of complaint, letter of inquiry, placing order, recommendation letters	12
4	<b>Corporate Communication</b> Meaning, importance, functions, modern communication methods, their advantages and disadvantages, Professional presentations, Developing presentation skills.	12
<b>Books Recommended</b>	1) SA. Sherlekar, Modern business organization 2) Shelekar, industrial organization and management 3) Y.K. Bhushan, Business organization and management 4) F.Churunilan, Business Environment 5) C.B. Gupta, Business Organization and Management 6) S.S. Khanna, Entrepreneurial Development 7) Shirley Taylor, V.Chandra, Communication for business, Pearson Publication	

**List of Learning Activities**

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Commerce)**  
**E.C.107: Perspective of Commerce and Business Growth**

<b>Objective</b>	1. To expose students to broad and vivid complexities and context businesses 2. To equip them with tools of understanding and assessing contribution of business to the society over the period of time	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Introduction:</b> Business and their contexts, growth of forms and variety of business activities, New Industrial sectors, Mergers and Acquisitions	12
2	<b>Globalization:</b> Meaning and definition, history, causes and drives of globalization, multinational and transnational companies, growth of strategic alliance and joint ventures	12
3	<b>Business and Environment interface:</b> The economy, initiatives under economic liberalization after 1991,; Infrastructure, education, governance, growth of capital markets since 1991-stocks, scams, problems and issues . New trends in market development.	12
4	<b>Commercial revolutions:</b> Need for entrepreneurs, green revolution: IT and BT revolution, business families, Indian management culture; Small and medium enterprises: role and scope, growth, problems, recent developments	12
<b>Books Recommended</b>	1. B.R. Virmani, the challenges of Indian Management, responses Books 2. Harvard Business Review, The value of IT, Harvard Business School Press 3. Peter Drucker, Management, Tata McGraw Hill 4. N.Vasisth, Business Organization, Taxmann	

**List of Learning Activities**

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Commerce)**  
**E.C.108: Management Information System**

<b>Objective</b>	To acquaint the student with the basics of Management Information System	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Management information system:</b> Need, purpose, objectives, contemporary approaches to MIS, Information as a strategic resource, use of information for competitive advantage, MIS as an instrument for the organizational change.	12
2	<b>Information, Management and Decision making:</b> Models of decision making, classical, administrative and Herbert Simon's models, attributes of information and its relevance to decision making, types of information .	12
3	<b>System Analysis and Design:</b> System development life cycle, alternative system building approaches, prototyping model, spiral model, rapid development tools, CASE Tools.	12
4	<b>Decision support system:</b> Group decision support systems, executive information system, executive support systems, expert systems and knowledge based expert systems, artificial intelligence.	12
<b>Books Recommended</b>	<ol style="list-style-type: none"> <li>1. Jawadekar, Management Information System, Tata McGraw Hill</li> <li>2. Davis and Olson, Management Information System, Tata McGraw Hill</li> <li>3. Rajaraman, Analysis and Design of Information System, Prentice Hall</li> <li>4. Sadagopan, Management Information System, Prentice Hall</li> </ol>	

**List of Learning Activities**

<b>Sr. No.</b>	<b>Activities</b>	<b>Learning Hours</b>
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Commerce)**  
**E.C.109: Financial and Investment Analysis using Tally**

<b>Objective</b>	2. To acquaint the student with the basics of financial and investment analysis using Tally	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<p><b>Introduction and Company Information:</b>            Introduction to Tally 9.0 Accounting, Opening Screen of Tally, Gateway of Tally, Button Panel Options, Use of Calculator, working with menus, company information menu, To set up a new company, Entering details into new company creation screen, VAT and other Tax options, Shutdown (closing) a company, Select (Opening) a company, Alter (Modifying) a company, Deleting a company.</p>	12
2	<p><b>Accounting Information:</b>            Introduction to gateway of Tally menu, Working with Groups, Predefined Groups, Single and multiple creation of groups, Create, Alter and Display group, Working with ledgers, Predefined Ledgers, Single and Multiple Creation of Ledger, Deleting a ledger, Voucher types, Understanding different types of vouchers.</p> <p><b>Accounting Reports:</b>            Introduction to financial reports, Generating Profit and loss A/c, Period wise reports, Generating Balance Sheet, Generating Trial Balance.</p>	12
3	<p><b>Voucher Entry:</b>            Introduction to voucher entry, Accounting vouchers, Working with different accounting vouchers, Contra Voucher (F4) entering details into contra voucher, Payment Voucher (F5) entering details into payment voucher, Receipt Voucher (F6) entering details into receipt voucher, Journal Voucher (F7) entering details into journal voucher, Cash and credit sales, Purchase Voucher (F9), Entering details into purchase voucher, Cash and credit purchase.</p>	12
4	<p><b>Payroll Accounting System:</b>            Enabling Payroll, Creation of a Pay head, Employee group creation and employee creation, Entry of salary into payroll statement, Payroll voucher creation and payroll reports.</p> <p><b>Maintaining Inventory Details:</b>            Introduction to inventory, enable accounts with inventory option, Understanding F11: Features option, Enabling Stock category and Godowns option, Working with Stock Groups, create and maintain stock groups, Working with Stock Categories, create and maintain stock categories, Working with Stock Godowns, create and maintain stock</p>	12

	godown, Working with unit of measure, Creating and maintain unit of measures.	
<b>Books Recommended</b>	<ol style="list-style-type: none"> <li>1. M.Raghunatham and R. Madhumathi, Pearson Education</li> <li>2. D.E. Fisher and R.C Jordon, Security Analysis and Portfolio Management, Pearson Education</li> <li>3. Preeti Singh, Investment Management, Himalaya Publishing House</li> <li>4. V.K. Bhalla and S.K. Tuteja, Investment Management, S. Chand and Con. Ltd.</li> <li>5. Haugen Robert, Modern Investment Theory, Prentice Hall India, New Delhi</li> </ol>	

### List of Learning Activities

<b>Sr. No.</b>	<b>Activities</b>	<b>Learning Hours</b>
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**Semester-II**  
**M.Com (E-Commerce)**  
**E.C.201: Business Process and Practices**

<b>Objective</b>	To acquaint the students with the basics of running a successful business	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Innovation management:</b> Introduction, meaning, characteristics, components, types of innovation, models of innovation process, innovation management, evaluation of innovation management, significance, principles, key drivers of innovation, innovation impact, innovation behaviour, strategic innovation, creative individual and their development	12
2	<b>Quality management:</b> Meaning, development, Total Quality Management, fundamental of TQM, Components of TQM, Approaches to TQM, Steps of TQM, TQM models, Teamwork of Quality, Quality Circles, Kaizen, Six Sigma, 5's Creating quality culture.	12
3	<b>Entrepreneurship potential:</b> Meaning, skills and functions of entrepreneur, characteristics of entrepreneur, soft skills, communication skills, attitude of entrepreneur, entrepreneurs, making entrepreneurship work, developing a Global mindset-social Entrepreneurs in India	12
4	<b>Performance management and control function:</b> Meaning, goal of performance management, performance management plan, techniques to measure and enhance performance, benefits and barriers, the control function, control techniques, direct control versus preventive control	12
<b>Books Recommended</b>	1. Performance Management & Development- Michael Armstrong- Jaico Books 2. Performance appraisal & Compensation Management- Goel Dewakar- PHI 3. Management Control System- Ravindra Vadhapali- Excel Books 4. Management Control System- Sinha Pradip Kumar- Excel Books 5. Management Control system- Das Subhash Chandra- PHI 6. Innovation Management- Krishnamacharyula & Lalitha-Himalaya 7. Innovation Management- Maital Shlomo & Seshadri D.V.S- Sage Publications 8. Total Quality Management- Bhat K.S. – Himalaya Publication 9. Total Quality Management- Sharma D.D. –Sultan Chand	



### List of Learning Activities

<b>Sr. No.</b>	<b>Activities</b>	<b>Learning Hours</b>
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Commerce)**  
**E.C.202: Introduction to Operating System**

<b>Objective</b>	To acquaint the students with the basics of operation system, its structure and process management	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Introduction to operating system:</b> What is an operating system, types of operating system-multiprogramming system, parallel system, distributed system, real time system, services provided by an operating system; Introduction to DOS OS, Introduction to Windows OS, Introduction to Linux OS, Difference between DOS, Windows and Linux	12
2	<b>Computer system component:</b> Hardware (basic computing resources-CPU, Memory, IO device; Use view, system view, computer system operation; System software: Operating system, IO Manager, compiler, assembler, linker, loader	12
3	<b>Operating system structure:</b> General system architecture-single processor system, multiprocessor system, clustered system; IO Structure, storage structure, system calls and implementation-process or job control, file management, device management; system programme	12
4	<b>Process management:</b> Process concept-process states, process control blocks, process scheduling; Interaction between process and OS, Context switching, operation on process; CPU scheduling: scheduling concept, types of scheduling, scheduling criteria, scheduling algorithms-FCFS, SJF (preemptive and non preemptive), priority scheduling, round robin; File systems: file concept, file system structure, file access methods, file allocation methods, directory structure, file protection; I/O Systems: I/O hardware, application I/O interface, Kernel I/O Subsystem	12
<b>Books Recommended</b>	1. Gilberschatz, Operating system 2. DM Dhamdhare, System Programming and operating system, Tata McGraw-Hill publication	

**List of Learning Activities**

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Commerce)**  
**E.C.203: Database Management System**

<b>Objective</b>	To acquaint the students regarding the basics of Database Management System and its constituents	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Database management system:</b> Data, information, data vs information, data warehouse, data dictionary, data items or fields, records and files, database, database system applications, view of data, database languages, data model, database architecture, entity relationship model-basic concepts, constraints, keys, strong entity sets, weak entity sets; entity relationship diagrams, extended E-R features-specialization, generalization	12
2	<b>Relational model and relational database design:</b> Introduction, fundamental relational algebra operation, overview of relational database design process, anomalies of un normalized database, normalization-1 NF, 2NF, 3NF; Functional dependency, decomposition using functional dependencies	12
3	<b>SQL:</b> Background, basic structure of SQL queries, aggregate functions, Null values, nested sub-queries, views, integrity constraints, authorization	12
4	<b>Transaction management:</b> Transaction concept, transaction state, transaction properties, concurrent execution, serializability, testing for serializability, recoverability	12
<b>Books Recommended</b>	<ol style="list-style-type: none"> <li>1. Silberschatz, Korth, Database system concept, Tata McGraw-Hill publication</li> <li>2. Raghu ramkrishna, Database management system, Tata McGraw-hill publication</li> <li>3. Ivan Bayross, SQL, PL SQL the programming language Oracle, BPB Publication</li> </ol>	

**List of Learning Activities**

<b>Sr. No.</b>	<b>Activities</b>	<b>Learning Hours</b>
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Commerce)**  
**E.C.204: Programming in C**

<b>Objective</b>	To acquaint the students with C Programming and its applications	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Introduction to C language:</b> History, basic structure of C programming, language fundamentals, character set, tokens, keywords and identifiers, variables and data types; operations: types of operations, precedence and associativity, expression	12
2	<b>Managing I/O operations:</b> Console based I/O and related built-in I/O functions, printf(), scanf(), getch(), getchar(); Decision making and looping: introduction, decision making structure, if statement, if-else statement, Nested if-else statement, conditional operator, Switch statement; Loop control structure: while loop, do-while loop, for loop, nested for loop; jump statements: break, continue, goto, exit	12
3	<b>Functions and pointers:</b> Introduction, purpose of function, function definition, function declaration, function call, types of functions, call by value and call by reference; introduction to pointer: definition, declaration, initialization; Indirection operator and address of operator, pointer arithmetic, Dynamic memory allocation	12
4	<b>Arrays and strings:</b> Introduction to one-dimensional Array-definition, declaration, initialization; accessing and displaying array elements, arrays and functions, introduction to two-dimensional array-definition, declaration, initialization; accessing and displaying array elements, introduction to strings-definition, declaration, initialization; standard library functions	12
<b>Books Recommended</b>	<ol style="list-style-type: none"> <li>1. Yashwant Kanetkar, Let's us C, BPB publication</li> <li>2. Balguruswamy, Programming in C, Tata McGraw-Hill Publication</li> <li>3. Yashwant Kanetkar, Pointers in C, BPB Publication</li> <li>4. Dr. Vishal Lichade, C programming, Dreamtech press</li> </ol>	

**List of Learning Activities**

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Commerce)**  
**E.C.206: Human Resource Management**

<b>Objective</b>	To inform the students about the objectives and functions of Human Resource Management	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Introduction to Human Resource Management:</b> Concept of HRM, evolution of HRM, job of HR manager, role of HR function, HR Organization, Ethics of HRM; Human Resource Planning: Man power planning, job analysis methods, job description, job specification; Man power planning: Need for manpower planning, role of HR in Man power planning	12
2	<b>Recruitment and selection:</b> Concept, definition, recruitment strategy, sources of recruitment, special kinds of recruiting, making recruitment effective; Selection: selection process, selection methods, employees application methods and types of interview, employment tests, measure the effectiveness of selection-introduction, need and importance	12
3	<b>Employee engagement:</b> Meaning, definition, drivers; HR policies-defining HR policies, process of designing policies, measuring HR policies; Training and Development-need for training, trading process, mechanism for training	12
4	<b>Career &amp; Planning management:</b> Understanding careers, career development, approaches, intervention, role of HR in career management of employees; Talent management: objective of talent management, talent management framework, future trends in talent management, HR practices in India, Audit of HR function	12
<b>Books Recommended</b>	<ol style="list-style-type: none"> <li>1. David A. Decenzo and Stephen P. Robbins, Human Resource Management, Wiley India</li> <li>2. Sharad D. Geet and Mrs.Asmita A. Deshpande, Human Resource Management</li> <li>3. S.K. Bhatia, Personal management</li> <li>4. C.B. Mamoria, Personal management</li> </ol>	

**List of Learning Activities**

<b>Sr. No.</b>	<b>Activities</b>	<b>Learning Hours</b>
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Commerce)**  
**E.C.207: Financial and Management Accounting Methods**

<b>Objective</b>	To acquaint the students with the basics of Financial Management for business	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Financial Management:</b> Meaning, financial decisions in a firm, goal of financial management; Financial system: meaning, functions, financial assets, financial markets, financial intermediaries, regulatory, infrastructure, growth and trends in the Indian financial system	12
2	<b>Long term finance-source of long term finance:</b> Equity capital, internal accruals, preference capital, term loans, debentures, venture capital; cost of capital: cost of debt and preference, cost of equity, weighted average cost of capital	12
3	<b>Techniques of capital budgeting:</b> Payback period, accounting rate of return, net present value method, profitability index, internal rate of return, budgeting control and flexible budget, capital rationing, responsibility accounting	12
4	<b>Dividend decision:</b> Why firm pay dividends, dimensions of dividend policy; analysis of financial statement: applications and limitations, ratio analysis; working capital management: inventory, receivables and cash management	12
<b>Books Recommended</b>	1. Financial Management – Bose Chandra .D (PHI Learning Pvt. Ltd., New Delhi) 2. Financial Management – Khan & Jain(Tata Mc Graw hill publishing, New Delhi) 3. Financial Management – Prasanna Chandra (Tata Mc Graw hill publishing, New Delhi) 4. Financial Management - S. C. Pandey(Vikas Publication 9th Edition) 5. Financial Management –Maheshwari (Sultan Chand & Sons, New Delhi) 6. Financial Management –I.M. Pandey	

**List of Learning Activities**

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Commerce)**  
**E.C.208: Business & Cyber Law**

<b>Objective</b>	To acquaint the students with Cyber Law and basics of Information Security	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Competition Act (2002):</b> Objectives and definition, prohibition of certain agreements, competition commission of India, Duties, Power and Functions of commission	12
2	<b>Copy Right Act, Patent and Trade MARKS Act:</b> Preliminary of copy right, copy right office and board, work in which copy right; Trademarks Act-1999: meaning and definition, the register and conditions for registration, procedure and conditions for registration, certification of trademarks, offense, penalties and procedures and miscellaneous	12
3	<b>Cyber laws:</b> Introduction, evolution of cyber law, problems associated with computer crime, hackers and theft of computers, hacking, recognizing and defining computer crimes, theft of intellectual property, cybercrimes, various provision of cyber law governing cyber crimes	12
4	<b>Information technology Act (2000):</b> Digital signature, electronic governance, distribution, acknowledgement and dispatch, electronic records, secure electronic, records and secure digital signature, regulation of certifying authority, duties of subscribers	12
<b>Books Recommended</b>	<ol style="list-style-type: none"> <li>1. Yatindra Singh : Cyber Laws.</li> <li>2. Ajit Narayanan and Bennum (ed.) : Law, Computer Science and Artificial Intelligence.</li> <li>3. Linda Brennan and Victoria Johnson : Social, ethical and policy implication of Information Technology.</li> <li>4. Kamath Nandan : Law relating to Computer, Internet and E-Commerce.</li> <li>5. Arvind Singhal and Everett Rogers : India's Communication Revolution : From Bullock Carts to</li> <li>6. Cyber Marts.</li> <li>7. Lawrence Lessing : Code and other Laws of cyberspace.</li> <li>8. Mike Godwin : Cyber Rights Defencing free speech in the Digital Age.</li> </ol>	

### List of Learning Activities

<b>Sr. No.</b>	<b>Activities</b>	<b>Learning Hours</b>
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2



**M.Com (E-Commerce)**  
**E.C.209: Information System Security**

<b>Objective</b>	To acquaint the students about the need for Information System Security and its techniques	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<p><b>Introduction to security:</b> The need for security, security approaches, principles of security, types of attack; Overview of computer security: the basic components, confidentiality, integrity, availability, threats, policy and mechanism-goals of security, protection state, access control matrix model, assurance-specification, design, implementation; operational issues-cost benefit analysis, risk analysis, laws and customs; human issues-organizational problems, people problems.</p>	12
2	<p><b>Information and Network Security Policies:</b> Security policies-definitions, types of security policies, the role of trust, types of access control, example academic computer security policy; Confidential policies-goal of confidentiality policies, the Bell-Lapadula model; Integrity policies-goals, Biba integrity model, Clark-Wilson integrity model; Hybrid Policies-Chinese wall model, clinical information system security, originator controlled access control, role based access control</p>	12
3	<p><b>Cryptography:</b> What is cryptography, what is cipher, classical cryptosystem-transposition cipher, substitution cipher; encryption: Mathematical basic of encryption, symmetric and shared key encryption, data encryption standards-tripule DES, skipjack; Data Integrity, advantages of public key encryption</p>	12
4	<p><b>Authentication:</b> Authentication Basic, passwords-attacking a password system, countering password system; biometrics-fingerprints, voices, eyes, faces, keystrokes, combination, caution</p>	12
<b>Books Recommended</b>	<ol style="list-style-type: none"> <li>1. Matt Bishop, Introduction to computer security, Pearson</li> <li>2. AtulKahate, Cryptography and Net security</li> <li>3. DictorGouman, John, Computer security, Wiley &amp; sons</li> </ol>	

### List of Learning Activities

<b>Sr. No.</b>	<b>Activities</b>	<b>Learning Hours</b>
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**Semester-III**  
**M.Com. (E-Commerce)**

**E.C.301: Business Models for E-Commerce**

<b>Objectives</b>	<ol style="list-style-type: none"> <li>1. To learn different business strategy</li> <li>2. To learn different elements of e-commerce</li> <li>3. To know Internet marketing techniques</li> </ol>	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<p><b>Introduction To Electronic Commerce :</b> What is E-Commerce, Need to study e-commerce, eight unique features of E-Commerce, difference between E-Commerce and E-business, major types of E-Commerce(B2c, B2B, C2C, P2P, M-Commerce)</p> <p><b>E-Commerce Business Models</b> Eight key elements of business model, B2C business model, B2B business model, Business models in emerging e-com areas, C2C business models and P2P models, M-Commerce business models.</p>	12
2	<p><b>The Elements of E-Commerce:</b> Elements, E-visibility, the e-shop, Online payments, Delivering the goods, After-sales service, Internet E-Commerce security</p> <p><b>E-Business:</b> Introduction, Internet books shop Grocery supplies, Software supplies and support, Electronic Newspaper, Internet banking, Virtual Auctions, Online share dealing, e-diversity</p>	12
3	<p><b>Electronic Payment System:</b> Online credit card transactions, Digital wallets and digital cash, Online stored value system, Digital accumulating balance payment systems, Digital checking payment systems, Wireless payment systems, Electronic billing-EBPP, Market size and growth.</p> <p><b>E-Com Security:</b> E-commerce security environment, Security threats in E-commerce environment, Malicious code and unwanted programs, Phishing and identity theft, Hacking and cyber vandalism, Credit card fraud/Theft, Spoofing</p>	12

4	<p><b>Technology Solution:</b> Protecting Internet Communication, Encryption, Symmetric Key Encryption, Public key Encryption using digital signatures, Digital Envelopes, Digital Certificates, and Limitations to Encryption solutions.</p> <p><b>Electronic Markets:</b> Markets, Electronic markets, Usage of Electronic Markets, Advantages and disadvantages, Future of Electronic Markets</p>	12
Reference	<ol style="list-style-type: none"> <li>1. E-commerce, Strategy, Technologies and applications by David Whiteley, Tata McGraw Hill Edition</li> <li>2. E-Commerce Concepts, Models, Strategies by – G.S.V Murthy</li> <li>3. E-Commerce – Kenneth C. Laudon and Carol Guercio Traver</li> <li>4. E-Commerce by Kamlesh K Bajaj and Debani Nag</li> <li>5. Internet marketing and E-commerce – Ward Hanson and Kirthi Kalyanam</li> </ol>	

### List of Learning Activities

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com. (E-Commerce)**

**E.C.302: E-Banking and Financial Services**

<b>Objectives</b>	<p>1. To explain the learners about concept of e-banking &amp; related issues</p> <p>2. To explain the learners the functioning &amp; merits of different financial services</p>	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<p><b>E-Banking :</b>                      Meaning &amp; need of e-banking, Role of technology up gradation &amp; impact on banks, changes in customer need 24*7, Core banking, Anytime, Anywhere banking. No constraints on location, Security issues, hacking passwords – viruses – biometric devices Home banking, Mobile banking, Signature storage &amp; retrieval system, cheque truncation, Note &amp; coin counting machines, Debit/credit cards issues.</p>	12
2	<p><b>Payment System:</b>                      RTGS, NEFT, Security considerations, Signature storage &amp; retrieval system, Cheque truncation, Note &amp; coin counting machine, Debit/credit cards issues.</p>	12
3	<p><b>Financial Services:</b>                      Meaning &amp; need of financial services, Financial services as a component of financial system, Banking services – Functions of banks, reforms in banking system, Mutual Funds – Meaning and concept. Risk &amp; Return, Insurance development in India – Life &amp; General, Health.</p>	12
4	<p><b>Financial Services (cont.):</b>                      Depositories, Credit Rating, Factoring &amp; Forfeiting, Housing Finance – Role of housing &amp; Housing Finance in the economy, housingFinance Institutions in India, Merchant Banking – meaning &amp; need, role in capital market lead managers, Intermediaries, SEBI Regulatory authority.</p>	12
Books Recommended	<p>1. Financial Services – M.Y. Khan</p> <p>2. Marketing of Financial Services- V.A. Avdhani</p> <p>3. Corporate Finance- Theory &amp; Practice- Ashwath</p>	

	Damodaran 4. Financial Management- PrasannaChandra 5. Financial Institutions & Services- Dr. S.A. Majeed Pasha 6. E-Banking & E-Commerce- Subramani N 7. Banking & Finance- Agarwal	
--	---	--

### List of Learning Activities

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quizzes	2
4	Presentation	2

**M.Com. (E-Commerce)**

**E.C.303: Software Project Management**

<b>Objectives</b>	<b>1. To learn the different aspects of software project management.</b>	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<p><b>Introduction To Product :</b> The Evolving Role of Software, Software, Software: A Crisis on the Horizon, Software Myths.</p> <p><b>Introduction To Process :</b> Software Engineering: A Layered Technology, The Software Process, Software Process Models, The Linear Sequential Model, The Prototyping Model, The RAD Model, Evolutionary Software Process Models, Component-Based Development, The Formal Methods Model, Fourth Generation Techniques, Process Technology, Product and Process.</p>	12
2	<p><b>Project Management Concepts:</b> The Management Spectrum, People, The Product, The Process, The Project, The W5HH Principle, Critical Practices,</p> <p><b>Software Process And Project Metrics:</b> Measures, Metrics, and Indicators, Metrics in the Process and Project Domains, Software Measurement, Reconciling Different Metrics Approaches, Metrics for Software Quality, Integrating Metrics within the Software Engineering Process, Managing Variation: Statistical Quality Control, Metrics for Small Organizations, Establishing a Software Metrics Program.</p> <p><b>Software Project Planning:</b> Observations on Estimating, Project Planning Objectives, Software Scope, Resources, Software Project Estimation, Decomposition Techniques, Empirical Estimation Models, The Make/Buy Decision, Automated Estimation Tools.</p>	12
3	<p><b>Risk Analysis And Management:</b> Reactive versus Proactive Risk Strategies, Software Risks, Risk Identification, Risk Projection, Risk Refinement, Risk Mitigation, Monitoring, and Management, Safety Risks and Hazards, The RMMM Plan.</p>	12

	<p><b>Project Scheduling And Tracking:</b> Basic Concepts, The Relationship between People and Effort, Defining a Task Set for the Software Project, Selecting Software Engineering Tasks, Refinement of Major Tasks, Defining a Task Network, Scheduling, Earned Value Analysis, Error Tracking, The Project Plan.</p>	
4	<p><b>Software Quality Assurance:</b> Quality Concepts, The Quality Movement, Software Quality Assurance, Software Reviews, Formal Technical Reviews, Formal Approaches to SQA, Statistical Software Quality Assurance, Software Reliability, Mistake-Proofing for Software, The ISO 9000 Quality Standards, The SQA Plan.</p> <p><b>Software Configuration Management:</b> Software Configuration Management, The SCM Process, Identification of Objects in the Software Configuration, Version Control, Change Control, Configuration Audit, Status Reporting, SCM Standards.</p>	12
Reference Books	<ol style="list-style-type: none"> <li>1. Software Engineering A Beginner's Approach, Roger S. Pressman</li> <li>2. Software Engineering A Practitioner's Approach European Adaption, Roger S. Pressman</li> <li>3. Introduction to the Team Software Process, Watts S. Humphrey, Addison Wesley</li> <li>4. Practical Software measurement, Bob Huges</li> <li>5. Software Project Management, Bob Huges&amp; Mike Cotterell</li> <li>6. The Engineering of Software, Dick Hamlet, Joe Maybee, Addison Wesley</li> <li>7. Introduction to the Personal Software Process, Watts S. Humphery, Addison Wesley</li> <li>8. Software Engineering Peters, Wiley India</li> <li>9. The Engineering of Software, Dick Hamlet, Joe Maybee, Addison Wesley</li> </ol>	

### List of Learning Activities

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2



**M.Com. (E-Commerce)**

**E.C.304: Relational Data Base Management System**

<b>Objectives</b>	2. To know the basics of relational data management system 3. To learn different types of relations	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Introduction To RDBMS</b> Introduction to popular RDBMS product and their features Difference Between DBMS and RDBMS Relationship among application programs and RDBMS	8
2	<b>PLSQL</b> Overview of PLSQL Data Types PLSQL Block % type, % rowtype Operators, Functions, comparison, numeric, character,date Control Statement Exception Handling Predefined User defined exceptions Functions , Procedures Cursor Definition Types of cursor- implicit, explicit (attributes) Parameterized cursor Trigger Package	16
3	<b>Transaction Concepts and concurrency control</b> Describe a transaction, properties of transaction,state of the transaction, executing transactions concurrently associated problem in concurrent execution., Schedules, types of schedules, conceptof Serializability, precedence graph,Serializability,Ensuring Serializability by locks, different lock modes,2PL and its variation, Basic timestamp method for concurrency.Thomas Write Rule,Locks with multiple granularity,dynamic databaseconcurrency(Phantom Problem),Timestams versus locking , Dead lock handling methods, Detection and Recovery(Wait for graph),Prevention algorithms	12
4	<b>Concurrency Control</b> Lock Based Protocol Locks Granting of Locks Two Phase Locking Protocol Timestamp Based Protocol	12

	Timestamp Timestamp ordering protocol Thomas's Write Rule Validation Based Protocol Deadlock Handling Deadlock Prevention Deadlock Detection Deadlock Recovery	
Reference	1) Database System Concepts 5th Edition - Silberschatz, Korth, Sudershan. 2) Database Management System - Bipin Desai 3) An Introduction to Database Systems Eighth Edition C. J.Date, A.Kannan, S.Swamynathan 4) SQL/PLSQL the programming language of oracle - Ivan Bayross	

### List of Learning Activities

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quizzes	2
4	Presentation	2

**M.Com. (E-Commerce)**

**E.C.306: Software Testing**

<b>Objectives</b>	4. To understand testing principles. 5. To understand concept and implementation of testing tool in automation.	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Software Testing:</b> Introduction, Nature of errors, An example for Testing. <b>Software Testing Methods:</b> Testing Fundamentals, Test Case Design, White Box Testing, Black Box Testing.	12
2	<b>Testing for Specialized Environment:</b> Testing GUI's, Testing of Client/Server Architectures, Testing Documentation and Help facilities, Testing for Real-Time System.	12
3	<b>Software Testing Strategies:</b> Strategic Approach to Software testing, Unit Testing, Integration Testing, Validation Testing, System Testing. Software metrics: Introduction, Basic Metrics, Complexity Metrics.	12
4	<b>Testing Tools (Introduction and execution only):</b> Junit, Apache Jmeter, Winrunner Loadrunner, Rational Robot, Execution examples for Testing Tools.	12
Reference	1. Software Engineering – A Practitioners Approach by Roger S. Pressman, Tata McGraw Hill. 2. Software Engineering for Students – A Programming Approach by Douglas Bell, Pearson Education.	

**List of Learning Activities**

<b>Sr. No.</b>	<b>Activities</b>	<b>Learning Hours</b>
1	Assignments	3
2	Tests	2
3	Quizzes	2
4	Presentation	2

**M.Com. (E-Commerce)**

**E.C.307: Business and Professional Skills for Excellence**

<b>Objectives</b>	To help the students to acquire proper understanding of various professional skills required for excelling in Commercial world.	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>The foundations of Excellence :</b> Strategy (customer, competitors and company) and culture (commitment, competence and consistency), Using strategies thinking, the essence of strategic planning with strategic thinking, Culture awareness and culture building, assessing an organization's culture.	12
2	<b>Necessary Skills to achieve excellence:</b> <i>Creative Insight</i> – Importance of insight in selecting the successful strategy, how to become an insightful executive. <i>Sensitivity</i> – Importance of sensitivity, initiating strong cultures, how to become a sensitive executive. <i>Vision</i> – Importance of vision in uniting strategy and culture, how to become a visionary executive. <i>Versatility</i> – importance of versatility in converting threats into opportunities, how to become a versatile executive. <i>Focus</i> – importance of focus in exploiting the change, how to become a focused executive. <i>Patience</i> – importance of patience in lasting the excellence, how to become a patient executive.	12
3	<b>Leadership and Followership</b> Leadership versus Management, Early Trait theories, Behavioral theories, contingency theories, Recent Leadership Theories, Emerging Issues in Leadership, Followership, Guidelines for Leadership	12
4	<b>Attitudes, Emotions and Ethics</b> Attitudes, Attitude Formation, Job Satisfaction, Organisational Citizenship versus Workplace Deviance, Persuasion and attitude Change, Emotions at Work, Ethical behaviour	12

**Books Recommended:**

1. Basic Business Communication - Robert Ma Archer
2. Effective Business Communication -Murphy
3. Excellence in Business Communication - Thill
4. Business Communication - Pradhan & Thakur
5. Business Communication - Balsubramanium M.
6. Handbook of case writing - culture & James W.
7. Creating excellence – Crag R. Hickman & Michael A. Silva – George, Allen and Unwin, London Universal book stall, New Delhi.
8. Managing Creativity for corporate excellence – P.N. Rastogi
9. The EQ Edge – Steve J. Stein and Howard E. Book
10. Organisational Behaviour by Nelson, Quick, Khandelwal- Cengage Learning

**List of Learning Activities**

<b>Sr. No.</b>	<b>Activities</b>	<b>Learning Hours</b>
1	Assignments	3
2	Tests	2
3	Quizzes	2
4	Presentation	2

**M.Com. (E-Commerce)**

**E.C.308:Programming in C++**

<b>Objectives</b>	1. To acquaint the students with C++ Programming and its applications	
<b>Unit No.</b>	<b>Topics</b>	<b>Instructional Hours</b>
1	<b>Introduction to C++</b> Basic concepts of OOP, benefits, applications of OOP A simple C++ program Structure of C++ program Creating a source file, compiling and Linking <b>Tokens, Expressions and Control structures</b> Introduction Tokens, keywords, Identifiers and constants Data types - Basic, User defined and Derived Symbolic constant Type Compatibility Variables - Declaration and Dynamic initialization Reference variable Operators in C++ Scope resolution operator Member Referencing operators Memory management operators Manipulators Type cast operators Expression and their types Special Assignment Expressions Implicit conversions Operator overloading introduction Operator precedence Control structures – if-else, do-while, for , switch	08
2	<b>Unit 2 Functions in C++</b> Introduction The main function Function prototyping Call by reference Return by reference Inline function – Making an outside function Inline Arguments - default, constant Math library functions	10
3	<b>Unit 3 Classes and Objects</b> Introduction Creating a class and objects Defining member functions inside and outside class definition Nesting of member functions Private member functions Arrays within a class	16

	Memory allocation of objects Static data members and static member functions Array of objects Objects as function arguments Friend functions Returning objects Constructors Types of constructor Destructors	
4	<b>Unit 4 Inheritance</b> Introduction Base class and derived class examples Types of Inheritance Virtual base class Abstract class Constructors in derived class <b>Polymorphism</b> Compile Time Polymorphism Function overloading Operator Overloading Introduction Overloading unary and binary operator Overloading using friend function Overloading insertion and extraction operators String manipulation using operator overloading Runtime Polymorphism this Pointer, pointers to objects, pointer to derived classes Virtual functions and pure virtual functions	16
Reference	1) Object oriented programming with C++ - by E Balagurusamy 2) Object Oriented Programming with C++ by Robert Lafore 3) Object Oriented Programming in C++ by Dr. G. T. Thampi, Dr. S. S. Mantha, DreamTech Press	

### List of Learning Activities

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Group Activity	1
4	Quiz	2
5	Mock Audit	1
6	Presentation	2

**Semester - IV**  
**M.Com. (E-Commerce)**

**E.C.401: Internet & web Designing**

**Course Objectives:**

1. This course enables students to understand web page site planning, management and maintenance.
2. To know & understand concepts of internet programming.

Unit No	Topic	Periods
1	<b>Internet Basics:</b> Overview of Internet, history, web system architecture, Uniform Resource Locator, Introduction To HTML, WWW, W3C, web Publishing, HTTP protocol basics, HTTP request & response, Cookies Basics, Common HTML, Tags Physical & Logical, Some basic tags like <body> ,changing background color of page, text color etc., Text formatting tags, <p> ,<hr> tags, Ordered & Unordered Lists Tags, Inserting image, Links: text, image links, image mapping , Tables , Frames, Form Introduction with text box, text area, buttons, List box, radio, checkbox etc., Programs are to be covered on all topics	12
2	<b>CSS</b> Introduction To Style sheet, types of style sheets- Inline, External, Embedded CSS, Text formatting properties, CSS Border, margin properties, Positioning Use of classes in CSS, color properties, use of <div>&<span>	12
3	<b>JavaScript</b> Intro to script types, intro of JavaScript, JavaScript identifiers, operators, control & Looping structure, Intro of Array, Array with methods, Math, String, Date Objects with methods, User defined & Predefined functions, DOM objects, Window Navigator, History, Location, Event handling, Validations On Forms, Programs are to be covered on all topics	12
4	<b>VB Scripts</b> Intro. To VB Script, Variables, Data types, Control Structures &	12



	Loops, Functions in VBScript, Client side web scripting, Validating forms, DOM, Handling errors, Programs are to be covered on all topics  <b>PHP</b> Obtaining, Installing & Configuring PHP Introduction PHP & web server Architecture Model, Overview of PHP	
<b>Total</b>		<b>48</b>

**Reference Books:**

1. Complete reference HTML.
2. JavaScript Bible
3. HTML, DHTML, JavaScript, Perl & CGI Ivan Bayross
4. VBScript Programmers reference wrox Press
5. VBScript in Nutshell
6. Internet Technology at work Hofstetter fred
7. Programming the World Wide Web Robert W. Sebesta
8. Beginning PHP5

**Reference Sites:**

1. [www.w3schools.com](http://www.w3schools.com)
2. [www.devguru.com](http://www.devguru.com)

**List of Learning Activities**

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Group Activity	1
4	Quiz	2
5	Mock Audit	1
6	Presentation	2

## M.com (E-Commerce)

### E.C.403: Business Research & Analytics

#### Objective -:

1. To enhance knowledge and understanding of learners towards 'age of analytics' as a way of activities necessary for success in a knowledge economy.
2. To help to identify and to create situation by students to use and to study application of analytics and measurement tools.

Unit No.	Topic	Periods
1	<b>Conceptual understanding of terms:</b> Business intelligence, Business Analytics. Characteristics and application statistical decision theory – Game theory – PERT Queuing theory – Simulation Probabilistic inventory models. Tools techniques and metrics used in business for measurement evaluation and Revalidation.	12
2	<b>Introduction to research Methodology,</b> Nature Scope & Objective; type of research in social science and business; validity and reliability in research. Research design; features of a good design; types of design; research process and research proposal.	12
3	<b>Data Collection;</b> Types of Method of data collection; designing of questionnaire; Characteristics of a good questionnaire; interview techniques; interview techniques; Survey methods; optimal techniques.	12
4	<b>Presenting Report:</b> Steps in report writing; Format of report writing, Characteristics of a good report; Layout of a research paper.	12
<b>Total</b>		<b>48</b>

### Recommended Books

1. Competing on Analytics: The new science of winning – Davenport Thomas H. Harvard Business School Press (2007).
2. Introduction to Business Data Mining David Olson, Young Shi McGrew Hill- 2005 Quality Management.
3. Howard Gitlow, Alan Oppenheim McGrew Hill – 2005.
4. Statistical Quality Control, Eugene Grant McGrew Hill – 2000.
5. Measuring Business Performance Economist (2006).
6. Introduction to Operation Research Gillett – McGrewHill 2007 SIM.CRM(Manual ) Tata . McGrew Hill – 2003
7. Managerial Spread Modeling & Analysis Rick Hesse McGrew Hill (1997)

### List of Learning Activities

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

## M.Com. (E-Commerce)

### E.C.404: M-Commerce

Objectives	1. To understand the concept of M-commerce and related issues. 2. To learn the various M-commerce technology and its application.	
Unit No	Topic	No of Lectures
1	<b>Introduction to M-Commerce</b> Introduction, Emerging Application, Different Players in M-Commerce, M -Commerce Life Cycle , Difference between M-commerce and E-commerce, Mobile financial services & Proactive Service Management.	12
2	<b>Management Of Mobile Commerce Services</b> Content Development & Distribution to Handheld Services, Content Catching, Pricing of Mobile, commerce Services the Emerging, Issue in mobile commerce, The role of Emerging Wireless LAN's & 3G/4G, Wireless Network, Personalized Content Management. <b>Supporting global transaction for mobile client-</b> Global transaction processing, Utilizing the consistent data broadcast, Mobile client disconnection & data reconciliation	12
3	<b>Transaction database access for M-commerce Client:</b> Database access in mobile environment, System architecture, Local database, Regional server, Base station server <b>Mobile commerce technology an overview</b> <b>Communication technology:</b> GSM, GPRS & EDGE, VMTS, 4GS, Bluetooth, WAP <b>Information exchange Technology-</b>	12

	HTML, XML, WML, SMS	
4	<b>M-Commerce Application</b> Mobile ticketing, Mobile voucher, coupons & loyalty cards, Content purchase & delivery, Location based services, Information services, Mobile banking, Auctions, Mobile purchase, Mobile marketing & Advertising.	12

**Reference Books:-**

- 1) Nansi shi “Mobile Commerce Application”, IGI Global 2004.
- 2) Brian Mennecke & Troy Strader,” Mobile Commerce: Technology, Theory & Application”, Idea Group 2003.
- 3) Harold, Dory (2012). ["Theories of mobile commerce apps development"](#).
- 4) Wireless Devices for Mobile Commerce: User Interface Design and Usability, Peter Tarasewich (University of Massachusetts, Boston).
- 5) Mobile Portals: The Development of M-Commerce Gateways, Irvine Clarke & Theresa B. Flaherty (James Madison University).

**List of Learning Activities**

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com. (E-Commerce)**  
**E.C.406: Enterprise Resource Planning and Management**

**Objectives -:**

1. To know what is ERP.
2. To learn different ERP technologies.

Ch. No.	Topic	No. of Lectures
<b>1</b>	<p><b>ERP : An Overview-</b>            What is ERP? Reasons for Growth Of ERP, Problem areas in ERP implementations, The future of ERP, Characteristics and features of ERP&amp; Benefits of ERP.</p> <p><b>Enterprise Modeling and Integration for ERP –</b>            Enterprise-An overview: What is enterprise            Integrated Management Information, The role of enterprise            Business modeling, Integrated Data Model, Role of Common/Shared Enterprise Database            Linkages of the Enterprise</p> <ul style="list-style-type: none"> <li>• Establishing Customer-Enterprise Link</li> <li>• Establishing Vendor-Enterprise Link</li> <li>• Establishing Links within the Enterprise</li> <li>• Establishing Links with Environment</li> </ul> <p>Scope of Enterprise system , Generic Model of ERP System,            Client/Server Architecture and Enterprise – wide Computing</p> <ul style="list-style-type: none"> <li>• Characteristics of client/Server Architecture</li> <li>• Different Components of ERP Client/Server Architecture</li> </ul>	<b>12</b>
<b>2</b>	<p><b>ERP And related Technologies</b>            BPR (Business Process reengineering)            Definition: BPR –The different phases, Enterprise Redesign Principles, BPR and IT, Data Warehousing, Data Warehouse Components, Structure and Uses of Data Warehouse, Data Mining            What Is Data Mining, Data Mining Process, Advantages and Technologies Used In Data Mining, OLAP, Supply Chain Management: Definition, Steven’s Model, Benefits, ERP Vs SCM, CRM</p>	<b>12</b>
<b>3</b>	<p><b>ERP Implementation</b>            Evolution of ERP, Evolution of Packaged Software Solutions, The Obstacles in ERP implementation, ERP Implementation Lifecycle (Different Phases), Implementation Methodology, ERP Implementation-The Hidden Costs, In-house Implementation-Pros and Cons, Vendors and role of vendors for ERP &amp; Consultants and role of consultants for ERP.</p>	<b>12</b>

	<p><b>Technologies In ERP System</b></p> <p>Introduction: Electronic Data Interchange(EDI), Use of EDI, Evolution of EDI, Benefits of the EDI, EDI Standards, EDI Services, EDI Components, EDI Administration, Doc Application</p> <p>EDI Integration, ALE Integration, Internet Integration, OCR Integration</p>	
<b>4</b>	<p><b>The ERP Domain</b></p> <p>Vendors in the ERP Market, SAP's Markets, SAP Architecture And Integration, Scalability of SAP, SAP Business Structure, Common SAP Installation, SAP R/3 System , SAP Tools, Pepole Soft., Jd Edwards, Oracle</p> <p><b>ERP Present and Future</b></p> <p>Limitations of ERP, EIA (Enterprise Integration Application), EIA Products, Two Flavors of EIA and Messaging, ERP And E-Commerce, ERP and Internet.Future Directions in ERP.</p>	<b>12</b>
<b>Total</b>		<b>48</b>

### Recommended Books

1. ERP: Demystified – Alexis Leon (Tata McGraw Hill)
2. ERP – Ravi Shankar and S. Jaiswal (Galgotia)

### List of Learning Activities

Sr. No.	Activities	Learning Hours
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

**M.Com (E-Comm.)**  
**E.C.407: Multimedia Systems**

**Objectives -:**

1. To learn the concept of multimedia system, multimedia documents.
2. To learn the different multimedia software tools, storage technologies and image file Formats.

Chapter No.	Name of Topic	No. of Lectures
<b>1</b>	<p><b>Introduction to Multimedia</b> What is multimedia? History of Multimedia systems, Components of Multimedia Systems, Applications of Multimedia System</p> <p><b>Multimedia Application Development</b> Introduction, Story, flow line and script, Storyboard Guidelines: Guidelines for Visual Elements, Guidelines for Animation, Guidelines for Text &amp; Guidelines for Audio. Overview of multimedia Software tools: Digital Audio, Music sequencing notations, Image/Graphics editing &amp; Animation.</p>	<b>12</b>
<b>2</b>	<p><b>Multimedia Documents:</b> Document and document Architecture, Designing a Multimedia Interchange format, Standard Generalized Markup Language (SGML), Multimedia and Hypermedia Information coding Expert Group (MHEG), Open Media Framework (OMF).</p> <p><b>Storage Technology:</b> Magnetic Media: Hard Disk &amp; RAID, Optical Media: CD Storage &amp; CD standards, DVD: Sizes and Capacity of DVD, DVD Video &amp; DVD audio.</p>	<b>12</b>
<b>3</b>	<p><b>Audio</b> Basics of Digital Audio: What is Sound? Characteristics of Sound Synthesizers: Types of Synthesizers, Characteristics of Synthesizers Introduction to MIDI: What is MIDI, Components of MIDI, MIDI Messages, Sound Card: Basic Components, Processing Audio File - Wav files- MIDI files</p>	<b>12</b>
<b>4</b>	<p><b>Image/Graphics</b> Introduction: /Bit/pixel , Format of images, Color Models, Basic steps for Image Processing, Image Processing software, Graphics/ Image Data Structure : 8-bit color image &amp; 24-bit color image Standard System Independent Formats: GIF, TIFF &amp; JPEG System Dependent Formats: Microsoft Windows : BMP &amp; Macintosh : PAINT and PICT</p>	<b>10</b>
<b>Total</b>		<b>45</b>



**References:**

1. Principles of Multimedia by Ranjan Parekh
2. Multimedia : Computing, Communications and Applications – Rolf Steinmetz and Klara Nahrstedt
3. Multimedia Systems Design – Prabhat K. Andleigh and Kiran Thakrar

**List of Learning Activities**

<b>Sr. No.</b>	<b>Activities</b>	<b>Learning Hours</b>
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2

## M.Com (E-Comm.)

### E.C.408: Digital Marketing

#### Objectives :-

1. To acquaint students to Digital Marketing
2. To make students understand Search Engine Optimization and Pay-Per-Click Advertising.

Chapter No.	Name Of Topic	No. of Lectures
1	<b>Introduction to Digital Marketing:</b> Traditional Marketing V Digital Marketing,DMI Methods, DMI Frame work, DMI 3iPrinciples,Laws and Guidelines <b>Search Engine Optimization(SEO)</b> On-page/Off-page optimization, Customer insights, keyword research, Meta Tags, SEO Webmaster tools,Ranking,Inbound links and link building	12
2	<b>Search Engine Marketing</b> Keyword Research,Search Campaign Process, Targetting,Campaign Management,Conversion Tracking,Bidding <b>Digital Display Advertising</b> Challenges with Digital Display, Ad Formats ,Campaign Planning, Campaign Budget, Targeting, Targeting, Tracking the Campaign, Optimizing the Campaign	12
3	<b>Social Media Marketing</b> Social Media Goals, Setting Goals and priorities,Facebook insights,Twitter Engagement,Lindedln Setup & Profile, Google+Insights & Analysis,You Tube Features,Tumbir,Blogging	12
4	<b>Mobile Marketing</b> Mobile optimized Website,Apps V Mobile Sites,Site Development Process,Mobile Ad Formats Proximity Marketing,QR Codes,SMS Marketing,Mobile Analytics	12

	<b>Analytics</b> Cookies,Audiences,Acquisition,Behaviour,Audience,Conversion,Attribu tio, Setting KPIs	
		<b>48</b>

**References:**

**List of Learning Activities**

<b>Sr. No.</b>	<b>Activities</b>	<b>Learning Hours</b>
1	Assignments	3
2	Tests	2
3	Quiz	2
4	Presentation	2