

ಮಂಗಳೂರು
MANGALORE



ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
UNIVERSITY

ಕ್ರಮಾಂಕ/No: MU/ACC/CR 7/2024-25/A8

ಕುಲಸಚಿವರ ಕಛೇರಿ

ಮಂಗಳಗಂಗೋತ್ರಿ- 574 199

Office of the Registrar

Mangalagangothri – 574 199

ದಿನಾಂಕ/Date: 09/07/2026

NOTIFICATION

Sub: Syllabi of UG Programmes under the Faculty of Commerce as per the SEP guidelines reg.

Ref: Decision of the Academic Council meeting dated: 29.06.2026

Pursuant to the above the syllabi of following UG programmes, prepared in accordance with the guidelines of the SEP commission and approved by the Academic Council at its meeting held on 29.06.2026 are hereby notified for implementation with effect from the academic year 2026-27.

Sl.No.	UG Programmes
1.	B.Com (V -VI sem)
2.	B.Com(Voc)(Office Management & Secretarial Practice) (V -VI sem)
3.	B.Com(Voc)(Tax Procedure & Practice) (V -VI sem)
4.	B.Com(Voc)(Computer Applications) (V -VI sem)
5.	B.Com (Voc) (Accounting & Finance) (V -VI sem)
6.	B.Com (Business Data Analytics) (V-VI sem)
7.	B.Com (Business Data Analytics) (III-IV sem)(Revised)
8.	B.Com(Voc)(Tax Procedure & Practice) (III-IV sem) (Revised)
9.	B.Com (Voc) (Office Management & Secretarial Practice) – (III-IVsem)(Revised)
10.	B.Com(Voc)(Computer Applications) (III-IV sem) (Revised)
11.	AEDP Programme-B.Com in Banking Financial Services and Insurance-(III-IV sem)(Revised)
12.	AEDP Programme-B.Com in Banking Financial Services and Insurance-(I-II sem) (Revised)
13.	B.Com (Voc) (Accounting & Finance) (III-IV sem)

	(Revised)
14.	AEDP Programme-B.Com in Retail Operations- (III-IV sem)
15.	AEDP Programme-B.Com in Retail Operations- (I-II sem)(Revised)
16.	B.Com (I-II sem)(Revised)
17.	B.Com (III-IV sem)(Revised)
18.	B.Com (Voc) (Accounting & Finance) (I-II sem) (Revised)
19.	BBA Logistics (V -VI sem)

Copy of the syllabi shall be downloaded from the Mangalore University website
www.mangaloreuniversity.ac.in


 REGISTRAR.

To:

- 1) The Registrar(Evaluation),Mangalore University.
- 2) The Chairpersons, U.G BOS in concerned subjects, Mangalore University.
- 3) The Director, College Development Council, Mangalore University.
- 4) The Principal's of all affiliated/Constituent colleges of Mangalore University.
- 5) The Director, computer centre, Mangalore University.
- 6) The Assistant Registrar/The superintendent, Academic section, O/O the Registrar, Mangalore university.
- 7) Guard file.

V and VI Semester B.Com (Voc) Computer Applications – 2026-2027

Semester V								
Sl. No.	Course Code	Title of the Course	Category of Courses	Teaching Hours per Week	SEE	IA	Total Marks	Credits
1	B.Com. 5.1	Financial management - I	Core	5	80	20	100	5
2	B.Com. 5.2	Computer Paper	Core	5	80	20	100	5
3	B.Com. 5.3	Computer Paper	Core	5	80	20	100	5
4	B.Com. 5.4	Computer Paper	Core	4	80	20	100	3
5	B.Com. 5.5	Employability skills	Core	4	80	20	100	3
6	B.Com. 5.6	Problem-Based Learning-II Mini Project	Skill Enhancement	2	40	10	50	2
Sub Total				25				23

Semester VI								
Sl. No.	Course Code	Title of the Course	Category of Courses	Teaching Hours per Week	SEE	IA	Total Marks	Credits
1	B.Com. 6.1	Financial management - II	Core	5	80	20	100	5
2	B.Com. 6.2	Direct Tax -III	Core	5	80	20	100	5
3	B.Com. 6.3	Computer Paper	Core	5	80	20	100	5
4	B.Com. 6.4	Computer Paper	Core	4	80	20	100	3
5	B.Com. 6.5	Auditing and Assurance	Core	4	80	20	100	3
6	B.Com. 6.6	Computer Paper	Skill Enhancement	2	40	10	50	2
Sub Total				25				23

Note:

1. All Core Courses, Electives, Skill Enhancement and Optional courses under B.Com Programme should be taught by Commerce Faculty members only.
2. Strategic Managerial Economics and Foreign Exchange Markets papers may be taught by MA Economics Faculty in case of workload shortage for permanent faculty. It is a workload of Commerce Department.

V Semester B.Com:

Course content:

5.1: Financial Management - I

5.2:Computer Paper

5.3: Computer Paper

5.4:Computer Paper

5.5: Employability Skills

5.6:Problem-Based Learning-II- Mini Project

FINANCIAL MANAGEMENT- I			
Course Code	B.Com. 5.1	IA Marks	20
Course Type (Theory/Practical/Integrated)	Theory	End Sem Marks	80
		Total Marks	100
Teaching Hours/Week	05 Hours	Duration	3 Hours
Total Hours	60 Hours	Credits	05
Course Learning Objectives: The objective of the course is to - To provide students with a fundamental understanding of concepts in financial management financial services. - To develop knowledge regarding financial planning, capital structure, and sources of finance. - To Apply capital budgeting techniques to evaluate and select investment projects - To equip learners with financial decision-making skills through practical problem-solving and case analysis. - To prepare learners for effective financial decision-making in business organizations.			
Module-1 FUNDAMENTALS OF FINANCIAL MANAGEMENT 12 Hours			
Introduction : Meaning and Objectives of Financial Management ,Sources of Capital: Short-term, Medium-term, and Long-term Sources; Owned and Borrowed Capital. Capitalization: Meaning, Overcapitalization and Undercapitalization – Causes, Effects, and Remedies. Time Value of Money: Concept, compounding, discounting and Annuities			
Module-2 CAPITAL STRUCTURE AND LEVERAGE12 Hours			
Capital structure- Capital structure decision- factors determining capital structure- Debt-equity Ratio, Preparation of statement of Income, Trading on Equity, Measurement of Leverages - Operating , Financial and combined Leverage – Effects of Operating , Financial and combined Leverage on Profit – Analyzing Alternate Financial Plans (EBIT-EPS analysis).			

Module-3 COST OF CAPITAL AND CAPITAL STRUCTURE THEORIES	2 Hours
Meaning and definition - Significance of cost of capital – Computation of cost of capital - Specific Cost of capital : Cost of debt, Cost of preference shares and cost of Equity Shares. Computation of Weighted average cost of capital . Theories of capital structure : The Net Income Approach - The Net Operating Income Approach - Traditional and MM Hypothesis.	
Module-4 CAPITAL BUDGETING	12 Hours
Capital budgeting – meaning-importance – steps in capital budgeting process- Techniques of Capital Budgeting: Traditional methods- Payback period , Accounting rate of return. Discounted cash flow methods : Net present value, Profitability Index, Internal rate of return.	
Module-5 FINANCIAL SERVICES AND STOCK MARKET OPERATIONS	12 Hours
Introduction to Financial services and Markets: meaning of Financial Services, types of Financial Services-Venture capital financing, Angel Financing, Leasing, Factoring, Credit rating, Mutual Funds. Stock market operations-Trading procedure- market participants, Public issue of shares-Book Building-Private placement-Merchant Banking, Depository services-NSDL,CDSL, Basics of online trading. Securities exchange board of India (SEBI)- Role of SEBI- SEBI Guidelines.	

Course Outcomes: At the end of the course the student will be able to:	
CO-1	Explain the basic concepts, objectives of financial management and the essence of time value of money
CO-2	Analyze the sources of finance and determine an appropriate capital structure for business organizations
CO-3	Apply capital budgeting techniques to evaluate and select investment projects
CO-4	Examine the cost of capital and their influence on firm investment decision making.
CO-5	Demonstrate analytical and problem-solving skills in handling practical financial management issues.

References

Sl. No.	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
1	Financial Management	Ravi M Kishore	TaxMann publishers	9 th edition, 2023
2	Financial Management	M. Y. Khan and P. K. Jain	Tata MC Graw Hill	8 th edition, 2018
3	Financial Management	Dr. S. N. Maheshwari	Sultan Chand & Sons	2019
4	Financial Management	I M Pandey	Pearson	12 th Edition, 2024
5	Management of Financial services	V.K. Bhalla	Anmol Publications	

6	Financial Management	B. V Raghunandan	Shushrutha Publishers	2016
7	Financial Management	Dr.Roshni Yeshawanth &Dr.Avinash	Professional book publisher	2023
8	Advanced Financial Management	Dr.Roshni Yeshawanth, Dr.Avinash& Ms Sharmila Kunder	Professional book publisher	2024

EMPLOYABILITY SKILLS			
Course Code	B.Com. 5.5	IA Marks	20
Course Type (Theory/Practical/Integrated)	Theory	End Sem Marks	80
		Total Marks	100
Teaching Hours/Week	04 Hours	Duration	3 Hours
Total Hours	48 Hours	Credits	03
Course Learning Objectives: The objective of the course is to • Articulate quantitative, logical, and analytical problem-solving skills effectively. • Analyse various real-life situations using reasoning and data interpretation techniques. • Apply mathematical aptitude and logical reasoning in competitive and professional contexts. • Develop digital literacy, communication skills, and employability competencies required for career success.			
Module-1 QUANTITATIVE APTITUDE		14 Hours	
1.1-Percentages, Profit & Loss, Discount, 1.2-Partnership, 1.3-Time, Speed & Distance (including problems on trains and boats), 1.4- Simple & Compound Interest, 1.5- Ratio, Proportion & Averages, 1.6-Problem on Ages, 1.7- Permutations and Combinations, 1.8-Probability.1.9-Mensuration (Circle, Triangle, Square and Rectangle).			
Module-2 LOGICAL REASONING		12 Hours	
2.1- Coding-Decoding, 2.2- Direction Sense Test, 2.3- Blood Relations, 2.4-Problems on Calendars, 2.5-Problem on Clocks, 2.6 - Number & Letter Series, 2.7- Seating Arrangement (Linear & Circular), 2.8-Ranking & Order.			
Module-3 ANALYTICAL REASONING AND DATA INTERPRETATION		12 Hours	
3.1- Statements & Conclusions, 3.2- Statements & Assumptions, 3.3- Statements and Arguments, 3.4- Venn Diagrams, 3.5- Syllogisms, 3.6-Data Interpretation (Bar, Pie and Table Charts), 3.7- Pattern Completion and Images, 3.8- Analogy.			
Module-4 DIGITAL LITERACY AND FINISHING SCHOOL TECHNIQUES		10 Hours	
4.1-Digital Office Skills : MS Word, MS Excel (Only layout, basic operations and shortcut keys) and MS PowerPoint, 4.2 - Basics of internet usage and online safety 4.3- Professional Email Writing, 4.3 – Writing Covering letters, 4.4 – Building Resume, 4.5 – Basic Techniques of Group Discussion 4.6 – Succeeding at Interviews			

Course Outcomes: At the end of the course the student will be able to:	
CO-1	Apply mathematical concepts such as percentages, ratio, interest, and probability to solve quantitative problems.
CO-2	Analyze and solve problems involving coding-decoding, series, seating arrangements, and logical relationships.
CO-3	Interpret data and evaluate statements using analytical reasoning techniques and data representation tools.
CO-4	Demonstrate proficiency in basic computer applications, professional communication,

	and interview skills.
CO-5	Integrate aptitude, reasoning, and communication skills to enhance performance in competitive exams and career opportunities.

Reference Books

Sl. No.	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
1	Quantitative Aptitude for Competitive Examinations	R.S. Aggarwal	S.Chand Publishers	Revised Edition 2021
2	AptiNova	Abhilash Kshatriya & Louis Manoj	Shobha Book Publishing House	Latest Edition 2026
3	A Modern Approach to Verbal & Non-Verbal Reasoning	R.S. Aggarwal	S.Chand Publishers	Revised Edition 2022
4	<i>Analytical Reasoning</i>	M. K. Pandey	BSC Publishing Co. Pvt. Ltd.	Latest Edition, 2020
5	<i>Objective Computer Awareness</i>	Arihant Experts	Arihant Publications	Latest Edition, 2022

Web links and Video Lectures (e-Resources):

- <https://www.indiabix.com>
- <https://testbook.com>

5.6 V Semester B.Com Skill Enhancement Course (SEC)

Problem based learning II – Mini Project

1. Introduction

A Mini Project is an important academic activity in the Bachelor of Commerce (B.Com) programme designed to provide students with practical exposure to business, commerce, finance, marketing, accounting, banking, taxation, entrepreneurship, and related fields. The project enables students to apply theoretical concepts learned in the classroom to real-world business situations through systematic investigation, data collection, analysis, and interpretation. The mini project encourages students to develop analytical thinking, research aptitude, communication skills, and problem-solving abilities. It also helps students understand current trends and challenges in commerce and business practices.

Team projects help students develop cooperation, leadership, communication, coordination, and problem-solving skills while exposing them to contemporary business practices and research methodologies.

2. Objectives of the Mini Project

The Mini Project aims to:

1. Develop research aptitude among students.
2. develop an ability to conceptualise, formulate and conduct simple research projects
3. Provide practical exposure to business and commercial activities.
4. Enable students to apply theoretical knowledge to real-life situations.
5. Improve analytical and critical thinking skills.
6. Develop data collection, interpretation, and report writing skills.
7. Enhance presentation and communication abilities.
8. Encourage independent learning and teamwork.
9. Help students gain insights into the current business environment, by analysing case studies, market trends or industry reports.
10. Equip students with skills and knowledge that are relevant to their future careers.

3. Guidelines for the Project

- Mini Project work is a mandatory paper for the VI semester. A student shall compulsorily select a topic in consultation with the faculty or guide
- The topic of the mini project shall be relevant to the domain of commerce- Banking, Finance, Accounting, Taxation, Marketing, Insurance, Entrepreneurship, E-Commerce, FinTech, Consumer Behaviour, Digital Payments, Financial Literacy, or related areas.
- Duration of the mini project is 15 weeks including examination.
- Students can opt to do the mini-project individually or as a team consisting of not more than 4 members.
- Report should be about 25-50 pages.
- At the end of the mini project, students are expected to prepare a Report on the same and submit a draft copy to the project guide within 10th week of the VI semester.
The concerned teacher will suggest corrections in the report and taking into account the same. The students will prepare and submit a final report in the prescribed format by 12th week of the VI semester.
- Presentation and Viva should be completed by 14th week of the VI semester.

4. Format of the Mini Project Report

SECTION I : GENERAL SECTION

- Every report should be either **Spiral bound or Hard Cover Page bound (2 copies in all) One for the student and the other to be submitted to the department.**
- The cover page of the report must contain the following
 - Logo of Mangalore University
 - Name of the College.
 - Title of the mini project in Times New Roman Font 16 size, bold and centre. Submitted to - Guide Teacher Name (12 Size Times New Roman font).
 - Name of the Student (Capital & 14 Times New Roman font size and bold & centre).

- UUCMS register Number (12 Size Times New Roman Font)
- Name & designation of the project supervisor and department name (12 Size times New Roman font)
- Entire report will be presented in 11 size Times New Roman Font.
- Report will be prepared on the following lines:
 - Index page of contents
 - Certificate of Completion from the organisation.
 - Declaration of the Student

SECTION II : TECHNICAL SECTION

- Introduction — I to 10 pages
- Text pages should be printed on one side of the paper, preferably with 1.5 line spacing. Margins should be 1.5" on the left and 1" on the right. Top 1 " and bottom 1". Use Times New Roman 14 Font size.i
- Importance/scope of the study — 2 to 3 pages
- Methodology of Study — I to 5 pages
- Objectives of the Study — 3 to 4 objectives maximum
- Analysis and Interpretation (not less than 10 pages inclusive of maps, charts, tables, etc.)
- List of Tables, Charts, Graphs.
- Acknowledgements — Here, the candidate may thank all those who helped in the preparation of project work.
- Major Findings,-conclusions reached and suggestion or recommendations.
- Learning Outcome of the project — 1 page
- References in APA Style

SECTION III : ADDITIONAL INFORMATION

- Copy of the tool/tools of data collection.
- Bibliography
- Photographs etc

5. Workload

- **The workload is 2 hrs per week per teacher for the entire semester**
- One project batch shall consists of a maximum of 4 students
- One supervisor shall guide up to 10 batches per semester

6. Responsibility of the Supervisor

The responsibilities of the supervisor isass follows

- Assist students in selecting a relevant, feasible, and research-oriented project topic aligned with the course objectives.
- Offer continuous guidance regarding research design, data collection, analysis, interpretation, and report writing.

- Conduct regular meetings with students to track progress and ensure timely completion of each phase of the project.
- Motivate students to apply theoretical knowledge, analytical thinking, problem-solving, and decision-making skills during the project.
- Examine project drafts periodically and provide constructive suggestions for improvement in content, structure, and presentation.
- Guide students in following the prescribed format, citation style, and institutional guidelines for project report preparation.
- In the case of group projects, ensure effective participation, cooperation, and equitable contribution among team members.
- Evaluate the student's mini project work as per the assessment criteria
- Maintain all the documents related to the mini project work.
- Inform students that the university/institution reserves the right to verify the authenticity of the project work. Students must maintain accurate records and supporting documents for verification whenever required.

7. Responsibility of the student

- To select a topic, review the literature, selection of appropriate methodology, data collection, data analysis, testing of the Hypothesis etc. in consultation with the supervisor.
- To adhere to the weekly meeting schedule with the supervisor to update their progress and seek advice on project matters (Attendance is compulsory as per regulation) and submit weekly reports.
- To manage the mini project from start to finish, meeting the stated milestones and timelines.
- To report immediately to the supervisor any difficulties -encountered that would interrupt the work.
- To submit the Mini Project report on time.

8. Evaluation and Allocation of Marks

- Out of 50 marks allotted for the mini project, 30 marks (to be considered as C1) are allotted for mini project Report to be evaluated by two examiners [one internal (respective supervisor) and another external examiner (other member of the faculty from the same department/subject allotted by the HOD/Principal)] and 20 Marks (to be considered as C2) for the Presentation and Viva-Voce to be awarded by the supervisor.
- Report will be evaluated for 30 marks by both internal and external examiners keeping in mind the guidelines for the same in consultation with each other. The presentation will be made by every student to the respective Supervisor/ External examiner.

9. Expected Outcomes of the Mini Project

Students will

- Deepen their understanding of theoretical classroom learning

- Work effectively as members of a team.
- Apply commerce and management concepts in practical situations.
- Collect, organize, and analyze data systematically.
- Develop communication, leadership, and interpersonal skills.
- Fosters students' problem solving abilities, enabling them approach complex problems with confidence and creativity.
- Improve report writing and presentation abilities.
- Enhance employability and entrepreneurial competencies.

10. Conclusion

At the end of the mini project, students should have the opportunity to reflect on their experiences and receive feedback from the supervisors. They can evaluate themselves based on the value addition, new areas learnt, challenges faced and the scope for improvement. The Mini Project contributes significantly to the overall personality development and career readiness of B.Com students by fostering research orientation, innovation, and experiential learning.

Formats for the report in the following pages...

Title of the report



Report on submitted to Mangalore University in partial fulfilment of the requirement for the completion of the VI semester B.Com Skill Enhancement Course

Submitted by

Name and URN

of III B.Com

Under the supervision of

Name of the supervisor

Designation

Department of Commerce

Name of the College

Full Name of the College

2026

Letter Head of the College

CERTIFICATE

This is to certify that ____ **Name of the student** _____ with URN....(reg no) is a bonafide student of VI semester Bachelor of Commerce program of this institute (2024-2027), affiliated to Mangalore University, Mangalore. The report entitled ----- is prepared by him/her under the supervision of **Name of the supervisor, designation, Department of Commerce** in partial fulfilment of the requirement **for the completion of the VI semester B.Com Skill Enhancement Course** of Mangalore University, Mangalore, Karnataka.

H.O.D

Course Supervisor

Dept of Commerce

Principal

DECLARATION

We **(names) of Final B.Com VI semester**, hereby declare that this report titled **“(topic)”** is our original work and that it has not previously formed the basis for the award of any Diploma, Degree, or any other similar title. This work was done under the supervision of **Name of the supervisor, designation, college**

Name	URN	Signature

Place:

Date:

Name of the supervisor

Designation

Name of the Institution

CERTIFICATE

Certified that this project titled **(name)** submitted to **Name of the institution** is based on the original work done by

Name	URN

in the B.Com programme, Department of Commerce, **Name of the Institution**, under my guidance and supervision during the semester **starting Month & year to ending month & year** (example: Feb 2026 to May 2026) and that the project has not previously been done to form the basis for the award of any Diploma, Degree, or any other similar title.

Name of the Supervisor

(Project Guide)

Place:

Date:

VI Semester B.Com:

Course content:

6.1: Financial Management - II

6.2: Direct Tax – III

6.3: Computer Paper

6.4: Computer Paper

6.5: GST and Customs Duty

6.6: Computer Paper

FINANCIAL MANAGEMENT- II			
Course Code	B.Com. 6.1	IA Marks	20
Course Type (Theory/Practical/Integrated)	Theory	End Sem Marks	80
		Total Marks	100
Teaching Hours/Week	05 Hours	Duration	3 Hours
Total Hours	60 Hours	Credits	05
Course Learning Objectives: The objective of the course is to • To enhance understanding of risk and return relationships in financial decision-making. • To familiarize students with working capital management and liquidity management practices. • To introduce students to dividend policies, profit planning, and wealth maximization concepts. • To develop skills in financial statement analysis and interpretation for managerial decisions. • To equip learners with financial decision-making skills through practical problem-solving and case analysis. • To prepare learners for effective financial decision-making in business organizations keeping in mind the recent developments in the area of financial management.			
Module-1 RISK EVALUATION IN CAPITAL BUDGETING		12 Hours	
Risk and Uncertainty- Objectives of risk management, steps in Risk management process. Risk analysis techniques in capital budgeting: Statistical techniques, Conventional techniques- Risk adjusted discount rate, Certainty Equivalent Technique, Other techniques- Scenario analysis, Sensitivity Analysis, Decision tree Analysis			
Module-2 WORKING CAPITAL MANAGEMENT		14 Hours	
Meaning and Definition, Types of working capital, Operating cycle, Determinants of working capital requirement – Estimation of working capital requirements with illustrations. Dangers of excess and inadequate working capital, Merits of adequate working capital, Sources of working capital. Concept of Cash Management, Receivable Management, and Inventory Management.			
Module-3 DIVIDEND DECISIONS AND DIVIDEND THEORIES		12 Hours	
Meaning of Dividend Decisions, Types of Dividends, Dividend Polices – Significance of Stable Dividend Policy, Determinants of Dividend Policy, Dividend Theories: Theories of Relevance – Walter’s Model and Gordon’s Model with illustrations and Theory of Irrelevance – The Miller-Modigliani (MM) Hypothesis with illustrations.			

Module-4	FINANCIAL STATEMENT ANALYSIS	10 Hours
Financial Statement- Meaning & Types. Financial Analysis- Meaning, Need, Types & Techniques- Common Size Statement, Comparative Financial Statement Analysis & Trend Analysis.		
Module-5	RECENT TRENDS IN FINANCIAL MANAGEMENT	12 Hours
Key Trends in Financial Management-Digital Transformation in Financial Management, Artificial Intelligence in Financial Management, Fintech revolution, Blockchain & Cryptocurrency, Green Finance, Sustainability and ESG Focus, Big Data and Financial Analytics, Embedded finance and Cloud based Financial Management. Challenges to recent trends in Financial Management		

Course Outcomes: At the end of the course the student will be able to:	
CO-1	Evaluate risk and return relationships in financing and investment decisions.
CO-2	Assess working capital requirements and manage cash, inventory, and receivables efficiently.
CO-3	Examine dividend policies and their influence on firm value and shareholder wealth.
CO-4	Analyse the financial statements for efficient financial decision-making.
CO-5	Apply financial management concepts in real-world business and corporate situations.

References

Sl. No.	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
1	Financial Management	Ravi M Kishore	TaxMann publishers	9 th edition, 2023
2	Financial Management	M. Y. Khan and P. K. Jain	Tata MC Graw Hill	8 th edition, 2018
3	Financial Management	Dr. S. N. Maheshwari	Sultan Chand & Sons	2019
4	Financial Management	I M Pandey	Pearson	12 th Edition, 2024
4	Financial Management	B. V Raghunandan	Shushrutha Publishers	2016
5	Financial Management	Dr.Roshni Yeshawanth &Dr.Avinash	Professional book publisher	2023
6	Advanced Financial Management	Dr.Roshni Yeshawanth, Dr.Avinash& Ms Sharmila Kunder	Professional book publisher	2024

DIRECT TAX - III			
Course Code	B.Com. 6.2	IA Marks	20
Course Type (Theory/Practical/Integrated)	Theory	End Sem Marks	80
		Total Marks	100
Teaching Hours/Week	05 Hours	Duration	3 Hours
Total Hours	60 Hours	Credits	05
Course Learning Objectives: The objective of the course is to • To familiarize the students with the Assessment Procedure and Filing of Income Tax Returns. • To provide the students a comprehensive understanding of deductions, tax rates and the laws governing them. • To equip the learners with the skills to apply relevant rules as amended from time to time by Finance Acts passed in the Parliament in relation to taxation. • To apply the knowledge of taxation in practical field.			
Module-1: Income from Other Sources			10 Hours
Inclusions - Interest on securities – Types of Securities - Grossing up Rules – Other Important Exemptions u/s 10 including section 10(15) – Unexplained Asset/ Expenditure/ Investment - Deductions u/s 93.			
Module-2: COMPUTATION OF TOTAL INCOME OF AN INDIVIDUAL			12 Hours
Set off of losses and Carry Forward and Set Off of Losses, Clubbing of Income. Deductions from Gross Total Income U/s 80 (As applicable under Old Tax Regime & New Tax Regime u/s 115BAC): 80C, 80CCC, 80CCD, 80CCE, 80D, 80DD, 80DDB, 80E, 80EE, 80EEA, 80EEB, 80G, 80GG, 80GGA, 80GGC, 80TTA, 80TTB, 80QQB, 80RRB, and 80U. Problems on Computation of Total Income.			
Module-3: ASSESSMENT OF INDIVIDUALS			14 Hours
Rates of Income Tax (Old & New Tax Regime); Rebate u/s 87A and provisions relating to Marginal Relief. Computation of Total Income and Tax Liability (Old & New Tax Regime) (including Partial Integration of Agricultural Income) - Taxability of share of income from HUF and from Firm/ AOP. Assessment Procedure: Meaning and Types of assessment, Filing of income tax return - Types of IT returns – Documents required for filing IT Returns - Persons exempt from filing of returns – Significance of Form 26AS – Exposure to E-filing of IT Returns on Income Tax Portal & Online Verification – Income tax rules relating to Advance Tax and Tax Deduction at Source (TDS) (Theory Only).			
Module-4: ASSESSMENT OF PARTNERSHIP FIRM U/S 184			12 Hours
Introduction - Definition of Partnership, Firm and Partners – Assessment of Firms (Sec. 184) – IT provisions relating to Partner's remuneration u/s 40b, Interest on Partner's Capital and loan - Presumptive Taxation u/s 44AD & u/s 44ADA (Theory & Problems) - Computation of Firm's Total Income and tax liability – Computation of individual income of partners from Firm taxable u/s 28.			
Module-5: ASSESSMENT OF COMPANIES			12 Hours

Introduction – Meaning & Definition of Company – Types of Companies under Income Tax Act - Computation of Total Income; Computation of Book Profits and Tax liability (applicability of Minimum Alternate Tax: MAT u/s 115JB)

Course Outcomes: At the end of the course the student will be able to:

CO-1	The procedure for calculation of total income and tax liability
CO-2	The income tax laws, procedures and regulations from time to time.
CO-3	The knowledge in filing IT returns

Reference Books:

Sl.No	Title of the Book	Name of the Author/s	Name of the Publisher
1	Direct Taxes Law & Practice with Special Reference to Tax Planning	Dr. Vinod KSinghania&KapilSinghania	Taxmann's Publications.
2	Income Tax Law and Practice	Dr. H.C.Mehrotra and Dr. S.P.Goyal,	SahithyaBhavan Publication.
3	Students Hand Book on Taxation	T.N. Manoharan	Snow White Publications.
4	Practical Approach to Income Tax	Dr. Girish Ahuja and Dr. Ravi Gupta	Commercial Law Publishers (India) Pvt. Ltd.
5	Direct Tax Laws and International Taxation	T. N. Manoharan et al	Snow White Publications
6	Income Tax Law and Practice	V. P. Gaur, D. B. Narang et. al	Kalyani Publishers
7	Income Tax - III	Dr. Ravi M.N. and Dr. Suman Shetty N. and Dr. Bhanupraksh B.E.	Professional book publisher

GST & CUSTOMS DUTY			
Course Code	B.Com. 6.5	IA Marks	20
Course Type (Theory/Practical/Integrated)	Theory	End Sem Marks	80
		Total Marks	100
Teaching Hours/Week	04 Hours	Duration	3 Hours
Total Hours	48 Hours	Credits	03
Course Learning Objectives: The objective of the course is to			
• To familiarize the students with Legal Provisions and Procedural aspects of GST& Customs Act. • To provide the students a comprehensive understanding of concepts,valuation rules, tax rates and the laws governing them. • To familiarize the students with the GSTand Customs Procedures. • Toequip the learners with the skills to apply relevant rules as amended from time to time in the Parliament in relation to GST and Customs. • To apply the knowledge of GST and Customspractically.			
Module - 1: INTRODUCTION TO GST ACT - 2017		12 Hours	
Meaning, Objectives and salient Features of GST; Genesis of GST: Taxes subsumed and not subsumed under GST; Structure of GST (Dual Model) - Types of GST (CGST, SGST/UTGST and IGST); Benefits and Limitations of GST – Relevance of Articles 246A, 269A, No 366 and 279A of Indian Constitution; GST Council – Structure, Composition, Powers and Functions. GST Act, 2017 – Salient features and Important Definitions. E-way Bill,Reverse Charge Mechanism, Foreign Diplomatic Mission. Supply - Types of supply.Rates of GST.			
Module-2:REGISTRATIONUNDER GST		12 Hours	
Registration procedure,persons liable, persons not liable, compulsory registration, Deemed registration, Documents required for registration, Goods and Service Tax Identification Number (GSTIN) and Unique Identification Number (UIN), Special provisions for casual taxable persons and non-resident taxable persons. Aggregate Turnover - inclusions & exclusions.Composition Scheme: Conditions and GST Provisions– problems on computation of turnover for the purpose of registration and applicability of Composition Levy. Taxable Turnover under CGST, SGST and IGST.			
Module-3:PROCEDURE AND INCIDENCE OF TAX UNDER GST		12 Hours	
Provisions and procedure relating to levy of GST. Documents: Tax Invoice, Credit and Debit Notes.HSN/SAC codes – meaning, source and identification;Scope of supply, tax liability on mixed and composite supply. Time of Supply of Goods and Services; Place of Supply of Goods and Services; Valuation of Taxable Supply: Valuation rules - Transaction Value – Inclusions and Exclusions - Computation of taxable value and tax liability.			
Module-4:INPUT TAX CREDIT		12 Hours	
Output Tax and Input Tax, Input Tax credit. Eligibility and conditions for claiming Input tax credit, Documents required for claiming Input Tax Credit; Utilization of Input tax credit;apportionment of			

credit and blocked credits, availability of credits under special circumstances under section 18, Input tax credit on capital goods, distribution of credit by Input Service Distributor (ISD), transfer of Input Tax Credit. E-Liability Register, E-Credit Ledger, E-Cash Ledger (Meaning); Problems on computation of Output Tax, Input Tax Credit and Net GST.

Course Outcomes: At the end of the course the student will be able to:

CO-1	The procedure for Valuation of Supply, calculation of Output Tax, Input Tax Credit and Net GST.
CO-2	The GST and Customs laws, procedures and regulations time to time.
CO-3	The knowledge in filing of GST returns.

Reference Books:

Sl. No.	Title of the Book	Name of the Author/s	Name of the Publisher
1	GST Law & Practice	CA Ashok& CA Raj Jaggi	Bharath Books
2	GST Ready Reckoner	CA Pankal Goel	Commercial Law Publishers (India) Pvt. Ltd.
3	Systematic Approach to Taxation containing Income Tax & GST	Dr. Girish Ahuja and Dr. Ravi Gupta	Commercial Law Publishers (India) Pvt. Ltd.
4	Indirect Tax Laws	Dr. Vinod K Singhania	Taxmann's Publication
5	Indirect Tax Laws	Dr. Yogendra Bangar& Dr. Vandana Bangar	Bangar's Publication
6	Students Hand Book on Taxation	T.N. Manoharan	Snow White Publications.
7	Direct Tax Laws and International Taxation	T. N. Manoharan et al	Snow White Publications
8	Students Guide to Income Tax (including GST)	Dr. Vinod K Singhania& Dr. Monica Singhania	Taxmann's Publication
9	GST and Customs Duty	Dr. Ravi M.N. and Dr. Suman Shetty N. and Dr. Bhanupraksh B.E.	Professional book publisher



MANGALORE UNIVERSITY

State Education Policy – 2024
[SEP-2024]

CURRICULUM

FOR

BCOM-COMPUTER APPLICATION
V and VI Semester

Semester V

Sl No	Course Code	Title of the Course	Category of Courses	Teaching Hours per Week	SEE	IA	Total Marks	Credits
1	BCMCAVS501	PHP and MySQL	Core	4	80	20	100	3
2	BCMCAVS502	Python Programming	Core	4	80	20	100	3
3	BCMCAVS503	Business Analytics	Core	4	80	20	100	3
4	BCMCAVS504	PHP and MySQL Lab	Practical	4	40	10	50	2
5	BCMCAVS505	Python Programming Lab	Practical	4	40	10	50	2

Semester VI

Sl No	Course Code	Title of the Course	Category of Courses	Teaching Hours per Week	SEE	IA	Total Marks	Credits
1	BCMCAVS601	Statistical Computing and R Programming	Core	4	80	20	100	3
2	BCMCAVS602	Fundamentals of Data Science	Core	4	80	20	100	3
3	BCMCAVS603	R Programming Lab	Practical	4	40	10	50	2
4	BCMCAVS604	Project Work (Skill oriented Course)	Project	2	40	10	50	2

SEMESTER V

Program Name	B.Com-Computer Application	Semester	V
Course Title	PHP and MySQL		
Course Code:	BCMCAVS501	No. of Credits	03
Contact hours	52 Hours	Duration of SEA/Exam	3 Hours
Formative Assessment Marks	20	Summative Assessment Marks	80

Course Outcomes:

After the successful completion of the course, the student will be able to:

1. Design dynamic and interactive web pages and websites.
2. Run PHP scripts on the server and retrieve results.
3. Handle databases like MySQL using PHP in websites.

Unit	Description	Hours
I	Introduction to PHP: Introduction to PHP, History and Features of PHP, Installation & Configuration of PHP, Embedding PHP code in Your Web Pages, Understanding PHP, HTML and White Space, Writing Comments in PHP, Sending Data to the Web Browser, Data types in PHP, Keywords in PHP, Using Variables, Constants in PHP, Expressions in PHP, Operators in PHP.	13
II	Programming with PHP: Conditional statements: if, if- else, switch, The ? Operator, Looping statements: while Loop, do-while Loop, for Loop Arrays in PHP: Introduction- What is Array?, Creating Arrays, Accessing Array elements, Types of Arrays: Indexed v/s Associative arrays, Multidimensional arrays, Creating Array, Accessing Array, Manipulating Arrays, Displaying array, Using Array Functions, Including and Requiring Files- use of Include() and Require(), Implicit and Explicit Casting in PHP.	13
III	Using Functions , Class- Objects, Forms in PHP: Functions in PHP, Function definition, Creating and invoking user-defined functions, Formal parameters versus actual parameters, Function and variable scope, Recursion, Library functions, Date and Time Functions Strings in PHP: What is String?, Creating and Declaring String, String Functions. Class & Objects in PHP: What is Class & Object, Creating and accessing a Class & Object, Object properties, object methods, Overloading, inheritance, Constructor and Destructor Form Handling:	13

IV	Creating HTML Form, Handling HTML Form data in PHP Cookies, Sessions, and Authentication: Using Cookies in PHP, Setting a Cookie ,Accessing a Cookie, Destroyinga Cookie, HTTP Authentication, Storing Usernames and Passwords, Using Sessions, Starting a Session, Ending a Session Database Handling Using PHP with MySQL: Introduction to MySQL: Database terms, Data Types.Accessing MySQL –Using MySQL Client and Using php MyAdmin, MySQL Commands, Using PHP with MySQL: PHP MySQL Functions, Connecting to MySQL and Selecting the Database, Executing Simple Queries, Retrieving Query Results, Counting Returned Records, Updating Records with PHP	13
Text Books: 1. Kevin Tatroe, Peter MacIntyre & Rasmus Lerdorf, Programming PHP,3rd Edition, O'Reilly 2. Robin Nixon, Learning PHP, MySQL, JavaScript, CSS & HTML5, 3rd Edition, O'Reilly 3. PHP & MySQL for Dynamic Web Sites- Fourth Edition by Larry Ullman. References 1. Larry Ullman, “PHP advanced and Object-Oriented Programming” – Third Edition , Peachpit Press. 2. Learning PHP, MySQL and JavaScript By Robin Nixon –O'REILLY Publications 3. Programming PHP By Rasmus Lerdorf, Kevin Tatroe, Peter MacIntyre 4. SAMS Teach Yourself PHP in 24 hours, Author: Matt Zandstra, Sams Publishing		

Pedagogy: Lecture/ PPT/ Videos/ Animations/ Quizzes/ Mini Projects/Group Discussion/ Experiential Learning.

Program Name	B.Com-Computer Application	Semester	V
Course Title	Python Programming		
Course Code:	BCMCAVS502	No. of Credits	02
Contact hours	52 Hours	Duration of SEA/Exam	3 Hours
Formative Assessment Marks	20	Summative Assessment Marks	80

Course Outcomes (COs):

After the successful completion of the course, the student will be able to:

1. Understand Python Programming Basics, Python Control Flow, Exception Handling.
2. Understand and identify the fundamental concepts of object-oriented programming.
3. Understand usage of strings, lists, tuples and sets.
4. Understand file handling, design of GUI.

Unit	Description	Hours
I	Introduction to Python; Features, flavors of Python, Writing and Executing Python Program. Python Basics: Identifiers; Keywords; Variables; Operators; Precedence and Association; Data Types; Indentation; Comments; Console Input and Console Output, Type Conversions. Python Control Flow: Types of Control Flow; Control Flow Statements- if, else, elif, while loop, break, continue statements, for loop Statement; range () and exit () functions. Exception Handling: Types of Errors; Exceptions; Exception Handling using try, except and finally. Python Functions: Built in Functions. User defined functions: Definition- Syntax, Function Calling, Passing Parameters/arguments, the return statement; Scope and Lifetime of Variables in Functions, Default Parameters; Key Word Arguments; Command line Arguments.	13

II	Strings: Creating and Storing Strings; Accessing String Characters , the str() function; Operations on Strings- Concatenation, Comparison, Slicing and Joining, Traversing; Python String Methods. Lists: Creating Lists; Operations on Lists; Built-in Functions on Lists; Nested Lists. Dictionaries: Creating Dictionaries Operations on Dictionaries; Built-in Functions on Dictionaries; Dictionary Methods; Populating and Traversing Dictionaries Tuples and Sets: Creating Tuples; Operations on Tuples; Built-in Functions on Tuples; Tuple Methods; Creating Sets; Operations on Sets; Built-in Functions on Sets; Set Methods.	13
III	File Handling: Creating and reading Text data , Create, Open, Read, Write, Close Files. Object Oriented Programming: Classes and Objects; Creating Classes and Objects; Constructor Method; Classes with Multiple Objects; Objects as Arguments; Objects as Return Values; Inheritance- Single and Multiple Inheritance, Multilevel and Multipath Inheritance; Private Instance Variables; Polymorphism- Definition, Operator Overloading. GU Interface: The tkinter Module; Window and Widgets; Text, label ,Button , entry , Listbox , checkbutton ,Radiobutton ,scrollbar, Spinbox. Layout Management- pack, grid and place	13
IV	Python SQLite: The SQLite3 module; SQLite Methods- connect, cursor, execute, close; Connect to Database; Create Table; Operations on Tables,Insert, Select, Update. Delete and Drop Records. Data Analysis: NumPy- Introduction to NumPy, Array Creation using NumPy, Operations on Arrays; Pandas- Introduction to Pandas, Series and DataFrames. Creating DataFrames from Excel Sheet and .csv file, Dictionary and Tuples. Operations on DataFrames. Data Visualization: Introduction to Data Visualisation; Matplotlib Library; Different Types of Charts using Pyplot- Line chart, Bar chart and Histogram and Pie chart .	13
Text Books: 1. Introduction to Python Programming by Gowrishankar S. and Veena A., CRC Press.		

2. Core Python Programming by R. Nageswara Rao, Dreamtech.

Reference Books:

1. Think Python How to Think Like a Computer Scientist, Allen Downey et al., 2nd Edition, Green Tea Press. Freely available online @ <https://www.greenteapress.com/thinkpython/thinkCSpy.pdf>, 2015.
2. Introduction to Python Programming, Gowrishankar S et al., CRC Press, 2019.
3. Python Data Analytics: Data Analysis and Science Using Pandas, matplotlib, and the Python Programming Language, Fabio Nelli, Apress®, 2015
4. Advance Core Python Programming, Meenu Kohli, BPB Publications, 2021.
5. Core PYTHON Applications Programming, Wesley J. Chun, 3rd Edition, Prentice Hall, 2012.

Pedagogy: Lecture/ PPT/ Videos/ Animations/ Quizzes/ Mini Projects/Group Discussion/ Experiential Learning.

Program Name	B.Com-Computer Application	Semester	V
Course Title	Business Analytics		
Course Code:	BCMCAVS503	No. of Credits	03
Contact hours	52 Hours	Duration of SEA/Exam	3 Hours
Formative Assessment Marks	20	Summative Assessment Marks	80

Course Outcomes (COs):

After the successful completion of the course, the student will be able:

1. To understand the concepts of Business Analytics, Analytics in HR, Finance and Marketing.
2. To know about the importance of analytics in Business
3. To analyze the buying behaviors and financial risks
4. To know the different Analytics softwares.

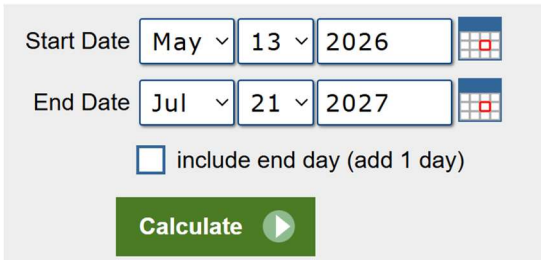
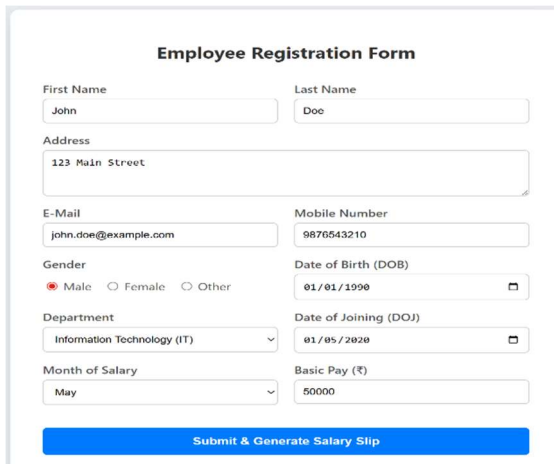
Unit	Description	Hours
I	INTRODUCTION TO ANALYTICS: Introduction, Meaning & Definition, Characteristics, Applications of Analytics, Meaning of Business Analytics, SWOC of Analytics, Importance of Analytics, Tools & Techniques of Analytics, Functions of Analytics, Reports in Analytics, Relevance of Analytics in Business, Latest Softwares for Business Analytics.	13
II	HR ANALYTICS: Introduction, Meaning & Definition, Features, Objectives, Importance, Functions, Types of HR Analytics, Employee Performance Evaluation, Employee Attrition Rate, Recruitment Analytics, Compensation Analytics, Talent Analytics, Training Analytics, Workforce Analytics, Role of Analytics in HRD as a whole, Potential Application of Analytics in HR Department Relevance of HR Analytics in Business, Latest Softwares for HR Analytics.	13
III	MARKETING ANALYTICS: Introduction, Meaning & Definition, Characteristics, Objectives, Importance, Functions, Types of Marketing Analytics, Buying Pattern Behaviour Analysis, Analysis of Trends, Identification of Target Audience, Advertising Techniques, Forecasting Demand & Supply, Segmentation, Marketing Mix Optimization, Competitor Analysis, Use of Google Analytics in Marketing, Social Media and its relevance on Marketing Analytics, Potential Application	13

	of Analytics in Marketing Department, Latest Softwares for Marketing Analytics.	
IV	FINANCE ANALYTICS: Introduction, Meaning & Definition, Characteristics, Objectives, Importance, Functions, Critical Financial Analytics, Risk based Pricing, Fraud Detection and Prediction, Recovery Management, Loss Forecasting, Risk Profiling, Portfolio Stress Testing, Potential Application of Analytics in Finance Department, Relevance of Financial Analytics in Business, Latest Softwares for Finance Analytics	13
Text Books: 1) Dr. Madhu S, Dr. Swapna H R And Dr. Arpana D., “ Business Analytics (Analytics In Commerce And Business), Himalaya Publishing House, 2022 Edition. References Books: 1) Ramesh Sharda, Dursun Delen, EfraimTurban, J.E.Aronson,Ting-Peng Liang, David King, “Business Intelligence and Analytics: System for Decision Support”, 10th Edition, Pearson Global Edition, 2013 2) Data Analytics: The Ultimate Beginner's Guide to Data Analytics Paperback – 12 November 2017by Edward Mize 3) Craig S. Fleisher and Babette E. Bensoussan “Business and Competitive Analysis”, FT Press. 2007		

Pedagogy: Lecture/ PPT/ Videos/ Animations/ Quizzes/ Mini Projects/Group Discussion/ Experiential Learning.

Program Name	B.Com-Computer Application	Semester	V
Course Title	PHP and MySQL Lab		
Course Code:	BCMCAPS504	No. of Credits	02
Contact hours	52 Hours	Duration of SEA/Exam	3 Hours
Formative Assessment Marks	10	Summative Assessment Marks	40

PHP and MySQL Lab List	
Part A	
1	Create an HTML form with fields for user's name, email, and message. Write a PHP script to handle form data submission and display the submitted information.
2	Write a PHP program to find simple interest and compound interest using functions.
3	Write a PHP program for Fixed Deposit maturity amount calculator. (Use Quarterly credit of Compound Interest).
4	Write a PHP program to Calculate the total bill for a customer. Input the item price and quantity, apply a fixed GST percentage (e.g., 18%), and print a formatted receipt.
5	Write a PHP program to create an associative array representing a Financial Jargon/dictionary with words(Eg: Liquidity, Collateral, Inflation, Amortization, Bankruptcy, Equity, Dividend, Principal, Arbitrage, Deficit) as keys and their meanings as values. Allow users to input a word and display its meaning if found, otherwise, display a "Word not found" message. (Please keep 10 pairs of keys and their meanings) Dictionary Enter a word: Liquidity Search Meaning: the state of owning things of value that can be exchanged for cash Dictionary Enter a word: Check Book Search Word not found.

PART B	
1	Write a PHP program with a user interface for calculating the number of days between two given dates. Display the difference in years, months, and days. 
2	PHP program to implement Employee registration form using Labels, Text Boxes, Text Area, Radio Buttons, Select and Submit button. (First Name, Last Name, Address, E-Mail, Mobile, Gender, DOB, Department, DOJ, Month_of_Salary, Basic Pay, DA, HRA, GROSS Pay, IT, NETPAY). Display SALRY SLIP of an employee in a new PHP page in a neat format 
3	Write a PHP Program to implement a login form where users enter their username and password. Validate the credentials against data stored in a MySQL database and grant access if they are correct.
4	Create a customer registration form for opening a bank account with fields like Account Number, Name, Address, Mobile, Account Type, Aadhaar Number, and Initial Deposit. Store details in MySQL and display confirmation.
5	Write a PHP program that takes a customer feedback paragraph, counts the total words, masks profanity/bad words with asterisks (***), and formats the customer's name to uppercase and marks appraisals with green underline.

Customer Feedback Analyzer

Customer Name:

Jane Doe

Feedback Paragraph:

This product is great and the delivery was excellent. However, the manual is stupid and the support team was terrible. Still, a good experience overall.

Process Feedback

Processed Output

Total Words: 25

Customer: JANE DOE

Review:

This product is great and the delivery was excellent. However, the manual is *** and the support team was ***. Still, a good experience overall.

Evaluation Scheme for Lab Examination:

Assessment Criteria		
Program-1	PART-A Writing:5 logic: 5, Execution:5	15 Marks
Program-2	PART-B Writing:5 , Logic: 10 , Execution:5 Marks	20 Marks
Practical Record		05 Marks
Total		40 Marks

Program Name	B.Com-Computer Application	Semester	V
Course Title	Python Programming Lab		
Course Code:	BCMCAPS505	No. of Credits	02
Contact hours	52 Hours	Duration of SEA/Exam	3 Hours
Formative Assessment Marks	10	Summative Assessment Marks	40

	Python Programming -Lab List
	PART A
Sno	Program
1	Create a List with 'N' elements. Find all Unique elements and display as separate list.
2	Using user defined function, find the simple interest, Compound interest, maturity date for a fixed deposit(input deposit term in no. of days) Sample Input <pre> Enter Deposit Amount: 50000 Enter Annual Interest Rate (%): 7 Enter Time (in years): 2 Enter Deposit Term (in days): 730 Enter Deposit Date (YYYY-MM-DD): 2026-05-17 </pre> Sample Output <pre> ----- Fixed Deposit Details ----- Simple Interest : 7000.0 Compound Interest : 7245.0 Maturity Date : 2028-05-16 </pre>
3	To perform the given operation on the tuple. - Printing half tuple in one line, next half in another line. - Print all even numbers in a tuple. - Join one tuple with another. - Find the maximum and minimum value in the tuple.
4	Write a Python program to calculate monthly EMI, total repayment amount, and interest payable. EMI Formula: $emi = \frac{(principal * monthly\_rate * (1 + monthly\_rate)^{months})}{((1 + monthly\_rate)^{months} - 1)}$
5	To create text file "Greetings.dat". Read the file and count the number of characters, lines and words in it.
	PART B

1	To create a BankAccount class(Accout No, Name , Balance, irate). Write a menu driven program to perform the following operations: Display, Deposit ,withdrawal and AddInterest.																																		
2	GUI Program to calculate Compound Interest.																																		
3	Create a table Student(rno, name and marks in 3 subject) . Store ‘N’ students details . Write a Menu driven program to Perform the following operation using MySQL : a) Display all Students details b) b) Display particular Student record using rno c) Delete particular Student record using rno.																																		
4	Create a table employee(eno, name and salary) using MySQL . Store N employees details and store in database. Write a Menu driven program to perform : a) Display details of specific employee b) Display employee details whose salary lies within a certain range c) Increment the salary of all employees by 500Rs.																																		
5	Consider following data and draw the bar graph using matplotliblibrary.(Use CSV or Excel). <table><tr><th rowspan="2">Batsman</th><th colspan="4">Year</th></tr><tr><th>2017</th><th>2018</th><th>2019</th><th>2020</th></tr><tr><td>Virat Kohli</td><td>2501</td><td>1855</td><td>2203</td><td>1223</td></tr><tr><td>Rohit Sharma</td><td>2340</td><td>2250</td><td>2023</td><td>1153</td></tr><tr><td>SK Yadav</td><td>1750</td><td>2147</td><td>1896</td><td>1029</td></tr><tr><td>Hardik Pandya</td><td>1463</td><td>1985</td><td>2354</td><td>1638</td></tr><tr><td>Ravindra Jadeja</td><td>1125</td><td>1853</td><td>1769</td><td>1436</td></tr></table> Display appropriate title for axis and chart. Also show legends.	Batsman	Year				2017	2018	2019	2020	Virat Kohli	2501	1855	2203	1223	Rohit Sharma	2340	2250	2023	1153	SK Yadav	1750	2147	1896	1029	Hardik Pandya	1463	1985	2354	1638	Ravindra Jadeja	1125	1853	1769	1436
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Evaluation Scheme for Lab Examination:

Assessment Criteria		
Program-1	PART-A Writing:5 logic: 5, Execution:5	15 Marks
Program-2	PART-B Writing:5 , Logic: 10 , Execution:5 Marks	20 Marks
Practical Record		05 Marks
Total		40 Marks

SEMESTER VI

Program Name	B.Com-Computer Application	Semester	VI
Course Title	Statistical Computing and R Programming		
Course Code:	BCMCAVS601	No. of Credits	03
Contact hours	52 Hours	Duration of SEA/Exam	3 Hours
Formative Assessment Marks	20	Summative Assessment Marks	80

Course Outcomes:

After the successful completion of the course, the student will be able to:

- Explore fundamentals of statistical analysis in R environment.
- Describe key terminologies, concepts and techniques employed in Statistical Analysis.
- Define Calculate, Implement Probability and Probability Distributions to solve a wide variety of problems.
- Conduct and interpret a variety of Hypothesis Tests to aid Decision Making.
- Understand, Analyze, and Interpret Correlation Probability and Regression to analyze the underlying relationships between different variables.

Unit	Description	Hours
I	Introduction of the language, numeric, arithmetic, assignment, and vectors, Matrices and Arrays, Non-numeric Values, Lists and Data Frames, Special Values, Classes, and Coercion, Basic Plotting.	13
II	Reading and writing files, Programming, Calling Functions, Conditions and Loops: stand- alone statement with illustrations in exercise, stacking statements, coding loops, Writing Functions, Exceptions, Timings, and Visibility. Basic Data Visualization. Advanced graphics: plot customization, plotting regions and margins, point and click coordinate interaction, customizing traditional R plots, specialized text and label notation. Defining colors and plotting in higher dimensions, representing and using color, 3D scatter plots.	13
III	Descriptive Statistics: Types of Data, Nominal, Ordinal, Scale and Ratio, Measures of Central Tendency, Mean, Mode and Median, Percentiles, Quartiles, Measures of Variability, Mean Absolute Deviation Range, Inter-Quartile-Range, Standard Deviation, Z-Scores. Coefficient of Variation, Measure of shaper-Skewness and Kurtosis, Bar Chart, Pie Chart and Box Plot, Histogram, Frequency Polygon, Stemand Leaf Diagram.	13

	Probability, Probability and Sampling Distribution: Methods of assigning probability, Structure of probability, Marginal, union, joint and conditional probabilities. Discrete Probability Distributions: Binomial, Poisson, Continuous Probability Distribution, Normal Distribution, Uniform Distribution. Estimating the population mean using the and t-distribution.	
IV	Statistical Inference and Hypothesis Testing: Types of Hypothesis, and Sample, Null and Alternate Hypothesis, Level of Significance, Type I and Type II Errors, One Sample t-Test, One Sample Proportion Test, Paired Sample t-Test, Independent Samples t-Test, Two Sample Proportion Tests, One Way Analysis of Variance and Chi Square Test. Correlation and Regression: Analysis of Relationship, Positive and Negative Correlation, Perfect Correlation, Karl Pearson Coefficient of Correlation, Correlation Matrix, Scatter Plots, Simple Regression Analysis.	13
Text Books: 1. Tilman M. Davies, “The book of R: A first course in programming and statistics”, San Francisco, 2016. 2. Ken Black, Business Statistics, New Delhi, Wiley, 2013. References: 1. Vishwas R. Pawgi, “Statistical computing using R software”, Nirali prakashan publisher, e1 edition, 2022. 2. Garrett Grolemond “Hands-On Programming with R” Oreily Publications.		

Pedagogy: Lecture/ PPT/ Videos/ Animations/ Quizzes/ Mini Projects/Group Discussion/ Experiential Learning.

Program Name	B.Com-Computer Application	Semester	VI
Course Title	Fundamentals of Data Science		
Course Code:	BCMCAVS602	No. of Credits	03
Contact hours	52 Hours	Duration of SEA/Exam	3 Hours
Formative Assessment Marks	20	Summative Assessment Marks	80

Course Outcomes (COs):

After the successful completion of the course , the student will be able to :

1. Understand the concepts of data and pre-processing of data.
2. Know simple pattern recognition methods.
3. Understand the basic concepts of clustering and classification
4. To know the recent trends in Data Science.

Unit	Description	Hours
I	Data Mining: Introduction, Data Mining as a subject, Definitions, Knowledge Discovery in Databases (KDD) Vs Data Mining, DBMS Vs Data Mining, DM techniques, Problems, Issues and Challenges in DM, DM applications. Data Warehouse: Introduction- What is Data Warehouse, Difference between Operational Database System and Data Warehouses.	13
II	Multidimensional Data Model- Definition, From Tables and Spreadsheets to Data Cubes, Stars, Snowflakes, and Fact Constellations, Measures, Concept Hierarchies, OLAP Operations in the Multidimensional Data Model. Data Warehouse Architecture- Steps for the Design and Construction, A Three-Tier Architecture, Metadata Repository, Types of OLAP Servers. Data Processing: Why Pre-process the Data? Data Cleaning-Missing Value, Noisy Data, Data Integration and transformation-	13

	Data Integration, Data Transformation. Data reduction- Data Cube Aggregation, Attribute Subset Selection, Dimensionality Reduction, Numerosity Reduction. Data Discretization and Concept Hierarchy Generation	
III	Mining Frequent Patterns: Basic Concept –Market Basket Analysis, Frequent Item Set Mining Methods, frequent Pattern Mining. Efficient and Scalable Frequent Itemset Mining Methods- Apriori and Frequent Pattern Growth (FPGrowth) algorithms, Generating Association Rule, Improving the efficiency of Apriori, Mining Frequent Itemsets without Candidate Generation, Mining Frequent Itemsets using vertical Data Format, Mining Closed Frequent Itemsets. Mining Association Rules- Mining Multilevel Association Rules, Mining Multidimensional Association Rules, (5.4.1 excluded), Constraint based Association Mining.	13
IV	Classification: Basic Concepts, Issues, And Algorithms: Decision Tree Induction. Rule-Based Classification, Lazy Learners (or Learning from your Neighbours), k Nearest Neighbour. Clustering: Cluster Analysis, Partitioning Methods, Hierarchical Methods, Density Based Methods, Grid-Based Methods.	13
Text Books: 1. Arun K Pujari – “Data Mining Techniques” 3rd Edition, Universities Press 2. Jiawei Han and MichelineKambar – “Data Mining Concepts and Techniques” Second Edition. Reference Book 1. Pang-Ning Tan, Michael Steinbach, Vipin Kumar: Introduction to Data Mining, Pearson Education, 2012. 2. K.P.Soman, ShyamDiwakar, V.Ajay: Insight into Data Mining – Theory and Practice, PHI 3. Pang-Ning Tan, Michael Steinbach, Vipin Kumar - “Introduction to Data Mining”, Pearson Education		

Pedagogy: Lecture/ PPT/ Videos/ Animations/ Quizzes/ Mini Projects/Group Discussion/ Experiential Learning.

Program Name	B.Com-Computer Application	Semester	VI
Course Title	R Programming Lab		
Course Code:	BCMCAPS603	No.of Credits	02
Contact hours	52 Hours	Duration of SEA/Exam	3 Hours
Formative Assessment Marks	10	Summative Assessment Marks	40

SL.N o	R-Programming Lab List
	PART-A
1.	Write an R program to calculate Simple Interest and Compound Interest for different loan amounts, interest rates, and time periods. Display the results in tabular form using vectors and data frames.
2.	Write R program to find roots of quadratic equation using user defined function. Test the program user supplied values for all possible cases
3.	Write an R program to create a list containing strings, numbers, vectors and logical values and do the following manipulations over the list a) Access the first element in the list b) Give the names to the elements in the list c) Add element at some positions in the list d) Remove the element e) print the first and third element f) Update the third element
4.	Write an R program to create a Data Frame with following details and do the following operations.

	<table><tr><th>ItemCode</th><th>itemCategory</th><th>ItemPrice</th></tr><tr><td>1001</td><td>Electronics</td><td>700</td></tr><tr><td>1002</td><td>Desktop Supplies</td><td>300</td></tr><tr><td>1003</td><td>Office Supplies</td><td>350</td></tr><tr><td>1004</td><td>USB</td><td>400</td></tr><tr><td>1005</td><td>CD Drive</td><td>800</td></tr></table> a) Subset the Data frame and display the details of only those items whose price is greater than or equal to 350. b) Subset the Data frame and display only the items where the category is either “Office Supplies” or “Desktop Supplies” c) Subset the Data frame and display the items where the Itemprice between 300 and 700 d) Compute the sum of all ItemPrice e) Create another Data Frame called “item-details” with three different fields itemCode, ItemQtyonHand and ItemReorderLvl and merge the two frames	ItemCode	itemCategory	ItemPrice	1001	Electronics	700	1002	Desktop Supplies	300	1003	Office Supplies	350	1004	USB	400	1005	CD Drive	800
ItemCode	itemCategory	ItemPrice																	
1001	Electronics	700																	
1002	Desktop Supplies	300																	
1003	Office Supplies	350																	
1004	USB	400																	
1005	CD Drive	800																	
5.	Write a R language Script for following operation on Iris Data Set 1. Load the Iris Dataset 2. View first six rows of iris dataset 3. Summarize iris dataset 4. Display number of rows and columns 5. Display column names of dataset. 6. Create histogram of values for sepal length 7. Create scatterplot of sepal width vs. sepal length 8. Create boxplot of sepal width vs. sepal length 9. Find Pearson correlation between Sepal.Length and Petal.Length																		
	PART-B																		
1	Write a R program to create a Vector containing following 8 values and perform the following operations. 4 3 0 5 2 9 4 5 a) Find mean, median, mode. b) Find the range. c) Find the 35th and 78th percentile. d) Find the variance and standard deviation e) Find the interquartile range. f) Find the z-score for each value.																		

2	Write R script to find the correlation coefficient and type of correlation between advertisement expenses and sales volume using Karl Pearson's coefficient of correlation method (Direct Method).																																	
	<table><tr><td>Firm</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>Advertisement Exp. (Rs. In Lakhs)</td><td>11</td><td>13</td><td>14</td><td>16</td><td>16</td><td>15</td><td>15</td><td>14</td><td>13</td><td>13</td></tr><tr><td>Sales Volume (Rs. In Lakhs)</td><td>50</td><td>50</td><td>55</td><td>60</td><td>65</td><td>65</td><td>65</td><td>60</td><td>60</td><td>50</td></tr></table>	Firm	1	2	3	4	5	6	7	8	9	10	Advertisement Exp. (Rs. In Lakhs)	11	13	14	16	16	15	15	14	13	13	Sales Volume (Rs. In Lakhs)	50	50	55	60	65	65	65	60	60	50
Firm	1	2	3	4	5	6	7	8	9	10																								
Advertisement Exp. (Rs. In Lakhs)	11	13	14	16	16	15	15	14	13	13																								
Sales Volume (Rs. In Lakhs)	50	50	55	60	65	65	65	60	60	50																								
3	Write R script to compute the regression equation of y on x from the following data. Predict the value of y when x=7																																	
	<table><tr><td>X</td><td>2</td><td>4</td><td>5</td><td>6</td><td>8</td><td>11</td></tr><tr><td>Y</td><td>18</td><td>12</td><td>10</td><td>8</td><td>7</td><td>5</td></tr></table>	X	2	4	5	6	8	11	Y	18	12	10	8	7	5																			
X	2	4	5	6	8	11																												
Y	18	12	10	8	7	5																												
4	The times taken by a large group of students to complete a piece of homework, T minutes, are Normally distributed with a mean of 57 minutes and standard deviation of 6.5. Find the probability that the time taken by a random student from the group to complete Write R script to Find the probability that the time taken by a random student from the group to complete this homework a) Will be less than 60 minutes b) Between 50 and 80 minutes																																	
5	Perform the following using uniform distribution between 200 and 240 i. $P(x>230)$ ii. $P(205\leq x\leq 220)$																																	

Evaluation Scheme for Lab Examination:

Assessment Criteria		
Program-1	PART-A Writing:5 logic: 5, Execution:5	15 Marks
Program-2	PART-B Writing:5 , Logic: 10 , Execution:5 Marks	20 Marks
Practical Record		05 Marks
Total		40 Marks

Program Name	B.Com-Computer Application	Semester	VI
Course Title	Project Work (Skill based Course)		
Course Code:	BCMCAPS604	No. of Credits	02
Contact hours	26 Hours	Duration of SEA/Exam	3 Hours
Formative Assessment Marks	10	Summative Assessment Marks	40

Evaluation:

The report shall be prepared by the student under the guidance of the identified mentor in the college and submitted to the Head of the Department for evaluation. The report shall be evaluated by the two internal faculty members and submit the summative marks to the university.

Scheme of Evaluation

Internal Assessment	10 Marks (C1) Basis for Internal Assessment Continuous Evaluation: 10 Marks
Evaluation of Report	40 Marks (C2) i) Preparation and presentation: 20 Marks ii) Viva-Voce: 10 Marks iii) Record Book: 10 Marks

Question Paper Pattern for Core Subjects

Duration: 3 Hours

Max. Marks: 80

Note: Answer any ten Questions from Part-A and one full Question from each unit of Part-B

PART-A

1. Answer any 10

10 x 2=20

- a.
- b.
- c.
- d.
- e.
- f.
- g.
- h.
- i.
- j.
- k.

PART-B

There are 4 Units - UNIT-I, II, III, IV

Each unit contains 2 main questions and it carry 15 marks.

4 x 15=60

Each main question contains 2 or more sub questions.

UNIT-I

- 2 a)**
b)
c)

- 3. a)**
b)
c)

Same pattern for UNIT – II , UNIT - III and UNIT - IV