# Kurukshetra University, Kurukshetra
## (Established by the State Legislature Act XII of 1956)
## ('A+' Grade, NAAC Accredited)

‖ योगस्थः कुरु कर्माणि ‖
समबुद्धि व योग युक्त होकर कर्म करो
(Perform Actions while Stead fasting in the State of Yoga)

Scheme of Examination for Under-Graduate Programmes
**Bachelor of Computer Applications (BCA): SCHEME D**
according to
Curriculum Framework for Under-Graduate Programmes
As per NEP-2020 (Multiple Entry-Exit, Internships and Choice Based Credit System)
**DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS**
(For the Batches Admitted From 2023-2024)

**DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS**
**KURUKSHETRA UNIVERSITY, KURUKSHETRA**

| | |
|---|---|
| **Session: 2023-24** | |
| **Part A - Introduction** | |
| Subject | BCA |
| Semester | III |
| Name of the Course | Java OOP Foundations |
| Course Code | B23-CAP-301 (Common with B23-CAI-301, B23-CDS-301, B23-CTS-301) |
| Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC) | CC |
| Level of the course (As per Annexure-I | 100-199 |
| Pre-requisite for the course (if any) | Knowledge of any Computer Programming Language |
| Course Learning Outcomes(CLO): | After completing this course, the learner will be able to:<br>1. Implement simple java programs.<br>2. Implement multiple inheritance using Interfaces<br>3. Implement Exception Handling and File Handling.<br>4. Use AWT to design GUI applications.<br><br>5* develop the project using java. |

| Credits | Theory | Practical | Total |
|---|---|---|---|
| | 3 | 1 | 4 |
| Contact Hours | 3 | 2 | 5 |

| | |
|---|---|
| **Max. Marks:100(70(T)+30(P))**<br>**Internal Assessment Marks:30(20(T)+10(P))**<br>**End Term Exam Marks: 70(50(T)+20(P))** | **Time: 3 Hrs.(T), 3Hrs.(P)** |

**Part B- Contents of the Course**

**Instructions for Paper- Setter**
Examiner will set a total of nine questions. Out of which first question will be compulsory. Remaining eight questions will be set from four unit selecting two questions from each unit. Examination will be of three-hour duration. All questions will carry equal marks. First question will comprise of short answer type questions covering entire syllabus.
Candidate will have to attempt five questions in all, selecting one question from each unit. First question will be compulsory.
Practicum will be evaluated by an external and an internal examiner. Examination will be of three-hour duration.

| Unit | Topics | Contact Hours |
|---|---|---|
| I | Object Oriented Programming and Java Fundamentals: Structure of Java programs, Classes and Objects, Data types, Type Casting, Looping Constructs. | 10 |
| II | Interfaces: Interface basics; Defining, implementing and extending interfaces; Implementing multiple inheritance using interfaces Packages: Basics of packages, Creating and accessing packages, System packages, Creating user defined packages | 10 |
| III | Exception handling using the main keywords of exception handling: try, catch, throw, throws and finally; Nested try, multiple catch statements, creating user defined exceptions. File Handling Byte Stream, Character Stream, File I/O Basics, File Operations | 10 |
| IV | AWT and Event Handling: The AWT class hierarchy, Events, Event sources, Event classes, Event Listeners, Relationship between Event sources and Listeners, Delegation event model, Creating GUI applications using AWT. | 10 |
| V* | Practicum: Students are advised to do laboratory/practical practice not limited to, but including the following types of problems: <br> • WAP to find the sum of 10 numbers, entered as command line arguments. <br> • WAP to find the area of rectangle and circle using Interface. <br> • WAP to implement multiple inheritance. <br> • WAP to show the concept of packages. <br> • WAP to handle the Exception using try and multiple catch blocks and a finally block. <br> • WAP for Implementing Calculator in an Applet, use appropriate Layout Manager. <br> • Write Applet code to add two integers in textbox and their sum should appear in third textbox. <br> • Write AWT program in Java to find the sum, Multiplication and average of three numbers entered in three Text fields by clicking the corresponding Labeled Button. The result should be appearing in fourth text field. <br> • Write Applet code to show all the activities of Mouse using Mouselistener and MouseMotionlistener. <br> • What are various stream classes in Java? Write Java code to read character from a file and write into another file. <br> • What are AWT Classes? Write Java Program to generate Even numbers and Odd Numbers in TextField "T1 and T2 respectively" while pressing Button "Even" and "Odd". <br> • Write a program to Copy the text from one file to another using byte stream. | 25 |
| **Suggested Evaluation Methods** | | |

| Internal Assessment: | End Term Examination: |
|---|---|
| ➢ **Theory** <br> • Class Participation: 5 <br> • Seminar/presentation/assignment/quiz/class test etc.: 5 <br> • Mid-Term Exam: 10 <br><br> ➢ **Practicum** <br> • Class Participation: 5 <br> • Seminar/Demonstration/Viva-voce/Lab records etc.: 5 <br> • Mid-Term Exam:   NA | A three hour exam for both theory and practicum. |

### Part C-Learning Resources

**Recommended Books/e-resources/LMS:**
- Schildt, H. (2018). Java: The Complete Reference. 10th edition. McGraw-Hill Education.
- Balaguruswamy E. (2014). Programming with JAVA: A Primer. 5th edition. India: McGraw Hill Education
- Horstmann, C. S. (2017). Core Java - Vol. I – Fundamentals (Vol. 10). Pearson Education
- Schildt, H., & Skrien, D. (2012). Java Fundamentals - A Comprehensive Introduction. India: McGraw Hill Education.

*Applicable for courses having practical component.

## DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS
## KURUKSHETRA UNIVERSITY, KURUKSHETRA

| Session: 2023-24 | |
|---|---|
| **Part A - Introduction** | |
| Subject | BCA |
| Semester | III |
| Name of the Course | Linux and Shell Programming |
| Course Code | B23-CAP-302 (Common with B23-CAI-302, B23-CDS-302, B23-CTS-302) |
| Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC) | CC |
| Level of the course (As per Annexure-I | 100-199 |
| Pre-requisite for the course (if any) | Must have basic knowledge of computer |
| Course Learning Outcomes(CLO): | After completing this course, the learner will be able to: 1. understand Linux architecture. 2 use various Linux commands that are used to manipulate system operations. 3 acquire knowledge of Linux File System. 4 understand and make effective use of I/O and shell scripting language to solve problems. ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯ 5*. to implement the programs based on various shell commands and programs in linux. |

| Credits | Theory | Practical | Total |
|---|---|---|---|
| | 3 | 1 | 4 |
| Contact Hours | 3 | 2 | 5 |

| Max. Marks:100(70(T)+30(P)) Internal Assessment Marks:30(20(T)+10(P)) End Term Exam Marks: 70(50(T)+20(P)) | Time: 3 Hrs.(T), 3Hrs.(P) |
|---|---|

| **Part B- Contents of the Course** |
|---|
| **Instructions for Paper- Setter** |
| Examiner will set a total of nine questions. Out of which first question will be compulsory. Remaining eight questions will be set from four unit selecting two questions from each unit. Examination will be of three-hour duration. All questions will carry equal marks. First question will comprise of short answer type questions covering entire syllabus. Candidate will have to attempt five questions in all, selecting one question from each unit. First question will be compulsory. |

| Practicum will be evaluated by an external and an internal examiner. Examination will be of three-hour duration. | | |
|---|---|---|
| **Unit** | **Topics** | **Contact Hours** |
| I | Introduction to Linux: Linux distributions, Overview of Linux operating system, Linux architecture, Features of Linux, Accessing Linux system, Starting and shutting down system, Logging in and Logging out, Comparison of Linux with other operating systems. | 10 |
| II | Commands in Linux: General-Purpose commands, File oriented commands, directory oriented commands, Communication-oriented commands, process oriented commands, etc. Regular expressions & Filters in Linux: Simple filters viz. more, wc, diff, sort, uniq, grep; Introducing regular expressions. | 10 |
| III | Linux file system: Linux files, inodes and structure and file system, file system components, standard file system, file system types. Processes in Linux: Starting and Stopping Processes, Initialization Processes, Mechanism of process creation, Job control in linux using at, batch, cron & time. | 10 |
| IV | Shell Programming: vi editor, shell variables, I/O in shell, control structures, loops, subprograms, creating & executing shell scripts in linux. | 10 |
| V* | Practicum: <br> Students are advised to do laboratory/practical practice not limited to, but including the following types of problems: <br> • Basic Linux command <br> • Basic Shell Programming (Fibonacci Series generation, Factorial of a given number, Checking for Armstrong number) <br> • Designing an Arithmetic calculator <br> • Generation of Multiplication table <br> • Base Conversion (Decimal to Binary, Binary to Decimal) <br> • Finding the information about the Login name and File name. <br> • Write a shell script to exchange the contents of two variables. <br> • Write a shell script, which accepts three subject marks scored by a student and declare the result. <br> • Write a shell script program to find area of a square, rectangle, circle and triangle. <br> • Write a shell script to print integer numbers from 1 to 20. | 25 |
| **Suggested Evaluation Methods** | | |
| **Internal Assessment:** <br> ➢ **Theory** <br> • Class Participation: 5 <br> • Seminar/presentation/assignment/quiz/class test etc.: 5 <br> • Mid-Term Exam: 10 <br><br> ➢ **Practicum** | | **End Term Examination:** A three hour exam for both theory and practicum. |

| | |
|---|---|
| • Class Participation: 5<br>• Seminar/Demonstration/Viva-voce/Lab records etc.: 5<br>• Mid-Term Exam:   NA | |
| **Part C-Learning Resources** ||
| **Recommended Books/e-resources/LMS:**<br>  • Yashwant Kanetkar, Unix &amp; Shell programming – BPB Publications.<br>  • Richard Petersen, The Complete Reference – Linux, McGraw-Hill.<br>  • M.G.Venkateshmurthy, Introduction to Unix &amp; Shell Programming, Pearson Education.<br>  • Stephen Prata, Advanced UNIX-A Programmer's Guide, SAMS Publication.<br>  • Sumitabha Das, Your Unix - The Ultimate Guide, Tata McGraw-Hill. ||

*Applicable for courses having practical component.

## DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS
## KURUKSHETRA UNIVERSITY, KURUKSHETRA

| Session: 2023-24 | | | |
|---|---|---|---|
| **Part A - Introduction** | | | |
| Subject | BCA | | |
| Semester | III | | |
| Name of the Course | Data Base Technologies | | |
| Course Code | B23-CAP-303 (Common with B23-CAI-303, B23-CDS-303, B23-CTS-303) | | |
| Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC) | CC | | |
| Level of the course (As per Annexure-I | 100-199 | | |
| Pre-requisite for the course (if any) | Basic Knowledge of computer | | |
| Course Learning Outcomes(CLO): | After completing this course, the learner will be able to:<br>1. understand the concepts of problem solving on computer<br>2. understand the basics of C programming along with various I/O functions<br>3. understand various operators and branching statements in C<br>4. understand loops, functions and arrays in C<br><br>5*. to design programs based on theoretical concepts of C. | | |
| Credits | Theory | Practical | Total |
| | 3 | 1 | 4 |
| Contact Hours | 3 | 2 | 5 |
| **Max. Marks:100(70(T)+30(P))**<br>**Internal Assessment Marks:30(20(T)+10(P))**<br>**End Term Exam Marks: 70(50(T)+20(P))** | **Time: 3 Hrs.(T), 3Hrs.(P)** | | |
| **Part B- Contents of the Course** | | | |
| **Instructions for Paper- Setter** | | | |

| Unit | Topics | Contact Hours |
|---|---|---|
| I | Basic Concepts – Data, Information, Records, Files, Schema and Instance etc. Limitations of File Based Approach, | 10 |

| | Characteristics of Database Approach, Database Management System (DBMS), Components of DBMS Environment, DBMS Functions and Components, Database Interfaces, Advantages and Disadvantages of DBMS.<br>Database Users: Data and Database Administrator, Role and Responsibilities of Database Administrator, Database Designers, Application Developers etc. Database System Architecture – 1-Tier, 2-Tier & Three Levels of Architecture, External, Conceptual and Internal Levels, Schemas, Mappings and Instances, Data Independence – Logical and Physical Data Independence. | |
|---|---|---|
| II | Data Models: Hierarchical, Network and Relational Data Models.<br>Entity-Relationship Model: Entity, Entity Sets, Entity Type, Attributes: Type of Attributes, Keys, Integrity Constraints, Designing of ER Diagram, Symbolic Notations for Designing ER Diagram, | 10 |
| III | SQL: Meaning, Purpose and Need of SQL, Data Types, SQL Components: DDL, DML, DCL and DQL, Basic Queries, Join Operations and Sub-queries, Views, Specifying Indexes. Constraints and its Implementation in SQL.<br>Relational Algebra: Basic Operations: Select, Project, Join, Union, Intersection, Difference, and Cartesian Product etc.<br>Relational Calculus: Tuple Relational and Domain Relational Calculus. Relational Algebra Vs. Relational Calculus. | 10 |
| IV | Relational Model: Functional Dependency, Characteristics, Inference Rules for Functional Dependency, Types of Functional Dependency,<br>Normalization: Benefits and Need of Normalization, Normal Forms Based on Primary Keys- (1NF, 2NF, 3NF, BCNF), Multi-valued Dependencies, 4 NF, Join dependencies, 5 NF, Domain Key Normal Form. | 10 |
| V* | The following activities be carried out/ discussed in the lab during the period of the semester.<br>Programming Lab:<br>• Performing various SQL statement. Creating various tables and performing all possible queries based on syllabus.<br>• Understanding relational model concepts<br>• Understanding normalization<br>• Understanding various concepts of databases. | 25 |
| **Suggested Evaluation Methods** | | |
| **Internal Assessment:**<br>➢ **Theory**<br>• Class Participation: 5<br>• Seminar/presentation/assignment/quiz/class test etc.: 5<br>• Mid-Term Exam: 10 | | **End Term Examination:**<br>**A three hour exam for both theory and practicum.** |

| | |
|---|---|
| ➢ **Practicum**<br>• Class Participation: 5<br>• Seminar/Demonstration/Viva-voce/Lab records etc.: 5<br>• Mid-Term Exam:   NA | |
| **Part C-Learning Resources** | |
| **Recommended Books/e-resources/LMS:**<br>• Elmasri &amp; Navathe, Fundamentals of Database Systems, Pearson Education.<br>• A Silberschatz, H Korth, S Sudarshan, Database System and Concepts, McGraw-Hill.<br>• Thomas Connolly Carolyn Begg, Database Systems, Pearson Education.<br>• C. J. Date, An Introduction to Database Systems, Addison Wesley. | |

\*Applicable for courses having practical component.

| Session: 2023-24 | | | |
|---|---|---|---|
| **Part A - Introduction** | | | |
| Subject | BCA | | |
| Semester | III | | |
| Name of the Course | Basics of Data Science using Excel | | |
| Course Code | B23-CAP-304 | | |
| Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC) | CC-M | | |
| Level of the course (As per Annexure-I | 200-299 | | |
| Pre-requisite for the course (if any) | Basic knowledge of mathematics and computer | | |
| Course Learning Outcomes(CLO): | After completing this course, the learner will be able to: 1. understand the fundamental concepts of data science and the role of Excel in data analysis. 2. learn data cleaning, preparation, and visualization techniques using Excel. 3. apply statistical analysis and predictive modeling using Excel. 4. To explore advanced Excel functions and data analysis tools. _____ 5*. Implement the various functions in Excel | | |
| Credits | Theory | Practical | Total |
| | 3 | 1 | 4 |
| Contact Hours | 3 | 2 | 5 |
| Max. Marks:100(70(T)+30(P)) Internal Assessment Marks:30(20(T)+10(P)) End Term Exam Marks: 70(50(T)+20(P)) | Time: 3 Hrs.(T), 3Hrs.(P) | | |
| **Part B- Contents of the Course** | | | |

| Unit | Topics | Contact Hours |
|------|--------|---------------|
| I | Introduction to Data Science: Definition, importance, and applications. Overview of Excel: Interface, basic functions, and features. Data Types and Formats in Excel: Text, numbers, dates, and custom formats. Basic Data Manipulation: Sorting, filtering, and basic formulas (SUM, AVERAGE, COUNT). | 11 |
| II | Data Import and Export: CSV, TXT, and Excel files. Data Cleaning Techniques: Handling missing values, duplicates, and errors. Data Transformation: Text-to-columns, concatenation, and data validation. Data Visualization: Creating and customizing charts (bar, line, pie). | 11 |
| III | Descriptive Statistics: Mean, median, mode, standard deviation, and variance. Inferential Statistics: Hypothesis testing, t-tests, and chi-square tests. Regression Analysis: Simple linear regression and multiple regression. Predictive Modeling: Introduction to basic predictive models and their implementation in Excel. | 11 |
| IV | Advanced Excel Functions: VLOOKUP, HLOOKUP, INDEX-MATCH, and PivotTables. Data Analysis ToolPak: Using Excel's built-in data analysis tools such as Descriptive Statistics, Histograms, Correlation, and Regression. What-If Analysis Tools: Scenario Manager, Goal Seek, and Data Tables. | 12 |
| V* | The following activities will be carried out/ discussed in the lab during the semester. Familiarize with Excel interface and basic operations. <ul><li>Explore Excel ribbons, toolbars, and interface.</li><li>Practice data entry, formatting, and basic calculations.</li><li>Create a simple spreadsheet and perform basic functions.</li></ul> Import data and perform basic cleaning tasks. | 30 |

- Import datasets from CSV and text files.
- Identify and handle missing values.
- Remove duplicates and correct data errors.

Manipulate data through sorting and filtering.
- Apply sorting to datasets based on different criteria.
- Use filters to analyze subsets of data.
- Create custom filters to extract specific data points.

Utilize formulas for data transformation.
- Practice text functions: LEFT, RIGHT, MID, CONCATENATE.
- Use date functions: TODAY, DATE, DATEDIF.
- Implement basic mathematical formulas: SUM, AVERAGE, COUNT.

Calculate and interpret descriptive statistics.
- Calculate measures of central tendency: mean, median, mode.
- Compute measures of dispersion: range, variance, standard deviation.
- Use built-in Excel functions for statistical analysis.

Apply conditional formulas and formatting.
- Use IF, SUMIF, and COUNTIF functions for conditional analysis.
- Apply conditional formatting to highlight data trends and anomalies.
- Create data-based rules for formatting.

Create and customize basic charts and graphs.
- Generate line charts, bar charts, and pie charts.
- Customize chart elements: titles, labels, and legends.
- Analyse data visually through chart types.

Summarize data using PivotTables.
- Create PivotTables to aggregate data.
- Group data and create custom summaries.
- Utilize slicers to filter and analyze PivotTable data interactively.

Apply lookup and reference functions.
- Use VLOOKUP and HLOOKUP for data retrieval.
- Implement INDEX and MATCH functions for advanced lookups.
- Practice using the OFFSET function for dynamic data ranges.

Perform statistical analysis using the Data Analysis Toolpak.
- Install and activate the Data Analysis Toolpak.
- Conduct regression analysis and ANOVA.
- Explore other statistical tests available in the Toolpak.

| **Suggested Evaluation Methods** | |
|---|---|
| **Internal Assessment:**<br>➢ **Theory**<br>   • Class Participation: 5<br>   • Seminar/presentation/assignment/quiz/class test etc.: 5<br>   • Mid-Term Exam: 10<br>➢ **Practicum**<br>   • Class Participation: NA<br>   • Seminar/Demonstration/Viva-voce/Lab records etc.: 10<br>   • Mid-Term Exam:   NA | **End Term Examination:**<br>**A three hour exam for both theory and practicum.** |

| **Part C-Learning Resources** |
|---|

**Recommended Books/e-resources/LMS:**
- "Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking" by Foster Provost and Tom Fawcett.
- "Excel Data Analysis: Modeling and Simulation" by Hector Guerrero.
- "Data Analysis Using Microsoft Excel" by Michael R. Middleton.
- "Excel 2019 Bible" by Michael Alexander, Richard Kusleika, and John Walkenbach.
- "Practical Statistics for Data Scientists: 50 Essential Concepts" by Peter Bruce and Andrew Bruce.

*Applicable for courses having practical components.

# English

## Semester-III

Nomenclature of the Course: **English Language and Communication Skills: Level 3**

Course Code: **B23-AEC-311**

Course Type: **AEC-3**

Level of the Course: **200-299**

Credits: 2 (Theory 2)

Total Marks: 50

End Term Exam Marks: 35

Internal Assessment Marks: 15

Time: 3 Hrs.

**Workload:** Theory 2 hours

**Course Learning Outcomes**

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

E301.1. The students will understand the importance of close reading and comprehension

E301.2. They will learn the practical use of interview and presentation skills.

E301.3. They will enhance their vocabulary for better communication.

E301.4. They will be introduced to the correct use of articles and other parts of speech.

**Content of the Course:**

Unit I: Close Reading and Comprehension

Summarizing and Paraphrasing

Unit II: Interview Skills, Seminar Skills, Presentation Skills

Data Interpretation – Bar Graph, Pie Chart, Tree Diagram

Unit III: Vocabulary: Homonyms, Homophones, Pair of words

Rearranging jumbled sentences

Unit IV: Common errors in the use of English

(Noun, Pronoun and Articles)

**Suggested Readings:**

Bienvenu, Sherron. *The Presentation Skills Workshop: Helping People Create and Deliver Great Presentations.* Amacom Books, 2006.

Brians, Paul. *Common Errors in English Usage.* Franklin, Beedle & Associates, 2003.

McNamara, Danielle S. *Reading Comprehension Strategies: Theories, Interventions, and Technologies.* Psychology P, 2007.

## Instructions to the Paper Setters:

1. Question No 1 will be compulsory and will have 7 parts based on all the four Units and the students will be required to attempt all the 7.

2. Question No 2 and 3 will be set on Unit-I covering the entire Unit. Students will be required to attempt any one.

3. Question No 4 and 5 will be set on Unit-II covering the entire Unit. Students will be required to attempt any one.

4. Question No 6 and 7 will be set on Unit-III covering the entire Unit. Students will be required to attempt any one.

5. Question No. 8 and 9 will be based on Unit-IV having 7 parts each covering the entire Unit. Students will be required to attempt any one of these

## Evaluation of Internal Assessment

Internal Assessment (Theory) will be based on the following components.

|      |                                                        |          |
| ---- | ------------------------------------------------------ | -------- |
| i.   | Class Participation                                    | 4 Marks  |
| ii.  | Seminar/Presentation/Assignments/ Quiz/Class Test etc. | 4 Marks  |
| iii. | Mid-Term Exam                                          | 7 Marks  |
|      | Total                                                  | 15 Marks |

| Session: 2023-24 | | | |
|---|---|---|---|
| **Part A - Introduction** | | | |
| Subject | COMPUTER SCIENCE | | |
| Semester | III | | |
| Name of the Course | Advance IT Skills | | |
| Course Code | B23-SEC-301 | | |
| Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC) | SEC | | |
| Level of the course (As per Annexure-I | | | |
| Pre-requisite for the course (if any) | | | |
| Course Learning Outcomes(CLO): | After completing this course, the learner will be able to: <br> 1. Use e-Governance applications; and use computer to improve existing skills and learn new skills <br> 2. Using internet for Digital Financial services <br> 3. understand the concept of Cyber security and issues and challenges associated with it <br> 4. Develop knowledge about Future Skills <br> _____ <br> 5*. to understand the various concepts in the syllabi practically. | | |
| Credits | Theory | Practical | Total |
| | 2 | 1 | 3 |
| Contact Hours | 2 | 2 | 4 |
| **Max. Marks:75(50(T)+25(P))** <br> **Internal Assessment Marks:20(15(T)+5(P))** <br> **End Term Exam Marks: 55(35(T)+20(P))** | **Time: 3 Hrs.(T), 3Hrs.(P)** | | |
| **Part B- Contents of the Course** | | | |
| **Instructions for Paper- Setter** <br> Examiner will set a total of nine questions. Out of which first question will be compulsory. Remaining eight questions will be set from four unit selecting two questions from each unit. Examination will be of three-hour duration. All questions will carry equal marks. First question will comprise of short answer type questions covering entire syllabus. <br> Candidate will have to attempt five questions in all, selecting one question from each unit. First question will be compulsory. <br> Practicum will be evaluated by an external and an internal examiner. Examination will be of | | | |

| Unit | Topics | Contact Hours |
|------|--------|---------------|
| | three-hour duration. | |
| I | WWW and E-Governance - Website Address and URL, Introduction to IP, Address, ISP and Role of ISP, Internet Protocol, Modes of Connecting Internet (HotSpot, Wifi, LAN Cable, BroadBand, USB Tethering), Identifying and uses of IP/MAC/IMEI of various devices, Downloading Web Pages, Printing Web Pages<br>Introduction to Blogs, Basics of E-commerce, Netiquettes, Overview of e-Governance Services like Railway Reservation, Passport, eHospital [ORS], Accessing e-Governance Services on Mobile | 5 |
| II | Digital Financial Tools and Applications Digital Financial Tools, Understanding OTP [One Time Password]and QR [Quick Response] Code, UPI [Unified Payment Interface], AEPS [Aadhaar Enabled Payment System], USSD[Unstructured Supplementary Service Data], Card [Credit / Debit], eWallet, PoS [Point of Sale], Internet Banking, National Electronic Fund Transfer (NEFT), Real Time Gross Settlement (RTGS), Immediate Payment Service (IMPS), Online Bill Payment | 5 |
| III | Cyber Security: Cyber Security, Defining Cyberspace, Architecture of cyberspace, Regulation of cyberspace, Concept of cyber security, Issues and challenges of cyber security.<br>Classification of cybercrimes, Common cybercrimes- cybercrime targeting computers and mobiles, cybercrime against women and children, financial frauds, social engineering attacks, malware and ransomware attacks, zero day and zero click attacks, Cybercriminals modus-operandi , Reporting of cybercrimes, Remedial and mitigation measures, Legal perspective of cybercrime, IT Act 2000 and its amendments, Cybercrime and offences, Organisations dealing with Cybercrime and Cyber security in India. | 7 |
| IV | Overview of Futureskills: Introduction to Internet of Things (IoT), Big Data Analytics, Cloud Computing, Virtual Reality, Artificial Intelligence, Social & Mobile, Blockchain Technology, 3D Printing/ Additive Manufacturing, Robotics Process Automation. | 7 |
| V* | Practicum:<br>WWW and E-Governance:<br>• Understanding the various devices related to Internet<br>• Using e-governance services<br>• Writing e-blogs.<br>Digital Financial Tool:<br>• Using digital financial tools.<br>Cyber Security:<br>• Checklist for reporting cyber-crime at Cybercrime Police Station<br>• Checklist for reporting cybercrime online<br>• Reporting phishing emails | 25 |

| | |
|---|---|
| • Demonstration of email phishing attack and preventive measures.<br>Futuristic Technology:<br> • Introducing various futuristic technologies. | |

| Suggested Evaluation Methods | |
|---|---|
| **Internal Assessment:**<br>➢ **Theory**<br> • Class Participation: 4<br> • Seminar/presentation/assignment/quiz/class test etc.: 4<br> • Mid-Term Exam: 7<br><br>➢ **Practicum**<br> • Class Participation: 2<br> • Seminar/Demonstration/Viva-voce/Lab records etc.: 3<br> • Mid-Term Exam:   NA | **End Term Examination:**<br>A three hour exam for both theory and practicum. |

| Part C-Learning Resources |
|---|
| **Recommended Books/e-resources/LMS:**<br> • Cyber Crime Impact in the New Millennium, by R. C Mishra, Auther Press. Edition 2010.<br> • Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives by Sumit Belapure and Nina Godbole, Wiley India Pvt. Ltd. (First Edition, 2011)<br> • Security in the Digital Age: Social Media Security Threats and Vulnerabilities by Henry A. Oliver, Create Space Independent Publishing Platform. (Pearson, 13th November, 2001)<br> • Electronic Commerce by Elias M. Awad, Prentice Hall of India Pvt Ltd.<br> • Computer Fundamentals - By Pradeep K. Sinha, Priti Sinha, BPB Publications, 6th Edition |

*Applicable for courses having practical component.

<table>
<tr><td colspan="4" align="center">**Part A - Introduction**</td></tr>
<tr><td>Subject</td><td colspan="3">**Business Administration**</td></tr>
<tr><td>Semester</td><td colspan="3">**II**</td></tr>
<tr><td>Name of the Course</td><td colspan="3">**Fundamentals of Investing**</td></tr>
<tr><td>Course Code</td><td colspan="3">**B23-BBA-MDC-302**</td></tr>
<tr><td>Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)</td><td colspan="3">**MDC-3**</td></tr>
<tr><td>Level of the course (As per Annexure-I</td><td colspan="3">**Intermediate-Level**</td></tr>
<tr><td>Pre-requisite for the course (if any)</td><td colspan="3">**None**</td></tr>
<tr><td>Course Learning Outcomes (CLO):</td><td colspan="3">After completing this course, the learner will be able to:<br>1. Understand different investment avenues and their characteristics.<br>2. Gain knowledge about the functioning of the Indian Securities Market and the role of SEBI.<br>3. Analyze the relationship between returns and risks in financial investments.<br>4. Recognize the significance of depositories in securities transactions and investor protection measures.<br>_____<br>5*.</td></tr>
<tr><td>Credits</td><td align="center">Theory</td><td align="center">Practical</td><td align="center">Total</td></tr>
<tr><td></td><td align="center">**3**</td><td align="center">**0**</td><td align="center">**3**</td></tr>
<tr><td>Contact Hours</td><td align="center">**45**</td><td align="center">**0**</td><td align="center">**45**</td></tr>
<tr><td colspan="2">Max. Marks: **75**<br>Internal Assessment Marks: **25**<br>End Term Exam Marks: **50**</td><td colspan="2" align="center">Time: **3 Hours**</td></tr>
</table>

| | Part B- Contents of the Course |
|---|---|

### Instructions for Paper- Setter

The Paper-Setter shall set *nine* questions in all and the question paper shall be divided into two parts. **Part 'A'** shall comprise *four* short answer type questions from the whole of the syllabus carrying 2.5 marks each, which shall be compulsory. **Part 'B'** shall comprise *eight* questions (*two* questions from each unit) carrying 10 marks each and the student will be required to attempt *four* questions selecting *one* question from each unit.

| Unit | Topics | Contact Hours |
|---|---|---|
| I | Investment avenues-money market and capital market instruments, Investment process, Objectives of investment. | 12 |
| II | Indian Securities Market, Process of investing through stock exchange, Stock Market Indices, NEAT System, BOLT System, Role of SEBI. | 11 |
| III | Returns and Risks in financial investment, Fixed-Income Securities and variable income securities, Bonds and Mutual funds and role of AMFI. | 11 |
| IV | Role of Depositories in India, Investor Protection in India, Rights and Duties of Investors. | 11 |
| V* | | |

### Suggested Evaluation Methods

| **Internal Assessment:** | |
|---|---|
| ➢ **Theory** <br> ● Class Participation: **05** <br> ● Seminar/presentation/assignment/quiz/class test etc.: **07** <br> ● Mid-Term Exam: **13** <br> ➢ **Practicum** <br> ● Class Participation: <br> ● Seminar/Demonstration/Viva-voce/Lab records etc.: <br> ● Mid-Term Exam: | End Term Examination: **50** |