College of Computer, Science & Information Technology - Junagadh

AFFILIATED TO BHAKTA KAVI NARSINH MEHTA UNIVERSITY

✦ Syllabus ✦

B.C.A.

[Bachelor of Computer Application]

[Semester – V]

Academic Year : 2020 – 21

(Effective from June – 2020)

◄ **ADDRESS : C.C.S.I.T. - JUNAGADH** ►

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(SEMESTER-V)					
Subject Code	**Subject**	**Credit**	**Int. Marks**	**Ext. Marks**	**Total Marks**
CS-25	**Advance JAVA Programming (J2EE)**	**5**	**30**	**70 (14x5)**	**100**
CS-26	**Programming with ASP.NET**	**5**	**30**	**70 (14x5)**	**100**
CS-27	**Basic Python**	**5**	**30**	**70 (14x5)**	**100**
CS-28	**Practical – 1 (based on CS-25)**	**5**	**-**	**-**	**100**
CS-29	**Practical – 2 (based on CS-26 & CS-27)**	**5**	**-**	**-**	**100**
CS-30	**Project Viva**	**5**	**-**	**-**	**100**
Total Credits		**30**	**Total Marks**		**600**

General Instructions:

1. Time duration of each theory paper will be of Two and Half hours.
2. Total marks of each theory paper will be 70 marks.
3. There will be five questions.
4. All questions are compulsory.

Instructions to the candidates for Practical Examination:-

1. Practical Exam. would be conducted for 1 ½ days, All the students have to remain present at the examination center 15 minutes before the scheduled time for examination.
2. Students have to carry with them certified Journal, I – card, Examination Receipt, and other necessary requirements for examination.
3. Student should not leave the laboratory without the permission of examiner.
4. Use of calculator is allowed but the use of mobile phones is strictly prohibited.
5. The candidate has to leave the laboratory only after the submission of all the answer sheets of the exercises performed.

B.C.A. SEMESTER – V

CS-25 : Advance JAVA Programming(J2EE)

1. The J2EE Platform, JDBC (Java Database Connectivity): [20]

- Introduction to J2EE
- Enterprise Architecture Styles:
  - Two-Tier Architecture
  - Three-Tier Architecture
  - N-Tier Architecture
- Enterprise Architecture
- The J2EE Platform
- Introduction to J2EE APIs (Servlet, JSP, EJB, JMS, JavaMail, JSF, JNDI)
- Introduction to Containers
- Tomcat as a Web Container
- Introduction of JDBC
- JDBC Architecture
- Data types in JDBC
- Processing Queries

- ♣ Database Exception Handling
- ♣ Discuss types of drivers
- ♣ JDBC Introduction and Need for JDBC
- ♣ JDBC Architecture
- ♣ Types of JDBC Drivers
- ♣ JDBC API for Database Connectivity (java.sql package)
- ♣ Statement, Prepared Statement
- ♣ Callable Statement
- ♣ Result Set Meta Data
- ♣ Database Meta Data
- ♣ Other JDBC APIs
- ♣ Connecting with Databases (MySQL, Access, Oracle)

2. RMI, Servlet : [20]

- ♣ RMI overview
- ♣ RMI architecture
- ♣ Stub and Skeleton
- ♣ Developing and Executing RMI application
- ♣ Servlet Introduction
- ♣ Architecture of a Servlet
- ♣ Servlet API (Javax.servlet and avax.servlet.http)
- ♣ Servlet Life Cycle
- ♣ Developing and Deploying Servlets
- ♣ Handling Servlet Requests and Responses
- ♣ Reading Initialization Parameters
- ♣ Session Tracking Approaches (URL Rewriting, HiddenForm Fields, Cookies, Session API)
- ♣ Servlet Collaboration
- ♣ Servlet with JDBC

3. JSP, Java Beans [20]

- ♣ Introduction to JSP and JSP Basics
- ♣ JSP vs. Servlet
- ♣ JSP Architecture
- ♣ Life cycle of JSP
- ♣ JSP Elements: Directive Elements, Scripting Elements, Action Elements
  - Directives Elements (page, include, taglib)
  - Scripting Elements (Declaration, scriptlet, expression)
  - Action Elements (JSP:param, JSP:include,JSP:Forward, JSP:plugin)
- ♣ JSP Implicit Objects
- ♣ JSP Scope
- ♣ Including and Forwarding from JSP Pages
- ♣ Include Action
- ♣ Forward Action
- ♣ Working with Session & Cookie in JSP
- ♣ Error Handling and Exception Handling with JSP
- ♣ JDBC with JSP
- ♣ JavaBean Properties
- ♣ JavaBean Methods
- ♣ Common JavaBean packaging

4. MVC Architecture, EJB, Hibernate [20]

- ♣ Introduction to MVC
- ♣ Implementation of MVC Architecture
- ♣ Introduction
- ♣ Types of EJB, Benefits of EJB, Restriction on EJB
- ♣ Session Beans
- ♣ Entity Beans
- ♣ Message-driven beans

- ♣ Timer service
- ♣ Introduction to Hibernate
- ♣ Need for hibernate
- ♣ Features of hibernate
- ♣ Disadvantages of Hibernate
- ♣ Exploring Hibernate Architecture
- ♣ Downloading and Configuring and necessary files to Hibernate in Eclipse
- ♣ Jars files of hibernate.
- ♣ Hibernate Configuration file
- ♣ Hibernate Mapping file
- ♣ Basic Example of Hibernate
- ♣ Annotation
- ♣ Hibernate Inheritance
- ♣ Inheritance Annotations
- ♣ Hibernate Sessions

5. Spring, Struts [20]

- ♣ Introduction of Spring Framework
- ♣ Spring Architecture
- ♣ Spring Framework definition
- ♣ Spring & MVC
- ♣ Spring Context definition
- ♣ Inversion of Control (IoC) in Spring
- ♣ Aspect Oriented programming in Spring (AOP)
- ♣ Understanding Struts Framework
- ♣ Comparision with MVC using Request Dispatcher and the EL
- ♣ Struts Flow of Control
- ♣ Processing Requests with Action Objects
- ♣ Handling Request Parameters with Form Beans
- ♣ Prepopulating and Redisplaying Input Forms
- ♣ Using Properties Files

Reference Books:

1. The Complete Reference Java 2 - Herbert Schildt and Patrick Naughton.
2. Java Server Programming For Professionals, Ivan Bayross, Sharanam Shah – Shroff publication.
3. Advanced Java Programming [ISBN: 978 - 93 - 81786 - 91 – 8] by Bharat & Company.
4. Developing Java Servlets – Techmedia.
5. JSP Beginner's Guide – Tata McGraw Hill by Gary Bolling, Bharathi Nataragan.
6. Spring and Hibernate, K. Santosh Kumar, - Tata McGraw-Hill.
7. Hibernate Made Easy : Simplified Data Persistence with Hibernate and JPA (Java Persistence API) Annotations by Cameron Wallace McKenzie, Kerri Sheehan
8. Sprint Framework : A Step by Step Approach for Learning Spring Framework – CreateSpace Independent Publishing Platform
9. Beginning Hibernate Second Edition By Jeff Linwood, Dave Minte - APress

Reference Website

1. https://www.w3schools.com/java
2. https://www.javatpoint.com/java-tutorial
3. https://www.tutorialspoint.com/java
4. https://www.guru99.com/java-tutorial.html
5. https://beginnersbook.com/java-tutorial-for-beginners-with-examples

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CS – 26 : Programming with ASP.NET

Unit-1 : Framework & Web Contents Validation Controls

- ♣ Overview of Asp.NET Framework
- ♣ Client Server Architecture
- ♣ ASP.NET Life Cycle

- Application Web Servers
- Installation of IIS server
- Types of Files in Asp.NET
- Types of controls in Asp.NET
- Page Architecture
- Introduction to standard Controls (Buttons, Textbox, Checkbox, Lable, Panel, Listbox, Dropdownlist, FileUpload, AdRotator, CheckBoxList, RadioButtonList, ImageMap, Wizard, Calendar)
- Running an Asp.Net Application, File Upload Control
- What is Validation?
- Client Side Validation
- Server Side Validation
    - Types (Requiered Field Validator, Range Validator, CompareField Validator, RegularExpression Validator, Custom Validator, ValidationSummery Control)

Unit-2 : Ajax and State Management

- Setting up Ajax
- ASP.NET Ajax Control Toolkit With Basic Control
- What is State?
- Why is it Required in Asp.Net?
- Client Side State Management
- Server Side State Management
- Various State Management Techniques
    - View State,
    - Query String,
    - Cookie,
    - Session State,
    - Application State

Unit-3 : ADO.NET & Database

- Architecture of ADO.NET
- Connected Architecture
- DisConnected Architecture
- ADO.NET Classes (Connection, Command,
- DataReader, DataAdapter, DataSet, DataColumn, DataRow, DataConstraints, DataView etc.)
- The Gridview Control, The Repeater Control
- Binding Data to DataBound Controls,
- Diplaying Data in a webpage using SQLDataSource Control
- DataBinding Expressions

Unit-4 : Master Pages, Theme Caching, Application Pages & Data

- What is Master Page ?
- Requirement Of a Master Page in an Asp.NET application
- Overview of CSS3
- Designing Website with Master Page, Theme and CSS
- Overview
- Page Output Caching
- Partial Page Caching, Absolute Cache Expiration
- Sliding Cache Expiration
- Data Caching.

Unit-5 : Working with XML ASP.NET Application Configuration & Deployment of Application

- Reading Datasets From XML
- Writing DataSets With XML
- WebServices (Introduction, HTTP, SOAP, UDDI,XML, Creating a Web Service)
- Introduction To Web.Config
- Common Configuration Sections
- AppSettings

- ♣ Tracing
- ♣ Custom Errors
- ♣ Authentication And Authorization
- ♣ Deployment of Application in web server

Reference Books :

1. Asp.Net – Unleashed
2. Asp.Net – Wrox Publication
3. Programming With ASP.NET [ISBN: 978 - 81 - 909634 - 7 – 3] by Bharat & Company
4. Beginning.ASP.NET.3.5.in.C.Sharp.2008.From.Novice.to.Professional – Apress

Reference Website

1. https://www.tutorialspoint.com/asp.net/
2. https://www.guru99.com/asp-net-tutorial.html
3. https://www.javatpoint.com/asp-net-tutorial
4. https://www.w3schools.com/asp/
5. https://docs.microsoft.com/en-us/aspnet/tutorials
6. https://www.tutorialsteacher.com/core
7. https://www.tutorialsteacher.com/mvc/asp.net-mvc-tutorials
8. http://www.pragimtech.com/free-aspnet-video-tutorial.aspx
9. www.ajaxcontroltoolkit.net/
10. https://www.aspsnippets.com/Categories/AJAX-Control-Toolkit.aspx

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CS – 27 : Basic Python

Unit-1 : Introduction to Python

- ♣ Python History, Features & Installation
- ♣ Basic Syntax, Indentation, Reserved Words, Naming Conventions
- ♣ Python Variables & Data Types
- ♣ Literals
- ♣ Operators
- ♣ Comments
- ♣ Simple Input and Output, print() function
- ♣ Python Conditional Statements
- ♣ Python Loops : for loop, while loop, break statement, continue statement
- ♣ Executing Python from the Command Line, IDLE, Editing Python Files
- ♣ Python Functions
- ♣ Defining Your Own Functions, Parameters, Keyword and Optional Parameters
- ♣ Python Modules

Unit-2 : File Handling & Data Types

- ♣ Python Files I/O
- ♣ Python Strings
- ♣ Python Lists
- ♣ Python Tuples
- ♣ Python Sets
- ♣ Python Dictionary

Unit-3 : OOP using Python, Sorting & Searching with Python

- ♣ Handling Exceptions
- ♣ Exceptions as a control flow mechanism
- ♣ Assertions
- ♣ Abstract Data Types and Classes
- ♣ Inheritance
- ♣ Encapsulation and Information Hiding
- ♣ Search Algorithms (Linear, Binary)
- ♣ Sorting Algorithms (Selection, Bubble, Insertion, Shell, Quick)
- ♣ Hashtables

Unit-4 : Regular Expressions

- ♣ Special Symbols and Characters
- ♣ Regexes and Python
- ♣ A Longer Regex example
- ♣ Text Processing:
  - Comma Separated Values (CSV files)
  - JavaScript Object Notation (JSON)
  - Python and XML

Unit : 5 - Python with MySQL

- ♣ Environment Setup
- ♣ Database Connection
- ♣ Creating New Database
- ♣ Creating Tables
- ♣ Insert Operation
- ♣ Read Operation
- ♣ Update Operation
- ♣ Join Operation
- ♣ Performing Transactions

CS – 28 : PRACTICAL – 1 (Based on CS – 25)

CS – 25 – Advance Java Programming (J2EE) [100 Marks]

- ♣ Each session is of 3 hours for the purpose of practical Examination.
- ♣ Practical examination may be arranged before or after theory exam

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CS – 29 : PRACTICAL – 2 (Based on CS – 26 & CS – 27)

CS – 26 – Programming with ASP.NET [50 Marks] CS – 27 – Basic Python [50 Marks]

- ♣ Each session is of 3 hours for the purpose of practical Examination.
- ♣ Practical examination may be arranged before or after theory exam

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CS – 30 : PROJECT – VIVA

- ♣ Project must be developed in the computer laboratory of concern institute under the supervision of faculties of concern institute on any subject of previous semester or current semester. (At the time of Project-Viva examination student must show all the Workouts, SDLC, Documentation, Program codes and project in running mode)

Note :

- ♣ Project must be submitted before two week of commencement of theory exam.
- ♣ Project viva examination may be arranged before or after theory exam.
- ♣ During the project viva examination project must be run.

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Bachelor of Computer Application

Paper Style

Unit : 01

Question : 1 (A)	Answer The Following Question	(Only Three)	03
Question : 1 (B)	Answer The Following Question	(Any Two out of Four)	06
Question : 1 (C)	Answer The Following Question	(Any One out of Two)	05

Unit : 02

Question : 2 (A)	Answer The Following Question	(Only Three)	03
Question : 2 (B)	Answer The Following Question	(Any Two out of Four)	06
Question : 2 (C)	Answer The Following Question	(Any One out of Two)	05

Unit : 03

Question : 3 (A)	Answer The Following Question	(Only Three)	03
Question : 3 (B)	Answer The Following Questio	(Any Two out of Four)	06
Question : 3 (C)	Answer The Following Question	(Any One out of Two)	05

Unit : 04

Question : 4 (A)	Answer The Following Question	(Only Three)	03
Question : 4 (B)	Answer The Following Question	(Any Two out of Four)	06
Question : 4 (C)	Answer The Following Question	(Any One out of Two)	05

Unit : 05

Question : 5 (A)	Answer The Following Question	(Only Three)	03
Question : 5 (B)	Answer The Following Question	(Any Two out of Four)	06
Question : 5 (C)	Answer The Following Question	(Any One out of Two)	05

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