Semester	Fifth	Teaching Hrs = 35	
Subject Code	BCA –540-20		
Subject Name	ASP.Net		
Examination Scheme			Credits
External Exam	Internal Exam	Total Marks	
60	40	100	4

Course Outcomes (COs)

After learning this course student will be able to,

∗ Separate page code from content by using code-behind pages, page controls, and components.

∗ Display dynamic data from a data source by using Microsoft ASP.Net and data binding.

∗ Create a web form with server controls.

∗ Can create web application with database handling

1. Introduction to ASP.NET **4** Hr

The .NET Framework, The .NET programming Framework, .NET languages, The .NET class library, ASP vs. ASP.NET, About ASP.NET, Basic difference between C# and VB.NET

2. ASP.NET 2.0 **10** Hr

Features of ASP.NET 2.0, Stages in Web Forms Processing, Introduction to Server Controls, HTML Controls, Validation Controls, User control, Data Binding Controls, Configuration, Personalization, Session State

3. Declaring Variables in ASP.NET **10** Hr

Data Types, Initializes, Arrays, Enumerations. Variable Operations- Advanced Math Operations, Type Conversions. Object Based Manipulation - String Object, Date Time Object, Time span object & Array Object. Conditional Structures, Loop Structures, Functions & Subroutines – Parameters, Procedure Overloading, Delegates.

4. Web Server and User **2** Hr

Installing IIS. IIS Manager- Creating a virtual directory, Virtual directories and Applications, Folder Settings, Adding virtual directory to your neighborhood.

5. ASP. NET Applications **3** Hr

ASP.NET file types, the bin directory, code-behind, The Global.asax, Understanding ASP.NET classes. ASP.NET configuration

6. Overview of ADO.NET **6** Hr

ADO.NET architecture, Accessing Data using data adapters and datasets, using command and data reader, binding data to data bind controls, displaying data in data grid.

Reference Books:

1) The complete Reference ASP.NET by Matthew MacDonald- Tata McGraw-Hill.
Professional ASP.NET – Wrox Publication

Semester	Fifth	Teaching Hrs = 35	
Subject Code	BCA – 541-20		
Subject Name	Python		
Examination Scheme			Credits
External Exam	Internal Exam	Total Marks	
60	40	100	4

Course Outcomes (COs)

After learning this course student will be able to,

- Master Object-oriented programming to create an entire Python project using objects and classes
- Store and retrieve information using variables
- Develop cost-effective robust applications using the latest Python trends and technologies

1. Introduction to Python • Introduction to Python- an interpreted high level language, interactive mode and script mode. Variables, Expressions and Statements • Variables and Types-mutable and Immutable variable and Keywords. • Operators and Operands in Python. (Arithmetic, relational and logical Operators), • Operator precedence, Expressions and Statements (Assignment Statement); • Taking input (using raw_input() and input()) and displaying output – print statement • Comments in Python	3Hr
2. Conditional and Looping Construct • if - else statement and nested if – else while, for, use of function in for, Nested loops • break, continue, pass statement • Use of compound expression in conditional constructs	2Hr
3. Functions • Built-In Function, invoking built in functions • Module (Importing entire module or selected objects using from statement) • Functions from math, random, time & date module. • Composition • User Define Function: Defining, invoking functions, passing parameters (default parameter values, keyword arguments) • Scope of variables, void functions and functions returning values	5Hr
4. **Strings** • Creating, initializing and accessing the elements; • String operators: +, *, in, not in, range, slice [n:m] • String built in functions & methods: • Strings constants defined in string module Regular Expression and Pattern Matching	4Hr
5. **Lists**	8Hr

• Concept of mutable lists, creating, initializing and accessing the elements of list • List operations (Concatenation, Repetation, Membership, list slices), List comprehensions • List functions & methods: len, insert, append, extend, sort, remove, reverse, pop Tuples • Immutable concept, creating, initializing and accessing the elements in a tuple; • Tuple functions: cmp(), len(), max(), min(), tuple() Sets • Concept of Sets , creating, initializing and accessing the elements of • Sets operation(Membership, union, intersection, difference, and symmetric difference Dictionaries • Concept of key-value pair, creating, initializing and accessing the elements in a dictionary, • Traversing, appending, updating and deleting elements • Dictionary functions & Methods: cmp, len, clear(), get(), has_key(), items(), keys(), update(), values()	
6. Modules • More on Modules: Executing modules as scripts, The Module Search Path, "Compiled" Python files Standard Modules • The dir( ) Function • Packages Importing * From a Package, Intra-package References, Packages in Multiple Directories	2Hr
7. **File Handling** • Output Formatting • Reading and Writing Files (text and binary mode)	2Hr
8. **Errors and Exceptions** • Syntax Errors, Exceptions, Handling Exceptions, Raising Exceptions • User-defined Exceptions, Defining Clean-up Actions (try - finally), Predefined Clean-up Actions	2Hr
9. Introduction to Object oriented concepts in Python • Object Oriented concepts • Objects, Python Scopes and Namespaces • Classes, Class Objects, Instance Objects, Method Objects, Class and Instance Variables • Inheritance	5Hr
10.**Database handling using Python**	2Hr

Reference Books

- Python Crash Course: A Hands-On, Project-Based Introduction to Programming (2nd Edition) Author: Eric Matthes
- Python Programming for Beginners: An Introduction to the Python Computer Language and Computer Programming
- Python for Beginners: The Ultimate Beginners Guide to Python Programming With Step by Step Guidance and Hands-On Examples.
- Core Python Programming Dr. R. Nageswara Rao

Semester	Fifth	Teaching Hrs = 40	
Subject Code	BCA – 542 -20		
Subject Name	Linux		
Examination Scheme			Credits
External Exam	Internal Exam	Total Marks	
60	40	100	4

Course Outcomes (COs)

After learning this course student will be able to,

- Learn Open source Operating system concepts.
- Effectively use the UNIX/Linux system to accomplish typical personal, office, technical, and software development tasks.
- Identify and use UNIX/Linux utilities to create and manage simple file processing operations, organize directory structures with appropriate security, and develop shell scripts to perform more complex tasks.
- Effectively use software development tools including libraries, preprocessors, compilers, linkers, and make files.

BCA -542- 20 LINUX

Unit-I **(8 hrs)**

Linux Operating system history, concept and architecture, Basic features of Linux, Advantages of Linux, Basic architecture of Unix/Linux operating system, Overview of Linux kernel, Kernel space, user space. Shells in Linux, features of shells, Minimum Hardware requirement for installation of linux operating system, Installation methods.

Unit-II **(8 hrs)**

Linux file system architecture, commands for files and directories:touch,cd,mkdir,rmdir,rm,pwd,more,less,head,tail,Creating and viewing files using cat and VI editor. Detail study of VIM editor. Standard input and output operators in linux.

Unit-III **(8 hrs)**

Linux system administration :user administration, adding and deleting of users, File ,and directory permissions in Linux, special file and directory permissions like stiky bit,SUID and SGID,creating and managing groups, modifying group attributes, study of su command ,configuring X windows in linux,KDE and GNOME environments.

Unit-IV **(8 hrs)**

Study of processes: processes and processes states, nit process,Xinetd processes, Process priority ,nice,renice commands, scheduling of tasks using crontab,ps,kill,find,sort commands ,study of rpm command. Tar command, disk related commands, disk partitioning and formatting, study of /etc/fstab.

Unit-V **(8 hrs)**

Accessing file system & related devices, Basics of troubleshooting, Run levels and init ,study of /etc/inittab,Recovery of root password, shell programming-scripting basics, conditional statements.

Reference Books:

- The complete Linux reference- Christopher Negus
- Unix Concepts and application - Sumitabha Das
- Beginning Linux Programming - Christopher Negus

Semester	Fifth	Teaching Hrs = 35	
Subject Code	BCA – 543-20		
Subject Name	Business Applications		
Examination Scheme			Credits
External Exam	Internal Exam	Total Marks	
60	40	100	4

Course Outcomes (COs)

After learning this course student will be able to,

* Gain familiarity with the concepts and terminology used in the development, implementation and operation of business computer applications.
* Explore various methods where Information Technology can be used to support existing businesses and strategies.
* Study of this subject helps to understand the business process
* Analyze dataflow

BCA – 543-20 Business Applications

1. **Sales Order Processing System** **9Hr**
   Sales Enquiry & preparation of Quotation
   Order acceptance
   Dispatch & Invoicing
   Sales Analysis (based on products, Customers)
   2Sales Invoice

2. **Purchase Order Processing System** 9**Hr**
   Enquiry & receive Quotation
   Vendor selection (Vendor analysis)
   Order preparation (with delivery schedule)
   Order amendment
   Receipt of material (goods inward / GRN)
   Supplier's bill passing
   Follow up of pending purchase order

3. **Inventory Management System** 9**Hr**
   Stock accounting & control
   (raw material, work-in-progress, finished goods)
   Stores transactions (Receipts, Issues & adjustments)
   Bin card & Stock ledger
   Lead time
   BOM processing with product configuration
   Inventory levels – EOQ – ABC analysis
   Inventory control Reports (slow moving - non moving items)

4. **Hotel Management System** **8Hr**
   Enquiry & Booking (Room reservation)
   Room & Services details
   Check-in, Stay & Check-out of customer Billing

Reference Books :

· MIS by W.S. Jawadekar
· MIS by Jerome Kanter
· MIS by Gordon B. Davis
· MIS by Laudon and Laudon
· Marketing Management by Philip Kotler
· Production and Operations Management by Mayer
· Modern Production Management by R V Badi

Semester	Fifth	Teaching Hrs = 35	
Subject Code	BCA – 546-20		
Subject Name	Unified Modeling Language(UML)		
Examination Scheme			Credits
External Exam	Internal Exam	Total Marks	
60	40	100	4

Course Outcomes (COs)
After learning this course student will be able to,

- Master the fundamental principles of OO programming.
- Master key principles in OO analysis, design, and development.
- Be familiar with the application of the Unified Modelling Language (UML) towards analysis and design
- Master common patterns in OO design and implement them.

1. Introduction to UML **2Hr**

Why models, what is UML, Features of UML, Need for UML, what UML is not

2. Review of Object Orientation **4Hr**

Object, Class, Encapsulation, Abstraction, Inheritance, Polymorphism and its types, Message passing

3. Overview Of UML **4Hr**

Things, Relationships, Diagrams

4. Overview of UML diagrams **4Hr**

Activity diagram, Class diagram, Communication diagram, Component diagram, Composite structure diagram, Deployment diagram, Interaction overview diagram, Object diagram, package diagram, Sequence diagram, State machine diagram, Timing diagram, Use case diagram.

5. Use Case Diagrams **5Hr**

Need for use cases, Diagram model elements, Actor, Use cases, Relationships

6. Activity Diagrams **5 Hr**

Need for activity diagrams, Creating activity diagram, When to use activity diagrams, Elements of activity diagrams, Start symbol, End symbol, Activity, Forks and joins, Decision points/branch, Merges, Guard/condition, Swimlane/partition, Object node, transition/Control Flow

7. Sequence Diagrams **5Hr**

Need for sequence diagram, Creating sequence diagram, Elements of sequence diagram: Object, Lifeline, Synchronous message, Asynchronous message, Return, Creation of object, Destruction of object, Looping, Boundary, Naming the sequence diagram

8. Class Diagrams **5 Hr**

Need for diagram, creating class diagram, Elements of class diagrams, Class, Visibility, Multiplicity, Association, Generalization-specialization, Dependence, Realization, Aggregation, Composition.

Referance Books:

- Unified Modeling Language User Guide- Grady Booch, Games Rumbaugh, Ivar Jacobson
- UML 2 for dummies – Michael Jaeasse, Chonoles, James A., Schardt
- Learning UML 2.0 – Russmiles, Kim Hamilton