

BCA-FIFTH SEMESTER

DISCIPLINE SPECIFIC ELECTIVE

Total Marks = 100

No. of Credits = 4

Time allotted for Major Test = 2 ½ Hrs

Examination to be held: December 2022, 2023, 2024

Int. Assessment = 20 marks

Semester Exam. = 80 marks

COURSE NO. : UBCATE-501

COURSE TITLE : VB.NET

UNIT-I

Introduction to .NET, .NET Framework Features & Architecture, Introduction to Visual Studio, The VB.NET Language, Data Types, Variables, Forcing Variables Declarations, Scope & Lifetime of a Variable, Type Conversion, Constants, Operators and Expressions.

UNIT-II

Conditional Statements, Choose and Switch Functions, Loop Statements, Arrays, Types of Array, Structures, Collections and its Types, Procedures: Subroutines and Functions, Passing Arguments, Optional Argument, Structures.

UNIT-III

Concepts of Classes and Objects, Properties, Events, Access Modifiers, Constructors and Destructors, Garbage Collection, RegEx Class, Inheritance, Overloading and Overriding, Interfaces, Polymorphism, Exception Handling, Multithreading.

UNIT-IV

Working with Window Forms: Loading, Showing and Hiding Forms, Events and Working of Basic Controls, Designing Menus: Context Menu, Access & Shortcut Keys, Basic Controls -Textbox, Label, Message Box, Link Label, Button, List Box, Combo Box, Checkbox, Picture Box, Radio Button, Panel, Scroll Bar, Timer, List View, Tree View, Openfile Dialog, Savefile Dialog, Font Dialog, Color Dialog, Print Dialog.

UNIT-V

File Handlings: Opening and Closing Files, Reading and Writing into Files. Overview of Ado.NET, Connection Object, Command Object, Data Adapter, Dataset, Data Reader, Connection to Database, Data Binding, Data Form Wizard, Data Validation, Data Grid View.

SUGGESTED READINGS:

1. Steven Holzner, "VB.NET Programming Black Book", Dreamtech Publications, 2002.
2. Evangelos Petroustos, "Mastering Visual Basic .NET", BPB Publications, 2002.
3. Peter G. Aitken, "Visual Basic.NET Programming, with Peter Aitken", Dreamtech Publications, 2002.
4. Steven Holzner, "Visual Basic Programming", Dreamtech Press, 2002.
5. David Vitter, "Designing VB.NET Application - A Developer's Indispensable Guide To VB.NET", Dreamtech Press, 2002.
6. Francesco Balena, "Programming Microsoft Visual Basic.NET", Microsoft Press, 2002.

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COURSE TITLE : VB.NET

Instructions for paper setter

The question paper will be divided into the following three sections. No question shall be repeated in the question paper.

Section A

Total of 5 short answer questions (one from each Unit) shall be set and the candidates are required to answer all questions. Answer to a question should not exceed 80 words. Each question shall be of 3 marks.

(5 x 3 = 15 marks)

Section B

Total of 5 medium answer questions (one from each Unit) shall be set and the candidates are required to answer all questions. Answer to a question should not exceed 300 words. Each question shall be of 7 marks.

(5 x 7 = 35 marks)

Section C

It will contain five long answer questions (one from each Unit). The candidates will be required to answer any two questions. Answer to each question should not exceed 600 words. Each question shall be of 15 marks.

(2 x 15 = 30 marks)

Note: The paper setter shall ensure that the questions are uniformly distributed over entire syllabus.

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COURSE NO. : UBCATE-503

COURSE TITLE : COMPUTER NETWORK AND INTERNET

UNIT-I

Networking Definition, Network Hardware and Software, Types of Networks- Based on Transmission Technology; Circuit switched vs Packet Switched Networks, Based on their Scale LAN, WAN, MAN Advantages of Networking, Topologies, Transmission Medium, Baseband, Broadband, Wired and Wireless Network, Transmission Modes Simplex, Half Duplex and Full Duplex, Components Hub, Connector, Switch, Router, Gateway, Bridge.

UNIT-II

Protocol, Client and Server, Internet Protocol, IP Addresses, Classful and Classless Addressing Classes of IP Addresses, Intranet and Internet Advantages and Disadvantages, OSI Reference Model, TCP/IP Reference Model, Peer to Peer Network, Comparison of OSI and TCP/IP Reference Models, Design Issues for the Layers, Merits and De-Merits of Layered Architecture, Network Standardization.

UNIT-III

World Wide Web, Web Browser, Web Portal, Web Server, Web Site, Web Page, Web Portal, HTTP, Internet, Applications of Internet. Services of Internet, Email, FTP, Remote Login, Domain Name System, Uniform Resource Locator, Internet Service Provider. Web Security, Cookies, Firewalls, Web Applications, Search Engine.

UNIT-IV

Introduction to HTML, Structure of HTML Program, Formatting Tags, Image Tags, Linking of Documents, Lists, Tables, Frames, Iframes, HTML Forms, Introduction to Cascading Style Sheet, Defining Style, Inline Styles, Internal and External Style Sheet.

UNIT-V

Introduction to Javascript, Data Types Variables, Conditional and Loops Control Statement, Functions, Arrays, Events, Strings and Mathematical Functions, Windows and Document Object and their basic properties, methods and events, JS Forms.

SUGGESTED READINGS:

1. Andrew. S. Tannenbaum, "Computer Network", Pearson, 1996.
2. Williams Stallings, "Data and Computer Communication", Pearson, 1988.
3. Behrouz A. Forouzan, "Data Communication and Networking", McGraw-Hill Professional Publication, 5th Edition, 2013.
4. Douglas E. Comer, "The Internet Book", Prentice Hall, 4th Edition, 2007.
5. Eric Roberts, "Introduction to JavaScript Programming The 'Nothing but a Browser' Approach", Pearson, 2020.
6. Phil Ballard, "JavaScript in 24 Hours, Sams Teach Yourself", Pearson, 7th Edition, 2019.

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COURSE NO. : UBCATE-503
COURSE TITLE : COMPUTER NETWORK AND INTERNET

7. Felke-Morris and Felke-Morris, "Basics of Web Design: HTML5 & CSS", Pearson 5th Edition, 2020.
8. Julie C. Meloni and Jennifer Kyrnin, "HTML, CSS, and JavaScript All in One, Sams Teach Yourself", Pearson, 3rd Edition, 2019.

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(5 x 7 = 35 marks)

Section C

It will contain five long answer questions (one from each Unit). The candidates will be required to answer any two questions. Answer to each question should not exceed 600 words. Each question shall be of 15 marks.

(2 x 15 = 30 marks)

Note: The paper setter shall ensure that the questions are uniformly distributed over entire syllabus.

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BCA-FIFTH SEMESTER

SKILL ENHANCEMENT COURSE

Total Marks = 100	Int. Assessment = 20 marks
No. of Credits = 4	Semester Exam. = 80 marks
Time allotted for Major Test = 2 ½ Hrs	
Examination to be held: December 2022, 2023, 2024	

COURSE NO. : UBCAPS-552
COURSE TITLE : MULTIMEDIA COMPUTING

UNIT-I

Introduction to Multimedia, Multimedia Definition and Concepts, Need of Multimedia, Areas of use, Development platforms for multimedia, Identifying Multimedia elements-Text, Images, sound, Animation and video, Multimedia Hardware and Software requirement, Making simple Multimedia with Power Point text as a component of Multimedia.

UNIT-II

Sound in multimedia, Importance of sound in multimedia, sound and its attributes- tone, intensity, frequency, wavelength, pitch. Mono v/s stereo sound, Analog vs. Digital sounds, Concept of MIDI: Musical Instrument Digital Interface.

UNIT-III

Graphics in Multimedia, Importance of graphics in Multimedia, Various attributes of Images- Size, color, Bit Depth, Resolution, Various Image file formats BMP, DIB, EPS, PIC and TIF format their features and limitations.

UNIT-IV

Video and animation in multimedia, impact of video in multimedia, Basics of video, analog and digital video, Brief note on various video standards PAL, NTSC, Basics of animations, types of animation and use of animation.

UNIT-V

Application of Multimedia and its feature, Application of multimedia in Education, Entertainment, Journalism etc. Future of Multimedia, career in Multimedia Production, Virtual reality as new technology in Multimedia, Application of Virtual Reality.

SUGGESTED READINGS:

1. Tay Vaughan, "Multimedia: Making it Work", Tata McGraw-Hill, 8th Edition, 2008.
2. James E Shuman, "Multimedia in action", Vikas Publishing House.
3. Multimedia Basics Volume/ Technology, Andreas.
4. Hoi Zinger, "Firewall Media", Laxmi Publication Pvt. Ltd., New Delhi.
5. IAN Sinclair, "Multimedia on PC", BPB Publisher, 2008.



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Contd.

SKILL ENHANCEMENT COURSE

Total Marks = 100

Int. Assessment = 20 marks

No. of Credits = 4

Semester Exam. = 80 marks

Time allotted for Major Test = 2 ½ Hrs

Examination to be held: December 2022, 2023, 2024

COURSE NO. : UBCAPS-552

COURSE TITLE : MULTIMEDIA COMPUTING

Instructions for paper setter

The question paper will be divided into the following three sections. No question shall be repeated in the question paper.

Section A

Total of 5 short answer questions (one from each Unit) shall be set and the candidates are required to answer all questions. Answer to a question should not exceed 80 words. Each question shall be of 3 marks.

(5 x 3 = 15 marks)

Section B

Total of 5 medium answer questions (one from each Unit) shall be set and the candidates are required to answer all questions. Answer to a question should not exceed 300 words. Each question shall be of 7 marks.

(5 x 7 = 35 marks)

Section C

It will contain five long answer questions (one from each Unit). The candidates will be required to answer any two questions. Answer to each question should not exceed 600 words. Each question shall be of 15 marks.

(2 x 15 = 30 marks)

Note: The paper setter shall ensure that the questions are uniformly distributed over entire syllabus.

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BCA-FIFTH SEMESTER

TITLE: Practical (Based on UBCATE-501)

Course No. : UBCAPE-560	Duration of Examination : 3 Hrs
No. of Credits = 2	Total Marks = 50
Examination to be held: December 2022, 2023, 2024	

In this course the students shall be exposed to various practical problems based on the above topic and the Teacher-in-Charge shall design 20-30 problems. The students shall be required to systematically work out the solution of those problems and implement in the computer laboratory. The 50% of the total marks in this paper shall be reserved for internal assessment. The Teacher-in-Charge shall conduct one internal evaluation test for awarding the students for internal assessment. The students shall also be required to maintain proper record of their practicals in a Practical File which shall be regularly checked by the concerned teacher-in-charge. The internal assessment shall be based on written test, viva-voce, practical file and attendance in the laboratory. For the rest of 50% of the total marks there shall be an external examination which shall be conducted jointly by an internal examiner and an external examiner to be appointed by the University. The distribution of marks to various components is given below as:

External Examination = 25 marks

- Written Test = 20 marks
- Viva Voce = 5 marks

Internal Examination = 25 marks

- Written Test = 10 marks
- Viva Voce = 5 marks
- Practical File = 5 marks
- Attendance = 5 marks



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BCA-FIFTH SEMESTER

TITLE: Practical (Based on UBCATE-503)

Course No. : UBCAPE-562	Duration of Examination : 3 Hrs
No. of Credits = 2	Total Marks = 50
Examination to be held: December 2022, 2023, 2024	

In this course the students shall be exposed to various practical problems based on the above topic and the Teacher-in-Charge shall design 20-30 problems. The students shall be required to systematically work out the solution of those problems and implement in the computer laboratory. The 50% of the total marks in this paper shall be reserved for internal assessment. The Teacher-in-Charge shall conduct one internal evaluation test for awarding the students for internal assessment. The students shall also be required to maintain proper record of their practicals in a Practical File which shall be regularly checked by the concerned teacher-in-charge. The internal assessment shall be based on written test, viva-voce, practical file and attendance in the laboratory. For the rest of 50% of the total marks there shall be an external examination which shall be conducted jointly by an internal examiner and an external examiner to be appointed by the University. The distribution of marks to various components is given below as:

External Examination = 25 marks

- Written Test = 20 marks
- Viva Voce = 5 marks

Internal Examination = 25 marks

- Written Test = 10 marks
- Viva Voce = 5 marks
- Practical File = 5 marks
- Attendance = 5 marks



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DISCIPLINE SPECIFIC ELECTIVE

Semester V

Title of the Course/ Course Number:- Matrices / UMTTE501

Internal Assessment Test: 20 Marks Credits: 06

External End Semester University Examination: 80 Marks

(For the Examinations to be held in Dec 2018, 2019 and 2020)

UNIT-I

Matrices: Symmetric, Skew- Symmetric, Hermitian, Skew- Hermitian, Unitary and Orthogonal. Rank of a matrix, characteristic polynomial of a matrix, eigen values, eigen vectors. Cayley – Hamilton theorem and its applications to find inverse of a matrix. Exercises and examples based on these concepts.

UNIT-II

(\mathbb{R}) , $n=1,2,3$ as a vector space. Concept of linear dependence and independence. Subspaces, different basis and dimension of these vector spaces. Exercises and results based on these concepts.

UNIT-III

The columns of a matrix A are linearly independent iff there exists vector $X \neq 0$ such that $AX=0$. The columns of a matrix A of order $m \times n$ are linearly independent iff rank of A is less than n . A matrix A has rank r iff it has r linearly independent columns, whereas any s columns, $s > r$ are linearly dependent. Analogous results for rows. Linear, homogenous and non-homogenous equations. The equation $AX=0$ has non zero solution iff the rank of A is less than n , the number of columns. The number of linearly independent solutions of the equation $AX=0$ is $n-r$, where r is the rank of matrix A of order $m \times n$. The equation $AX=B$ is consistent iff the two matrices A and $[A:B]$ are of the same rank.

UNIT-IV

Translation, dialation , rotation , reflection in a point, line and plane. Matrix form of basic geometric transformations. Interpretation of eigen values and eigen vectors for such transformations and eigen spaces as invariant subspaces.

UNIT-V

Diagonal fom of matrices, reduction to diagonal form upto matrices of order 3. Solution of system of linear equations using matrices. Illustrative examples of these concepts from staistics.

Books Recommended:

- A.I. Kostrikin, Introduction to Algebra, Springer Verlag, 1984.
- S.H. Friedberg, A.L. Insel and L.E. Spence, Linear Algebra, Prentice Hall, New Delhi 2004.15
- Richard Bronson, Theory and Problems of Matrix Operations, Tata McGraw Hill, 1989.
- Shanti Narayan, P.K.Mittal , A TextBook of Matrices, S.Chand& Co. Ltd. 2004.

Note:

- The evaluation of a candidate shall be awarded and record thereof maintained in accordance with the regulations prescribed for the purpose under CBCS as per the following: Theory Syllabus to be covered in the examination Time allotted % Weightage(Marks)

Internal Assesment Test: The question paper will consist of two parts:

Part A: Total weightage of this part is 10 marks. It will contain 08 short answer type questions selecting atleast three from each of the two/three units(50 % of the syllabus) covered. A candidate has to attempt any five and each question carries 02 marks.

Part B: Total weightage of this part is 10 marks. It will contain 02 long answer type questions selecting one from each of the first two units/50 % of the syllabus. A candidate has to attempt any one question and it carries 10 marks.

Upto 50% (after 45 lectures) 1 hour 20%