HSNC UNIVERSITY, MUMBAI
Board of Studies in BVOC
In the subject of Web Technologies, KC College

1. **Name of Chairperson: -**
   a. **Dr. Rakhi Gupta,** Assistant Professor, Dept. of Information Technology, KC College, HSNC University, rakhi.gupta@kccollege.edu.in, 9619914191

2. **Name of Co-chairperson: -**
   a. **Ms. Geeta N. Brijwani,** Assistant Professor, Dept. of Comp. Sci., KC College, HSNC University, geeta.brijwani@kccollege.edu.in, 9890857969

3. **Two to five teachers each having minimum five years teaching experience amongst the full time teachers of the Departments, in the relevant subject.**
   a. **Mrs. Neha Patel,** Assistant Professor, Dept. of Information Technology, KC College, HSNC University, neha.patel@kccollege.edu.in, 9820609142
   b. **Ms. Nashrah Gowalker,** Assistant Professor, Dept. of Information Technology, KC College, HSNC University, nashrah.gowalker@kccollege.edu.in, 9664774108
   c. **Mr. Naveen Pahuja,** Assistant Professor, Dept. of Comp. Sci., KC College, HSNC University, naveenpahuja94@gmail.com, 8856881398

4. **One Professor / Associate Professor from other Universities or professor / Associate Professor from colleges managed by Parent Body; nominated by Parent Body;-**
   a. **Dr. Sushil Kulkarni,** Associate Professor, Head, Dept. of Mathematics, Jai Hind College Autonomous, Mumbai, sushiltry@gmail.com, 9967770658

5. **Four external experts from Industry / Research / eminent scholar in the field relevant to the subject nominated by the Parent Body;**
   a. **Mr. Ravi Gupta,** Director, Frameboxx 2.0, ravi@frameboxx.in, 9820711434
   b. **Mr. Harish Chandar,** Director, India Tech International Pvt. Ltd., Mumbai, harishchandarb@gmail.com, 9821528022
   c. **Mr. Wilson Rao,** Co-ordinator, Dept. of Information Technology & BVOC, Jai Hind College, Autonomous, wilsonrao@gmail.com, 9821354297
   d. **Mr. Maunash A. Jani**, Software Developer, Genius Lynx, Mumbai, maunash08@gmail.com, 9022155698

6. **Top rankers of the Final Year Graduate and Final Year Post Graduate examination of previous year of the concerned subject as invitee members for discussions on framing or revision of syllabus of that subject or group of subjects for one year.**
   a. **Mr. Ajit Vishwakarma,** Corporate Master Trainer, Managing Director, Vinayavish LLP, Mumbai, ajit@vinayavish.com, 9987230297

HSNC
University Mumbai

(2021-2022)

Ordinances and Regulations

With Respect to

For the Programme Under

Bachelor of Vocational Studies in Web Technologies

Curriculum – Second Year BVoc Programme

Semester-III and Semester -IV

2021-2022

HSNC University, Mumbai

Syllabus for S.Y.B.Voc

Program: B.Voc

Course: Web Technologies

With effect from the academic year 2021-2022

Second Year Semester – III Subject Information

Sr. No.	Subject Code	Subject Title	Credits
1.	**UV-SWT-301**	EVS-II	4
2.	**UV-SWT-302**	Digital Marketing	4
3.	**UV-SWT-303**	Web Programming using Python	3
4.	**UV-SWT-304**	Graphics and Web Design	3
5.	**UV-SWT-305**	Web programming using PHP-I	3
6.	**UV-SWT-3P1**	Web Programming using Python	3
7.	**UV-SWT-3P2**	Graphics and Web Design	3
8.	**UV-SWT-3P3**	Web programming using PHP-I	3
		Total Credits	**26**

Detailed Scheme Theory
S. Y. BVOC 2021-2022 SEM 3
<u>S.Y B.VOC 301: EVS-II</u>

Unit	Content	No. of Lectures
1	**1.1 Ecosphere:** Atmosphere: Physico-chemical characteristics, division, composition & significance of components. Hydrosphere: Water resource & water cycle, physico-chemical characteristics of aquatic environment. Lithosphere: Composition, inorganic & organic components in soil, types of soil, soil profile & nutrients in soil.Biosphere: Composition of Biosphere & brief account of types of biomes. **1.2 Natural Resources:** Concept & types of resources, Current status of major resources: Water, land, mineral, biological & energy resources, Need for conservation of resources, Rational use of resources.	15
2	**2.1 Environmental Monitoring & Risk Assessment:** Remote Sensing and GIS: Principle, types & applications. **2.2** Water pollution monitoring & assessment techniques, Air pollution monitoring & assessment techniques, Concept & evaluation of environmental risk assessment.	15
3	**3.1 Solid Waste Management:** Introduction, Definition and Classification based on the sources of generation , Composition and Segregation at source, treatment (Chemical/Mechanical/Biological) , Introduction to open dumping and sanitary landfill methods of waste disposal , Solid Waste as a useful resource. **3.2 Sustainable Development:** Concept of sustainable development , Strategy for sustainable development , Sustainable development indicators & policies , Ecotourism	15
4	**4.1 Climate Change:** Introduction to climate change & global warming , Greenhouse Gases its Sources & effects , Effects of climate change , Role of IPCC in climate change monitoring **4.2 Protocols:** Kyoto Protocol, Montreal Protocol, Earth Summit & UN Convention on Climate Change.	15

References:

1. Ahluwalia V.K. & Malhotra Sunita: Environmental Science. Ane Books India 2006.

2. Anjaneyulu Y.: Environmental Impact Assessment Methodologies. B.S Publication Hyderabad. 2002.

3. Charles H. Southwid: Ecology & Quality of our Environment. D. Van Nostrand Co. N.Y. 1976.

4. Daniel Botkin & Edward Kellere: Environmental Science – Earth as living Planet. J. Wiley & Sons 1995.

5. Dara S.S. & Mishra D.D.: Text book of Environmental Chemistry & Pollution Control. Revised edition; Publsh. S. Chand.

6. David D. Kemp: Global Environmental Issues – A Climatological Approach. Roult Ledge & Company, London & N.Y. 1990.

S.Y B.VOC 302 : Digital Marketing

Unit	Content	No. of Lectures
1	**1.1 Introduction to Digital Media Marketing:** Terms & Terminologies, Display Advertising, Introduction To Digital Selling, Driving Strategy, WordPress Setup, Understanding WordPress, Working with pages, posts, categories, tags, menus Building Website structure. **1.2 Web Analytics**: Introduction to Google Analytics, why companies use Analytics, How Analytics works, How to set up Analytics & Define Goals, Filters & Segments. Setting up Search Console, Link website to GA & Search Console, Linking Search Console, Understanding Analytics Reports. **1.3 Search Engine Optimization**: Understanding Search Landscape, Creating a search visibility plan, How to write content that ranks, Understanding the role of On-page SEO, Understanding the role of Off-page SEO, Article submission to gain links, Research & identify SEO submission sites, Website Audit like a Pro.	15
2	**2.1 Search Engine Marketing**: Introduction to Google Ads, Why brands use, Google Ads, Landing Pages & Setting up Goal to drive subscribers, Keyword Research Methodology, Extensive Keyword Research Exercise, Campaign mapping, Conversion Tracking & Setup, Hierarchy, Bids & Auctions, Campaign Creation Search, Display and Video **2.2 Ecommerce Marketing:** Understanding Electronic Commerce & Importance, How to do SEO of E-Commerce Website, Using affiliate Marketing to promote E-Commerce, Technology Infrastructure for E-Commerce, E-commerce Security Issues & Controls, Implementing E-Commerce, E-Commerce Marketing, E-Commerce business models and Strategy.	15
3	**3.1 Social Media Marketing & Content:** Understanding the various Social Media Platforms, Knowing how to market/communicate through Social Media Platforms Choosing a platform to fit the brand objective, Objectives and Metrics, Research and Mapping Tools, tactics, targets and teams, Developing an effective Social Media Strategy, Content Marketing **3.2 Video Marketing:** What is Video Marketing, Importance of Video Marketing, 4-step framework to do Video Marketing. **3.3 Influencer Marketing:** Who is an Influencer? What is Influencer Marketing, Types of Influencers, 5-Step Framework on how to create an Influencer Marketing Plan. **3.4 Paid/Performance Marketing:** What is Paid & Performance Marketing, Understanding the demographics of the platforms, Understanding the Facebook Business Manager, How do ads on Instagram and Facebook work, A/B testing. Ad copies and Ad creatives. **3.5 E-mail Marketing:** What is E-mail, Deep Dive into Email Marketing, Email Authentication & Delivery, What is IP reputation, Email Strategy Content, Design & Optimization, Audience Engagement, Automation & 1:1 Personalization, Email Analytics, Brand Case Studies & Trends in the Industry.	15

4	**4.1 Digital Media Planning & Buying:** Overview- Role of a media planner, Understanding Client Brief: decoding the expectations of the client, Setting Campaign, Objectives, Audience analysis: User behaviour, online opportunities and challenges, Market research, Media formats channels and placement, Media planning tools, software & platform selection, Media research and analysis, Media buying options, art of negotiating rates, Sample media plan, Presentation to the client. **4.2 Digital Marketing Strategy:** Understand how the elements of a digital marketing strategy can bring customers to the business., Inclusion of the power of search engine optimization, paid search, social media, and online advertising, Reflect on how best to extend brands and cultivate relationships in these channels in a way that supports a holistic digital marketing strategy.	15

Reference Books:

1. Digital Marketing All-in-One For Dummies, Stephanie Diamond, Wiley and Sons,1st 2019.
2. Social Media Marketing All-in-one Dummies, Jan Zimmerman, Deborah Ng, 4th Edition; John Wiley & Sons Inc, 2017.
3. Digital Marketing For Dummies, Ryan Deiss and Russ Henneberry. John Wiley & Sons 1st edition 2017.

S.Y B.VOC 303: Web Programming using Python

Unit	Content	No. of Lectures
1	**1.1 Introduction to python** and its features: portability , coherence , developer productivity , software quality , software integration Drawbacks , Uses , Python 2 vs Python 3 **1.2 Executing python** : Running python scripts , Running python interactive shell , Running python as a service , Running python as GUI application	15
2	**2.1 Use of modules and Packages**, namespaces, scopes, objects and classes, introduction to IDE. **2.2 Mutable and Immutable structures:** String, bytes, tuples, lists, byte arrays, set types. **2.3 Iterating and making decision :** A specialized else – elif , The ternary operator, for loop , Iterating over a range , Iterating over a sequence , Iterating over multiple sequences , The while loop , The break and continue statements , A special else clause	15
3	**3.1 Functions :** Reducing code duplication , Splitting a complex task , Hiding implementation details , Improving readability , Improving traceability , The global and nonlocal statement , Argument-passing **3.2 Creating an app with Django :** Understanding Django folders, files, and configurations , Creating API Views , Creating Django views combined with serializer classes	15
4	**Using API :**Using a web browser to work with our web service , Making HTTP GET requests with the browsable API , Making HTTP POST requests with the browsable API , Making HTTP PUT requests with the browsable API , Making HTTP OPTIONS requests with the browsable API , Making HTTP DELETE requests with the browsable API Understanding API Permission : Understanding authentication and permissions in Django, theDjango REST framework, and RESTful Web Services	15

Reference Books:
1. Get hands-on with Python Programming and Django web development ,Fabrizio Romano , Gastón C. Hillar , Arun Ravindran

S.Y B.VOC 304: Graphics and Web Design

Unit	Content	No. of Lectures
1	**1.1 Web Site Design Principles –** Design for the Medium, Design for the Whole Site, Design for the User, Design for the Screen, Planning the Site – Create a Site Specification, Identify the Content Goal, Analyze your Audience, Build a Web Site Development Team, Filenames and URLs, Directory Structure, Diagram the Site **1.2 Web Page Anatomy** - Grid Theory - The Rule of Thirds, 960 Grid System, Resizing: Fixed, Fluid, or Responsive Layouts - Fixed Width, Fluid Width, An Alternative: Responsive Layouts **1.3 Planning Site Navigation** – Creating Usable Navigation, Using Text - Based Navigation, Using Graphics- Based Navigation **1.4 Web Typography –** Type Design Principles, Controlling Typography with Cascading Style Sheet, Styling with CSS, Web Fonts with @font-face - Self-hosted Web Fonts, Web Font Services - Google Fonts, Adobe Fonts **1.5 Graphics and Color –** File Format Basics, Computer Color Basic, Choosing a Graphics Tool, Using the <IMG> Element, Working with Hexadecimal Colors **1.6 Publishing and Maintaining Your Web Site –** Publishing Your Web Site, Testing Your Web Site, Refining and Updating Your Content, Attracting Notice to Your Web Site	**15**
2	**CorelDRAW Graphics Suite:** How to Draw in Perspective, How to use the Replace Colors filter for precise image editing, Making the most of the Adjustments docker, Learn how to use Multipage View to your advantage, How to export multiple assets at the same time, Managing cloud files and collaboration in CorelDRAW, How to import a font database, Creating a Duotone and Monochrome Images in CorelDRAW and PHOTO-PAINT, Removing the background from images with CorelDRAW and PHOTO-PAINT, Creating a Certificate with Print Merge in CorelDRAW, Creating a Realistic Objects with Mesh Fill, Printing color separations, Get top 10 prints for screen printers, Creating a t-shirt design & mockup, Design a vehicle wrap with free templates, Apply AI based effects to bitmaps and vectors, Get impressive bitma-to-vector trace results, Fine-tune type responsively with variable fonts, Add depth with shadows, Collaborate to get more done in less time, Work with comments and annotations in CorelDRAW, Review and approve designs in a web browser, Improve the size and quality of images, Apply effects in Corel PHOTO-PAINT, Using masks in Corel PHOTO-PAINT, Apply bitmap effects as lenses, Vector art vs. raster art, Understanding color palettes, Design with CorelDRAW.app	**15**
3	Introduction to Adobe Photoshop, Getting Started using Photoshop, Working with Images, Resizing and Cropping Images, Working with Basic Selections, Layers, Painting in Photoshop, Photo Retouching, Color Correction, Using Masks And The Quick Mask Mode, Working With The Pen Tool, Creating Special Effects, Printing And Exporting Your Work	**15**
4	Introduction to Adobe Illustrator, Working With Documents, Drawing and Transforming Objects, Making and Saving Selections, Working with Shapes and Objects, Working with Color, Gradients, Pattern Fills, and Blends, Points and	**15**

	Paths, Working With Paths, Working With Layers, Working with Type, Drawing and Painting, Illustrator Effects, Symbols, Outputting Your Work	

References:
1. Principles of Web Design by Joel Sklar, 6th Edition, Cengage, 2015.
2. The Principles of Beautiful Web Design, 3rd Edition, By Jason Beaird, James George (SitePoint)
3. https://www.coreldraw.com/en/learn/tutorials/?topNav=en
4. https://helpx.adobe.com/photoshop/tutorials.html
5. https://helpx.adobe.com/in/illustrator/tutorials.html

S.Y B.VOC 305: Web Programming using PHP-I

Unit	Content	No. of Lectures
1	**1.1** Introduction to PHP, History of PHP, Versions of PHP, Features of PHP, Advantages of PHP over Other Scripting Languages, software requirements, **1.2** Installation and Configuration of PHP, Installing and Configuring Apache to use PHP on Windows. **1.3** Basic HTML, Embedding PHP in HTML, PHP Basic syntax, data types, comments, variables and constants, scope of variables.	15
2	**2.1** PHP arrays: creating array and accessing array elements, PHP String, PHP operators, precedence of operators, expressions, creating a PHP Script, running a PHP script. **2.2 PHP Regular Expression:** Meaning, syntax, function, modifiers, quantifiers, patterns, grouping.	15
3	**3.1** PHP conditional statements, switch case, PHP looping statements, while, for and do while loop, break, continue, exit, **3.2 PHP functions:** built-in and user defined function, declaration and calling of a function, function argument with call by value, call by reference, string manipulation, mathematical, date and time functions.	15
4	**3.1 Introduction to a web form**, processing a web form, capturing form data, passing information between pages, PHP $_GET, PHP $_POST, with multi value fields, validating a web form, input validation, exception and error handling, **3.2** Introduction to cookies and session handling.	15

References:
2. HTML 5 Black Book, Covers CSS 3, JavaScript, XML, XHTML, AJAX, PHP and jQuery, 2ed, Dreamtech Press
3. Web Programming and Interactive Technologies, scriptDemics, StarEdu Solutions India.
   PHP: A Beginners Guide, Vikram Vaswani, TMH
4. Learning PHP, MySQL, JavaScript, CSS & HTML5, Robin Nixon, O'Reilly.

PHP, MySQL, JavaScript & HTML5 All-in-one for Dummies, Steve Suehring, Janet Valade Wiley

5. www.w3schools.com

PRACTICALS: Web Programming using Python
S.Y B.VOC-3P1

Practical No.	Practical
1.	Installation and setting up environment for Python
2.	Demonstrating execution of python scripts
3.	Demonstrating use of structures in python
4.	Demonstrating iterative and decision making program in python
5.	Demonstrating argument parsing functions in python
6.	Installation and setting up environment for Django
7.	Creating API
8.	Demonstrating HTTP GET request of API
9.	Demonstrating HTTP PUT request of API

PRACTICALS: Graphics and Web Design
S.Y B.VOC-3P2

Practical No.	Practical
1.	Drawing and editing objects/Creating a greeting card
2.	Using a template to create a two-page newsletter
3.	Use of Bezier tools and clipping mask using illustrator
4.	Using scripts and macros to create a calendar
5.	Bitmap and vector effects
6.	Creating a three-panel brochure for a student business
7.	Demonstrate practical to convert PSD to HTML and CSS.
8.	Demonstrate practical to add hyperlinks and buttons.
9.	Demonstrate creation of navigation tabs and footer with insertion of icons

PRACTICALS: Web Programming using PHP-I
S.Y B.VOC-3P3

Practical No.	Practical
1.	a. Write a PHP script, to check whether the page is called from 'https' or 'http'.
	b. Write a PHP script to redirect a user to a different page.
2.	a. Write a PHP script, which changes the color of the first character of a word.
	b. Write a PHP script to count number of lines in a file.

3.	Write a PHP program to print out the multiplication table up to 6*6.
4.	Write a PHP program to remove duplicates from a sorted list.
5.	Write a simple PHP program to check that emails are valid.
6.	Write a simple PHP program to verify that the user did not leave any fields blank when submitting the form.
7.	Check to make sure the credit card number is composed of exactly 16 numerical digits. Check to make sure that a Visa card number starts with a "4" and a MasterCard number starts with a "5".
8.	Write a program to demonstrate regular expression
9.	Working with Databases :a (Storing Records / Reprieving Records and Display them) b. Storing and Retrieving Cookies c. Storing and Retrieving Sessions

Second Year Semester -IV Subject Information

Sr No.	Subject Code	Subject Title	Credits
1.	UV-SWT-401	Cyber Law	6
2.	UV-SWT-402	Software Engineering	6
3.	UV-SWT-403	Website Publishing and Management	3
4.	UV-SWT-404	Marketing Management and Automation	3
5.	UV-SWT-405	Web programming using PHP-II	3
6.	UV-SWT-4P1	Website Publishing and Management	3
7.	UV-SWT-4P2	Marketing Management and Automation	3
8.	UV-SWT-4P3	Web programming using PHP-II	3
		Total Credits	**26**

Detailed Scheme Theory
S. Y. B.VOC 2021-2022 SEM 4
S.Y B.VOC 401: Cyber Law

Unit	Content	No. of Lectures
1	**1.1 Fundamentals of Cyber law** : Regulation of Information Society, Need for Cyber Laws, ICANN, UNCITRAL, Indian Scenario in regulation, Investigation and Ethics: Cyber Crime, Information Security and Law, Types & overview of Cyber Crimes, Cyber Law Issues in E-Business Management Indian IT Act, ISP and Intellectual property issues, Cyber squatters and Copy Right Protection , Patents, Data privacy and protection, Domain Name, Software piracy, Plagiarism, Issues in ethical hacking	15
2	**2.1 IT Security Law and Policy** : Security Policy, Ethical issues in data and software privacy, Computer Crime Laws, Honeypots & Entrapment, Active Defenses, Hacking Back **2.2 Electronic Records and Signature** : Vicarious Liability, E-Discovery, Records Retention, Destruction, Email Retention, Forensics, Privacy Policies, Evidence Law, Signatures	15
3	**3.1 Contracts and formal legal documents in the Infotech World** : Click Through Agreements, Contract Formation, Battle of the Forms, Liability, Breach, Bonds, Assent, Warranty, Remedies, Liens, Ownership Issues, Subpoenas, Documentation, Audits, Exceptions, Maintenance, Termination, Escrow, Competition, Disputes, Non- Disclosure	15
4	**4.1 Cyber Defence :** Sony Root Kit Case Study, Crisis Communications, Choicepoint Case Study, Relationship with Law Enforcement, TJX Case Study, Publicity, Safely Monitoring Threats w/o Incurring Liability, Factors Mitigating Legal Risk, Public Accountability, Political Diplomacy, Strategic Legal Procedures, Competitive Boundaries	15

Text Books:

1) Vivek Sood, "Cyber Laws Simplified", Mc Graw Hill
2) Anthony Reyes, "Cyber Crime Investigations: Bridging the Gaps Between Security Professionals, Law Enforcement, and Prosecutors.
3) 3 Brian Craig, *"Cyberlaw: The Law of the Internet and Information Technology",* 1st ed., Prentice Hall, 2012.
4) 4. Faiyaz Ahamad, " Cyber Law and Information Security" , Dreamtech Press

References:

1. Marcia P. Miceli, "Whistle-Blowing in Organizations"
2. Jonathan Rosenoer, " Cyber Law , The Law of internet, Springer 1.

S.Y B.VOC 402: Software Engineering

Unit.	Content	No. of Lectures
1	**1.1 Introduction:** What is software engineering? Software Development Life Cycle, Requirements Analysis, Software Design, Coding, Testing, Maintenance etc. **1.2 Software Requirements:** Functional and Non-functional requirements, User Requirements, System Requirements, Interface Specification, Documentation of the software requirements. **1.3 Software Processes:** Process and Project **1.4 Software Development Process Models.** • Waterfall Model. • Prototyping. • Iterative Development /Spiral Model • Rational Unified Process. • The RAD Model • Time boxing Model. **1.5 Agile software development**: Agile methods, Plan-driven and agile development, Extreme programming, Agile project management. **1.6 Socio-technical system:** Essential characteristics of socio technical systems, Emergent System Properties, Systems Engineering, Components of system such as organization, people and computer, Legacy Systems. **1.7 Critical system:** Types of critical system, A simple safety critical system, Dependability of a system, Availability and Reliability, Safety and Security of Software systems.	15
2	**2.1 System Models:** Models and its types, Context Models, Behavioural Models, Data Models, Object Models, Structured Methods. **2.2 Requirements Engineering Processes:** Feasibility study, Requirements elicitation and analysis, Requirements Validations, Requirements Management.. **2.3 Architectural Design:** Architectural Design Decisions, System Organization, Modular Decomposition Styles, Control Styles, Reference Architectures. **2.4 User Interface Design:** Need of UI design, Design issues, The UI design Process, User analysis, User Interface Prototyping, Interface Evaluation. **2.5 Project Management**: Software Project Management, Management activities, Project Planning, Project Scheduling, Risk Management **2.6**. **Quality Management:** Process and Product Quality, Quality assurance and Standards, Quality Planning, Quality Control, Software Measurement and Metrics.	15

3	**3.1 Verification and Validation:** Planning Verification and Validation, Software Inspections, Automated Static Analysis, Verification and Formal Methods. V-model for software, Testing during stages of V-model, VV Model, Critical Roles and Responsibilities. Acceptance Testing. **3.2 Software Measurement**: Size-Oriented Metrics, Function-Oriented Metrics, Extended Function Point Metrics **3.3 Software Cost Estimation:** Software Productivity, Estimation Techniques, Algorithmic Cost Modelling, Project Duration and Staffing **3.4 Fundamentals & Principles of testing**: Introduction, Necessity of testing, What is testing? Fundamental test process, The psychology of testing, Historical Perspective of Testing, Definitions of Testing, Approaches to Testing, Testing During Development Life Cycle, Important Features of Testing Process, Misconceptions About Testing, Unit Testing , Component Testing System Testing, Test Case Design, Test Automation. **3.5 Testing Strategy:** Categories of Defect, Defect, Error, or Mistake in Software, Developing Test Strategy, Developing Testing Methodologies (Test Plan)/ Approaches , Testing Process, Test Team Approach, Process Problems Faced by Testing, Cost Aspect of Testing, Establishing Testing Policy, Methods, Structured Approach to Testing. Software testing techniques – White box and black box testing – Testing for specialized environment, architectures, and applications Use of software testing in web application, e-commerce, security and GUI. **3.6 Software Maintenance:** Management of maintenance, Maintenance process, Maintenance models, Regression testing, Reverse engineering, Software reengineering, Configuration management, documentation.	**15**
4	**4.1 Process Improvement:** Process and product quality, Process Classification, Process Measurement, Process Analysis and Modeling, Process Change, The CMMI Process Improvement Framework. **4.2 Service Oriented Software Engineering:** Services as reusable components, Service Engineering, Software Development with Services. **4.3 Software reuse:** The reuse landscape, Application frameworks, Software product lines, COTS product reuse. **4.4 Distributed software engineering:** Distributed systems issues, Client–server computing, Architectural patterns for distributed systems, Software as a service Case Study: Project tracking (including defect tracking, status reports, milestone analysis)	**15**

Reference Books:

1. Software Engineering by Ian Somerville, Pearson Education. Ninth Edition.
2. Software Engineering by Pankaj Jalote, Narosa Publication
3. Software engineering, a practitioner's Approach by Roger Pressman, Tata Mcgraw-Hill, Seventh Edition.
4. Software Engineering principles and practice by WS Jawadekar, Tata Mcgraw-hill

5. Software Testing and Continuous Quality Improvement by William E. Lewis, CRC Press, Third Edition, 2016
6. Software Testing: Principles, Techniques and Tools by M. G. Limaye, TMH, 2017.
7. Foundations of Software Testing by Dorothy Graham, Erik van Veenendaal, Isabel Evans, Rex Black, Cengage Learning, Third Edition.
8. Software Testing Technique by Boris Beizer, Dreamtech Press, Premier press 2014
9 Software Testing: A Craftsman"s Approach by Paul C. Jorgenson, CRC Press, Fourth Edition 2017
10 Software Testing A Craftsman's approach by Paul C. Jorgensen, CRC Press, Second Edition 1997

S.Y B.VOC 403: Website Publishing and Management

Unit	Content	No. of Lectures
1	1.1 **Source control: Git and GitHub** Introduction, Getting started using git, Install git and/or source tree, create a local repository, create a commit, create a remote repository and push commits to a remote repository, Branching and Merging, Git Workflows, Github Account, Github Repository, Push, commits, Inviting a collaborator, Clone a repository, Pull repository based on collab updates/commits.	15
2	**2.1 Server:** OS, web hosting control panels - Plesk and cPanel, Types of server- virtual, shared, dedicated & cloud, on premises server	15
3	**3.1 Server Management:** Server environment set-up, DNS , DB Set up, Email setup, Server file management, Server security- firewall , ports, website configuration files - .htaccess, web.config, cache management, log management - event, error logs.	15
4	**4.1 Networking tools:** FTP tools, Filezilla, CDN **4.2 Server Maintenance:** Backup and Restore, Software updates	15

References:

1. Git
=> https://git-scm.com/
=> https://git-scm.com/doc

2. GitHub
=> https://docs.github.com/en

https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/Publishing_your_website
https://developer.mozilla.org/en-US/docs/Learn/Common_questions/What_is_a_web_server
https://en.wikipedia.org/wiki/Web_hosting_service
https://docs.plesk.com/en-US/obsidian/
https://docs.cpanel.net/installation-guide/install/

S.Y B.VOC 404: Marketing Management and Automation

Unit	Content	No. of Lectures
1	**1.1 Introduction** to Marketing Management, Core Concepts of Marketing, Importance of Marketing, The Marketing Process, Marketing Environment, Understanding the Marketing-Information Systems (MIS) **1.2 Segmentation:** Introduction, Benefits of Marketing Segmentation, The Process of Market Segmentation. **1.3 CRM concepts** Acquiring customers, - Customer loyalty and optimizing customer ,relationships - CRM defined - success factors, the three levels of Service/ Sales Profiling - Service Level Agreements (SLAs), creating and managing effective SLAs.	15
2	**2.1 One-to-one Relationship Marketing** - Cross Selling & Up Selling - Customer Retention,Behaviour Prediction - Customer Profitability & Value Modeling, - Channel Optimization -Event-based marketing. - CRM and Customer Service - The Call Centre, Call Scripting - Customer Satisfaction Measurement.	15
3	3.1 Sales Process, Activity, Contact- Lead and Knowledge Management - Field Force Automation. - CRM links in e-Business - E-Commerce and Customer Relationships on the Internet - Enterprise Resource Planning (ERP), - Supply Chain Management (SCM), - Supplier Relationship Management (SRM), - Partner relationship Management (PRM)	15
4	4.1 Managing and sharing customer data - Customer information, databases - Ethics and legalities of data use - Data Warehousing and Data Mining concepts - Data analysis - Market Basket Analysis (MBA), Click stream Analysis, Personalization and Collaborative Filtering.	15

Reference Books:

https://www.linkedin.com/learning/marketing-tools-automation/modern-marketing-is-automated?autoplay=true&trk=learning-course_tocItem&upsellOrderOrigin=default_guest_learning
https://www.hubspot.com/resources
https://developers.activecampaign.com/
https://www.salesforce.com/in/resources/videos/#!page=1
https://www.zoho.com/crm/help/?src=rdd
https://www.odoo.com/slides
https://help.autopilotapp.com/

Textbook:

1. Adrian Payne, Services Marketing
2. Balasubramaniyan, K., Essence of Customer Relationship Management
3. Helen Woodruffe, Services Marketing
4. Service Marketing and Management – Balaji – S.Chand
5. R.Srinivasan – Services marketing – PHI.
6. Kaushik Mukerjee – CRM – PHI.
7. Bharat WAkhlu _ Total Quality – S.Chand.
8. CRM in Banking & Insurance – V.V.Gopal

S.Y B.VOC 305: Web Programming using PHP-II

Unit	Content	No. of Lectures
1	**1.1 PHP OOP :** What is OOP, PHP Classes/Objects , Constructor , Destructor , Access Modifier , Inheritance , Constants , Abstract Classes , Interfaces , Traits , Static Methods , Static Properties , Namespaces , Iterables	**15**
2	**2.1 PHP & MySQL Database** using MySQLi and PHP Data Objects (PDO)-Connect to MySQL, Create a MySQL Database, Create Table, Insert Data, Get Last Inserted ID, Insert Multiple Records, Prepared Statements, Select Data, Where Clause, Order By Clause, Delete Data, Update Data, Limit Data.	**15**
3	**3.1 PHP XML :** PHP SimpleXML Parser , PHP SimpleXML – Get , PHP XML Expat , PHP XML DOM **3.2 PHP AJAX :** Introduction , AJAX Database , AJAX PHP , AJAX XML , AJAX Live Search , AJAX Poll.	**15**
4	**Case Studies with MySQL and PHP:** Web Based Social Network Application Development , Retail E-commerce Application Development for Apparels & Garments	**15**

References:

1. HTML 5 Black Book, Covers CSS 3, JavaScript, XML, XHTML, AJAX, PHP and jQuery, 2ed, Dreamtech Press
2. Web Programming and Interactive Technologies, scriptDemics, StarEdu Solutions India.
    PHP: A Beginners Guide, Vikram Vaswani, TMH
3. Learning PHP, MySQL, JavaScript, CSS & HTML5, Robin Nixon, O'Reilly.
    PHP, MySQL, JavaScript & HTML5 All-in-one for Dummies, Steve Suehring, Janet Valade Wiley
4. www.w3schools.com

PRACTICALS: Website Publishing and Management
S.Y.B.VOC-4P1

Practical No.	Practical
1.	Study and compare different types of Servers (Shared Hosting, Cloud VPS Hosting, Dedicated CPU Servers, WordPress hosting etc) & different types of web hosting control panels like - Plesk and cPanel.
2.	Create Domain, Sub Domain, Configure DNS, configure necessary development environment (Configuring PHP Version, setup Python App etc) and Transfer files using FileZilla.
3.	Create Project Folder & add it to source control (Public/Private) using GIT/Source Tree etc.
4.	Setup Email Server, Configure MX Records, Setup webmail like Roundcude, horde Etc.
5.	Create Server-Side database, use it remotely using any DB administration tool like SQLyog.
6.	Configure Serve side security, .htaccess, web.config for your project.
7.	Implement basic server-side cache management.
8.	Implement necessary log management -event, error logs.
9.	Study additional server-side features like SEO, CRON, SSL/TLS, Leech Protection, Hotlink Protection, Resource & Bandwidth management, MIME Types.
10.	Implement Backup & Restore of server-side Configuration files, Database, Email, Application (like Website/APP), Update Softwares (if needed).

PRACTICALS: Marketing Management and Automation
S.Y.B.VOC-4P2

Practical No.	Practical
1.	Implement marketing automation with hubspot using lead capture, Segmentation, email marketing & workflows.
2.	Implement Marketing Automation with ActiveCampaign using contact scoring and setting goals.
3.	Implement Mailchimp with Automated ad campaigns, managing abandonment
4.	Implement & study on Salesforce CRM.
5.	Implement any open source CRM tool for Managing Success through automation using Measuring success, predictive analytics, analyzing leads, user tracking, measuring engagement.
6.	Implement Lead Management, Deal Management, Contact Management, Workflow Automation using Free account of ZOHO CRM.
7.	Implement Leads Nurturing, Lead Scoring, Online Acquisition, Live Chat using odoo CRM.
8.	Implement marketing Automation, Email Marketing, Lead Management using Adobe Marketo.
9.	Study and Implement autopilotapp
10.	Use any CRM Automation tool and Implement it for your Project.

PRACTICALS: Web Programming using PHP-II
S.Y B.VOC-4P3

Practical No.	Practical
1.	Demonstrate practical on constructor and destructor using PHP
2.	Demonstrate practical on inheritance using PHP
3.	Demonstarte practical on interfaces using PHP
4.	Demonstrate practical for connecting PHP with MySQLi
5.	Practical to create database, table and inserting values in MySQLi
6.	Demonstrating practicals using WHERE clause ,Orderby clause
7.	Demonstrate practical using AJAX and MySQLi database
8.	Demonstrate practical using AJAX and XML
9.	Demonstrate practical using AJAX and PHP