

**Barkatullah University Bhopal**  
**Semester – Wise Scheme for BCA Semester VI**  
**Session 2010-11 onwards**  
**BCA**  
**Semester VI**

<b>Code No.</b>	<b>Paper</b>	<b>Marks (Theory + CCE)</b>
<b>BCA601</b>	<b>Internet Technology &amp; Security</b>	<b>35 + 15</b>
<b>BCA602</b>	<b>Software Engineering</b>	<b>35 + 15</b>
<b>BCA603</b>	<b>.Net Technology</b>	<b>35 + 15</b>
<b>BCA604</b>	<b>Java</b>	<b>35 + 15</b>
<b>Practical</b>		
<b>BCA605</b>	<b>Java &amp; .Net</b>	<b>50</b>
<b>Project (External Assessment)</b>		<b>50</b>

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**MM : 35**

**Paper-I**  
**Internet Technology & Security**

- Unit-I** Conventional Encryption –Convention Encryption: Conventional Encryption Model, Steganography, Classical Encryption Techniques, Simplified DES, Block Cipher Principles, The data Encryption Standard, The strength of ES, Differential and Linear Cryptanalysis, Block Cipher Design Principles, Block Cipher Modes of Operation, Conventional Encryption algorithms
- Unit-II** public key encryption and hash functions –public key cryptography, principles of public key cryptosystems, The RSA algorithm, key management, Difie Hellman Key Exchange, Elliptic Curve Cryptography Message Authentication and Hash Functions Authentication Requirements, Authentication Functions, Message Authentication Codes, Hash Functions, Security of Hash Functions
- Unit-III** Hash And Mac Algorithms
- Unit-IV** Authentication Applications, IP Security, Web Security
- Unit-V** Intruders, Veruses and Worms Intruders, Viruses and Related Threats Firewalls Firewall Design Principles, Trusted Systems

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**Paper-II**  
**Software Engineering**

- Unit-I** The Software problem, Software Engineering problem, Software Engineering approach – phased development process, project management and matrices. Software processes–Processes, Projects, Components, Characteristics. Software Development process – process step specification, waterfall model, prototyping, iterative enhancement, spiral model.
- Unit-II** Software Requirement Analysis and Specification – Software Requirements, Problem Analysis, Requirement Specification, Validation, Metrics.
- Unit-III** Planning a Software project – Cost Estimation, Project Scheduling, Staffing and personnel planning, Software Configuration management plans, Quality Assurance plans, Project Monitoring Plans, Risk Management.
- Unit-IV** Software Design– Design Principles, Module level concepts, Design Notation and Specification, Structured Design Methodology, Verification. Coding - Programming Practice, Verification and Metrics.

**Unit- V** Software Testing–Testing fundamentals, Functional testing, Structural testing, Testing process.  
Software Quality Assurance (SQA): Software Reviews, Software Quality factors, SQA activities, Formal Technical Reviews, SQA Approach. Software Configuration Management–Configuration Identification, Change Control, Status Accounting and Auditing.

**References:-**

Khurana Rohit Software Engineering, IE, Vikas  
Pressonan – Software Engg.- MGH

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**Paper-III**  
**.Net Technology**

- UNIT – I** What is .NET, overview of .NET framework and platform, Common Language Runtime, XML as the .NET "Meta Language", overview of Visual Studio IDE, New Object capabilities in Visual Basic, Modern Language capabilities added to Visual Basic, fitting Visual Basic into framework.
- UNIT-II** Overview of ASP.NET framework, Understanding ASP.NET Controls, Applications Web servers, installation of IIS. Web forms, web form controls –server controls, client controls, web forms & HTML, Adding controls to a web form, Buttons, Text Box, Labels, Checkbox, Radio Buttons, List Box, etc. Running a web Application, creating a multiform web project. Form Validation: Client side validation, server Side validation, Validation Controls: Required Field Comparison Range. Calendar control, Ad rotator Control, Internet Explorer Control. State management- View state, Session state, Application state.
- UNIT-III** Architecture of ADO.NET, Connected and Disconnected Database, Create Connection using ADO.NET Object Model, Connection Class, Command Class, Data Adapter Class, Dataset Class. Display data on data bound Controls and Data Grid. Database Accessing on web applications: Data Binding concept with web, creating data grid, Binding standard web server controls. Display data on web form using Data bound controls.

**UNIT-IV** Writing datasets to XML, Reading datasets with XML. Web services: Introduction, remote method call using XML, SOAP, web service description language, building & consuming a web service, Web Application deployment.

**UNIT-V** Overview of C#, C# and .NET, similarities & differences from JAVA, Structure of C# program. Language features: Type system, boxing and unboxing, flow controls, classes, interfaces, Serialization, Delegates, Reflection.

### **REFERENCES**

Pankaj Agrawal – Principal of .Net Framwork – Vaya  
Kogent - .NET Programming Black Book – Wiley  
VB.NET Black Book by Steven Holzner –Dreamtech  
VB.NET –Wrox Publication  
ASP.NET Unleashed  
C# programming – Wrox Publication  
C# programming Black Book by Matt Telles

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**Paper-IV**  
**Java**

- Unit-I** Primitive data type-integer, Short, byte, float, double, Unicode character set, Boolean, their ranges default initial values, wrapping of integer arithmetic, casing comments identifiers and reserved words. Local variables operators, precedence, Examples and Exercises.
- Unit-II** Statements Simple and compound, Uses of control do, for, while, switch, break case of continue label, class type Data; String, Arrays. Examples and Exercises.
- Unit-III** Definition and naming conventions for the member of Java classes. Instances, fields and methods initialization by constructors. Creation of Objects, access methods. Example and Exercise.
- Unit-IV** Inheritance, Super class, Subclass, Method overloading, Interface, Thread, Multithreading example, Synchronized, Exception (Try- Catch-Final blocks examples). Java Virtual Machine concepts, java platform overview, Programming examples to clarify use of objects, threads exception and Packages For I/O, file String handling. Examples and Exercise.

**Unit-V** Local and Remote Applets Vs Applications, Writing Applets, Applets Life Cycle, Creating an Executable Applet, Designing a Web page, Applet Tag, Adding Applet to HTML file, Running the Applet, Passing Parameters to Applets, Aligning the Display, HTML Tags & Applets, Getting Input from the User.

**REFERENCE:-**

Schildt java Complete Reference TMH

Das Rashmi kanta Core Java, IE, Vikas

Bansal Nitin, Ajit Kumar, A Simplified approach to Java Programming  
, KALYANI