B.Com (Computers)

(w.e.f. 2018–2019)

Third Year Syllabus (CBCS)

FACULTY OF COMMERCE, OSMANIA UNIVERSITY
HYDERABAD - 500 007 T.S.

2018

DEPARTMENT OF COMMERCE, O.U.
Structure of B.Com (Computers) (CBCS) for Osmania University, Hyderabad.
(w.e.f. Academic Year 2016-17)

B.COM (Computers) PROGRAMME

FIRST YEAR:
SEMESTER-I

Sl.No.	Code	Course Title	Course Type	HPW	Credits
(1)	(2)	(3)	(4)	(5)	(6)
1.	BC101	A/B/C/D	AECC-1	2	2
2.	BC102	English	CC-1A	5	5
3.	BC103	Second Language	CC-2A	5	5
4.	BC104	Financial Accounting - I	DSC-1A	5	5
5.	BC105	Business Economics	DSC-2A	5	5
6.	BC106	Business Organization	DSC-3A	4	4
7.	BC107	Information Technology	DSC-4A	3T+2P	4
		Total		**31**	**30**

SEMESTER-II

Sl.No.	Code	Course Title	Course Type	HPW	Credits
8.	BC201	A/B/C/D	AECC-2	2	2
9.	BC202	English	CC-1B	5	5
10.	BC203	Second Language	CC-2B	5	5
11.	BC204	Financial Accounting - II	DSC-1B	5	5
12.	BC205	Managerial Economics	DSC-2B	5	5
13.	BC206	Principles of Management	DSC-3B	4	4
14.	BCC207	Management Information System	DSC-4B	3T+2P	4
		Total		**31**	**30**

SECOND YEAR:
SEMESTER-III

Sl.No.	Code	Course Title	Course Type	HPW	Credits
15.	BC301	Principles of Insurance	SEC-1	2	2
16.	BC302	English	CC-1C	5	5
17.	BC303	Second Language	CC-2C	5	5
18.	BC304	Advanced Accounting	DSC-1C	5	5
19.	BC305	Income Tax-I	DSC-2C	5	5
20.	BC306	Business Statistics-I	DSC-3C	4	4
21.	BCC307	Programming with C	DSC-4C	3T+2P	4
		Total		**31**	**30**

SEMESTER-IV

Sl.No.	Code	Course Title	Course Type	HPW	Credits
22.	BC401	Practice of Life Insurance	SEC-2	2	2
23.	BC402	English	CC -1D	5	5
24.	BC403	Second Language	CC-2D	5	5
25.	BC404	Corporate Accounting	DSC-1D	5	5
26.	BC405	Income Tax-II	DSC-2D	5	5
27.	BC406	Business Statistics-II	DSC-3D	4	4
28.	BCC407	Objective Oriented Programming with C++	**DSE-4D**	**3T+2P**	**5**
		Total		**31**	**30**

THIRD YEAR: SEMESTER-V						
29.	BC501	Practice of General Insurance	SEC-3		2	2
30.	BC502	Introduction to Indian Economy	GE-1		2	2
31.	BC503	Cost Accounting	DSC		4	4
32.	BC504	Business Law	DSC		4	4
33.	BC505	Banking Theory & Practice	DSC		4	4
34.	BCC506	Excel Foundation	DSC		4	4
35.	**BCC507(a)** **BCC507(b)**	**Computerised Accounting/** **Business Analytics**	**DSE** **DSE**		**4T+2P** **5**	**5** **5**
36.	**BCC508(a)** **BCC508(b)**	**Web Technology/** **Business Simulation**	**DSE** **DSE**		**4T+2P** **5**	**5** **5**
		Total			**30/32**	**30**
SEMESTER-VI						
37.	BC601	Regulation of Insurance Business	SEC-4		2	2
38.	BC602	Sectors of Indian Economy	GE-2		2	2
39.	BC603	Theory and Practice of GST	DSC		3T+2P	4
40.	BC604	Company Law	DSC		4	4
41.	BC605	Managerial Accounting	**DSC**		**4**	**4**
42.	BC606	Commerce Lab	DSC		2T+4P	4
43.	**BCC607(a)** **BCC607(b)**	**E-Commerce/** **Business Forecasting**	**DSE** **DSE**		**4T+2P** **5**	**5** **5**
44.	**BCC608(a)** **BCC608(b)**	**Relational Database Management Systems/** **Business Analytics Programming**	**DSE** **DSE**		**4T+2P** **5**	**5** **5**
		Total			**33/35**	**30**
		GRAND TOTAL			**187**	**180**

AECC: Ability **E**nhancement **C**ompulsory **C**ourse; *SEC: Skill Enhancement Course; DSC: Discipline Specific Course; DSE: Discipline Specific Elective; GE: Generic Elective; T=Theory; P=Practicals;*

SUMMARY OF CREDITS

Sl. No.	Course Category	No. of Courses	Credits Per Course	Credits
1	AECC	2	2	4
2	SEC	4	2	8
3	CC Language **DSC**	8 **8** 16	5 **5** 4	40 **40** 64
4	**DSE**	**5**	**4**	**20**
5	GE	2	2	4
	TOTAL	**44**		**180**
	Commerce Total	**28**		**124**

SYLLABUS

Paper : (BC 501) : PRACTICE OF GENERAL INSURANCE

Paper: BC501   Max. Marks: 40+10
PPW: 2 Hrs   Exam Duration: 1½ hrs

Unit I: GENERAL INSURANCE POLICIES:
Introduction to General Insurance-Origin of general insurance—Classification of General Insurance Companies—Indian and International Insurance Market—various roles in Insurance industry—Policy Documents and forms—insurance proposals and forms—General Insurance Products-Fire, Marine, Motor, Liability, Personal Accident and Specialty Insurance, Engineering and other insurance.

Unit II: UNDERWRITING, PREMIUMS, CLAIMS AND INSURANCE RESERVES AND ACCOUNTING:
Concept of Underwriting—Underwriting Process—Risk sharing and its methods—risk management and steps involved in it—Rating and Premiums—concept of soft and hard markets—Concept of Claim-understanding the process of claim management—claims fraud and fraud prevention—Insurance reserves and accounting—different types of reserves of insurance companies—reserving process followed by insurance companies—Insurance accounting.

SUGGESTED READINGS :
 1. Practice of General Insurance – Insurance Institute of India.
 2. Practice of General Insurance – D.S. Vittal-HPH.
 3. Principles & Practice of Insurance- Dr. P. Periasamy – HPH.
 4. Risk Management : A Publication of the Insurance Institute of India.,
 5. Practice of General Insurance: Dr. V. Padmavathi, Dr. V. Jayalakshmi, PBP.
 6. Insurance Theory and Practice: Tripathi PHI
 7. Life and Health Insurance: Black, JR KENNETH & Harold Skipper, Pearson
 8. Risk Management and Insurance : Trieschman ,Gustavson and Hoyt
 9. South Western College Publishing Cincinnati, Ohio.

Paper : (BC 502) : INTRODUCTION TO INDIAN ECONOMY

Paper: BC502   Max. Marks: 40+10
PPW: 2 Hrs   Exam Duration: 1½ Hrs

Objectives: 1) to provide an overview of Indian economy
                2) to make the student acquaint with the latest developments in the economy

UNIT I: STRUCTURE OF THE INDIAN ECONOMY:

Indian Economy-Characteristics-Developmental issues-Structural changes in the Indian Economy-Human Development-concept and measures-Occupational distribution and economic development-Natural Resource: Land, Forest, Water & Minerals-Environmental degradation-Infrastructure: Energy, Power, Transport-Social infrastructure

UNIT II: POLICY ASPECTS OF INDIAN ECONOMY:

Liberalization - Privatization-Globalization-Poverty- Unemployment: nature and problems - The parallel economy – Industrial Policy.

SUGGESTED READINGS:

1) Meera Naidu "Introduction to Indian Economy" HPH
2) Ruddar Datt and K.P.M. Sundharam "Indian Economy", S. Chand & Company Ltd., New Delhi, 2013.
3) S.K.Misra & V.K.Puri "Indian Economy-Its Development Experience"Himalaya Himalya Publishing Company, New Delhi, 2013.
4) Introduction to Indian Economy: Dr. P. Venugopal Rao, PBP.
5) Vivek Mittal "Business Environment" Excel Publications, New Delhi, 2013.
6) Aswathappa.K. "Essentials of Business Environment – Text, cases & Exercises" Himalaya Himalya Publishing Company, New Delhi, 2013.
7) Economic Survey—Government of India, Ministry of Finance, Oxford University Press, New Delhi,
8) The Economic Times, News paper
9) Business Line, News paper

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Paper : (BC 503) : COST ACCOUNTING

Paper: BC503   Max. Marks: 80 + 20
PPW: 4 Hrs   Exam Duration: 3 Hrs

Objective: to make the students acquire the knowledge of cost accounting methods.

UNIT-I: INTRODUCTION:
Cost Accounting: Definition – Features – Objectives – Functions – Scope – Advantages and Limitations - Essentials of a good cost accounting system- Difference between Cost Accounting and Financial Accounting – Cost concepts – Cost Classification.

UNIT-II: MATERIAL:
Direct and Indirect Material cost – Inventory Control Techniques – Stock Levels – EOQ – ABC Analysis – JIT - VED - FSND - Issue of Materials to Production – Pricing methods: FIFO - LIFO with Base Stock and Simple and Weighted Average methods.

UNIT-III: LABOUR AND OVERHEADS:
Labour: Direct and Indirect Labour Cost – Methods of Payment of Wages (only Incentive Plans): Halsey, Rowan, Taylor Piece Rate and Merrick Multiple Piece Rate Methods.
Overheads: Classification - Methods of Allocation - Apportionment and Absorption of overheads.

UNIT-IV: UNIT AND JOB COSTING:
Unit Costing: Features - Cost Sheet – Tender and Estimated Cost Sheet.
Job Costing: Features - Objectives – Procedure - Preparation of Job Cost Sheet.

UNIT-V: CONTRACT AND PROCESS COSTING:
Contract Costing: Features – Advantages - Procedure of Contract Costing – Guidelines to Assess profit on incomplete Contracts.
Process Costing: Meaning – Features – Preparation of Process Account – Normal and Abnormal Losses.

SUGGESTED READINGS:

1. Cost Accounting: Jain and Narang, Kalyani
2. Cost Accounting: Srihari Krishna Rao, Himalaya
3. Cost and Management Accounting: Prashanta Athma, Himalaya
4. Cost Accounting: Dr. G. Yogeshweran, PBP.
4. Cost Accounting: Jawaharlal, Tata Mcgraw Hill
5. Cost Accounting: Theory and Practice: Banerjee, PHI
6. Introduction to Cost Accounting: Tulsian, S.Chand
7. Cost Accounting: Horngren, Pearson
8. Cost Accounting: Ravi M. Kishore, Tax Mann Publications.

Paper : (BC 504) : BUSINESS LAW

Paper: BC504   Max Marks: 80 + 20
PPW: 4 Hrs   Exam Duration: 3Hrs
Objective: to make the students acquire basic conceptual knowledge of different laws relating to Business.

UNIT–I: INTRODUCTION:

Development of Business Law - Development of Law in Independent India Contract Act 1872: Agreement and contract - Essentials of a valid contract - Types of contracts - Offer and Acceptance - Essentials of valid offer and acceptance - Communication and revocation of offer and acceptance – Consideration definition - Essentials of valid consideration - Doctrine of "Stranger to a contract"- "No consideration- No contract" - Capacity to a contract - Minors agreements.

UNIT–II: CONTRACT ACT 1872:

Legality of Object and Consideration - Agreements Expressly Declared To Be Void - Wagering Agreements - Contingent Contracts.
Discharge of Contract: Modes of Discharge - Performance of Contracts - Breach of Contract - Remedies for Breach.

UNIT–III: SALE OF GOODS ACT 1930:

Contract of Sale: Essentials of Valid Sale - Sale and Agreement to Sell – Definition and Types of Goods - Conditions and Warranties - Caveat Emptor - Exceptions - Transfer or Passing of Property: Time When Property Passes, Rules of Transfer of Property, Transfer of Ownership - Sale by Non-Owners and its Exceptions - Unpaid Seller - Rights of Unpaid Seller.
Consumer Protection Act 1986: Definitions of Consumer – Person – Goods - Service -Consumer Dispute - Unfair Trade Practice - Restrictive Trade Practice – Defect - Deficiency - Consumer Protection Councils - Consumer Dispute Redressal Agencies - District Forum - State Commission and National Commission - Procedure to Lodge a Complaint for Redressal – Appeals.

UNIT–IV: TRADE MARKS, PATENTS, COPY RIGHTS & INTELLECTUAL PROPERTY RIGHTS:

Trade Marks: Definition - Procedure for Registration of Trade Marks - Patents: Definition - Kinds of Patents - Transfer of the Patent Rights - Rights of the Patentee - Copy Rights: Definition - Essential Conditions for Copy Rights to be Protected - Rights of the Copyright Owner - Terms of Copy Right - Copy Rights Infringement - Other Intellectual Property Rights: Trade Secrets - Geographical Indications.

UNIT–V: INFORMATION TECHNOLOGY ACT & ENVIRONMENTAL PROTECTION ACT:

Information Technology Act-2000: Objectives - Digital Signature - Electronic Governance - Penalties and Adjudication.
Environmental Protection Act 1986: Object - Scope and Scheme of the Act – Definitions - General Powers of the Central Government – Prevention - Control and Abetment of Environmental Pollution – Offences and Penalties.

SUGGESTED READINGS:

1) Company Law: Kapoor, Sultan Chand and Co.
2) Business Law: Sandhya KVN, Himalaya
3) Business Laws: KC Garg & RC Chawla , Kalyani Publishers.
4) Business Law: Prof. G. Krishna Murthy, PBP.
5) Business Law: PC Tulsian & Bharat Tulsian, McGraw Hill Education
6) Business Law: Tejpal Sheth, Pearson.
7) Business Law: MC Kuchal & Vivek Kuchal, Vikas Publishing House.
8) Business Law: Mathur, McGraw Hill Education.
9) Business Law including company Law: SS Gulshan & GK Kapoor, New Age
10)Business Law: Peddina Mohan Rao, PHI.
11) Business Law: P.N. Bansal, Tax Mann Pulications.
12) Business Law: R.S.N. Pillai and Bagavathi, S. Chand.

Paper : (BC 505) : BANKING THEORY AND PRACTICE

Paper: BC505   Max. Marks: 80 + 20
PPW: 4 Hrs   Exam Duration: 3Hrs

Objective: to acquire knowledge of working of Indian Banking system.
UNIT-I: INTRODUCTION:
Origin and Growth of Banking in India - Unit Vs Branch Banking - Functions of Commercial Banks - Nationalization of Commercial Banks in India - Emerging Trends in Commercial Banking in India: E-Banking – Mobile Banking - Core Banking – Bank Assurance – OMBUDSMAN.

UNIT-II: RESERVE BANK OF INDIA:
RBI Constitution - Organizational Structure – Management - Objectives – Functions – Monetary Policy.

UNIT-III: TYPES OF BANKS:
District Co-Operative Central Banks – Contemporary Banks - Regional Rural Banks - National Bank for Agriculture and Rural Development (NABARD) – SIDBI – Development Banks.

UNIT-IV: BANKER AND CUSTOMER RELATIONSHIP:
Definition of Banker and Customer - Relationship Between Banker and Customer - KYC norms - General and Special Features of Relationship - Opening of Accounts - Special Types of Customers Like Minor, Married Women, Partnership Firms, Companies, Clubs and other Non-Trading Institutions.

UNIT-V: NEGOTIABLE INSTRUMENTS:
Descriptions and their Special Features - Duties and Responsibilities of Paying and Collecting Banker - Circumstances under which a Banker can refuse Payment of Cheques - Consequences of Wrongful Dishonors - Precautions to be taken while Advancing Loans Against Securities – Goods - Documents of Title to Goods - Loans against Real Estate -Insurance Policies - Against Collateral Securities – Banking Receipts.
Rule in Clayton's Case - Garnishee Order – Loans against Equitable Mortgage - Legal Mortgage - Distinction between them - Latest Trends in Deposit Mobilization.

SUGGESTED READINGS:
1. Banking Theory & Practices: Dr. P. K. Srivatsava, Himalaya Publishers
2. Banking Theory & Practices: K.E. Shekar, Vikas Publications
3. Banking theory & Practices: Santhi Vedula, HPH.
4. Banking Theory & Practices: Dr. J. Jayanthi, PBP.
5. Banking Theory, Law & Practices: R. R Paul, Kalyani Publishers
6. Money Banking and Financial Markets: Averbach, Rabort. D, MacMillan. Landon
7. Banking: N.T. Somashekar, New Age International Publishers
8. Fundamentals of International Banking: Rup Narayan Bose, Trinity Publishers
9. Modern Commercial Banking: H.R. Machiraju, New Age International Publishers
10. Banking Theory & Practices: R. Rajesh, Tata McGraw Hill
11. Merchant Banking & Financial Services: S. Guruswamy, Tata McGraw Hill
12. Management of Banking & Financial Services; Padmalatha Suresh, Pearson
13. Modern Banking: D. Muralidharan, PHI

Paper : (BCCA 506) :EXCEL FOUNDATION

Paper: BCCA 506   Max. Marks: 80+20
THPW: 4 Hrs   Exam Duration: 3 Hrs

Objective: Students will learn how to start working with M S Excel right from basics to Tables, Templates and Printing of their work.

UNIT-I: **INTRODUCTING EXCEL:** Workbooks and Worksheets, Moving Around a Worksheet, Ribbon tabs, Types of commands on the Ribbon, Using Shortcut Menus, Working with Dialogue Boxes, Task Panes, Getting started on your worksheet, Creating a chart, Printing your worksheet, Saving your worksheet, Exploring Data Types, Modifying Cell Contents, Deleting, Replacing, Editing of a cell. Some handy data entry techniques, Number Formatting.

UNIT-II: **WORKSHEET OPERATIONS:** Moving and resizing windows, Switching among windows, Activating a worksheet, Adding, Deleting a worksheet, Changing a sheet tab color, Rearranging your worksheets, Hiding, un-hiding a worksheet, Worksheet View, Comparing sheets side by side, Selecting ranges, complete rows and columns, noncontiguous ranges, multi-sheet ranges, special types of cells. Copying or Moving Ranges. Paste Special dialogue box, Adding comments to cells.

UNIT-III: **TABLES AND FORMATTING:** Creating a Table, Changing the Look of a Table, Navigating in a Table, Selecting parts of a Table, Adding, Deleting new rows or columns, Moving a Table, Working with the Total Row, Removing duplicate rows from a table. Sorting and filtering a table, Converting Table into Range. Formatting tools on the Home tab, Mini Toolbar, Fonts, Text Alignment, Wrapping text to fit a cell, Colors and Shading, Borders and Lines. Naming Styles.

UNIT–IV: EXCEL FILES & TEMPLATES: Creating a New Workbook, Filtering filenames, Saving and Auto Recovery, Password-Protecting a Workbook, Recovering unsaved work, Protect Workbook options, Checking Compatibility. Creating a Excel Templates, Modifying a template, Custom Excel Templates, Default Templates, Editing your Template, Resetting the default workbook, Saving your Custom Templates, Getting ideas for creating Templates.

UNIT–V: **PRINTING YOUR WORK:** Normal, Page Layout, Page Break View, Choosing your printer, Specifying what you want to print, Changing Page Orientation, Specifying paper size, Adjusting page margins, Inserting a page break, Removing manual page breaks, Printing Row and Column Titles, Scaling printed output, Header or Footer Options, Preventing certain cells, Objects from being printed, Creating Custom Views of your Worksheet. Creating PDF files.

Introducing Excel:
SUGGESTED READINGS:

1. Excel 2013 Bible: John Walkenbach, Wiley.
2. Microsoft Excel 2013: Data Analysis and Business Modeling: Winston, PHI
3. Excel Data Analysis - Modeling and Simulation: Hector Guerrero, Springer.
4. Excel Functions and Formulas: Bernd Held,BPB Publications.
5. Financial Analysis and Modeling using Excel and VBA: Chandan Sengupta, Wiley

Paper : (BC 507) (a) : COMPUTERISED ACCOUNTING

Paper: BC507(a)   Max. Marks: 80 + 20
PPW: 5 (4T & 2P)   Exam Duration: 3 Hrs.
Objective: To make the students to acquire the knowledge of computer software

CHAPTER I: MAINTAINING CHART OF ACCOUNTS IN ERP:
Introduction-Getting Started with ERP - Mouse/Keyboard Conventions-Company Creation-Shut a Company-Select a Company-Alter Company Details-Company Features and Configurations-F11: Company Features-F12: Configuration-Chart of Accounts-Ledger-Group-Ledger Creation-Single Ledger Creation-Multi Ledger Creation-Altering and Displaying Ledgers-Group Creation-Single Group Creation-Multiple Group Creation-Displaying Groups and Ledgers-Displaying Groups-Display of Ledgers-Deletion of Groups and Ledgers – P2P procure to page.

CHAPTER II: MAINTAINING STOCK KEEPING UNITS (SKU):
Introduction-Inventory Masters in ERP - Creating Inventory Masters-Creation of Stock Group-Creation of Units of Measure-Creation of Stock Item-Creation of Godown-Defining of Stock Opening Balance in ERP Stock Category-Reports.

CHAPTER III: RECORDING DAY-TO-DAY TRANSACTIONS IN ERP:
Introduction-Business Transactions-Source Document for Voucher-Recording Transactions in ERP - Accounting Vouchers-Receipt Voucher (F6)-Contra Voucher (F4)-Payment Voucher (F5)-Purchase Voucher (F9)-Sales Voucher (F8)-Debit Note Voucher-Credit Note (Ctrl+F8)-Journal Voucher (F7).

CHAPTER IV: ACCOUNTS RECEIVABLE AND PAYABLE MANAGEMENT:
Introduction-Accounts Payables and Receivables-Maintaining Bill-wise Details-Activation of Maintain Bill-wise Details Feature-New Reference-Against Reference-Advance-On Account-Stock Category Report-Changing the Financial Year in ERP.

CHAPTER V: MIS REPORTS:
Introduction-Advantages of Management Information Systems-MIS Reports in ERP - Trial Balance - Balance Sheet-Profit and Loss Account-Cash Flow Statement-Ratio Analysis-Books and Reports - Day Book-Receipts and Payments-Purchase Register-Sales Register-Bills Receivable and Bills Payable.

REFERENCE BOOKS:

1. Computerised Accounting: Garima Agarwal, Himalaya
2. Computerised Accounting: A. Murali Krishna, Vaagdevi publications
3. Computerised Accounting: Dr. G. Yogeshweran, PBP.
4. Aakash Business Tools: Spoken Tutorial Project IIT Bombay
5. Mastering Tally: Dinesh Maidasani, Firewal Media
6. Implementing Tally ERP 9: A.K Nadhani and K.K Nadhani, BPB Publications
7. Computerised Accounting and Business Systems: Kalyani Publications
8. Manuals of Respective Accounting Packages
9. Tally ERP 9: J.S. Arora, Kalyani Publicatio

Paper : (BCC 507) (b): BUSINESS ANALYTICS

Paper: BCC 507 (b)   Max. Marks: 80+20
PPW: 5 Hrs   Exam Duration: 3 Hrs

Objective: To acquire knowledge for application of Business Analysis techniques and tools in a given business scenario

UNIT-I: INTRODUCTION:
To Decision Science: History of Operations Research/Decision Science, Definition and Features of Decision Science. Approach to Problem Solving, Methodology of Decision Science, Opportunities and Shortcomings of the Decision Science Approach, Applications of Decision Science. Computer Software for Decision Science.

UNIT-II: INTRODUCTION TO LINEAR PROGRAMMING:
Structure of Linear Programming Model, Advantages and Limitations of Linear Programming, Application areas of Linear Programming, General Mathematical Model of Linear Programming Problems, Guidelines of Linear Programming Model Formulation

UNIT-III: METHODS OF LINEAR PROGRAMMING - I:
The Graphical Method, Important Definitions, Extreme Point Solution Method, Examples on Maximization LP Problem, Examples on Minimization LP Problem; Examples on Mixed Constraints LP Problem, Iso-Profit (Cost) Function Line Method.

UNIT-IV: METHODS OF LINEAR PROGRAMMING - II:
The Simplex Method, Simplex Algorithm (Maximization case), Simplex Algorithm (Minimization case), Two Phase Method, Big M Method, Some Complications and their Resolutions: Unrestricted Variables, Tie for Entering Basic Variable, Tie for Leaving Basic Variable, Degeneracy.

UNIT-V: EXPLORATORY DATA ANALYSIS:
Exploring Central Tendency of Data, Exploring Dispersion of Data in terms of Standard Deviation, Skewness and Kurtosis, Standard Error of Mean, Designing Confidence Intervals, Identifying Outliers through Box Plot.

SUGGESTED READINGS:
1. Operations Research: J K Sharma, Macmillan.
2. Operations Research: Anand Sharma, HPH
3. Operations Research: Hamdy A. Taha, Pearson.
4. Operations Research: Mote and Madhaan, Wiley
5. Quantitative Techniques in Management: N. D. Vohra, Tata McGraw Hill.
6. Quantitative Techniques for Managerial Decisions: U. K. Srivastava, G. V. Shenoy and S. C. Sharma. New Age International Ltd.

BCC 508: WEB TECHNOLOGY

Paper: BCC 508   Max. Marks: 80+20
PPW: 5 (4T + 2P)   Exam Duration: 3 Hrs

Objective: to gain skills of usage of Web Technologies to design Web pages.

UNIT-I: INTRODUCTION:
Art of creating a web site - Markup language (HTML) – Hypertext - Formatting text - Forms & formulating instructions & formulation elements – Commenting code – Anchors - Back grounds – Images - Hyperlinks – Lists –Tables – Frames - Web design principles.

UNIT-II: AN OVER VIEW OF DYNAMIC WEB PAGES & DYNAMIC WEB PAGE:
An over view of dynamic web pages and dynamic web page technologies: Introduction to Dynamic HTML programing - Cascading style sheets (CSS) - Basic syntax and structure -Events handling - Changing Text and Attributes - Dynamically changing style - Text Graphics and placements - Creating multimedia effects with filters and Transactions.

UNIT-III: JAVA SCRIPT:
Introduction - Client side Java script - Server side Java script - Core features - Data types and variables – Operators - Expressions and statements – Functions – Objects – Array - Date and math related objects - Document object model - Event handling.

UNIT-IV: EVENTS AND EVENT HANDLERS:
General information about Events – Event – OnAbort – OnClick - Ondbl click - Ondrag drop – Onerror - Onfocus - Onkey Press – Onkey Up – Onload - Onmouse Down – Onmouse Move - Onmouse Out – Onmouse Over - Onmove - Onrest – Onresize - Onselect - On submit - Onunload.

UNIT-V: EXTENSIBLE MARKUP LANGUAGE (XML):
Introduction - Creating XML Documents - XML style Sheet - Hyperlinksin XML Document Object Model - XML Query Language.

LAB WORK: CREATING A WEBSITE WITH DYNAMIC FUNCTIONALITY USING CLIENT- SIDE AND SERVER SIDE SCRIPTING.

SUGGESTED READINGS:
1. Web Technology: Pradeep Kumar, HPH
2. Internet & World Wide Web How to Program: Deitel & Deitel, Pearson.
3. Web programming: Chris Bates.
4. HTML & XML An Introduction NIIT, PHI.
5. HTML for the WWW with XHTML & CSS: Wlizabeth Castro, Pearson
6. Internet and Web Technologies: Raj Kamal, McGraw Hill.
7. Web Technology: A Developer's Perspective: Gopalan & Sivaselvan, PHI.
8. The Complete Reference PHP: S. Holzner, McGraw Hill.
9. Internet Technology and Web Page Design: R.Singh&M.Sonia, Kalyani.
10.   Web Programming using PHP and MySQL: A.Babu, K.Meena & Sivakumar, HPH.
11. Web Technology and Design by Xavier, New Age International Pub.

Paper : (BCC 508) : BUSINESS SIMULATION

Paper: BCC 508 Max. Marks: 80+20
PPW: 5 Hrs Exam Duration: 3 Hrs

Objective: Students will learn how to build simulation models using M S Excel.

UNIT-I: FUNCTIONS AND FORMULAS: Understanding Screen Layout - Creating Auto List & Custom List - Entering, Selecting and Editing Data - Understanding References (Relative, Absolute & Mixed) - Working on Various Functions & Formulas - Common Basic Functions - Logical Functions - Text Functions - Date & Time Functions - Lookup & Reference Functions - Mathematical Functions - Conditional Functions - Referring Data from Different Worksheet & Workbook Formula–Auditing -Various Calculation Techniques - Working on Ranges.

UNIT-II: **PRESENTATION OF DATA:** Sorting Techniques - Various Data Filtering Techniques - Formatting Techniques - Conditional Formatting - Number Formatting - Table Formatting - Protecting Sheets & Files - Understanding Various Excel Window Techniques - Viewing Excel Spreadsheet in various Layouts - Advanced Printing Techniques - Templates - Themes.

UNIT-III: **DATA ANALYSIS TOOLS:** Data Consolidation - Text to Columns - Flash Fill - Remove Duplicates - Advanced Data Validation Techniques - What-if Analysis - Goal Seek - Data Table - Solver – Scenarios; Working with Tables - Creating Charts - Understanding Sparklines (Line, Column, Win/Loss) - Pivot Tables & Pivot Charts.

UNIT – IV: **SIMULATION – 1:** Simulations, Decision Trees and Forecasting, when should we use simulation, simulation modeling cycle. Introduction to Monte Carlo Simulation, generating random values, discrete and continuous functions,Excel for simple simulation.

UNIT – V: **SIMULATION – II:** Managerial applications of risk analysis, performing a simulation using @Risk, analyzing the simulation output, generating various plots. Simulation in forecasting, Advanced simulation techniques, simulations for: stocks, financial statements, games, taxes (Any two).

SUGGESTED READINGS:

1. Excel 2013 Bible: John Walkenbach, Wiley.
2. Excel Data Analysis - Modeling and Simulation: Hector Guerrero, Springer.
3. Excel Functions and Formulas: Bernd Held,BPB Publications.
4. Microsoft Excel 2013: Data Analysis and Business Modeling: Winston, PHI
5. Financial Analysis and Modeling using Excel and VBA: Chandan Sengupta, Wiley

BC 601: REGULATIONS OF INSURANCE BUSINESS

Paper: BC601   Max. Marks: 40+10
PPW: 2 Hrs   Exam Duration: 1½ Hrs
Objective: To equip the students with the knowledge regarding Insurance Business Regulations

UNIT I: INSURANCE LEGISLATION IN INDIA:

History of life and non-life insurance legislation—nationalization—insurance reforms—insurance business Act, 1972—IRDA and its functions including licensing functions—Web aggregators—regulation for intermediaries—CCS-SPV-PoS-insurance repositories-TPAs—Role and duties of surveyors—Origin and development of micro-insurance—regulation of ULIPs—pension schemes—money laundering—KYC—methods of receipt of premium—Exchange control regulations relating to General and Life Insurance—IRDA Health Insurance Regulations, 2016—Health plus life combi products.

UNIT II: POLICY HOLDERS RIGHTS OF ASSAINGMENT, NOMINATION AND TRANSFER:

Assignment and transfer of insurance policies—provisions related to nomination—repudiation—Fraud—protection of policyholder interest—stages in insurance policy-presale stage-post sale stage-free look period—grievance redressal—claim settlement—key feature document—dispute resolution mechanism—insurance ombudsman—solvency margin and investments—international trends in insurance regulation.

SUGGESTED READINGS :
1. Regulation of Insurance Business – Insurance Institute of India
2. Regulation of Insurance Business – D.S. Vittal, HPH
3. Regulation of Insurance Business: Dr. V. Padmavathi, PBP
4. Risk Management : A Publication of the Insurance Institute of India
5. Insurance Theory and Practice: Tripathi PHI
6. Life and Health Insurance: Black, JR KENNETH & Harold Skipper, Pearson
7. Risk Management and Insurance : Trieschman ,Gustavson and Hoyt
8. South Western College Publishing Cincinnati, Ohio.
9. Insurance Management – S.C. Sahoo & S.C. Das-HPH.

BC 602: SECTORS OF INDIAN ECONOMY

Paper: BC602   Max. Marks: 40+10
PPW: 2 Hrs   Exam Duration: 1½ Hrs

Objective: To equipment the students with the knowledge regarding Basics of Indian Economy

UNIT I: AGRICULTURE IN INDIA:

Place of agriculture: Progress-Green revolution-Present state-New thrust areas-Food security: Legislation-Schemes-Public distribution system-Agricultural Marketing: Types-warehousing-Agricultural Labour-Minimum wages-Rural credit-RRBs-NABARD.

UNIT II: INDUSTRIES AND TERTIARY SECTOR IN INDIA:

Role and pattern of industrialization-Large-scale industry- Small-scale industry-Information Technology Industry-Labour problems-Labour Policy-Social Security-Trade Union Movement-Industrial Disputes-Unorganized Sector-Foreign Trade - Balance of Payments - SEZs- Foreign Exchange- Convertibility-Banking Sector-Money Market- Public Finance-Financial relations between Centre and States;.

SUGGESTED READINGS:

1) Ruddar Datt and K.P.M. Sundharam "Indian Economy", S. Chand & Company Ltd., New Delhi, 2010.
2) S.K.Misra & V.K.Puri "Indian Economy-Its Development Experience"Himalaya Himalya Publishing Company, New Delhi, 2010.
3) Vivek Mittal "Business Environment" Excel Publications, New Delhi, 2007.
4) Sectors of India Economy: Dr. P. Venugopal Rao, PBP
5) Anjaneyulu, "Introduction to Indian Economy" Himalaya Himalya Publishing Company, New Delhi, 2011.
6) Economic Survey—Government of India, Ministry of Finance, Oxford University Press, New Delhi,
7) Sectors of Indian Economy: Satya Sudha, Himalaya
8) The Economic Times, News paper
9) Business Line, News paper

BC 603: THEORY AND PRACTICE OF GST

Paper: BC603   Max. Marks: 80 + 20
PPW: 3T+2P   Exam Duration: 3Hrs
Objective: To equipment the students with the knowledge regarding Theory and Practice of GST

CHAPTER I: INTRODUCTION TO GST:
Introduction – GST - Taxes Subsumed under GST -Determination of Tax - Registration -Process of Registration - Cancellation and renovation of registration - Supply of Goods and Services - Transition to GST - Registered Business -Availed Input Tax Credit -Unavailed CENVAT credit and Input VAT on capital goods-Availing the input credit held in closing stock -Invoicing -Tax Invoice -Bill of Supply - Credit Note, Debit Note and Supplementary Invoice-Transportation of goods without issue of Invoice - Input Credit Mechanism - Input Tax - GST Returns - Payment of Tax.

CHAPTER II: GETTING STARTED WITH GST:
Introduction - Enabling GST and Defining Tax Details-Transferring Input Tax credit to GST -Intrastate Supply of Goods-Intrastate Inward Supply -Intrastate Outward Supply -Interstate -Interstate Outward Supply - Return of Goods -Purchase Returns -Sales Returns -Supplies Inclusive of Tax -Defining Tax Rates at Master and Transaction Levels - Defining GST Rates at Stock Group Level-Defining GST Rate at Transaction Level -Hierarchy of Applying Tax Rate Details –Reports.

CHAPTER III: RECORDING ADVANCED ENTRIES, GST ADJUSTMENT AND RETURN FILING:
Introduction -Accounting of GST Transactions -Purchases from Composition Dealer -Purchases from Unregistered Dealers-Exports -Imports -Exempted Goods -SEZ Sales -Advance Receipts and payments - Mixed Supply and Composite Supply under GST -Mixed Supply of Goods -Composite Supply of Goods -GST Reports - Generating GSTR- Report in ERP -Input Tax Credit Set Off -GST Tax Payment -Time line for payment of GST tax -Modes of Payment -Challan Reconciliation -Exporting GSTR- return and uploading in GST portal.

CHAPTER IV: GETTING STARTED WITH GST (SERVICES):
Introduction -Determination of supply of services -Determining the Place of Supply of Services -Enabling GST and Defining Tax Details-Transferring Input Tax credit to GST -Intrastate Supply of Goods - Intrastate Inward Supply-Intrastate Outward Supply -Interstate Supply -Interstate Outward Supply - Interstate Inward Supply -Interstate Outward Supply of Services -Cancellation of Services -Cancellation of Inward Supplies -Cancellation of Outward Supply of Services -Defining Tax Rates at Master and Transaction Levels.

CHAPTER V: RECORDING ADVANCED ENTRIES AND MIGRATION TO ERP:
Introduction - Accounting Multiple Services in a Single Supply - Recording Partial Payment to Suppliers -Outward Supplies - Recording Outward Supply with Additional Expenses - Supply of services -Business to consumers - Time of Supply of Services - Place of Supply of Services - Determining place of supply of services - Exempt Supply of Services under GST -Export Supply of Services - Reverse Charge on Services under GST - Advance Receipts from Customers under GST - Advance Receipt and issuing Invoice on same month -Advance Receipt and issuing Invoice on different month - Reversal of GST on account of cancellation of advance receipt - Generating GSTR- Report in ERP - Input Tax Credit Set Off - Migration to ERP - Activate Goods and Services Tax (GST) in ERP - Set up GST rates - Update Masters - Update party GSTIN/UIN - Creation of GST Duty ledgers.

SUGGESTED READINGS:
1. Taxmann's Basics of GST
2. Taxmann's GST: A practical Approach
3. Theory & Practice of GST, Srivathsala, HPH
4. Theory & Practice of GST: Dr. Ravi M.N, PBP.

BC 604: COMPANY LAW (2013Act)

Paper: BC604   Max. Marks:80 + 20
PPW: 4   Exam Duration: 3Hrs

Objective: to understand legal provisions applicable for establishment, management and winding up of companies in India as per Companies Act 2013.

UNIT-I: INCORPORATION OF COMPANIES:
Company: Meaning and Definition – Characteristics - Classification – Legislation on Companies – Incorporation - Promotion – Registration - Memorandum of Association – Articles of Association – Certificate of Incorporation - Prospectus – Statement in lieu of Prospectus – Commencement of business.

UNIT–II: MANAGEMENT OF COMPANIES:
Director: Qualification - Disqualification - Position - Appointment - Removal – Duties and Liabilities – Loans – Remuneration – Managing Director – Corporate Social Responsibility – Corporate Governance.

UNIT–III: COMPANY SECRETARY:
Company Secretary: Definition – Appointment – Duties – Liabilities – Company Secretary in Practice – Secretarial Audit.

UNIT–IV: COMPANY MEETINGS:
Meeting: Meaning – Requisites - Notice – Proxy - Agenda – Quorum – Resolutions – Minutes – Kinds – Shareholder Meetings - Statutory Meeting - Annual General Body Meeting – Extraordinary General Body Meeting – Board Meetings.

UNIT–V: WINDING UP:
Meaning – Modes of Winding Up –Winding Up by tribunal – Voluntary Winding Up – Compulsory Winding Up – Consequences of Winding Up – Removal of name of the company from Registrar of Companies – Insolvency and Bankruptcy code - 2016.

SUGGESTED READINGS:

1) Company Law: ND Kapoor, Sultan Chand and Co.
2) Company Law: Rajasri. – HPH
3) Company Law: Prof. G. Krishna Murthy, G. Kavitha, PBP
4) Company Law and Practice: GK Kapoor & Sanjay Dhamija, Taxmann Publication.
5) Company Law: Revised as per Companies Act- 2013: KC Garg et al, Kalyani Publication.
6) Corporate Law: PPS Gogna, S Chand.
7) Company Law: Bagrial AK: Vikas Publishing House.

BC 605: MANAGERIAL ACCOUNTING

Paper: BC605   Max. Marks: 80 + 20
PPW: 5 Hrs   Exam Duration: 3 Hrs

Objective: to acquire Managerial Accounting decision-making techniques and reporting methods.

UNIT-I: INTRODUCTION:
Managerial Accounting: Features – Objectives – Scope – Functions – Advantages and Limitations – Relationship between Cost, Management and Financial Accounting.

UNIT-II: MARGINAL COSTING:
Meaning – Importance – Marginal Cost Equation – Difference between Marginal Costing and Absorption Costing – Application of Marginal Costing – CVP Analysis – Break Even Analysis: Meaning – Assumptions – Importance - Limitations.

UNIT-III: DECISION MAKING:
Make or Buy – Add or Drop Products – Sell or Process Further – Operate or Shut-down – Special Order Pricing – Replace or Retain.

UNIT-IV: BUDGETS AND BUDGETARY CONTROL:
Budget: Meaning – Objectives – Advantages and Limitations – Essentials of Budgets - Budgetary Control - Classification of Budgets - Preparation of Budgets.

UNIT-V: STANDARD COSTING AND VARIANCE ANALYSIS:
Standard Costing: Meaning – Importance – Standard Costing and Historical Costing - Steps involved in Standard Costing.
Variance Analysis: Material variance - Labour variance - Overhead variance - Sales variance.

SUGGESTED READINGS:

1. Management Accounting- Principles & Practice: Sharma RK & Shashi K. Gupta, Kalyani
2. Advanced Managerial Accounting: Srihari Krishna Rao, Himalaya
3. Advanced Managerial Accounting: Dr. Sundaram, PBP
3. Advanced Management Accounting: Robert S. Kaplan & Anthony A. Atkinson, Prentice-Hall
4. Management Accounting: Rustagi R.P, Galgotia
5. Managerial Accounting: Ronald W. Hilton, TMH

BC 606: COMMERCE LAB

Paper: BC606   Max. Marks: 70PF* + 30VV
PPW: 4 (2T+4P)   Exam Duration:

Objective: to become familiar with various business documents and acquire practical knowledge, which improve over all skill and talent.

UNIT-I: BASIC BUSINESS DOCUMENTS:

Trade license under Shops and Establishments Act - Labor license from Department of labor - Partnership Deed - Pollution, Health licenses – Quotation - Invoice form and preparation - Computation of simple interest, compound interest and EMI - Way bill used during transport - Debit Note and Credit Note - Audit Report.

UNIT-II: FINANCE, BANKING AND INSURANCE DOCUMENTS:

Promissory Note - Bill of exchange – Cheque - Pay in slip - Withdrawal form - Account opening and Nomination form KYC - Deposit form and Deposit Receipts - Loan application form - Insurance Proposal form and Insurance Policy - ATM Card Application form - Credit appraisal report - Insurance agency application procedure - ESI / PF membership form.

UNIT-III: DOCUMENTS FOR INCORPORATION A COMPANY:

Memorandum of Association - Articles of Association - Certificate of Incorporation – Prospectus - Certificate of Commencement of Business - Annual Report – Chairman's Speech - Model bye-laws of some society - Society/ Trust registration form - Complaint in a Consumer forum - Complaint under Right to Information Act.

UNIT-IV: DOCUMENTS OF TAXATION:

PAN application under Income Tax Act - TAN application under Income Tax Act - Form:16 to be issued by Employer - TDS and its certificate u/s15 - Income Tax payment challans and Refund Order - Income Tax Returns including TDS Return - Notices under Income Tax Act - Assessment Order - GST Dealer-Application and License - Registration under GST.

UNIT-V: BUSINESS CHARTS:

Elements of business - Forms of business organizations - Procedure of incorporation of companies - Classification of partners with salient features of each of them - International, National, State level and Regional entrepreneurs - Hierarchy of Banking business in India - Tax administration in India - Various taxes imposed in India - Export and import procedure - Purpose and powers of authorities like RBI, SEBI, IRDA, ROC.

COMMERCE LAB FACILITIES:

i) Colleges are required to provide a commerce lab containing all the documents related to commerce and facilities as, computer, printer, OHP, LCD Projector with sufficient furniture.
ii) Teachers should practically explain the documents and help in filling the same in the simulated environment.
iii) Students are required to do the above personally and gain the knowledge of filling the above documents and the same are to be kept in a portfolio.
iv) At the end of semester, the portfolios would be evaluated by the external examiner designated by the Controller of Examinations, Osmania University, from the panel submitted by the Board of Studies in Commerce. The Examiner would evaluate the portfolio for a maximum of 35 marks and conduct viva-voce examination for 15 marks. The award lists duly signed are to be sent the Controller of Examinations.
*the student has to collect the various documents prepare activity charts and submit the same in the form of a record.

Paper : (BC 607) (a) : E-COMMERCE

Paper: BC607 (a)   **Max Marks: 80+20**
PPW: 5 (4T + 2P)   **Exam Duration: 3 Hrs**
Objective: to acquire conceptual and application knowledge of ecommerce.

UNIT-I: INTRODUCTION:
E-Commerce: Meaning - Advantages & Limitations - E-Business: Traditional & Contemporary Model, Impact of E-Commerce on Business Models - Classification of E-Commerce: B2B - B2C - C2B - C2C - B2E - Applications of Ecommerce: E-Commerce Organization Applications - E-Marketing - E-Advertising - E-Banking - Mobile Commerce - E-Trading - E-Learning - E-Shopping.

UNIT-II: FRAMEWORK OF E-COMMERCE:
Framework of E-Commerce: Application Services - Interface Layers - Secure Messaging - Middleware Services and Network Infrastructure - Site Security - Firewalls & Network Security - TCP/IP – HTTP - Secured HTTP – SMTP - SSL.
Data Encryption: Cryptography – Encryption – Decryption - Public Key - Private Key - Digital Signatures - Digital Certificates.

UNIT-III: CONSUMER ORIENTED E-COMMERCE APPLICATIONS:
Introduction - Mercantile Process Model: Consumers Perspective and Merchant's Perspective - Electronic Payment Systems: Legal Issues & Digital Currency - E-Cash & E-Cheque - Electronic Fund Transfer (EFT) - Advantages and Risks - Digital Token-Based E-Payment System - Smart Cards.

UNIT-IV: ELECTRONIC DATA INTERCHANGE:
Introduction - EDI Standards - Types of EDI - EDI Applications in Business – Legal - Security and Privacy issues if EDI - EDI and E-Commerce - EDI Software Implementation.

UNIT-V: E-MARKETING TECHNIQUES:
Introduction - New Age of Information - Based Marketing - Influence on Marketing - Search Engines & Directory Services - Charting the On-Line Marketing Process - Chain Letters - Applications of 5P's (Product, Price, Place, Promotion, People) E-Advertisement - Virtual Reality & Consumer Experience - Role of Digital Marketing.

Lab work: Using Microsoft Front Page Editor and HTML in Designing a Static Webpage/Website.
SUGGESTED READINGS:
1. Frontiers of Electronic Commerce: Ravi Kalakota, Andrew B Whinston, Pearson
2. E-Commerce: Tulasi Ram Kandula, Himalaya Publishing House.
3. E-Commerce: An Indian Perspective: P.T. Joseph, S.J, PHI
4. Electronic Commerce, Framework Technologies & Applications: Bharat Bhasker, McGraw Hill
5. Introduction To E-Commerce: Jeffrey F Rayport, Bernard J. Jaworski: Tata McGraw Hill
6. Electronic Commerce, A Managers' Guide: Ravi Kalakota, Andrew B Whinston
7. E-Commerce & Computerized Accounting: Rajinder Singh, Er. Kaisar Rasheed, Kalyani
8. E-Commerce & Mobile Commerce Technologies: Pandey, Saurabh Shukla, S. Chand
9. E-Business 2.0, Roadmap For Success: Ravi Kalakota, Marcia Robinson, Pearson
10. Electronic Commerce: Pete Loshin / John Vacca, Firewall Media
11. E-Commerce, Strategy, Technologies And Applications : David Whiteley, Tata Mcgraw Hill
12. Digital Commerce and Its Applications (Student's Handbook): K Goyal, Kalyani Publication

Paper : (BCC 607) (b) : BUSINESS FORECASTING

Paper:BCC 607 (b)   Max. Marks: 80+20
PPW: 5Hrs   Exam Duration: 3 Hrs

Objective: To acquire knowledge for application of Business Forecasting techniques and tools in a given business scenario

UNIT-I:**INTRODUCTION TO FORECASTING:** Types of Forecasting Methods, Time Series Analysis, Components of Time Series- Secular Trend, Seasonal Variations, Cyclical Variations, Random Variations, The Additive Model and Multiplicative Model, Measurements of Error in Forecasting (MAD, MAPE, RMSE), Freehand Method

UNIT-II:TIME SERIES ANALYSIS: Smoothing Techniques, Moving Averages Method, Weighted Moving Averages Method, Semi-Averages Method, Exponential Smoothing Method, Double Exponential Smoothing Method, Regression Trend Analysis, Autocorrelation and Auto regression.

UNIT-III:LINEAR REGRESSION: Introduction to Simple Linear Regression, Determination of Intercept and coefficient of Regression, Coefficient of Determination, Standard Error of Estimate, Measuring Autocorrelation- Durbin Watson Statistics, Testing of slope, Estimate of population of coefficient of regression, Testing the overall Model.

UNIT-IV: **MULTIPLE LINEAR REGRESSION:** Multiple Regression model with more than one Independent Variable, Determination of Coefficient of Multiple Determination (R^2), Adjusted R^2, Standard Error of Estimate, Testing Assumptions of Linear Regression.

UNIT-V:LOGISTIC REGRESSION: The Odds and Probabilities, Logit Function, Logistic Regression Coefficients, Nagelkerke R Square, Classification Matrix, Sensitivity and Specificity, ROC Curve.

SUGGESTED READINGS:
1.   Business Statistics: Naval Bajpai, Pearson.
2.   Multivariate Data Analysis: Hair, Black, Babin, Anderson, Pearson.
3.   Statistics for Management:Anand Sharma, HPH
4.   Applied Multivariate Statistical Analysis: Richard A. Johnson, Pearson.
5.   Statistics for Business and Economics: Anderson, Cengage Learning.
6.   Statistics for Management:R. I. Levin, D. S.Rubin,S.Rastogi&M. H. Siddiqui,Pearson.
7.   Statistical Tools for Managers: D P Apte,Excel Books.

BCCA 608 (a): RELATIONAL DATABASE MANAGEMENT

Paper: BCCA 608 (a)   Max. Marks: 80+20
PPW: 5 (4T + 2P)   Exam Duration: 3 Hrs

Objective: to acquire basic conceptual background necessary to design and develop simple database system, Relational database mode, ER model and distributed databases, and to write good queries using a standard query language called SQL.

UNIT-I: BASIC CONCEPTS:
Database Management System - File based system - Advantages of DBMS over file based system - Database Approach - Logical DBMS Architecture - Three level architecture of DBMS or logical DBMS architecture - Need for three level architecture - Physical DBMS Architecture - Database Administrator (DBA) Functions & Role - Data files indices and Data Dictionary - Types of Database.

Relational and ER Models**:** Data Models - Relational Model – Domains - Tuple and Relation - Super keys - Candidate keys - Primary keys and foreign key for the Relations - Relational Constraints - Domain Constraint - Key Constraint - Integrity Constraint - Update Operations and Dealing with Constraint Violations - Relational Operations - Entity Relationship (ER) Model – Entities – Attributes – Relationships - More about Entities and Relationships - Defining Relationship for College Database - E-R Diagram - Conversion of E-R Diagram to Relational Database.

UNIT-II: DATABASE INTEGRITY AND NORMALISATION:
Relational Database Integrity - The Keys - Referential Integrity - Entity Integrity - Redundancy and Associated Problems – Single Valued Dependencies – Normalisation - Rules of Data Normalisation - The First Normal Form - The Second Normal Form - The Third Normal Form - Boyce Codd Normal Form - Attribute Preservation - Lossless-join Decomposition - Dependency Preservation.

File Organisation : Physical Database Design Issues - Storage of Database on Hard Disks - File Organisation and Its Types - Heap files (Unordered files) - Sequential File Organisation - Indexed (Indexed Sequential) File Organisation - Hashed File Organisation - Types of Indexes - Index and Tree Structure - Multi-key File Organisation - Need for Multiple Access Paths - Multi-list File Organisation - Inverted File Organisation.

UNIT-III: STRUCTURES QUERY LANGUAGE (SQL)**:**
Meaning – SQL commands - Data Definition Language - Data Manipulation Language - Data Control Language - Transaction Control Language - Queries using Order by – Where - Group by - Nested Queries.

Joins – Views – Sequences - Indexes and Synonyms - Table Handling.

UNIT-IV : TRANSACTIONS AND CONCURRENCY MANAGEMENT:
Transactions - Concurrent Transactions - Locking Protocol - Serialisable Schedules - Locks Two Phase Locking (2PL) - Deadlock and its Prevention - Optimistic Concurrency Control.

Database Recovery and Security: Database Recovery meaning - Kinds of failures - Failure controlling methods - Database errors - Backup & Recovery Techniques - Security & Integrity - Database Security - Authorization.

UNIT-V: DISTRIBUTED AND CLIENT SERVER DATABASES:
Need for Distributed Database Systems - Structure of Distributed Database - Advantages and Disadvantages of DDBMS - Advantages of Data Distribution - Disadvantages of Data Distribution - Data Replication - Data Fragmentation.

Client Server Databases: Emergence of Client Server Architecture - Need for Client Server Computing - Structure of Client Server Systems & its advantages.

LAB: SQL QUERIES BASED ON VARIOUS COMMANDS.
SUGGESTED READINGS:
1. Database Systems: R.Elmasri & S.B. Navathe, Pearson.
2. Relational Database Management Systems: Tulasi Ram Kandula, HPH
3. Introduction to Database Management System: ISRD Group, McGraw Hill.
4. Database Management System: R.Ramakrishnan & J.Gehrke, McGraw Hill.
5. Modern Database Management: J.A.Hoffer,V.Rames &H.Topi, Pearson.
6. Database System Concepts: Silberschatz, Korth & Sudarshan, McGraw Hill.
7. Simplified Approach to DBMS: Parteek Bhaia, Kalyani Publishers.
8. Database Management System: Nirupma Pathak, Himalaya.
9. Database Management Systems: Pannerselvam, PHI.
10. Relational Database Management System: Srivastava & Srivastava, New Age
11. PHPMySQL Spoken Tutorials by IIT Bombay.
12. Oracle Database: A Beginner's Guide: I.Abramson, McGraw Hill.

Paper : (BCC 608) (b):BUSINESS ANALYTICS PROGRAMMING

Paper: BCC 608(b)   Max. Marks: 80+20
PPW: 5 Hrs   Exam Duration: 3Hrs

Objective: Students will learn how to master basics of most used Analytical Softwares like Base-SAS, R and Python.

UNIT-I: **INTRODUCTION:** Database Management Systems – Definition, What is MySql? MySql Installer, Download sample Database, Loading Sample Database, Structured Query Language, Data types.

UNIT-II: DATA DEFINITION AND MANIPULATION: Creating Table, Data Integrity, Creating constraints, Querying Database, Retrieving result sets, Functions and Joins, Sub Queries.

UNIT-III: BASICS OF SAS: Introduction to SAS, Installation of SAS university Edition, prerequisites for data analysis using SAS, SAS architecture, Data Types, formats and informats, SAS coding- Data step and proc step, libraries, Importing external data, Reading and manipulating Data, functions, Data Transformations, Conditional Statements.

UNIT-IV: **PYTHON:** Basics of Python – various tools, Installation of Anaconda Navigator, Data types – string, tuples, set, lists, dictionary, Arrays. Spyder and Documentation with Jupyter.

UNIT-V: **R PROGRAMMING:** Basics of R, Installation of R studio, Vectors, Matrices, Data types, Importing files, Writing files, Merging Files, Data Manipulation and Data Cleaning, Functions,

SUGGESTED READINGS:

1. R : Hands-on Programming; Garrett Grolemund, O' Reilly Media Publishers
2. R : R Cookbook; Teetor Paul, O' Reilly Media Publishers
3. Python : Mastering Python for Data Science; Samir Madhavan, Packt Publishing
4. Python : Python for Data Analysis; W McKinney, O' Reilly Media Publishers
5. SAS : The little SAS book; Lora D Delwiche, SAS Institute
6. SAS : SAS for dummies; Chris Hemedinger and Stephen McDaniel, Wiley
7. MySql : MYSQL in a nutshell; Russell Dyer, O' Reilly Media Publishers
8. MySql : MySQL cookbook by Paul DuBois, O' Reilly Media Publishe