M.C.E. Society's
ABEDA INAMDAR SENIOR COLLEGE OF ARTS, SCIENCE AND
COMMERCE (AUTONOMOUS), PUNE

AZAM CAMPUS, CAMP, PUNE – 411001

Syllabus of T.Y.B.B.A (C.A)

Applicable for the Autonomous College Affiliated to

Savitribai Phule Pune University

B.B.A (C.A) Degree Course (Choice Based Credit System)

(2021 Pattern)

With effect from June 2023

Titles of Papers, Credit Allocation and Scheme of Evaluation

Semester I (Total Credits=21)

Course Type	Paper Code	Paper title	Credits		Evaluation		
			T	P	CIE	SEE	Total
CC	21CBCA111	Business and Professional Skills	3	-	40	60	100
CC	21CBCA112	Principles of Management	3	-	40	60	100
CC	21CBCA113	Programming in C	3	-	40	60	100
CC	21CBCA114	Database Management System	3	-	40	60	100
CC	21CBCA115	Business Statistics	3	-	40	60	100
Pr	21CBCA116	Computer Laboratory Based on 113 (2 credits)	-	2	20	30	100
		Computer Laboratory Based on 114(2 credits)	-	2	20	30	
SEC		**Elective SEC Paper (Any One)**	2	-	20	30	50
	21CBCA117A	Entrepreneurship Development (30 Hours)					
	21CBCA117B	Introductory Course in Disaster Management (30 Hours)					

Note:

- **Physical Education to be conducted in Sem-I, Code for the same is 21CPE11M2.**

Semester II (Total Credits=21)

Course Type	Paper Code	Paper title	Credits		Evaluation		
			T	P	CIE	SEE	Total
CC	21CBCA121	Human Resource Management & Organizational Behavior	3	-	40	60	100
CC	21CBCA122	Advance C	3	-	40	60	100
CC	21CBCA123	Business Mathematics	3	-	40	60	100
CC	21CBCA124	Relational database management System	3	-	40	60	100
CC	21CBCA125	Web Technology HTML-JS-CSS	3	-	40	60	100
Pr	21CBCA126	Computer Laboratory Based on 124 (2 credits)	-	2	20	30	100
		Computer Laboratory Based on 122 & 125 (2 credits)	-	2	20	30	
SEC	21CBCA127M	Financial Accounting & Computerized Accounting (30 Hours)	2	-	20	30	50

Note:

- **Democracy, Election and Governance to be conducted in Sem-II, Code for the same is 21CDG12M2.**

Semester III (Total Credits=23)

Course Type	Paper Code	Paper title	Credits		Evaluation		
			T	P	CIE	SEE	Total
CC	21CBCA231	Digital Marketing	3	-	40	60	100
CC	21CBCA232	Data Structure Using C	3	-	40	60	100
CC	21CBCA233	Software Engineering	3	-	40	60	100
EC	21CBCA234A 21CBCA234B	**Elective Course Paper –I (Any One)** Angular JS PHP	3	-	40	60	100
EC	21CBCA235A 21CBCA235B	**Elective Course Paper –II (Any One)** Big data Block chain	3	-	40	60	100
Pr	21CBCA236	Computer Laboratory Based on 232 (2 credits each)	-	2	15	20	100
		Computer Laboratory Based on 234 (2 credits each)	-	2	15	20	
		Computer Laboratory Based on 235 (2 credits each)	-	2	10	20	
AECC	21CBAEEV23	Environmental Science/ Environmental Awareness	2	-	20	30	50

Note:

- **Departmental SEC Course - Self Employment through Freelancing**

Semester IV (Total Credits=22)

Course Type	Paper Code	Paper title	Credits			Evaluation		
			T	P	Pj	CIE	SEE	Total
CC	21CBCA241	Networking	3	-	-	40	60	100
CC	21CBCA242	Object Oriented Programming (C++)	3	-	-	40	60	100
CC	21CBCA243	Operating System	3	-	-	40	60	100
EC	21CBCA244A 21CBCA244B	**Elective Course Paper** **(Any One)** NODE JS Advance PHP	3	-	-	40	60	100
Pj	21CBCA245	Project	-	-	4	40	60	100
Pr	21CBCA246	Computer Laboratory Based on 242 (2 credits)	-	2	-	20	30	100
		Computer Laboratory Based on 244 (2 credits)	-	2	-	20	30	
SEC	21CBCA247M	Bootstrap (30 Hours)	2	-	-	20	30	50

Semester V (Total Credits=22)

Course Type	Paper Code	Paper title	Credits			Evaluation		
			T	P	Pj	CIE	SEE	Total
CC	21CBCA351	Cyber Security	3	-	-	40	60	100
CC	21CBCA352	Object Oriented Software Engineering(OOSE)	3	-	-	40	60	100
CC	21CBCA353	Core Java	3	-	-	40	60	100
EC	21CBCA354A	**Elective Course Paper (Any One)** NoSQL with MongoDB	3	-	-	40	60	100
	21CBCA354B	Python						
Pj	21CBCA355	Project	-	-	4	40	60	100
Pr	21CBCA356	Computer Laboratory Based on 353 (2 credits)	-	2	-	20	30	100
		Computer Laboratory Based on 354(2 credits)	-	2	-	20	30	
SEC	21CBCA357M	Data Science(30 Hours)	2	-	-	20	30	50

Semester VI (Total Credits=23)

Course Type	Paper Code	Paper title	Credits			Evaluation		
			T	P	Pj	CIE	SEE	Total
CC	21CBCA361	Data Mining and Data Warehouse	4	-	-	40	60	100
CC	21CBCA362	Software Testing	3	-	-	40	60	100
CC	21CBCA363	Advanced Java	3	-	-	40	60	100
EC		**Elective Course Paper** **(Any One)**	3	-	-	40	60	100
	21CBCA364A	Android Programming						
	21CBCA364B	Dot Net Framework						
Pj	21CBCA365	Project	-	-	4	40	60	100
Pr	21CBCA366	Computer Laboratory Based on 363(2 credits)	-	2	-	20	30	100
		Computer Laboratory Based on 364(2 credits)	-	2	-	20	30	
SEC	21CBCA367M	Soft Skills Training (30 Hours)	2	-	-	20	30	50

T.Y.B.B.A (C.A) SEMESTER

V

T.Y.B.B.A (C.A) Cyber Security

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Cyber Security
Course Code	21CBCA351
Semester	V
No. of Credits	3

Objectives of the Course

Sr. No.	Objectives
1.	To understand the fundamentals of cyber security
2.	To understand various categories of Cybercrime, Cyber-attacks on mobile, tools andtechniques used in Cybercrime and case studies
3.	To have an overview of the Cyber laws and concepts of Cyber forensics.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Identify the different types of Cyber Crimes
2.	Have a good understanding of Cyber Security and the Tools
3.	To develop Cyber forensics awareness.
4.	Have a good understanding of Cyber laws
5.	Identify attacks, security policies and credit card frauds in mobile and Wireless ComputingEra.

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	**Introduction to Cyber Crime and Cyber Security**	**10**
	1. **Cybercrime: Definition and Origin of the Word**	1
	2. **Cybercrime and Information Security**	1
	3. **Who are Cyber criminals?**	1
	4. **Classifications of Cybercrimes:**	
	i. E-Mail Spoofing, Spamming, Cyber defamation	3
	ii. Internet Time Theft, Salami Attack/Salami Technique, Data Diddling	
	iii. Forgery, Web Jacking, Newsgroup, Spam/Crimes Emanating from Usenet Newsgroup	
	iv. IndustrialSpying/Industrial Espionage, Hacking, Online Frauds	
	v. Computer Sabotage, Email Bombing/Mail Bombs, Computer Network Intrusions	
	vi. Password Sniffing, Credit Card Frauds, Identity Theft	
	5. **Definition of Cyber Security**	1
	6. **Vulnerability, Threats and Harmful acts**	1
	7. **CIA Triad**	1
	8. **Cyber Security Policy and Domains of Cyber Security Policy**	1
Unit II	**Cyber offenses and Cyber stalking**	**10**
	1. **Criminals Plan: Categories of Cybercrime Cyber Attacks:**	2
	i. Reconnaissance, Passive Attack, Active Attacks	
	ii. Scanning/Scrutinizinggathered Information, Attack (Gaining and Maintaining the System Access)	
	iii. Social Engineering and Classification of Social	

	Engineering.	1
	2. **Real-Life Incident of Cyber stalking**	1
	3. **Cybercafé and Cybercrimes**	1
	4. **Botnets:** The Fuel for Cybercrime, Botnet, Attack Vector	
	5. **Cybercrime:** Mobile and Wireless Devices – Proliferation - Trends in Mobility	1
	6. **Credit Card Frauds in Mobile and Wireless Computing Era**	1
	7. **Security Challenges Posed by Mobile Devices**	1
	8. **Authentication Service Security**	1
	9. **Attacks on Mobile/Cell Phones**	1
Unit III	**Tools and Methods Used in Cybercrime**	**06**
	1. **Introduction-Proxy Servers and Anonymizers**	1
	2. **Phishing, Password Cracking**	1
	3. **Key loggers and Spywares**	1
	4. **Virus and Worms- Trojan Horses and Backdoors**	1
	5. **Steganography**	1
	6. **DoS and DDoS Attacks, SQL Injection**	1
Unit IV	**Cybercrimes and Cyber security: The Legal Perspectives**	**08**
	1. **Introduction-Cybercrime**	1
	2. **Why Do We Need Cyber laws: The Indian Context**	1
	3. **The Indian IT Act-Challenges to Indian Law and Cybercrime Scenario in India**	1
	4. **Digital Signatures and the Indian IT Act**	1
	5. **Cybercrime and Punishment**	1
	6. **Cyber law, Technology and Students: Indian Scenario**	1
	Security of Debit and Credit Card, Smartphone and	

	Android Security	2
Unit V	**Cyber Forensics**	**05**
	1. **Introduction, Historical background of Cyber forensics**	1
	2. **Digital Forensics Science, The Need for Computer Forensics**	1
	3. **Cyber Forensics and Digital evidence**	1
	4. **Forensics Analysis of Email, Digital Forensics Lifecycle**	1
	5. **Challenges in Computer Forensics**	1
Unit VI	**Cyber security: Organizational Implications**	**08**
	1. **Organizational Implications: Cost of cybercrimes and IPR issues**	1
	2. **Web threats for organizations**	1
	3. **Security and Privacy Implications from Cloud Computing**	1
	4. **Social media marketing, Social computing and the associated challenges for organizations,Protecting people's privacy in the organization**	1
	5. **Organizational guidelines for Internet usage and safe computingguidelines and computer usage policy**	2
	6. **Incident handling**	1
	7. **Intellectual property in the cyberspace of cyber security.**	1
Unit VII	**Cybercrime: Illustrations, Examples and Mini-Cases**	**07**
	1. **Real-Life Examples**	1
	2. **Mini-Cases**	1
	3. **Illustrations of Financial Frauds in Cyber Domain**	1
	4. **Digital Signature-Related Crime Scenarios**	1
	5. **Digital Forensics Case Illustrations**	1
	6. **Online Scams**	1
	7. **Recovering from Information Loss, Destroying Sensitive Information, Cleaner for Windows**	1

Book References:

1. Nina Godbole, Sunit Belapure,"Cyber Security Understanding Cyber Crimes,   Computer Forensics and Legal Perspectives" ,Wiley: April 2011 India Publications Released.
2. Michael E Whitman, Herbert J Mattord, "Principles of Information Security"- 3rd Edition, 2011.
3. William Stallings and Lawrie Brown, "Computer Security: Principles and Practice" -, 3rd edition, Pearson,2015.

4. James Graham Richard Howard Ryan Olson, "Cyber Security Essentials"-

Website Reference Link:

- https://en.wikipedia.org/wiki/Unified_Modeling_Language
- https://www.tutorialspoint.com

T.Y.B.B.A (C.A) Object Oriented Software Engineering

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Object Oriented Software Engineering
Course Code	21CBCA352
Semester	V
No. of Credits	3

Objectives of the Course

Sr. No.	Objectives
1.	To Understand concept of system design using UML
2.	To understand system development through object oriented techniques.
3.	To understand and differentiate Unified Process from other approaches.
4.	To design with static UML diagrams.
5.	To design with the UML dynamic and implementation diagrams.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Students will be able to give Design Specifications for Project using OOSE concepts
2.	Students will acquire Knowledge in Basic Modeling.
3.	Students will acquire Project Design Skills

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	**Object Oriented Concepts, Modeling and UML**	**10**
	1. What is Object Orientation?	2
	(Introduction to class, object, inheritance, polymorphism)	
	2. Model	1
	i. Introduction of Modeling	
	ii. Object Oriented Modeling	
	3. Object oriented system development	1
	i. Function/data methods	
	ii. Object oriented analysis	
	iii. Object oriented construction	
	iv. Object oriented testing	
	4. Identifying the elements of an object model	1
	i. Identifying classes and objects	
	ii. Specifying the attributes	
	iii. Defining operations	
	iv. Finalizing the object definition	
	5. Introduction to UML	1
	6. Overview of UML	1
	7. Conceptual Model of UML	1
	8. Architecture	1
	9. Advantages of UML	1
Unit II	**Basic and Advanced Structural Modeling**	**12**
	1. Classes and Relationship	2
	2. Common mechanism	1
	3. Diagrams	1
	4. Class diagram	2
	5. Advanced classes	1
	6. Advanced Relationship	2

	7. Interface , Types and Roles	1
	8. Packages	1
	9. Object Diagram	1
Unit III	**Basic Behavioral and Architectural Modeling**	**16**
	1. Use cases, Use Case Diagram	2
	2. Interaction Diagram	2
	3. Sequence Diagram	2
	4. Activity Diagram	2
	5. State Chart Diagram	2
	6. Collaboration Diagram	2
	7. Components Diagram	2
	8. Deployment Diagram	2
	(Minimum 2 case studies for each diagram)	
Unit IV	**Object Oriented Analysis**	**08**
	1. Iterative Development	2
	2. Understanding requirements	2
	3. Unified process & UP Phases	4
	i. Inception	
	ii. Elaboration	
	iii. Construction	
	iv. Transition	
Unit V	**Object Oriented Design**	**08**
	1. The Booch Method, The Coad and Yourdon Method	2
	2. Jacobson and Rambaugh Method	
	3. Generic components of OO Design model	2
	4. System Design process	
	i. Partitioning the analysis model	3
	ii. Concurrency and subsystem allocation	
	iii. Task Management component	
	iv. Data Management component	
	v. Resource Management component	

	vi. Inter sub-system communication	
	5. Object Design process	1

Reference Books:

1. "The Unified Modeling Language User Guide" by Grady Booch, James Raumbaugh, Ivar Jacobson. ,Pearson Education Inc.

2. Ivar Jacobson,"bject Oriented Software Engineering", Pearson Education.

3. Pressman "Software Engineering", Seventh Edition, Published by McGraw-Hill

Website Reference Link:

- https://en.wikipedia.org/wiki/Unified_Modeling_Language
- https://www.tutorialspoint.com/uml

M. C. E. Society's
Abeda Inamdar Senior College
Of Arts, Science and Commerce, Camp, Pune-1
(Autonomous) Affiliated to Savitribai Phule Pune University
NAAC accredited 'A' Grade

T.Y.B.B.A (C.A) Core Java

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Core Java
Course Code	21CBCA353
Semester	V
No. of Credits	3

Objectives of the Course

Sr. No.	Objectives
1.	To introduce the object oriented programming concepts.
2.	To understand object oriented programming concepts, and apply them in solving problems.
3.	To introduce the principles of inheritance and polymorphism; and demonstrate how they relate to the design of abstract classes.
4.	To introduce the implementation of packages and interfaces
5.	To learn Java generics and how to use the Java Collections API and how to read and write files in Java.
6.	To introduce the design of Graphical User Interface using swing controls.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Knowledge of the structure and model of the Java programming language.
2.	Use the Java programming language for various programming technologies (understanding)
3.	Develop software in the Java programming language, (application)
4.	Evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements (analysis)
5.	Propose the use of certain technologies by implementing them in the Java programming language to solve the given problem (synthesis)
6.	Choose an engineering approach to solving problems, starting from the acquired knowledge of programming and knowledge of operating systems. (evaluation)

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	**Introduction to Java**	**10**
	1. Features of Java	1
	2. Basics of Java: - Data types, variable, expression, operators, constant.	1
	3. Structure of Java Program.	1
	4. Execution Process of java Program.	1
	5. Command Line Arguments.	1
	6. Array and String: i. Single Array & Multidimensional Array ii. String, String Buffer	2
	7. Built In Packages and User Defined Classes i. Creating user defined packages ii. Java Built in packages iii. Import statement, Static import	3
Unit II	**Classes, Objects and Methods**	**08**
	1.Class and Object	1
	2. Object reference	1
	3. Constructor: Constructor Overloading	1
	4. Method: Method Overloading, Recursion, Passing and Returning object form Method	2
	5. new operator, this and static keyword, finalize() method	1
	6. Nested class, Inner class, and Anonymous inner class	2
Unit III	**Inheritance, Interface and Abstract Class**	**10**
	1.Overview of Inheritance	1
	2.Implementation of Inheritance Simple, Multilevel	2
	3.Use of super and final keyword	1
	4. Interface:	

	i. Creation and Implementation of an interface	3
	ii. Interface inheritance	
	5. Abstract class	
	i. Comparison between Abstract Class and interface	3
	ii. Creation of Abstract classes and Method	
	iii. Implementation of Abstract class	
Unit IV	**File and Exception Handling**	**10**
	1. Exception	
	i. Exception and Error	
	ii. Use of try, catch, throw, throws and finally	
	iii. Built in Exception	5
	iv. Custom exception	
	2. File Handling	
	i. Overview of Different Stream (Byte Stream, Character stream)	
	ii. Readers and Writers class	
	iii. File Class	5
	iv. File Input Stream , File Output Stream	
	v. Input Stream Reader and Output Stream Writer class	
	vi. File Reader and File Write	
Unit V	**AWT, Event and Swing Programming**	**16**
	1.AWT i. Components and container used in AWT	2
	ii. Layout managers	2
	iii. Listeners and Adapter classes	2
	iv. Event Delegation model	2
	2.Swing	
	i. Introduction to Swing Component and Container Classes	4
	ii. Exploring Swing Controls- JLabel and Image Icon, JText Field, The Swing Buttons JButton, JToggle Button, JCheck Box, JRadio Button, JTabbed Pane, JScroll Pane, JList,	4

	JTable, JComboBox, Swing Menus, Dialogs, JFileOpen, JColorChooser.	

Book References:

1. Horstmann, "Core Java Volume I-Fundamentals", 11th edition
2. Joshua Bloch ,"Effective Java" ,2nd edition
3. S. Malhotra, S. Chudhary, "Programming in Java", 2nd edition, Oxford Univ. Press.
4. R. A. Johnson ,"Java Programming and Object-oriented Application Development".

Website Reference Link:

- **https://www.javatpoint.com/java-tutorial**
- **https://www.studytonight.com/java/**
- **https://www.w3schools.com/java/**
- **https://www.guru99.com/java-tutorial.html**

Best IDE used for Core Java:

Sr. No	Name of IDE or Tools	Latest Version
1.	Eclipse	4.3.2
2.	Microsoft Visual Studio Code	1.56
3.	Net Beans	12.4
4.	Notepad	-

T.Y.B.B.A (C.A) NoSQL MongoDB

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	NoSQL with MongoDB
Course Code	21CBCA354A
Semester	V
No. of Credits	3

Objectives of the Course

Sr. No.	Objectives
1.	Understand importance of NoSQL Databases.
2.	Learn various MongoDB commands and MongoDB design goals.
3.	Design basic and general-purpose database using MongoDB.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Learned to work with MongoDB shell and MongoDB tools.
2.	Able to do Schema design, Data modelling and all sorts of CRUD Operations.
3.	Learned to optimize query performance.
4.	Become capable to analyze the data stored in MongoDB.

Syllabus

Unit No	Topic	No. of lectures
Unit I	**Introduction to NoSQL Databases**	**08**
	1 **Introduction to NoSQL Databases**	1
	2 **Difference between NoSQL and RDBMS**	1
	3 **Need of NoSQL Databases**	2
	4 **Application of NoSQL Databases**	
	5 **Types of NoSQL Databases**	2
	6 **What is MongoDB?**	1
	7 **Features of MongoDB**	1
Unit II	**MongoDB Basics**	**12**
	1 **Installing MongoDB**	1
	2 **MongoDB Server and Database, MongoDB tools**	2
	3 **Collection, Documents and Key-Values**	
	4 **Data Modeling Concepts**	1
	i. Why Data Modeling? Data Modeling Approach	4
	ii. Analogy between RDBMS & MongoDB Data Model, MongoDB Data	
	iii. Model (Embedding & Linking)	
	iv. Challenges for Data Modeling in MongoDB	
	v. Data Model Examples and Patterns	
	5 **Mongo shell Commands to create, delete database, collection & documents**	1
	6 **MongoDB Datatypes**	1
	7 **Inserting and saving documents**	2
	i. Batch Insert	
	ii. Insert Validation	
	iii. MongoDB GUI like compass	
Unit III	**MongoDB CRUD Operations**	**14**
	1. **MongoDB Development Architecture**	2
	2. **MongoDB Production Architecture**	2
	3. **MongoDB CRUD Introduction, MongoDB CRUD Concepts**	3
	4. **MongoDB CRUD Concerns (Read & Write Operations)**	
	5. **Concern Levels, Journaling**	2

		6. Cursor Query Optimizations, Query behaviour in MongoDB	2
		7. Distributed Read & Write Queries	2
		8. MongoDB CRUD Syntax & Queries	1
Unit IV	**MongoDB Index and Aggregation**		**08**
		1. Index Introduction, Index Concepts, Index Types, Index Properties	2
		2. Index Creation and Indexing Reference	1
		3. Introduction to Aggregation	2
		4. Approach to Aggregation	1
		5. Types of Aggregation (Pipeline, MapReduce & Single Purpose)	1
		6. Performance Tuning.	1
Unit V	**MongoDB Administration**		**12**
		1. Administration concepts in MongoDB	1
		2. Monitoring issues related to Database	1
		3. Monitoring at Server, Database, Collection level, and various Monitoring tools related to MongoDB	2
		4. Database Profiling, Locks, Memory Usage, No of connections, page fault	2
		5. Backup and Recovery Methods for MongoDB	1
		6. Export and Import of Data to and from MongoDB	1
		7. Run time configuration of MongoDB	1
		8. Production notes/ best practices	1
		9. Data Managements in MongoDB (Capped Collections/ Expired data from TTL), Hands on Administrative Tasks.	2

Book References:

1. Peter Membrey, David Hows, EelcoPlugge,"MongoDB Basics",edition 5th

2. Subhashini Chellappan, DharanitharanGanesan,"MongoDB RecipesWith Data Modeling and Query Building Strategies",edition 4th

3. Ajit Singh, Sultan Ahmad,"MongoDB Simply In Depth",edition 6th

Website Reference Link:

- **https://www.mongodb.com/**

- **https://www.tutorialspoint.com/mongodb/index.htm**

- **https://www.javatpoint.com/mongodb-tutorial**

Best IDE used for Mongo DB:

Sr. No	Name of IDE or Tools	Latest Version
1.	Mongo DB	4.4
2.	Mongo Shell	5.0.8
3.	NOSQL BOOSTER	5.0

M. C. E. Society's
Abeda Inamdar Senior College
Of Arts, Science and Commerce, Camp, Pune-1
(Autonomous) Affiliated to Savitribai Phule Pune University
NAAC accredited 'A' Grade

T.Y.B.B.A (C.A) Python

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Python
Course Code	21CBCA354B
Semester	V
No. of Credits	3

Objectives of the Course

Sr. No.	Objectives
1.	To learn and understand Python programming basics and paradigm.
2.	To learn and understand python looping, control statements and string manipulations.
3.	Students should be made familiar with the concepts of GUI controls and designing GUI applications.
4.	To learn and know the concepts of file handling, exception handling.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	On completion of the course, student will be able to define and demonstrate the use of built-in data structures like lists, dictionary, tuple etc.
2.	Design and implement a program to solve a real world problem.
3.	Design and implement GUI application.
4.	Implement exception handling
5.	Develop applications using Python programming.

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	**Introduction to Python**	16
	1. **Feature of Python, Install and setting-up path**	1
	2. **Python comments**	1
	3. **Data types and Operators**	1
	4. **Conditional statements**	1
	5. **Python Loops**	1
	6. **Python Input and Output function**	1

	7. **Working with String**
	
	   i. Accessing string,
	
	   ii. Basic operations,
	
	   iii. Functions and Methods and Examples.
		2

	8. **List**
	
	   i. Introduction,
	
	   ii. Accessing List,
	
	   iii. Operations and Working,
	
	   iv. Function and Methods.
		2

	9. **Tuple**
	
	   i. Introduction,
	
	   ii. Accessing tuples,
	
	   iii. Operations and Working,
	
	   iv. Function and Methods.
		2

	10. **Set**
	
	   i. Introduction,
	
	   ii. Accessing,
	
	   iii. Working with Sets,
	
	   iv. Functions and Examples.
		2

	11. **Dictionaries** –
	
	   i. Introduction,
	
	   ii. Accessing,
	
	   iii. Working with Dictionaries,
	
	   iv. Properties, Function, Examples.
		2

Unit II	**Function, Modules and Packages**	08

	1. Functions	2
	i. Defining a function,	
	ii. Calling a function,	
	iii. Function Arguments,	
	iv. Anonymous function lambda,	
	v. Generator Function.	
	2. Python Modules	3
	i. Importing modules in Python Program,	
	ii. Working with Random Modules – Eg – time, date time, calendar, sys etc.	
	3. Packages	3
	i. Predefined packages,	
	ii. User defined packages.	
Unit III	**Classes, Objects and Inheritance**	**08**
	1. Creating classes in Python	1
	2. Creating objects of classes	
	3. Data abstraction	1
	4. Python Constructor	1
	i. Parameterized Constructor,	
	ii. Non-parameterized Constructor	
	5. Overloading in Python	2
	i. Operator and Method Overloading.	
	6. Inheritance	3
	i. Introduction,	
	ii. Single inheritance,	
	iii. Multi-Level inheritance,	
	iv. Multiple inheritance,	
	v. Hierarchical Inheritance,	
	vi. Hybrid Inheritance,	
	vii. IS-A Relationship and HAS-A Relationship.	
Unit IV	**Exception Handling**	**06**
	1. Python Exception	1
	2. Common Exceptions	
	3. Exception handling in python (try-except-else)	1
	4. The except statement with no exception	1
	5. Multiple exceptions	1

	6. **The try-finally Clause**	
	7. **Custom Exception**	1
	8. **Raising exceptions**	
	9. **Assert Statement**	1
Unit V	**Python GUI Programming using Tkinter**	**10**
	1. **Introduction**	1
	2. **Tkinter Geometry**	1
	3. **Tkinter pack() method**	2
	4. **Tkinter grid() method**	2
	5. **Tkinter place() method**	1
	6. **Tkinter widgets**	
	i. Button,	3
	ii. Entry,	
	iii. Label,	
	iv. Checkbutton,	
	v. Radiobutton,	
	vi. Frame,	
	vii. ListBox,	
	viii. Message,	
	ix. Menubutton,	
	x. Menu,	
	xi. Text,	
	xii. Messagebox.	
Unit VI	**Python Libraries**	**06**
	1. **Statistical Analysis –** NumPy, SciPy, Pandas, StatsModels	2
	2. **Data Visualization –** Matplotlib, Seaborn, Plotly	2
	3. **Data Modeling and Machine Learning –** Scikit-learn, XGBoost	1
	4. **Deep Learning –** TensorFlow, Pytorch	1

Book References:

1. Mark Lutz, "Programming Python", 4th Edition, O'Reilly Media, Inc.

2. Martin C. Brown, "Python: The Complete Reference", McGraw Hill Education

3. Mark Lutz, "Programming Python: Powerful Object-Oriented Programming", O'Reilly Media

4. Wesley J, "Core Python Programming", Chun Prentice Hall

Website Reference Link:

- https://www.w3schools.com/python/

- https://www.tutorialspoint.com/python/index.htm

- https://www.geeksforgeeks.org/python-programming-language/

Best IDE used for Python Programming:

Sr. No	Name of IDE or Tools	Latest Version
1.	Python	3.10.5
2.	Visual Studio Code	1.69

M. C. E. Society's
Abeda Inamdar Senior College
Of Arts, Science and Commerce, Camp, Pune-1
(Autonomous) Affiliated to Savitribai Phule Pune University
NAAC accredited 'A' Grade

T.Y.B.B.A (CA) 21CBCA355 Project
Laboratory2023-24 (CBCS – Autonomy 21
Pattern)

Course/ Paper Title	Project Laboratory
Course Code	21CBCA355
Semester	V
No. of Credits	04

Aims & Objectives of the Course

Sr. No.	Objectives
1.	To understand concepts of Project Management
2.	To help the student develop the ability to apply theoretical and practical tools / techniques to solve real life problems related to industry, academic institutions and research laboratories.
3.	To know how various tools for development and management of software projects are used to carry out various tasks involved, to explore latest technologies.
4.	To learn the importance of project documentation and project report.

Expected Course Specific Learning Outcome

Sr. No.	Learning Outcome
	After Completion of this course students will able to-
1.	Demonstrate a sound technical knowledge of selected project topic.
2.	Develop quality software solutions by applying theoretical and practical knowledge of various courses learnt
3.	It helps them to learn various documents used during the development of the project and a project report.

Sr. No.	Guidelines
1	Only one project topic will be finalized.
2	The project work should normally include software development.
3	Students are expected to work on the chosen project during the entire semester.
4	The students are expected to work on real-life project. However, it is not mandatory for a student to work on a real-life project.
5	Not more than two students are permitted to work on a project.
6	Students shall choose any appropriate programming language/ platform, computational techniques and tools in consultation with the guide, In-charge and the Head of the Department
7	The project may be done in the college campus/concern study institute or in an approved sponsoring organization (industry/ research and development laboratories / educational institution / Software Company related to the proposed topic.
8	The student can formulate a project problem with the help of her/his guide and if approved, the students commence working on it.
9	The guide shall track and monitor the project progress on a weekly basis by considering the Workload of 4 laboratory hours per week.
10	A candidate is required to present the progress of the project work during the semester as per the schedule.
11	The Project Work will be assessed jointly by a panel of examiners consisting faculty and industry experts. The Project Groups will deliver the presentation and demonstration of the Project Work which will be assessed by the panel.
12	The Student Project Group needs to actively participate in the presentation. The panel of examiners will evaluate the candidate's performance based on presentation skills, questions based on the Project Work and overall development effort taken by the candidates

13	**Students shall prepare a project report with the following contents:**
	1. Title of the project
	2. Name of the Guide (external guide (company) from / internal guide (teacher of the BBA(CA))
	3. Introduction and objectives of the project
	4. Analysis (DFD, ER diagrams. As per the project requirements).
	5. A complete structure which includes:
	    ➢ Name of modules and their description
	    ➢ Database / data structures description
	    ➢ Process logic of each module (flow chart)
	    ➢ Reports generation. (Report format)
	6. Tools / platform, hardware and software requirement specifications
	7. Organization/ company details with profile of guide (if project is carried out outside the department)
	Project report formulation
	    • Good quality white executive bond paper A4 size should be used for typing and duplication.

	• Care should be taken to avoid smudging while duplicating the copies. • Page specification: leftmargin-3.0cms, right margin- 2.0 cm, top margin 2.54 cm, bottom margin 2.54 cm, line spacing – single, font size – 12 for normal text, 14 for headings, 16 for chapter heading, page numbers - all text pages as well as program source code listing should be numbered at the bottom of the pages. Employ MS-Word or open source software.
14	**The project report should contain the following:** 1. Front page 2. Certificate from the Guide with her/his signature and date. 3. Certificate from company/industry in their letter head (if project is carried out outside the department)
15	**The project report documentation should include the following topics (as per the project requirements).** 1. Acknowledgement 2. Table of contents / index with page numbering 3. Introduction / objectives of the project 4. Existing System and Proposed System 5. System analysis 6. Feasibility study 7. Software and hardware requirement specifications 8. System design 9. Coding 10. Reports, tables' figures should be properly numbered/labelled 11. Screen shots of projects 12. Conclusion 13. Future scope and further enhancement of the project 14. Bibliography/ references
16	The Project report should be prepared in a spiral bound form with adequate number of copies. Copy shall be submitted to the guide and college for the records.
17	The Project work and report shall be certified by the concerned Project guide and Head of the department.

18	Students shall make a presentation of working project and will be evaluated as per the Project evaluation scheme as detailed below
	 I Continuous Evaluation, Progress Report: 40 marks
	  • **Synopsis :10**
	  • **First Demo , Diagrams & Designing of Forms :10**
	  • **Second Demo Establishing Database Connectivity: 10**
	  • **Final Demo on Project execution and documentation :10**
	II. End Semester Examination : 60 marks
	  • **Project Demo with Explanation:40**
	  • **Documentation:10**
	  • **Viva:10**

M. C. E. Society's
Abeda Inamdar Senior College
Of Arts, Science and Commerce, Camp, Pune-1
(Autonomous) Affiliated to Savitribai Phule Pune University
NAAC accredited 'A' Grade

T.Y.B.B.A (C.A) Computer Laboratory Based on 353 (2 credits)

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Computer Laboratory Based on 353 (2 credits)
Course Code	21CBCA356
Semester	V
No. of Credits	2

Objectives of the Course

Sr. No.	Objectives
1.	To study various data types, arrays, strings and functions in Java.
2.	To learn briefly the concept of OOPS, Interface and Abstract class
3.	To understand built-in and User defined Packages.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Explain use of appropriate data types, control statements.
2.	Write programs using Array, String and function.
3.	Use Pre-processor directives.
4.	Demonstrate ability to use top-down program design.

Best IDE used for Core Java:

Sr. No	Name of IDE or Tools	Latest Version
1.	Eclipse	4.3.2
2.	Microsoft Visual Studio Code	1.56
3.	Net Beans	12.4
4.	Notepad	-

Assignment No	Assignment Name	No. of Sessions
1	Assignment based on Data types and operators	1
2	Assignment based on Array and String	2
3	Assignment based on Classes, Objects and Methods	2
4	Assignment based on Inheritance, Package, Abstract class and Interface	2
5	Assignment based on File and Exception	2
6	Assignment based on AWT, Event &Swing Programming	3
	Total Number of Sessions	12

M. C. E. Society's
Abeda Inamdar Senior College
Of Arts, Science and Commerce, Camp, Pune-1
(Autonomous) Affiliated to Savitribai Phule Pune University
NAAC accredited 'A' Grade

T.Y.B.B.A (C.A) Computer Laboratory Based on 354A (2 credits)

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Computer Laboratory Based on 354A (2 credits)
Course Code	21CBCA356
Semester	V
No. of Credits	2

Objectives of the Course

Sr. No.	Objectives
1.	To Create a Mongo DB database
2.	To insert data into a Mongo DB database.
3.	To Read data from a Mongo DB database.
4.	To update data in a Mongo DB database.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Working with operators and arrays
2.	Writing queries to update and delete data
3.	Backing up and restoring MongoDB
4.	Creating documents and collections

Best IDE used for Mongo DB:

Sr. No	Name of IDE or Tools	Latest Version
1.	Mongo DB	4.4
2.	Mongo Shell	5.0.8
3.	NOSQL BOOSTER	5.0

Assignment No	Assignment Name	No. of Sessions
1	Assignment based on shell commands	1
2	Assignment based on Read operation	1
3	Assignment based on Write operation	2
4	Assignment based on Index creation	2
5	Assignment based on Index references	2
6	Assignment based on CRUD queries	2
7	Assignment based on Export and Import data	2
	Total Number of Sessions	12

M. C. E. Society's
Abeda Inamdar Senior College
Of Arts, Science and Commerce, Camp, Pune-1
(Autonomous) Affiliated to Savitribai Phule Pune University
NAAC accredited 'A' Grade

T.Y.B.B.A (C.A) Computer Laboratory Based on 354B (2 credits)

2022-23 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Computer Laboratory Based on 354 (B) (2 credits)
Course Code	21CBCA356
Semester	V
No. of Credits	2

Objectives of the Course

Sr. No.	Objectives
1.	The course is designed to provide Basic knowledge of Python.
2.	Manipulate and output data using lists, loops, and operators.
3.	To introduce various concepts of programming to the students using Python

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Solve the real-life problems using object-oriented concepts
2.	Problem solving and programming capability.
3.	Students Can Write Test and Debug Python Programs.

Best IDE used for Python:

Sr. No	Name of IDE or Tools	Latest Version
1.	Python	3.10.5
2.	Visual Studio Code	1.69

Assignment No	Assignment Name	No. of Sessions
1	Assignment based on Introduction to Basic Python	1
2	Assignment based on Working with String and List	1
3	Assignment based on Working with Tuples, Sets and Dictionaries	2
4	Assignment based on Working with Functions, Modules and Packages	2
5	Assignment based on Python Classes and Objects	1
6	Assignment based on Inheritance	2
7	Assignment based on Exception Handling	1
8	Assignment based on GUI programming using Tkinter	2
	Total Number of Sessions	12

T.Y.B.B.A (C.A) Data Science

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Introduction to Data Science
Course Code	21CBCA357M
Semester	V
No. of Credits	2

Objectives of the Course

Sr. No.	Objectives
1.	Provide students with knowledge and skills for data-intensive problem solving and scientific discovery
2.	Be prepared with a varied range of expertise in different aspects of data science such as data collection, visualization, processing and modeling of large data sets.
3.	Acquire good understanding of both the theory and application of applied statistics and computer science based existing data science models to analyze huge data sets originating from diversified application areas.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Perform Exploratory Data Analysis.
2.	Obtain, clean/process, and transform data.
3.	Present results using data visualization techniques.
4.	Prepare data for use with a variety of statistical methods and models and recognize how the quality of the data and the means of data collection may affect conclusions.
5.	Detect and diagnose common data issues, such as missing values, special values, outliers, inconsistencies, and localization
6.	Demonstrate proficiency with statistical analysis of data.

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	**Introduction to Data Science**	**10**
	1. **Basics of Data**	1
	2. **What is Data Science?**	
	3. **Data science process**	1
	4. **Stages in a Data Science project**	1
	5. **Applications of Data Science in various fields**	1
	6. **Basics of Data Analytics**	2
	7. **Types of Analytics – Descriptive, Predictive, Prescriptive**	2
	8. **Statistical Inference - Populations and samples - Statistical modeling - probability distributions**	2
Unit II	**Exploratory Data Analysis**	**6**
	1. What is Exploratory Data Analysis?	2
	2. Steps in EDA	
	3. Basic tools (plots, graphs, and summary statistics) of EDA	2
	4. Types of exploratory data analysis	2
Unit III	**Data Visualization using Tableau**	**20**
	1. Basic principles of data visualization	2
	2. Benefits of Data Visualization	2
	3. Data visualization techniques(Histograms, Bar charts/graphs, Scatter plots, Line charts, Area plots, Pie charts, Donut charts)	8
	4. Specialized data visualization tools (Boxplots, Bubble plots, Heat map, Dendrogram, Venn diagram, Treemap, 3D scatter plots)	8

Book References:

1. "Data Science from Scratch: First Principles with Python", O"Reilly Media, 20153.
2. Gypsy Nandi, Rupam Sharma," Data Science Fundamentals and Practical Approaches" ,BPB Publications, 2020.
3. Chirag Shah," A Hands-On Introduction to Data Science", University of Washington Cambridge University Press.

Website Reference Link:

- https://onlinecourses.nptel.ac.in/noc19cs60
- https://www.coursera.org/learn/python-dataanalysis
- https://onlinecourses.nptel.ac.in/noc21cs33

T.Y.B.B.A(C.A)SEMESTER VI

M. C. E. Society's
Abeda Inamdar Senior College
Of Arts, Science and Commerce, Camp, Pune-1
(Autonomous) Affiliated to Savitribai Phule Pune University
NAAC accredited 'A' Grade

T.Y.B.B.A (C.A) Data Mining and Data Warehouse

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Data Mining and Data Warehouse
Course Code	21CBCA361
Semester	VI
No. of Credits	4

Objectives of the Course

Sr. No.	Objectives
1.	To Study data warehouse architectures, OLAP, and the project planning aspects of building a data warehouse.
2.	To introduce the concepts, techniques, design and applications of data warehousing and data mining.
3.	To enable students to understand and implement classical algorithms in data mining.
4.	To understand the various, approaches to data warehousing and data mining implementations.
5.	To understand how to analyze the data, identify the problems, and choose the relevant algorithms to apply.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Learn and understand techniques for preprocessing various kinds of data.
2.	Understand Data warehouse concepts.
3.	Apply Association Mining Techniques on Large Data Sets.
4.	Apply classification and clustering Techniques on large Data Sets. Understand other approaches of Data mining techniques.

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	**Introduction to Data Mining**	**9**
	1. **Basic Data Mining Tasks** 2. **DM versus Knowledge Discovery in Databases** 3. **Data Mining Issues** 4. **Data Mining Metrics** 5. **Social Implications of Data Mining** 6. **Overview of Applications of Data Mining**	1 1 2 2 2 1
Unit II	**Data Warehousing & Online Analytical Processing**	**12**
	1. **The architecture of Data Warehousing** 2. **OLAP and Data Cubes** 3. **Dimensional Data Modeling-star, snowflake schemas** 4. **Data Preprocessing – Need, Data Cleaning, Data Integration & Transformation, Data Reduction Machine Learning, and Pattern Matching**	3 2 3 5
Unit III	**Data Mining Techniques**	**15**
	1. **Frequent item-sets and Association rule mining: Apriori algorithm, Use of sampling for frequent item-set, FP tree algorithm** 2. **Graph Mining**: **Frequent sub-graph mining, Tree mining, Sequence Mining**	8 7
Unit IV	**Classification & Prediction**	**20**
	1. **Decision tree learning: Construction, performance, attribute selection** 2. **Issues: Over-fitting, tree pruning methods, missing values, continuous classes Classification and Regression Trees (CART)** 3. **Bayesian Classification: Bayes Theorem, Naïve Bayes classifier, Bayesian Networks Inference Parameter and structure learning**	5 7 8
Unit V	**Weka Tools**	**18**
	1. **Datasets – Introduction** 2. **Introduction to WEKA, The Explorer – Getting started, Exploring the explorer, Learning algorithms, Clustering algorithms, Association–rule learners.** 3. **A Case study using any given techniques with proper steps.**	2 6 10

Book References:

1. Jiawei Han, Micheline Kamber, Jian Pei (2012), "Data Mining: Concepts and Techniques",

2. 3rd edition, Elsevier, United States of America.

3. Margaret H Dunham (2006)," Data Mining Introductory and Advanced Topics", 2ndedition,Pearson Education, New Delhi, India

4. Pang-Ning Tan, Michael Steinbach and Vipin Kumar "Introduction to Data Mining", Pearson Education, 2007.

5. Ian H.Witten and Eibe Frank, ―"Data Mining: Practical Machine Learning Tools and Techniques‖", Elsevier, Second Edition.

6. K.P. Soman, Shyam Diwakar and V. Ajay, ―"Insight into Data Mining Theory and Practice‖", Eastern Economy Edition, Prentice Hall of India, 2006.

7. Alex Berson and Stephen J.Smith, ―"Data Warehousing, Data Mining & OLAP‖", Tata McGraw – Hill Edition, 35th Reprint 2016.

Website Reference Link:

- https://intellipaat.com/blog/tutorial/data-warehouse-tutorial/
- https://www.mygreatlearning.com/blog/data-mining-tutorial/
- https://data-flair.training/blogs/data-mining-tutorial/
- www.cs.waikato.ac.nz/ml/weka.

T.Y.B.B.A (C.A) Software Testing

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Software Testing
Course Code	21CBCA362
Semester	VI
No. of Credits	3

Objectives of the Course

Sr. No.	Objectives
1.	To provide learner with knowledge in Software Testing techniques.
2.	To understand how testing methods can be used as an effective tool in providing quality assurance for software.
3.	To provide skills to design test case plan for testing software.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Students will be introduced to testing tools.
2.	Students will acquire Knowledge of Basic SQA.
3.	Students will be able to design basic Test Cases.

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	**Introduction to Software testing**	**10**
	1. Introduction, Nature of errors	1
	2. Testing Objectives	1
	3. Testing principles	1
	4. Testing fundamentals,	1
	5. Software reviews, Formal Technical reviews,	2
	6. Inspection and walkthrough	2
	7. Testing Life Cycle	2
Unit II	**Approaches to Testing –Testing Methods**	**08**
	1. White Box Testing and types of white box testing	3
	2. Test Case Design	1
	3. Black Box Testing and types of black box testing	2
	4. Gray Box Testing	2
Unit III	**Software Testing Strategies &Software metrics**	**14**
	1. Software Testing Process	1
	2. Unit Testing	1
	3. Integration- Top-down ,Bottom up	1
	4. System Testing	1
	5. Acceptance Testing (alpha, Beta testing)	2
	6. Validation and Verification	2
	7. Big Bang Approach	1
	8. Sandwich approach	1
	9. Performance Testing	1
	10. Regression Testing	1
	11. Smoke Testing	1
	12. Load Testing	1
Unit IV	**Software metrics**	**06**
	1. Introduction	2

	2. Basic Metrics –size-oriented metric, Function –oriented metric	2
	3. Cyclometic Complexity Metrics Examples on Cyclometic Complexity	2
Unit V	**Testing for Specialized Environments**	**08**
	1. Testing GUI's	2
	2. Testing of Client/Server Architectures	2
	3. Testing Documentation and Help Facilities	2
	4. Testing for Real-Time Systems	2
Unit VI	**Testing Tools& Software Quality Assurance (Introduction)**	**08**
	1. JUnit, Apache JMeter, Win runner	2
	2. Load runner, Rational Robot	1
	3. Quality Concepts, Quality Movement	1
	4. Software Reliability	1
	5. The ISO 9000 Quality Standards	1
	6. Case Studies	2

Book References:

1. Roger S Pressman, "Software Engineering – A Practitioner's approach", 7th Edition Tata McGraw-Hill Joshua Bloch, "Effective Java", 2nd edition.

2. William E Perry**, "**Effective Methods of Software Testing" Wiley Publishing Inc

3. Srinivasan Desikan, Gopalswamy Ramesh, "Software Testing Principles and Practices, Pearson Publication

Website Reference Link:

- **https://www.javatpoint.com/software-testing-tutorial**
- **https://www.geeksforgeeks.org/software-testing-basics/**
- **https://www.tutorialspoint.com/software_testing/index.htm**

M. C. E. Society's
Abeda Inamdar Senior College
Of Arts, Science and Commerce, Camp, Pune-1
(Autonomous) Affiliated to Savitribai Phule Pune University
NAAC accredited 'A' Grade

T.Y.B.B.A (C.A) Advanced Java

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Advanced Java
Course Code	21CBCA363
Semester	VI
No. of Credits	3

Objectives of the Course

Sr. No.	Objectives
1.	To know the concept of Java Programming.
2.	To understand how to use programming in day to day applications.
3.	To develop programming logic.
4.	It aims to train the student to the Advance concepts of the Object oriented programming language.
5.	To understand how to reduce programming effort

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Students will know the concepts of JDBC Programming.
2.	Students will know the concepts of Multithreading and Socket Programming.
3.	Students will develop the Web based Application.
4.	Develop and test Java network, search engine, and web framework programs.
5.	Learn how to write, test, and debug advanced-level Object-Oriented programs using Java.

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	**Collection Framework**	**10**
	1. Introduction of Collection Framework	
	2. Hierarchy of Collection Framework	1
	3. Interfaces:	
	i. Collection	3
	ii. List	
	iii. Set	
	4. Navigation:	
	i. Enumeration,	3
	ii. Iterator	
	iii. List Iterator	
	5. Classes:	
	i. LinkedList	
	ii. ArrayList,	3
	iii. Vector	
	iv. HashSet	
Unit II	**Multithreading**	**07**
	1. Introduction to Thread	1
	2. Life cycle of thread	1
	3. Thread Creation	
	i. By using Thread Class	2
	ii. By Using Runnable interface	
	4. Priorities and Synchronization	2
	5. Inter thread communication	1
Unit III	**JDBC**	**10**
	1. The design of JDBC	1

	2. Basic JDBC program Concept	1
	3. Drivers	1
	4. Architecture of JDBC	1
	5. Making the Connection, Statement , ResultSet , PreparedStatement, CollableStatement	2
	6. Executing SQL commands	2
	7. Executing queries	2
Unit IV	**Networking:**	**05**
	1. Overview of Networking.	1
	2. Networking Basics: i. Port Number, Protocols and classes.	2
	3. Sockets, Reading from and Writing to a Socket.	2
Unit V	**Servlet and JSP**	**14**
	Servlet	
	1. Introduction to Servlet	1
	2. Types of Servlet: Generic Servlet and Http Servlet	1
	3. Life cycle of servlet	1
	4. Session Tracking.	2
	5. Servlet with database.	4
	JSP	
	1. Introduction to JSP.	1
	2. JSP Life Cycle.	1
	3. Components of JSP.	1
	4. JSP with Database.	2
Unit VI	**Spring and Hibernate**	**08**
	Spring	
	1. Introduction	1
	2. Advantages and Disadvantages	
	3. Spring Architecture Framework	1

	4. Spring Beans
	     i. Singleton scope
	    ii. Prototype scope
		1

	5. Life Cycle of a Spring Bean	1
	Hibernate	
	1. Introduction	1
	2. Advantages and Disadvantages	1
	3. Hibernate Architecture	1
	4. Hibernate-Mapping Types	1

Book References:

1. Kathy Sierra & Bert Bates ,"Advanced Java Books in 2021", 2nd Edition.

2. Bryan Basham, Kathy Sierra, Bert Bates,"Head First Servlets and JSP"

3. Ken Arnold , James Gosling, David Holmes,"The Java Programming Language",4th Edition

4. Benjamin Evans, David Flanagan,"Java in a Nutshell", 7th Edition.

5. Joshua Bloch ,"Effective Java",3rd Edition.

Website Reference Link:

- **https://www.javatpoint.com/what-is-advance-java**
- **https://www.learnvern.com/course/advanced-java-tutorial**
- **https://enos.itcollege.ee/~jpoial/allalaadimised/reading/Advanced-java.pdf**

Best IDE used for Advanced Java:

Sr. No	Name of IDE or Tools	Latest Version
1.	Eclipse	4.3.2
2.	Microsoft Visual Studio Code	1.56
3.	Net Beans	12.4
4.	Notepad	-

M. C. E. Society's

Abeda Inamdar Senior College

Of Arts, Science and Commerce, Camp, Pune-1

(Autonomous) Affiliated to Savitribai Phule Pune University

NAAC accredited 'A' Grade

T.Y.B.B.A (C.A) Android Programming

2021-22 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Android Programming
Course Code	21CBCA364A
Semester	VI
No. of Credits	3

Objectives of the Course

Sr. No.	Objectives
1.	To understand the Android Operating System and develop applications using Google's Android open source platform.
2.	To understand the issues relating to Wireless applications.
3.	To study Android Apps Development Cycle

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Describe the process of developing mobile applications.
2.	Create mobile applications on the Android Platform.
3.	Design and implement mobile applications involving data storage in SQLite database
4.	Use location-based services while developing applications

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	**Introduction to Android programming**	**06**
	1. **What is Android?**	1
	2. **History and Versions**	1
	3. **Android Architecture**	1
	4. **Basic Building Blocks**	1
	5. **Android API Levels**	1
	6. **Application Structure**	1
	7. **First Hello World Program**	
Unit II	**Activity, intent and layout**	**08**
	1. **Introduction to Activity**	1
	2. **Activity life cycle**	1
	3. **Introduction to Intent**	1
	4. **Types of Intent(Implicit and Explicit Intent)**	2
	5. **Layout Manager**	
	i. View and View Group	
	ii. Linear Layout	
	iii. Relative Layout	3
	iv. Table Layout	
	v. Grid Layout	
	vi. Constraint Layout	
	vii. Frame Layout	
	viii. Scroll Layout	
Unit III	**Basic UI design**	**08**
	1. **Button(Push Button, Check Box, Radio Button, Toggle Button, Image Button)**	2
	2. **Text Fields**	

	3. **Spinner**	
	4. **List View**	2
	5. **Toast**	
	6. **Scroll View**	2
	7. **Progress Bar View**	
	8. **Auto Complete Text View**	2
	9. **Dialog Box**	
	i. Alert Dialog.	
	ii. Date Picker Dialog.	
	iii. Time Picker Dialog.	
	iv. Custom Dialog.	
Unit IV	**Adapter and Menu**	**08**
	1. **Base Adapter**	1
	2. **Array Adapter**	1
	3. **List View using Adapter**	1
	4. **Grid View using Adapter**	1
	5. **Photo Gallery using Adapter**	1
	i. Context Menu	1
	ii. Popup Menu	1
	6. **Using Menu with Views**	1
	7. **Option Menu**	
Unit V	**Threads and Notification**	**08**
	1. **Worker thread**	1
	2. **Handlers & Runnable**	1
	3. **AsynTask (in detail)**	
	4. **Broadcast Receiver**	1
	5. **Services**	1
	i. Service life Cycle	1
	ii. Bounded Service	

	iii. Unbounded Service	1
	6. Notification **7. Alarm**	1 1
	8. Accessing Phone services(Call,SMS)	1
Unit VI	**Content Provider**	**08**
	1. Content Providers	1
	2. SQLite Programming	1
	3. SQLite Open Helper	1
	4. SQLite Database	1
	5. Cursor	1
	6. Searching for content	1
	7. Adding, changing, and removing content	1
	8. Building and executing queries	1
	9. Android JSON	
Unit VII	**Location based services and Google map**	**08**

	1. Display Google Maps
	
	   i. Creating the project
	
	   ii. Obtaining the Maps API Key
	
	   iii. Displaying the Map
	
	   iv. Displaying the Zoom Control
	
	   v. Changing Views
	
	   vi. Navigating to a specific location
	
	   vii. Adding Markers
	
	   viii. Getting the location that was touched
	
	   ix. Geocoding and Reverse Geocoding
		4

	2. Getting Location Data	2
	3. Monitoring a Location	2

Book References:
1. ,By Wei-Meng Lee WILEY India "Beginning Android4 Application Development",Edition WROX Publication.
2. By Reto Meier ,"Professional Android 4 Application Development,"WROX Publication.

Website Reference Link:

- https://developer.androidndb.com

- https://developer.androidndb2.com

- https://developer.androidndb1.com

Best IDE used for Android :

Sr. No	Name of IDE or Tools	Latest Version
1.	Eclipse	4.23.0
2.	Android Studio	4.1

T.Y.B.B.A (C.A) Dot Net Framework

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Dot Net Framework
Course Code	21CBCA364B
Semester	VI
No. of Credits	3

Objectives of the Course

Sr. No.	Objectives
1.	To learn Microsoft framework architecture
2.	Understand development of windows application
3.	To learn data access mechanism.
4.	Create and consume libraries
5.	To develop the website and application.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Use the features of Dot Net Framework along with the features of C# and ASP
2.	Design and develop window based and web based .NET applications.
3.	Design and develop a Website
4.	Design and Implement database connectivity using ADO.NET for C# and ASP.

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	**Introduction to DOT NET FRAMEWORK**	**10**
	1. **What is Framework?**	1
	2. **Architecture of Dot Net Framework**	2
	3. **Common Language Runtime**	1
	4. **Common Type System(CTS)**	1
	5. **Common Language Specification(CLS)**	1
	6. **JIT Compilers**	1
	7. **Base Class Library**	1
	8. **IDE (Integrated Development Environment)**	1
	9. **Event Driven Programming**	1
Unit II	**Introduction to C#**	**10**
	1. **Language Fundamentals**	4
	i. Data type and Control Constructs	
	ii. Value and Reference Types, Boxing	
	iii. Arrays	
	iv. String class and its various operations	
	v. Functions	
	2. **Object Oriented Concepts**	6
	i. Defining classes and Objects	
	ii. Access modifiers	
	iii. Constructors	
	iv. Inheritance	
	v. Interface	
	vi. Abstract Class	
	vii. Method Overloading and Overriding	
Unit III	**C# Windows Application**	**14**

	1. **Build Windows Applications**	8
	i. **Controls**: Form, TextBox, Button, Label, CheckBox, ListBox, ComboBox, RadioButton, DateTimePicker, MonthCalender, Timer, Progressbar, Scrollbar, PictureBox, ImageBox, ImageList, TreeView, ListView, Toolbar, StatusBar, Datagridview	
	ii. **Menus and PopUp Menu**	3
	iii. **Predefined Dialog controls**	3
	a. Color	
	b. Save	
	c. File	
	d. Open	
	e. Font	
	iv. **DialogBox**	
	a.InputBox()	
	b.MessageBox	
	c.MsgBox()	
Unit IV	**Introduction to ASP.NET**	**10**
	1. **What isASP.NET?**	
	2. **ASP.NET Page Life Cycle**	1
	3. **Architecture ofASP.NET**	1
	4. **Forms, WebPages, HTML forms**	1
	5. **Request & Response in Non-ASP.NET pages**	
	6. **Overview of Control structures and functions**	1
	7. **HTML events**	2
	i. **ASP.NET Web control events**	
	ii. **Event driven programming and postback**	
	8. **Introduction to Web forms**	4
	i. Web Controls	
	ii. Server Controls	
	iii. Client Controls	
	iv. Navigation Controls	

	v. Validations	
	vi. Master Page	
	vii. State Management Techniques	
Unit V	**Architecture of Ado.Net**	**10**
	1. **Basics of Ado.net**	1
	2. **Connection in Ado. Net**	1
	3. **Command in Ado. Net**	
	4. **Dataset**	1
	5. **Data Table**	1
	6. **Data Reader Object**	1
	7. **Data Adapter Object**	1
	8. **Datagridview & Data Binding: Insert, Update, Delete records**	3
	9. **Navigation Using Data Source**	1

Book References:
1. Marino Posadas ,"Mastering C# and .NET Framework", Packt Publishing Limited

2. ANDREW TROELSEN, Philip Japikse, Apress ,"C# 6.0 and the .NET 4.6 Framework ",edition 7th Edition

3. Jesse Liberty, Dan Hurwitz, "Programming ASP.NET 3e" O′Reilly Publisher

Website Reference Link:

- https://www.w3schools.com/cs/index.php

- https://www.javatpoint.com/c-sharp-tutorial

- https://www.c-sharpcorner.com/article/windows-form-application-c-sharp/

- https://www.tutorialspoint.com/asp.net/index.htm

Best IDE used for Dot Net Framework:

Sr. No	Name of IDE or Tools	Latest Version
1.	Microsoft Visual Studio	2022
2.	Microsoft Visual Studio	2010

M. C. E. Society's
Abeda Inamdar Senior College
Of Arts, Science and Commerce, Camp, Pune-1
(Autonomous) Affiliated to Savitribai Phule Pune University
NAAC accredited 'A' Grade

T.Y.B.B.A (CA) 21CBCA365 Project Laboratory
2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Project Laboratory
Course Code	21CBCA365
Semester	VI
No. of Credits	04

Aims & Objectives of the Course

Sr. No.	Objectives
1.	To understand concepts of Project Management
2.	To help the student develop the ability to apply theoretical and practical tools / techniques to solve real life problems related to industry, academic institutions and research laboratories.
3.	To know how various tools for development and management of software projects are used to carry out various tasks involved, to explore latest technologies.
4.	To learn the importance of project documentation and project report.

Expected Course Specific Learning Outcome

Sr. No.	Learning Outcome
	After Completion of this course students will able to-
1.	Demonstrate a sound technical knowledge of selected project topic.
2.	Develop quality software solutions by applying theoretical and practical knowledge of various courses learnt
3.	It helps them to learn various documents used during the development of the project and a project report.

Sr. No.	Guidelines
1	Only one project topic will be finalized.
2	The project work should normally include software development.
3	Students are expected to work on the chosen project during the entire semester.
4	The students are expected to work on real-life project. However, it is not mandatory for a student to work on a real-life project.
5	Not more than two students are permitted to work on a project.
6	Students shall choose any appropriate programming language/ platform, computational techniques and tools in consultation with the guide, In-charge and the Head of the Department
7	The project may be done in the college campus/concern study institute or in an approved sponsoring organization (industry/ research and development laboratories / educational institution / Software Company related to the proposed topic.
8	The student can formulate a project problem with the help of her/his guide and if approved, the students commence working on it.
9	The guide shall track and monitor the project progress on a weekly basis by considering the Workload of 4 laboratory hours per week.
10	A candidate is required to present the progress of the project work during the semester as per the schedule.
11	The Project Work will be assessed jointly by a panel of examiners consisting faculty and industry experts. The Project Groups will deliver the presentation and demonstration of the Project Work which will be assessed by the panel.
12	The Student Project Group needs to actively participate in the presentation. The panel of examiners will evaluate the candidate's performance based on presentation skills, questions based on the Project Work and overall development effort taken by the candidates

13	**Students shall prepare a project report with the following contents:**
	1. Title of the project
	2. Name of the Guide (external guide (company) from / internal guide (teacher of the BBA(CA))
	3. Introduction and objectives of the project
	4. Analysis **(DFD, ER diagrams and UML** etc. As per the project requirements).
	5. A complete structure which includes:
	    ➢ Name of modules and their description
	    ➢ Database / data structures description
	    ➢ Process logic of each module (flow chart)
	    ➢ Reports generation. (Report format)
	6. Tools / platform, hardware and software requirement specifications
	7. Organization/ company details with profile of guide (if project is carried out outside the department)
	Project report formulation
	    • Good quality white executive bond paper A4 size should be used for typing and duplication.
	    • Care should be taken to avoid smudging while duplicating the copies.
	    • Page specification: leftmargin-3.0cms, right margin- 2.0 cm, top margin 2.54 cm, bottom margin 2.54 cm, line spacing – single, font size – 12 for normal text, 14 for headings, 16 for chapter heading, page numbers - all text pages as well as

	program source code listing should be numbered at the bottom of the pages. Employ MS-Word or open source software.
14	**The project report should contain the following:** 1. Front page 2. Certificate from the Guide with her/his signature and date. 3. Certificate from company/industry in their letter head (if project is carried out outside the department)
15	**The project report documentation should include the following topics (as per the project requirements).** 1. Acknowledgement 2. Table of contents / index with page numbering 3. Introduction / objectives of the project 4. Existing System and Proposed System 5. System analysis 6. Feasibility study 7. Software and hardware requirement specifications 8. System design 9. Coding 10. Reports, tables' figures should be properly numbered/labelled 11. Screen shots of projects 12. Conclusion 13. Future scope and further enhancement of the project 14. Bibliography/ references
16	The Project report should be prepared in a spiral bound form with adequate number of copies. Copy shall be submitted to the guide and college for the records.
17	The Project work and report shall be certified by the concerned Project guide and Head of the department.
18	Students shall make a presentation of working project and will be evaluated as per the Project evaluation scheme as detailed below **I Continuous Evaluation, Progress Report: 40 marks** • **Synopsis :10** • **First Demo , Diagrams & Designing of Forms :10** • **Second Demo Establishing Database Connectivity: 10** • **Final Demo on Project execution and documentation :10** **II. End Semester Examination : 60 marks** • **Project Demo with Explanation:40** • **Documentation:10** • **Viva:10**

T.Y.B.B.A (C.A) Computer Laboratory Based on 363 (2 credits)

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Computer Laboratory Based on 363 (2 credits)
Course Code	21CBCA366
Semester	VI
No. of Credits	2

Objectives of the Course

Sr. No.	Objectives
1.	To study various collection Framework Interface, Navigation classes
2.	To learn briefly the concept of Multithreading and Networking
3.	To understand Servlet and JSP concept.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Explain use of appropriate Interface, classes and navigation
2.	Write programs using Multithreading and socket programming
3.	Students are able to make database connectivity using JDBC
4.	Develop web based application using Servlet and JSP

Best IDE used for Advanced Java:

Sr. No	Name of IDE or Tools	Latest Version
1.	Eclipse	4.3.2
2.	Microsoft Visual Studio Code	1.56
3.	Net Beans	12.4
4.	Notepad	-

Assignment No	Assignment Name	No. of Sessions
1	Assignment based on Collection Framework Interfaces, navigation and classes	2
2	Assignment based on Multithreading	3
3	Assignment based on JDBC	3
4	Assignment based on Server and Client Socket	2
5	Assignment based on Servlet and JSP	2
	Total Number of Sessions	12

M. C. E. Society's
Abeda Inamdar Senior College
Of Arts, Science and Commerce, Camp, Pune-1
(Autonomous) Affiliated to Savitribai Phule Pune University
NAAC accredited 'A' Grade

T.Y.B.B.A (C.A) Computer Laboratory Based on 364A (2 credits)

2021-22 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Computer Laboratory Based on 363A(2 credits)
Course Code	21CBCA366
Semester	VI
No. of Credits	2

Objectives of the Course

Sr. No.	Objectives
1.	To understand the Android Operating System
2.	To study Android Apps Development Cycle
3.	To learn to create Android Applications.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Describe the process of developing mobile applications.
2.	Create mobile applications on the Android Platform.
3.	Design and implement mobile applications involving data storage in SQLite database
4.	Use location-based services while developing applications

Best IDE used for Android:

Sr. No	Name of IDE or Tools	Latest Version
1.	Eclipse	4.23.0
2.	Android Studio	4.1

Assignment No	Assignment Name	No. of Sessions
1	Introduction to Android	1
2	Activities, Fragments and Intents	3
3	Android User Interface	2
4	Designing User Interface with Views	2
5	Messaging and E-mail	2
6	Location-Based Services and Google Map	2
	Total Number of Sessions	12

T.Y.B.B.A (C.A) Computer Laboratory Based on 364B (2 credits)

2023-24 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Computer Laboratory Based on 364B (2 credits)
Course Code	21CBCA366
Semester	VI
No. of Credits	2

Objectives of the Course

Sr. No.	Objectives
1.	The course is designed to provide Basic knowledge of Dot Net.
2.	To introduce various concepts of programming to the students Using C#, ASP.NET, ADO.NET.

Expected Course Specific Learning Outcomes

Sr. No.	Learning Outcome
1.	Solve the real-life problems using object-oriented concepts
2.	Problem solving and programming capability.
3.	Students Can Write Test and Debug C# and ASP.NET Programs.

Best IDE used for Dot Net Framework:

Sr. No	Name of IDE or Tools	Latest Version
1.	Microsoft Visual Studio	2022
2.	Microsoft Visual Studio	2010

Assignment No	Assignment Name	No. of Sessions
1	Assignment based on Dot Net Framework	2
2	Assignment based on Introduction to C#	2
3	Assignment based on C# Windows Application	3
4	Assignment based on ASP.Net	3
5	Assignment based on ADO.NET	2
	Total Number of Sessions	12

M. C. E. Society's

AbedaInamdar Senior College

Of Arts, Science and Commerce, Camp, Pune-1

(Autonomous) Affiliated to SavitribaiPhule Pune University

NAAC accredited 'A' Grade

T.Y.B.B.A (C.A) Soft Skills Training

2021-22 (CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Soft Skills Training
Course Code	21CBCA367M
Semester	VI
No. of Credits	2

Objectives of the Course

Sr.No.	Objectives
1.	The course helps participants to communicate effectively and to carry themselves confidently.
2.	To improve oral and written communication, teamwork, leadership, problem-solving and decision-making skills, to gain best results.
3.	This course is useful for landing a great job, building a career and also finding employment as soft skills trainers.

Expected Course Specific Learning Outcomes

Sr.No.	Learning Outcome
1.	Understand the significance and essence of a wide range of soft skills
2.	Learn how to employ soft skills to improve interpersonal relationships.
3.	Learn how to apply soft skills in a wide range of routine social and professional settings.
4.	Learn how to employ soft skills to enhance employability and ensure workplace and career success.
5.	They also learn how to identify and overcome the barriers in interpersonal relationships.

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	**Introduction to Soft Skills**	**06**
	1. **Definition and Significance of Soft Skills**	2
	2. **Soft skill Process**	2
	3. **Uses of Soft Skill Development.**	2
Unit II	**Communication Skills**	**08**
	1. **Introduction**	1
	2. **Verbal Communication**	1
	3. **Non – Verbal Communication**	1
	i. Facial Expression	
	ii. Posture	
	iii. Gesture	
	iv. Eye contact	
	v. Appearance (Dress Code),	
	4. **Body Language**	1
	5. **Listening skills**	1
	6. **Practice of above points by creating role plays among students**	3
Unit III	**Skills Development**	**10**
	1. **Interview Skills**	1
	i. Interviewer and Interviewee	
	ii. In-depth perspectives.	
	iii. Before, During and After the Interview.	
	iv. Tips for Success.	
	2. **Presentation Skills –**	2
	i. Types	
	ii. Content	
	iii. Audience Analysis,	
	iv. Essential Tips Before, During and After Presentation,	

	v. Overcoming Nervousness.	
	3. Etiquette and Manners	1
	i. Social and Business	
	4. Time Management	1
	i. Concept,	
	ii. Essentials Tips	
	5. Personality Development	2
	i. Meaning, Nature, Features	
	6. Practice of above points by creating role plays among students	3
Unit IV	**Skill Implementation**	**12**
	1. Resume writing –	3
	i. How to write your resume.	
	ii. Contact details.	
	iii. Opening statement.	
	iv. List of key skills.	
	v. List of technical/software skills.	
	vi. Personal attributes/career overview.	
	vii. Educational qualifications.	
	viii. Employment history /volunteering/work placements.	
	2. Group Discussion	2
	i. Importance,	
	ii. Planning,	
	iii. Elements, and Skills assessed,	
	iv. Effectively disagreeing,	
	v. Initiating,	
	vi. Summarizing and Attaining the Objective.	
	3.Teamwork and Leadership Skills	3
	i. Concept of Teams,	
	ii. Building effective teams,	
	iii. Concept of Leadership	
	iv. Honing Leadership skills,	
	v. A Good Leader,	

	vi. Leaders and Managers,	
	vii. Types of Leaders,	
	viii. Leadership Behavior	
	4.4 Practice of above points by creating role plays among students	4

Reference Books:

1. Managing Soft Skills for Personality Development – edited by B.N.Ghosh, McGraw Hill India, 2012.

2. English and Soft Skills – S.P.Dhanavel, Orient Blackswan India, 2010.

3. Soft skills Training – A workbook to develop skills for employment by Fredrick H. Wentz.

4. Personality Development and Soft skills, Oxford University Press by Barun K. Mitra

5. The Time Trap : the Classic book on Time Management by R. Alec Mackenzie

Website Reference Link:

- https://www.business.com/articles/12-business-skills-you-need-to-master/
- https://in.indeed.com/career-advice/career-development/business-skills
- https://www.edx.org/learn/business-skills
- https://virtualspeech.com/blog/business-skills-for-success-in-the-workplace