

# HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

## B.C.A. Semester – V BCA-501: JAVA Programming

Teaching Scheme (per week)		Teaching Scheme (per semester)		Examination Scheme					
				INT		EXT		TOTAL	
Th. (hours)	Pr. (hours)	Total Hours	Credit	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
4	--	40	4	30	--	70	--	100	--

PROGRAM CODE : HNGU1184

### Unit – I

[18 MARKS]

#### **Fundamentals of Object Oriented Programming:**

**Basic Concepts of Object-Oriented Programming:** Object and Class, Data Abstraction and Encapsulation, Inheritance, Polymorphism, Dynamic Binding, Message Communication. Benefits and Applications of OOP.

#### **Basics of Java.**

History of Java, Java Features, JDK and its Components (Various Tools of JDK), Byte code and JVM, JAVA Program Structure.

**Building Blocks:** Tokens (Keywords, Identifier, Literals, Operators, Separators), Variables, Data Types, Type Conversion and Casting, Command Line Arguments.

#### **Control Statements:**

**Selection Statement:** if – else, nested if-else, else if ladder, switch Statements.

**Iteration statements:** while, do...while, for Statements

**Jump Statements:** break, continue.

**Arrays:** How to create array in java.

### Unit-2

[17 MARKS]

#### **Class Fundamentals:**

Defining Classes, Creating Objects, Static Members, Methods Overloading, Nesting of Methods

**Constructors:** Introduction, Default & Parameterized Constructors, Constructor Overloading.

**Inheritance:** Introduction, Single, Multilevel, Hierarchical Inheritance. Method Overriding, final Variable, final Methods & final Class, abstract Methods and Abstract Class.

**Access Modifiers (Visibility Controls)** – public, private, default, protected, private protected.



  
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### Unit – 3

[18 MARKS]

**Interfaces:** Defining an Interfaces, Implementing Interfaces, Multiple interface.

**Packages:** Defining Package, List of Java API Packages and their classes, Creating, Accessing and Using packages ,adding a Class to Package.

Java.lang Package classes (Math, String).

Java.util Package classes (Stack, Vector).

**Multithreading :** Definition, Life Cycle of Thread (Thread states – Newborn, Runnable, Running, Blocked, Dead), Extending Thread Class, Implementing Runnable Interface, Various Thread Methods like yield(),stop(),sleep(), Thread Priorities.

### Unit – 4

[17 MARKS]

**Exception Handling :** Exception & Exception Handling, Exceptions Types (Java's Built-in Exceptions) – Checked and Unchecked Exceptions, Exception Handling using try, catch, finally, throw, throws etc., Nested try, Multiple catch, Throwing Your own Exception.

**Applets :** Introduction, Local and Remote Applets, Applet Lifecycle, Creating and executing Applet , Passing Parameters to Applet.

**Graphics Class :** Various methods of Graphics Class.

### TEXT BOOKS:

1. **Programming with JAVA**, E Balagurusamy, Tata McGraw Hill
2. **The Complete Reference JAVA**, Herbert Schildt, Tata McGraw Hill .
3. **Teach Yourself JAVA**. Joseph O'Neil & Herb Schildt, Tata McGraw Hill .

### Question Paper Scheme:

#### University Examination Duration: 3 Hours

Q-1 – Unit -1 (18 Marks)

- A. Objective / Short Questions
- B. Descriptive / Long Questions

Q-2 – Unit -2 (17 Marks)

- A. Objective / Short Questions
- B. Descriptive / Long Questions

Q-3– Unit -3 (18 Marks)

- A. Objective / Short Questions
- B. Descriptive / Long Questions

Q-4 – Unit -4 (17 Marks)

- A. Objective / Short Questions
- B. Descriptive / Long Questions

Note: All Objective/ Short Questions are compulsory, no option will be given.



  
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## B.C.A. Semester – V BCA-502: .NET Using C#

Teaching Scheme (per week)		Teaching Scheme (per semester)		Examination Scheme					
				INT		EXT		TOTAL	
Th. (hours)	Pr. (hours)	Total Hours	Credit	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
4	--	40	4	30	--	70	--	100	--

### UNIT-1

[18 Marks]

Introduction and Features of .Net, .Net Framework architecture (CLR, MSIL, JIT, FCL, WPF, WCF, LINQ, CLS, CTS), .Net Languages.

Introduction to C#, Data type, Expressions, Scope & Accessibility, Looping statement, Foreach Loop, Array, Function, Delegate.

### UNIT-2

[17 Marks]

Basic about Classes & Objects: Namespaces and Assemblies.

Introduction to Web Server, Web Based vs Window Based Application, HTML Controls vs ASP.NET Controls, Understanding Standard Web Controls, Rich Control.

### UNIT-3

[18 Marks]

Validation Control, Navigation Control, Web Control Event – Method - Property, Master Page, Theme.

Data Controls – DataList, DetailView, FormView, GridView, ListView, Repeater.

### UNIT-4

[17 Marks]

Introduction of ADO.Net, ADO.net Architecture (DataSet, DataProvider, DataObject, DataAdapter), DataReader vs DataSet, ADO vs ADO.Net, Data Binding - Single value Data Binding, Repeated Value Data Binding, Three tiers of Web Applications.



  
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**Text book / Reference book:**

1. The Beginning Asp.net 4 in c# 2010 - APRESS
2. The Complete Reference ASP.NET - TATA McGraw-Hill
3. ASP.NET Black Book
4. Microsoft ASP.Net – Nirav Prakashan / Shyam N. Chavada

**Question paper scheme:**

Q-1 – Unit -1 (18 Marks)

- A. Objective / Short Questions
- B. Descriptive / Long Questions

Q-2 – Unit -2 (17 Marks)

- A. Objective / Short Questions
- B. Descriptive / Long Questions

Q-3– Unit -3 (18 Marks)

- A. Objective / Short Questions
- B. Descriptive / Long Questions

Q-4 – Unit -4 (17 Marks)

- A. Objective / Short Questions
- B. Descriptive / Long Questions



  
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## B.C.A. Semester –V

### BCA -503: Software Engineering

Teaching Scheme (per week)		Teaching Scheme (per semester)		Examination Scheme					
				INT		EXT		Total	
Th. (Hours)	Pr. (Hours)	Total (Hours)	Credit	Th. (Marks)	Pr. (Marks)	Th. (Marks)	Pr. (Marks)	Th. (Marks)	Pr. (Marks)
4	--	40	4	30	--	70	--	100	--

#### Unit-1

[18 MARKS]

##### Introduction to Software Engineering

Define Software and System; Define Software Engineering, Software Characteristic, Difference between Software Engineering and Computer Science. Difference between Software Engineering and System Engineering. Software Costs, Software Application, Evolution of software Engineering, Software Crisis-Problem and Causes, Software Myths, Professional and Ethical Responsibility, Software Process, Principal of Software Engineering, Software Quality Factors, Software Quality Attributes, Software Engineering Methods.

##### Software Process Model

Waterfall Model, Prototyping Model, Incremental Model, Spiral Model

#### Unit-2

[17 MARKS]

##### Software Requirement Specification

What is Requirement, Types of Requirement, SRS (Software Requirement Specification), Software Engineering Benefits, Role of Management in Software Development, Role of Metrics and Measurement.

##### System Design

Software Design Strategy, Become a Master Designer, Evaluating a Design, Problem Partitioning, Abstraction, Strategy of Design, Function Oriented v/s Object Oriented Approaches

#### Unit-3

[18 MARKS]

##### Coding

Programming Practices, Top down Approaches & Bottom up Approaches, Structure Programming, Information hiding, Programming Style,

##### Testing

Testing Fundamental, Top Down Approaches & Bottom Up Approaches, Test Cases and Test Criteria, Psychology of Testing, Regressing Testing, Functional Testing, Structure Testing.



*Dr. C. S. Patel*  
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Equivalence Class Partitioning, Boundary Value Analysis, Cause Effect Graphing, Type of Testing, Test Plan.

#### **Unit-4**

**[17 MARKS]**

##### **Software Project Management**

Software Project Management, COCOMO Model, Project Scheduling, Software Configuration Management, Software Maintenance, Quality Assurance Plans, Verification and Validation, Project Monitoring Plans, Software Risk Management, Project Planning.

##### **Software Reliability and Quality Assurance**

Software Reliability, Reliability metrics, Objectives of Software quality Management, ISO-9000 Certification for Software industry, Software measurement and metrics, SEI Capability Maturing Model, Computer Aided Software Engineering SASE and its Scope, Software Reverse Engineering, What is Risk, Risk Management.

#### **TEXT BOOKS / REFERENCE BOOK:**

1. **SOFTWARE ENGINEERING- Roger S. Pressman**
2. **Practical Approach of Software Engineering- Dr. Munesh Trivedi, Avinash Dwivedi**

#### **QUESTION PAPER SCHEME:**

Q-1 – Unit -1 (18 Marks)

- A. Objective / Short Questions
- B. Descriptive / Long Questions

Q-2 – Unit -2 (17 Marks)

- A. Objective / Short Questions
- B. Descriptive / Long Questions

Q-3– Unit -3 (18 Marks)

- A. Objective / Short Questions
- B. Descriptive / Long Questions

Q-4 – Unit -4 (17 Marks)

- A. Objective / Short Questions
- B. Descriptive / Long Questions**



  
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**BCA SEMESTER – V**  
**BCA-504 Computer Security Syllabus**

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**Unit – I** **[17 Marks]**

**Security Basics:** Introduction, Definition & meaning of Computer Security, Security Basics: Confidentiality, Integrity, Availability, Computer criminals, Computer crimes: definition and types of computer crime, Attack and its types, Method of Defense

**Cyber Security:** Introduction to cyber security, Requirement and needs of Information Security in global business

**Organizational Security:** Definition & Concept, People as a Security Tools, Physical Security

**Unit – II** **[18 Marks]**

**System Security-I:**

**Intruders:** Introduction to Intruders, computer Intruders, Intrusion Detection functions

**Malicious Software:** Viruses & Related threats, **Firewall:** Introduction to Firewall, Characteristics & Limitations of Firewall, Types of Firewall

**Unit – III** **[17 Marks]**

**System Security-II:**

Interception, Interruption, Modification & Fabrication, Crackers & Career Criminals, Vulnerability & Abuses, Transient vs Resident virus, Control against threats, Password Management

**Unit – V** **[18 Marks]**

**Cryptography:** Introduction to Cryptography, Encryption, Decryption, Plain Text, Cipher Text, Types of cryptography, Cryptanalysis

**Network Security:**

- Protocols : Digital Signature Standards
- Electronic Mail Security, MIME
- Web Security : Secure Socket Layers (SET) , Secure Electronic Transactions (SET)

Reference Book :

1. Computer & Network Security, Gujarat Technical Publishers code. 3350704  
Authors : Mr. Uresh Parmar, Prof. R.M. Shaikh, Dr. Paresh Kotak
2. Computer Security Basics by Debby Rusell, G.T. Gangemi (Orielly)
3. Network Security Private Communication in a Public world by Charlie Kamafman, Radia Parolman, Mike Speciner



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# HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

## B.C.A. Semester – V BCA-505 : JAVA Programming (Practical)

Teaching Scheme (per week)		Teaching Scheme (per semester)		Examination Scheme					
				INT		EXT		TOTAL	
Th. (hours)	Pr. (hours)	Total Hours	Credit	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
--	4	40	4	--	30	--	70	--	100

**University Examination Duration: 3 Hours (Per Batch)**

### (Practical List)

1. Write a Java Program find the area of circle.
2. Write a Java Program that will display factorial of the given number.
3. Write a Java Program that will find the largest no from the given two nos.
4. Write a Java Program that will find the largest no from the given three nos.
5. Write a Java Program that shows the use of switch Statement.
6. Write a Java Program to find the sum of the digits of given number.
7. Write a Java Program that will display the Sum of  $1+1/2+1/3+....+1/n$ .
8. Write a Java Program that check whether the given no is prime or not.
9. Write a Java Program that implements the use of break statement.
10. Write a Java Program that implements the use of continue statement.
11. Write a Java Program that will accept Command-line Arguments and display the same.
12. Write a Java Program to sort the elements of an array in Ascending Order.
13. Write a Java Program to create a Student class and generate result of student (Total, Per, Grade).
14. Write a Java Program to create an Employee class and generate Salary Slip for the employee.
15. Write a java program which shows the use of Static Members.
16. Write a java program which shows the Nesting of Methods.
17. Write a java program which shows the use of Methods Overloading.
18. Write a java program which implements the Default Constructors.
19. Write a java program which implements the Parameterized Constructors.
20. Write a java program which implements the Overloading of Constructors.
21. Write a java program which explains the concept of Single Inheritance.
22. Write a java program which explains the concept of Multilevel Inheritance.
23. Write a java program which explains the concept of Hierarchical Inheritance.
24. Write a java program which shows the Method Overriding.
25. Write a Java Program to implement final class and final method.
26. Write a Java Program to implement abstract class and abstract method.
27. Write a java program which implements Interface.
28. Write a java program which implements Multiple Interfaces.
29. Write a java program which shows importing of classes from other packages.



  
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30. Write a Java Program to implement the methods of Math Class.
31. Write a Java Program to implement the methods of String Class.
32. Write a Java Program to implement the methods of Vector Class.
33. Write a Java Program to implement the methods of Stack Class.
34. Write a Java Program which will read a text and count all occurrences of a particular word.
35. Write a Java Program which will read a string and rewrite it in the alphabetical order eg. The word "STRING" should be written a "GINRST".
36. Write a java program which creates threads using the Thread Class.
37. Write a java program which shows the use of yield(), stop() and sleep() Methods.
38. Write a java program which shows the Priority in Threads.
39. Write a java program which use of Runnable Interface.
40. Write a java program which uses try and catch for Exception Handling.
41. Write a java program which uses Multiple catch Blocks.
42. Write a java program which uses finally Statement.
43. Write a java program which uses Nested try Statements.
44. Write a java program which shows throwing our own Exception.
45. Create an Applet program that print Hello Applet.
46. Create an applet that use init(),start(),stop() and destroy() methods of applet.
47. write an applet program to implement the concept of passing parameter to applet.
48. Write a applet program to implement various methods of Graphics class.

**Practical Exam Scheme:**

Program	Output	Viva	Journal	Total
25 Marks	15 Marks	20 Marks	10 Marks	70 Marks



  
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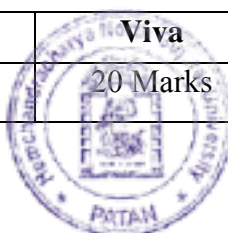
**HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN****B.C.A. Semester – V**  
**BCA-506 : .Net Using C# (Practical)**

Teaching Scheme (per week)		Teaching Scheme (per semester)		Examination Scheme					
				INT		EXT		TOTAL	
Th. (hours)	Pr. (hours)	Total Hours	Credit	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
--	4	40	4	--	30	--	70	--	100

1. Write a program to print “HELLO COMPUTER” on web form.
2. Write a program using different namespaces.
3. Write a program to set a link for new Page.
4. Write a program to demonstrate Request, Response and Server Object.
5. Write a program using delegate in which addition and subtraction of two Integer value Possible.
6. Write a program using while or for loop to print sum of first 100 ODD and Even Numbers.
7. Write a program using Foreach loop.
8. Write a program to Create Simple Web Application using two or more web form.
9. Write a program to demonstrate different common Control.
10. Write a program to add the value of Text Box in to Dropdown List and List box Controls.
11. Write a program to Delete Items from Dropdown list and List box.
12. Write a program to set Image on Image Control according to selection of image name from dropdown list.
13. Write a program which demonstrate the Validation Control.
14. Write a program which is use different Rich Control.
15. Write a program using Menu Control.
16. Write a program using TreeView Control.
17. Write a program using Sitemap Control.
18. Write a program to demonstrate use of Master Page and Theme.
19. Write a program to display data into GridView control.
20. Write a program for display data into DetailView Control.
21. Write a program to perform insert and update operation in Database.
22. Write a program to perform delete and search operation in Database.
23. Write a program to display the records from database using Data Reader Object.
24. Write a program to demonstrate the various methods of Dataset Object.

**Practical Exam Scheme:**

Program	Output	Viva	Journal	Total
25 Marks	15 Marks	20 Marks	10 Marks	70 Marks



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