KALINGA UNIVERSITY

RAIPUR | INDIA

SCHEME & SYLLABUS FOR

Bachelor of Vocational Studies (B.Voc.) Software Development

(W.e.f. 2022 – 2023)

NAAC GRADE B+ Accredited University | nirf RANKING 2025 | Ranked in TOP 101-150 Universities

Kalinga University, Naya Raipur, Chhattisgarh

KALINGA UNIVERSITY
RAIPUR | INDIA

B. VOC. IN SOFTWARE DEVELOPMENT

Semester-01								
Course Code	**Course Title**	**Credits**	**L**	**T**	**P**	**Internal Marks**	**End Semester Exam Marks**	**Total Marks**
BVSD101	Communication Skills	3	3	0	0	30	70	100
BVSD102	Fundamentals of Information Technology	3	3	0	0	30	70	100
BVSD103	Web Designing	3	3	0	0	30	70	100
BVSD104	Programming in C	3	3	0	0	30	70	100
BVSD105P	**Industrial Training /On Job Training /Workshop**	18	0	0	36	50	150	200
Total		**30**	**12**	**0**	**36**	**170**	**430**	**600**

Semester-02								
Course Code	**Course Title**	**Credits**	**L**	**T**	**P**	**Internal Marks**	**End Semester Exam Marks**	**Total Marks**
BVSD201	Data Structures	3	3	0	0	30	70	100
BVSD202	Environmental Studies	3	3	0	0	30	70	100
BVSD203	Information Security	3	3	0	0	30	70	100
BVSD204	Multimedia Tools & Applications	3	3	0	0	30	70	100
BVSD205P	**Industrial Training /On Job Training /Workshop**	18	0	0	36	50	150	200
Total		**30**	**12**	**0**	**36**	**170**	**430**	**600**

KALINGA UNIVERSITY
RAIPUR | INDIA

Semester-03								
Course Code	**Course Title**	**Credits**	**L**	**T**	**P**	**Internal Marks**	**End Semester Exam Marks**	**Total Marks**
BVSD301	Linux Operating System-Operations and Management	3	3	0	0	30	70	100
BVSD302	Software Engineering	3	3	0	0	30	70	100
BVSD303	Web Development using PHP	3	3	0	0	30	70	100
BVSD304	Windows Development Fundamental	3	3	0	0	30	70	100
BVSD305P	**Industrial Training /On Job Training /Workshop**	18	0	0	36	50	150	200
Total		**30**	**12**	**0**	**36**	**170**	**430**	**600**

Semester-04								
Course Code	**Course Title**	**Credits**	**L**	**T**	**P**	**Internal Marks**	**End Semester Exam Marks**	**Total Marks**
BVSD401	Software Testing and Project Management	3	3	0	0	30	70	100
BVSD402	Android Application Development	3	3	0	0	30	70	100
BVSD403	Window Configuration and Server Administration	3	3	0	0	30	70	100
BVSD404	Object Oriented Programming with Java	3	3	0	0	30	70	100
BVSD405P	**Industrial Training /On Job Training /Workshop**	18	0	0	36	50	150	200
Total		**30**	**12**	**0**	**36**	**170**	**430**	**600**

KALINGA UNIVERSITY
RAIPUR | INDIA

Semester-05								
Course Code	**Course Title**	**Credits**	**L**	**T**	**P**	**Internal Marks**	**End Semester Exam Marks**	**Total Marks**
BVSD501	Technology Trends in IT	3	3	0	0	30	70	100
BVSD502	Window Mobile Application Development	3	3	0	0	30	70	100
BVSD503	Introduction to Python Programming	3	3	0	0	30	70	100
BVSD504	Introduction to Microprocessors	3	3	0	0	30	70	100
BVSD505P	**Industrial Training /On Job Training /Workshop**	18	0	0	36	50	150	200
Total		**30**	**12**	**0**	**36**	**170**	**430**	**600**

Semester-06								
Course Code	**Course Title**	**Credits**	**L**	**T**	**P**	**Internal Marks**	**End Semester Exam Marks**	**Total Marks**
BVSD601	Universal Human Values & Ethics	3	3	0	0	30	70	100
BVSD602	Management Information Systems	3	3	0	0	30	70	100
Elective-I – Any One		3	3	0	0	30	70	100
BVSD603A	Introduction to AI							
BVSD603B	Computer Network Security							
Elective-II – Any One		3	3	0	0	30	70	100
BVSD604A	E-Commerce							
BVSD604B	Introduction to Biometrics							
BVSD605P	**Industrial Training /On Job Training /Workshop**	18	0	0	36	50	150	200
Total		**30**	**12**	**0**	**36**	**170**	**430**	**600**

KALINGA UNIVERSITY
RAIPUR | INDIA

SEMESTER-01

KALINGA UNIVERSITY
RAIPUR | INDIA

COMMUNICATION SKILLS
BVSD101

Course Objective

- The purpose of this course is to introduce students to the theory, fundamentals and tools of communication and to develop in them vital communication skills which should be integral to personal, social and professional interactions. One of the critical links among human beings and an important thread that binds society together is the ability to share thoughts, emotions and ideas through various means of communication: both verbal and non-verbal. In the context of rapid globalization and increasing recognition of social and cultural pluralities, the significance of clear and effective communication has substantially enhanced.

Course outcomes:

- The purpose of this course is to introduce students to the theory, fundamentals and tools of communication
- To develop vital communication skills which should be integral to personal, social and professional interactions.
- One of the critical links between human beings.
- An important thread that binds society together is the ability to share thoughts, emotions and ideas through various means of communication: both verbal and non-verbal.
- In the context of rapid globalization and increasing recognition of social and cultural pluralities, the significance of clear and effective communication has substantially enhanced.

Unit 1: Introduction: **06**

- Theory of Communication, Types and modes of Communication, Mediums and channels of communication, barriers to communication, English as a Global language, the Lingua Franca, Social influences on English

Unit 2: Language of Communication: **06**

- Verbal and Non-verbal (Spoken and Written) Personal, Social and Business Barriers and Strategies Intra-personal, Inter-personal and Group communication, Varieties of English, Language, Accent, Dialect, Colloquialism, Historical influences on English

Unit 3: Speaking Skills: **06**

- Monologue Dialogue Group Discussion Effective Communication/ Mis- Communication Interview Public Speech, Regional influences on English, Convergence and divergence, Linguistic Imperialism,

Unit 4: Reading and Understanding- **06**

- Close Reading, Reading analysis of a text - Audience and purpose, Content and theme, Tone and Mood, stylistic devices, structure Comprehension- Analysis and Interpretation Translation(from Indian language to English and vice-versa) Literary/Knowledge Texts

Unit 5: Writing Skills **06**

- Documenting Report Writing Making notes Letter writing, Writing tabloids, diary entry, open letters, essays, newsletter and magazine articles, skits, short stories, impersonating characters
- It will enhance Language of communication, various speaking skills such as personal communication, social interactions and communication in professional situations such as interviews, group discussions and office environments, important reading skills as well as writing skills such as report writing, note taking etc. While, to an extent, the art of communication is natural to all living beings, in today's world of complexities, it has also acquired some elements of science. It is hoped that after studying this course, students will find a difference in their personal and professional interactions.

References:

- Fluency in English - Part II, Oxford University Press, 2006.
- Business English, Pearson, 2008.
- Language, Literature and Creativity, Orient Blackswan, 2013.
- Language through Literature (forthcoming) ed. Dr. Gauri Mishra, Dr. RanjanaKaul, Dr. Brati Biswas

KALINGA UNIVERSITY
RAIPUR | INDIA

FUNDAMENTALS OF INFORMATION TECHNOLOGY
BVSD102

Unit 1: **06**

- **Computer characteristics:** 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; Hardware & Software; Von Neumann model.

Unit 2: **06**

- **Hardware:** 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/DVD-Writer; Input devices - keyboard, mouse, scanner, speech input devices, digital camera, Touch screen Voice Input, Joystick, Optical readers, bar code reader; Output devices: Display device, size and resolution; CRT, LCD, LED; Printers: Dot-matrix, Inkjet, Laser; Plotters, Sound cards & speaker.

Unit 3: **06**

- **Software:** 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 software: Generic Features of Word processors, Spread sheets and Presentation software; Generic Introduction to Latex for scientific typesetting; Utilities and their use; Computer Viruses & Protection, Free software, open source.

Unit 4: **06**

- **Computer Networks and Internet:** 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 Wireless and Wi-Fi connectivity ; email, email software features (send receive, filter, attach, forward, copy, blind copy); characteristics of web-based systems, Web pages, Web Programming Languages.

Unit 5: **06**

- **Information Technology And Society:** Indian IT Act, Intellectual Property Rights, issues. Application of information Technology in Railways, Airlines, Banking, Insurance, Inventory Control, Financial systems, Hotel management, Education, Video games, Telephone exchanges, Mobile phones, Information kiosks, special effects in Movies.

- **Programming Concepts & Techniques:** Program Concept, Characteristics of Programme, Stages in Program Development, Tips for Program Designing, Programming Aids, Algorithms, Pseudo code, Notations, Design, Flowcharts, Symbols, Rules, compiler & Interpreter. Introduction to programming techniques, Top-down & Bottom-up approach, Unstructured, & Modular programming, Cohesion, Coupling, Debugging, Syntax & Logical Errors, Linking and Loading, Testing and Debugging, Documentation.

References:

- Programming in C, R.S. Salaria, Khanna Publishing House
- Computer Concepts and Programming in C, R.S. Salaria, Khanna Publishing House
- Handbook of Computer Fundamentals, N.S. Gill, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR INDIA

WEB DESIGNING
BVSD103

Unit 1: **06**

- Introduction to HTTP, HTML, Basic HTML Tags, Body Tags, Coding Style, Modifying & formatting Text, Lists – Unordered, Ordered, Definition, Insert Links -Linking to another Document, Internal Links, Email Links, Relative and Absolute Links, Insert Images - Referencing Images, Clickable Images, Image Placement and Alignment, Image Size, Image Margins, Image Formats, Image Maps- Defining an Image Map, Advanced Coloring Body Content, Working with tables - Basic Tables, Table Attributes, Table Cell Attributes, Table Row Attributes, Tables Inside of Tables, Invisible Spacers, Working with Frame-Based Pages- Creating Windows, Single Window Frames, Creating Column Frames, Creating Row Frames, Creating Complex Frames.

Unit 2: **06**

- Cascading Style Sheet (CSS) – Introduction, creating style, using inline and external CSS, Creating Divs with ID style, Creating Tag& Class style, creating borders, Navigation links, creating effects with CSS. Java Script – Introduction, use of JavaScript in web pages. Understand JavaScript event model, use some basic event and control webpage behavior.

Unit 3: **06**

- Designing Websites WITH DREAMWEAVER/EXPRESSION Web/AMAYA/COFEE CUPWYSIWYG HTML Editor - Introduction to WYSIWYG HTML editor, advantages of using HTML editors, Creating a New Site, Creating a New Page, Adding Images with Alternate Text, Inserting & Formatting Text, Aligning Images, Creating an Email Link, Linking to Other Websites, Testing & Targeting Links, Organizing Files & Folders CREATING & INSERTING IMAGES - Optimizing Images for the Web, Saving GIFs & PNGs in Photoshop, Inserting GIFs, Adjusting Transparency Settings, Saving JPGs for the Web

Unit 4: **06**

- DESIGNING ACCESSIBLE TABLES - Understanding Tables & Accessibility, Using Tables for Tabular Data, styling a Table, Editing Table Layouts, Adding Style to a Table Using CSS CREATING WEBSITES WITH FRAMES - Introducing Frames, creating a Frameset, Opening Pages into Frames, Controlling Scrollbars & Borders, Targeting Links in Frames CUSTOMIZING THE INTERFACE - Opening an Existing Site, Reviewing Menu Options & Preferences, Comparing the Macintosh & PC Interfaces, Previewing in Browsers & Device Central
- Introduction to Responsive Web Designing – Introduction, advantages, creating and using responsive web pages.

Unit 5: **06**

- Web Hosting - What is Domain? Introduction to DNS, how to register a Domain? What is web hosting? How to get a web hosting? Host your website on web Server. FTP - FTP Introduction, FTP Commands Viewing Files and Directories, FTP Commands Transfer and Rename files, FTP with WS FTP/ Cute FTP, Filezilla on Windows.

References:

- Internet & Web Development, Soma Das Gupta, Khanna Publishing House
- Web Designing and Development, Tanweer Alam, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR INDIA

PROGRAMMING IN C
BVSD104

Unit 1: **06**

- **Introduction to 'C' Language** - Character set, Variables and Identifiers, Built-in Data Types, Variable Definition, Arithmetic operators and Expressions, Constants and Literals, Simple assignment statement, Basic input/output statement, Simple 'C' programs.

Unit 2: **06**

- **Conditional Statements and Loops** - Decision making within a program, Conditions, Relational Operators, Logical Connectives, if statement, if-else statement, Loops: while loop, do while, for loop, Nested loops, Infinite loops, Switch statement, structured Programming.
- **Arrays** - One dimensional arrays: Array manipulation; Searching, Insertion, Deletion of an element from an array; Finding the largest/smallest element in an array; Two dimensional arrays, Addition/Multiplication of two matrices, Transpose of a square matrix; Null terminated strings as array of characters, Standard library string functions

Unit 3: **06**

- **Functions** - Top-down approach of problem solving, Modular programming and functions, Standard Library of C functions, Prototype of a function: Formal parameter list, Return Type, Function call, Block structure, Passing arguments to a Function: call by reference, call by value, Recursive Functions, arrays as function arguments.

Unit 4: **06**

- **Storage Classes** - Scope and extent, Storage Classes in a single source file: auto, extern and static, register, Storage Classes in a multiple source files: extern and static
- **Structures and Unions** - Structure variables, initialization, structure assignment, nested structure, structures and functions, structures and arrays: arrays of structures, structures containing arrays, unions

Unit 5: **06**

- **Pointers** - Address operators, pointer type declaration, pointer assignment, pointer initialization, pointer arithmetic, functions and pointers, Arrays and Pointers, pointer arrays, pointers and structures, dynamic memory allocation. File Processing - Concept of Files, File opening in various modes and closing of a file, reading from a file, writing onto a file

References:

- Programming in C, R.S. Salaria, Khanna Publishing House
- Computer Concepts and Programming in C, R.S. Salaria, Khanna Publishing House
- Test your Skills in C, R. S. Salaria, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR | INDIA

INDUSTRIAL TRAINING/ ON JOB TRAINING/ WORKSHOP
BVSD105P

KALINGA UNIVERSITY
RAIPUR|INDIA

SEMESTER-02

KALINGA UNIVERSITY
RAIPUR INDIA

DATA STRUCTURES
BVSD201

Unit–1: **06**

- **An Overview of Computers and Programming -** Simple program logic, The steps involved in the program development cycle, Pseudo code statements and flowchart symbols, Using a sentinel value to end a program, Programming and user environments, The evolution of programming models.

Unit–2: **06**

- The concept of data structure, Abstract data structure, Analysis of Algorithm, The concept of List Introduction to stack & primitive operation on stack, Stack as an abstract data type, Multiple Stack, Stacks application: Infix, post fix, Prefix and Recursion, Introduction to queues, Primitive Operations on the Queues, Queue as an abstract data type, Circular queue, De-queue, Priority queue, Applications of queue

Unit–3: **06**

- Introduction to the Linked List of Stacks, Basic operations on linked list, Stacks and queues as a circular linked list, Header nodes, Doubly Linked List, Circular Linked List, Stacks & Queues as a Circular Linked List, Application of Linked List.

Unit–4: **06**

- TREES - Basic Terminology, Binary Trees, Tree Representations as Array & Linked List, Basic operation on Binary tree, Traversal of binary trees: - In order, Preorder & post order, Application of Binary tree, threaded binary tree, B-tree & Height balanced tree, B+ & B* trees, 2-3 trees, Binary tree representation of trees, Counting binary trees

Unit–5: **06**

- Sequential Searching, Binary search, Insertion sort, Selection sort, Quick sort, Bubble sort, Heap sort, Comparison of sorting methods Hash Table, Collision resolution Techniques, Introduction to graphs, Definition, Terminology, Directed, Undirected & Weighted graph, Representation of graphs, Graph Traversal-Depth first & Breadth first search, Spanning Trees, minimum spanning Tree, Shortest path algorithm

Reference:

- Data Structures, R.S. Salaria, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR | INDIA

ENVIRONMENTAL STUDIES
BVSD202

Unit 1: **06**

Introduction to Environmental Studies

- Multidisciplinary nature of environmental studies
- Scope and importance; Concept of sustainability and sustainable development.

Ecosystems

What is an ecosystem? Structure and function of the ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems:

a) Forest ecosystem
b) Grassland ecosystem
c) Desert ecosystem
d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 2: **06**

Natural Resources: Renewable and Non--renewable Resources

- Land resources and landuse change; Land degradation, soil erosion and desertification.
- Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
- Water : Use and over--exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter--state).
- Energy resources : Renewable and non renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

Unit 3: **06**

Biodiversity and Conservation

- Levels of biological diversity : genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots
- India as a mega--biodiversity nation; Endangered and endemic species of India
- Threats to biodiversity : Habitat loss, poaching of wildlife, man--wildlife conflicts, biological invasions; Conservation of biodiversity : In--situ and Ex--situ conservation of bi odiversity.
- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.

Unit 4: **06**

Environmental Pollution

- Environmental pollution : types, causes, effects and controls; Air, water, soil and noise pollution
- Nuclear hazards and human health risks
- Solid waste management: Control measures of urban and industrial waste.
- Pollution case studies.

Environmental Policies & Practices

- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture
- Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD).
- Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.

Unit 5: **06**

Human Communities and the Environment

- Human population growth: Impacts on environment, human health and welfare.
- Resettlement and rehabilitation of project affected persons; case studies.
- Disaster management: floods, earthquake, cyclones and landslides.
- Environmental movements : Chipko, Silent valley, Bishnois of Rajasthan.
- Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.
- Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).

References:

- Carson, R. 2002. *Silent Spring*. Houghton Mifflin Harcourt.
- Gadgil, M., & Guha, R.1993. This Fissured Land: An Ecological History of India. Univ. of California Press.
- Gleeson, B. and Low, N. (eds.) 1999.Global Ethics and Environment, London, Routledge.
- Gleick, P. H. 1993. Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
- Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll.Principles of Conservation Biology. Sunderland: Sinauer Associates, 2006.
- Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. Science, 339: 36--37.
- McCully, P. 1996. Rivers no more: the environmental effects of dams(pp. 29--64). Zed Books.

- McNeill, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.
- Odum, E.P., Odum, H.T. & Andrews, J. 1971.Fundamentals of Ecology. Philadelphia: Saunders.
- Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. Environmental and Pollution Science. Academic Press.
- Rao, M.N. & Datta, A.K. 1987. Waste Water Treatment. Oxford and IBH Publishing Co. Pvt. Ltd.
- Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012.Environment. 8th edition. John Wiley & Sons.
- Rosencranz, A., Divan, S., & Noble, M. L. 2001. Environmental law and policy in India. Tripathi 1992.
- Sengupta, R. 2003. Ecology and economics: An approach to sustainable development. OUP.
- Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi.
- Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. Conservation Biology: Voices from the Tropics. John Wiley & Sons.
- Thapar, V. 1998. Land of the Tiger: A Natural History of the Indian Subcontinent.
- Warren, C. E. 1971. Biology and Water Pollution Control. WB Saunders.
- Wilson, E. O. 2006.The Creation: An appeal to save life on earth. New York: Norton.
- World Commission on Environment and Development. 1987.Our Common Future. Oxford University Press.

KALINGA UNIVERSITY
RAIPUR INDIA

INFORMATION SECURITY
BVSD203

Unit –1: **06**

Information Security:

- Network security, Confidentiality, integrity, authentication, security policy, basic network security terminology, cryptography, symmetric encryption, substitution ciphers, transposition ciphers, steganography, Block ciphers, modes of operation, Data Encryption Standard, Public key cryptography, applications, strength and weakness, RSA algorithm, key distribution (concepts only).

Unit –2: **06**

Authentication:

- Authentication methods, message digest, digital signatures, digital signature algorithm, DSS, Email security: Pretty Good Privacy, working of PGP, S/MIME, MIME, IP Security, Architecture, IPsec: strengths and benefits, IPv4, IPv6, ESP protocol, Web Security: Secure Socket layer, SSL session and connection

Unit –3: **06**

Malicious Software:

- Viruses, working of anti-virus software, worms, Trojans, spyware, firewall, characteristics of firewall, packet filters, application level gateways, firewall architecture, trusted systems.

Unit –4: **06**

Regulations in India:

- Information Technology Act 2000/2008.
- Cyber Crime and the IT Act 2000/2008.
- Indian Contract Act 1872,

Unit –5: **06**

- Indian Penal Code,
- Indian Copyright Act,
- Consumer
- Protection Act.
- Future Trends – The Law of Convergence

References:

- Pachghar V. K., Cryptography and Information Security, PHI.
- Brijendra Singh, Cryptography & Network Security, PHI.
- William Stallings, Cryptography and Network Security: Principles and Practice, Pearson Education India

KALINGA UNIVERSITY
RAIPUR|INDIA

MULTIMEDIA TOOLS & APPLICATIONS
BVSD204

Unit -1: **06**

- Introduction To Multimedia, Needs and Areas of use, Identifying Multimedia Elements - Text, Images, Sound, Animation and Video, Making Simple Multimedia With PowerPoint. TEXT - Concepts of Plain & Formatted Text, RTF & HTML Texts, Using Common Text Preparation Tools, Conversion to and from of Various Text Formats, Creating text using standard software.

Unit -2: **06**

- SOUND - Sound and its Attributes, Sound and Its Effects in Multimedia, Frequency, Sound Depth, Channels and its Effects on Quality and Storage, Size Estimation of Space of a Sound File, Sound Card Standard – FM Synthesis Cards, Waves Table Cards, MIDI and MP3 Files and Devices, 3D Sounds, Recording and editing sound using sound editors like Audacity, Sound forge etc.

Unit -3: **06**

- IMAGES - Importance of Images Graphics in Multimedia, Vector and Raster Graphics, Regular Graphics vs. Interlaced Graphics, Image Capturing Methods - Scanner, Digital Camera Etc. Color models-RGB, CYMK, Hue, Saturation, and Brightness, Various Attributes of Images Size, Color, Depth Etc, Various Image File Format BMP, DIB, CIF, PIC, and TIF Format Their Features And Limitations, Image format conversion, various effects on images. Create images using Photoshop, CorelDraw and apply various effects, Using Layers, Channels and Masks in images.

Unit -4: **06**

- VIDEO- Basic of Video, Analog and Digital Video Type of Video, Digitization of Analog Video, Video Standard – NTSC, Pal, HDTV, Video Capturing Media /Instruments Videodisk Camcorder Compression Techniques, File Formats AVI, MJPG, MPEG, Video Editing and Movie Making Tools, converting formats of videos, recording and editing videos using video editing software like adobe premiere or Sony Vegas.

Unit -5: **06**

- ANIMATION- Concepts of animation, 2D and 3D animation, tools for creating animation, character and text animation, creating simple animation using GIF animator and flash, Morphing and Applications. Authoring tools for Multimedia – Introduction to various types of multimedia authoring tools, CD/DVD based and web based tools, features and limitations, creating multimedia package using all components.

References:

- Multimedia & Its Applications, V.K. Jain, Khanna Publishing House
- Fundamentals of Multimedia, Ramesh Bangia, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR|INDIA

INDUSTRIAL TRAINING/ ON JOB TRAINING/ WORKSHOP
BVSD205P

KALINGA UNIVERSITY
RAIPUR INDIA

SEMESTER-03

KALINGA UNIVERSITY
RAIPUR INDIA

LINUX OPERATING SYSTEM-OPERATIONS AND MANAGEMENT
BVSD301

Unit –1: **06**

- **Linux introduction and file system -** Basic Features, Advantages, Installing requirement, Basic Architecture of Unix/Linux system, Kernel, Shell. Linux File system-Boot block, super block, Inode table, data blocks, How Linux access files, storage files, Linux standard directories, Commands for files and directories cd, ls, cp, md, rm, mkdir, rmdir, more, less, creating and viewing files, using cat, file comparisons, View files, disk related commands, checking disk free spaces. Partitioning the Hard drive for Linux, Installing the Linux system, System startup and shut-down.

Unit –2: **06**

- Essential Linux commands Understanding shells, Processes in Linux process fundamentals, connecting processes with pipes, redirecting input output, manual help, Background processing, managing multiple processes, changing process priority, scheduling of processes at command, batch commands, kill, ps, who, sleep, Printing commands, grape, fgrep, find, sort, Cal, banner, touch, file, file related commands-ws, sat, cut, grep, dd, etc. Mathematical commands- bc, expr, factor, units. vi, joe, vim editor

Unit -3: **06**

- Shell programming Basic of shell programming, Various types of shell, shell programming in bash, conditional and looping statements, case statements, parameter passing and arguments, Shell variables, shell keywords, Creating Shell programs for automate system tasks and report printing, use of grep in shell, awk programming.

Unit –4: **06**

- System administration Common administrative tasks, identifying administrative files–configuration and log files, Role of system administrator, Managing user accounts-adding & deleting users, changing permissions and ownerships, Creating and managing groups, modifying group attributes, Temporary disable user's accounts, creating and mounting file system, checking and monitoring system performance file security & Permissions, becoming super user using su. Getting system information - host name, disk partitions & sizes, users, kernel. Backup and restore files, linuxconf. utility in GUI, reconfiguration hardware with kudzu Configure desktop-X configurator, understanding XF86config file, starting & using X desktop. KDE & Gnome graphical interfaces, changing X settings.

Unit –5: **06**

- Basic networking administration Setting up a LAN using Linux, choosing peer to peer vs client/server model, setting up an Ethernet Lan, configuring host computers, checking Ethernet connecting, connecting to internet, administration in a networked environment, common networking administrative tasks, the network file system, configuring Ethernet, initializing Ethernet Interface, ifconfig, netstat and netconfig commands a TCP/IP networks, DNS services, routing using Linux, SLIP & PPP services, UUCP. Installation & Administration of mail server, ftp server and Apache web server.

KALINGA UNIVERSITY
RAIPUR INDIA

SOFTWARE ENGINEERING
BVSD302

Unit -1: **06**

- **Software :** Software Characteristics, Components & Applications, Software Engineering - A Layered Technology, Software Process Models - Linear Sequential Model, Prototype & Rad Model., Evolutionary Software Process Model – Incremental Model and Spiral Model. SOFTWARE PROJECT MANAGEMENT: Project Management Concepts – People Problem and Process S/W process and Project Metrics: Metrics in The Process and Project Domains. Software Measurement –Size Oriented, Function Oriented Metrics, Extended Function

Unit -2: **06**

- **Software Project Planning:** Objectives, Scope, Project Estimation, Decomposition Techniques, and Empirical Estimation Models.
- **Analysis Concept and Principles:** Requirement Analysis, Communication Techniques, Analysis Principles, Software Prototyping, Specifications.
- **Analysis Modeling:** Elements of the Analysis Modeling, Data Modeling. Functional Modeling and Information Flow, Behavioral Modeling, Data Dictionary.

Unit –3: **06**

- **Design Concepts and Principles:** Design Process, Design Concepts, Design Principles, Effective Modular Design. **Design Methods:** Architectural Design Process, Transform Mapping and Transaction Mapping, Interface Design, - Internal and External Design, Human Computer Interface Design, Interface Design Guidelines, Procedural Design.

Unit -4: **06**

- **S/W Quality Assurance :** Quality Concepts, Matrix for Software Quality, Quality Movement, S/W Q A, S/W Review, Formal Technical Reviews, Formal Approaches to SQA, S/W Reliability, ISO 9000 quality Standards S/W TESTING MODELS : S/W Testing Fundamentals, Test Case Design, White and Black Box Testing, Basic Path Testing, Control Structure
- **S/W Testing Strategies:** Strategic Approach To S/W Testing, Unit Testing, Integration Testing, Validation Testing, System Testing, Debugging

Unit -5: **06**

- **S/W Reuse :** Reuse Process, Building Reuse Components, Classified And Retrieving Components, Economics Of S/W Reuse COMPUTER AIDED S/W ENGINEERING: Introducing of Case, Building Block For Case, Taxonomy Of Case Tools, Integrating Case Environment, Integrating Architecture, Case Repository.

References:

- Software Engineering, N.S. Gill, Khanna Publishing House
- Software Engineering, R.P. Mahapatra, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR INDIA

WEB DEVELOPMENT USING PHP
BVSD303

Unit 1: **06**

- **Web Development using PHP:** Introduction to PHP as a programming Language: - Advantages of PHP, the server side architecture Decomposed, overview of PHP, history, object oriented support, benefits in running PHP as a server side script. Installing a web server, Internet information server, and IIS installation, testing web server setup.

Unit 2: **06**

- **The basics of PHP: -** data types, variables, constants, operators, Arrays, Conditional statements (if statement, Executing Multiple Statements, else if clause and switch statement), Iterations (for loop, while loop, controlling an array using a while loop, do while statement, for each loop and special loop key words)

Unit 3: **06**

- Functions, user defined functions, functions with arguments, built in functions (print(), includer(), header(), phpinfo()), PHP server Variables, working with date and time , performing mathematical operations , working with string functions . System Variable (GET, POST, cookies& Session, Forums)

Unit 4: **06**

- Working with forms, form elements (Text Box, Text Area, Password, Radio Button, Checkbox, The Combo Box, Hidden Field and image), adding elements to a form, uploading files to the Web Server using PHP, building a challenge and response subsystem and understanding the functionality of the FORM attribute Method Regular Expressions: - Engine, types of Regular Expressions, symbols used in Regular Expressions. Error handling in PHP: - Displaying errors, warnings, types of errors, error levels in PHP, logging Errors and Ignoring errors.

Unit 5: **06**

- Data base connectivity using PHP (My SQL, ODBC, ORACLE, SQL) Performing, executing Commands, different types of Data Base Operations like Insertion, deletion, update and query on data

References:

- Mastering PHP, WebTech Solutions, Khanna Publishing House
- Learning PHP, Ramesh Bangia, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR INDIA

WINDOWS DEVELOPMENT FUNDAMENTAL
BVSD304

Unit 1: **06**
- Programming web applications
- Working with data and services

Unit 2: **06**
- Troubleshooting and debugging web applications
- Working with client-side scripting

Unit 3: **06**
- Configuring and deploying web applications
- Understanding core programming
- Understanding object-oriented programming

Unit 4: **06**
- Understanding general software development
- Understanding web applications

Unit 5: **06**
- Understanding desktop applications
- Understanding databases

Reference:

- Internet and Web Development, Soma Das Gupta, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR|INDIA

INDUSTRIAL TRAINING/ ON JOB TRAINING/ WORKSHOP
BVSD305P

KALINGA UNIVERSITY
RAIPUR|INDIA

SEMESTER-04

KALINGA UNIVERSITY
RAIPUR INDIA

SOFTWARE TESTING AND PROJECT MANAGEMENT
BVSD401

Unit -1: **06**

- **Testing basics and Development Models:** Principals and context of testing in software production, Usability and Accessibility Testing, Phases of Software Project, Process models to represents different phases, Software Quality Control and its relation with testing, validating and verification, Software Development life cycle models, various development models. White Box Testing: White Box Testing - Static Testing, Structural Testing-Unit code functional testing, Code coverage testing, code complexity testing, Black Box Testing- What? Why and when to do Black box testing, Requirements based testing, Positive and Negative Testing, Boundary value testing, Decision Tables, Equivalence Partitioning, State Based or Graph Based Testing, Compatibility Testing, User Documentation Testing, Domain Testing.

Unit -2: **06**

- **Integration Testing:** Introduction and types of integration testing, Scenario testing, defect bash. System and Acceptance Testing- Overview, functional and non-functional testing, Acceptance testing. Overview of some software testing tools: Win Runner, Load Runner, Test Director. (Some practical should be conducted using these tools)

Unit -3: **06**

- **Performance Testing-** Introduction, factors related to performance testing, methodology for performing testing, Regression Testing, Ad hoc Testing- Overview, Buddy & pair testing, Exploratory testing, Interactive testing, Agile and extreme testing. Testing of Object Oriented Testing – Introduction, Differences in OO testing.

Unit –4: **06**

- **Software Project Management:** Overview, Software Project Management Framework, Software Development life cycle, Organization Issues and Project Management, Managing Processes, Project Execution, Problems in Software Projects, Project Management Myths and its clarifications. Software Project Scope: Need to scope a software project, scope management process, communication techniques and tools, communication methodology Software Requirement Gathering and Resource allocation: Requirement specifications, SRS Document preparation, Resources types for a software projects, requirement for resources allocation.

Unit –5: **06**

- **Software Project Estimation:** Work Breakdown structure (WBS), steps in WBS, Measuring efforts for a project, techniques for estimation – SLOC, FP, COCOMO and Delphi methods. Project Scheduling: Scheduling and its need, scheduling basics, Gannt Chart, Network scheduling techniques, Pert and CPM. Using a Project Management Tool: Introduction to MS Project 2000, Managing tasks in MS Project 2000, Tracing a project plan, creating and displaying project information reports.

KALINGA UNIVERSITY
RAIPUR INDIA

ANDROID APPLICATION DEVELOPMENT
BVSD402

Unit -1: **06**

- Android Introduction, Smart phones future, Preparing the Environment, Installing the SDK, Creating Android Emulator, Installing and Using Eclipse, Installing Android Development Tools, Choosing which Android version to use Android Architecture, Android Stack, Android applications structure Creating a project, Working with the AndroidManifest.xml, Using the log system Activities Introduction to UI – Layouts, Fragments, Adapters, Action bar, Dialogs, Notifications , UI best practices UI Architecture, Application context, Intents, Activity life cycle, Supporting multiple screen sizes

Unit -2: **06**

- **Designing User Interface Using Views –** Basic Views- Text View, Button, Image Button, Check Box, Toggle Button, Radio Button etc., Progress Bar View and Auto Complete Text View, Time Picker and Date Picker View, List View, Image View, Image Switcher and Grid View, Digital Clock & Analog Clock Views Notification and Toast, Parameters , on Intents, Pending intents, Status bar notifications Toast notifications

Unit -3: **06**

- **Menus, Localization, Options menu, Context menu Dialogs-**Alert dialog, Custom dialog, Dialog as Activity Orientation and Movement- Pitch, roll and yaw, Natural device orientation, Reference frame remapping SMS - Sending and Receiving Working with Media –Playing audio and video, Recording audio and video

Unit -4: **06**

- **Location and Maps -** Google maps, Using GPS to find current location Working with data storage - Shared preferences, Preferences activity, Files access, Using External storage, SQ Lite database Animation-View animation, Draw able animation Working with Sensors- Finding sensors, Accelerometers, Gyroscopes, Other types Working with Camera – Controlling the camera, Preview and overlays, Taking pictures

Unit -5: **06**

- **Content providers-** Content provider introduction, Query providers Network Communication - Web Services, HTTP Client, XML and JSON, Using e-mails. Services - Service lifecycle, Foreground service, Creating own services Publishing and Distributing Your App -Preparing for publishing, Google Play requirements, Signing and preparing the graphics, Publishing to the Android Market, Monetization, Tips on becoming a top app, Google analytics

Reference:

- Learning Android, Ramesh Bangia, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR | INDIA

WINDOW CONFIGURATION AND SERVER ADMINISTRATION
BVSD403

Unit-1: **06**

- **Understanding Windows Programming Basics:** Identify Windows application types, Implement user interface design.
- **Creating Windows Forms Applications:** Create and handle events, Understand Windows Forms inheritance, understand how to create new controls and extend existing controls, Validate and implement user input, Debug a Windows-based application.

Unit-2: **06**

- **Creating Windows Services Applications:** Create a Windows Services application, Install a Windows Services application.
- **Accessing Data in a Windows Forms Application:** Understand data access methods for a Windows Application, Understand data bound controls.
- **Deploying a Windows Application:** Understand windows application deployment methods, integrating data.

Unit-3: **06**

- **Network basics:** Type of Networks, Topologies, Transmission media, Install UTP(Straight, Cross, Rollover Cables), IP Addressing, Subnetting, OSI Model, TCP/IP Model, Wireless Network, Network Devices.
- **Installation:** Installation Server, Drivers, Working with windows server Devices, Troubleshooting Devices & Drivers, and managing system updates.

Unit-4: **06**

- **Working With Disk Storage:** Type of Disk Storage, Type of volumes, Implementing fault tolerance, Use disk management tools, Disk Quota, Troubleshooting disk management, Shadow copy.
- **Domain Controller:** Install Active Directory, Manage Active Directory Component, Working with
- OU Structure, Working with Domain User account, Working with Domain Groups, Troubleshooting Active Directory.

Unit-5: **06**

- **Domain Name Services (DNS):** Define Name resolution, Install DNS, Configure DNS Client, Manage and Troubleshoot DNS.
- **Dynamic Host Configuration Protocol:** Configure DNS Server, Working With Super Scope, Configure DHCP Client, Manage and Troubleshoot DHCP Server.
- **Backup and Restore:** Requirement for Backup and Recovery AD, Issue for AD Backup and Recovery, Steps for Backup and Recovery AD.

KALINGA UNIVERSITY
RAIPUR INDIA

OBJECT ORIENTED PROGRAMMING WITH JAVA
BVSD404

Unit–1: **06**

- C++ vs JAVA, JAVA and Internet and WWW, JAVA support systems, JAVA environment. JAVA program structure, Tokens, Statements, JAVA virtual machine, Constant & Variables, Data Types, Declaration of Variables, Scope of Variables, Symbolic Constants, Type Casting. Operators: Arithmetic, Relational, Logical Assignments, Increment and Decrement, Conditional, Bitwise, Special, Expressions & its evaluation. If statement, if…else… statement, Nesting of if…else… statements, else…if Ladder, Switch,? Operators, Loops – While, Do, For, Jumps in Loops, Labelled Loops.

Unit –2: **06**

- Defining a Class, Adding Variables and Methods, Creating Objects, Accessing Class Members, Constructors, Methods Overloading, Static Members, Nesting of Methods. Inheritance: Extending a Class, Overriding Methods, Final Variables and Methods, Final Classes, Finalize Methods, Abstract methods and Classes, Visibility Control.

Unit -3: **06**

- **Arrays:** One Dimensional & two Dimensional, strings, Vectors, wrapper Classes, Defining Interface Extending Interface, Implementing Interface, Accessing Interface Variable, System Packages, Using System Package, Adding a Class to a Packages, Hiding Classes.

Unit –4: **06**

- Creating Threads, Extending the Threads Class, Stopping and Blocking a Thread, Life Cycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the Runnable Interface.

Unit –5: **06**

- Local and Remote Applets Vs Applications, Writing Applets, Applets Life Cycle, Creating an Executable Applet, Designing a Web Page, Applet Tag, Adding Applet to HTML File, Running the Applet, Passing Parameters to Applets, Aligning the Display, HTML Tags & Applets, Getting Input from the User.

References:

- Object Oriented Systems with Java, Tanweer Alam, Khanna Publishing House
- Core Java, Tanweer Alam, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR | INDIA

INDUSTRIAL TRAINING/ ON JOB TRAINING/ WORKSHOP
BVSD405P

KALINGA UNIVERSITY
RAIPUR | INDIA

SEMESTER-05

KALINGA UNIVERSITY
RAIPUR INDIA

TECHNOLOGY TRENDS IN IT
BVSD501

Unit-1: **06**

- **Internet of Things (IoT) –** Definition of IoT, History of IoT, IoT vs. Similar concepts, Application/ Segment overview, Technology overview

Unit-2: **06**

- **Big Data Analytics:** Concepts, examples of big data analytics, benefits of big data analytics, Technologies, and Applications, requirements for being successful with big data analytics

Unit-3: **06**

- **Cloud Computing –** Introduction, Why cloud services are popular, advantages, Characteristics, Service models, Deployment of cloud services, Potential privacy risks

Unit-4: **06**

- **Cyber Security –** Introduction, risks, Malicious code, Hacker, attacker or intruder, Cyber security Principles, Information Security (IS) within Lifecycle Management, Risks & Vulnerabilities, Incident Response, Future Implications & Evolving Technologies

Unit-5: **06**

- **Wearable Technologies –** Introduction, Applications of Wearable Technology, Challenges to Wearable Technology, various Wearable devices.

References:

- Computer Today, A. Ravichandran, Khanna Publishing House
- Internet of Things, Jeeva Jose, Khanna Publishing House
- Big Data and Hadoop, V.K. Jain, Khanna Publishing House
- Data Sciences and Analytics, V.K. Jain, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR INDIA

WINDOW MOBILE APPLICATION DEVELOPMENT
BVSD502

Unit-1: **06**

- **Introduction to Windows 8 Application Development -** brief history of windows application development, History of APIs and Tools, Operating System Input Methods The Windows Charm Bar, Start Button, Search Button, Share Button, Devices Button, Settings Button, Windows Desktop, Switching between Desktop Programs
- **Windows 8 Architecture from a Developer's Point of View -** Windows 8 Development Architecture, Desktop Application Layers, and Understanding Windows Runtime: Windows Runtime Architecture Overview, Metadata in Windows Runtime, .NET Framework 4.5: The Installation Model of .NET Framework 4.5, Window Runtime Integration, Picking the Appropriate Technology for Your Project, Choosing a Programming Language.
- **Getting to Know Development Environment -** Introducing the Toolset, Visual Studio IDE: Creating a New Project, Lighting Up Your Applications with Expression Blend

Unit -2: **06**

- **Principles of Modern Windows Application Development -** Windows 8 Style Application, Windows 8 Design Language, Introduction to Asynchronous Programming, Evolution of Asynchronous, Programming on the .NET Platform. Creating Windows 8 Style Applications With HTML5, CSS, and JAVASCRIPT - HTML5 and CSS on the Web, HTML5 Technologies, HTML5 Applications on Windows Runtime, The Windows Library for JavaScript (WinJS), Creating Windows 8 Style Applications with JavaScript, Accessing the Filesystem, Managing Data, Respecting the User's Device

Unit -3: **06**

- **Using XAML to Create Windows 8 Style User Interfaces -** Describing the User Interface Using XAML, Using Namespaces, Understanding the Layout Management System, Reusable Resources in XAML, Basic Controls in Windows 8 Style Applications: Controls with Simply Accessing the Internet: e Values, Content Controls, Working with Data: Data Binding Dependency Properties and Notifications, Binding Modes and Directions
- **Working with XAML Controls -** Using Animations in Application, Designing the Visual Look of a Control, Working with Complex Controls: Getting to Know the List View Base Controls, Using the Grid View Control, Binding to Data, Grouping Data, Defining Visual Groups
- **Building Windows 8 Style Applications -** The Lifecycle of a Windows 8 Application, Deploying Windows 8 Apps, Commanding Surfaces, Persisting Application Data, Applications and the Start Screen

Unit -4: **06**

- **Creating Multi-Page Applications -** Navigation Basics, working with Pages, Using the Split Application and Grid Application Templates
- **Building Connected Applications -** Integrating with the Operating System and Other Apps: Picker Unified Design to Access Data, Understanding the Concept of Contracts, Accessing the Internet: Detecting the Changes of Internet Connectivity, Using Feeds, Accessing Windows Live
- **Leveraging Tablet Features -** Accommodating Tablet Devices, Building Location-Aware Applications, Using Sensors: Using Raw Sensor Data, Using Sensor Fusion Data

Unit -5: **06**

- **Advanced Programming Concepts -** Building Solutions with Multiple Languages: Hybrid Solutions, Background Tasks: Understanding Background Tasks, How Background Tasks Work, Cancelling Background Tasks, Implementing Background Tasks, creating a Simple Background Task, Managing Task Progress and Cancelation, Input Devices
- **Testing and Debugging Windows 8 Applications -** The Quality of Software, Becoming Familiar with Debugging, Controlling the Program Flow in Debug Mode, Monitoring and Editing Variables, Changing the Code While Debugging, Windows 8 Style Application-Specific Scenarios, Introduction to Software Testing, Introduction to Unit Testing, Unit Testing Windows 8 Style Applications
- **Introducing the Windows Store -** Getting to Know the Windows Store, How Customers See an App in the Windows Store, Application Details, Making Money with Your App, The Developer Registration Process: Submitting the Application, The Application Certification Process, The Windows App Certification Kit

KALINGA UNIVERSITY
RAIPUR | INDIA

INTRODUCTION TO PYTHON PROGRAMMING
BVSD503

Unit-1: **06**

- **Familiarization with the basics of Python programming:** a simple "hello world" program, process of writing a program, running it, and print statements; simple data- types: integer, float, string Introduce the notion of a variable, and methods to manipulate it (concept of L-value and R-value even if not taught explicitly)

Unit-2: **06**

- **Knowledge of data types and operators:** accepting input from the console, assignment statement, expressions, operators and their precedence. Conditional statements: if, if-else, if-elif-else; simple programs: e.g.: absolute value, sort numbers, and divisibility.

Unit-3: **06**

- **Notion of iterative computation and control flow:** for, while, flowcharts, decision trees and pseudo code; write a lot of programs: interest calculation, primarily testing, and factorials. Idea of debugging: errors and exceptions; debugging: pdb, break points.

Unit-4: **06**

- **Lists, tuples and dictionary:** finding the maximum, minimum, mean; linear search on list/tuple of numbers, and counting the frequency of elements in a list using a dictionary. Introduce the notion of accessing elements in a collection using numbers and names.

Unit-5: **06**

- **Sorting algorithm:** bubble and insertion sort; count the number of operations while sorting. Strings: compare, concat, substring; notion of states and transitions using state transition diagrams.

References:

- Introduction to Computing and Problem Solving With Python, Jeeva Jose, Khanna Publishing House
- Taming Python by Programming, Jeeva Jose, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR INDIA

INTRODUCTION TO MICROPROCESSORS
BVSD504

Unit-1: **06**

- **Digital Design and VHDL:** Introduction, Combinational Logic, Structural Modeling, Sequential Logic, Finite State Machines, rameterized Modules, Test benches
- **Arithmetic Logic Unit (ALU):** Introduction, Arithmetic Circuits, ALU, Number Systems

Unit-2: **06**

- **Microprocessor I: Instruction Data Set. Machine Language:** Introduction, Assembly Language, Machine Language, Programming, Addressing Modes, Lights, Camera, Action: Compiling, Assembling, and Loading, Odds and Ends

Unit-3: **06**

- **Microprocessor II: Control and Datapath Design. Single-Cycle Processor:** Introduction, Performance Analysis, Single-Cycle Processor

Unit-4: **06**

- **Microprocessor III: Control and Datapath Design. Multi-cycle Processor:** Introduction, Performance Analysis, Mullticycle Processor, Pipelined Processor

Unit-5: **06**

- **Memory systems and I/O:** Introduction, Memory System, Caches Virtual Memory, Memory-Mapped I/O, Memory map, I/O Devices
- **Buses and organization**

References:

- Fundamentals of Microprocessor, M.K. Ghodki, Khanna Publishing House
- Advance Microprocessor, A.K. Gautam, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR|INDIA

INDUSTRIAL TRAINING/ ON JOB TRAINING/ WORKSHOP
BVSD505P

KALINGA UNIVERSITY
RAIPUR | INDIA

SEMESTER-06

KALINGA UNIVERSITY
RAIPUR | INDIA

UNIVERSAL HUMAN VALUES & ETHICS
BVSD601

Course Objectives:

- To help students distinguish between values and skills, and understand the need, basic guidelines, content and process of value education.
- To help students initiate a process of dialog within themselves to know what they 'really want to be' in their life and profession.
- To help students understand the meaning of happiness and prosperity for a human being.
- To facilitate the students to understand harmony at all the levels of human living, and live accordingly.
- To facilitate the students in applying the understanding of harmony in existence in their profession and lead an ethical life

Course Outcomes:

On completion of this course, the students will be able to

- Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content and process of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society.
- Distinguish between the Self and the Body, understand the meaning of Harmony in the Self the Co-existence of Self and Body.
- Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explore their role in ensuring a harmonious society.
- Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature.
- Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.

Unit-1: **06**

- **Course Introduction-** Need, Basic Guidelines, Content and Process for Value Education Understanding the need, basic guidelines, content and process for Value Education, Self-Exploration–what is it? - its content and process; 'Natural Acceptance' and Experiential Validation- as the mechanism for self exploration, Continuous Happiness and Prosperity- A look at basic Human Aspirations, Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority, Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario, Method to fulfill the above human aspirations: understanding and living in harmony at various levels.

Unit-2: **06**

- **Understanding Harmony in the Human Being-** Harmony in Myself Understanding human being as a co-existence of the sentient 'I' and the material 'Body', Understanding the needs of Self ('I') and 'Body' - Sukh and Suvidha, Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer), Understanding the characteristics and activities of 'I' and harmony in 'I', Understanding the harmony of I with the Body: Sanyam and Swasthya; correct appraisal of Physical needs, meaning of Prosperity in detail, Programs to ensure Sanyam and Swasthya.

Unit-3: **06**

- **Understanding Harmony in the Family and Society-** Harmony in Human-Human Relationship Understanding harmony in the Family- the basic unit of human interaction, Understanding values in human-human relationship; meaning of Nyaya and program for its fulfillment to ensure Ubhay-tripti; Trust (Vishwas) and Respect (Samman) as the foundational values of relationship, Understanding the meaning of Vishwas; Difference between intention and competence, Understanding the meaning of Samman, Difference between respect and differentiation; the other salient values in relationship, Understanding the harmony in the society (society being an extension of family): Samadhan, Samridhi, Abhay, Sah-astitva as comprehensive Human Goals, Visualizing a universal harmonious order in society- Undivided Society (AkhandSamaj), Universal Order (SarvabhaumVyawastha)- from family to world family!.

Unit-4: **06**

- **Understanding Harmony in the Nature and Existence-** Whole existence so-existence Understanding the harmony in the Nature, Interconnectedness and mutual fulfillment among the four orders of nature- recyclability and self-regulation in nature, Understanding Existence as Co-existence (Sah-astitva) of mutually interacting units in all-pervasive space, Holistic perception of harmony at all levels of existence.

Unit-5: **06**

- Implications of the above Holistic Understanding of Harmony on Professional Ethics Natural acceptance of human values, Definitiveness of Ethical Human Conduct, Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order, Competence in Professional Ethics: a) Ability to utilize the professional competence for augmenting universal human order, b) Ability to identify the scope and characteristics of people-friendly and eco-friendly production systems, technologies and management models, Case studies of typical holistic technologies, management models and production systems, Strategy for transition from the present state to Universal Human Order: a) At the level of individual: as socially and ecologically responsible engineers, technologists and managers, b) At the level of society: as mutually enriching institutions and organizations.

References:

- R R Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and Professional Ethics.
- Ivan Illich, 1974, Energy & Equity, The Trinity Press, Worcester, and Harper Collins, USA
- E.F. Schumacher, 1973, Small is Beautiful: a study of economics as if people mattered, Blond & Briggs, Britain.
- Sussan George, 1976, How the Other Half Dies, Penguin Press. Reprinted 1986, 1991
- Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, Limits to Growth – Club of Rome's report, Universe Books.
- A Nagraj, 1998, Jeevan Vidya Ek Parichay, Divya Path Sansthan, Amarkantak.
- P L Dhar, RR Gaur, 1990, Science and Humanism, Commonwealth Publishers.
- A N Tripathy, 2003, Human Values, New Age International Publishers.
- SubhasPalekar, 2000, How to practice Natural Farming, Pracheen (Vaidik) KrishiTantraShodh, Amravati.
- E G Seebauer & Robert L. Berry, 2000, Fundamentals of Ethics for Scientists & Engineers , Oxford University Press.
- M Govindrajran, S Natrajan & V.S. Senthil Kumar, Engineering Ethics (including Human Values), Eastern Economy Edition, Prentice Hall of India Ltd.
- B P Banerjee, 2005, Foundations of Ethics and Management, Excel Books.
- B L Bajpai, 2004, Indian Ethos and Modern Management, New Royal Book Co., Lucknow. Reprinted 2008.

KALINGA UNIVERSITY
RAIPUR INDIA

MANAGEMENT INFORMATION SYSTEMS
BVSD602

Unit-1: **08**

- An introduction to information systems, Information systems in organizations, Information Technology Concepts, The IS Revolution; Information requirement for the different levels lf management, transaction processing system, Management information 34 system, Decision support system. Strategic Role of Information Systems. Business Processes; Information management, and Decision Making. Computers and Information Processing;

Unit-2: **08**

- Transaction processing system; hardware and software requirements, tools used, case studies, merits and demerits of transaction processing system.

Unit-3: **07**

- Managerial control, Information and tools required, difference between transactional system and managerial system. Frequency of taking outputs, Need for interconnected system, common database, Redundancy control, case studies. Decision support system, concept and tools, case studies, virtual organizations, strategic decisions-unstructured approach, cost and values of unstructured information.

Unit-4: **07**

- Optimization techniques, difference between optimization tools and DSS tools expert system, difference between expert system and management information system. Role of chief Information officer.

KALINGA UNIVERSITY
RAIPUR INDIA

ELECTIVE-I
INTRODUCTION TO AI
BVSD603A

Unit-1: **08**

- **Overview of A.I:** Introduction to AI, Importance of AI, AI and its related field, AI techniques, Criteria for success. Problems, problem space and search: Defining the problem as a state space search, Production system and its characteristics, Issues in the design of the search problem Heuristic search techniques : Generate and test, hill climbing, best first search technique, problem reduction, constraint satisfaction

Unit-2: **08**

- **Knowledge Representation:** Definition and importance of knowledge, Knowledge representation, Various approaches used in knowledge representation, Issues in knowledge representation. Using Predicate Logic: Represent ting Simple Facts in logic, Representing instances and is-a relationship, Computable function and predicate.

Unit-3: **07**

- **Natural language processing:** Introduction syntactic processing, Semantic processing, Discourse and pragmatic processing. Learning: Introduction learning, Rote learning, Learning by taking advice, Learning in problem solving, Learning from example-induction, Explanation based learning.

Unit-4: **07**

- **Expert System:** Introduction, Representing using domain specific knowledge, Expert system shells. Knowledge acquisition: General concepts in knowledge acquisition, early work in Machine Learning, examples of Inductive Learners, computer vision, Robotics, overview of LISP- AI language.

Reference:

- Artificial Intelligence, Munish Chandra Trivedi, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR INDIA

ELECTIVE-I
COMPUTER NETWORK SECURITY
BVSD603B

Unit-1: **08**

- Network Concept, Benefits of Network, Network classification (PAN, LAN, MAN, WAN), Peer to Peer, Client Server architecture, Transmission media: Guided & Unguided, Network Topologies. Networking terms: DNS, URL, client server architecture, TCP/IP, FTP, HTTP, HTTPS, SMTP, Telnet OSI and TCP/IP Models: Layers and their basic functions and Protocols, Comparison of OSI and TCP/IP. Networking Devices: Hubs, Switches, Routers, Bridges, Repeaters, Gateways and Modems, ADSL.

Unit-2: **08**

- **Ethernet Networking:** Half and Full-Duplex Ethernet, Ethernet at the Data Link Layer, Ethernet at the Physical Layer. Switching Technologies: layer-2 switching, address learning in layer-2 switches, network loop problems in layer-2 switched networks, Spanning-Tree Protocol, LAN switch types and working with layer-2 switches, Wireless LAN

Unit-3: **07**

- **Internet layer Protocol:** Internet Protocol, ICMP, ARP, RARP. IP Addressing: Different classes of IP addresses, Sub-netting for an internet work, Classless Addressing. Comparative study of IPv4 & IPv6. Introduction to Router Configuration. Introduction to Virtual LAN.

Unit-4: **07**

- **Transport Layer:** Functions of transport layer, Difference between working of TCP and UDP. Application Layer: Domain Name System (DNS), Remote logging, Telnet, FTP, HTTP, HTTPS.
- Introduction to Network Security.

References:

- Information & Computer Security, Sarika Gupta, Khanna Publishing House
- An Integrated Approach to Computer Networks, Bhavneet Sidhu, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR INDIA

ELECTIVE-II
E-COMMERCE
BVSD604A

Unit-1: **08**

- **Introduction E-Business:** Origin and Need of E-Commerce, Factors affecting E -Commerce, Business dimension and technological dimension of E-Commerce, E-Commerce frame work Electronic Commerce Models, Value Chains in Electronic Commerce.

Unit-2: **08**

- **Internet and E-Business:** Introduction to Internet and its application, Intranet and Extranets. World Wide Web, Internet Architectures, Internet Applications, Business Applications on Internet, E - Shopping, Electronic Data Interchange, Components of Electronic Data Interchange, Creating Web Pages using HTML.

Unit-3: **07**

- **Technology for Online Business:** Internet, IT Infrastructure, Middleware Contents, Text and Integrating E-Business Applications, Mechanism of Making Payment Through Internet, Online Payment Mechanism, Electronic Payment Systems, Payment Gateways, Visitors to Website, Tools for Promoting Website, Plastic Money, Debit Card, Credit Card, Laws Relating to Online Transactions.

Unit-4: **07**

- **Applications in E-commerce:** E-commerce Applications in Manufacturing, Wholesale, Retail and Service Sector.

Reference:

- E-Commerce, Sarika Gupta, Khanna Publishing House

KALINGA UNIVERSITY
RAIPUR INDIA

ELECTIVE-II
INTRODUCTION TO BIOMETRICS
BVSD604B

Unit-1: **10**

- **Concepts -** biometric recognition, biometrics, requirements for biometrics Biometric systems, their modes and architectures Biometric system errors and evaluation

Unit-2: **10**

- Overview, comparison and evaluation of various biometrics Unimodal biometric systems, their advantages, disadvantages and limits Multimodal biometric systems, their modes of operation, levels of fusion

Unit-3: **10**

- Biometric pattern recognition methods Privacy protection and social acceptance Biometric standardization, data formats Design and implementation of biometric systems, applications of biometric systems, biometric databases, security of biometric systems

KALINGA UNIVERSITY
RAIPUR|INDIA

INDUSTRIAL TRAINING/ ON JOB TRAINING/ WORKSHOP
BVSD605P

RAIPUR|INDIA

KALINGA UNIVERSITY

KALINGA UNIVERSITY, KOTNI , NEAR MANTRALAYA, NAYA RAIPUR - 492101, CHHATTISGARH

CALL: +91-9907252100