BENGALURU NORTH UNIVERSITY

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Date: 06.09.2022

To

Registrar,

Bengaluru North University,

Kolar

Respected Sir,

Sub: BOS Meeting Approval of Course Structure & Syllabus for Computer Science and BCA (NEP) 3rd & 4th Semester – Reg.

MINUTES OF BOARD OF STUDIES MEETING

The Virtual Board of Studies meeting for Computer Science and BCA was held on Sep 5, 2022 at 11.00 AM. It was chaired by Mr.S.Manikandan, Chairman – BOS for Computer Science and BCA (NEP) Programme. The Chairman informed that the meeting has been called to review the curriculum and syllabus of 3rd and 4th semester.

Agenda:

1. Approval of course structure for Computer Science & BCA (NEP) 3rd & 4th Semester.

2. Finalization of Course structure for Computer Science & BCA (NEP) 3rd & 4th Semester.

3. Finalization of detailed syllabus for 3rd and 4th semesters of Computer Science & BCA(NEP).

4. Approval of Syllabus for Computer Science & BCA (NEP) 3rd & 4th Semester.

5. To discuss and approve the skill Enhancement Courses in the curriculum under Computer Science and other

   Subject students.

6. To discuss and approve the Syllabi of Open Elective-Computer Science and BCA offered in the III & IV semester

   Programmes.

The following BOS members were present

Sl. No	Name	Designation
1.	Mr. S.Manikandan Assistant Professor, Dept. of Computer Science, Government First Grade College, KR Puram, Bengaluru	Chairperson
2.	Dr. Murugan.K Assistant Professor, Dept. of Computer Science, Govt. College for Women, Kolar.	Member
3.	Dr. Hamela K Assistant Professor, Dept. of Computer Science, Government First Grade College , Malur,	Member
4.	Rashmi Rao K Associate Professor, Dept. of Computer Science, Government First Grade College, KR Puram, Bengaluru	Member
5.	Mr. Sankar Assistant Professor, Dept. of Computer Science, LBS Government First Grade College, RT Nagar, Bengaluru	Member
6.	Dr. Rajendirakumar Assistant Professor, Dept. of Computer Science, Govt. College for Women, Kolar.	Member
7.	Mr. Suresha K V Assistant Professor, Dept. of Computer Science, Government First Grade College, Chikkaballapur.	Member
8.	Mrs. Lakshmi Devi M S Assistant Professor, Dept. of Computer Science, Government First Grade College, Varthur, Bengaluru.	Member

Minutes:

1. The BoS members have approved the course structure and recommended (Theory and Lab).

2. The BoS members unanimously approved the proposed course structure for the newly introduced subjects.

3. The BoS members are accepted the detailed syllabi for the 3rd and 4th semester.

4. The BoS members unanimously approved the proposed course structure for the newly introduced Open elective papers of Python Programming Concepts and E-Commerce.

5. The BoS members unanimously approved the proposed course structure for the newly introduced Skill Enhancement Course Open Source tools for BCA Course.

6. The BoS members are accepted the detailed syllabi for the 3rd or 4th semesters. Skill Enhancement Course offered in 3rd Semester B.sc & other subject students - Artificial Intelligence.

7. Members suggested that **SEC(Model-2)** of syllabi for the 3rd or 4th semesters. Skill Enhancement Course for B.sc & other subject students - **Artificial Intelligence**.

8. Members suggested that **OE** syllabi for the 3rd semester Python Programming concept and 4th semester Principles of Internet.

S.No	Course	Semester	Subject	Recommendation
1	B.Sc	III	**DSC-3:**Object Oriented Programming Concepts and Programming in JAVA	**It was proposed to approve the scheme and syllabus for UG Computer Science & BCA (NEP) 3rd and 4th Semester from the academic year 2022-2023 onwards. The Board read through the Syllabus. The Board considered and approved the scheme and syllabus for UG Computer Science & BCA (NEP). After discussion, reviewed and fruitful suggestions were incorporated.**
		III	**DSC-3 Lab:** JAVA Lab	
		IV	**DSC-4:**Database Management Systems	
		IV	**DSC-4 Lab:** DBMS Lab	
2	B.Sc. & other Subject Students	III / IV	Skill Enhancement Course: Artificial Intelligence	
3	**BCA**	III	Database Management Systems	
		III	C# and DOT NET Framework	
		III	Computer Communication and Networks	
		III	LAB: DBMS	
		III	LAB: C# and DOT NET Framework	
		IV	Python Programming	
		IV	Computer Multimedia and Animation	
		IV	Operating Systems Concepts	
		IV	LAB: Multimedia and Animation	
		IV	LAB: Python programming	
4	BCA-SEC	III	**Skill Enhancement Course:** Open Source tools	
5	**Open Elective**	III	Python Programming Concepts	
		IV	Principles of Internet	

The BOS members had discussion and interaction among themselves. Based on the suggestions given by the members, BOS resolved to recommend approving the **scheme and syllabus for UG Computer Science & BCA (NEP) for 3rd and 4th semester from the academic year 2022-23 onwards.**

Thanking you,

Yours faithfully

S.Manikandan
Chairperson
BOS-UG Computer Science & BCA(NEP)
Bengaluru North University
Kolar.

Bengaluru North University

**National Education Policy - 2020
(NEP-2020)**

Syllabus for Bachelor of Science (B.Sc) in Computer Science

(III & IV Semester)

Submitted to
Registrar
Bengaluru North University
Sri Devaraj Urs Extension
Tamaka, Kolar -563103

Curriculum Design/Syllabus Framing Committee

Sl. No	Name	Designation
1.	Mr. S.Manikandan Assistant Professor, Dept. of Computer Science, Government First Grade College, KR Puram, Bengaluru	Chairperson
2.	Dr. Murugan.K Assistant Professor, Dept. of Computer Science, Govt. College for Women, Kolar.	Member
3.	Dr. Hamela K Assistant Professor, Dept. of Computer Science, Government First Grade College , Malur,	Member
4.	Rashmi Rao K Associate Professor, Dept. of Computer Science, Government First Grade College, KR Puram, Bengaluru	Member
5.	Mr. Sankar Assistant Professor, Dept. of Computer Science, LBS Government First Grade College, RT Nagar, Bengaluru	Member
6.	Dr. Rajendirakumar Assistant Professor, Dept. of Computer Science, Govt. College for Women, Kolar.	Member
7.	Mr. Suresha K V Assistant Professor, Dept. of Computer Science, Government First Grade College, Chikkaballapur.	Member
8.	Mrs. Lakshmi Devi M S Assistant Professor, Dept. of Computer Science, Government First Grade College, Varthur, Bengaluru.	Member

Program: BSc (Basic and Honors)   **Subject: Computer Science**

For

1. **Computer Science as MAJOR with another Subject as MINOR (Table IIA of Model Curriculum)**

2. **Computer Science as MAJOR with another Subject also as MAJOR (Table IIIA of Model Curriculum)**

3. **Computer Science as MINOR with another Subject as MAJOR (As per Table IIA of Model Curriculum)**

Sem	Discipline Specific Core Courses (DSC)	Hour / Week		DS Elective Courses	Hours/ Week
		Theory	Lab		
III	**DSC-3:** Object Oriented Programming Concepts and Programming in JAVA	4			
	DSC-3 Lab: JAVA Lab		4		
IV	**DSC-4:** Database Management Systems	4			
	DSC-4 Lab: DBMS Lab		4		

Syllabus for BSc (Basic and Honors), Semesters III and IV

Semester: III

Course Title: Object Oriented Programming Concepts and Programming in Java	Course code: DSC3
Total Contact Hours: 52	Course Credits: 04+02
Formative Assessment Marks: 40	Duration of SEE/Exam: 03 Hours
Summative Assessment Marks: 60	

Course Outcomes (COs):

At the end of the course, students will be able to:
- Explain the object-oriented concepts and JAVA.
- Write JAVA programs using OOP concepts like Abstraction, Encapsulation, Inheritance and Polymorphism.
- Implement Classes and multithreading using JAVA.
- Demonstrate the basic principles of creating Java applications with GUI.

DSC3: Object Oriented Programming Concepts and Programming in Java

Unit	Description	Hours
1	**Introduction to Java:** Basics of Java programming, Data types, Variables, Operators, Control structures including selection, Looping, Java methods, Overloading, Math class, Arrays in java.	09
2	**Objects and Classes:** Basics of objects and classes in java, Constructors, Finalizer, Visibility modifiers, Methods and objects, Inbuilt classes like String, Character, String Buffer, File, this reference.	10
3	**Inheritance and Polymorphism:** Inheritance in java, Super and sub class, Overriding, Object class, Polymorphism, Dynamic binding, Generic programming, Casting objects, Instance of operator, Abstract class, Interface in java, Package in java, UTIL package.	09
4	**Event and GUI programming:** Event handling in java, Event types, Mouse and key events, GUI Basics, Panels, Frames, Layout Managers: Flow Layout, Border Layout, Grid Layout, GUI components like Buttons, Check Boxes, Radio Buttons, Labels, Text Fields, Text Areas, Combo Boxes, Lists, Scroll Bars, Sliders, Windows, Menus, Dialog Box, Applet and its life cycle, Introduction to swing, Exceptional handling mechanism.	12
5	**I/O programming:** Text and Binary I/O, Binary I/O classes, Object I/O, Random Access Files. Multithreading in java: Thread life cycle and methods, Runnable interface, Thread synchronization, Exception handling with try catch-finally, Collections in java, Introduction to JavaBeans and Network Programming	12

References:

1. Programming with Java, By E Balagurusamy – A Primer, 4th Edition, McGraw Hill Publication.
2. Core Java Volume I – Fundamentals, By Cay S. Horstmann, Prentice Hall.
3. Object Oriented Programming with Java: Somashekara M.T., Guru, D.S., Manjunatha K.S, 1st Edition, PHI Learning 2017.
4. Java 2 - The Complete Reference, Herbert Schildt, 5th Edition, McGraw Hill Publication, 2017.
5. Java - The Complete Reference, Herbert Schildt, 7th Edition, McGraw Hill Publication, 2017.

Course Title: **JAVA Lab**	Course code: DSC3 Lab
Total Contact Hours: 52	Course Credits: 02

Course Outcomes (COs):

At the end of the course, students will be able to:

• Implement Object Oriented programming concept using basic syntaxes of control Structures

• Identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem

 • Demonstrates how to achieve reusability using inheritance

 • Demonstrate understanding and use of interfaces, packages, different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.

 • Identify and describe common user interface components to design GUI in Java using Applet & AWT along with response to events

 Practice Lab

1. Program to print the following triangle of numbers

                          1

                        1 2

                        1 2 3

                        1 2 3 4

                        1 2 3 4 5

2. Program to simple java application, to print the message, "Welcome to java"

3. Program to display the month of a year. Months of the year should be held in an array.

4. Program to find the area of rectangle.

5. Program to demonstrate a division by zero exception.

6. Program to create a user defined exception say Pay out of Bounds.

Programming Lab

PART A: Java Fundamentals OOPs in Java

1. Program to assign two integer values to X and Y. Using the 'if' statement the output of the program should display a message whether X is greater than Y.

2. Program to list the factorial of the numbers 1 to 10. To calculate the factorial value, use while loop. (Hint Fact of 4 = 4*3*2*1)

3. Program to add two integers and two float numbers. When no arguments are supplied, give a default value to calculate the sum. Use function overloading.

4. Program to perform mathematical operations. Create a class called AddSub with methods to add and subtract. Create another class called MulDiv that extends from AddSub class to use the member data of the super class. MulDiv should have methods to multiply and divide A main function should access the methods and perform the mathematical operations.

5. Program with class variable that is available for all instances of a class. Use static variable declaration. Observe the changes that occur in the object's member variable values.

6. Program
   a. To find the area and circumference of the circle by accepting the radius from the user.
   b. To accept a number and find whether the number is Prime or not

7. Program to create a student class with following attributes; Enrollment No: Name, Mark of sub1, Mark of sub2, mark of sub3, Total Marks. Total of the three marks must be calculated only when the student passes in all three subjects. The pass mark for each subject is 50. If a candidate fails in any one of the subjects his total mark must be declared as zero. Using this condition write a constructor for this class. Write separate functions for accepting and displaying student details. In the main method create an array of three student objects and display the details.

8. In a college first year class are having the following attributes Name of the class (BCA, BCom, BSc), Name of the staff No of the students in the class, Array of students in the class

9. Define a class called first year with above attributes and define a suitable constructor. Also write a method called best Student () which process a first-year object and return the student with the highest total mark. In the main method define a first-year object and find the best student of this class

10. Program to define a class called employee with the name and date of appointment. Create ten employee objects as an array and sort them as per their date of appointment. ie, print them as per their seniority.

11. Create a package 'student. Fulltime. BSC 'in your current working directory

   a. Create a default class student in the above package with the following attributes: Name, age, sex.

   b. Have methods for storing as well as displaying

PART B: Exception Handling & GUI Programming

1. Program to catch Negative Array Size Exception. This exception is caused when the array is initialized to negative values.

2. Program to handle Null Pointer Exception and use the "finally" method to display a message to the user.

3. Program which create and displays a message on the window

4. Program to draw several shapes in the created window 32

5. Program to create an applet and draw grid lines

6. Program which creates a frame with two buttons father and mother. When we click the father button the name of the father, his age and designation must appear. When we click mother similar details of mother also appear.

7. Create a frame which displays your personal details with respect to a button click

8. Create a simple applet which reveals the personal information of yours.

9. Program to move different shapes according to the arrow key pressed.

10. Program to create a window when we press M or m the window displays Good Morning, A or a the window displays Good After Noon E or e the window displays Good Evening, N or n the window displays Good Night

11. Demonstrate the various mouse handling events using suitable example.

12. Program to create menu bar and pull-down menus.

Note: Student has to execute a minimum of 10 programs in each part to complete the Lab course

Evaluation Scheme for Lab Examination:

Assessment Criteria		Marks
Program – 1 from Part A	Writing the Program	03
	Execution and Formatting	07
Program -2 from Part B	Writing the Program	03
	Execution and Formatting	07
Viva Voice		05
Total		25

Course Title: **Database Management System**	Course code: DSC4
Total Contact Hours: 52	Course Credits: 04+02
Formative Assessment Marks: 40	Duration of SEE/Exam: 03 Hours
Summative Assessment Marks: 60	

Course Outcomes (COs):

At the end of the course, students will be able to:

- Explain the various database concepts and the need for database systems.
- Identify and define database objects, enforce integrity constraints on a database using DBMS.
- Demonstrate a Data model and Schemas in RDBMS.
- Identify entities and relationships and draw ER diagram for a given real-world problem.
- Convert an ER diagram to a database schema and deduce it to the desired normal form.
- Formulate queries in Relational Algebra, Structured Query Language (SQL) for database manipulation.
- Explain the transaction processing and concurrency control techniques.

DSC7: Database Management System (DBMS)

Unit	Description	Hours
1	**Database Architecture:** Introduction to Database system applications. Characteristics and Purpose of database approach. People associated with Database system. Data models. Database schema. Database architecture. Data independence. Database languages, interfaces, and classification of DBMS.	10
2	**E-R Model:** Entity-Relationship modeling: E – R Model Concepts: Entity, Entity types, Entity sets, Attributes, Types of attributes, key attribute, and domain of an attribute. Relationships between the entities. Relationship types, roles and structural constraints, degree and cardinality ratio of a relationship. Weak entity types, E -R diagram.	10
3	**Relational Data Model:** Relational model concepts. Characteristics of relations. Relational model constraints: Domain constrains, key constraints, primary & foreign key constraints, integrity constraints and null values. Relational Algebra: Basic Relational Algebra operations. Set theoretical	12

	operations on relations. JOIN operations Aggregate Functions and Grouping. Nested Sub Queries-Views. Introduction to PL/SQL & programming of above operations in PL/SQL	
4	**Data Normalization:** Anomalies in relational database design. Decomposition. Functional dependencies. Normalization. First normal form, Second normal form, Third normal form. Boyce-Codd normal form.	09
5	**Query Processing Transaction Management:** Introduction Transaction Processing. Single user & multiuser systems. Transactions: read & write operations. Need of concurrency control: The lost update problem, Dirty read problem. Types of failures. Transaction states. Desirable properties (ACID properties) of Transactions. Concurrency Control Techniques: Locks and Time stamp Ordering. Deadlock & Starvation.	11

References:
1. Fundamentals of Database Systems, Ramez Elamassri, Shankant B. Navathe, 7th Edition, Pearson, 2015
2. An Introduction to Database Systems, Bipin Desai, Galgotia Publications, 2010.
3. Introduction to Database System, C J Date, Pearson, 1999.
4. Database Systems Concepts, Abraham Silberschatz, Henry Korth, S.Sudarshan, 6th Edition, McGraw Hill, 2010.
5. Database Management Systems, Raghu Rama Krishnan and Johannes Gehrke, 3rd Edition, McGraw Hill, 2002

Practicals:

Student would be able to create tables, execute queries and PL/SQL programs.

1. Execute a single line query and group functions.
2. Execute DDL Commands.
3. Execute DML Commands
4. Execute DCL and TCL Commands.
5. Implement the Nested Queries.
6. Implement Join operations in SQL
7. Create views for a particular table
8. Implement Locks for a particular table
9. Write PL/SQL procedure for an application using exception handling.
10. Write PL/SQL procedure for an application using cursors.
11. Write a PL/SQL procedure for an application using functions
12. Write a PL/SQL procedure for an application using package

Course Title: **Artificial Intelligence**	Course Credits: 2
Total Contact Hours: 13 hours of theory and 26 hours of practical	Duration of ESA: 01 Hour
Formative Assessment Marks: 2**0 marks**	Summative Assessment Marks: 30 marks

Course Outcomes (COs):

At the end of the course, students will be able to:

- Appraise the theory of Artificial intelligence and list the significance of AI.
- Discuss the various components that are involved in solving an AI problem.
- Illustrate the working of AI Algorithms in the given contrast.
- Analyze the various knowledge representation schemes, Reasoning and Learning techniques of AI.
- Apply the AI concepts to build an expert system to solve the real-world problems.

Course Content

Unit - 1	
Overview of AI: Definition of Artificial Intelligence, Philosophy of AI, Goals of AI, Elements of AI system, Programming a computer without and with AI, AI Techniques, History of AI. **Intelligent Systems:** Definition and understanding of Intelligence, Types of Intelligence, Human Intelligence vs Machine Intelligence.	05
Unit – 2	
AI Applications: Virtual assistance, Travel and Navigation, Education and Healthcare, Optical character recognition, E-commerce and mobile payment systems, Image based search and photo editing. **AI Examples in daily life:** Installation of AI apps and instructions to use AI apps.	05
Unit – 3	
Robotics: Introduction to Robotics, Difference in Robot System and Other AI Program, Components of a Robot.	03

Laboratory Activities:	
Amazon Alexa: https://play.google.com/store/apps/details?id=com.amazon.dee.app&hl=en&gl=US **Google Lens:** https://play.google.com/store/search?q=google+lens&c=apps&hl=en&gl=US **Image to Text to Speech ML OCR:** https://play.google.com/store/apps/details?id=com.mlscanner.image.text.speech&hl=en_IN&gl=US **Google Pay:** https://play.google.com/store/apps/details?id=com.google.android.apps.nbu.paisa.user&hl=en_IN&gl=US	**26**

- **Grammarly:**
  https://play.google.com/store/search?q=grammarly&c=apps&hl=en_IN&gl=
- **Google Map:**
  https://play.google.com/store/search?q=google+maps&c=apps&hl=en&gl=US
- **FaceApp:**
  https://play.google.com/store/apps/details?id=io.faceapp&hl=en_IN&gl=US
- **Socratic:**
  https://play.google.com/store/apps/details?id=com.google.socratic&hl=en_IN&gl=US
- **Google Fit: Activity Tracking:**
  https://play.google.com/store/apps/details?id=com.google.android.apps.fitness&hl=en_IN&gl=US
- **SwiftKey Keyboard:**
  https://swiftkey-keyboard.en.uptodown.com/android
- **E-commerce App:**
  https://play.google.com/store/apps/details?id=com.jpl.jiomart&hl=en_IN&gl=US

Text Books:
1. Wolfgang Ertel, "Introduction to Artificial Intelligence", 2nd Edition, Springer International Publishing 2017.
2. Michael Negnevitsky, "Artificial Intelligence A Guide to Intelligent Systems", 2nd Edition, Pearson Education Limited 2005.

References:
1. https://www.tutorialspoint.com/artificial_intelligence/artificial_intelligence_tutorial.pdf
2. Kevin Knight, Elaine Rich, Shivashankar B. Nair, "Artificial Intelligence", 3rd Edition, July 2017.

Reference Links:
1. Voice Assistant: https://alan.app/blog/voiceassistant-2/
2. Browse with image: https://www.pocket-lint.com/apps/news/google/141075-what-is-google-lens-and-how-does-it-work-and-which-devices-have-it
3. OCR: https://aws.amazon.com/what-is/ocr/
4. Mobile Payment system: https://gocardless.com/en-us/guides/posts/how-do-mobile-payment-systems-work/
5. Grammarly: https://techjury.net/blog/how-to-use-grammarly/#gref
6. Travel & Navigation: https://blog.google/products/maps/google-maps-101-ai-power-new-features-io-2021/
7. AI in photo editing: https://digital-photography-school.com/artificial-intelligence-changed-photo-editing/
8. AI in education: https://www.makeuseof.com/what-is-google-socratic-how-does-it-work/
9. AI in health and fitness: https://cubettech.com/resources/blog/implementing-machine-learning-and-ai-in-health-and-fitness/
10. E-commerce and online shopping: https://medium.com/@nyxonedigital/importance-of-e-commerce-and-online-shopping-and-why-to-sell-online-5a3fd8e6f416

Python Programming Concepts

Course Title: **Python Programming Concepts**	Course Credits: 3 (3L+0T+0P)
Semester: III	Duration of SEE: 03 Hour
Total Contact Hours: 42	SEE: 60 Marks IA: 40 Marks

Course Outcomes (COs):

- Explain the fundamentals of Computers.
- Explain the basic concepts of Python Programming.
- Demonstrate proficiency in the handling of loops and the creation of functions.
- Identify the methods to create and store strings.

Unit I   Fundamentals of Computers   10 Hrs

Introduction to Computers - Computer Definition, Characteristics of Computers, Evolution and History of Computers, Types of Computers, Basic Organization of a Digital Computer; Number Systems – different types, conversion from one number system to another; Computer Codes – BCD, Gray Code, ASCII and Unicode; Boolean Algebra – Boolean Operators with Truth Tables; Types of Software – System Software and Utility Software; Computer Languages - Machine Level, Assembly Level & High Level Languages, Translator Programs – Assembler, Interpreter and Compiler; Planning a Computer Program - Algorithm, Flowchart and Pseudo code with Examples.

Unit II   Python Basics   10 Hrs

Introduction to Features and Applications of Python; Python Versions; Installation of Python; Python Command Line mode and Python IDEs; Simple Python Program. Identifiers; Keywords; Statements and Expressions; Variables; Operators; Precedence and Association; Data Types; Indentation; Comments; Built-in Functions- Console Input and Console Output, Type Conversions; Python Libraries; Importing Libraries with Examples; Illustrative programs.

Unit III   08 Hrs

Python Control Flow: Types of Control Flow; Control Flow Statements- if, else, elif, while loop, break, continue statements, for loop Statement; range() and exit () functions; Illustrative programs.

Unit IV   08 Hrs

Python Functions: Types of Functions; Function Definition- Syntax, Function Calling, Passing Parameters/arguments, the return statement; Default Parameters; Command line Arguments; Key Word Arguments; Illustrative programs.

Unit V   **06 Hrs**

Strings: Creating and Storing Strings; Accessing Sting Characters; the str() function; Operations on Strings- Concatenation, Comparison, Slicing and Joining, Traversing; Format Specifiers; Escape Sequences; Raw and Unicode Strings; Python String Methods; Illustrative programs.

References
1. Computer Fundamentals (BPB), P. K. Sinha & Priti Sinha
2. Think Python How to Think Like a Computer Scientist, Allen Downey et al., 2nd Edition, Green Tea Press. Freely available online 2015.
   @https://www.greenteapress.com/thinkpython/thinkCSpy.pdf
3. Introduction to Python Programming, Gowrishankar S et al., CRC Press, 2019.
4. http://www.ibiblio.org/g2swap/byteofpython/read/
5. http://scipy-lectures.org/intro/language/python_language.html
6. https://docs.python.org/3/tutorial/index.html

Open Elective

PRINCIPLES OF INTERNET

Course Title: **PRINCIPLES OF INTERNET**	Course Credits: 3 (3L+0T+0P)
<mark>Semester: IV</mark>	Duration of SEE: 03 Hour
Total Contact Hours: 42	SEE: 60 Marks IA: 40 Marks

Course Outcomes (COs):

- Able to explain understand the internet standards and recent web technologies like Conferencing, newsgroup etc.
- Able to implement, compile, test and run HTML program
- Able to explain understand web Browsers.

UNIT I   **09 Hrs**

Basics of Networks – Advantages and disadvantages- Types of networks - LAN, WAN, MAN - Topologies of Networks – Bus Topology, Ring Topology, Star Topology, Mesh Topology, Tree Topology.

UNIT II   **06 Hrs**

Internet Basics – Advantages and disadvantages – Internet Applications

– IP Address- Internet Services– URL- E-mail - E-mail features – Emil Providers.

UNIT III   **09 Hrs**

Introduction to Internet Protocol –TCP –UDP-FTP – The Telnet –The Usenet – Internet Chat.

                                                                                                                       09 Hrs
UNIT IV

WWW Overview – Web pages -The Web Servers – Web Browsers– Search Engines- Introduction to Firewalls – Uses of Firewalls – Types of Firewalls.

UNIT V   **09 Hrs**

Art of creating a website – Hypertext and HTML – Features – Elements – Attributes- Structure of HTML– Basic tags in HTML – Formatting tags in HTML – HTML Lists –Types of Lists.

Text Book:

1. Raj Kamal , "Internet and Web Technologies", Mc GrawHill Education,2007.

References:

1. Joe krayank & Joe Habraken, "Internet 6 in 1", Prentice Hall of India Private Limited, New Delhi, 1998.
2. "Internet Complete", BPB publications, New Delhi, 1998.