

**SU/BOS/Science/500**

**Date: 10/07/2023**

**To,**

The Principal, All Concerned Affiliated Colleges/Institutions Shivaji University, Kolhapur	The Head/Co-ordinator/Director All Concerned Department (Science) Shivaji University, Kolhapur.
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**Subject:** Regarding syllabi of as per NEP-2020 under the Faculty of Science and Technology.

**Sir/Madam,**

With reference to the subject mentioned above, I am directed to inform you that the university authorities have accepted and granted approval to the revised syllabi, nature of question paper and equivalence of degree programme under the Faculty of Science and Technology.


1.	B.Sc.-M.Sc. Part II Nanoscience and Technology	7.	All Faculty Under Graduate Part II Environmental Studies
2.	M.C.A. Part I (New NEP -2020)	8.	P.G. Diploma in Data Science
3.	B.C.A. Part II	9.	P.G. Diploma in Environment Protection & Management
4.	M.C.A. Part II	10.	P.G. Diploma in Industrial Safety, Health & Environment
5.	B.Sc. Part III Food Science	11.	Diploma in Industrial Safety, Health & Environment
6.	B.Sc. Part I Drug Chemistry	12.	All Faculty UG & PG Value Added Course : <b>Intellectual Property Rights</b>

This syllabus, nature of question and equivalence shall be implemented from the academic year 2023-2024 onwards. A soft copy containing the syllabus is attached herewith and it is also available on university website [www.unishivaji.ac.in](http://www.unishivaji.ac.in))

The question papers on the pre-revised syllabi of above-mentioned course will be set for the examinations to be held in October /November 2023 & March/April 2024. These chances are available for repeater students, if any.

You are, therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,

  
**Dy Registrar**  
**Dr. S. M. Kubal**

**Copy to:**

1	The Dean, Faculty of Science & Technology	8	P.G. Admission/Seminar Section
2	Director, Board of Examinations and Evaluation	9	Computer Centre/ Eligibility Section
3	The Chairman, Respective Board of Studies	10	Affiliation Section (U.G.) (P.G.)
4	B.Sc. Exam/ Appointment Section	11	Centre for Distance Education

# **SHIVAJI UNIVERSITY, KOLHAPUR**



**NAAC “A++” Grade with CGPA 3.52**

**Choice Based Credit System with Multiple Entry and Multiple Exit Option  
(NEP-2020)**

**Syllabus for**

**Bachelor of Computer Application**  
(Under Faculty of Science and Technology)

**PART-II SEMESTER III & IV**

**(Syllabus to be implemented from Academic year 2023-24)**

# BCA Part II Semester III & IV

Choice Based Credit System with Multiple Entry and Multiple Exit Option  
(NEP-2020)

Syllabus to be implemented from Academic Year 2023-24

SEMESTER III																	
Courses	Sr. No	Course Code	Teaching Scheme							Examination Scheme							
			Theory				Practical				Theory				Practical		
			Credits	No. of	Hours		Credits	No. of Lectures	Hours		Hours	Max	Total Marks	Min	Hours	Max	Min
CGPA Courses	1	DSC C1	2	5	4	-	-	-		2	50	100	40	-	-	-	
	2	DSC C2	2							2	50			-	-	-	
	3	DSC C3	2	5	4	-	-	-		2	50	100	40	-	-	-	
	4	DSC C4	2							2	50			-	-	-	
	5	DSC C5	2	5	4	-	-	-		2	50	100	40	-	-	-	
	6	DSC C6	2							2	50			-	-	-	
	7	DSC C7	-	-	-	4	8	6.4		-	-	-	-	2	50	20	
	8	DSC C8	-	-	-	4	8	6.4		-	-	-	-	2	50	20	
	9	AECC–C	2	2	1.36	-	-	-		2	50	50	-	-	-	-	
		Total	14	17	13.36	8	16	13.2				350	-	-	100	-	
	10	Environmen- tal Studies	2	-	-	-	-	-		2	50	50	20	-	-	-	

## Discipline Specific Core (DSC) Courses Semester III

Sr. No.	Course Code	Name of Paper	Marks
1.	DSC C1	Software Engineering I	50 (Theory)
2.	DSC C2	Software Engineering II	50 (Theory)
3.	DSC C3	Computer Network I	50 (Theory)
4.	DSC C4	Computer Network II	50 (Theory)
5.	DSC C5	Object Oriented Programming I	50 (Theory)
6.	DSC C6	Object Oriented Programming II	50 (Theory)
7.	DSC C7	Object Oriented Programming Lab I	50 (Practical)
8.	DSC C8	Object Oriented Programming Lab II	50 (Practical)
9.	AECC-C	-	50 (Theory)
10.	Environmental Studies	-	50 (Theory)

- DSC: Discipline Specific Core Course
- AECC: Ability Enhancement Compulsory Course

SEMESTER IV																	
Courses	Sr. No	Course Code	Teaching Scheme						Examination Scheme								
			Theory				Practical				Theory				Practical		
			Credits	No. of Lectures	Hours		Credits	No. of Lectures	Hours		Hours	Max	Total Marks	Min	Hours	Max	Min
CGPA Courses	1	DSC D1	2	5	4		-	-	-		2	50	100	40	-	-	-
	2	DSC D2	2								2	50			-	-	-
	3	DSC D3	2	5	4		-	-	-		2	50	100	40	-	-	-
	4	DSC D4	2								2	50			-	-	-
	5	DSC D5	2	5	4		-	-	-		2	50	100	40	-	-	-
	6	DSC D6	2								2	50			-	-	-
	7	DSC D7	-	-	-		4	8	6.4		-	-	-	-	2	50	20
	8	DSC D8	-	-	-		4	8	6.4		-	-	-	-	2	50	20
	9	AECC–D	2	2	1.36		-	-	-		2	50	50	-	-	-	-
		Total	14	17	13.36		8	16	13.2				450	-	-	100	-
	10	University level	2	-	-		2	4	1.36		2	50	50	20	-	-	-

### Discipline Specific Core (DSC) Courses Semester IV

Sr. No.	Course Code	Name of Paper	Marks
1.	DSC D1	Cyber Security I	50 (Theory)
2.	DSC D2	Cyber Security II	50 (Theory)
3.	DSC D3	Web Designing I	50 (Theory)
4.	DSC D4	Web Designing II	50 (Theory)
5.	DSC D5	Data Warehousing I	50 (Theory)
6.	DSC D6	Data Warehousing II	50 (Theory)
9.	DSC D7	Web Designing Lab I	50 (Practical)
10.	DSC D8	Web Designing Lab II	50 (Practical)
11.	AECC-D	-	50 (Theory)
12.	University level	-	50 (Theory)

- AECC: Ability Enhancement Compulsory Course

**Exit option after Level 6:** Students can exit with Diploma in Computer Application.

**Choice Based Credit System with Multiple Entry and Multiple Exit Option  
(NEP-2020)  
BCA PART II SEM III**

**Course code: DSC-C1**

**Title of course: Software Engineering I**

**Theory: 32 Hrs (40 lectures of 48 minutes)**

**Marks: 50 (Credit: 02)**

**Course Outcomes:**

After completion of this course students will be able to;

1. Understand various models of software development.
2. Understand requirement gathering and requirement modelling.
3. Explore concepts and models in software design.
4. Calculate size estimation

**UNIT I:**

**(16 HOURS)**

**Introduction** – Software problem, need of Software Engineering, Software Engineering problem, Software Engineering approach, Causes of and solutions for software crisis, Program vs. software product, Software process - Software process, characteristics, Software development process: A Process Step Specification, **Process Model:** Waterfall Model, Prototyping Model, Iterative Enhancement, The Spiral Model, Rapid Application Development (RAD), Time boxing Model

**UNIT II:**

**(16 HOURS)**

**Software requirement analysis and specification** – Software requirement, problem analysis, Fact finding methods, requirement specification, characteristics of SRS, Structure of SRS, Types of requirements - functional and non- functional, **Matrices:** size estimation, function point, quality metrics.

**Reference Books:**

1. An interpreted approach to software engineering by Pankaj Jalote
2. Software Engineering by A Practitioners Approach 5th and 6th edition, Roger Pressman
3. Software engineering concepts by Richard Fairley
4. The Practical guide to Structural design by Miller Paige Jones
5. Software Engineering by Martin Shooman

**Choice Based Credit System with Multiple Entry and Multiple Exit Option  
(NEP-2020)  
BCA PART II SEM III**

**Course code: DSC-C2**

**Title of course: Software Engineering II**

**Theory: 32 Hrs (40 lecturers of 48 minutes)**

**Marks: 50 (Credit: 02)**

**Course Outcomes:**

After completion of this course students will be able to;

1. Apply design principles for various types of software
2. Design object oriented software using UML tools.
3. Implement testing strategies thoroughly using testing tools
4. Calculate the cost estimations

**UNIT I:**

**(16 HOURS)**

**Planning a software project:** Process Planning, Cost estimation (COCOMO Model), Project scheduling, Staffing, Software configuration management plan, Quality assurance plan: Verification and Validation, Risk management: Risk Management Overview, Risk Assessment, Risk Control. Verification, Validation

**UNIT II:**

**(16 HOURS)**

**Design and testing:** Design principles, Module level concepts- Coupling and cohesion, Design notation and specification-structure charts, structured design methodology, **UML:** Class diagram, Sequence diagram, Collaboration diagram, Activity diagram, Component diagram, deployment diagram, **Testing:** Testing fundamentals and types of Testing- Black Box, White Box, Levels of Testing

**Reference Books:**

1. An interpreted approach to software engineering by Pankaj Jalote
2. Software Engineering by A Practitioners Approach 5th and 6th edition, Roger Pressman
3. Software engineering concepts by Richard Fairley
4. The Practical guide to Structural design by Miller Paige Jones
5. Software Engineering by Martin Shooman

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BCA PART II SEM III**

**Course code: DSC–C3**

**Title of course: Computer Network I**

**Theory: 32 Hrs (40 lecturers of 48 minutes)**

**Marks: 50 (Credit: 02)**

**Course Outcomes:**

1. This course will help a student understand the various components of a computer network and its functionality.
2. Become familiar with layered communication architectures (OSI and TCP/IP).
3. Familiar with network basics concepts like protocols, topology etc.
4. Familiar with OSI layered model services.

**UNIT I**

**(16 HOURS)**

Introduction, Network topologies, network classifications, Layered network architecture, LAN, WAN, MAN, The telephone network fundamental of communication theory, Data transmission modes, Network topologies, Transmission Media, Guided media, twisted-pair cable, coaxial cable, fiber-optic cable. Unguided media (wireless), radio waves, microwaves, infrared, Asynchronous and synchronous transmission

**UNIT II**

**(16 HOURS)**

Overview of OSI reference model, it's all layer's services. Token passing – Token ring, Token bus, Token passing, (priority systems). Fiber Distributed Data Interface (FDDI).

Overview of TCP/IP, Introduction to TCP/IP and internetworking, operations related protocols and sockets, Connection-oriented and connectionless Services, service primitives. OSI protocols, TCP/IP protocols.

Physical Layer: Physical Layer Basic Concepts - Bit rate, bit length, base band transmission, Switching Circuit switching, Packet Switching, Message switching.

**Reference:**

1. Black C “Computer networks protocols, standards and Interface”, prentice hall of India, 1996
2. Stlling W, “Computer communication network” (4th Edition), prentice hall of India, 1993
3. Tanenbaum A.S. “Computer Network”, prentice hall of India, 1981
4. Forouzan, “TCP/IP Protocol Suite”, Tata McGraw Hill.
5. Walrand &Varaiya, “High Performance Communication Networks”, 2/e, Elsevier”, 2003

**Choice Based Credit System with Multiple Entry and Multiple Exit Option  
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BCA PART II SEM III**

**Course code: DSC–C4**

**Title of course: Computer Network II Theory:  
32 Hrs (40 lecturers of 48 minutes)Marks: 50  
(Credit: 02)**

**Course Outcomes:**

1. Understand with switching and routing concepts in networking technologies.
2. This course will help a student understand the various network protocols
3. Familiar with IPV4 and IPV6 address

**UNIT I**

**(16 HOURS)**

Introduction, Link-Layer Addressing, DLC Services, Data-Link Layer Protocols, HDLC, PPP, Media Access Control, Wired LANs: Ethernet, Wireless LANs, Introduction, IEEE 802.11, Bluetooth, Connecting Devices. Network Layer Services, Packet switching, Performance, IPV4 Addresses, Forwarding of IP Packets, Network Layer Protocols: IP, ICMP v4, Unicast Routing Algorithms, Protocols, Multicasting Basics, IPV6 Addressing, IPV6 Protocol

**UNIT II**

**(16 HOURS)**

Transport Layer, Process to process delivery, TCP-UDP, Operation and uses, Three-way Handshake, for connection establishment and termination. Application Layer, Domain Name Space, Remote Logging, Electronic Mail - File Transfer- Email, FTP.WWW and HTTP- HTTP.

**Reference:**

1. Black C “Computer networks protocols, standards and Interface”, prentice hall of India, 1996
2. stling W, “Computer communication network” (4th Edition), prentice hall of India, 1993
3. Tanenbaum A.S. “Computer Network”, prentice hall of India, 1981
4. Forouzan, “TCP/IP Protocol Suite”, Tata McGraw Hill.
5. Walrand&Varaiya, “High Performance Communication Networks”, 2/e, Elsevier”, 2003



**Choice Based Credit System with Multiple Entry and Multiple Exit Option  
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BCA PART II SEM III**

**Course code: DSC–C5**

**Title of course: Object Oriented Programming I**

**Theory: 32 Hrs (40 lectures of 48 minutes)**

**Marks: 50 (Credit: 02)**

**Course Outcomes:**

After completing this course, you will be able to:

1. Describe OOPs concepts
2. Define constructors and destructors
3. Implement inheritance and their types

**UNIT I**

**(16 HOURS)**

**Introduction to Object Oriented Paradigms:** Advantages of OOP, Difference between POP and OOP, Basic terminology and features, Skeleton of OOP, Data types, Loops, Function, Inline Function, Class, Constructor and their types, destructor. Constant objects and member functions, Static data members and functions, Friend Function, friend class, non-member functions, this pointer, Nested classes

**UNIT II**

**(16 HOURS)**

**Operator overloading and user defined conversions** – function overloading, operator overloading fundamentals, Restrictions, overloading unary & binary operators, **Inheritance**- defining a class hierarchy, types of inheritance, Base class member access, Base and Derived class constructor, Direct base classes & indirect base classes, Function overriding, Types of inheritance

**Reference:**

1. Object Oriented Programming with C++ by E Balagurusamy
2. The C++ programming language by Bjarne Stroustrup
3. C++: The Complete Reference by Herbert Schildt

**Choice Based Credit System with Multiple Entry and Multiple Exit Option  
(NEP-2020)  
BCA PART II SEM III**

**Course code: DSC–C6**

**Title of course: Object Oriented Programming II**

**Theory: 32 Hrs (40 lecturers of 48 minutes)**

**Marks: 50 (Credit: 02)**

**Course Outcomes:**

After completing this course, you will be able to:

1. Implement polymorphism
2. Demonstrate how to control errors with exception handling

**UNIT I**

**(16 HOURS)**

**Virtual functions and Polymorphism**, early and late binding, virtual table, virtual pointer, pure virtual functions, virtual base class, virtual inheritance, Run Time Type Identification

**UNIT II**

**(16 HOURS)**

**Generic Programming**- overview, Function templates, Class templates, member templates, introduction to Namespace, overview of Standard Template Library **Exception handling**- keywords, basics of C++ exceptions, catching an exception, re-throwing an exception, File handling

**Reference:**

1. Object Oriented Programming with C++ by E Balagurusamy
2. The C++ programming language by Bjarne Stroustrup
3. C++: The Complete Reference by Herbert Schildt

**Choice Based Credit System with Multiple Entry and Multiple Exit Option  
(NEP-2020)  
BCA PART II SEM IV**

**Course code: DSC D1**

**Title of course: Cyber Security I**

**Theory: 32 Hrs (40 lecturers of 48 minutes)**

**Marks: 50 (Credit: 02)**

**Course Outcomes:**

After completion of this course students will be able to;

The course will enable students to;

1. Understand importance of cyber security and security management.
2. Learn different security threats.

**UNIT I**

**(16 HOURS)**

Introduction to Cyber Security Cyber Security: Definition, Importance, cyber security fundamentals: confidentiality, Integrity, availability, layers of cyber security, Cyber Security Policy, Data Security, Mobile Device Security, User Security, File Security, Password Security, Browser Security, Email Security, Encryption, Decryption, Digital Signature

**UNIT II**

**(16 HOURS)**

Types of Security and Security Management Types of Security: Goals for Security ,security policies, need of security policies , Types of Attacks, DoS attack, , Digital forensics, lifecycle of digital forensics, E-commerce Security, dimensions of E-commerce security, Security protocols, Computer Forensics, Steganography, Security Management- Overview of Security Management, Information Classification Process, Security Policy, Risk Management.

**Reference Books:**

1. Introduction to Cyber Security, Chwan-Hwa(john) Wu,J. David Irwin, CRC Press T& F Group
2. Cyber Security for Beginners: Everything you need to know about it (Cyber security, Cyber war, Hacking) - Harry Colvin.
3. E-Commerce- Indian Perspective- P.T. Joseph S.J.
4. E-Commerce and Security- KjellOrsborn

**Choice Based Credit System with Multiple Entry and Multiple Exit Option  
(NEP-2020)  
BCA PART II SEM IV**

**Course code: DSC D2**

**Title of course: Cyber Security II**

**Theory: 32 Hrs (40 lecturers of 48 minutes)**

**Marks: 50 (Credit: 02)**

**Course Outcomes:**

The course will enable students to;

1. To learn threats and risks within context of the cyber security
2. Understand network security and cyber crime

**UNIT I**

**(16 HOURS)**

Security Threats and Access Controls Security Threats: Definition, Types of Threats - Virus, Worms, Trojan Horse, Malware, Ransomware, Identity theft etc, Torrent and infected websites, Antivirus-Definition, Types, features, advantages, limitations. Access Controls: Overview of Authentication and Authorization, Email authentication.

**UNIT II**

**(16 HOURS)**

Wireless Network Security- Components of wireless networks, Security issues in wireless, Wi-Fi Security, Risk of Using Unsecured Wi-Fi, Bluetooth and its security, Firewall, types of firewall. Cyber crime: Introduction, Causes of cyber crime, cyber terrorism.

**Reference Books:**

1. Network Security Bible, Eric Cole, Ronald Krutz, James W. Conley, 2nd Edition, Wiley India Pvt. Ltd.
2. Cyber Security Essentials, James Graham, Richard Howard and Ryan Otson, CRC Press.
3. Security in the Digital Age: Social Media Security Threats and Vulnerabilities by
4. Fundamentals of Network Security by E. Maiwald, McGraw Hill.
5. Henry A. Oliver, Create Space Independent Publishing Platform. (Pearson , 13th November, 2001).

**Choice Based Credit System with Multiple Entry and Multiple Exit Option  
(NEP-2020)  
BCA PART II SEM IV**

**Course code: DSC D3**

**Title of course: Data Warehousing I**

**Theory: 32 Hrs (40 lecturers of 48 minutes)**

**Marks: 50 (Credit: 02)**

**Course Outcomes:**

The course will enable students to;

1. To understand fundamental concepts of data warehouse.
2. To learn ETL concepts of data warehouse

**UNIT-I**

**(16 HOURS)**

Data warehousing, history of data warehouse, types of data warehouse, general stages of data warehouse, components of data warehouse, who needs data warehouse, applications of data warehouse, steps to implement data warehouse, advantages and disadvantages, the future of data warehousing, data warehouse tools, difference between database and data warehouse, use and characteristics of data warehouse, data warehouse architecture.

**UNIT-II**

**(16 HOURS)**

ETL process in data warehouse, ETL tools, best practices ETL process, Difference between ETL and ELT, ETL testing tutorial, ETL testing process, types of ETL testing, types of ETL bugs, Responsibilities of ETL tester, ETL developer: role and responsibilities and skills, applications of ETL, OLAP: Cube, analytical operations in data warehouse, types of OLAP systems, advantages and disadvantages of OLAP, MOLAP: MOLAP architecture, advantages and disadvantages of MOLAP, OLTP: characteristics, architecture, OLTP vs OLAP, advantages, disadvantages and challenges of OLTP, difference between OLTP and OLAP,

**Reference Books:**

1. Alex Berson and Stephen J. Smith “Data Warehousing, Data Mining & OLAP”, Tata McGraw – Hill Edition, Tenth Reprint 2007.
2. K.P. Soman, Shyam Diwakar and V. Ajay “Insight into Data mining Theory and Practice”, Easter Economy Edition, Prentice Hall of India, 2006.
3. G. K. Gupta “Introduction to Data Mining with Case Studies”, Easter Economy Edition, Prentice Hall of India, 2006.
4. Pang-Ning Tan, Michael Steinbach and Vipin Kumar “Introduction to Data Mining”, Pearson Education, 2007.
5. Arun K Pujari, “Data Mining Techniques”, 3rd Edition, Universities Press, 2005
6. PualrajPonnaiah, Wiley, “Data Warehousing Fundamentals”, Student Edition, 2004.
7. Ralph Kimball, Wiley, “The Data warehouse Life Cycle Toolkit”, Student Edition, 2006.

**Choice Based Credit System with Multiple Entry and Multiple Exit Option  
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BCA PART II SEM IV**

**Course code: DSC D4**

**Title of course: Data Warehousing II**

**Theory: 32 Hrs (40 lecturers of 48 minutes)**

**Marks: 50 (Credit: 02)**

**Course Outcomes:**

The course will enable students to;

3. To understand fundamental concepts of data warehouse.
4. To learn ETL concepts of data warehouse

**UNIT-I**

**(16 HOURS)**

Dimensional modeling in data warehouse: elements of dimensional data model, types of dimensions in data warehouse, steps of dimensional modeling, Rules for dimensional modeling, benefits of dimensional modeling, multidimensional modeling, star schema, fact tables, dimension tables, characteristic, advantages and disadvantages of star schema, snowflake schema, characteristic, advantages and disadvantages of snowflake schema, galaxy schema and characteristics of it. Difference between star schema and snowflake schema,

**UNIT-II**

**(16 HOURS)**

Data mart in data warehouse, type and example, steps in implementing a data mart, best practices for implementing data marts, advantages and disadvantages of data marts. Difference between data warehouse and data mart, Data Lake: its architecture, key data lake concepts, maturity stages of data lake, best practices for data lake implementation, difference between data lakes and data warehouse, benefits and risks of using data lake, Business intelligence: definition, meaning and example, types of BI users, advantages of BI, BI system disadvantages, trends in BI.

**Reference Books:**

1. Alex Berson and Stephen J. Smith “Data Warehousing, Data Mining & OLAP”, Tata McGraw – Hill Edition, Tenth Reprint 2007.
2. K.P. Soman, Shyam Diwakar and V. Ajay “Insight into Data mining Theory and Practice”, Easter Economy Edition, Prentice Hall of India, 2006.
3. G. K. Gupta “Introduction to Data Mining with Case Studies”, Easter Economy Edition, Prentice Hall of India, 2006.
4. Pang-Ning Tan, Michael Steinbach and Vipin Kumar “Introduction to Data Mining”, Pearson Education, 2007.
5. Arun K Pujari, “Data Mining Techniques”, 3rd Edition, Universities Press, 2005
6. Pualraj Ponnaiah, Wiley, “Data Warehousing Fundamentals”, Student Edition, 2004.
7. Ralph Kimball, Wiley, “The Data warehouse Life Cycle Toolkit”, Student Edition, 2006.

**Choice Based Credit System with Multiple Entry and Multiple Exit Option  
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BCA PART II SEM IV**

**Course code: DSC–D7**

**Title of course: Web Designing I**

**Theory: 32 Hrs (40 lecturers of 48 minutes)**

**Marks: 50 (Credit: 02)**

**Course Outcomes:**

The course will enable students to;

1. Understand internet basics, web server and domain name
2. Understand different HTML tags.
3. Learn how to create and format tables for organizing data.
4. Gain proficiency in creating hyperlinks and navigation menus

**UNIT I**

**(16 HOURS)**

Introduction to Internet: Definition of Internet, History of Internet Different types of Connections: Dial-up connection, ISDN, Advantages and Disadvantages, ASDL Connection, Advantages and Disadvantages, DSL, Leased Line, Satellite Connections, Modem - Cable Modem, Internet tools, Web server, Domain name, Search Engines

**UNIT II**

**(16 HOURS)**

Introduction to HTML: Introduction, Basic structure of an HTML document, Basic HTML Tags, Text Formatting Tags, Table tags, Frame, HTML Headers, List tag, META Tag, Marquee, Hyperlinks

**Reference Books:**

1. Internet and Web Design - Ramesh Bangia, Firewall Media
2. Web Technology - N.P. Goplan, J.Akilandeswari
3. Internet Technology and Web Design - ISRD Group
4. HTML and Web designing - Kris Jamsa and Konrad King

**Choice Based Credit System with Multiple Entry and Multiple Exit Option  
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BCA PART II SEM IV**

**Course code: DSC–D8**

**Title of course: Web Designing II**

**Theory: 32 Hrs (40 lecturers of 48 minutes)**

**Marks: 50 (Credit: 02)**

**Course Outcomes:**

The course will enable students to;

3. To learn advanced HTML tags
4. Understand cascading style sheet and font families

**UNIT I**

**(16 HOURS)**

Navigation menus, Semantic tags, Adding Images/Videos, Form structure and elements: Text fields, checkboxes, radio buttons, and dropdowns Form submission and handling user input, validating form data, Embedding external content (maps, social media etc.)

**UNIT II**

**(16 HOURS)**

CSS: Introduction, Features, Style Sheet basics, Working with CSS files, Types of Style Sheets, Selector, list tables, box model, External or Linked Styles Formatting Text and Fonts: Font Families Font Size Kerning, Leading, and Indenting, Formatting Colors and Backgrounds: The Color Attribute, The Background Attribute Background Colors and Images

**Reference Books:**

1. Teach yourself Web Technologies - Ivan Bayross - Reprinted 2011 Second Edition.
2. HTML and Web designing - Kris Jama and Konrad King, Tata McGraw Hill Publishing Ltd.
3. Web Design - Jenkins, Wiley India
4. Web programming -Chris Bates, Wiley – Dreamtech India Pvt Ltd