

St. Joseph's College of Commerce
(Autonomous)

163, Brigade Road, Bengaluru – 560 025

Accredited with 'A++' Grade (4th Cycle) by the National Assessment
and Accreditation Council (NAAC)

Recognized by the UGC as
"COLLEGE WITH POTENTIAL FOR EXCELLENCE"



Bachelor of Commerce

(Analytics)

Semester III

Syllabus as per Karnataka State Education Policy 2024

Curriculum Framework w.e.f., 2024-2025

Academic Year 2025 – 2026

Batch 2024 – 2027

St. Joseph's College of Commerce (Autonomous)

Affiliated to Bengaluru City University

St. Joseph's College of Commerce (SJCC) was formerly a part of St. Joseph's College, established in the year 1882. The Commerce Department was established in the year 1949 and it became an independent college with its own building in Brigade Road in the year 1972.

The college has in its Vision a model for higher education which encourages individuals to dream of a socially just world and in its Mission a strategy to empower individuals in realizing that dream.

With an objective of imparting quality education in the field of Commerce and Management, the college has been innovating in all aspects of higher education over a long period of time. These innovations were further bolstered with the granting of autonomous status to the college by UGC in September 2005. From then on, the college has taken a lead in reforming curriculum and syllabus, examination and evaluation pattern and teaching and learning methods through the Board of Studies, the Academic Council and the Governing Council comprising of eminent academicians, industry representatives and notable alumni.

The college has undergone four cycles of NAAC accreditation starting from the year 2000 in which it secured 'five stars', next in the year 2007 an 'A' grade, in the year 2012 again an 'A' grade and recently in February 2021 an 'A++'. It is one of the very few institutions in the country to have secured A++ grade in the fourth cycle under the Revised Accreditation Framework (RAF) and the first college in Karnataka to do so. The college was declared as a 'College with Potential for Excellence' in the year 2010. In 2011, SJCC was recognized as a Research Centre by Bangalore University. The college has been ranked 55th in the National Institutional Ranking Framework (NIRF) ratings of Ministry of Education, Government of India, in 2024 and it has been the only institution from Karnataka to make it consistently to the top 100 in the country.

The college offers diverse programmes in Commerce, Business Administration Arts and Science. Under Commerce Studies it offers B.Com, B.Com (Professional- International Accounting and Finance), B.Com (BPM- Industry Integrated), B.Com (Travel and Tourism), B.Com (Analytics), B.Com (Professional - Strategic Finance), M.Com (Finance & Taxation/ Marketing & Analytics), M.Com (International Business) & M.Com (Financial Analysis). Under Business Administration it offers BBA, BBA (Entrepreneurship) and BBA (Professional- Finance and Accountancy). Under Arts it offers BA (English, Communicative English and Psychology) and Under Science it offers B.Sc (Economics, Mathematics and Data Analytics). The college also offers five one-year Post Graduate Diploma programmes

ABOUT THE DEPARTMENT

The B. Com Department of St. Joseph's College of Commerce has efficiently streamlined all its courses to reflect an interdisciplinary approach to understanding the contemporary business environment. Its aim is to construct a strong foundation in core subjects such as Accounting, Taxation, Economics, Statistics and Auditing along with a choice of Cost Accounting, Finance, Business Analytics, Marketing and Human Resources, studied in the fifth and sixth semester. The courses are challenging, yet, rewarding for students with high aspirations. Our students have been sought after by employers for their excellent knowledge, skills and attitude, giving them an edge over their peers from other institutions. The B.Com Programme of the college is rated amongst the top 10 in the country (India Today, AC Nielson Survey 2016).

OBJECTIVES OF THE B.COM PROGRAMME

- a. To provide conceptual knowledge and application skills in the domain of Commerce studies.
- b. To provide knowledge in all the areas of business to be able to meet expectations of Commerce, Trade and Industry.
- c. To sharpen the students' analytical and decision-making skills.
- d. To provide a good foundation to students who plan to pursue professional programmes like CA, ICWAI, ACS, CFA and MBA.
- e. To facilitate students to acquire skills and abilities to become competent and competitive in order to be assured of good careers and job placements.
- f. To develop entrepreneurship abilities and managerial skills in students so as to enable them to establish and manage their own business establishments effectively.
- g. To develop ethical business professionals with a broad understanding of business from an interdisciplinary perspective.

I. ELIGIBILITY FOR ADMISSION

Candidates who have completed the two-year Pre-University course of Karnataka State or its equivalent are eligible for admission into this Programme.

II. DURATION OF THE PROGRAMME

The duration of the programme is three (03) years of Six Semesters. A candidate shall complete his/her degree within five (5) academic years from the date of his/her admission to the first semester. Students successfully completing three (03) years of the course will be awarded Bachelor's Degree in Commerce.

III. MEDIUM OF INSTRUCTION

The medium of instruction shall be in English.

IV. ATTENDANCE

- a. A student shall be considered to have satisfied the requirement of attendance for the semester, if he/she has attended not less than 75% in aggregate of the number of working periods in each of the courses, compulsorily.
- b. A student who fails to complete the course in the manner stated above shall not be permitted to take the End Semester Examination.

V. TEACHING AND EVALUATION

M.Com/MBA/MFA/MBS/MTA/MA/M.Sc graduates with B.Com, B.B.A, B.B.S,BA and B.Sc as basic degree from a recognized university are only eligible to teach and to evaluate the courses including part – B courses of I and II semesters except languages, compulsory additional courses and core Information Technology related courses, Skill based, Value Based and Foundation courses, mentioned in this regulation. These courses shall be taught by the Post graduates as recognized by the respective Board of Studies.

VI. SCHEME OF EXAMINATION

ACADEMIC EVALUATION UNDER STATE EDUCATION POLICY (SEP) (EFFECTIVE FROM ACADEMIC YEAR 2024-2025)

The academic evaluation of both undergraduate (UG) and postgraduate (PG) programmes consists of two components: Continuous Internal Assessment (Formative Assessment) and End-Semester Examination (Summative Assessment). Assessment for UG Students under SEP will be as follows:

Type of Assessment	Assessment Component	Allotted Marks
Continuous Internal Assessment / Formative Assessment	CIA I (Test)	10 Marks
	CIA II (Skill-based Assessment)	10 Marks
	Mid-Term Exam	20 Marks
Total	40 marks (scaled down to 20 marks)	
End-Semester Examination / Summative Assessment	End-Semester Examination (For three hours duration)	80 Marks
TOTAL		100 Marks

A. Additional Details

- **Mid-Term Exam:** The mid-term exam covers at least 40-50% of the syllabus and has duration of one hour.

- **Continuous Internal Assessment (CIA) Activities:** CIA activities are designed with clear objectives, modalities, assessment rubrics, and outcomes.

B. CIA improvement

There is **no provision for enhancing CIA marks** for UG students once the semester ends.

Attendance requirement for taking ESE

- The University Grants Commission (UGC) mandates a minimum of 75% attendance in each course to be eligible to write the End Semester Examinations (ESE).
- There is no provision for condonation of attendance under the UGC Act.

VII. MINIMUM FOR A PASS

- **Minimum Pass Marks in Final Examination:** A minimum of 40 percent is required in each course in the End Semester Exams. The student must score at least 32 marks out of 80 in the End Semester Examination (ESE).
- **Overall Pass Requirement:** The aggregate of Continuous Internal Assessment (CIA) and End Semester Examination (ESE) should also be a minimum of 40 percent. Out of 100 marks, a student must secure at least 40 marks in each course to qualify as passed inclusive of minimum 32 marks out of 80 in End Semester Exam.

VIII. GRADING SYSTEM FOR CHOICE BASED CREDIT SYSTEM (CBCS)

The modalities and operational details are given below:

- **Grade Points:** The College adopts a ten-point grading system. The papers are marked in a conventional way for 100 marks. The marks obtained are converted to grade point according to the following table. If a student is absent for the paper the grade point assigned is 0.

% Marks	95 - 100	90 - 94	85 - 89	80 - 84	75 - 79	70 - 74	65 - 69	60 - 64	55 - 59	50 - 54	45 - 49	40 - 44	Below 40
Grade Point	10	9.5	9	8.5	8	7.5	7	6.5	6	5.5	5	4.5	0

Credits: Credits are assigned to courses based on the following broad classification:

Courses Category	Instruction Hours/week	Credits
Languages	3 Hours	3
Major Core	4 Hours	4
Skill Enhancement Courses	1-4 Hours	1-4

Compulsory Courses	1-2 Hours	1-2
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Grade point calculation

- Semester Grade Point Average (SGPA): The SGPA is calculated as the sum of the product of the credits and the grade points scored in all courses, divided by the total credits.

$$\text{SGPA} = \frac{\text{Total of (Credits Earned X Grade Points)}}{\text{Total of Corresponding Credits}}$$

- Minimum SGPA required for a pass is 4.5.
- If a student has not passed in all courses or is absent, the SGPA is not assigned.
- Cumulative Grade Point Average (CGPA): The CGPA is the weighted average of all the courses taken by a student across all semesters of a programme.

$$\text{CGPA} = \frac{\sum \text{Total Credits in the Semester} \times \text{SGPA}}{\text{Total Credits of the Courses}}$$

Note: SGPA and CGPA will be rounded off to two decimal places.

Interpretation of SGPA/CGPA and Classification of Final Result

Grade Points	% of Marks	Grade	Result/Class Description
9.00-10.00	85 - 100	O	Outstanding
8.00-8.99	75 - 85	A+	First Class Exemplary
7.00-7.99	65 - 75	A	First Class Distinction
6.00-6.99	55 - 65	B+	First Class
5.50-5.99	50 - 55	B	High Second Class
5.00-5.49	45 - 50	C	Second Class
4.50 - 4.99	40 - 45	P	Pass Class
Below 4.5	Below 40	RA	To Re-Appear

IX. PATTERN OF ESE QUESTION PAPER UNDER SEP

The End Semester Examination (ESE) question paper under SEP will include questions that assess both Lower Order Thinking Skills (LOTS) and Higher Order Thinking Skills (HOTS). The difficulty level of the question paper will be distributed as follows: 40% easy, 30% difficult, and 30% very challenging.

- **Duration:** 3 Hours
- **Maximum Marks:** 80

The question paper pattern will be as follows:

Sections	Marks per Question	Number of Questions	Total Marks
SectionA	2 marks	5 questions (outof 7)	10 Marks
SectionB	5 marks	4 questions (outof 6)	20 Marks
SectionC	12 marks	3 questions (outof 5)	36 Marks
SectionD	14 marks	1 question (Case Study)	14 Marks
Total			80 Marks

X. REVALUATION AND RETOTALING

Requests for **revaluation**, **retotaling**, and **photocopies of the answer book** for the End-Semester Examination (ESE) must be submitted to the Controller of Examination along with the prescribed fee within two weeks from the declaration of results.

XI. ABSENCE DURING END SEMESTER EXAMINATION

If a student misses the End Semester Examination, they will be marked as "Absent" and will be required to take the supplementary examination for that course during the next available opportunity only.

XII. MALPRACTICE

Students will be dealt severally in case if they are found guilty of any malpractices during examination. The college has zero tolerance towards any kind of ~~four~~ means adopted to secure marks in the exams.

Outcome Based Education (OBE)

B. Com (Analytics)

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

Our **B. Com (Analytics)** program will produce graduates who will:

PE 01	Be competent, creative and highly valued professionals in industry, academia, or government.
PE 02	Adapt to a rapidly changing environment with newly learnt and applied skills and competencies, become socially responsible and value driven citizens, committed to sustainable development
PE 03	Act with conscience of global, ethical, societal, ecological and commercial awareness with sustainable values as is expected of professionals contributing to the country.
PE 04	Able to continue their professional development by obtaining advanced degrees in accounting and other professional fields.

PROGRAMME OUTCOMES (POS)

After the completion of the **B. Com (Analytics)** Programme, the student will be able to:

PO 1	Disciplinary and Inter-disciplinary Knowledge: Demonstrate the understanding of relevant business, management and organization knowledge, both academic and professional, in line with industry standards
PO 2	Decision Making Skill: Apply underlying concepts, principles, and techniques of analysis, both within and outside the discipline to generate all the possible solutions and pick one that shows their understanding of the problem and the outcomes.
PO 3	Integrated Problem-Solving and Research: Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems by analyzing key managerial issues in a particular industry or company and propose appropriate managerial solutions to the situation
PO 4	Critical Thinking Skill: Evaluate evidence, arguments, claims and beliefs by using right type of reasoning as appropriate to the situation and Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems.
PO 5	Creative Thinking Skill: Develop, implement and communicate new and worthwhile ideas using both incremental and radical concepts to make a real and useful contribution to their work
PO 6	Usage of Modern Technology and Tools:

	Use tools and technologies of digital nature, communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy.
PO 7	Leadership and Team Work: Develop a vision, translate that vision into shared goals, and effectively work with others to achieve these goals
PO 8	Ethical Conduct: Act responsibly and sustainably at local, national, and global levels.
PO 9	Collaboration: Work collaboratively and respectfully as members and leaders of diverse teams.
PO 10	Self-Directed and Life-Long Learning: Create goals and monitor progress toward them by developing an awareness of the personal, environmental and task-specific factors that affect the attainment of the goals.

PROGRAMME SPECIFIC OUTCOMES (PSOS)

PO 11	Developing analytical model Develop models to identify and evaluate complex business challenges by analysing data using analytical techniques and visualising tools.
PO 12	Application of analytical model Apply appropriate analytical methods into the core business operations and to leverage data to cultivate and nourish informed decision-making.

B.COM (Analytics) - PROGRAMME							
PROGRAMME MATRIX AS PER STATE EDUCATION POLICY							
Course Category	I	II	III	IV	V	VI	TOTAL
Part A : Languages							
Language 4 Hrs/3 Crs	Lan 1	Lan 1	Lan 1	Lan 1	-	-	
	Lan 2	Lan 2	Lan 2	Lan 2	-	-	
I	6 Crs	6 Crs	6 Crs	6 Crs	-	-	24
Part B: Core Courses							
Discipline Specific Core Courses 4 Hrs/4 Crs	Financial Accounting	Corporate Accounting	Cost Accounting	Financial Management	Management Accounting	Operations Research	
	Business Statistics I	Business Statistics II	R Programming for Analytics	Python Programming for Analytics	Income Tax I	Income Tax II	
	Mathematics	Business Economics	Human Resource Management	Marketing Management	Machine Learning with Python & R Programming	Advanced Analytics with Python and R Programming	
	Principles of Management	Business Law	Principles & Practices of Auditing	Banking and Insurance	NIL	Goods and Service Tax	
Discipline Specific Elective 4 Hrs/4 Crs					DBMS with SQL	Data Visualization with Tableau & Power BI	
	16	16	16	16	16	20	100
Part C : Skill Enhancement Courses/Activities							
Skill Based Courses /activities			Introduction to Spreadsheet 2Crs	Big Data Analytics 2Crs	Research Methodology (4 Crs)	Internship 4Crs	
		MOOCs / Certificate Course 1 Cr	-	MOOCs / Certificate Course 1 Cr	Research Project (4Crs)	-	
Extension & Extracurricular Activities 1Cr		Extracurricular Activities 1 Cr		Extracurricular Activities 1 Cr		Extension Activities 1 Cr	
II		2 Crs	2 Crs	4 Crs	8 Crs	5 Crs	21
Part D: Foundation Course - Value Based							
Foundation Courses 2 Hrs/2 Crs	Psychological Well being 1 Cr	-	Environmental Studies 2 Crs	-	-	-	
	Constitutional Value I 2 Crs	Constitutional Value II 2 Crs					
III	3 Crs	2 Crs	2 Crs				7
Total	25 Crs	26 Crs	26Crs	26Crs	24 Crs	25Crs	152

B. Com (Analytics)**Course Structure****Semester III**

Course Code	Title of the Course	Category	Lecture Hours per week	CIA	ESE	Total Marks	Credits
C5 24 GE 301	General English	Language 1	3	20	80	100	3
C5 24 KN 301	Kannada	Language 2	3	20	80	100	3
C5 24 HN 301	Hindi						
C5 24 AE 301	Additional English						
C5 24 MC 301	Cost Accounting	Major Core	4	20	80	100	4
C5 24 MC 302	R Programming for Analytics	Major Core	4	20	80	100	4
C5 24 MC 303	Human Resource Management	Major Core	4	20	80	100	4
C5 24 MC 304	Principles and Practices of Auditing	Major Core	4	20	80	100	4
UG 24 SB 301	Introduction to Spreadsheet	Skill Based Course	2	20	30	50	2
UG 24 CC 301	Environmental Studies	Compulsory Course	2	20	30	50	2
Total credits				160	540	700	26

Department of Commerce Programme: B.Com (Analytics)						
Semester	Course Code	Course Title	Course Duration	Course Type	Teaching Hours Per week	Credits
III	C5 24 MC 301	Cost Accounting	60 Hours	Major Core	4	4
Course Objective: This course equips the students with basic cost accounting concepts and reconcile the cost and financial accounting statements.						
Course Outcomes After completion of the course, the students will be able to:					T Levels	K Levels
CO1	Describe the Concepts, Methods and Techniques of Cost accounting.				T2	K2
CO2	Prepare a Cost statement/Cost sheet in accordance with cost behavior (changes in output or activity or volume).				T5	K4
CO3	Prepare store ledger using FIFO, LIFO, Simple and weighted average method as tool of material control.				T5	K4
CO4	Calculate cost of labour using Time and Piece rate system - Halsey and Rowan premium system - Taylor and Merricks differential piece rate system as tool of Labour control.				T4	K3
CO5	Prepare the statement showing allocation and apportionment of overheads of service department to Producing Departments by using Repeated and simultaneous equation Methods.				T5	K4
CO6	Prepare a statement showing the reconciliation of cost and financial accounts.				T5	K4
Module 1	Basic Cost Concepts and Classification				5 Hours	
Meaning – Cost accounting – Cost accountancy – Costing – Cost accounting and management – Objectives of Cost Accounting – Cost accounting v/s Financial Accounting – Cost Accounting v/s Management Accounting – Advantages of cost accounting – Methods of costing – Techniques (types) of costing -- Cost centres(Meaning and purpose) – Cost units(Meaning and importance) – Cost accounting departments–Brief note on Cost Audit Records and Report Rules. Cost Control for business sustainability / Environmental Cost.						
Module 2	Cost Concepts and Classification				12 Hours	
Meaning - Cost – Expenses – Losses – Classification of costs - Cost statement or cost sheet – Tender and quotation - Job and Batch Costing.						
Module 3	Material Control and Material Costing				10 Hours	
Materials – Concepts and objectives of material control – Organization for material control – Purchasing and receiving procedure – Some issues in materials procurement – stores organization – Inventory system – Inventory shortages (losses) and overages – Inventory control. Calculations of Stock levels and EOQ with or without discount.						

Costing material received – Costing material issues (FIFO, LIFO, simple and weighted average method only) – Pricing of materials returned to vendor – Pricing of materials returned to storeroom – Selection of a material pricing method.												
Module 4		Labour Costs - Accounting and Control									10 Hours	
Introduction – Direct labour and indirect labour – Organization for labour control – Wage systems – Incentives wage plans – Work study – Job evaluation and merit rating – Time and motion study – Labour turnover – Treatment of labour cost related items – Methods of remunerating labour – Time and piece rate system – Halsey and Rowan premium systems – Taylor and Merrick’s differential piece rate system.												
Module 5		Overhead Distribution									15 Hours	
Concept – Classification of overheads – Factory overhead - Fixed – Semi variable and variable – Factory overheads - Accounting and distribution – Collection and codification of factory overheads – Allocation and apportionment of factory overheads – Apportionment of service departments overheads to producing departments (repeated and simultaneous equation method) – Absorption of factory overhead (Machine hour rate) – Selecting an absorption rate.												
Module 6		Reconciliation of Cost and Financial Accounts									8 Hours	
Need for reconciliation – Reasons for differences in profits – Problem on preparation of reconciliation statement and memorandum reconciliation accounts.												
Skill Development: (These activities are only indicative, the Faculty members can innovate)												
1		Visit 3 factories in your locality and analyse the various methods of costing adopted by them.										
2		Identify the materials consumed in any two organizations of your choice and collect different formats – materials requisition, purchase requisition, bin card, stores ledger.										
3		Prepare wage sheet / pay roll with imaginary figures.										
4		Identify variable, fixed and semi-variable costs of two companies and prepare the cost sheet.										
Book for Reference:												
1		Drury, C. (2020). <i>Management and Cost accounting</i> (10th ed.). Cengage Learning.										
2		Nigam, R. (2021). <i>Theory and Techniques of Cost Accounting</i> (2nd ed.). Vikas Publishing House.										
3		Jain, S. P., & Narang, K. L. (2020). <i>Cost and Management Accounting</i> (10th ed.). Kalyani Publishers.										
4		Maheshwari, S. N. (2021). <i>Cost Accounting</i> (15th ed.). Vikas Publishing House.										
5		JawaharLal (2019). <i>Cost Accounting</i> (7th ed.). Tata McGraw-Hill Education.										
6		Arora, M. N. (2021). <i>Cost Accounting</i> (10th ed.). Himalaya Publishing House.										
Mapping of CO and PO												
CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H	L	M	H	L						M	L
CO2	H	L	M	H	L						M	L
CO3	H	L	M	H	L						M	L
CO4	H	L	M	H	L						M	L
CO5	H	L	M	H	L						M	L
CO6	H	L	M	H	L						M	L

Department of Commerce Programme: B.Com (Analytics)						
Semester	Course Code	Course Title	Course Duration	Course Type	Teaching Hours Per week	Credits
III	C5 24 MC 302	R Programming for Analytics	60 Hours	Major Core	4	4
Course Objective: Enable students to apply the fundamentals of statistical analysis in R environment and to analysis data for the purpose of exploration using Descriptive and Inferential Statistics. Students will understand Probability and Sampling Distributions and learn the creative application of Linear Regression in multivariate context for predictive purpose.						
Course Outcomes After completion of the course, the students will be able to:					T Levels	K Levels
CO1	Demonstrate knowledge and understanding of the basic environment of R and R Studio, including setting up the environment and fundamental R syntax.				T3	K2
CO2	Devise conditional statements and looping constructs to manipulate and analyze data in R.				T5	K3
CO3	Apply and use data structures such as matrices, data frames, and vectors to solve real-world data analysis problems				T3	K3
CO4	Develop and debug functions in R, passing arguments and handling advanced function concepts like recursion and anonymous functions.				T5	K4
CO5	Construct and interpret various graphical representations, including bar charts, pie charts, box plots, and histograms.				T5	K4
CO6	Summarize data-driven inferences and draw meaningful conclusions based on hypothesis tests and ANOVA results.				T5	K4
Module 1	Introduction to Analytics and R Programming				10 Hours	
Overview of Business Analytics, Key Purpose of Using IT in Business, OLTP & OLAP, Data Warehousing, Data Mart, Operational Data Storage. R and R Studio: Data Structure in R, R syntax, data types, operators, and basic expressions, vectors, Installing and updating packages in R.						
Module 2	Conditional and Looping in R				10 Hours	
Conditional Statements, if statement, if-else statement, ifelse function, Nested if-else, Looping, for loop, while loop, repeat loop, break statement, next statement.						
Module 3	Matrix and Data Frames				10 Hours	
Matrix, Matrix Access, Data Frames, Data Frame Access, Basic Data Manipulation Techniques, strings, string functions, vectors access, use of apply function.						
Module 4	Functions with R				10 Hours	
User defined function, Defining functions, attributes, Pass arguments to functions, advanced function concepts, recursion and anonymous functions, Debug functions, Local variables and global variables in functions, looping and conditional statement inside functions.						
Module 5	Descriptive Statistics				10 Hours	
Types of Data, Nominal, Ordinal, Scale and Ratio, Measures of Central Tendency, Mean, Mode and Median, Bar Chart, Pie Chart and Box Plot, Measures of Variability, Range, Inter-Quartile-Range, Standard Deviation, Skewness and Kurtosis, Histogram.						
Module 6	Statistical Inference and Hypothesis Testing				10 Hours	
Population and Sample, Null and Alternate Hypothesis, Level of Significance, Type I and Type II Errors, One Sample t Test, Paired Sample t Test, Independent Samples t Test, One Way Analysis of Variance and Chi Square Test. Working with various datasets.						
Skill Development:						

(These activities are only indicative, the Faculty members can innovate)

1 Related Modules in Data Camp (IoA App provided)

Book for Reference:

1 Black, K. (2013). *Business Statistics* (9th ed.). Wiley.

2 Lee, C., Cheng, C., & et al. (2013). *Statistics for Business and Financial Economics*. Springer.

3 Anderson, D. R., Williams, T. A., & Sweeney, D. J. (2016). *Statistics for Business and Economics* (13th ed.). Cengage Learning

4 Waller, D. (2008). *Statistics for Business* (2nd ed.). BH Publications.

5 Levin, R. I., & Rubin, D. S. (2018). *Statistics for Management* (8th ed.). Pearson Education.

6 Narang, S., & Rani, G. (2024). *R Programming for Business Analytics* (Latest ed.). Authorspress.

Mapping of CO and PO

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M	L	L	L	M						H	H
CO2	M	L	L	L	M						H	H
CO3	M	L	L	L	M						H	H
CO4	M	L	L	L	M						H	H
CO5	M	L	L	L	M						H	H
CO6	M	L	L	L	M						H	H

Department of Commerce Programme: B.Com (Analytics)						
Semester	Course Code	Course Title	Course Duration	Course Type	Teaching Hours Per week	Credits
III	C5 24 MC 303	Human Resource Management	60 Hours	Major Core	4	4
Course Objective: The students will be able to examine the role HR process involving planning, Recruitment, selection and Induction, Training methods and techniques, compare the Traditional and modern method of Performance appraisal system, illustrate the Design of Compensation and rewards demonstrate the process of HR audit.						
Course Outcomes					T levels	K Levels
After completion of the course, the students will be able to:						
CO1	Analyze HRM strategies in alignment with organizational goals in dynamic nature of work and changing work environments.				T4	K4
CO2	Illustrate the process of Human Resource planning, Recruitment, selection and Induction of a hypothetical organization, training methods.				T4	K4
CO3	Compare and contrast Performance appraisal system in the context of Career Planning and Development and succession planning.				T5	K4
CO4	Evaluate the strategies to improve employee engagement, separation and retention.				T6	K4
CO5	Analyse the Design of Compensation and rewards in alignment with Job Evaluation.				T4	K4
CO6	Develop a process of Human Resource Audit and generate Audit Report of a hypothetical organization.				T5	K4
Module 1	Introduction to Human Resources Management (HRM)				8 Hours	
HRM - Meaning, Importance, Objectives, Functions and Process, Structure of the HR department. SDG 8- Decent work and Economic Growth, Moon lighting Remote working & Gig Economy: Benefits & Challenges. Digitalization in Human Resource Management: Gamification, Artificial Intelligence and Augmented Reality, Virtual reality (concepts only)						
Module 2	HR Planning, Recruitment, Selection & Induction, Training & Development				16 Hours	
HRP: Objectives, and Benefits, Process of HRP, Challenges in HRP. Recruitment: Definition, Objectives, factors affecting recruitment, sources of Recruitment and techniques of recruitment. Selection: Meaning and definition, significance, selection procedures, Placement: Meaning and definition, Selection bias Induction: Meaning, definition, process and importance. Recent Trends in Human Resource Management: Recruitment & Selection (Predictive analysis, social media recruiting, and Candidate experience). Training: Meaning, Importance, Benefits, Need, Training Methods & Techniques, Evaluation of Training Programmes, Training Management Systems & Processes. Difference between training & development.						

Training & Development (Virtual mentorship, Experiential Learning, Learner centered E - Learning)		
Module 3	Performance Appraisals and Career Management	12 Hours
Performance Appraisal: Meaning, objectives, Importance. Process, methods (Traditional and Modern methods), essentials of a sound appraisal system -, problems of performance appraisal. Career Planning & Development: Definition, importance, career stages, process of career planning and development. Establishing a career development system – actions and pre-requisites. Succession planning: Meaning, Differences in HRP and Succession Planning. Importance of Succession Planning		
Module 4	Employee Engagement, Attrition and Retention	8 Hours
Meaning, Importance and strategies to improve employee engagement. Difference between employee engagement and employee satisfaction. Separation – Concepts, Attrition: Meaning and reasons for Attrition, Merits and De-merits of Attrition. Retention: Meaning, Merits, Strategies for retention.		
Module 5	Compensation and Reward Management	8 Hours
Job Evaluation: Meaning, Importance and Techniques. Compensation: Meaning, definition, concepts and objectives, Importance of an ideal compensation plan, Principles and methods of compensation fixation. Compensation & Rewards Management (Pay Equity, Quality of Work-Life Rewards & Digital rewards) Rewards: Meaning and Importance, Types of Rewards- monetary and non-monetary rewards.		
Module 6	Human Resource Accounting & Auditing	8 Hours
Human Resource Accounting: Meaning, Objectives, Methods – Cost Based Approach- Value Based Approach (Concepts Only) – Limitations. Human Resource Auditing: Meaning, benefits, process, approaches to HR Audit, phases involved in HR Audit, Audit Reports. Human Resource Analytics: Meaning, benefits, application of HR Analytics, tools for HR Analytics (Concepts only) Ethics in Human Resource Management: Code of employee conduct, Behavioral ethics in Leadership, Conflicts of interest, Fairness and Justice and Uses of information. Impact of artificial intelligence and augmented reality on business and society		
Self-Learning Topics: (If Applicable)		
1	Different types of performance appraisal techniques in different types of organisations.	
Skill Development: <i>(These activities are only indicative, the Faculty members can innovate)</i>		
1	Select any two companies of your choice and understand and analyse their HR policies.	
2	Chart out the methods of appraising employees of any organization of your choice	
3	Observe and analyse any five welfare techniques for employees	
4	Complete a study of different recruitment models in companies	
5	Observe and analyse the Human Resource Capital measurement from the point of view of IIRC framework (International Integrated Reporting Council)	
6	Analyse the salary structures offered by different companies on websites like Glassdoor and evaluate the trends in rewards and compensation.	
Book for Reference:		

1	Ahuja, K. K. (2019). <i>Personnel Management</i> (Revised ed.). Kalyani Publishers.
2	Kaur, A., & Agarwal, P. (2018). <i>Industrial Relations</i> (Revised ed.). Kalyani Publishing
3	Aswathappa, K. (2020). <i>Human Resource & Personnel Management</i> (Revised ed.). McGraw-Hill Education.
4	Chhabra, T. N., & Ahuja, K. K. (2020). <i>Managing People at Work</i> (Latest ed.). Vanity Books.
5	Gupta, S. K., & Joshi, R. (2021). <i>Human Resource Management</i> (Revised ed.). Kalyani Publishing.
6	Memoria, C. B. (2020). <i>Personnel Management</i> (Latest ed.). Himalaya Publishing House.

Mapping of CO and PO

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M	M	H	H	L						L	L
CO2	M	M	H	H	L						L	L
CO3	M	M	H	H	L					L	L	
CO4	M	M	H	H	L					L	L	
CO5	M	M	H	H	L					L	L	
CO6	M	M	H	H	L	L		L				

Department of Commerce Programme: B.Com (Analytics)						
Semester	Course Code	Course Title	Course Duration	Course Type	Teaching Hours Per week	Credits
III	C5 24 MC 304	Principles & Practices of Auditing	60 Hours	Major Core	4	4
Course Objective: This course enables the students to understand the fundamentals of audit, conducting an audit plan, preparation of audit report and their role in corporate governance.						
Course Outcomes After completion of the course, the students will be able to:					T Levels	K Levels
CO1	Describe the meaning, objectives, types of Audit, EDP Audit, XBRL and practices as per the Auditing and Assurance Standard Board prescribed by ICAI.				T2	K2
CO2	Devise an Audit plan to carry out process of Auditing for an organization as per the Standards of Auditing.				T5	K4
CO3	Examine the existing Internal Control system and communication of internal control weaknesses.				T4	K3
CO4	Illustrate the roles and responsibilities of a Company Auditor in accordance with Companies Act 2013.				T4	K4

CO5	Prepare an Audit Report that is in conformity with SA 700 – 799.	T4	K4
CO6	Analyze Forensic Auditing, the role of Audit committees and its investigation in the context of Corporate Governance.	T4	K4
Module 1	Introduction to Auditing: (Standards of Auditing SA200-299)	8 Hours	
Auditing- meaning, definition. Objectives of an audit - primary & secondary objective. Case Laws on Audit Objectives. Types of Audit – Statutory & Independent Audit. Meaning of errors, Classification of errors, its detection by an auditor. Frauds – meaning, intention, classification & detection by auditor. Window dressing of financial statements. An overview of Auditing and Assurance Standards issued by ICAI.-EDP audit-Extended Business Reporting Language.			
Module 2	Audit Planning: (Standards of Auditing SA200-599)	12 Hours	
Commencing an Audit – Audit Engagement letter, Commencement procedures- (SA 210) Documentation – Documentation as under SA 230-Audit working papers, Audit files: Permanent and current audit files, Ownership and custody of working papers, materiality (SA 320), audit evidence (SA 500) and documentation. Formulating an Audit Programme, drawing up the Audit Process. Audit Procedures- Compliance procedures & tests of Detail. Auditing Techniques. Statistical Sampling (SA530) in Auditing. Vouching & verification.			
Module 3	Internal Control: (SA 265)	12 Hours	
Concept of Internal Control, Internal check & Internal Audit, objectives. Features of a good Internal Control System. Methods of recording existing Internal Control Systems followed by an auditor – Questionnaire, Check list & flow chart methods. Role of the management. Internal control in specific areas – Sales & debtors, Purchases & creditors, Cash & bank balance/receipts/ payments, Fixed Assets, Investments. Review & evaluation of Internal Control Systems, Risk assessment. Reporting to clients on Internal Control weaknesses. (SA 265)			
Module 4	The Company Auditor	10 Hours	
Appointment of Auditor, Remuneration, Functions, Duties of an Auditor. Professional of Ethics of an auditor, Rights & Liabilities of an Auditor as per Companies Act 2013.			
Module 5	Audit Report (SA700-799)	8 Hours	
Auditors Opinion, nature of an Auditors Opinion. Basics of An Audit Report – True & fair view, Audit examination, Information & explanations from the management, Statement of facts Vs. Expression of opinion, date of report & signing. Types of Audit Report. Qualifications in the Auditors Report.			
Module 6	Corporate Governance and investigation	10 Hours	
Audit Committees and Corporate Governance, Investigation including Due Diligence. Forensic Audit: Introduction and Meaning - Needs and Objectives - Frauds and Forensic Audits - Forensic Audit Laws and Regulations - Cyber Forensics.			
Skill Development: (These activities are only indicative, the Faculty members can innovate)			
1	Collect the information about types of audit conducted in any one Organization.		
2	Visit an audit firm; write about the procedure followed by them in auditing the books of accounts of a firm.		
3	Draft an investigation on behalf of a Public Limited Company.		
4	Record the verification procedure with respect to any one fixed asset.		
5	Prepare a qualified or clean audit report for a given situation.		
6	Analyse different Case laws on depreciation – facts and judgments.		

Book for Reference:												
1	Tandon, B. N., Sudharsanam, S., & Sundharabahu, S. (2004). <i>A Handbook of Practical Auditing</i> (Revised ed.). S. Chand & Co.											
2	Tandon, B. N. (2014). <i>Auditing</i> (11th ed.). S. Chand & Co. Ltd.											
3	Jain, D. P. (2016). <i>Auditing</i> (2nd ed.). Konark Publishers Pvt. Ltd.											
4	Pagare, D. (2020). <i>Practice of Auditing</i> (2nd ed.). Sultan Chand & Sons.											
5	Sharma, T. R. (2021). <i>Auditing</i> (10th ed.). Sahitya Bhavan.											
6	Gupta, K., & Arora, A. (2016). <i>Fundamentals of Auditing</i> (6th ed.). Tata McGraw-Hill.											
Mapping of CO and PO												
CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H	L	M	M	H						L	L
CO2	H	L	M	M	H						L	L
CO3	H	L	M	M	H						L	L
CO4	H	L	M	M	H						L	L
CO5	H	L	M	M	H						L	L
CO6	H	L	M	M	H						L	L

Department of Commerce Programme: B.Com (Analytics)							
Semester	Course Code	Course Title	Course Duration	Course Type	Teaching Hours Per week	Credits	
III	C5 24 SB 301	Introduction to Spreadsheet	30 Hours	Skilled based course	2	2	
Course Objective: This course aims to equip students with the tools and skills needed to leverage spreadsheets effectively for making data-driven decisions in a wide variety of business contexts.							
Course Outcomes After completion of the course, the students will be able to:						T levels	K Levels
CO1	Demonstrate proficiency in using Excel for data entry, formatting, and organizing data using workbooks, sheets, and referencing techniques.					T4	K4
CO2	Apply various Excel functions, including mathematical, statistical, string, and financial functions, to perform complex data computations and analyses.					T5	K4
CO3	Create visually appealing data representations using charts, graphs, pivot tables, and interactive dashboards to enhance data interpretation.					T4	K4
Module 1	Working with Spreadsheets					10 Hours	
Origin and Importance of Excel in Data Analysis - Workbooks and Worksheets, Ribbon tabs, Using Shortcut Menus, Working with Dialogue Boxes, Task Panes, Exploring Data Types, Modifying Cell Contents, Comparing sheets side by side, special types of cells, Paste Special dialogue box, Adding comments to cells. Formatting tools on the Home tab, Mini Toolbar, Fonts, Statistical Functions, Text Functions, other functions, Colors and Shading, Borders and Lines, conditional formatting, Working with tables, Selecting parts of a Table, Sorting and filtering a table, Converting Table into Range.							
Module 2	Mastering Advanced Spreadsheet Techniques					10 Hours	
Excel Functions - Mathematical Functions: SUM, AVERAGE, COUNT COUNTA, MIN/MAX, SQRT, POWER, LCM, COMBIN and PERMUT. String functions: LEN, LEFT, MID, RIGHT, CONCAT, TRIM, UPPER, LOWER, PROPER, Date Functions, Random number generators: RAND and RANDBETWEEN, Conditional functions: IF, NESTED IF, SUMIFS, COUNTIFS, and AVERAGEIFS, Data Handling Functions: VLOOKUP, HLOOKUP. Financial functions: PMT, PV, RATE, NPER. What if Analysis: Goal Seek, Scenario manager, and Data table (one way and two way).							
Module 3	Visualization					10 Hours	
Creating charts, Pie, Line, Bar, histogram, Boxplot, Scatter plot, data bars, waterfall charts, Area charts, Dynamic Charts, and other charts, Legends ad formatting wit charts, Labeling carts, 3D charts, Sparkline, Time series plot, Score Cards. Interactive Dashboard Development: Pivot Table, Pivot Chart and Slicers.							
Skill Development: (These activities are only indicative, the Faculty members can innovate)							
1	Prepare and analyse the attendance data set of your organisation.						

2	Prepare an expense tracker, analyse and present the data with visualisation tools.											
3	Analyse a dataset in regard with company’s performance, profitability.											
Book for Reference:												
1	Jones, S., Smith, R., & Brown, M. (2023). <i>Excel Mastery: Unlocking the Potential of Excel for Data Analysis</i> (2nd ed.). Pearson Education.											
2	White, A., Black, K., & Green, L. (2021). <i>Excel Analytics: From Basics to Advanced Techniques</i> (4th ed.). Wiley.											
3	Lee, C., Johnson, D., & Williams, E. (2022). <i>Mastering Excel: Advanced Tools and Techniques for Data Visualization and Analysis</i> (3rd ed.). McGraw-Hill Education.											
4	Garcia, M., Brown, T., & Martinez, L. (2024). <i>Excel Data Analysis: Unleashing the Power of Excel for Insights and Decision-Making</i> (5th ed.). O'Reilly Media.											
Mapping of CO and PO												
CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M	L	L	L	M	H					H	M
CO2	M	L	L	L	M	H					H	M
CO3	M	L	L	L	M	H					H	M

Department of Commerce Programme: B.Com (Analytics)						
Semester	Course Code	Course Title	Course Duration	Course Type	Teaching Hours Per week	Credits
III	UG 24 CC 301	Environmental Studies	45 Hours	Compulsory Course	3	2
Course Objective: The course is structured to create awareness, enhance knowledge, and develop skills related to environmental conservation and sustainability.						
Course Outcomes After completion of the course, the students will be able to:					T Levels	K Level
CO1	Identify the environmental factors that determine sustainable development and describe an ecosystem along with its many components.				T3	K3
CO2	Identify the various natural resources and analyse the impact of their degradation.				T3	K3
CO3	Describe the different types of environmental pollutions, causes of climate change and the various environment protections laws.				T3	K3
CO4	Analyze the impact of population growth on the environment and the various rehabilitation measures using case studies				T3	K3
Module 1	Introduction to Environmental Studies				09 Hours	
Introduction to Environmental Studies: Multidisciplinary nature of environmental studies, Scope and importance; Concept of sustainability and sustainability development, SDG Goals Ecosystem: Structure and function of ecosystem; Energy flow in and ecosystem: food chains, food webs and ecological succession. Terrestrial Ecosystems: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems; ponds, streams, lakes, rivers, oceans,						
Module 2	Natural resources: Renewable and Non-Renewable Resources				13 Hours	
Land resources: Land-use and land cover change; Land degradation, Soil erosion and desertification. Forest Resources: Types and scope; Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity, and tribal populations. Water Resources: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-State Energy Resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies. Biodiversity and Conservation: Levels of biological diversity: Genetic, species and ecosystem diversity; Biogeographic zones of India Biodiversity patterns and global biodiversity hot spots. India as a mega-biodiversity nation; Endangered and endemic species of India. Threats to biodiversity: Habitat loss, poaching of wildlife, man- wildlife conflicts with case studies, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.						
Module 3	Environment Pollution				13 Hours	

Environmental Pollution – Types, causes, effects and controls, Air, Water, soil and noise pollution, nuclear hazards and human health risks Solid waste: management and control measures urban and industrial waste with case studies Environmental Policies and Practices: Climate change, global warming , ozone layer depletion, acid rain and impacts on human communities and agriculture Environmental Laws: Environment Protection Act, Air (Prevention and Control of Pollution) Act, Forest Conservation Act, International agreements, Montreal and Kyoto protocols and Convention on Biological Diversity (CBD) Nature reserves, tribal population and rights and human wildlife conflicts in Indian context		
Module 4	Human Communities and Environment	10 Hours
Human population growth, Impacts on environment, human health and welfare ,Resettlements and rehabilitation of project affected persons, case studies Disaster management: Floods, earthquake, cyclones and landslides with case studies Environment movements: Chipko, Silent Valley, Bishnois of Rajasthan Environmental Ethics: Ecological, economic, social , ethical, aesthetic and informational value. Role of Indian and other religions and cultures in environmental conservation Environmental communication and public awareness, case studies- CNG vehicles in Delhi Field work – Field report to be submitted		
Skill Development: <i>(These activities are only indicative, the Faculty members can innovate)</i>		
1	Visit to an area to document environmental assets: river/ forest/flora/ fauna, etc	
2	Visit to a local polluted site- urban/Rural/Industrial/ Agricultural	
3	Study of common plants, insects, birds, and basic principles of identification	
4	Study of simple ecosystems – pond, river,lake etc.	
Book for Reference:		
1	Bharucha, E. (2015). Textbook of Environmental Studies.	
2	Sengupta, R. (2003). Ecology and economics: An approach to sustainable development. OUP.	
3	Singh, J.S., Singh, S.P. and Gupta, S.R. (2014). Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi.	
4	Sodhi, N.S., Gibson, L. & Raven, P.H. (Eds). (2013). Conservation Biology: Voices from the Tropics. John Wiley & Sons.	
5	Wilson, E. O. (2006). The Creation: An appeal to save life on Earth. New York: Norton.	
6	World Commission on Environment and Development. (1987). Our Common Future. Oxford University Press.	
7	Gadgil, M., & Guha, R. (1993). This Fissured Land: An Ecological History of India. Univ. of California Press.	
8	Gleeson, B. and Low, N. (eds.) (1999). Global Ethics and Environment, London, Routledge.	
9	Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll. (2006). Principles of Conservation Biology. Sunderland: Sinauer Associates.	
10	McCully, P. (1996). Rivers no more: the environmental effects of dams (pp. 29-64). Zed Books.	
11	McNeill, John R. (2000). Something New Under the Sun: An Environmental History of the Twentieth Century.	
12	Nandini, N., Sunitha N., & Sucharita Tandon. (2019). A text book on Environmental Studies (AECC). Sapna Book House, Bengaluru.	

Mapping of CO and PO

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		L	L	L			M	H	M	H		
CO2		L	L	L			M	H	M	H		
CO3		L	L	L			M	H	M	H		
CO4		L	L	L			M	H	M	H		