Rayat Shikshan Sanstha's

Yashavantrao Chavan Institute of Science, Satara(Autonomous)

SYLLABUS

FOR

B. Voc. (Software Development)

Second Year
Semester III and IV

To be implemented w. e. f. June 2022

Semester III

General Education				Skill Component			
No.	**Title**	**Credit**	**Hrs/ Week**	**No.**	**Title**	**Credit**	**Hrs/ Week**
VS 331	Statistics for Business Development	4	4	VS 334	Programming in Java	4	4
VS 332	System Analysis & Design	4	4	VS 335	Advanced Web Development (PHP/ Mysql)	4	4
VS 333	Environment Science	4	4	VS 336	ASP.NET with C#.NET	4	4
				VS 337	Core Java Lab	2	3
				VS 338	Advanced Web Development(PHP/ Mysql) Lab	2	3
				VS 339	ASP.NET with C#.NET Lab	2	3
	Total	**12**	**12**		**Total**	**18**	**18**

Semester IV

General Education				Skill Component			
No.	**Title**	**Credit**	**Hrs/ Week**	**No.**	**Title**	**Credit**	**Hrs/ Week**
VS 341	Software Project Management	4	4	VS 344	Advanced SQL	4	4
VS 342	Digital Marketing	4	4	VS 345	Digital Image Processing	4	4
VS 343	Data Structure	4	4	VS 346	Advanced Java	4	4
				VS 347	Lab: Advanced SQL	2	3
				VS 348	Lab : Digital Image Processing	2	3
				VS 349	Lab: Advanced Java	2	3
	Total	**12**	**12**		**Total**	**18**	**18**

❖ Distribution of Marks:

Sem	Paper Code	Subject	General/ Skill	Credit	Cont Hrs	Mark ESE	Mark ISE	Total Mark
III	VS 331	**Statistics for Business Development**	General	4	72	60	40	100
	VS 332	**System Design & Analysis**	General	4	72	60	40	100
	VS 333	**Environmental Science**	General	4	72	60	40	100
	VS 334	**Programming in Java**	Skill	4	72	60	40	100
	VS 335	**Advanced Web Development(PHP/MySQLi)**	Skill	4	72	60	40	100
	VS 336	**ASP.NET with C#.NET**	Skill	4	72	60	40	100
	VS 337	**Lab : Java Programming**	Skill	**2**	**36**	**40**	**30**	**70**
	VS 338	**Lab: Advanced Web Development**	Skill	**2**	**36**	**40**	**30**	**70**
	VS 339	**Lab : ASP.NET with C#.NET**	Skill	**2**	**36**	**40**	**20**	**60**
IV	VS 341	**Software Project Management**	General	4	72	60	40	100
	VS 342	**Digital Marketing**	General	4	72	60	40	100
	VS 343	**Data Structure**	General	4	72	60	40	100
	VS 344	**Advanced SQL**	Skill	4	72	60	40	100
	VS 345	**Digital Image Processing**	Skill	4	72	60	40	100
	VS 346	**Advanced Java**	Skill	4	72	60	40	100
	VS 347	**Lab : Advanced SQL**	Skill	**2**	**36**	**40**	**30**	**70**
	VS 348	**Lab : Digital Image Processing**	Skill	**2**	**36**	**40**	**30**	**70**
	VS 349	**Lab : Advanced Java**	Skill	**2**	**36**	**40**	**20**	**60**
		Total		**60**		**1120**	**480**	**1600**

VS 331 STATISTICS FOR BUSINESS DEVELOPMENT (72)

Course Objectives: Student will be able to …

1. Enable the statistical techniques applicable to business.
2. Apply statistical techniques for quantification of data in business.
3. Understand Correlation and Regression
4. Imbibe students to know Index numbers , Time series analysis

SYLLABUS:

Unit	Topic	Hours
Unit I	**Introduction:** Meaning, definition, functions, objectives and importance of statistics.- Distrust of statistics-Collection, classification, tabulation and presentation of data. Measures of central tendency and Measures of dispersion - relevance and applicability of each technique in business	18
Unit II	**Correlation:** Meaning and definition-correlation and causation – Types of correlation– Methods ofmeasuring correlation for ungrouped data -Karl Pearson's co-efficient of correlation and itsinterpretation, Probable error -Coefficient of determination Spearman's rank correlation- co-efficient of Concurrent deviation- Application of different measures of correlation in business.	18
Unit III	**Regression analysis:** Meaning and definition - Types of Regression -Regression lines-determination of simple linear regression-. Regression equations and their application in business. Properties of correlation and regression co-efficient – Comparison of regression and correlation.	18
Unit IV	**Index numbers:** Meaning and importance-Problems in construction of index numbers- Methods of constructing of index numbers- Simple aggregative, Average of Price relatives, Lasperye's, Paasche's, Dorbisch- Bowley's, Marshall-Edgeworth's and Fisher's ideal index numbers, Test of Consistency: Time Reversal Test and Factor Reversal Test. Chain Base Index Nos. Shifting of Base year. Cost of	18

	living Index and its use in determination of wages –Wholesale Price Index Number, Population index, inflation index, Operational indices- Sensex and Nifty. Time series analysis - Meaning and definition- components- Measurement of long term trend- Moving average method- Method of Least squares- Application in business.	

Course Outcomes: Student should be able to …

1. Understand importance of Business Statistics.
2. Demonstrate correlation.
3. Understand and able to do Regression analysis, Time series analysis, Index numbers.

REFERENCES:

1. Gupta.S.P. Statistical Methods, Himalaya Publishing House, Mumbai.(Unit I, UnitII) - 1998
2. Elhance.D.L .Fundamentals of Statistics, KitabMahal, Allahabad. (Unit I)
3. Gupta.B.N. Statistics - Theory and Practice, SahityaBhawan Publications, Agra.(Unit I, Unit II)-2001
4. Sanchetti D.C and KapoorV.K .Statistics - Theory, Methods and Application, Sultan Chand & Sons (Unit III, Unit IV, Unit V)-1999

VS 332 SYSTEM ANALYSIS AND DESIGN (72)

Course Objectives: Student will be able to…

1. Understand concept of System.
2. Get knowledge of System Analysis and Design.
3. Analyze Feasibility Study of System.
4. Implement testing and maintenance tools.

Unit	Topic	Hours
Unit I	**Introduction to System** Definition, Basic Components, Elements of the system, System Components, Types of System, Characteristics of System, System development life cycle - Feasibility analysis, design, implementation, testing and evaluation, project review.	18

Unit II	**System Analysis** Introduction , Requirement Tasks , Understanding of System Requirement ,Requirement Gathering , Feasibility study , Fact Finding Techniques, Software Development Process –Waterfall Model , Spiral Model , Prototyping Model	18
Unit III	**System Design** Design objectives, Process and stages of system design, Design methodologies, Decision Tree and Decision Table , Data Flow Diagrams (DFD) , Data Dictionary , Elements of DD , Advantages of DD , Input and Output Design ,Case Studies on above topics, top down and bottom up approaches	18
Unit IV	**Testing and Maintenance** Definition , Verification And Validation ,Black box and White-Box Testing , Unit Testing ,Integration Testing, Definition of Maintenance, Types of Maintenance	18

Course Outcomes: Student should be able to…

1. Analyze system and design of various system.
2. Evaluate various types of feasibility studies and how to use it.
3. Perform to test any system.

REFERENCES:

1) John Farr ,*Systems Life Cycle: Economic Analysis, Estimation, and Management,* 1st edition,June 20,2022,CRC press

2) Dr. Brijendra Singh, *Systems Analysis And Design*, 1st edition, January 2016, New Age International (P) Ltd., Publishers

3) Alan Dennis,System Analysis and Design, Fifth Edition, January 2012, Wiley

VS 333 ENVIRONMENTAL SCIENCE (72)

Course Objectives:

Students will be able to…

1. Get Knowledge about better awareness and current environmental issues
2. Develop a healthy respect and sensitivity to environment
3. Develop pride in social and environmental activism.
4. Discuss solutions regarding environmental issues.

Unit	Topic	Hours
Unit–I	**The Multi-disciplinary Nature of Environmental Studies**: Definition, scope and importance, Need for Public Awareness, Ecology and Ecosystems: Definition of Ecology, Structure and function of an ecosystem, Producers, Consumers andDecomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids, Introduction, types, characteristics features and function of – forest ecosystem, grassland ecosystem, desert ecosystem, aquatic ecosystem(ponds, streams, lakes, rivers, oceans, estuaries)	18
Unit–II	**Biodiversity and its conservation:** Introduction, genetic, species and ecosystem diversity definition, value of biodiversity, biodiversity at global, national and local levels, India as a mega diversity nation, hot spots of biodiversity, threats to biodiversity – habitat lose, poaching of wild life, man wild lifeconflicts, endangered and endemic species of India, conservation of bio diversity in in- situEX-situ	18
Unit–III	**Natural Resources:** Air resources-features, composition, structure, air quality management, forest resources-, water resources, mineral resources, food resources, energy resources, land resources, Environmental pollution: definition, air pollution, water pollution, marine pollution, thermal pollution, soil pollution, noise pollution, nuclear hazards, waste management, cleaner technologies, reuse and recycling, solid waste management, role of individuals to prevent pollution, pollution case studies, disaster management – floods, earthquake, cyclone and landslides	18

Unit–IV	**Social issues and the environment:** From unsustainable to sustainable development, urban problems related to energy, water conservation, rain water harvesting, water shed management, resettlement and rehabilitation of people- it's problems and concerns, case studies, environmental ethics- environmental value relationships, environmental ethics and species preservation, climatechange, global warming, acid rain, Ozone layer depletion, nuclear accidents and holocaust, case studies, waste land reclamation, consumerism and waste products, legislation to Protect the environment, environmental protection act, dir(prevention and control of pollution) act, water(prevention and control of pollution) act, wild life protection act, forestconservation act, environmental management systems(EMS), environmental information systems(EIS), P.I.L public hearing and role of NGOS, ISO 9000 and 14000, issues involved in enforcement of environment legislation, public awareness, environmental economics-environment and standard of living.	18

REFERENCES

1 .Kiran B Chokkas, Mamata Pandya, Meena Raghunathan: *"Understanding Environment*", First Edition,Decembaer 2004,Sage publication

2 Frank R. Spellman, *Environmental Science & Engineering*,2nd edition,CRC press,2015

3 .Lester R Brown, Plan B: *rescuing a Planet under stress and a civilization in trouble,* Pearson 2006

Course Outcomes: Student should be able to

1. Analyze Energy flow in the ecosystem, Ecological succession, Food chains
2. Define genetic, species and ecosystem diversity.
3. Differ various aspects of natural resources.
4. Understand Social issues and the effects on environment.
5. Get Knowledge about environmental ethics and species preservation

VS 334 Programming in JAVA (72)

Course Objectives: student will be able to …

1. Impart fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
2. Inculcate concepts of inheritance to create new classes from existing one & Design the classes needed given a problem specification;
3. Familiarize the concepts of packages and interfaces.
4. Facilitate students in handling exceptions.

SYLLABUS:

Unit	Topic	Hours
Unit- I	**Java Basics:** Introduction: History of Java, Java features, Differentiate Java with C and C++, JVM, JIT and JRE. Variables and data types, declaring variables, Java Operators :Arithmetic, relational, logical, assignment, increment and decrement, conditional, bitwise, precedence and order of evaluation, statement and expressions, string arithmetic. Arrays and Strings :One and two dimensional array, creating an array, strings, string buffer	**18**
Unit- II	**Classes and Inheritance:** Various types of inheritance, super and subclasses, Types of Inheritance, keywords - 'extends', 'super', constructor chaining, method overriding,	**18**

	dynamic method dispatch, final variables and methods, final classes, abstract method and classes. Interface: Defining interfaces, extending interfaces, implementing interfaces. Packages: System packages, using system package.	
Unit- III	**Exception Handling and Threads:** Introduction to Threads, Creating Threads, Lifecycle of a Thread, Synchronization Exception Handling : Exception-handling fundamentals, Exception types, Uncaught exceptions, Using try and catch, Multiple catch clauses, nested try statements, use of throw, throws and finally keywords, Java's Built-in exceptions, User defined exception ,Chained Exception.	**18**
Unit- IV	**File Handling and JDBC:** Concept of streams, stream classes, byte stream classes :Input Stream, and Output Stream, character stream classes : Reader and Writer, Difference between byte stream classes and character stream classes, File class, Reading / writing bytes / characters, random access file, Introduction ToJDBC,JDBC Architecture, Types Of JDBC Drivers & Differences, Common JDBC Components, Importing Packages, Registering JDBC Drivers.	**18**

REFERENCES :

- Herbert Schildt ,*Java 2: The Complete Reference* ,9th Edition, McGraw Hill ,2017
- E. Balagurusamy ,*Programming with Java A primer*, 3rd Edition , McGraw Hill,1998

Course Outcomes: student should be able to …

1. Analyze the necessity for Object Oriented Programming paradigm over structured programming and become
2. familiar with the fundamental concepts in OOP like encapsulation, Inheritance and Polymorphism
3. Design and develop java programs,
4. Analyze, and interpret object oriented data and report results.
5. Design an object oriented system, AWT components and multithreaded processes as per needs and specifications.

VS 335 ADVANCED WEB DEVELOPMENT (PHP/ MySQL) (72)

Course Objectives: Students will be able to..

1. Understand application using PHP, MySQL
2. Impart necessary ability to choose the appropriate web tools/languages for creating state-of-the art web sites
3. Expose students to current trends and styles in web design and applications
4. Understand how tools woks.

SYLLABUS:

Unit	Topic	Hours
Unit- I	**Introduction to PHP:** Concept of PHP, PHP Syntax, variables declaration, Constants, Comments, Data types, Operators, Command line arguments, Echo /Print statements. Introduction to XAMPP, Decision Making Statement (If- Else, Else if, Switch), Looping statement (For, for each, While), Functions (string functions, user defined functions, Date and Time function), Arrays.	**18**
Unit- II	**PHP & MySQL** Basic introduction to database management system and its commands, SQL commands, MySQL Interface, MySQL toolbar, MySQL Commands, Data Types. Introduction to Databases, Creating database, Creating tables, Inserting values in table, Displaying, changing, searching, deleting records from the table, Developing applications, SQL queries- insert, select, delete, update, where, order by.	**18**
Unit- III	**PHP File Management** PHP file system, File operating function, File upload, file download, PHP Cookies, PHP Session.	**18**
Unit- IV	**Object Oriented Programming in PHP** OOPs concept, Abstraction, Encapsulation, Inheritance, Abstract class, final keyword, function overloading, function overriding,	**18**

Course Outcomes: student should able to …

1. Analyze PHP scripts and determine their behavior.
2. Construct PHP scripts to create dynamic web content.
3. Create PHP scripts capable of inserting and modifying data in a MySQL database.
4. Design web pages with the ability to retrieve and present data from a MySQL database. Test and debug PHP scripts.

REFERENCES:-

- Herbert Schildt ,*PHP: The Complete Reference* ,9th Edition, McGraw Hill ,2017
- Richard Blum**,** *PHP, MySQL & JavaScript All-in-One For Dummie*s, January 2018,Wiley publication

VS 336 ASP.NET with C#.NET (72)

Course Objectives: student will be able to…

1. To explore .NET technologies for designing and developing dynamic, interactive and responsive web applications.
2. Provide a consistent, object-oriented programming environment whether object code is stored and executed locally.
3. Make the developer experience consistent across widely varying types of apps, such as Windows- based apps and Web-based apps.
4. Build all communication on industry standards to ensure that code based on .NET Framework integrates with any other code

SYLLABUS:

Unit	Topic	Hours
Unit- I	**Unit I -.Introduction, Controls, Event, and Validation & Ajax:** Introduction: IDE environment, ASP.NET life cycle, Using .NET Framework Class Library. Different Controls: Introduction to control class. Event handling, Click event, Text Changed event, Command event, Checked Changed event, post back events, Using event argument etc. Validation Control: Introduction, basic validation controls, validation techniques, State Management, using cookies and URL encoding. Master Pages, Navigation, Formatting the Sitemap Path Control, Using the Menu Control, Using Tree View Control. Ajax: Introducing AJAX, Working of AJAX, Using ASP.NET AJAX server controls	**18**
Unit- II	**Database with ADO.NET, LINQ and Crystal Report:** Database Elements: ADO.NET Object model, Introducing the ADO.NET Entity Framework, Mapping Your Data Model to an Object Model, Microsoft SQL Server 2008 Overview: Introduction to Microsoft SQL Server 2008, Advantages /Features of SQL Server, Queries using SQL Server performing create, select, update, delete. Design View in SQL Server Various Constraints in SQL SERVER, Various Function in SQL Server. Crystal Report: Adding a Crystal Report to an ASP.NET.	**18**

Unit- III	**C# language Basics** 14 Overview of C# Literals, Variables, Data types, Operators, Expressions, Branching and looping operations, methods, arrays, strings , Classes and Objects: class, objects, constructors, static members, static constructors, private constructors, copy constructors, destructors, member, initialization, this reference, nesting of classes.	**18**
Unit- IV	**C# language advanced features** Inheritance and Polymorphism: Classical inheritance, containment, inheritance, Defining a subclass, visibility control, Defining subclass, constructors, multilevel inheritance, Overriding methods, hiding methods, Abstract classes, abstract methods. Interface: Defining an interface, extending an interface, Implementing, interface, Difference between interface and abstract class, Operator overloading.	**18**

Course Outcomes: - Student should be able to

1. Understand the .NET framework.
2. Develop a proficiency in the programming language.
3. Proficiently develop ASP.NET applications using C#
4. Use ADO.NET for data persistence in aweb application.
5. Create Crystal report.

REFERENCES:-

1) Stanton Ray, *Asp.net Core And Azure In Modern Web Applications*, Kindle Edition, 4 July 2022,

1.

2) Kogent Learning Solutions Inc., *ASP.NET 4.5: in C#* , 1 January 2013, Dreamtech Press

3) Christian wrox publication ,C# and .NET 4.5 ,2020

RESOURCE:

1. http://www.tutorialspoint.com/asp.net
2. https://www.c-sharpcorner.com/

VS 337 LAB: Programming in JAVA

Course Objectives:

At the end of the course the students will be able to

1. Impart fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
2. Inculcate concepts of inheritance to create new classes from existing one & Design the classes needed given a problem specification;
3. Familiarize the concepts of packages and interfaces.
4. Facilitate students in handling exceptions.
5. Demonstrate the concept of event handling used in GUI.

Practicals:

Part A

1. Testing out and interpreting a variety of simple programs to demonstrate the syntax and use of the following features of the language: basic data types, operators and control structures.
2. Class definitions and usage involving variety of constructors and finalizes
3. Programs involving various kinds of inheritances,
4. Program involving Method Over-riding, Method Over-loading
5. Program involving Abstract Class and Methods

Part B

6. Program involving Interface
7. Program to demonstrate creation and handling of packages, their imports and Class Path.
8. Programs involving a variety of Exception Handling situations
9. Program to define a class that generates Exceptions and using objects of the class.
10. Program involving creating and handling threads in applications and applets.
11. Programs to demonstrate methods of various i/o classes
12. Programs to demonstrate methods of string class
13. Program to demonstrate AWT/Swing graphic methods
14. Programs to demonstrate event handling

Course Outcomes: student should be able to …

1. Analyze the necessity for Object Oriented Programming paradigm over structured programming and become
2. familiar with the fundamental concepts in OOP like encapsulation, Inheritance and Polymorphism
3. Design and develop java programs,
4. Analyze, and interpret object oriented data and report results.
5. Design an object oriented system, AWT components and multithreaded processes as per needs and specifications.

VS 338 LAB: Advanced Web Development

Course Objectives:

At the end of the course the students will be able to

1. Develop application using PHP, MySQL
2. Impart necessary ability to choose the appropriate web tools/languages for creating state-of-the art web sites
3. Expose students to current trends and styles in web design and applications
4. Understand how tools woks like

1) Write a Program which shows working of if---else Loop.
2) Write a Program which shows working of Do---while Loop.
3) Write a program which shows working of for---each Loop.
4) Write program which shows following output:

```
*
* *
* * *
* * * *
* * * * *
```

5) Write a program to show given number is prime or not.
6) Write a program to create database and create table display message "Databaseand table created successfully".
7) Write a program to update a record in database.
8) Write program to create & write into PHP file.
9) Write a program to read from PHP file.
10) Write a program to rename the file

Course Outcomes: student should able to …

1. Analyze PHP scripts and determine their behavior.
2. Construct PHP scripts to create dynamic web content.
3. Create PHP scripts capable of inserting and modifying data in a MySQL database.
4. Design web pages with the ability to retrieve and present data from a MySQL database. Test and debug PHP scripts.

VS 339 LAB: ASP.NET with C#.NET Lab

Course Objectives: students will be able to: -

1. Understand code solutions and compile C# projects within the .NET framework.
2. Design and develop professional console and window based .NET application
3. Demonstrate knowledge of object-oriented concepts Design user experience and functional requirements C#.NET application.
4. Construct classes, methods, and assessors, and instantiate objects.
5. Understand and implement string manipulation, events and exception handling within .NET application environment.

Practical:

1. Write a C# Sharp program to print the sum of two numbers.
2. Write a C# Sharp program to swap two numbers.
3. Create one simple Web Site.
4. Write a C# program to print the odd numbers from 1 to 99. Prints one number per line.
5. Write a program in C# Sharp to create a file with text and read the file.
6. Write a C# Sharp program to compute the sum of the two given integer values. If the two values are the same, then return triple their sum.
7. Write a C# Sharp program to find the sum of first 10 natural numbers.
8. Write a C# Sharp program to check whether a given number is even or odd.
9. Write a program in C# Sharp to read a specific line from a file.
10. Create one simple Registration Form with SAVE, DELETE, UPADATE, SEARCH Record using SQL database.

Course Outcomes: student should able to …

1. Apply C# program in console application.
2. Create simple website using asp.net.
3. Implement dynamic web page using C#.net in Web Application.
4. Apply Database Connection using ADO. Net in Application.

VS 341 Software Project Management (72)

Course Objectives: Student will be able to

1. Understand the Software Project Planning and Evaluation techniques.
2. Plan and manage projects at each stage of the software development life cycle (SDLC).
3. Learn about the activity planning and risk management principles.
4. Manage software projects and control software deliverables.
5. Develop skills to manage the various phases involved in project management and people management.
6. Deliver successful software projects that support organization‘s strategic goals.

SYLLABUS:

Unit	Topic	Hours
Unit- I	**PROJECT EVALUATION AND PROJECT PLANNING** Importance of Software Project Management – Activities - Methodologies – Categorization of Software Projects – Setting objectives – Management Principles – Management Control – Project portfolio Management – Cost-benefit evaluation technology – Risk evaluation – Strategic program Management – Stepwise Project Planning.	**18**
Unit- II	**PROJECT LIFE CYCLE AND EFFORT ESTIMATION:** estimation – Effort and Cost estimation techniques – COSMIC Full function points - COCOMO II - a Parametric Productivity Model.	**18**
Unit- III	**ACTIVITY PLANNING AND RISK MANAGEMENT** Objectives of Activity planning – Project schedules – Activities – Sequencing and scheduling – Network Planning models – Formulating Network Model – Forward Pass & Backward Pass techniques – Critical path (CRM) method – Risk identification – Assessment – Risk Planning –Risk Management – – PERT technique – Monte Carlo simulation – Resource Allocation – Creation of critical paths – Cost schedules.	**18**
Unit- IV	**PROJECT MANAGEMENT AND CONTROL** Framework for Management and control – Collection of data – Visualizing progress – Cost monitoring – Earned Value Analysis – Prioritizing Monitoring – Project tracking – Change control – Software Configuration Management – Managing contracts – Contract Management.	**18**

Course Outcomes: Student should be able to…

1. Understand Project Management principles while developing software.
2. Gain extensive knowledge about the basic project management concepts, framework and the process models.
3. Obtain adequate knowledge about software process models and software effort estimation techniques.
4. Estimate the risks involved in various project activities.

5. Define the checkpoints, project reporting structure, project progress and tracking mechanisms using project management principles.
6. Learn staff selection process and the issues related to people management

REFERENCES

- 1. Bob Hughes, Mike Cotterell and Rajib Mall: Software Project Management – Fifth Edition, Tata McGraw Hill, New Delhi, 2012.
- 2.Robert K. Wysocki ―Effective Software Project Management‖ – Wiley Publication, 2011.
- 3.Walker Royce: ―Software Project Management‖- Addison-Wesley, 1998.
- 4. Gopalaswamy Ramesh, ―Managing Global Software Projects‖ – McGraw Hill Education (India), Fourteenth Reprint 2013.

VS 342 Digital Marketing (72)

Course Objectives:

By the end of this course, the student should be able to:

1. Study about role of IT in business.
2. Understand knowledge of basic concepts of e-commerce.
3. Imbibe different types of e-commerce web sites and different modes of payments.
4. Study security and legal issues in e-commerce

SYLLABUS

Unit	Topic	Hours
Unit- I	**Introduction:** History of e-commerce, definition, classification- B2B, B2C, C2C, G2C, B2G sites, ecommerce in education, financial, auction, news, entertainment sectors, Doing e-Commerce.	**18**
Unit- II	**Systems:** Electronic payment systems – relevance of currencies, credit cards, debit cards, smart cards, e-credit accounts, e-money, security concerns in e commerce, authenticity, privacy, integrity, non-repudiation, encryption, secret key cryptography, public key cryptography, digital signatures, firewalls.	**18**
Unit- III	**Segments in Business:** Marketing, segmentation, one-to-one marketing, personalization and behavioral marketing, web advertising, online advertising methods, advertising strategies and promotions, special advertising and implementation topics.	**18**
Unit- IV	**Advanced Informatics:** Mobile Commerce: attributes and benefits, Mobile Devices, Computing	**18**

	software, Wireless Telecommunication devices, Mobile finance applications, Web 2.0 Revolution, social media and industry disruptors, Virtual communities, Online social networking: Basics and examples, Web 3.0 and Web 4.0, Civil law, intellectual property law, common law and EC legal issues.	

Course Outcomes:

At the end student will understand:

1. Analyze Role of IT in business.
2. Create Virtual marketing advertisement.
3. Aware of different types of e-commerce web sites and different modes of payments
4. Aware of security and legal issues in e-commerce

REFERENCES

Core: Erfan Turban et.al.,*Electronic Commerce–A Managerial Perspective*, Pearson Education(Unit I-Unit IV) 2003

Additional: R Kalokota, Andrew V. Winston, *Electronic Commerce – a Manger's guide*, Pearson(Unit I-Unit IV) 2004

VS 343 DATA STRUCTURE (72)

Course Objectives: student will be able to …

1. Understand efficient storage mechanisms of data for an easy access.
2. Design and implementation of various basic and advanced data structures.
3. Introduce various techniques for representation of the data in the real World.
4. Study of application using data structures.
5. Improve the logical ability

SYLLABUS:

Unit	Topic	Hours
Unit- I	Time and space complexity, Data Structures – Introduction to Data Structures, abstract data types, Linear list – singly linked list implementation, insertion, deletion and searching operations on linear list, circular linked list implementation, Double linked list implementation, insertion, deletion and searching operations. Applications of linked lists.	**18**

Unit- II	Stacks-Operations, array and linked representations of stacks, stack applications -infix to postfix conversion, postfix expression evaluation, recursion implementation.	**18**
Unit- III	Queues-operations, array and linked representations. Circular Queue operations, Dequeues, applications of queues. Trees – Definitions, tree representation, properties of trees, Binary tree, Binary tree representation, binary tree properties, binary tree traversals, binary tree implementation, applications of trees	**18**
Unit- IV	Searching and Sorting – Sorting- selection sort, bubble sort, insertion sort, quick sort, merge sort, shell sort, radix sort, Searching-linear and binary search methods, comparison of sorting and searching methods.	**18**

Course Outcomes:

At the end of course Student should be able to.

1) Appropriate data structure as applied to specified problemdefinition.
2) Use operations like searching, insertion, deletion, traversingmechanism etc. on various data structures.
3) Apply concepts learned in various domains like DBMS, compilerconstruction etc.
4) Use linear and non-linear data structures like stacks, queues, and linked list.

REFERENCES:

1) Data structures: A Pseudocode Approach with C, 2nd edition, 2001

2) M.A.Weiss, Pearson ,Data structures and Algorithm Analysis in C, 2nd edition., 2 0 0 1

3) A.M.Tanenbaum,Y. Langsam, M.J.Augenstein ,DataStructures using C, Pearson. 1996

4) R.Kruse, C.L.Tondo andB.Leung,Data structures and Program Design in C, 2nd edition, Pearson 2005

VS 344 Advanced SQL with Oracle (72)

Course Objectives: Student will be able to

1. Understand moderately complex use of the following technologies ASQL, Oracle
2. Imbibe Advanced SQL Concepts
3. Learn Stored Procedures works
4. Study Dynamic SQL Query.

SYLLABUS:

Unit	Topic	Hours
Unit- I	**SQL Concepts:** Introduction of SQL, features, SQL data types, DDL commands- create table, describe table, alter table, drop table commands etc., DML-insert, delete, update commands etc, DQL commands- All select commands, aggregate functions, order by clause.	**18**
Unit- II	**Advanced SQL Concepts:** Writing Basic SQL Select Statements, Joins (Displaying Data from Multiple Tables), Aggregating Data using Group Functions, Creating Views, inline views, Controlling User Access, grant, revoke, rollback, Creating Other Database Objects (Sequences, Indexes andSynonyms).	**18**
Unit- III	**Procedural language:** Types of PL/SQL blocks, Identifiers, types of Identifiers, Declarative Section, variables, Scalar Data Types, The %TYPE Attribute, PL/SQL Block Syntax, Deployment of SQL Functions in PL/SQL, Nested Blocks, Operators. Control Structures: Conditional processing using IF Statements and CASE Statements, Loop Statement, While Loop Statement, For Loop Statement, the Continue Statement, Composite Data Types, Handle Exceptions with PL/SQL. What is procedure? Syntax of creating procedure, Creating procedure with parameters, IN parameter, OUT parameter, methods of passing parameter, Invoking procedure from other procedure, The PL/SQL Execution Environment, function and procedures.	**18**
Unit- IV	**Dynamic SQL:** Cursor: Definition, declare and define cursor, types of cursor, Triggers: Definition, the Trigger Event Types and Body, Business	**18**

	Application Scenarios for Implementing Triggers, Create DML Triggers using the CREATE TRIGGER Statement and SQL Developer, Body, and Firing (Timing), Statement Level Triggers and Row Level Triggers,	

Course Outcomes: Student will be able to

1. Synthesize complex SQL queries.
2. Deploy SQL Functions in PL/SQL.
3. Evaluate SQL analytical functions and operators for data warehouse manipulation.
4. Analyse query execution performance.

REFERENCES

1. Murach's Oracle SQL and PLSQLby Joel Murach, Murach and Associates. (Unit I-Unit II) 2002

2. Oracle Database 11g PL/SQL Programming Workbook By: Michael Mc Laughlin, John Harper(Unit II-Unit III) 2008

3. Oracle PL/SQL Programming Fifth Edition By Steven Feuerstein, Bill 2010

VS 345 Digital Image Processing (72)

COURSE OBJECTIVES: Student will be able to…

1. Understand the sensing, acquisition and storage of digital images.
2. Study the image fundamentals and mathematical transforms necessary for Image processing.
3. Understand the digital processing systems and corresponding terminology.
4. Analyse an understanding of colour models, type of image representations and Related statistics.
5. Study the image enhancement techniques.

SYLLABUS

Unit	Topic	Hours
Unit- I	**Fundamentals of Computer Graphics and Image processing:** Introduction of Coordinate representation and Pixel, Raster Scan & Random Scan systems, Video controller and raster scan display processor, Applications, Image processing system components, Image sensing and acquisition, Sampling and quantization, Neighbours of	**18**

	pixel adjacency connectivity, regions and boundaries, Distance measures.	
Unit- II	**Image Enhancement** Frequency and Spatial Domain, Contrast Stretching, Histogram Equalization, Low pass and High pass filtering.	**18**
Unit- III	**Image Restoration** Noise models mean, order—statistics, adaptive filters, Band reject, Band pass and notch filters	**18**
Unit- IV	**Colour Image Processing:** Fundamentals, Models, Error free and lossy compression, Standards	**18**

COURSE OUTCOMES

By the end of this course, the students will be able to:

1. Understand basic concepts image processing, image storage and types of transformations that can be applied to images.
2. Compare the domains and methods of image processing.
3. Analyse the correctness of algorithms using inductive proofs and loop Invariants.
4. Apply Image Restoration & Enhancement techniques, colour image processing.
5. Implement proper use of image processing tools

REFERENCES

1. Bhabatosh Chanda and Dwijesh ,*Digital Image Processing* , 29 February 2004, Prentice-Hall of India Pvt.Ltd
2. Rafael C. Gonza Lez, Digital Image Processing , Fourth Edition, 30 July 2018, Pearson Education

VS 346 ADVANCED JAVA (72)

COURSE OBJECTIVES: Student will be able to

1. Understand working of Java.
2. Learn Java Servlets Development Kit, creating, Compiling and running servlet
3. Understand Java Beans. Advantage, Installing / Starting/ Using BDK
4. Imbibe JSP Architecture, JSP Access Model, JSP Syntax Basic

SYLLABUS

Unit	Topic	Hours
Unit- I	Introduction to Swing J applet, Icons and Labels, Text Fields, Buttons, Jbutton Class, Check Box, Radio Buttons, The Container,	**18**

	Panel, Windows and Frame Classes, Combo Box, Tabbed Panes, Scroll Panes, Trees, Tables, Custom Rendering of Jlist Cells, JDBC: JDBC Fundamentals, Establishing Connectivity and working with connection interface, Working with statements, Creating and Executing SQL statements, Working with Result Set Object & Result Set Meta Data	
Unit- II	Servlets: Introduction to Servlets (Life cycle of servlets, Java Servlets Development Kit, creating, Compiling and running servlet, The servlet API: java servlet package, Reading the servlet Parameters, Reading Initialization parameter, The java servlet. http. Package, Handling HTTP Request and Response (GET / POST Request) vi) Using Cookies, Session Tracking	**18**
Unit- III	Introduction To Java Beans, Java Bean, Advantage, Installing / Starting / Using BDK (Bean Development Kit, JAR Files, Using the Java Beans API	**18**
Unit- IV	JSP: Advantage of JSP technology (Comparison with ASP / Servlet), JSP Architecture, JSP Access Model, JSP Syntax Basic (Directions, Declarations, Expression, Script, Comments, JSP Implicit Object, Object Scope, Synchronization Issue, Exception Handling, Session Management	**18**

COURSE OUTCOMES

By the end of this course, the students will be able to:

1. Demonstrate working of Java.
2. Apply Java Servlets Development Kit, creating, Compiling and running servlet
3. Use Java Beans. Advantage, Installing / Starting/ Using BDK
4. Create Java programming.

REFERENCES

1. Uttam K. Roy ,Advanced Java Programming Textbook , 1 January 2018, Dreamtech Press

1.

2. Clark Nathan ,Java: Advanced Features and Programming Techniques Book , 1 January 2014, Dreamtech Press

VS 347 LAB: Advanced SQL

(54)

Course Objectives: student will be able to …

1. Understand about SQL query
2. Get knowledge about different type of SQL Constraint
3. Create database using Oracle
4. Use different type of Key

Practical:

1) Write a query to list first name, last name and their salary for employee contained in the employees table.

2) Write a query to display all the columns of employees table.

3) Write a query to list first name, last name and their salary for first 10 employee contained in the employees table.
4) Write a query to list the employees name and salary who?s daily salary is more than $100.

5) Write a query to list the names, salary of all the employees who are working with a commission package.
6) Write a query to display three numbers in three columns.

7) Write a query to display the result of an arithmetic expression.

8) Write a SQL statement to display specific columns like name and commission for all the salesmen.
9) Write a SQL statement to find the average purchase amount of all orders.

10) Write a SQL statement to make a list with order no, purchase amount, customer name and their cities for those orders which order amount between 500 and 2000.

Course Outcomes:

Students should be able to

1. Develop skills to create database.
2. Use knowledge of ASQL and Oracle Query.
3. Apply working of ASQL and Oracle.

VS 348 LAB: Digital Image Processing

COURSE OBJECTIVES: Student will be able to …

1. Understand the sensing, acquisition and storage of digital images.
2. Apply the image fundamentals and mathematical transforms necessary for Image processing.
3. Understand the digital processing systems and corresponding terminology.
4. Analysis the base image transformation domains and methods.
5. Demonstrate of colour models, type of image representations and Related statistics.
6. Study the image enhancement techniques.

Practical

1. Image Printing Program Based on Half toning.

2 Reducing the Number of Intensity Levels in an Image.

3 Zooming and Shrinking Images by Pixel Replication.

4 Zooming and Shrinking Images by Bilinear Interpolation.

5 Arithmetic Operations.

6 Image Enhancement Using Intensity Transformations.

7 Histogram Equalization.

8 Spatial Filtering.

9 Enhancement Using the Laplacian.

10 Unsharp Masking.

COURSE OUTCOMES

By the end of this course, the students will be able to:

1. Analyse basic concepts image processing, image storage and types of transformations that can be applied to images.
2. Compare the domains and methods of image processing.
3. Implement the correctness of algorithms using inductive proofs and loop Invariants.
4. Differentiate Image Restoration & Enhancement techniques, colour image processing.

VS 349 LAB: Advanced Java

Course Objectives: student will be able to…

1. Understand program on swing.
2. Study about AWT.
3. Imbibe database connection.
4. Understand knowledge about cookies and session.

Practical

1. Write a program using label to display message ”Welcome to coding Hub”
2. Write a program to select multiple languages known to user
3. Write a program to create three buttons with caption OK, RESET, CANCEL.
4. Write a java program to create a frame containing three buttons (Yes, No, Close). When button yes or no is pressed, the message “Button Yes/No Pressed” gets displayed in label control. On pressing CLOSE button frame Window gets closed.
5. Write a program to display “All the Best” in 5 different colors on screen. (Using AWT/Swing)
6. Write a Java program to create a combo box, which includes list of subjects. Display the selected subject in the text field using Swing.
7. Write a program to demonstrate concept of border layout
8. Write a program to demonstrate concept of grid layout
9. Write a program on Servlet JDBC.
10. Simple application using JSP.

COURSE OUTCOMES

By the end of this course, the students will be able to:

1. Use working of swing in JAVA.
2. Develop Java program using Servlets JDBC.
3. Demonstrate Java Beans. Advantage, Installing / Starting/ Using BDK
4. Analyze JSP Architecture, JSP Access Model.