

University of Mumbai



**R.A. Podar College of Commerce and Economics  
(Autonomous) Matunga, Mumbai.**

**Syllabus  
and  
Question Paper Pattern  
of**

**Bachelor of Commerce with Actuarial Studies  
B.Com (Actuarial Studies)**

**First Year (Semester I)**

**Under Choice Based Credit System**

**Academic Year 2024-2025**

**Faculty of Commerce**

**[www.rapodar.ac.in](http://www.rapodar.ac.in)**

**Bachelor of Commerce (B. Com with Actuarial Studies) Programme****Syllabus as per National Education Policy 2020***Course Structure***F.Y.B.COM (Actuarial Studies) (Level 4.5)**

No. of Courses	Course Code	Semester I	Credits
<b>1</b>		<b>Major (08 credits)</b>	
<b>1.A</b>		<b>Actuarial Studies-I</b>	
1.A.a		Business Economics	<b>04</b>
1.A.b		Foundation course in Mathematics and Statistics	<b>04</b>
<b>2</b>		<b>Minor (03 credits)</b>	
2.A.a		Fundamentals of Accounting	<b>03</b>
<b>3</b>		<b>General Elective (GE)/ Open Elective (OE) (02 Credits)</b>	
3.A.a		Strategic Decision Making	<b>02</b>
<b>4</b>		<b>Vocational &amp; Skill Enhancement Courses (VSEC) (02 credits)</b>	
<b>4A</b>		<b>Vocational Skill Course (VSC)</b>	
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<b>4.B</b>		<b>Skill Enhancement Course (SEC)</b>	
4.B.a		Office Automation	<b>02</b>
<b>5</b>		<b>Enhancement Course, Value Enhancement Course, Indian Knowledge System (07 credits)</b>	
<b>5.A</b>		<b>Ability Enhancement Course (AEC)</b>	
5.A.a		Language and Literature – I	<b>03</b>
<b>5.B</b>		<b>Value Enhancement Course (VEC)</b>	
5.B.a		Introduction to R programming	<b>02</b>
<b>5.C</b>		<b>Indian Knowledge System (IKS)</b>	
5.C.a		Indian traditional approach in conservation and sustainability	<b>02</b>
<b>TOTAL</b>		<b>CUMULATIVE CREDITS</b>	<b>22</b>

**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**  
**(With effect from the Academic Year 2024-2025)**

**1. Major**

**Business Economics (4 Credits)**

**Semester I**

<b>1. Major</b>	
<b>Business Economics</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	To sensitize the learners about the need for optimum utilization of scarce resources.
CObj 2	To familiarize the learners with the basic tools used for understanding production and consumption
CObj 3	To make them understand the interplay between market forces and optimum use of resources
CObj 4	To enable the learners to understand the cost output relationship.
<b>Course Outcomes</b>	
COout 1	Learners understand the concept of consumer demand and are able to analyze it using demand forecasting.
COout 2	Learners understand consumer behaviour using ordinal utility analysis and are able to apply the analysis to a variety of public policy issues.
COout 3	Learners Differentiate between various types of costs and are able to illustrate the cost-output relationship in the short-run and long-run.
COout 4	Learners identify and plan to achieve economies of scale

## Modules at a Glance

<b>Business Economics I</b>		
Sr. No.	Modules	No. of Lectures
1	Principles of Economics	11
2	Microeconomics – the behaviour of consumers, firms and markets	11
3	Macroeconomics	11
4	Market Behaviour	12
<b>Total No. of Lectures:</b>		<b>45</b>

Sr. No.	Modules
<b>1</b>	<b>Principles of Economics</b>
	<ul style="list-style-type: none"> <li>● Relationship between economics and business</li> <li>● Main economic schools and their key features:               <ul style="list-style-type: none"> <li>• Classical</li> <li>• Marxian socialism</li> <li>• Neo-classical, Keynesian, neo-Keynesian and post-Keynesian</li> <li>• Monetarist</li> <li>• Austrian.</li> </ul> </li> <li>● Recent macroeconomic history               <ul style="list-style-type: none"> <li>• Progress of the world economy since the Great Depression</li> <li>• Banking crisis of 2008, the Great Recession, and recovery</li> </ul> </li> </ul>
<b>2</b>	<b>Microeconomics – the behaviour of consumers, firms and markets</b>
	<ul style="list-style-type: none"> <li>● How competitive markets operate</li> <li>● Consumer demand and behaviour</li> <li>● The impact of advertising on sales and demand</li> <li>● Impact of the production function, costs of production and revenue and profit to on a firm's price and output decisions</li> <li>● Profit maximisation under perfect competition and monopoly</li> <li>● Profit maximisation under imperfect competition</li> <li>● Pricing strategies that firms in the financial services sector can adopt</li> </ul>
<b>3</b>	<b>Macroeconomics</b>
	<ul style="list-style-type: none"> <li>● Impact of the macroeconomic environment on business</li> <li>● Balance of payments and the determination of exchange rates</li> <li>● Role of money and interest rates in the economy</li> <li>● Factors that determine the level of business activity and how they also affect</li> </ul>

	unemployment and inflation <ul style="list-style-type: none"> <li>● Impact of macroeconomic policies on businesses</li> <li>● Supply-side policies and their impact on businesses</li> </ul>
4	<b>The role of government</b>
	<ul style="list-style-type: none"> <li>● Government intervention in a market</li> <li>● Relationship between the government and the individual firm</li> <li>● Globalisation and multinational business</li> <li>● Importance of international trade</li> <li>● Role, structure and stability of the financial system</li> </ul>

### **Teaching Pedagogy**

Lectures/tutorials/field work/outreach activities/ project work/ vocational training/ viva / seminars / term papers/ assignments / presentations / self-study/case studies etc. or a combination of some of these. Sessions shall be interactive in nature to enable peer group learning.

## Business Economics

### *Question Paper Pattern (Academic Year: 2024-2025)*

#### Internal Examination & Semester End Examination – 100 Marks

##### A) Internals-40 Marks

##### Allocation of 40 Marks---Internal evaluation

Method of evaluation	Total marks
Written Test/ MCQ	20
Power Point Presentation / Group discussion / Assignment	20
<b>TOTAL</b>	<b>40</b>

##### B) Semester End Examination (SEE)- 60 Marks

Maximum Marks                      60

Duration                                      : 2 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

Question No.	Particulars (Nature of Questions)	Marks (Given)	Marks (To Be Attempted)
Q-1	Attempt <b>any four</b> of the following		
	A. Theory/Concept-based question	5	20
	B. Theory/Concept-based question	5	
	C. Theory/Concept-based question	5	
	D. Theory/Concept-based question	5	
	E. Theory/Concept-based question	5	
Q-2	Attempt <b>any four</b> of the following		
	A. Theory/Concept-based question	5	20
	B. Theory/Concept-based question	5	
	C. Theory/Concept-based question	5	
	D. Theory/Concept-based question	5	
	E. Theory/Concept-based question	5	
Q-3	Attempt <b>any four</b> of the following		
	A. Theory/Concept-based question	5	20
	B. Theory/Concept-based question	5	
	C. Theory/Concept-based question	5	
	D. Theory/Concept-based question	5	
	E. Theory/Concept-based question	5	
	Total	<b>75</b>	<b>60</b>

## Reference Books

1. Mehta, P.L.: Managerial Economics –
2. Analysis, Problem and Cases (S. Chand & Sons, N. Delhi).
3. Hirschey.M., Managerial Economics, Thomson South Western
4. Salvatore, D.: Managerial Economics in a global economy (Thomson South Western Singapore).
5. Frank R.H, Bernanke.B.S., Principles of Economics (Tata McGraw Hill).
6. Gregory Mankiw., Principles of Economics, Thomson South Western.
7. Samuelson & Nordhaus.: Economics (Tata McGraw Hills, New Delhi).
8. Pal Sumitra, Managerial Economics cases and concepts (Macmillan, New Delhi).

**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**  
**(With effect from the Academic Year 2024-2025)**

**1. Major**

**Foundation course in Mathematics and Statistics (4 Credits)**

**Semester I**

<b>3. General /Open Electives</b>	
<b>General Electives (GE)/ Open Elective (OE)</b>	
<b>3.A.a Foundation course in Mathematics and Statistics</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	To enable the learner to use quadratic equations, simultaneous equations and AP/GP series
CObj 2	To differentiate and integrate the standard functions
CObj 3	To understand the basics of data interpretation
CObj 4	To apply basic data analytical tools
<b>Course Outcomes</b>	
COut 1	The learner gets a refresher course in the mathematics and statistics
Cout 2	The learner learns the tools that can be used for mathematical and statistical analysis going forward
Cout 3	The learner understands the use of quadratic equations, simultaneous equations, AP/GP series and calculus in financial models
Cout 4	The learner understands the basics of statistics



## Modules at a Glance

Foundation course in Mathematics and Statistics		
Sr. No.	Modules	No. of Lectures
1	Numerical methods and calculus	11
2	Summarizing Data	11
3	Probability and random variables	11
4	Probability distributions and central limit theorem	12
<b>Total No. of Lectures:</b>		<b>45</b>

Sr. No.	Modules
<b>1</b>	<b>Numerical methods and calculus</b>
	<ul style="list-style-type: none"> <li>Solve simple equations, including simultaneous equations (not necessarily linear) by rearrangement, substitution, cancellation, expansion and factorisation</li> <li>Solve an equation that can be expressed as a quadratic equation (with real roots) by factorisation, by “completing the square” or by applying the quadratic formula, and identify which of the roots is appropriate in a particular context</li> <li>Solve sum of series of numbers (‘n’ values or infinite) using arithmetic progression, geometric progression and other special series</li> <li>State and apply the arithmetic-geometric mean inequality, and know the conditions under which equality hold</li> <li>Differentiate and integrate the standard functions</li> <li>Evaluate derivatives of sums, products (using the product rule), quotients (using the quotient rule) and “functions of a function” (using the chain rule)</li> <li>Use differentiation to find the maximum or minimum value of a function over a specified range</li> </ul>
<b>2</b>	<b>Summarizing Data</b>
	<ul style="list-style-type: none"> <li>Summarise a set of data using a table or frequency distribution, and display it graphically using a line plot, a box plot, a bar chart, histogram, stem and leaf plot or another appropriate elementary device.</li> <li>Describe the level/location of a set of data using the mean, median, mode, as appropriate.</li> <li>Describe the spread/variability of a set of data using the standard deviation, range, interquartile range, as appropriate.</li> <li>Explain what is meant by symmetry and skewness for the distribution of a set of data.</li> </ul>
<b>3</b>	<b>Probability and random variables</b>

	<ul style="list-style-type: none"> <li>• Probability as a set function on a collection of events and its basic properties.</li> <li>• Define and calculate the conditional probability of one event given the occurrence of another event.</li> <li>• Derive and use Bayes' theorem for events.</li> <li>• Define independence for two events, and calculate probabilities in situations involving independence.</li> <li>• Explain what is meant by a discrete and continuous random variable, define the distribution function and the probability function of such a variable, and use these functions to calculate probabilities.</li> <li>• Define the expected value of a function of a random variable, the mean, the variance, the standard deviation, the coefficient of skewness and the moments of a random variable, and calculate such quantities.</li> </ul>
<b>4</b>	<b>Probability distributions and central limit theorem</b>
	<ul style="list-style-type: none"> <li>• Define and explain the key characteristics of the discrete distributions: geometric, binomial, negative binomial, hypergeometric, Poisson and uniform on a finite set.</li> <li>• Define and explain the key characteristics of the continuous distributions: normal, lognormal, exponential, gamma, chi-square, beta and uniform on an interval.</li> <li>• Define and explain the key characteristics of the Poisson process and explain the connection between the Poisson process and the Poisson distribution.</li> <li>• Generate basic discrete and continuous random variables using the inverse transform method.</li> <li>• Central limit theorem – statement and application.</li> <li>• State the central limit theorem for a sequence of independent, identically distributed random variables.</li> </ul>

### Teaching Pedagogy

Lectures/tutorials/field work/outreach activities/ project work/ vocational training/ viva / seminars / term papers/ assignments / presentations / self-study/case studies etc. or a combination of some of these. Sessions shall be interactive in nature to enable peer group learning.

**Foundation course in Mathematics and Statistics**  
***Question Paper Pattern (Academic Year: 2024-2025)***

**Internal Examination & Semester End Examination – 100 Marks**

**A) Internals-40 Marks**

**Allocation of 40 Marks---Internal evaluation**

Method of evaluation	Total marks
Assignments	20
Class Test	20
<b>TOTAL</b>	<b>40</b>

**B) Semester End Examination (SEE)- 60 Marks**

Maximum Marks                      60

Duration                                      : 2 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

Question No.	Particulars (Nature of Questions)	Marks (Given)	Marks (To Be Attempted)
Q-1	Attempt <b>any four</b> of the following		
	A. Numerical/Theory based question B. Numerical/Theory based question C. Numerical/Theory based question D. Numerical/Theory based question E. Numerical/Theory based question	5 5 5 5 5	20
Q-2	Attempt <b>any four</b> of the following		
	A. Numerical/Theory based question B. Numerical/Theory based question C. Numerical/Theory based question D. Numerical/Theory based question E. Numerical/Theory based question	5 5 5 5 5	20
Q-3	Attempt <b>any four</b> of the following		
	A. Numerical/Theory based question B. Numerical/Theory based question C. Numerical/Theory based question D. Numerical/Theory based question E. Numerical/Theory based question	5 5 5 5 5	20
	<b>Total</b>	<b>75</b>	<b>60</b>

## Reference Books

1. Mathematics for Economics and Finance Methods and Modelling by Martin Anthony and Norman Biggs, Cambridge University Press, Cambridge low-priced edition, 2000
2. Applied Calculus: By Stephen Waner and Steven Constenoble, Brooks/Cole Thomson Learning, second edition,
3. Business Mathematics By D. C. Sancheti and V. K. Kapoor, Sultan Chand & Sons, 2006,
4. Mathematics for Business Economics: By J. D. Gupta, P. K. Gupta and Man Mohan, Tata Mc-Graw Hill Publishing Co. Ltd., 1987,
5. Quantitative Methods-Part-I By S. Saha and S. Mukerji, New Central Book Agency, 1996,
6. Business Mathematics & Statistics : B Aggarwal, Ane Book Pvt. Limited.
7. Business Mathematics : D C Sancheti & V K Kapoor, Sultan Chand & Sons.
8. Business Mathematics: A P Verma, Asian Books Pvt.: Limited.
9. Statistics of Management , Richard Levin & David S. Rubin, Printice Hall of India, New Delhi.
10. Statistics for Business & Economics, David R Anderson, Dennis J Sweney, Thopmson Publication.
11. Business Statistics, Bharadwaj, Excel Books, Delhi.

**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**  
**(With effect from the Academic Year 2024-2025)**

**1. Minor**

**Fundamentals of Accounting (3 Credits)**

**Semester I**

<b>1. Minor</b>	
<b>Fundamentals of Accounting</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	To introduce the learners to the fundamental principles and concepts of accounting
CObj 2	To equip students with the knowledge of how accounting principles are applied in the context of actuarial work
CObj 3	To develop students' skills in interpreting and analysing financial statements
<b>Course Outcomes</b>	
COOut 1	Students will be able to demonstrate a thorough understanding of basic accounting concepts, including the preparation and interpretation of financial statements such as balance sheets, income statements, and cash flow statements
COOut 2	Students will be able to apply accounting principles in actuarial tasks, such as evaluating financial health of companies
COOut 3	Students will develop the ability to critically analyse financial statements, identify key financial metrics, and use this information to make strategic decisions and recommendations in their actuarial work

## Modules at a Glance

<b>Fundamentals of Accounting</b>		
Sr. No.	Modules	No. of Lectures
1	Introduction to Accounting	15
2	Measurement and Policies	15
3	Financial Reporting and Analysis (Annual reports)	15
<b>Total No. of Lectures:</b>		<b>45</b>

Sr. No.	Modules
<b>1</b>	<b>Introduction to Accounting</b>
	<p>Meaning and Scope of Accounting, Definition and Objectives of Accounting, Users of Accounting Information, Branches of Accounting: Financial, Management, and Cost Accounting, Role of Accounting in Decision Making, Accounting Concepts, Principles, and Conventions:</p> <p><b>Accounting Concepts:</b></p> <ul style="list-style-type: none"> <li>• Entity Concept</li> <li>• Money Measurement Concept</li> <li>• Going Concern Concept</li> <li>• Cost Concept</li> <li>• Dual Aspect Concept</li> </ul> <p><b>Accounting Principles</b></p> <ul style="list-style-type: none"> <li>• Revenue Recognition Principle</li> <li>• Matching Principle</li> <li>• Full Disclosure Principle</li> </ul> <p><b>Accounting Conventions</b></p> <ul style="list-style-type: none"> <li>• Consistency</li> <li>• Conservatism</li> <li>• Materiality</li> </ul>
<b>2</b>	<b>Measurement and Policies</b>
	<p><b>Contingent Assets and Contingent Liabilities:</b> Definition and Recognition Criteria, Examples and Case Studies, Accounting Treatment, Disclosure Requirements in Financial Statements, Impact on Financial Analysis</p> <p><b>Accounting Policies:</b> Formulation and Selection of Accounting Policies, Impact of Accounting Policies on Financial Statements, Disclosure Requirements, Case Studies on Policy Choices and Their Implications</p> <p><b>Depreciation Accounting:</b> Concept and Purpose of Depreciation, Depreciation Methods, Straight Line Method, Reducing Balance Method, Factors Affecting Depreciation, Useful Life, Residual Value, Impact of Depreciation on Financial Statements, Practical Examples and case study</p>
<b>3</b>	<b>Financial Reporting and Analysis (Annual reports)</b>
	Final Accounts: Structure and Preparation of Final Accounts, Trading Account, Profit and Loss Account, Balance Sheet, Adjustments in Final Accounts, Analysis and Interpretation

	of Final Accounts, Financial Ratios Cash Flow Analysis, Case Studies, Relevance of Accounting in Actuarial Work, Understanding Financial Statements for Actuarial Analysis, Case Studies on Actuarial Assessments Involving Accounting Data
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### **Teaching Pedagogy**

Lectures/tutorials/field work/outreach activities/ project work/ vocational training/ viva / seminars / term papers/ assignments / presentations / self-study/case studies etc. or a combination of some of these. Sessions shall be interactive in nature to enable peer group learning.

## Fundamentals of Accounting

### *Question Paper Pattern (Academic Year: 2024-2025)*

#### Internal Examination & Semester End Examination – 100 Marks

##### A) Internals-40 Marks

##### Allocation of 40 Marks---Internal evaluation

Method of evaluation	Total marks
Written Test/ MCQ	20
Power Point Presentation / Group discussion / Assignment	20
<b>TOTAL</b>	<b>40</b>

##### B) Semester End Examination (SEE)- 60 Marks

Maximum Marks                      60

Duration                                      : 2 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

Question No.	Particulars (Nature of Questions)	Marks (Given)	Marks (To Be Attempted)
Q-1	Attempt <b>any four</b> of the following		
	A. Numerical/Concept-based/Case-study	5	20
	B. Numerical/Concept-based/Case-study	5	
	C. Numerical/Concept-based/Case-study	5	
	D. Numerical/Concept-based/Case-study	5	
	E. Numerical/Concept-based/Case-study	5	
Q-2	Attempt <b>any four</b> of the following		
	A. Numerical/Concept-based/Case-study	5	20
	B. Numerical/Concept-based/Case-study	5	
	C. Numerical/Concept-based/Case-study	5	
	D. Numerical/Concept-based/Case-study	5	
	E. Numerical/Concept-based/Case-study	5	
Q-3	Attempt <b>any four</b> of the following		
	A. Numerical/Concept-based/Case-study	5	20
	B. Numerical/Concept-based/Case-study	5	
	C. Numerical/Concept-based/Case-study	5	
	D. Numerical/Concept-based/Case-study	5	
	E. Numerical/Concept-based/Case-study	5	
	Total	<b>75</b>	<b>60</b>



## Reference Books

- "Financial Accounting: A Managerial Perspective" by R. Narayanaswamy
- "Advanced Accountancy" by S.P. Jain and K.L. Narang
- "Accounting for Management" by M.N. Arora
- "Financial Accounting for Management" by Paresh Shah
- "Corporate Accounting" by Mukherjee and Hanif
- "Fundamentals of Accounting" by D. Chandra Bose
- "Principles and Practice of Accounting" by S.K. Gupta and R.K. Sharma
- "Advanced Financial Accounting" by R.L. Gupta and M. Radhaswamy
- "Introduction to Accountancy" by T.S. Grewal
- "Financial Accounting: Concepts, Analysis, Methods and Uses" by Ashok Banerjee
- "Fundamentals of Financial Accounting" by Fred Phillips, Robert Libby, and Patricia Libby

## Syllabus of courses of FY B. Com (Actuarial Studies) Programme

(With effect from the Academic Year 2024-2025)

### 3. General Elective (GE)/ Open Elective (OE)

#### Strategic Decision Making (2 Credits)

#### Semester I

<b>3. General Elective (GE)/ Open Elective (OE)</b>	
<b>General Elective</b>	
<b>Strategic Decision Making</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	The learner will understand and apply strategic management concepts and frameworks to develop an organization's financial and ERM solutions.
CObj 2	The learner will understand how sustainable growth and value can be created through strategic budgeting.
CObj 3	The learner will also understand measures of an organization's value and their uses in decision making.
CObj 4	The learner will understand how to apply decision making models to general managerial decisions within specified constraints.
<b>Course Outcomes</b>	
COout 1	The learner would be able to evaluate and apply strategic management concepts, recognizing factors that affect development and implementation of strategies
COout 2	The learner will be able to assess and recommend an appropriate business-level strategy for a given situation
COout 3	The learner will be able to explain the impact of competitive dynamics on strategic management
COout 4	The learner can assess and recommend business strategies under different business situations and market opportunities, utilizing the applicable strategic or change management models
COout 5	The learner can explain how strategic budgeting can create value and sustainable growth
COout 6	The learner appreciates the assessments of effective strategic budgeting in the tracking progress of an organization's initiatives
COout 7	The learner can evaluate and recommend appropriate value measures for an organization
COout 8	The learner can develop decision trees, scenario tests, and simulation models
COout 9	The learner can apply probability distributions to business situations with random variables
COout 10	The learner can apply probability distributions to business situations with random variables

### Modules at a Glance

Strategic Decision Making		
Sr. No.	Modules	No. of Lectures
1	Introduction to Strategic Management	10
2	Strategic Budgeting and Value Measures	10
3	Decision Modeling and Optimization	10
<b>Total No. of Lectures:</b>		<b>30</b>

Sr. No.	Modules
<b>1.</b>	<b>Introduction to Strategic Management</b>
	<ul style="list-style-type: none"> <li>• Corporate-Level Strategy</li> <li>• Merger and Acquisition Strategies and Restructuring</li> <li>• Cooperative Strategy</li> <li>• The Five Forces: Competing for Profits</li> <li>• Competitive Advantage: The Value Chain</li> <li>• Creating Value</li> </ul>
<b>2</b>	<b>Strategic Budgeting and Value Measures</b>
	<ul style="list-style-type: none"> <li>• The Relationship Between Strategic Planning and the Budgeting Process</li> <li>• Budgeting of Shareholder Value</li> <li>• Budgets and Performance Compensation</li> <li>• Zero-Based Budgeting</li> <li>• The Value of Control, liquidity and synergy</li> </ul>
<b>3</b>	<b>Decision Modeling and Optimization</b>
	<ul style="list-style-type: none"> <li>• Fundamentals of Discrete Probability (background only)</li> <li>• Continuous Probability Distributions and their Applications (background only)</li> <li>• Integration in the Art of Decision Modeling</li> <li>• Simulation Modeling: Concepts and Practice</li> </ul>

## **Teaching Pedagogy**

Lectures/tutorials/field work/outreach activities/ project work/ vocational training/ viva / seminars / term papers/ assignments / presentations / self-study/case studies etc. or a combination of some of these. Sessions shall be interactive in nature to enable peer group learning.

## Strategic Decision Making

*Question Paper Pattern (Academic Year: 2024-2025)*

**Internal Examination & Semester End Examination – 50 Marks**

### **A] Internals-20 Marks**

#### **Allocation of 20 Marks---Internal evaluation**

<b>Method of evaluation</b>	<b>Total marks</b>
Assignment/ Guest lecture report writing	20
<b>TOTAL</b>	<b>20</b>

### **B] Semester End Examination (SEE)- 30 Marks**

Maximum Marks                      30

Duration                                      : 1 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

<b>Question No.</b>	<b>Particulars (Nature of Questions)</b>	<b>Marks (Given)</b>	<b>Marks (To Be Attempted)</b>
Q-1	Attempt <b>any two</b> of the following. A. Theory/ Case study-based question B. Theory/ Case study-based question C. Theory/ Case study-based question	<b>15</b>	<b>10</b>
Q-2	Attempt <b>any two</b> of the following. A. Theory/ Case study-based question B. Theory/ Case study-based question C. Theory/ Case study-based question	<b>15</b>	<b>10</b>
Q-3	Attempt <b>any two</b> of the following. A. Theory/ Case study-based question B. Theory/ Case study-based question C. Theory/ Case study-based question	<b>15</b>	<b>10</b>
	<b>Total</b>	<b>45</b>	<b>30</b>

## Reference Books

1. Strategic Management: Competitiveness and Globalization, Concepts, Hitt, Michael, Ireland, Duane, and Hoskisson, Robert, 14th Edition, 2023
2. Understanding Michael Porter, The essential Guide to Competition and Strategy, Harvard Business Review Press, Magretta, Joan, 2012
3. Handbook of Budgeting, Lalli, W.R., 6th Edition, 2012
4. Damodaran on Valuation, Damodaran, Aswath, 2nd Edition, 2006
5. Data, Models and Decisions: The Fundamentals of Management Science, Bertsimas, Dimitris and Freund, Robert, 2004

**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**  
**(With effect from the Academic Year 2024-2025)**

**4. Skill Enhancement Course**

**Office Automation (2 Credits)**

**Semester I**

<b>4. Vocational &amp; Skill Enhancement Courses (VSEC)</b>	
<b>4.B Skill Enhancement Courses (SEC)</b>	
<b>Office Automation</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	To build an understanding of how to use excel from scratch and then gradually scale up to higher levels of competence
CObj 2	To equip the students with MS Excel features which will develop their foundation of using spreadsheets
CObj 3	To provide insights into the data analysis tools in Excel so that they can extract meaningful information from vast arrays of data
CObj 4	To familiarize students with the important functions and data visualization features available in Excel which help in performing data mining
<b>Course Outcomes</b>	
COut 1	The learner can prevent unintended or malicious intrusions in the workings.
COut 2	The learners are able to assign validations and protections using excel based templates and files
COut 3	Learners are able to create Pivot Tables and Pivot Charts
COut 4	The learner acquires knowledge about Conditional formatting
COut 5	The learners can analyze Charts of various kinds
COut 6	Learners are able to analyze and can validate Data
COut 7	The learner knows how to Protect Workbook and Worksheet
COut 8	The learner learns to assign/ read /write access passwords to files
COut 9	Learner creates and opens workbooks
COut 10	The learner is aware of modification of columns, rows and cells

### Modules at a Glance

Office Automation		
Sr. No.	Modules	No. of Lectures
1	Introduction to Excel	10
2	Essential Functions	10
3	Data Analysis, validation, and Visualizations	10
Total No. of Lectures:		30

Sr. No.	Modules
1.	<b>Introduction to Excel</b>
	<ul style="list-style-type: none"><li>• Creating and opening workbooks</li><li>• Cell basics</li><li>• Modifying columns, rows and cells</li><li>• Worksheet basics</li><li>• Introduction to formulas</li><li>• Freeze Panes</li><li>• Formatting features of cells</li><li>• Sort</li><li>• Filters</li><li>• Fill Handle</li><li>• Copy a sheet</li><li>• Find and Replace</li><li>• Relative and Absolute Cell Referencing</li><li>• Text to columns</li><li>• Paste Special</li><li>• Subtotals</li><li>• Comments</li></ul>
2	<b>Essential Functions</b>



	<ul style="list-style-type: none"> <li>• Sum, Count, Min, Max, Average, Median, Subtotal</li> <li>• Date, Today, Now</li> <li>• If, And, Or</li> <li>• VLOOKUP and Hlookup</li> <li>• Round, Roundup and Rounddown</li> <li>• Sumif and Sumifs</li> <li>• Countif and Countifs</li> <li>• Averageif and Averageifs</li> <li>• Concatenate and Trim</li> </ul>
<b>3</b>	<b>Data Analysis, validation and Visualizations</b>
	<ul style="list-style-type: none"> <li>• Pivot Tables and Pivot Charts</li> <li>• Remove Duplicates</li> <li>• Conditional formatting</li> <li>• Charts of various kinds</li> <li>• Data Validation</li> <li>• Protect Workbook</li> <li>• Protect Worksheet</li> <li>• Assigning read /write access passwords to files</li> </ul>

### **Teaching Pedagogy**

Lectures/tutorials/field work/outreach activities/ project work/ vocational training/ viva / seminars / term papers/ assignments / presentations / self-study/case studies etc. or a combination of some of these. Sessions shall be interactive in nature to enable peer group learning.

**Office Automation**

***Question Paper Pattern (Academic Year: 2024-2025)***

**Internal Examination & Semester End Examination – 50 Marks**

**A) Internals-20 Marks**

**Allocation of 20 Marks---Internal evaluation**

<b>Method of evaluation</b>	<b>Total marks</b>
Practical work	20
<b>TOTAL</b>	<b>20</b>

**B) Semester End Examination (SEE)- 30 Marks Lab work**

Maximum Marks                      30

Duration                                      : 1 Hours

Note:    1) All questions are compulsory

2) Figures to the right indicate full marks

<b>Question No.</b>	<b>Particulars (Nature of Questions)</b>	<b>Marks (Given)</b>	<b>Marks (To Be Attempted)</b>
Q-1	Attempt <b>any two</b> of the following. A. Application based question B. Application based question C. Application based question	<b>15</b>	<b>10</b>
Q-2	Attempt <b>any two</b> of the following. A. Application based question B. Application based question C. Application based question	<b>15</b>	<b>10</b>
Q-3	Attempt <b>any two</b> of the following. A. Application based question B. Application based question C. Application based question	<b>15</b>	<b>10</b>
	<b>Total</b>	<b>45</b>	<b>30</b>

**Reference Books**

Mastering Financial Modelling in Microsoft Excel – Alastair Day

**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**

**(With effect from the Academic Year 2024-2025)**

**5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System**

**5.A Ability Enhancement Course (AEC)**

**Language and Literature-I (3 Credits)**

**Semester I**

<b>5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System</b>	
<b>5.A Ability Enhancement Course (AEC)</b>	
<b>Language and Literature-I</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	To understand the effective use of power point presentation, relevance and importance of interpersonal communication skills
CObj 2	To enhance written communication skills
CObj 3	To enable the learners to adapt to the requirements of the industry
<b>Course Outcomes</b>	
COut 1	The learners learn to use statistical tools in PowerPoint presentations, write letters of enquiry and letters of complaint.
COut 2	Practical application of preparing flyers and leaflets help the learners demonstrate their creativity.
COut 3	Nonverbal communication skills of learners are enhanced.
COut 4	The learner is able to analyze the components of letter writing
COut 5	Learners can understand the theories of communication
COut 6	Learners can differentiate between the different modes of communication
COut 7	Learners are trained to apply ethics at work place
COut 8	Learners are able to write a resume and face job interviews with ease
COut 9	Learners can relate to the barriers of communication and are able to cope with the same
COut 10	Learners can apply the most appropriate and effective mode of communication

## Modules at a Glance

Subject		
Sr. No.	Modules	No. of Lectures
1	Theory of Communication & Obstacles to Communication in Business World	15
2	Business Correspondence	15
3	Language and Writing Skills	15
<b>Total No. of Lectures:</b>		<b>45</b>

Sr. No.	Modules
<b>1</b>	<b>Theory of Communication &amp; Obstacles to Communication in Business World</b>
	<p>Concept of Communication: Meaning, Definition, Process, Need, Feedback Emergence of Communication as a key concept in the Corporate and Global world Impact of technological advancements on Communication Channels and Objectives of Communication: Channels- Formal and Informal- Vertical, Horizontal, Diagonal, Grapevine</p> <p>Objectives of Communication: Information, Advice, Order and Instruction, Persuasion, Motivation, Education, Warning, and Boosting the Morale of Employees (A brief introduction to these objectives to be given)</p> <p>Methods and Modes of Communication: Methods: Verbal and Nonverbal, Characteristics of Verbal and Non-verbal Communication</p> <p>Business Etiquette, Computers and E- communication: Organizing and use of Video and Satellite. Problems in Communication /Barriers to Communication: Physical/ Semantic/Language / Socio-Cultural / Psychological / Barriers, Ways to Overcome these Barriers Listening: Importance of Listening Skills, Cultivating good Listening Skills</p> <p>Introduction to Business Ethics: Concept and Interpretation, Importance of Business Ethics</p>
<b>2</b>	<b>Business Correspondence</b>
	<p>Theory of Business Letter Writing: Parts, Structure, Layouts—Full Block, Principles of Effective Letter Writing, Principles of effective Email Writing, Personnel Correspondence: Statement of Purpose, Job Application Letter and Resume, Letter of Acceptance of Job Offer, Letter of Resignation, Letter of Appointment, Promotion and Termination, Letter of Recommendation</p>
<b>3</b>	<b>Language and Writing Skills</b>
	<p>Commercial Terms used in Business Communication Paragraph Writing: Developing an idea, using appropriate linking devices, etc Cohesion and Coherence, etc [Interpretation of technical data, Composition on a given situation, a short informal report &amp; improvisation Activities]</p> <p>Listening, Comprehension, Speaking Skills: Presenting a News Item, Dialogue and Speeches Paragraph Writing: Preparation of the first draft, Revision and Self Editing, Rules of spelling. Reading Comprehension: Analysis of texts from the fields of Commerce and Management</p>

## **Teaching Pedagogy**

Lectures/tutorials/field work/outreach activities/ project work/ vocational training/ viva / seminars / term papers/ assignments / presentations / self-study/case studies etc. or a combination

of some of these. Sessions shall be interactive in nature to enable peer group learning.

## Language and Literature I

### *Question Paper Pattern (Academic Year: 2024-2025)*

#### **Internal Examination & Semester End Examination – 100 Marks**

##### **A) Internals-40 Marks**

##### **Allocation of 40 Marks---Internal evaluation**

<b>Method of evaluation</b>	<b>Total marks</b>
Assignments/ Guest lecture report writing	20
Power Point Presentation and Group discussion	20
<b>TOTAL</b>	<b>40</b>

##### **B) Semester End Examination (SEE)- 60 Marks**

Maximum Marks                      60

Duration                                      : 2 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

<b>Question No.</b>	<b>Particulars (Nature of Questions)</b>	<b>Marks (Given)</b>	<b>Marks (To Be Attempted)</b>
Q-1	Attempt <b>any four</b> of the following		
(Module-I)	A. Theory/Concept-based question B. Theory/Concept-based question C. Theory/Concept-based question D. Theory/Concept-based question E. Theory/Concept-based question	5 5 5 5 5	20
Q-2	Attempt <b>any four</b> of the following		
(Module-II)	A. Theory/Concept-based question B. Theory/Concept-based question C. Theory/Concept-based question D. Theory/Concept-based question E. Theory/Concept-based question	5 5 5 5 5	20
Q-3	Attempt <b>any four</b> of the following		
(Module-III)	A. Theory/Concept-based question B. Theory/Concept-based question C. Theory/Concept-based question D. Theory/Concept-based question E. Theory/Concept-based question	5 5 5 5 5	20
	Total	<b>75</b>	<b>60</b>

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**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**

**(With effect from the Academic Year 2024-2025)**

**5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System**

**5.B Value Enhancement Course (VEC)**

**Introduction to R programming (2 Credits)**

**Semester I**

<b>5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System</b>	
<b>5.B Value Enhancement Course (VEC)</b>	
<b>Introduction to R programming</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	To master the use of the R interactive environment and expanding by installing R packages.
CObj 2	To enable the learner to read Structured Data into R from various sources.
CObj 3	Understand the different data types and data structures in R.
CObj 4	Understand basic regular expressions in R.
CObj 5	Understand base R graphics.
<b>Course Outcomes</b>	
COut 1	Learner can use R Studio and explore the features for R programming
COut 2	Learner is able to work with advanced graphics of R, import and use the data and represent the data into tables.
COut 3	Learner is able to apply formatting on table, use Pipelines in application and use strings, factors in R program.
COut 4	Learner can use Data Frames and make use of Data in R application.



## Modules at a Glance

Introduction to R programming		
Sr. No.	Modules	No. of Lectures
1	Introduction to R programming and RStudio	15
2	Writing Functions and graphics in R	15
<b>Total No. of Lectures:</b>		<b>30</b>

Sr. No.	Modules
1	<b>Introduction to R programming and RStudio</b>
	<ul style="list-style-type: none"> <li>• <b>Getting started with R:</b> R Software: Obtaining R and RStudio, First R Encounter, Getting started: R as a big calculator, Assignment, Basic operators, Help with functions and features, Quiz, A few important points on R. Working with R</li> <li>• <b>R Interfaces -Using R and RStudio:</b> R Software, Obtaining R and RStudio, the default R interface, RStudio Interface, Example Datasets in R, R Packages, Installing new R libraries, Customizing R Start-up</li> <li>• <b>Objects in R:</b> Using ls and rm to managing R Objects, Types of R objects, Attributes of R Objects, Creating and accessing objects, Modifying elements, Quick recap, Exercise</li> <li>• <b>Reading and writing data to and from R:</b> Importing and reading text files data into RStudio, Importing data using R command read.table(), Exercise, Importing text files Using scan(), Parsing each line –Readlines, Writing Data table from R, Exercise, Reading data from Excel into R, Exercise. Using readr</li> </ul>
2	<b>Writing Functions and graphics in R</b>
	<ul style="list-style-type: none"> <li>• <b>Writing Functions in R:</b> Why do we want to write functions?, Conditional statements (if, ifelse, switch), Repetitive execution: For and While loops, The Apply Functions, Exercise, Functions for parsing text, Programming in R: More advanced, Viewing Code of functions from R packages, Exercise-Parsing Real Data -World Population Data from Wikipedia, Writing functions: more technical discussion -Scoping.</li> <li>• <b>Introduction to graphics in R:</b> The R function plot(), Exercise, customize plot with low-level plotting commands, Default parameters–par, interacting with graphics, Saving plots, Useful Graphics Resources like ggplot2</li> </ul>

### Teaching Pedagogy

Lectures/tutorials/field work/outreach activities/ project work/ vocational training/ viva / seminars / term papers/ assignments / presentations / self-study/case studies etc. or a combination of some of these. Sessions shall be interactive in nature to enable peer group learning.

## Introduction to R programming

*Question Paper Pattern (Academic Year: 2024-2025)*

**Internal Examination & Semester End Examination – 50 Marks**

**A] Internals-20 Marks**

**Allocation of 20 Marks---Internal evaluation**

Method of evaluation	Total marks
Practical work	20
<b>TOTAL</b>	<b>20</b>

**B] Semester End Examination (SEE)- 30 Marks Lab work**

Maximum Marks                      30

Duration                                      : 1 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

Question No.	Particulars (Nature of Questions)	Marks (Given)	Marks (To Be Attempted)
Q-1	Attempt <b>any one</b> of the following		
	A. Concept-based question	10	10
	B. Concept-based question	10	
Q-2	Attempt <b>any four</b> of the following		
	A. Concept-based question	20	20
	B. Concept-based question		
	C. Concept-based question		
	D. Concept-based question		
	E. Concept-based question		
	Total	<b>40</b>	<b>30</b>

## Reference Books

Sr. No.	Title	Author	Publisher	Edition	Year
1.	Introduction to Programming and Statistical Modelling in R	Aedin Culhane	HARVARD SCHOOL	1 <sup>st</sup>	2013
2.	R Data Science Quick Reference	Thomas Mailund	Apress	1 <sup>st</sup>	2019
3.	Beginning Data Science in R	Thomas Mailund	Apress		2017

## Syllabus of courses of FY B. Com (Actuarial Studies) Programme

(With effect from the Academic Year 2024-2025)

### 5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System

#### 5.C Indian Knowledge System (IKS)

#### Indian Knowledge System (2 Credits)

#### Semester I

<b>5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System</b>	
<b>5.C Indian Knowledge System (IKS)</b>	
<b>5.C. Conservation and Sustainability in Ancient India</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	The course will enable the learner to understand the scientific and moral value of traditional ancient Indian knowledge.
CObj 2	The course is expected to convert the ancient wisdom to the applied aspects of the modern scientific paradigm.
CObj 3	The course is expected to create interest and excitement in the learner to explore more on the specific area of knowledge.
CObj 4	The course is expected to empower the learner to inspire others in learning our own traditional practices of sustainability.
CObj 5	The course is expected to develop the interest in the learner to do further research in the specific area of knowledge.
<b>Course Outcomes</b>	
COut 1	The learners shall be able to acknowledge the contribution of traditional Indian wisdom in various commercial fields.
COut 2	The learner should be able to draw connections between the trade & commercial activities along with their influence on the environment and the efforts to address the same.
COut 3	The learners shall be able to identify traditional eco-friendly options for current modes of transportation.
COut 4	The learner should be able to understand the ancient practices of resource conservation and to have a holistic approach towards sustainable development in modern times.
COut 5	The learners should be able to analyze the current practices of land management with respect to ancient Indian practices for the conservation of the same.
COut 6	The syllabus shall enable the learners to correlate the conventional practices of water conservation with special reference to ancient wisdom in the same regards.
COut 7	The learners shall be able to suggest measures for forest conservation through various ancient Indian solutions.

COut 8	The learners should be able to evaluate the Indian contribution in various contemporary fields of social sciences and technologies.
COut 9	The learners should be able to describe the case studies to illustrate the significant contribution of Indian scholars in various conventional fields of social sciences.
COut 10	The learners should be able to examine the future perspectives and possibilities of various aspects of the Indian Knowledge System to enrich the society

## Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	Conventional trade & commerce and environment	15
2	Resource conservation and sustainability	15
3	Significant Indian contributions to the world	Internal component/assessment
<b>Total No. of Lectures:</b>		<b>30</b>

Sr. No.	Modules
<b>1</b>	<b>Conventional trade &amp; commerce and environment</b>
	<p>A. Introduction and overview of Indian Knowledge System. Indian disciplinary knowledge system in different fields like, architecture, science &amp; technology, nature, astronomy, agriculture, health &amp; medicine, Defence (case study of Rani Abbakka Chowta who defeated Portuguese)</p> <p>B. Traditional commercial activities &amp; trade practices with reference to environmental conservation: Agricultural trade, Silk, Cotton, Spices, Metallurgy, Textile industry, etc.</p> <p>C. Transportation and its modes: Grand Trunk Road, Boat &amp; ship-building, Energy efficiency in the transport sector: a current scenario, ecomobility. Impact of transport on climate, impact of climate on transport.</p>
<b>2</b>	<b>Resource conservation and sustainability</b>
	<p>A. Land Management &amp; Conservation: Ancient &amp; traditional agricultural activities, Conservation strategies, Harappan civilization-town planning, etc.</p> <p>B. Water Management &amp; Conservation: Harappan civilization, ancient practices of irrigation, Tanks, Lakes, Stepwells, Traditional rain-water harvesting, Community involvement.</p> <p>C. Forest &amp; Wildlife Conservation: Sacred forests, sacred groves, sacred hills, Social forestry, Agroforestry, Animal worshiping, Worshiping natural forces. Women and conservation-Ecofeminism.</p>
<b>3</b>	<b>Significant Indian contributions to the world (internal component/assessment)</b>
	<p>A. Contribution in the field of agriculture: Food crops, Cotton, Animal husbandry, etc.</p> <p>B. Contribution in the field of science &amp; technology: Invention of zero, etc.</p> <p>C. Contributions in the field of health &amp; medicine: Ayurveda, Meditation, Yoga, etc.</p> <p>D. Case studies on Indian Knowledge System on any particular/ specific area of knowledge: Ayurveda, Agriculture, Astronomy, Architecture, Economics, Mathematics, Philosophy, Yoga, Medicine, Nature, Politics, Weaponry, Military science, Literature, Poetics or any other area of knowledge.</p> <p>Indian Knowledge System- Future perspectives: Challenges and Opportunities.</p>

## Indian Knowledge System

### *Question Paper Pattern (Academic Year: 2024-2025)*

#### **Internal Examination & Semester End Examination – 100 Marks**

##### **A] Internals-20 Marks**

##### **Allocation of 20 Marks---Internal evaluation**

**MODULE-III is given for internal assessment. Students will be writing assignments on the selected topics.**

##### **B] Semester End Examination (SEE)- 30 Marks**

Maximum Marks                      30

Duration                                      : 1 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

<b>Question No.</b>	<b>Particulars (Nature of Questions)</b>	<b>Marks (Given)</b>
Q-1	Attempt <b>any one</b> of the following. A. Full length question. B. Full length question	<b>10</b>
Q-2	Attempt <b>any one</b> of the following. A. Full length question. B. Full length question	<b>10</b>
Q-3	Attempt <b>any two</b> of the following. a. Short answer. b. Short answer c. Short answer d. Short answer.	<b>10</b>
	<b>Total</b>	<b>30</b>



**R.A. Podar College of Commerce and Economics  
(Autonomous) Matunga, Mumbai.**

**Syllabus  
and  
Question Paper Pattern  
of**

**Bachelor of Commerce with Actuarial Studies  
B.Com (Actuarial Studies)**

**First Year (Semester II)**

**Under Choice Based Credit System**

**Academic Year 2024-2025**

**Faculty of Commerce**

**[www.rapodar.ac.in](http://www.rapodar.ac.in)**



**Bachelor of Commerce (B.Com with Actuarial Studies) Programme**  
**Syllabus as per National Education Policy 2020**  
*Course Structure*  
**F.Y.B.COM (Actuarial Studies) (Level 4.5)**

No. of Courses	Course Code	Semester II	Credits
<b>1</b>		<b>Major (08 credits)</b>	
<b>1.A</b>		<b>Actuarial Studies-II</b>	
1.A.a		Statistical Techniques	<b>04</b>
1.A.b		Accounting and Finance	<b>04</b>
<b>2</b>		<b>Minor (03 credits)</b>	
2.A.a		Concepts of Annuity and Mortality	<b>03</b>
<b>3</b>		<b>General Elective (GE)/ Open Elective (OE) (02 Credits)</b>	
3.A.a		Structure of Finance and Regulation	<b>02</b>
<b>4</b>		<b>Vocational &amp; Skill Enhancement Courses (VSEC) (02 credits)</b>	
<b>4.A</b>		<b>Vocational Skill Course (VSC)</b>	
4.A.a		Intellectual property Rights	<b>02</b>
<b>4.B</b>		<b>Skill Enhancement Course (SEC)</b>	
4.B. a			
<b>5</b>		<b>Ability Enhancement Course, Value Enhancement Course, Indian Knowledge System (07 credits)</b>	
<b>5.A</b>		<b>Ability Enhancement Course (AEC)</b>	
5.A.a		Language and Literature – II	<b>03</b>
<b>5.B</b>		<b>Value Enhancement Course (VEC)</b>	
5.B.a		Advanced R programming	<b>02</b>
5.B.b		Statistical Analysis with R programming	<b>02</b>
<b>TOTAL</b>		<b>CUMULATIVE CREDITS</b>	<b>22</b>

**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**

**(With effect from the Academic Year 2024-2025)**

**1. Major**

**Statistical Techniques (4 Credits)**

**Semester II**

<b>1. Major</b>	
<b>1.A Actuarial Studies – I</b>	
<b>1.A.a Statistical Techniques</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	Use of statistics to draw inferences about the process underlying a data set
CObj 2	Use of statistics to examine and make inferences about the relationships between two or more data sets.
CObj 3	Use of statistics to examine and make inferences about the population parameters by studying the sample statistics by estimation, confidence interval and testing of hypothesis.
CObj 4	Use of Bayesian statistics, linear and generalised linear models
CObj 5	Use of statistics to make inferences about the process underlying a data set
CObj 6	Use of statistics to examine and make inferences about the relationships between two or more data sets.
<b>Course Outcomes</b>	
COut 1	The learner understands testing of hypothesis
COut 2	The learner learns the probability distributions and their generating functions
COut 3	The learner understands the use of sampling and statistical inferences
COut 4	The learner understands confidence interval and testing of hypothesis
COut 5	The learner learns statistical tools of linear and generalised linear modelling
COut 6	The learner understands use of Bayesian statistics and credibility theory
COut 7	The learner understands the use EBCT models

## Modules at a Glance

Statistical Techniques		
Sr. No.	Modules	No. of Lectures
1	Generating functions, joint distribution and conditional expectations	11
2	Sampling distributions, estimation and exploratory data analysis	11
3	Confidence interval, hypothesis testing and regression models	11
4	Generalised linear models, Bayesian statistics and credibility theory	12
<b>Total No. of Lectures:</b>		<b>45</b>

Sr. No.	Modules
1	<b>Generating functions, joint distribution and conditional expectations</b>
	<ul style="list-style-type: none"> <li>• Define and determine the moment generating function and cumulant generating function of random variables.</li> <li>• Identify the applications for which a moment generating function, a cumulant generating function and cumulants are used and the reasons why they are used.</li> <li>• Independence, joint and conditional distributions, linear combinations of random variables.</li> <li>• Explain what is meant by jointly distributed random variables, marginal distributions and conditional distributions.</li> <li>• Define the probability function/density function of a marginal distribution and of a conditional distribution. Specify the conditions under which random variables are independent.</li> <li>• Define the expected value of a function of two jointly distributed random variables, the covariance and correlation coefficient between two variables, and calculate such quantities.</li> <li>• Define the probability function/density function of the sum of two independent random variables as the convolution of two functions.</li> <li>• Derive the mean and variance of linear combinations of random variables. Use generating functions to establish the distribution of linear combinations of independent random variables.</li> <li>• Define the conditional expectation of one random variable given the value of another random variable, and calculate such a quantity.</li> <li>• Show how the mean and variance of a random variable can be obtained from expected values of conditional expected values, and apply this.</li> </ul>
2	<b>Sampling distributions, estimation and exploratory data analysis</b>
	<ul style="list-style-type: none"> <li>• Random sampling and sampling distributions.</li> <li>• Explain what is meant by a sample, a population and statistical inference.</li> </ul>

	<ul style="list-style-type: none"> <li>• State and use the basic sampling distributions for the sample mean and the sample variance for random samples from a normal distribution.</li> <li>• State and use the t and F distribution for random samples from a normal distribution.</li> <li>• Estimation and estimators.</li> <li>• Describe and apply the method of moments and method of maximum likelihood for constructing estimators of population parameters.</li> <li>• Define the following terms: efficiency, bias, consistency and mean square error.</li> <li>• Define and apply the property of unbiasedness of an estimator.</li> <li>• Describe and apply the asymptotic distribution of maximum likelihood estimators.</li> <li>• Define and calculate Pearson's, Spearman's and Kendall's measures of correlation for bivariate data, explain their interpretation and perform statistical inference as appropriate.</li> </ul>
<b>3</b>	<b>Confidence interval, hypothesis testing and regression models</b>
	<ul style="list-style-type: none"> <li>• Explain what is meant by the following terms: null and alternative hypotheses, type I and type II errors, sensitivity, specificity, test statistic, likelihood ratio, critical region, level of significance, probability value and power of a test.</li> <li>• Apply basic tests for the one-sample and two-sample situations involving the normal, binomial and Poisson distributions, and apply basic tests for paired data</li> <li>• Use a chi-square test to test the hypothesis that a random sample is from a particular distribution, including cases where parameters are unknown.</li> <li>• Explain what is meant by a contingency (or two-way) table, and use a chi-square test to test the independence of two classification criteria.</li> <li>• State the simple regression model (with a single explanatory variable).</li> <li>• Derive the least squares estimates of the slope and intercept parameters in a simple linear regression model.</li> <li>• State the multiple linear regression model (with several explanatory variables).</li> </ul>
<b>4</b>	<b>Generalised linear models, bayesian statistics and credibility theory</b>
	<ul style="list-style-type: none"> <li>• Define an exponential family of distributions. Show that the following distributions may be written in this form: binomial, Poisson, gamma, normal.</li> <li>• Explain what is meant by the link function and the canonical link function, referring to the distributions above.</li> <li>• Explain what is meant by a variable, a factor taking categorical values and an interaction term. Define the linear predictor, illustrating its form for simple models, including polynomial models and models involving factors.</li> <li>• Define the deviance and scaled deviance and state how the parameters of a generalised linear model may be estimated.</li> <li>• Define the Pearson and deviance residuals and describe how they may be used.</li> <li>• Fit a generalised linear model to a data set and interpret the output.</li> <li>• Explain what is meant by a prior distribution, a posterior distribution and a conjugate prior distribution. Derive the posterior distribution for a parameter in simple cases.</li> <li>• Use simple loss functions to derive Bayesian estimates of parameters.</li> <li>• Explain the Bayesian approach to credibility theory and use it to derive credibility premiums in simple cases.</li> <li>• Explain the empirical Bayes approach to credibility theory and use it to derive credibility premiums in simple cases.</li> </ul>

## Statistical Techniques

### *Question Paper Pattern (Academic Year: 2024-2025)*

#### **Internal Examination & Semester End Examination – 100 Marks**

##### **A) Internals-40 Marks**

##### **Allocation of 40 Marks---Internal evaluation**

<b>Method of evaluation</b>	<b>Total marks</b>
Assignments	20
Class Test	20
<b>TOTAL</b>	<b>40</b>

##### **B) Semester End Examination (SEE)- 60 Marks**

Maximum Marks                      60

Duration                                      : 2 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

<b>Question No.</b>	<b>Particulars (Nature of Questions)</b>	<b>Marks (Given)</b>	<b>Marks (To Be Attempted)</b>
Q-1	Attempt the following		
	A. Numerical	5	20
	B. Numerical	5	
	C. Numerical/Theory based question	5	
	D. Numerical/Theory based question	5	
Q-2	Attempt the following		
	A. Numerical	5	20
	B. Numerical	5	
	C. Numerical/Theory based question	5	
	D. Numerical/Theory based question	5	
Q-3	Attempt <b>any one</b> of the following		
	A. Attempt the following		20
	a. Numerical/Concept-based question	10	
	b. Numerical/Concept-based question	10	
	<b>OR</b>		
	B. Numerical/Concept-based question	20	
	Total	<b>80</b>	<b>60</b>

## Reference Books

- Effective statistical learning methods for actuaries: I. [Generalised Linear Models] GLMs and extensions. - Denuit, M., Hainaut, D. and Trufin, J. - Springer, 2019.
- Generalized linear models. 2nd ed. McCullagh, P. and Nelder, J.A. Chapman & Hall/CRC Press, 1989.
- John E. Freund's Mathematical statistics with applications. 8th ed. Miller, I. and Miller, M.; [Freund, J. E.] Prentice Hall International, 2013.
- Literate programming. Knuth, D.E. Stanford CA: Centre for the Study of Language and Information, 1992.
- R programming for actuarial science. McQuire, P.; Kume, A. Chichester: John Wiley, 2023.
- Regression modelling with actuarial and financial implications. Frees, E.W. Cambridge University Press, 2010.
- Report writing for data science in R. Peng, R. Victoria (Canada): Lean Publishing, 2015.

**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**

**(With effect from the Academic Year 2024-2025)**

**1. Major**

**Accounting and Finance (4 Credits)**

**Semester II**

<b>1. Major</b>	
<b>1.A Actuarial Studies – I</b>	
<b>1.A.b Accounting and Finance</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	To understand how companies are governed and structured
CObj 2	To suggest appropriate means of financing a company
CObj 3	To analyse published accounts
CObj 4	To analyse information related to the management.
<b>Course Outcomes</b>	
COut 1	The learner has basic understanding of corporate finance including a knowledge of the instruments used by companies to raise finance and manage financial risk
COut 2	The learner acquires the ability to interpret the accounts and financial statements of companies and financial institutions
COut 3	The learner has knowledge of the different means of financing projects
COut 4	The learner understands the meaning of different financial ratios and how to use them to the company's advantage

## Modules at a Glance

Accounting and Finance		
Sr. No.	Modules	No. of Lectures
1	Corporate governance and organization	11
2	Corporate Finance	11
3	Long term finance and Corporate Restructuring	11
4	Constructing and interpreting company accounts	12
<b>Total No. of Lectures:</b>		<b>45</b>

Sr. No.	Modules
<b>1</b>	<b>Corporate governance and organisation</b>
	<ul style="list-style-type: none"> <li>• The regulation of financial reporting of incorporated entities</li> <li>• Key principles of corporate governance and the regulation of companies</li> <li>• Key principles of finance               <ul style="list-style-type: none"> <li>○ Relationship between finance, real resources and objectives of an organisation</li> <li>○ Relationship between the stakeholders in an organisation (including lenders and investors)</li> <li>○ Role and effects of the capital markets</li> <li>○ Maximisation of shareholder wealth and the strategies designed to achieve it</li> <li>○ Problems relating to the maximisation of shareholder wealth in practice: social responsibility concerns, agency problems and divergent objectives</li> <li>○ Determinants of value and the actions managers can take to influence value</li> </ul> </li> <li>• Ethical responsibilities of the owners and managers of businesses</li> </ul>
<b>2</b>	<b>Corporate Finance</b>
	<ul style="list-style-type: none"> <li>• Structure and methods of financing; Characteristics of limited companies and social enterprises</li> <li>• Different types of loan and share capital</li> <li>• Differences between private and public company</li> <li>• Types of short-term company finance (Bank overdrafts, trade credit, factoring, bills of exchange, commercial paper)</li> <li>• Types of medium-term company finance (Credit sale, leasing, bank loans)</li> <li>• Alternative methods of raising finance outside the regular banking system (Shadow banking, Direct project financing, peer to peer lending, crowd funding and micro-finance)</li> <li>• Use of Derivatives</li> <li>• Taxation of personal income and capital gains</li> <li>• Company taxation, including for the individual shareholder</li> <li>• Different systems of company taxation from the points of view of an individual shareholder and the company</li> </ul>



	<ul style="list-style-type: none"> <li>• The principles of double taxation relief in the international corporate tax system</li> <li>• Taxation and the use of offshore investment funds</li> </ul>
<b>3</b>	<b>Long term finance and Corporate Restructuring</b>
	<ul style="list-style-type: none"> <li>• Issue of Shares</li> <li>• Characteristics of Debenture stocks, Unsecured loan stocks, Euro bonds, Preference shares and types, Contingent convertibles, Floating rate notes, Subordinated debt, Asset backed securities, Options issued by companies</li> <li>• Rights issue to existing shareholders</li> <li>• Role of underwriting in the issue of securities</li> <li>• Capital structure and market valuation of the company</li> <li>• Impact of taxation on the capital structure chosen by the company</li> <li>• Factors considered in setting dividend policy and its impact on market valuation</li> <li>• Alternate ways of distributing profits (Buybacks)</li> <li>• Why companies want to grow larger, how companies achieve internal growth and the relationship between growth and profitability</li> <li>• Cost of capital, Weighted average cost of capital</li> <li>• Principal methods used to determine the viability of a capital project</li> </ul>
<b>4</b>	<b>Constructing and interpreting company accounts</b>
	<ul style="list-style-type: none"> <li>• Reasons why companies publish annual reports</li> <li>• Value of financial reporting on environmental, social and economic sustainability</li> <li>• Important accounting concept in drawing up company accounts</li> <li>• Purpose of Financial statements, Interpretation of cash flow statements</li> <li>• Basic structure and content of; Insurance company accounts, Banking company accounts</li> <li>• Difference between subsidiary and associate company</li> <li>• Treatment of depreciation in company accounts</li> <li>• Meaning of share capital, other reserves and retained earnings</li> <li>• Priority percentages and gearing</li> <li>• Interest cover and asset cover for loan capital</li> <li>• The impact of interest rate movements on a highly geared company</li> <li>• The price earnings ratio, dividend yield, dividend cover and Earnings Before Interest, Taxation, Depreciation and Amortisation (EBITDA)</li> <li>• The calculation of accounting ratios that indicate: • Profitability • Liquidity • Efficiency</li> </ul>

## Accounting and Finance

### *Question Paper Pattern (Academic Year: 2024-2025)*

#### **Internal Examination & Semester End Examination – 100 Marks**

##### **A] Internals-40 Marks**

##### **Allocation of 40 Marks---Internal evaluation**

<b>Method of evaluation</b>	<b>Total marks</b>
Assignments	20
Case study analysis/ Report writing on guest lecture	20
<b>TOTAL</b>	<b>40</b>

##### **B] Semester End Examination (SEE)- 60 Marks**

Maximum Marks                      60

Duration                                      : 2 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

<b>Question No.</b>	<b>Particulars (Nature of Questions)</b>	<b>Marks (Given)</b>	<b>Marks (To Be Attempted)</b>
Q-1	Attempt the following		
	A. Theory/Concept-based question	5	20
	B. Theory/Concept-based question	5	
	C. Theory/Concept-based question	5	
	D. Theory/Concept-based question	5	
Q-2	Attempt the following		
	A. Theory/Concept-based question	5	20
	B. Theory/Concept-based question	5	
	C. Theory/Concept-based question	5	
	D. Theory/Concept-based question	5	
Q-3	Attempt <b>any one</b> of the following		
	A. Attempt the following		20
	a. Theory/Concept-based question	10	
	b. Theory/Concept-based question	10	
	B. Theory/Concept-based question	20	
	Total	<b>80</b>	<b>60</b>

## Reference Books

- Accounting and finance for non-specialists. 9th ed. Atrill, P.; McLaney, E. Prentice Hall, 2015.
- Accounting in a business context. 5th ed. Berry, A.; Jarvis, R. - Cengage, 2011.
- Accounting: understanding and practice. 4th ed. Leiwty, D and Perks, R. - McGraw-Hill, 2015.
- Economics for business. 8th ed. Sloman, J.; Hinde, K; Garratt, D. - Pearson, 2019.
- Fundamentals of financial management: concise edition. 7th ed. Brigham, E. F.; Houston, J. F. 7th ed. - South-Western, 2011.
- How to understand the financial pages. 2nd ed. Davidson, A. - Kogan Page, 2008.
- Interpreting company reports and accounts. 10th ed. Holmes, G.; Sugden, A.; Gee, P. - FT Prentice Hall, 2008.
- Management accounting for decision makers. 8th ed. Atrill, P.; McLaney, E. - Prentice Hall, 2015.
- Principles of corporate finance: global edition. 12th ed. Brealey, R. A.; Myers, S. C.; Allen, F. - McGraw-Hill, 2016.

**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**

**(With effect from the Academic Year 2024-2025)**

**1. Minor**

**Annuity and Mortality Concepts (3 Credits)**

**Semester II**

<b>1. Minor</b>	
<b>1.A Actuarial Studies – I</b>	
<b>Concepts of Annuity and Mortality</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	Understand the principles of time preference theory of interest and the time value of money.
CObj 2	Apply these principles to real world examples of interest rates, discounting and evaluation of present values of cashflows.
CObj 3	The learners are made to understand the concept and is equipped to interpret mortality table.
CObj 4	The learners get introduced to the existing models related to mortality.
<b>Course Outcomes</b>	
COut 1	The learner becomes aware of Classification of Annuities, Amount and Present Value of an ordinary annuity, annuity due and continuous annuity
COut 2	The concepts of Nominal and Effective Rate of interest and discount, equation of value, Determinants of interest rates are better understood by the learner
COut 3	Learners apply the mortality analysis for insurance business
COut 4	Learners make use of various processes related to mortality.

## Modules at a Glance

Concepts of Annuity and Mortality		
Sr. No.	Modules	No. of Lectures
1	Theory of interest rates	11
2	Level and Increasing Annuity	11
3	Life table, assurance and annuities	11
4	Competing risks	12
<b>Total No. of Lectures:</b>		<b>45</b>

Sr. No.	Modules
<b>1</b>	<b>Theory of interest rates</b>
	<p>Relationship between the rates of interest and discount over one effective period, considered arithmetically and by general reasoning</p> <p>Determine, when given a rate of interest under a specified payment frequency, the equivalent rate under an alternative payment frequency, including:</p> <ul style="list-style-type: none"> <li>• Annual effective rate of interest or discount</li> <li>• Rate of interest or discount payable pthly</li> <li>• Force of interest</li> </ul> <p>Calculate the equivalent annual rate of interest implied by the accumulation of a sum of money over a specified period where the force of interest is a function of time. Accumulate a single investment at a constant rate of interest under the operation of simple and compound interest. Calculate the present value of a future payment by discounting a single investment.</p> <p>Extend the techniques of interest rates and present value where appropriate to allow for inflation. Calculate the present value and accumulated value for a given stream of cashflows under individual or combination of scenarios</p>
<b>2</b>	<b>Level and Increasing Annuity</b>
	<p>Evaluate the annuity and accumulation functions, when given the values for the term, <math>n</math>, and the appropriate interest or discount rate function.</p> <p>Understand and apply the concept of an equation of value in terms of:</p> <p>Where payment or receipt is certain</p> <p>Where payment or receipt is uncertain</p> <p>The two conditions required for there to be an exact solution</p>

<b>3</b>	<b>Life table, assurance and annuities</b>
	<p>Use of Life table functions and probability functions. Explain select mortality and how to use them. Use uniform distribution of death and constant force of mortality to find probabilities between integer ages</p> <p>Understand the following contracts, for example by explaining the timing and nature of the cashflows involved:</p> <ul style="list-style-type: none"> <li>• Whole-life assurance</li> <li>• Term assurance</li> <li>• Pure endowment</li> <li>• Endowment assurance</li> <li>• Whole-life level annuity</li> <li>• Temporary level annuity</li> <li>• Guaranteed level annuity</li> <li>• Deferred benefits</li> </ul> <p>Use the relationship between annuities payable in advance and in arrear, and between temporary, deferred and whole-life annuities</p> <p>Use the relationship between assurance and annuity factors using equation of value, and their select and continuous equivalents</p>
<b>4</b>	<b>Competing risks</b>
	<p>Define health insurance, and describe simple health insurance premium and benefit structures.</p> <p>Explain how a cashflow, contingent upon multiple transition events, may be valued using a multiple state Markov model, in terms of the forces and probabilities of transition.</p> <p>Construct formulae for the expected present values of cashflows that are contingent upon multiple transition events, including simple health insurance premiums and benefits, and calculate these in simple cases. Regular premiums and sickness benefits are payable continuously and assurance benefits are payable immediately on transition</p>

## Annuity and Mortality Concepts

### *Question Paper Pattern (Academic Year: 2024-2025)*

#### **Internal Examination & Semester End Examination – 100 Marks**

##### **A] Internals-40 Marks**

###### **Allocation of 40 Marks---Internal evaluation**

Method of evaluation	Total marks
Written Test/ (MCQ)	20
Power Point Presentation / Group discussion / Assignment	20
<b>TOTAL</b>	<b>40</b>

##### **B] Semester End Examination (SEE)- 60 Marks**

Maximum Marks                      60

Duration                                      : 2 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

Question No.	Particulars (Nature of Questions)	Marks (Given)	Marks (To Be Attempted)
Q-1	Attempt <b>any four</b> of the following		
	A. Theory/Concept-based question B. Theory/Concept-based question C. Theory/Concept-based question D. Theory/Concept-based question E. Theory/Concept-based question	5 5 5 5 5	20
Q-2	Attempt <b>any four</b> of the following		
	A. Theory/Concept-based question B. Theory/Concept-based question C. Theory/Concept-based question D. Theory/Concept-based question E. Theory/Concept-based question	5 5 5 5 5	20
Q-3	Attempt <b>any four</b> of the following		
	A. Theory/Concept-based question B. Theory/Concept-based question C. Theory/Concept-based question D. Theory/Concept-based question E. Theory/Concept-based question	5 5 5 5 5	20
	Total	<b>75</b>	<b>60</b>

## Reference Books

- Mehta, P.L.: Managerial Economics –
- Analysis, Problem and Cases (S. Chand & Sons, N. Delhi).
- Hirchey.M., Managerial Economics, Thomson South Western
- Salvatore, D.: Managerial Economics in a global economy (Thomson South We stern Singapore).
- Frank R.H, Bernanke.B.S., Principles of Economics (Tata McGraw Hill).
- Gregory Mankiw., Principles of Economics, Thomson South Western.
- Samuelson & Nordhas.: Economics (Tata McGraw Hills, New Delhi).
- Pal Sumitra, Managerial Economics cases and concepts (Macmillan, New Delhi).



**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**

**(With effect from the Academic Year 2024-2025)**

**3. General /Open Electives**

**General Electives (GE)/ Open Elective (OE)**

**Structure of Finance and Regulation (2 Credits)**

**Semester II**

<b>3. General /Open Electives</b>	
<b>General Electives (GE)/ Open Elective (OE)</b>	
<b>3.A.a Structure of Finance and Regulation</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	To make the learners aware about the various aspects of globalization.
CObj 2	To make the learners aware about “The Great Recession.”
CObj 3	To familiarize the learners with the concepts related to Global Financial Markets
CObj 4	To enable the learner to appreciate the role of governments in handling global crises
<b>Course Outcomes</b>	
COut 1	The learner understands the role of LPG and its impact
COut 2	The learners appreciate the role played by the government to counter the global financial crisis.
COut 3	The learner appreciates the role of the financial markets in ensuring the stable economy of the country
COut 4	The learner appreciates the role of the financial markets in ensuring the stable economy of the country.
COut 5	The learner understands concepts of Global financial systems
COut 6	The learner is aware of the Role of the financial markets in helping achieve a nation’s objectives
COut 7	The learner understands the concepts of liberalization, privatization and globalization
COut 8	The learner gets a better understanding of the Insurance Core Principles
COut 9	The learner is able to evaluate the Role of World Bank, IMF, UN
COut 10	The learner gets good basics of the different participants in the financial markets

## Modules at a Glance

Sr. No.	Modules	No. of Lectures
1	International environment	15
2	Global Financial Markets	15
3	International Regulatory authorities	15
<b>Total No. of Lectures:</b>		<b>45</b>

Sr. No.	Modules
<b>1</b>	<b>International environment</b>
	<ul style="list-style-type: none"> <li>● Understanding the concepts of liberalization, privatization and globalization;</li> <li>● International Trade and its impact on business</li> <li>● Impact of globalization on industry: benefits from globalisation of business</li> <li>● Free trade vs protection; WTO- impact on international trade.</li> </ul>
<b>2</b>	<b>Global Financial Markets</b>
	<ul style="list-style-type: none"> <li>● Global financial systems.</li> <li>● Development of financial systems and the factors affecting the stability of financial systems.</li> <li>● The different participants in the financial markets.</li> <li>● Role of the financial markets in helping achieve a nation's objectives</li> </ul>
<b>3</b>	<b>International Regulatory authorities</b>
	<ul style="list-style-type: none"> <li>● Bank for International Settlements.</li> <li>● IAIS principles (Insurance Core Principles).</li> <li>● IOSCO principles.</li> <li>● Role of multilateral organizations for supervision of financial markets e.g. World Bank, IMF, UN</li> </ul>

## Structure of Finance and Regulation

### *Question Paper Pattern (Academic Year: 2024-2025)*

#### **Internal Examination & Semester End Examination – 50 Marks**

##### **A] Internals-20 Marks**

###### **Allocation of 20 Marks---Internal evaluation**

<b>Method of evaluation</b>	<b>Total marks</b>
Assignments	20
<b>TOTAL</b>	<b>20</b>

##### **B] Semester End Examination (SEE)- 30 Marks**

Maximum Marks                      30

Duration                                      : 1 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

<b>Question No.</b>	<b>Particulars (Nature of Questions)</b>	<b>Marks (Given)</b>	<b>Marks (To Be Attempted)</b>
Q-1	Attempt any 2 A. Theory/ Concept based question B. Theory/ Concept based question C. Theory/ Concept based question	5 5 5	10
Q-2	Attempt any 2 A. Theory/ Concept based question B. Theory/ Concept based question C. Theory/ Concept based question	5 5 5	10
Q-3	Attempt any 2 A. Theory/ Concept based question B. Theory/ Concept based question C. Theory/ Concept based question	5 5 5	10
	<b>Total</b>	<b>45</b>	<b>30</b>

## Reference Books

1. Mehta, P.L.: Managerial Economics – Analysis, Problem and Cases (S. Chand & Sons, N. Delhi).
2. Hirchey.M., Managerial Economics, Thomson South Western
3. Salvatore, D.: Managerial Economics in a global economy (Thomson South Western Singapore).
4. Frank R.H, Bernanke.B.S., Principles of Economics (Tata McGraw Hill).
5. Gregory Mankiw., Principles of Economics, Thomson South Western.
6. Samuelson & Nordhas.: Economics (Tata McGraw Hills, New Delhi).
7. Pal Sumitra, Managerial Economics cases and concepts (Macmillan, New Delhi).

**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**

**(With effect from the Academic Year 2024-2025)**

**4. Major**

**Intellectual Property Rights (2 Credits)**

**Semester II**

<b>4. Vocational &amp; Skill Enhancement Courses (VSEC)</b>	
<b>4.A Vocational Skill Courses (VSC)</b>	
<b>Intellectual Property Rights</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	To recognize the importance of IP and to educate the pupils on basic concepts of Intellectual Property Rights.
CObj 2	To make the students to understand the statutory provisions of different types of IPRs in simple forms
CObj 3	To learn the procedure of obtaining Patent, Copyright, Geographical Indication, Trademark, Industrial Design and Trade Secret
CObj 4	To Distinguish and explain various forms of IPRs
<b>Course Outcomes</b>	
COut 1	The learner is able to recognize the importance of IP and to educate the pupils on basic concepts of Intellectual Property Rights
COut 2	The learners understand the statutory provisions of different types of IPRs in simple forms.
COut 3	The learner is able to learn the procedure of obtaining Patent, Copyright, Geographical Indication, Trademark, Industrial Design and Trade Secret
COut 4	The learner can explain the various forms of IPRs
COut 5	The learner can identify criteria to fit one's own intellectual work in a particular form of IPRs.
COut 6	The learner can analyze and apply statutory provisions to protect particular form of IPRs
COut 7	The learner gets familiar with intellectual property protection mechanisms.
COut 8	The learner is able to explain why something is or not entitled to intellectual property protection.
COut 9	New developments in IPRs can be discovered by the learner.
COut 10	Learners shall be able to look for IPR protection primarily before the conventional mode of protection like scientific publication.

### Modules at a Glance

Intellectual Property Rights		
Sr. No.	Modules	No. of Lectures
1	Introduction to Intellectual Property Rights	10
2	Types of Intellectual Property Rights	10
3	Application and Emerging Trends	10
<b>Total No. of Lectures:</b>		<b>30</b>

Sr. No.	Modules
<b>1</b>	<b>Introduction to Intellectual Property Rights</b>
	Meaning of Intellectual Property and Property Rights: Basic concepts of Intellectual Property; Nature, Scope and Significance of Intellectual Property
<b>2</b>	<b>Types of Intellectual Property Rights</b>
	Patent, Copyright, Geographical Indication, Trademark, Industrial Design and Trade Secret
<b>3</b>	<b>Application and Emerging Trends</b>
	Technology and Legal developments in Intellectual Property; Advantages and Disadvantages of IPR; Recent changes in IPR laws; Registration procedure

## Intellectual Property Rights

*Question Paper Pattern (Academic Year: 2024-2025)*

**Internal Examination & Semester End Examination – 50 Marks**

**A] Internals-20 Marks**

**Allocation of 20 Marks---Internal evaluation**

<b>Method of evaluation</b>	<b>Total marks</b>
Assignments/ Guest lecture Report writing	20
<b>TOTAL</b>	<b>20</b>

**B] Semester End Examination (SEE)- 30 Marks**

Maximum Marks                      30

Duration                                      : 1 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

<b>Question No.</b>	<b>Particulars (Nature of Questions)</b>	<b>Marks (Given)</b>	<b>Marks (To Be Attempted)</b>
Q-1	Attempt any 2 A. Theory/ Concept based question B. Theory/ Concept based question C. Theory/ Concept based question	5 5 5	10
Q-2	Attempt any 2 A. Theory/ Concept based question B. Theory/ Concept based question C. Theory/ Concept based question	5 5 5	10
Q-3	Attempt any 2 A. Theory/ Concept based question B. Theory/ Concept based question C. Theory/ Concept based question	5 5 5	10
	<b>Total</b>	<b>45</b>	<b>30</b>

## **Reference Books**

Law Relating to Intellectual Property Rights” by V K Ahuja

“Law Relating to Intellectual Property Rights” by R Radhakrishnan and S Balasubramanian

“Law Relating to Intellectual Property, 2011 (Reprint)” by B L Wadehra



**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**

**(With effect from the Academic Year 2024-2025)**

**5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System**

**5.A Ability Enhancement Course (AEC)**

**Language and Literature-II (3 Credits)**

**Semester II**

<b>5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System</b>	
<b>5.A Ability Enhancement Course (AEC)</b>	
<b>Language and Literature-II</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	To understand the effective use of power point presentation, relevance and importance of interpersonal communication skills
CObj 2	To enhance written communication skills
CObj 3	To enable the learners to adapt to the requirements of the industry.
<b>Course Outcomes</b>	
COut 1	The learners learn to use statistical tools in PowerPoint presentations, write letters of enquiry and letters of complaint.
COut 2	Practical application of preparing flyers and leaflets help the learners demonstrate their creativity.
COut 3	Nonverbal communication skills of learners are enhanced.
COut 4	The learner is able to analyze the components of letter writing
COut 5	Learners can understand the theories of communication
COut 6	Learners can differentiate between the different modes of communication
COut 7	Learners are trained to apply ethics at work place
COut 8	Learners are able to create a resume and face job interviews with ease
COut 9	Learners can relate to the barriers of communication and are able to cope with the same
COut 10	Learners can apply the most appropriate and effective mode of communication

## Modules at a Glance

Language and Literature-II		
Sr. No.	Modules	No. of Lectures
1	Presentation Skills & Group Communication	15
2	Business Correspondence	15
3	Language and Writing Skills	15
<b>Total No. of Lectures:</b>		<b>45</b>

Sr. No.	Modules
1	<b>Presentation Skills &amp; Group Communication</b>
	<p><b>Presentations:</b> (to be tested in tutorials only) 4 Principles of Effective Presentation Effective use of PPT Effective use of statistical tools How to make a Power-Point Presentation</p> <p><b>Interviews:</b> Group Discussion Preparing for an Interview, Types of Interviews – Selection, Appraisal, Grievance, Exit</p> <p><b>Meetings:</b> Need and Importance of Meetings, Conduct of Meeting and Group Dynamics Role of the Chairperson, Role of the Participants, Drafting of Notice, Agenda and Resolutions</p> <p><b>Conference:</b> Meaning and Importance of Conference Organizing a</p> <p><b>Public Relations:</b> Meaning, Functions of PR Department, External and Internal Measures of PR</p>
2	<b>Business Correspondence</b>
	<p><b>Trade Letters:</b> Purchase Order, Credit and Status Enquiry, Collection Explain in detail along with the specimens.</p> <p><b>Only following to be taught in detail: -</b> Letters of Inquiry, Letters of Complaints, Claims, Sales Letters, promotional leaflets and fliers Consumer Grievance Letters, Letters under Right to Information (RTI) Act</p>
3	<b>Language and Writing Skills</b>
	<p><b>Reports:</b> Parts, Types, Feasibility Reports, Investigative Reports</p> <p><b>Summarization:</b> Identification of main and supporting/sub points Presenting these in a cohesive manner</p>

## Language and Literature II

### *Question Paper Pattern (Academic Year: 2024-2025)*

#### **Internal Examination & Semester End Examination – 100 Marks**

##### **A) Internals-40 Marks**

##### **Allocation of 40 Marks---Internal evaluation**

<b>Method of evaluation</b>	<b>Total marks</b>
Assignments/ Guest lecture Report writing	20
Power Point Presentation and Group discussion	20
<b>TOTAL</b>	<b>40</b>

##### **B) Semester End Examination (SEE)- 60 Marks**

Maximum Marks                      60

Duration                                      : 2 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

<b>Question No.</b>	<b>Particulars (Nature of Questions)</b>	<b>Marks (Given)</b>	<b>Marks (To Be Attempted)</b>
Q-1	Attempt <b>any four</b> of the following		
(Module-I)	A. Theory/Concept-based question B. Theory/Concept-based question C. Theory/Concept-based question D. Theory/Concept-based question E. Theory/Concept-based question	5 5 5 5 5	20
Q-2	Attempt <b>any four</b> of the following		
(Module-II)	A. Theory/Concept-based question B. Theory/Concept-based question C. Theory/Concept-based question D. Theory/Concept-based question E. Theory/Concept-based question	5 5 5 5 5	20
Q-3	Attempt <b>any four</b> of the following		
(Module-III)	A. Theory/Concept-based question B. Theory/Concept-based question C. Theory/Concept-based question D. Theory/Concept-based question E. Theory/Concept-based question	5 5 5 5 5	20
	Total	<b>80</b>	<b>60</b>

## Reference Books

- Agarwal, Anju D(1989) A Practical Handbook for Consumers, IBH.
- Alien, R.K.(1970) Organizational Management through Communication.
- Ashley,A(1992) A Handbook Of Commercial Correspondence, Oxford University Press.
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- 27 Fritzsche, David J (2005) Business Ethics: A Global and Managerial Perspective McGraw Hill
- Garlside, L.E. (1980) Modern Business Correspondence, McDonald and Evans Ltd. Plymouth.
- Ghanekar, A (1996) Communication Skill for Effective Management. Everest Publishing House, Pune.
- Graves, Harold F. (1965) Report Writing, Prentice Hall, New Jersey.
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- Krevolin, Nathan (1983) Communication Systems and Procedures for Modern Office, Prentice Hall, New Jersey.
- Lesikar, Raymond V and Petit, John D.(1994) Business Communication: Theory and Application , Richard D. Irwin Inc. Illinois.
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**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**

**(With effect from the Academic Year 2024-2025)**

**5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System**

**5.B Value Enhancement Course (VEC)**

**Advanced R programming (2 Credits)**

**Semester II**

<b>5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System</b>	
<b>5.B Value Enhancement Course (VEC)</b>	
<b>Advanced R programming</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	To empower the learner with Statistical analysis with R programming
CObj 2	To ensure that the learner gains confidence in interval and hypothesis testing with R
CObj 3	Learn linear modelling, multilinear modelling and GLM with R
CObj 4	Learn Bayesian statistics and credibility theory with R
<b>Course Outcomes</b>	
COut 1	The learner understands Basic to advance level of statical analysis
Cout 2	The learner is able to apply Financial linear modelling and analysis
Cout 3	The learner gains knowledge and can execute fast analysis on large data sets using R programming

## Modules at a Glance

Advanced R programming		
Sr. No.	Modules	No. of Lectures
1	Confidence interval and hypotheses testing	15
2	Linear, multilinear and generalised linear modelling	15
<b>Total No. of Lectures:</b>		<b>30</b>

Sr. No.	Modules
<b>1</b>	<b>Confidence interval and hypotheses testing</b>
	<p>Using R programming and RStudio</p> <ul style="list-style-type: none"> <li>• Apply basic tests for the one-sample and two-sample situations involving the normal, binomial and Poisson distributions, and apply basic tests for paired data.</li> <li>• Apply the permutation approach to non-parametric hypothesis tests.</li> <li>• Use a chi-square test to test the hypothesis that a random sample is from a particular distribution, including cases where parameters are unknown.</li> <li>• Explain what is meant by a contingency (or two-way) table, and use a chi-square test to test the independence of two classification criteria.</li> </ul>
<b>2</b>	<b>Linear, multilinear and generalised linear modelling</b>
	<p>Using R programming and RStudio</p> <ul style="list-style-type: none"> <li>• Use principal components analysis to reduce the dimensionality of a complex data set.</li> <li>• fit a simple linear regression model, multilinear model and generalised linear model to a data set and interpret the output</li> <li>• Perform statistical inference on the slope parameter.</li> <li>• Describe the use of measures of goodness of fit of a linear regression model.</li> <li>• Use a fitted linear relationship to predict a mean response or an individual response with confidence limits.</li> <li>• Use residuals to check the suitability and validity of a linear regression model.</li> <li>• Describe how a suitable model may be chosen by using an analysis of deviance and by examining the significance of the parameters.</li> </ul>

## Advanced R programming

*Question Paper Pattern (Academic Year: 2024-2025)*

**Internal Examination & Semester End Examination – 50 Marks**

**A] Internals-20 Marks**

**Allocation of 20 Marks---Internal evaluation**

Method of evaluation	Total marks
Practical work	20
<b>TOTAL</b>	<b>20</b>

**B] Semester End Examination (SEE)- 30 Marks Lab work**

Maximum Marks                      30

Duration                                      : 1 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

Question No.	Particulars (Nature of Questions)	Marks (Given)	Marks (To Be Attempted)
Q-1	Attempt <b>any one</b> of the following		
	A. Concept-based question	10	10
	B. Concept-based question	10	
Q-2	Attempt the following		
	A. Concept-based question	20	20
	Total	<b>40</b>	<b>30</b>

## Reference Books

1. R programming for actuarial science. McQuire, P.; Kume, A. Chichester: John Wiley, 2023.
2. Regression modelling with actuarial and financial implications. Frees, E.W. Cambridge University Press, 2010
3. Report writing for data science in R. Peng, R. Victoria (Canada): Lean Publishing, 2015.



**Syllabus of courses of FY B. Com (Actuarial Studies) Programme**

**(With effect from the Academic Year 2024-2025)**

**5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System**

**5.B Value Enhancement Course (VEC)**

**Statistical Analysis with R programming (2 Credits)**

**Semester II**

<b>5. Ability Enhancement Courses, Value Enhancement Course, Indian Knowledge System</b>	
<b>5.B Value Enhancement Course (VEC)</b>	
<b>Statistical Analysis with R programming</b>	
<b>Course Objectives and Course Outcomes</b>	
<b>Course Objectives</b>	
CObj 1	To understand Statistical analysis with R programming
CObj 2	To understand confidence interval and hypothesis testing with R
CObj 3	To be able to apply linear modelling, multilinear modelling and GLM with R
CObj 4	To enable the learner to understand Bayesian statistics and credibility theory with R
<b>Course Outcomes</b>	
COut 1	Learner is abreast with Basic to advance level of statical analysis
COut 2	Learner is able to apply Financial linear modelling and is able to analyse
COut 3	Fast analysis on large data sets using R programming is possible
COut 4	Learner is able to apply Statistical analysis with R programming

## Modules at a Glance

<b>Statistical Analysis with R programming</b>		
Sr. No.	Modules	No. of Lectures
1	Simulations – Bootstrap and Monticarlo	15
2	Bayesian statistics and credibility theory	15
<b>Total No. of Lectures:</b>		<b>30</b>

Sr. No.	Modules
<b>1</b>	<b>Simulations – Bootstrap and Monticarlo</b>
	Using R programming and RStudio <ul style="list-style-type: none"> <li>Describe simulations and use of simulations in statistics</li> <li>Describe Bootstrap method – Parametric and non-parametric</li> <li>Describe Montecarlo simulation</li> <li>Solve examples of simulation using CLT, Estimation and hypothesis testing</li> </ul>
<b>2</b>	<b>Bayesian statistics and credibility theory</b>
	Using R programming and RStudio <ul style="list-style-type: none"> <li>Use simple loss functions to derive Bayesian estimates of parameters.</li> <li>Explain the Bayesian approach to credibility theory and use it to derive credibility premiums in simple cases.</li> <li>Explain the empirical Bayes approach to credibility theory and use it to derive credibility premiums in simple cases.</li> </ul>

## Statistical Analysis with R programming

*Question Paper Pattern (Academic Year: 2024-2025)*

**Internal Examination & Semester End Examination – 50 Marks**

**A] Internals-20 Marks**

**Allocation of 20 Marks---Internal evaluation**

Method of evaluation	Total marks
Practical work	20
<b>TOTAL</b>	<b>20</b>

**B] Semester End Examination (SEE)- 30 Marks Lab work**

Maximum Marks                      30

Duration                                      : 1 Hours

Note: 1) All questions are compulsory

2) Figures to the right indicate full marks

Question No.	Particulars (Nature of Questions)	Marks (Given)	Marks (To Be Attempted)
Q-1	Attempt <b>any one</b> of the following		
	A. Concept-based question	10	10
	B. Concept-based question	10	
Q-2	Attempt the following		
	A. Concept-based question OR B. Concept-based question	20	20
	Total	<b>40</b>	<b>30</b>

## Reference Books

1. R programming for actuarial science. McQuire, P.; Kume, A. Chichester: John Wiley, 2023.
2. Regression modelling with actuarial and financial implications. Frees, E.W. Cambridge University Press, 2010
3. Report writing for data science in R. Peng, R. Victoria (Canada): Lean Publishing, 2015.