Sheth NKTT College of Commerce and Sheth JTT College of Arts, Thane

(Autonomous)

(Affiliated to University of Mumbai)

Credit Structure as per NEP-2020 (w.e.f. 2024-25)

F. Y. B.Sc. (Computer Application)

	Semester I Subjects	Credits		Semester II Subjects	Credits
Major **BCF101** **BCC102**	1. Fundamentals of Computer 2. Programming with C	2 2	**BCO201** **BCD202**	1. Object Oriented Programming with C++ 2. Database Management System	2 2
BCFCP103	Fundamentals of computer and Programming with C Practical	2	**BCODP203**	Object Oriented Programming with C++ and Database Management System Practical	2
Minor		-	**BCB204**	Business Statistics	2
BCA104	OE1: Fundamentals of Accounting	4	**BCF205**	OE1: Financial Market	4
BCW105 **BCWP10 6**	VSC: Web Design SEC: Web Design Practical	2 2	**BCF206** **BCFP207**	1. VSC: Digital Computer Fundamental 2. SEC: Digital Computer Fundamental Practical	2 2
BCC107 **BCD108** **BCE109**	AEC: Corporate communication -I VEC: Green Technology - I IKS: Evolution of Information Technology	2 2 2	**BCC208** **BCG209**	1. AEC: Corporate communication-II 2. VEC: Green Technology-II	2 2
BCS1010 **BCL1010** **BCP1010**	CC: NSS/ Sports/ Cultural/ Yoga	2	**BCS2010** **BCL2010** **BCP2010**	1. CC: NSS/ Sports/ Cultural/ Yoga	2
	Total	**22**			**22**

SEMISTER II

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Programme Name: **F.Y. B.Sc (Computer Application)**	**Semester: II**
Course Category/Vertical: Major	
Name of the Dept: **Science and Technology**	
Course Title: **Object Oriented Programming with C++**	
Course Code: **BCO201**	Course Level:4.5
Type: **Theory**	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	

Course Objectives:

1. Be able to explain the difference between Object Oriented programming and procedural programming and program using more advanced C++ features such as composition of classes and objects.
2. Be able to understand Concept of Polymorphism and virtual functions and Exception Handling.

Course Outcomes:

CO1. Understand the concept of OOPs, feature of C++ language, apply various types of Datatypes, Operators, Conversions while designing the program and also understand and apply the concepts of Classes & Objects, friend function, constructors, destructors in program design, various forms of inheritance.

CO2. Apply & Analyze runtime polymorphism, Virtual function and Exception Handling

Description the course:	The Object-Oriented Programming (OOP) syllabus introduces fundamental concepts such as classes, objects, methods, and attributes. Students learn key principles, including encapsulation, inheritance, polymorphism, and abstraction, which are essential for designing modular and reusable code.

Syllabus: NEP 2020 w.e.f 2024-25

Unit No.	Content	Hours
I	**Object Oriented Methodology**: Introduction, Advantages and Disadvantages of Procedure Oriented Languages, Application of OOPS, Principles of OOPS: Objects, Classes, Data Abstraction and Data Encapsulation, Inheritance, Polymorphism, Dynamic Binding, Message Passing. **Classes and Objects**: Simple classes (Class specification, class members accessing), Defining member functions, passing object as an argument, Returning object from functions, friend classes, friend function. **Constructors and Destructors**: Introduction, Default Constructor, Parameterized Constructor and examples, Destructors. Program development using Inheritance: Introduction, Advantages provided by inheritance, choosing the access specifier, Derived class declaration, derived class constructors, class hierarchies, multiple inheritance, multilevel inheritance, hybrid inheritance.	15
II	**Polymorphism**: Concept of function overloading, overloaded operators, overloading unary and binary operators. **Virtual Functions**: Introduction and need, Pure Virtual Functions, this Pointer, abstract classes, virtual destructors. Exception Handling: Introduction, Exception Handling Mechanism, Concept of throw & catch with example.	15
	Total Hours	**30**

References:

1. Object Oriented Programming in C++, E Balagurusamy
2. Object-Oriented Programming in C++, Robert Lafore
3. Programming with ANSI C++, Bhushan Trivedi

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Programme Name: **F.Y. B.Sc (Computer Application)**	**Semester: II**
Course Category: Major	
Name of the Dept: **Science and Technology**	
Course Title: **Database Management System**	
Course Code: **BCD202**	Course Level:4.5
Type: **Theory**	
Course Credit: 2 Credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives: 1. The objective of the course is to present an introduction to fundamentals of database management systems. 2. To learn how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS	
Course Outcomes: CO1 – Understand Database as s Relational model for Organizing, structuring, storing of data and SQL to retrieve data. CO2 - To understand creation, manipulation and querying of data in databases.	
Description the course:	"Database Management System" introduces learners to the fundamental principles and practices of organizing, storing, and accessing data efficiently. This course provides a comprehensive overview of database concepts, including relational database design, SQL querying, normalization, and indexing. Participants will gain practical skills in designing, implementing, and managing databases to meet the information needs of businesses and organizations

Syllabus: NEP 2020 w.e.f 2024-25

Unit No.	Content	Hours
I	**Introduction:** Why Databases? Data versus Information, Introducing the Database, Role and Advantages of the DBMS, Types of Databases **Entity Relationship Model:** Conceptual modelling and database design: Data modelling using the Entity Relationship model (ER). The enhanced entity relationship model. Relational database design by ER and EER model. Practical database design methodology and use of UML diagrams. **Normalization of Database Tables:** Database Tables and Normalization, The Need for Normalization, The Normalization Process, Improving the Design, Surrogate Key Considerations, HigherLevel Normal Forms, Normalization and Database Design, Denormalization, Data-Modeling Checklist	15
II	**Structured Query Language (SQL):** Introduction to SQL, Basic SELECT Queries, SELECT Statement Options, FROM Clause Options, ORDER BY Clause Options, WHERE Clause Options, Aggregate Processing, Subqueries, SQL Functions, Relational Set Operators, Crafting SELECT Queries **Advanced SQL**: Data Definition Commands, Creating Table Structures, Altering Table Structures, Data Manipulation Commands, Virtual Tables: Creating a View, Sequences, Function and Procedural SQL. **Transaction Management and Concurrency Control**: What Is a Transaction? Concurrency Control with Locking Methods, Concurrency Control with Time Stamping Methods, Concurrency Control with Optimistic	15
	Total Hours	**30**

References:

1. Fundamentals of Database systems. Ramez Elmasri, Shamkant B Navathe Pearson. 6th Edition.
2. Database Management Systems, Ramakrishnam, Gehrke, McGraw- Hill, 2007
3. The Programming Language of Oracle, 4th Revises Edition, Ivan Bayross
4. Oracle PL/SQL Programming, Steven Feuerstein with Bill Pribyl

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Programme Name: **B.Sc (Computer Application)**	**Semester: II**
Course Category/Vertical: Major	
Name of the Dept: **Science and Technology**	
Course Title: **Object Oriented Programming with C++ and Database Management System Practical**	
Course Code: **BCODP203**	Course Level:4.5
Type: **Practical**	
Course Credit: 2 credits	
Hours Allotted: 60 Hours	
Marks Allotted: 50 Marks	

Course Objectives:

1. Be able to explain the difference between object-oriented programming and procedural programming and program using more advanced C++ features such as composition of objects, operator overloads, inheritance and polymorphism, file I/O, exception handling.
2. Concept of classes and objects, constructors and destructors, Polymorphism and virtual functions.

Course Outcomes:

CO1. Understand the concept of OOPs, feature of C++ language, apply various types of Datatypes, Operators, Conversions while designing the program.

CO2. Understand and apply the concepts of Classes & Objects, friend function, constructors & destructors in program design, various forms of inheritance

CO3**:** Design and create relational database structures using appropriate data types, constraints, and relationships. Apply SQL commands to perform data definition, manipulation, and control operations effectively. Implement queries using operators, functions, and clauses to retrieve and analyze data from databases.

CO4**:** Develop complex queries using joins, subqueries, and views for solving real-world data management problems. Demonstrate database normalization techniques to ensure data consistency and reduce redundancy.

Syllabus: NEP 2020 w.e.f 2024-25

Sr. No.	Content	Hours
I	**Object Oriented Programming with C++**	**30**
	Practical No. 1	
a	Write a C++ program to create a simple calculator.	
b	Write a C++ program to convert seconds into hours, minutes and seconds.	
c	Write a C++ program to find the volume of a square, cone, and rectangle.	
	Practical No. 2	
a	Write a C++ program to find the greatest of three numbers.	
b	Write a C++ program to find the sum of even and odd n natural numbers	
c	Write a C++ program to generate all the prime numbers between 1 and n, where n is a value supplied by the user	
	Practical No. 3	
a	Write a C++ program using classes and object Student to print name of the student, roll_no. Display the same.	
b	Write a C++ program for Structure bank employee to print name of the employee, account_no. & balance. Display the same also display the balance after withdraw and deposit	
c	Design the class Demo which will contain the following methods: readNo(), factorial() for calculating the factorial of a number, reverseNo() will reverse the given number, isPalindrome() will check the given number is palindrome, isArmstrong() which will calculate the given number is armStrong or not. WhereareadNo() will be private method.	
d	Write a program to demonstrate function definition outside class and accessing class members in function definition.	
	Practical No. 4	
a	Write a friend function for adding the two complex numbers, using a single class	
b	Write a friend function for adding the two different distances and display its sum, using two classes.	
c	Write a friend function for adding the two matrix from two different classes and display its sum	
d	Write a Program to find Maximum out of Two Numbers using friend function.	
	Practical No. 5	
a	Design a class Complex for adding the two complex numbers and also show the use of constructor.	
b	Design a class Geometry containing the methods area() and volume() and also overload the area()function	
c	Design a class Static Demo to show the implementation of static variable and static function	
d	Write a C++ program to overload new/delete operators in a class.	
e	Write a C++ Program to generate Fibonacci Series by using Constructor to initialize the Data Members.	
	Practical No. 6	
a	Overload the operator unary(-) for demonstrating operator overloading	

b	Overload the operator + for adding the timings of two clocks, and also pass objects as an argument.	
c	Overload the + for concatenating the two strings. For e.g "Py"	
	Practical No. 7	
a	Implement the concept of method overriding.	
b	Show the use of virtual function	
c	Show the implementation of abstract class.	
	Practical No. 8	
a	Write a C++ Program that illustrate single inheritance.	
b	Write a C++ Program that illustrate multiple inheritance.	
c	Write a C++ Program that illustrate multi-level inheritance.	
d	Write a C++ Program that illustrate Hierarchical inheritance.	
	Practical No. 9	
a	Show the implementation of exception handling	
b	Show the implementation for exception handling for strings	
c	Show the implementation of exception handling for using the pointers.	
	Practical No. 10	
a	Design a class File Demo open a file in read mode and display the total number of words and lines in the file.	
b	Design a class to handle multiple files and file operations	
c	Design a editor for appending and editing the files	
d	Design a class File Demo open a file in read mode and display the total number of words and lines in the file.	

II - 1.	**List of Practical: (Can be done in Oracle / SQL Server / MySQL)**	30
a	Draw E-R diagram and convert entities and relationships to relation table for a given scenario : Bank	
b	College	
2	**Write relational algebra queries for a given set of relations**	
3	**Defining data**	
a	Using CREATE statement	
b	Using ALTER statement	
c	Using DROP statement	
d	Using TRUNCATE statement	
e	Using RENAME statement	
4	**Manipulating data**	
a	Using INSERT statement	
b	Using UPDATE statement	
c	Using DELETE statement	
d	Using SELECT statement	
5	**Creating and managing the tables**	

a	Creating table with contraints: NOTNULL, UNIQUE, PRIMARY KEY ,FOREIGN KEY	
6	**Restricting and sorting data**	
a	Using DISTINCT,IN, AS, SORT,LIKE,ISNULL, OR	
b	Using Group By, Having clause, Order By clause	
7	**Aggregate and Mathematical functions**	
a	AVG,MIN,MAX,SUM,COUNT	
b	ABS,SQRT,ROUND,TRUNCATE,SIGN,POWER,MOD,FLOOR,CEIL	
8	**Views and Joins: For a given set of relation tables perform the Following**	
a	Creating view	
b	Dropping view	
c	Selecting from a view	
9	**Database trigger**	
a	Using CREATE OR REPLACE TRIGGER	
10	**Functions and Procedures.**	
	Total Hours	**60**

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Programme Name: **F.Y. B.Sc (Computer Application)**	**Semester: II**
Course Category/Vertical: Minor	
Name of the Dept: **Science and Technology**	
Course Title: **Business Statistics**	
Course Code: **BCB204**	Course Level:4.5
Course Type: **Theory**	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives: 1. This course will enable the students to combine practical & theoretical knowledge of Statistic & Mathematics 2. It will provide fundamental basic knowledge of statistical techniques as applicable to business.	
Course Outcomes: CO1. Organize data using frequency distributions, graphically using histograms,frequency polygons. Calculate central tendencies like mean, median and mode and recognize the applicability of these in business. CO2. Apply various measures of dispersion. Understand covariance, correlation and regression.	
Description the course:	It provides basic knowledge of statistical techniques as applicable to business management. Course provides statistical literacy, Essentials for conducting research effectively, proficiency in course can enhance career prospects in numerous fields. Provides a foundation for lifelong learning in fields where data analysis and statistical reasoning are continuously evolving.

Syllabus: NEP 2020 w.e.f 2024-25

Unit No.	Content	Hours
I	**INTRODUCTION, ORGANISING, DATA, FREQUENCY DISTRIBUTION, DATA REPRESENTATION** Organizing Data, Frequency Distribution, Measure of Central tendency, Org Data, preparation of frequency distribution graphical and diagrammatic representation histogram, frequency polygon. **MEASURES OF CENTRAL TENDENCIES** Definition of Averages and objective of Averages Types of Averages. Arithmetic mean, Geometric Mean, Harmonic Mean and its advantages, Disadvantages and usages, mode, median, quartiles, deciles and percentiles for both grouped as well as ungrouped data.	15
II	**MEASURES OF DISPERSION** Concept and idea of dispersion. Various measures Range, quartile deviation, Mean Deviation, Standard Deviation and corresponding relative measure of dispersion. Geographical representation and utility of various is measure of Dispersions. **CO-VARIANCE, CORRELATION AND REGRESSION** Meaning, definition and Application of covariance, concept of correlation. Rank correlation, regression concept, relationship with correlation, Method od Least squares.	15
	Total Hours	**30**

References:

- Fundamentals of Statistics - D. N.Elhance,
- Statistical Methods - S.G. Gupta (S. Chand &Co.
- Statistics for Management - Lovin R. Rubin D.S, (PrenticeHall ofIndia)
- Statistics - Theory, Method & Applications D.S.Sancheti & V. K.Kapoor.
- Modern Business Statistics - (Revised)-B. Pearles & C.Sullivan -Prentice Hall ofIndia.
- Business Mathematics & Statistics : B Aggarwal, AneBook Pvt.Limited
- Business Mathematics : D C Sancheti & V K Kapoor, Sultan Chand &Sons
- Business Mathematics: A P Verma, Asian Books Pvt.:Limited.
- lRDA: IC.33
  Fundamentals of Applied Statistics: S G Gupta and V KKapoor, Sultan Chand &Co

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Programme Name: **B. Sc. (Computer Application)**	**Semester: II**
Course Category/Vertical: Open Elective	
Name of the Dept: **Science and Technology**	
Course Title: **Financial Market**	
Course Code: **BCF205**	Course Level: **4.5**
Type: **Theory**	
Course Credit: 4 credits	
Hours Allotted: 60 Hours	
Marks Allotted: 100 Marks	

Course Objectives:

1. To provide students with the complete understanding of Indian financial Markets and its evolution.
2. To give an overview of Financial markets, its classification and importance
3. To give basic understanding of Foreign Exchange, Money and Debt Market in India CO
4. To describe the role of regulators in Financial Markets.

Course Outcomes:

CO1. After the successful completion of the course the student will have Knowledge about Indian financial markets as well as a brief understanding of financial systems in other nations.

CO2. Students will be aware about financial markets and its types.

CO3. Students will be Develop critical thinking skills to assess market information and trends, allowing for a better understanding of market movements and their implications.

CO4. Students will Understand the regulatory framework governing Indian Financial System And Financial Markets

Description the course:	Basic Knowledge of Indian Financial Market, Types and Understanding of Financial System

Syllabus: NEP 2020 w.e.f 2024-25

Unit No.	Content	Hours
I	**Module-1: Indian Financial System And Financial Markets** An introduction to the financial system, Components of Financial System Financial Markets, Definition, Functions Classification: Primary Market & Secondary Market Financial Markets Structure, Financial instruments	15
II	**Module-2: Commodity And Derivative Market** Introduction to Commodities Market - Meaning History & Origin, Types of Commodities Traded, Structure of Commodities Market in India, Participants in Commodities Market, Introduction to Derivatives Market – Meaning, Elements of a Derivative Contract, Types of Derivatives, Types of Underlying Assets Participants in Derivatives Market, Difference Between Forwards & Futures	15
III	**Module-3: Foreign Exchange, Money and Debt Market** Foreign Exchange Market – Meaning-features-importance participants-Instruments, Money market purpose and structure, Money market instruments, Debt market instrument characteristics, Bond market, Bond Valuation	15
IV	**Module-4: Financial Regulators** Meaning and features of financial regulators and Intermediaries, Role and functions of financial regulators and intermediaries, Kinds of financial regulators, markets regulated by each regulator Reserve Bank of India (RBI) Securities and Exchange Board of India (SEBI) Insurance Regulatory and Development Authority of India (IRDAI) Pension Fund Regulatory and Development Authority (PFRDA)	15
	Total Hours	**60**

References:

- Financial Services and Markets By Dr.S. Gurusamy- Thomson Publication
- Banking & Financial Markets in India By Niti Bhasin - New NC Century
- Indian Financial System By Dr.S.C.Bihari - International Book House Pvt Ltd
- Financial Institutions And Markets By Bhole and Mahakud – Mc Graw Hill
- Indian Financial System- Evolution and Present Structure- Niti Bhasin-2014-New Century Publications
- Financial Institutions and Markets-Structure, Growth and Innovations-L M Bhole and Jitendra Mahakud-2017- Tata MacGrawHill Education Pvt Ltd

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Programme Name: **F.Y. B.Sc (Computer Application)**	**Semester: II**
Course Category/Vertical: Vocational Skill Course	
Name of the Dept: **Science and Technology**	
Course Title: **Digital Computer Fundamental**	
Course Code: **BCF206**	Course Level:4.5
Type: Theory	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives: 1: To introduce the basics of logic in digital electronics & interpret, analyze the conversions of number systems & Boolean expressions and design simple logic circuits using tools such as Boolean Algebra and Karnaugh Mapping. 2: To understand the state of a memory cell and its types using flip-flops & create simple digital systems using counters, registers & implement its application	
Course Outcomes: CO1: Apply number conversion techniques in real digital systems & Solve Boolean algebra expressions & derive and design logic circuits by applying minimization in SOP and POS forms CO2: Design and develop Combinational and Sequential circuits & understand and develop digital applications	
Description the course:	Digital electronics finds applications in numerous fields such as telecommunication, Industrial automation & Embedded system. Digital electronics expertise is pervasive across various sectors, driven by technological advancements, innovation, and the increasing integration of digital technologies into everyday life and industrial processes.

Syllabus: NEP 2020 w.e.f 2024-25

Unit No.	Content	Hours
I	**Digital Systems and Binary numbers** Introduction to Number systems, Positional Number systems, Conversions (converting between bases), non-positional number systems, Binary Codes, number representation and storage in computer system. **Logic gates and Logic Circuits** Basic and Universal Gates **Boolean algebra and Gate level minimization** Introduction, Postulates of Boolean Algebra, Two Valued Boolean Algebra, Principle of Duality, Basic Theorems of Boolean Algebra, Boolean Functions and their Representation, Gate-Level Minimization	15
II	**Combinational logic** Introduction, Analysis and Design Procedure for Combinational Logic Circuits, Types of Combinational Circuit. **Sequential circuits** Introduction, Latch, Flip-Flops, Registers, Counters, Review Questions **Applications** Bit Arithmetic and Logic unit, Carry look ahead generator, Binary Multiplication and Division algorithm, Booth's multiplication algorithm	15
	Total Hours	**30**

References:

Sr.No	Title	Author	Publisher	Edition	Year
1.	Fundamentals of Digital Electronics and Logic Design	Subir Kumar Sarkar, Asish Kumar De, Souvil Sarkar	Pan Stanford Publishing	1st	2014
2.	Digital Electronics Principles, Design and Applications	Anil K Maini	Wiley	1st	2007
3.	Fundamental of Information Technology	Srivastava Cheton	Kalyani Publisher	2nd	2009

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Programme Name: **F.Y. B.Sc (Computer Application)**	**Semester: II**
Course Category/Vertical: Skill Enhancement Course	
Name of the Dept: **Science and Technology**	
Course Title: **Digital Computer Fundamental Practical**	
Course Code: **BCFP207**	Course Level:4.5
Type: Practical	
Course Credit: 2 credits	
Hours Allotted: 60 Hours	
Marks Allotted: 50 Marks	
Course Objectives: 1. To apply and test the gates learnt using various IC's . 2. To evaluate the Boolean expression to reduce and minimize the gates used	
Course Outcomes: Learners will be able to, CO1: Construct basic and universal logic circuits & verify the functionalities of various IC's. CO2: Design circuits using K-maps minimization technique & test Encoders, Decoders, Multiplexers and Demultiplexers	
Description the course:	The practical knowledge gained by students of IT in digital electronics prepares them for careers in hardware design, embedded systems development, telecommunications for communication protocol, testing & troubleshooting & safety compliance.

Syllabus: NEP 2020 w.e.f 2024-25

Sr. No	Content	Hours
1	**Study of basic gates :** A. To verify the truth tables of OR, AND, NOT B. To study IC 7404,7432, 7408	
2	**Study of universal gates:** A. To verify the truth tables of NAND, NOR To study IC 7400, 7402	
3	**Study of Boolean expressions** A. To verify De Morgan's laws B. Implement the given expression using a minimum number of gates	
4	**Design and implement code converters** A. Design the circuit and implement Binary to BCD code converter B. Design the circuit and implement Binary to XS-3 code converter	
5	**Implement Adder circuits** A. Design the circuit and implement Half Adder B. Design the circuit and implement Full Adder	
6	**Implement Subtractor circuits** A. Design the circuit and implement Half Subtractor B. Design the circuit and implement Full Subtractor	
7	**Implement Encoders** Design and implement 8: 3 encoder	
8	**Implement Decoders** Design and implement 3:8 decoder	
9	**Multiplexers** Design and implement 4:1 multiplexer	
10	**Demultiplexer** . Design and implement 1:4 Demultiplexers	
	Total Hours	**60**

References:

Sr.No	Title	Author	Publisher	Edition	Year
1.	Fundamentals of Logic Design	Charles H Roth, Jr. , Larry L Kinney	Cengage Learning	7th	2014
2.	Digital Electronics Principles, Design and Applications	Anil K Maini	Wiley	1 st	2007

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Programme Name: **F.Y. B.Sc (Computer Application)**	**Semester: II**
Course Category/Vertical: Ability Enhancement Course	
Name of the Dept: **Science and Technology**	
Course Title: **Corporate Communication – II**	
Course Code: **BCC208**	Course Level:4.5
Type: Theory	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives: 1. To inculcate basic soft skills in learners and develop their leadership skills 2. To develop the overall personality of students by enabling them to adopt effective time management skills, becoming aware about emotional intelligence, learning about personal branding and make learners aware about basic etiquettes to be followed in personal and professional lives	
Course Outcomes: CO1. Learners would develop effective soft skills and leadership skills and would be able to differentiate between listening and hearing and its impact on communication CO2. Learners would develop their personality, learn time management skills, etiquettes, develop emotional intelligence along with their personal branding skills	
Description the course:	Soft Skills are an integral part of individual development. The course will introduce the learners to the soft skills required for communication in the business world as well as in personal lives. They would be able to showcase the same in the required scenarios in the professional world. Effective learning of soft skills would enable the learners to upgrade their skills and grab positions like soft skill trainers and personality grooming professionals.

Syllabus: NEP 2020 w.e.f 2024-25

Unit No.	Content	Hours
I	**Introduction to Soft Skills – I** **Soft skills** – Meaning, features, scope, importance, relevance of soft skills in the corporate world, relevance of soft skills in personal space, Soft skills v/s hard skills **Listening skills** – Meaning, Importance, Essentials of good listening skills, Qualities of a good listener, Types of listening skills, Barriers to effective listening, Process of listening, Active v/s Passive Listening **Leadership** – Meaning, Attributes of a good leader, Styles of leadership, Leading through change	15
II	**Personality Development and Etiquettes** **Personality** – Meaning, Determinants of personality, Personality Traits – Locus of Control, Type A and Type B Personality, Machiavellianism, Self-Monitoring **Time Management** – Meaning, Importance, principles of time management, 4 P's, 4D's of time management, Challenges in time management, Tips for good time management. **Etiquettes** – Meaning, Importance, Ethics v/s Etiquettes. **Types of Etiquettes** – Telephone Etiquettes, Email Etiquettes, Meeting Etiquettes, Dining Etiquettes, Cubicle Etiquettes, Dressing and Grooming Etiquettes, Social media Etiquettes, Internet Etiquettes, Workplace Etiquettes	15
	Total Hours	**30**

References:

1. Daniel Coleman, Emotional Intelligence, Bantam Book, 20 ICT Academy of Kerala, "Life Skills for Engineers", McGraw Hill Education (India) PrivateLtd.,2016.

2. Caruso, D. R. and Salovey P, "The Emotionally Intelligent Manager: How to Develop and Use the Four Key Emotional Skills of Leadership", John Wiley & Sons, 2004.

3. Kalyana, "Soft Skill for Managers"; First Edition; Wiley Publishing Ltd, 2015

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Programme Name: **F.Y. B.Sc (Computer Application)**	**Semester: II**
Course Category/Vertical: Value Education Course	
Name of the Dept: **Science and Technology**	
Course Title: **Green Technology – II**	
Course Code: **BCG209**	Course Level:4.5
Type: Theory	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives: 1. Understand issues and modern approaches of Green Computing and alternatives for cooling your data center and the need for making computer networks and communications energy efficient. 2. Understand cloud computing in the context of environmental sustainability and various elements of clouds that contribute to total energy consumption	
Course Outcomes: CO1. Develop knowledge about the concept green IT standards and certifications related to sustainable IT products as well as Describe green IT in relation to technology. CO2. Evaluate IT use in relation to environmental perspectives and Formulate plans for reducing IT heating and cooling requirements as well as Implement Green IT in Real Life	
Description the course:	The course introduces the learners to the concept of sustainable approach to IT resource management, focusing on minimizing environmental impact in the context of environmental concerns. The learners could upgrade their current understanding towards Green IT practices, reducing energy consumption and electronic waste, promoting efficient, cost-effective, and environmentally sustainable IT systems. Students would be able to explore new areas of IT professionals with expertise in Green IT.

Syllabus: NEP 2020 w.e.f 2024-25

Unit No.	Content	Hours
I	**Overview and Issues**: Problems: Toxins, Equipment Disposal, Company's Carbon Footprint: Measuring, Global Initiatives: United Nations, Basel Action Network, Basel Convention, North America: The United States, Canada, Australia, Europe, WEEE Directive, RoHS, National Adoption, Asia: Japan, China, Korea. **Minimizing Power Usage**: Power Problems, Monitoring Power Usage, Servers, Low-Cost Options, Power Consumption, Reducing Power Use, Data De-Duplication, Virtualization, Monitors, Power Supplies, Wireless Devices	15
II	**Cooling:** Cooling Costs, Power Cost, Causes of Cost, Calculating Cooling Needs, Reducing Cooling Costs, Economizers, On-Demand Cooling, HP's Solution, Optimizing Airflow, Hot Aisle/Cold Aisle, Raised Floors, Cable Management, Vapour Seal, Prevent Recirculation of Equipment Exhaust, Supply Air Directly to Heat Sources, Fans, Humidity, Adding Cooling, Fluid Considerations, System Design, Data centre Design, Centralized Control, Design for Your Needs. Green Networks and Communications: Introduction, Objectives of Green Network Protocols, Green Network Protocols and Standards. **Green Cloud Computing and Environmental Sustainability:** Introduction, what is Cloud Computing? Cloud Computing and Energy Usage Model: A Typical Example, Features of Clouds Enabling Green Computing, Green Cloud Architecture	15
	Total Hours	**30**

References:

Green IT Toby Velte, Anthony Velte, & Robert Elsenpete McGraw Hill 2008

Harnessing Green It Principles And Practices San Murugesan, G.R. Gangadharan WILEY

Green Computing Tools and Techniques for Saving Energy, Money and Resources Bud E. Smith CRC Press 2014.

Scheme of Examination

Course with Credit	External Examination	Internal Examination	Total
Credit 4	**60 marks**	**40 marks**	**100 marks**
Credit 2	**30 marks**	**20 marks**	**50 marks**

Internal Examination Structure(Theory)

Internal examination	**40 marks**	**20 marks**
Project Presentation/Case Study /Quiz/Group Discussion	10 marks	5 marks
Assignment /Active class Participation/Attendance	10 marks	5 marks
Class test	20 marks	10 marks
Total	40 marks	20 marks

Structure for Class Test

For 10 marks	
Q1. Fill in the blank (5 Marks) **a.** **b.** **c.** **d.** **e.** **Q2. Answer in one or two lines (5 Marks)** **a.** **b.** **c.** **d.** **e.**	**10 Marks**

External Examination (For 60 Marks)

Q. No.	External	Marks: 60
Q .1 (From Module 1)	Answer the following questions (Any 3) A B C D E F	15 Marks

Q. 2 (From Module 2)	Answer the following questions (Any 3) A B C D E F	15 Marks
Q. 3 (From Module 3)	Answer the following questions (Any 3) A B C D E F	15 Marks
Q. 4 (From Module 4)	Answer the following questions (Any 3) A B C D E F	15 Marks

External Examination (For 30 Marks)

Q. No.	**External**	**Marks: 30**
Q .1 (From Module 1)	Answer the following questions (Any 3) A B C D E F	15 Marks
Q. 2 (From Module 2)	Answer the following questions (Any 3) A B C D E F	15 Marks

Practical Exam Evaluation: 50 marks
A Certified copy journal is essential to appear for the practical examination.

1	Practical Question 1	20
2	Practical Question 1	20
3	Journal	5
4	Viva Voce	5