B.Voc. I Syllabus

Preamble:

The University Grants Commission (UGC) has launched a scheme on skills development based higher education as part of college/university education, leading to Bachelor of Vocation (B.Voc.) Degree with multiple exits such as Diploma/Advanced Diploma under the NSQF.The B.Voc.Programme is focused on universities and colleges providing undergraduate studies which would also incorporate specific job roles along with broad based general education. This would enable the graduates completing B.Voc.to make a meaningful participation in accelerating India's economy by gaining appropriate employment, becoming entrepreneurs and creating appropriateknowledge.

The proposed vocational Programme in Software Development will be a judicious mix of skills, professional education related to Software Development and also appropriate content of general education. It is designed with the objective of equipping the students to cope with the emerging trends and challenges in the Software Developmentenvironment.

Programme Objectives of Course:

1. The students are expected to understand the concepts and recent developments in the subject area.
2. It is expected to inspire and boost interest of the students in Software Development Process.
3. Practical and theory framed under skill development and to understand the concepts in Industry.
4. To provide current and practical base knowledge to students in this area.
5. To provide more job based training so student can achieve the goal.

Program Specific Outcomes:

After successful completion of B.Voc Software Development Course student will be able to:

1. Understand the concept and working of Software Industry.
2. Learn, design and perform programs and projects in lab as per the concepts learn in course.
3. Acquire knowledge about recent technologies in software development field.
4. Resolve problems specific to this field.
5. Perform jobs or self-career in various fields like Software/Website Development, Graphic Designing

B.Voc. Course

1. Title: Software Development.

2. Year of Implementation: The syllabus will be implemented from June, 2018 onwards.

3. Duration: The course shall be a full time.

4. Pattern: Semester examination.

5. Medium of Instruction: English.

6. Structure of Course:

B.Voc. I Semester 1

General Education				Skill Component			
No.	Title	Credit	Hrs/ Week	No.	Title	Credit	Hrs/ Week
EN1111	Speaking and Listening skills	4	4	VS 313	Introduction to IT	4	4
VS 311	Aptitude & Logical reasoning	4	4	VS 314	C Programming	4	4
VS 312	Programming Principles	4	4	VS 315	Word Processing & Image editing	4	4
				VS 316	Photoshop Lab	3	3
				VS 317	C Programming Lab	3	3
	Total	**12**	**12**		**Total**	**18**	**18**

B.Voc. ISemester II

General Education				Skill Component			
No.	Title	Credit	Hrs/ Week	No.	Title	Credit	Hrs/ Week
EN1211	Writing and Presentationskills	4	4	VS 322	Web Designing (HTML,CSS)	4	4
VS 321	Environmental Studies	4	4	VS 323	Network & Internet Applications	4	4
MM1131.9	Mathematics I	4	4	VS 324	Object Oriented Programming in 'C++'	4	4
				VS 325	C++ Lab	3	3
				VS 326	Web Designing & development Lab	3	3
	Total	**12**	**12**		**Total**	**18**	**18**

Titles of Papers of B.VocI Course

B.Voc. I Semester I

Theory: 72 lectures, 60 hours (for each paper)

EN1111: Speaking and listening skills
VS 311: Aptitude & Logical reasoning
VS 312: Programming Principles
VS 313: Introductions to IT
VS 314: C Programming
VS 315: Word Processing & Image editing

Practical: 18 Practical: 54 hours (for each paper)

VS 316: Photoshop Lab
VS 317: C Programming Lab

B.Voc. I Semester II

Theory: 72 lectures, 60 hours (for each paper)

EN1211: Writing and Presentationskills
VS 321: Environmental Studies
MM1131.9: Mathematics I
VS 322: Web Designing(HTML,CSS)
VS 323: Network & Internet Applications
VS 324: Object Oriented Programming in 'C++'

Practical: 18 lectures: 54 hours (for each paper)

VS 325: C++ Lab
VS 326: Web Designing& development Lab

B.Voc - I SEM- I: **EN 1111: LISTENING AND SPEAKING SKILLS**

No. ofcredits:4 **No. of instructional hours: 4 per week**

Learning Objectives:

Students will be able to

- To develop Communication Skills
- To develop Reading Skills
- To develop Listening Skill
- To communicate effectively and accurately inEnglish
- To use spoken language for variouspurposes.

Unit I: Listening Skills

1.1 Definition
1.2 Importance
1.3 Types
1.4 Barriers
1.5 Strategies for effective listening
1.6 Listening for meaning

Learning Outcomes:

After completion of the unit, Student is able to

- Enhance Listening Skills
- Make effective strategies for listening

Unit II Reading Skills.

2.1 Definition
2.2 Importance
2.3. Types
2.4 Strategies
2.5 Reading speed
2.6 Reading Comprehension:

Prescribed Text:

Serafin and JoaquinAlvarezQuinters - A *SunnyMorning*

Learning Outcomes:

After completion of the unit, Student is able to

- Enhance Reading Skills
- Effectively use different strategies of reading.

Unit III: Speaking Skills

3.1 Definition
3.2 Importance
3.3 Barriers
3.4 Public Speaking
3.5. Conversational Manners and Etiquettes

Learning Outcomes:

After completion of the unit, Student is able to

- Develop speaking skills effectively in different contexts
- Effectively use different strategies for enhancing speaking skills

Unit IV: Dialogue Practice
4.1 Dialogue
4.2 Types
4.3 Pronunciation
(Students should be given ample practice in dialogue, using core and supplementary materials.

Learning Outcomes:
After completion of the unit, Student is able to

- Enhance Pronunciation
- Enhance Reading Skills
- Enhance Listening Skills

References:

1 Dale Carnegie, The art of Public Speaking,PrabhatPrakashan, 2019.

2 Jack C.Richards, SamuelaEcksturt- Dilier Marks, Jonathan.Strategic Reading: Building Effective reading skills English Pronunciation in Use. New Delhi: CUP,2007.

3 Lynch, Tony. *Study Listening.* New Delhi: CUP,2008.

4 Kenneth,Anderson,TonyLynch,JoanMacLean.*StudySpeaking*.NewDelhi:CUP,2008.

5 *Dramatic Moments: A Book of One Act Plays.* Orient Black Swan, 2013.

6 Jones, Daniel. *English Pronouncing Dictionary* 17_{th} Edition. New Delhi: CUP, 2009.

B.Voc - I SEM- I: **VS 311 APTITUDES & LOGICAL REASONING**

No. ofcredits:4 **No. of instructional hours: 4 per week**

Course Objectives: Students should

1. Interpret differentdata
2. Establish relationship betweennumbers
3. Solve different logicalproblems
4. Understand Relationship concept

Unit I: Data sufficiency: **(18)**

Data sufficiency, Measurement, Time and distance, Arithmetic, Relationship between numbers

Unit II: Basic mathematical relations and formula:

(18)

Basic mathematical relations and formula, Computation, Data interpretation

Unit III: Differences: **(18)**

Differences, Discrimination, Decision-making, Judgment, Problem-solving, Analogies,Analysis

Unit IV: Arithmetic reasoning: **(18)**

Arithmetic reasoning, Relationship concept, Arithmetic number series, Similarities, Verbal and figure classification, Space visualization,Observation

2. REFERENCES

1. ArunSharma ,*HowtoPrepareforLogicalReasoningfortheCAT* ,2 ndEdition,july 2014
2. A.K.Gupta,*Logical and Analytical Reasoning* ,October 2020.

Course Outcomes:

Unit 1: After completion of unit, Students are able to:

1. Understand Data sufficiency, Measurement,
2. Understand Arithmetic, Relationship between numbers

Unit 2: After completion of unit, Students are able to:

1. Understand Basic mathematical relations and formula
2. Understand Computation, Data interpretation

Unit 3: After completion of unit, Students are able to:

1. Understand Differences, Discrimination
2. Do Problem-solving, Analogies, Analysis

Unit 4: After completion of unit, Students are able to:

1. Understand Make Relationship concept, Arithmetic number series
2. Understand Space visualization,Observation

B.Voc - I SEM- I: **VS 312 PROGRAMMING PRINCIPLES**

No. ofcredits:4 **No. of instructional hours: 4 per week**

Course Objectives: Students should

1. Explain problem solvingsteps
2. Develop algorithm for differentproblems
3. Draw flow chart
4. Analyzealgorithms

Unit1: Problem Solving and the Computer: (18)

Problem Definition, Solution Design, Solution Refinement, Testing Strategy Development, Program Coding and Testing, Documentation Completion, Program Maintenance.

Unit II: Software and Types of Software: (18)

Software and Types of Software, Programming Languages- Machine Language, Assembly Language, High Level Language, Object Oriented Language and its features.

Unit III: Algorithms and Their Representations: **(18)**

Algorithms and Their Representations, Flow charts, Pseudo code, Types of Programming, Languages, Structured Programming, Different approaches of Programming: Top-down and Bottom-up, Life Cycles Stages of Programming, Features of a good computer program.

Unit IV: Areas of algorithm study: **(18)**

Areas of algorithm study performance analysis – space complexity, time complexity, asymptotic notations (O, Ω, θ).

2. REFERENCES:

1. P K Sinha&PritiSinha, *ComputerFundamentals*, FourthEdition, 2006.
2. David R. O'Hallaron Randal E. Bryant ,*Computer Systems: A Programmer's Perspective*,January ,2016

Course Outcomes:

Unit 1: After completion of unit, Students are able to:

1. Differentiate Problem Definition, Solution Design,
2. Understand Program Coding and Testing

Unit 2: After completion of unit, Students are able to:

1. Understand Software and Types of Software.
2. Know different types of Language.

Unit 3: After completion of unit, Students are able to:

1. Understand Algorithms and Their Representations
2. Understand , Life Cycles Stages of Programming

Unit 4: After completion of unit, Students are able to:

1. Know Areas of algorithm study performance analysis
2. Solve space complexity, time complexity

B.Voc - I SEM- I**: VS 313 INTRODUCTION TO IT**

No. ofcredits:4 **No. of instructional hours: 4 per week**

Course Objectives: Students should

1. Understand the basic terminology in the field ofIT
2. Impart functional knowledge about PC hardware, operations andconcepts
3. Impart functional knowledge in the use of GUI OperatingSystem
4. Impart functional knowledge in a standard office package (word processor, spread sheet and presentation software's) and popularutilities
5. Impart functional knowledge about networks andinternet.
6. Understand computer application in various fields and an overall generic awareness about the scope of the field ofIT

Unit–I: Computer characteristics: **(18)**

Speed, storage, accuracy, diligence; Digital signals, Binary System, ASCII; Historic Evolution of Computers; Classification of computers: Microcomputer, Minicomputer, mainframes, Supercomputers; Personal computers: Desktop, Laptops, Palmtop, Tablet PC; Hardware & Software; Von Neumann model.

Unit–II: Hardware: **(18)**

CPU, Memory, Input devices, output devices. Memory units: RAM (SDRAM, DDR RAM, RDRAM etc. feature wise comparison only); ROM-different types: Flash memory; Auxiliary storage: Magnetic devices, Optical Devices; Floppy, Hard disk, Memory stick, CD, DVD, CD-Writer; Input devices - keyboard, mouse, scanner, speech input devices, digital camera, Touch screen, Joystick, Optical readers, bar code reader; Output devices: Display device, size and

resolution; CRT, LCD; Printers: Dot-matrix, Inkjet, Laser; Plotters, Sound cards &speaker.

Unit-III: Software: **(18)**

System software, Application software; concepts of files and folders, Introduction to Operating systems, Different types of operating systems: single user, multitasking, time-sharing multi-user; Booting, POST; Basic features of two GUI operating systems: Windows & Linux (Basic desk top management); Programming Languages, Compiler, Interpreter, Databases; Application softwares: Generic Features of Word processors, Spread sheets and Presentation softwares; Generic Introduction to Latex for scientific typesetting; Utilities and their use; Computer Viruses & Protection, Free software, open source.

Unit–IV: Computer Networks **(18)**

Connecting computers, Requirements for a network: Server, Workstation, switch, router, network operating systems; Internet: brief history, World Wide Web, Websites, URL, browsers, search engines, search tips; Internet connections: ISP, Dial-up, cable modem, WLL, DSL, leased line; email, email software features (send receive, filter, attach, forward, copy, blind copy); characteristics of web-based systems, Web pages, introduction toHTML.

1. REFERENCES

4.1 Core

- E. Balaguruswamy, *Fundamentals of Computers*, McGraw hill,2014

4.2 Additional

- Dennis P Curtain, *Information Technology: The Breaking wave*, McGrawhill,2014
- Peter Norton, *Introduction to Computers*, McGrawhill, Seventhedition,2017

Course Outcomes:

Unit 1: After completion of unit, Students are able to:

1. Differentiate Speed, storage, accuracy, diligence,
2. Understand various computer systems

Unit 2: After completion of unit, Students are able to:

1. Understand CPU, Memory, Input devices, output devices .
2. Know different types of storage devices.

Unit 3: After completion of unit, Students are able to:

1. Understand System software, Application software
2. Understand Windows & Linux

Unit 4: After completion of unit, Students are able to:

1. Connecting computers, Requirements for a network
2. Understand different browsers, search engines, search tips

No. ofcredits:4 **No. of instructional hours: 4 per week**

Course Objectives: Students should

1. Understand algorithmic thinking and algorithmicrepresentations
2. Understand Basic data types and control structures inC.
3. Understand structured programmingconcepts
4. Able to use standard library functions in Clanguage

Unit–I: Introduction to programming: **(18)**

Character set, Variables and Constants, Rules for naming the Variables/Identifiers; Basic data types of C, int, char, float, double; storage capacity – range of all the data types; Storageclasses;

Unit-II: Basic Elements: **(18)**

Operators and Expressions: Assignment Operator, Arithmetic Operator and Arithmetic expression, Relational Operator and Relational exp., Logical Operator and how it is used in condition, Precedence of Operators, simple I/O statements, Control structures, if, if else, switch-case, for, while, do-while, break, continue.

Unit-III: Arrays: **(18)**

Arrays, declaration, initialization and processing, Defining simple arrays, Multi-dimensional arrays, Strings: Strings Manipulation, Arrays of Strings.

Unit–IV: Functions and Pointers: **(18)**

Functions: Definition, Return values & their types, function call, recursion, passing Arrays to Functions, Storage classes, accessing the address of variable, declaring & initializing pointer variables, accessing variables through pointers, void pointers. **File management in C**: Introduction, Defining & Opening a file, closing a file, Input/Output operations on file, Random Access to files.

REFERENCES

- Ashok N. Kamthene, *Programming in C*, Pearson Education, Secondedition,1 April 2011.
- E.Balaguruswamy, *Programming in ANSI C*, McGrawhill, SixthEdition, January 2010.

Course Outcomes:

Unit 1: After completion of unit, Students are able to:

1. Uses Variables and Constants.
2. Understand Basic data types of C.

Unit 2: After completion of unit, Students are able to:

1. Work with operators and expressions.
2. Understand working of Control structures .

Unit 3: After completion of unit, Students are able to:

1. Understand concept of modular programming.
2. Work with Array & its types.

Unit 4: After completion of unit, Students are able to:

1. Create functions and use pointers in programs.
2. Understand the working of file handling

B.Voc - I SEM- I: **VS 315 WORD PROCESSING & IMAGE EDITING**

No. ofcredits:4 **No. of instructional hours: 4 per week**

Course Objectives:Students should

1. Prepare officedocument
2. Createpresentation
3. Design multimediapresentation
4. Editimages

Unit1: Word processing: **(18)**

Word processing concepts, Editing, Formatting Text, Table Manipulation, Indexing, Mail merge, Documentation, Inserting Word Art, Inserting Picture and clip Arts, Auto formatting, Tools,Macros

Unit II: Power Point: **(18)**

Beginning a presentation, Templates and Slide Master, Drawing Tools, ClipArt and WordArt, Organization Charts, Graph, Output and Presentation Options, Integrating with Animation and Multimedia packages.

Unit III: Flash : **(18)**

Introduction, Drawing, Working with Colour, Using Imported Artwork, Adding Sound, Working with Objects, Using Layers, Using Type, Using Symbols and Instances, Creating Animation, Creating interactive movies, Creating Printable movies, Publishing and Exporting.

Unit IV: Photoshop: **(18)**

Getting image into Photoshop, Selecting, Transforming and Retouching, Drawing, Painting, Applying Filters for special effects, Designing Web pages, Creating Rollovers and Animations, Preparing Graphics for the Web, Saving and exporting images.

Reference Books:

1. RobertT.GrauerandMaryannBarber,*ExploringMicrosoftWord2003Comprehensive*,Spiral Bound,2007.
2. ToddPerkins ,*Adobe Flash CS3 Professional Hands-On Training*, Peachpit Press,September 2007.

Course Outcomes:

Unit 1: After completion of unit, Students are able to:

1. Know about word Editing, Formatting,
2. Perform Mail merge, Documentation

Unit 2: After completion of unit, Students are able to:

1. Create presentation, Templates and Slide Master.
2. Know Drawing Tools, ClipArt and WordArt.

Unit 3: After completion of unit, Students are able to:

1. Understand Drawing, Working with Color in flash
2. Creating Animation, Creating interactive movies

Unit 4: After completion of unit, Students are able to:

1. Getting image into Photoshop, Selecting, Transforming and Retouching
2. Designing Web pages, Creating Rollovers and Animatio

B.Voc - I SEM- I: **VS 316 PHOTOSHOP LAB**

No. ofcredits:3 **No. of instructional hours: 3 per week**

Students should provide hands-on knowledge with the Pagemaker software for preparing documents with the knowledge they acquired through Unit 1 of the paper VS 315

B.Voc - I SEM- I: **VS 317 C PROGRAMMING LAB**

No. ofcredits:3 **No. of instructional hours: 3 per week**

Course Objectives: Students should

1. Create, Save, Copy, Delete, Organize various types of files and manage the desk top.
2. Use a standard word processing package Exploiting popularfeatures
3. Use a standard spread-sheet processing package Exploiting popularfeatures
4. Use a standard presentation package Exploiting popularfeatures

Also, this course will provide hands-on practice in the following topics, under a variety of programming situations with a focus on writing, debugging and analyzing structured programs:

5. Basic data types inC.
6. basic control structures inC.
7. arrays, structures andfiles
8. standard library functions in Clanguage
9. solving moderately complex problems involving the above and requiring selection of appropriate data structures and efficientalgorithms

Part I

The C laboratory work will consist of 15-20 Experiments

1. Testing out and interpreting a variety of simple programs to demonstrate the syntax and use of the following features of the language: basic data types, operators and controlstructures.

Part II

2. 1-D Arrays: A variety of programs to declare, initialize, read, print and process 1-D arrays of various basic data types. Processing to include, selection, sum, counting, selective sum, selective counting, reversingetc.
3. Pointers: A large number of trivial programs involving all possible data types to familiarize the syntax of pointers in a variety of situations and to draw memory diagrams based on theobservations.
4. 2-D Arrays: A variety of programs to declare, initialize, read, print and process 2-D arrays of various basic data types. Processing to include, selection, sum, counting,

   Selective sum, selective counting, reversingetc. Array of Structures and Structure of

Arrays: Programs to demonstrate declaration and processing of structure of arrays and array ofstructures.

5. Functions –I: Simple Examples of declaring and using functions of the following categories (i) no argument, no return, (ii) argument, no return, (iii) no argument, return, (iv) argument, return, all pass byvalue
6. Functions –II: Declaring and using functions with pass by reference, Passing and Returning structures, Recursivefunctions.
7. Files: Simple Example involving use of multiple files: declaring, opening, closing, reading from and writing to textfiles.
8. Files: Example involving use of multiple files: declaring, opening, closing, reading from and writing to binaryfiles.

Lab Programs:

1. Write a C program to find if a given no. is prime or not
2. Write a C program to compute Fibonacci series
3. Write a C program to insert an element in one dimensional array at a given position
4. Write a C program to delete an element from one dimensional array
5. Write a C program to multiply a 3*3 matrix.
6. Write a C program to check if given string is palindrome or not.
7. Write a C program using function to find sum of two numbers with no argument & no return value
8. Write a C program to reverse the entered string from command line arguments
9. Write a C program to read name and marks of n number of students from and store them in a file. If the file previously exits, add the information to the file.
10. Write a C program to read name and marks of n number of students and store them in a file.

Course Outcomes:

After completion of unit, Students are able to:

1. Uses Variables and Constants.
2. Understand Basic data types of C.
3. Work with operators and expressions.
3. Understand working of Control structures and concept of modular programming.
4. Create functions and use pointers in programs.
5. Work with Array & pointer and Understand File Handling.

B.Voc. ISemester II

Syllabus Structure:

General Education				Skill Component			
No.	Title	Credit	Hrs/ Week	No.	Title	Credit	Hrs/ Week
EN1211	Writing and Presentationskills	4	4	VS 322	Web Designing (HTML,CSS)	4	4
VS 321	Environmental Studies	4	4	VS 323	Network & Internet Applications	4	4
MM1131.9	Mathematics I	4	4	VS 324	Object Oriented Programming in 'C++'	4	4
				VS 325	C++ Lab	3	3
				VS 326	Web Designing & development Lab	3	3
	Total	**12**	**12**		**Total**	**18**	**18**

B.Voc - I SEM- II: **EN 1211: WRITING AND PRESENTATION SKILLS**

No. ofcredits:4 **No. of instructional hours: 4 per week**

Learning Objectives:

Students will be able to

- To develop Writing Skills
- To develop Presentation Skills.

COURSE OUTLINE

Unit 1: Writing as a skill

1.1 Definition

1.2 Importance

1.3Mechanism

1.4Words and sentences

1.5 Paragraph as unitof structuring wholetext

1.6Combiningdifferentsources–functionaluseofwriting

Unit -2 Writing process

2.1planning a text – finding materials - drafting – revising – editing - finalizing thedraft-computerasanaid–

2.2 Keyboardskills–

2.3 Wordprocessing–

2.4 Desktoppublishing.

Unit-3 Expansion of ideas

3.1 Writing models

3.2 Essay

3.3 Dialogue Writing

3.4 Letter writing - - job application -

3.5 E-mail – fax

3.6 Report writing.

Learning Outcomes:

After completion of the unit, Student is able to

Develop writing skills

Unit 4- Presentation as a Skill

4.1. Definition
4.2Importance
4.3Presentation strategies
4.4 Structuring the presentation

Learning Outcomes:

After completion of the unit, Student is able to

Develop Presentation skills

Reference:

Core reading: *English for Effective Communication*. Oxford University Press, 2013.

Further reading:

1. Robert, Barraas. *Students Must Write*. London: Routledge,2006.
2. Bailey, Stephen. *Academic Writing*.Routledge,2006.
3. Hamp-Lyons,Liz,BenHeasley.*StudyWriting*.2nd Edition.CambridgeUtyPress,2008.
4. Ilona, Leki. *Academic Writing*.CUP,1998.
5. McCarter, Sam, Norman Whitby. *Writing Skills*.Macmillan India,2009.
6. Jay. *Effective Presentation*. New Delhi: Pearson,2009.
7. Mayor, Michael, et al, Ed. *Longman Dictionary of Contemporary English*.5th Edition. London: Pearson Longman Ltd, 2009

B.Voc. -I Sem- II: **VS 321 ENVIRONMENTAL STUDIES**

No. ofcredits:4 **No. of instructional hours: 4 per week**

Course Objectives: Students should

1. Have better awareness and concern about current environmentalissues
2. Develop a healthy respect and sensitivity toenvironment
3. Develop pride in social and environmentalactivism.
4. Develop solutions regarding environmental issues.

Unit–I: The Multi-disciplinary Nature of Environmental Studies: (18)

Definition, scope and importance, Need for Public Awareness, Ecology and Ecosystems: Definition of Ecology, Structure and function of an ecosystem, Producers, Consumers and Decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids, Introduction, types, characteristics features and function of – forest ecosystem, grassland ecosystem, desert ecosystem, aquatic ecosystem(ponds, streams, lakes, rivers, oceans,estuaries)

Unit-II: **Biodiversity and its conservation:** (18)

Introduction, genetic, species and ecosystem diversity definition, value of biodiversity, biodiversity at global, national and local levels, India as a mega diversity nation, hot spots of biodiversity, threats to biodiversity – habitat lose, poaching of wild life, man wild life conflicts, endangered and endemic species of India, conservation of bio diversity in in-situEX-situ

Unit-III: Natural Resources: (18)

Air resources-features, composition, structure, air quality management, forest resources-, water resources, mineral resources, food resources, energy resources, land resources, Environmental pollution: definition, air pollution, water pollution, marine pollution, thermal pollution, soil pollution, noise pollution, nuclear hazards, waste management, cleaner technologies, reuse and recycling, solid waste management, role of individuals to prevent pollution, pollution case studies, disaster management – floods, earthquake, cyclone and landslides

Unit –IV: Social issues and the environment: (18)

From unsustainable to sustainable development, urban problems related to energy, water conservation, rain water harvesting, water shed management, resettlement and rehabilitation of people- it's problems and concerns, case studies, environmental ethics- environmental value relationships, environmental ethics and species preservation, climate change, global warming, acid rain, Ozone layer depletion, nuclear accidents and holocaust, case studies, waste land reclamation, consumerism and waste products, legislation to protect the environment, environmental protection act, dir(prevention and control of pollution) act, water(prevention and control of pollution) act, wild life protection act, forest conservation act, environmental management systems(EMS), environmental information systems(EIS), P.I.L public hearing and role of NGOS, ISO 9000 and 14000, issues involved in enforcement of environment legislation, public awareness, environmental economics-environment and standard ofliving

References:

- Kiran B Chokkas and others : "Understanding Environment", Sage2004.
- P. VenugopalaRao, Environmental Science & Engineering,PHI,3rd EditionAugust 2004.
- Benny Joseph: Environmental Studies, Tata McGrawHill, 2nd edition, 2008.

Course Outcomes:

Unit 1: After completion of unit, Students are able to:

1. Know importance, Need for Public Awareness
2. Understand Energy flow in the ecosystem, Ecological succession, Food chains

Unit 2: After completion of unit, Students are able to:

1. Understand genetic, species and ecosystem diversity.
2. Know about habitat lose, poaching of wild life, man wild life conflicts.

Unit 3: After completion of unit, Students are able to:

1. Understand various aspects of natural resources.
2. Contribute to reduce pollution, manage various hazards.

Unit 4: After completion of unit, Students are able to:

1. Understand Social issues and the effects on environment.
2. Know environmental ethics and species preservation

B.Voc. -I Sem- II: **MM1131.9 MATHEMATICS I**

No. ofcredits:4 **No. of instructional hours: 4 per week**

Course Objectives: Students should

1. Solve differentiation problems.
2. Use hyperbolic function.
3. Have understanding of theory of numbers.
4. Develop solutions for complex numbers.

Unit–I: Review **(18)**

Review of basic differentiation, Differentiation of hyperbolic functions, derivatives of hyperbolic functions, inverse hyperbolic functions logarithmic differentiation, implicit differentiation, Lebnitz's theorem, Mean value theorem, Rolle's theorem, Lagrange's mean-value theorem, Maxima andminima.

Unit–II: **Differential equations:** **(18)**

: Differential equations, General Concepts, Formulation and solution of differential equations, solution of higher order linear DEs. Partial Des**,** Laplace and Inverse Laplacetransforms.

Unit–III: Theory of Numbers: **(18)**

Theory of Numbers, prime numbers, Unique factorization theorem, Euclidean algorithm, congruence, Fermat's theorem, Wilson's theorem.

Unit–IV: Complex Numbers: **(18)**

Complex Numbers, Separation into real and imaginary parts, Complex mapping, Markov processes. Harmonic analysis and Fourier series, Linear Programming

1. REFERENCES

1.1 Core

- Erwin Kreyzig,*Advanced Engineering Mathematics*, New Age International PvtLtd.10th edition,2015
- Shanthi Narayan, *Differential Calculus*, S Chand &Company,15th Edition,2017

Course Outcomes:

Unit 1: After completion of unit, Students are able to:

1. Solve differentiation problems.
2. Use Lebnitz's theorem, Mean value theorem, Rolle 's Theorem on problems.

Unit 2: After completion of unit, Students are able to:

1. Understand General Concepts of differentiation.

2. Understand solution of higher order linear DEs. Partial Des**,** Laplace.

Unit 3: After completion of unit, Students are able to:

1. Understand Theory of Numbers.
2. Understand Euclidean algorithm, congruence.

Unit 4: After completion of unit, Students are able to:

1. Understand working of complex numbers.
2. Perform Harmonic analysis and Fourier series, Linear Programming.

B.Voc. I SEM II:**VS 322 Web Designing (HTML, CSS) (72)**

No. ofcredits:4 **No. of instructional hours: 4 per week**

Course Objectives: Students should

1. Understand HTML, CSS, Java script
2. Impart necessary ability to choose the appropriate web tools/languages for creating state-of-the art web sites
3. Understand current trends and styles in web design and applications
4. Understand how tools woks like Dream viewer

Unit-I: Introduction to HTML: (18)
Introduction to HTML Editors, Applications of HTML, Difference between HTML and XML, Basic HTML Elements, Headings, HTML, Paragraphs HTML Styles.

Unit-II: Commands in HTML: (18)
Table, Hyperlink creation in HTML, Cascade Style Sheet, CSS Links, Web Page Designing using HTML, Comments in HTML.

Unit –III: HTML Form Design: (18)
HTML Forms, Form Elements in HTML, Input Types HTML, Input Attributes.

Unit –IV: Introduction to Dream viewer software: (18)
Interface of Dream viewer, Toolbox Workspace, Web Page designing using Dream viewer, Applications, Advantages and Disadvantages of Dream viewer.

Ref Books:-

1. Prof. Satish Jain , M. GeethaIyer,Web Designing and Publishing,BPB Publications,2nd Edition,June,2020
2. by Jennifer Robbins,Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics,5thEdition,January 2018.

Course Outcomes:

Unit 1: After completion of unit, Students are able to:

1. Use HTML Editors, Applications.
2. Process Basic HTML Elements.

Unit 2: After completion of unit, Students are able to:

1. Create Table, Hyperlink creation in HTML.
2. Understand Cascade Style Sheet.

Unit 3: After completion of unit, Students are able to:

1. Use HTML Form elements.
2. Understand Input Attributes.

Unit 4: After completion of unit, Students are able to:

1. Analyze Interface of Dream viewer.

Use Dream viewer to create HTML web pages

B.Voc - I SEM - II: **VS 323 COMPUTER NETWORKS AND INTERNET APPLICATIONS**

No. ofcredits:4 **No. of instructional hours: 4 per week**

Course Objectives: Students should

1. Explain different components forinternet
2. Discuss different applications ofit
3. Understand network protocols.
4. Access and understand Advanced WEB technologies.

Unit-I: Computer Network: **(18)**

Computer Network Introduction, Uses of computer networks, Networks Hardware,LAN,MAN,WAN,Protocolhierarchies,OSIModel,TCP/IPreferencemodel.

Unit-II: History of internet:

(18)

History of internet, The early years, The global Internet, A global information infrastructure, Review of packet switching and its relevance to the internet, Incompatible topologies, Routers, Dial-up access, Software to create a virtual network, Datagrams, IP address.

Transmission Control Protocol (TCP) :Software for reliable communication, Guaranteed delivery, Recovering the datagrams, Automatic retransmission, Brief discussion on distributed computing, Domain names, Names and IP address, TCP/IP, Flexibility, Reliability and efficiency.

Unit III: Electronic mail: **(18)**

Electronic mail, Mail box, Sending, Notification, Reading, How it works, Address format, E-mail to and from non-Internet sites, Access to service via E-mail, Speed and reliability, Impact and significance, Joining a mailing list. Bulletin Board Services (BBS), Network norms, News group, Selection, Subscription, Reading, submitting, article, How BBS woksFile Transfer Protocol (FTP) Store/ retrieve, Binary and text files, How FTP works, Impact and significance, Remote login, How it works,TELNET

Unit-IV: Browsing: **(18)**

Browsing the World Wide Web (WWW), How a browser works, Software used to access, URLs, Browser. WWW documents, HTML, Web page design with HTML, Features and importance of HTML. Advanced WEB technologies, CGI, How it works.CGI

and advertising Search engines, Browsing, Searching, and Search tool, Advanced search engines, Examples of searchengines.

Text:

1. Ferozan. Intruduction to Data Communication & Networking,TMH.
2. Leon and Leon, Internet For Everyone, LeonTechworld,Chennai

References:

1. Douglas E Comer, The Internet Book, 2nd Edition, Prentice Hall ofIndia.April 2018.
2. Nancy Cadeno, The Internet Tool Kit, BPBPublications.May 1995.

Course Outcomes:

Unit 1: After completion of unit, Students are able to:

1. Uses of computer networks.
2. Understand Networks Hardware.

Unit 2: After completion of unit, Students are able to:

1. Learn History of internet.
2. Understand Working of virtual network, Datagrams, IP address and TCP.

Unit 3: After completion of unit, Students are able to:

1. Understand detailed working of E-Mail.
2. Understand working of protocols used for E-Mail.

Unit 4: After completion of unit, Students are able to:

1. Browse WWW effectively.
2. Understand working of various Search engines.

B.Voc - I SEM- II: VS-324 **OBJECT ORIENTEDPROGRAMMING IN 'C++'**

No. ofcredits:4 **No. of instructional hours: 4 per week**

Course Outcomes: **After completion of this course, student will be able to**

1. Identify importance of object oriented programming and difference between structured oriented and object oriented programming features.
2. Able to make use of objects and classes for developing programs.
3. Able to use various object oriented concepts to solve different problems.

Unit–I: Introduction to object oriented programming: **(18)**

Basic concepts of OOPS and Benefits of OOPS. Classes and Objects: Specifying a Class, Creating Objects, Accessing Class members, Defining member function, Outside Member Functions as inline, Accessing Member Functions within the class, Static data member, Array of objects, friendly function . Access Specifiers: Private, Protected and Public Members.

Unit-II: Constructors and Destructors: **(18)**

Introduction, Parameterized Constructors, Constructor Overloading, Constructors with Default Arguments, Copy Constructor, Dynamic Constructor, Destructor.

Operator Overloading: Definition, Overloadable Operators, Overloading Unary Operator, Overloading Binary Operator, Rules for Operators Overloading.

Unit-III: Concept of Inheritance: **(18)**

Defining derived classes, Single, Multilevel, Multiple, Hierarchical, Hybrid Inheritance, virtual base class, Abstract classes. Introduction to dynamic objects, Pointers to Objects, this Pointer, Creating and Deleting Dynamic Objects, New and Delete operators.

Unit–IV: Exception Handling: **(18)**

Exception Handling Model, List of Exceptions, Handling Uncaught Exceptions, Fault Tolerant Design Techniques, Memory Allocation Failure Exception, Rules for Handling Exception Successfully.

REFERENCES

- E. Balagurusamy,Object Oriented Programming with C++ ,McGraw Hill ,4th edition,2008
- Ashok N. Kamthane, Object oriented Programming with ANSI & Turbo C++, Pearson,July 2006

B.Voc - I SEM- II: VS-325 **OBJECT ORIENTEDPROGRAMMING IN 'C++' Lab**

No. ofcredits:3 **No. of instructional hours: 3 per week**

Course Objectives: Students should

1. Understand how C++ improves C with object-oriented features.
2. Learn the syntax and semantics of the C++ programming language.
3. Learn how to design C++ classes for code reuse.
4. Learn how to implement copy constructors and class member functions.
5. Understand the concept of data abstraction and encapsulation.
6. Learn how to overload functions and operators in C++.
7. Learn how inheritance and virtual functions implement dynamic binding with polymorphism.
8. Learn how to use exception handling in C++ programs.

Lab Programs:

1. Write a C++ Program to display Names, Roll No., and grades of 3 students who have appeared in the examination. Declare the class of name, Roll No. and grade. Create an array of class objects. Read and display the contents of the array.
2. Write a C++ program to declare Struct. Initialize and display contents of member variables.
3. Write a C++ program to declare a class. Declare pointer to class. Initialize and display the

contents of the class member.

4. Given that an EMPLOYEE class contains following members: data members: Employee number, Employee name, Basic, DA, IT, Net Salary and print data members.
5. Write a C++ program to read the data of N employee and compute Net salary of each employee (DA=52% of Basic and Income Tax (IT) =30% of the gross salary).
6. Write a C++ to illustrate the concepts of console I/O operations.
7. Write a C++ program to use scope resolution operator. Display the various values of the same variables declared at different scope levels.
8. Write a C++ program to allocate memory using new operator.
9. Write a C++ program to create multilevel inheritance. (Hint: Classes A1, A2, A3)
10. Write a C++ program to create an array of pointers. Invoke functions using array objects.
11. Write a C++ program to use pointer for both base and derived classes and call the member function. Use Virtual keyword.

Course Outcomes:

After completion of unit, Students are able to:

1. Creating simple programs using classes and objects in C++.
2. Implement Object Oriented Programming Concepts in C++.
3. Develop applications using stream I/O and file I/O.
4. Implement simple graphical user interfaces.
5. Implement Object Oriented Programs using templates and exceptional handling concepts.

REFERENCES

- E. Balagurusamy,Object Oriented Programming with C++ ,McGraw Hill ,4th edition,2008
- Ashok N. Kamthane, Object oriented Programming with ANSI & Turbo C++, Pearson,July 2006

B.Voc. I SEM II:**VS 326 Web Designing & Development – LAB (54)**

No. ofcredits:3 **No. of instructional hours: 3per week**

Course Objectives: Students should

1. Use HTML, CSS,
2. Understand Trending technologies in web development
3. Know How to apply style sheets and scripts.
4. Design and develop advanced websites.

1. Practicing basic HTML tags, text tags test styles, paragraph styles, headings, lists
2. Tables in HTML, Frames in HTML, nested frames, Link and Anchor Tags
3. Including graphics, video and sound in web pages, including Java applets
4. Layers & Image Maps
5. Creating animated Gifs
6. Cascading Style sheets
7. Creating and browsing XML database
8. HTML forms and Fields
9. Exercises covering basic introduction to JavaScript
10: Development of a web site involving a variety of tools practiced above
11. Working of control and looping structures in PHP
12. Creating Web page and its database connectivity using PHP.
13. Data manipulation Inserting, Deleting, Updating Records with PHP MySQL Commands.
14. Create, Read, Write File using PHP.
15 .Integrating Website using PHP, MySQL

Course Outcomes:

After studying this student are able to

1. Understand Working of HTML, CSS,
2. Understand New Trending technologies in web development
3. Apply style sheets and scripts.
4. Design and develop advanced websites.