

BANGLADESH INSTITUTE OF MANAGEMENT
4 Sobhanbag, Mirpur Road, Dhaka-1207

POST-GRADUATE DIPLOMA IN COMPUTER SCIENCE

SYLLABUS FOR PART-I

Evaluation Criteria :

Class Attendance : 10%
Class Test : 20%
Final Examination : 70%

Name of Subject:

1. Fundamentals of Computer
2. Data Structure & Algorithm
3. Database Management System-1 (Back End)
4. Programming Language – C
5. Web Development (Client Side Scripting)

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POST-GRADUATE DIPLOMA IN “COMPUTER SCIENCE”

SUBJECT: **FUNDAMENTALS OF COMPUTER**

FULL MARKS : 100

| Chapter | Topic |
|---------|---|
| 01. | Introduction to Computer Types of Computer System Functional Units Software Concepts I/O Devices, Storage media |
| 02. | Micro-Computer & Microprocessors Micro Computer & Organization Basic of Microprocessor |
| 03. | Memory Organizations Main Memory Secondary Memory |
| 04. | Number System |
| 05. | Logic Design Boolean Algebra Logic gates BCD,ASCII Codes Gate network design Flip flop, Register, Decoder, Encoder |
| 06. | Operating System Concept of Operating System Job & Task Management Data Management Management of I/O devices Examples of O/S : DOS, WINDOWS |
| 07. | Concept of Office Automation MS-Word MS-Excel Power Point |
| 08. | Case Study |

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POST-GRADUATE DIPLOMA IN “COMPUTER SCIENCE”

SUBJECT: **Data Structure and Algorithm**

FULL MARKS : 100

| Chapter | Topic |
|---------|---|
| 01. | Basic concepts (2) Data Structures notation Notation Search Efficiency |
| 02. | Elementary data structures (4) Arrays Records Points |
| 03. | Lists (3) Linked lists Stacks Queues |
| 04. | Trees (3) Binary trees – array representations Binary trees-record presentations General tree representations |
| 05. | Introduction to algorithm (2) |
| 06. | Introduction and interpolation (2) |
| 07. | Recursion (2) |
| 08. | Searching (5) Searching lists Searching arrays Searching trees Hashing |
| 09. | Sorting (5) Insertion (sequential) sort Bubble Sort Quick sort |
| 10. | Class Test (2) |
| 11. | Case Study |

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POST-GRADUATE DIPLOMA IN “COMPUTER SCIENCE”
SUBJECT: **Database Management System – I (Back End)**

FULL MARKS : 100

| Chapter | Topic |
|----------------|---|
| 01. | Introduction to Database a. Data and Information b. Evolution of Database c. RDMS d. Features of RDBMS |
| 02. | Designing Database a. ER Model b. Normalization c. Steps in Designing Database d. Integrity constrains |
| 03. | Relationship Joins and Queries |
| 04. | SQL a. DDL b. DML c. DCL d. TCL |
| 05. | Transaction Processing |
| 06. | Distributed Database |
| 07. | Maintaining Database a. Security b. Backup and Recovery |
| 08. | Case Study |

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POST-GRADUATE DIPLOMA IN “COMPUTER SCIENCE”

SUBJECT: **Programming Language-C**

FULL MARKS : 100

| Chapter | Topic |
|---------|---|
| 01. | Introduction C as General Purpose, Structured, High Level Man Machine Language Structure of a simple C Program Editing and running simple C Program |
| 02. | Fundamentals Character Set, Identifiers and Keywords Data Types Constants and Variables Expressions Statements Symbolic Constants |
| 03. | Operations and Expression Arithmetic Operations Unary Operators Logical Relational Operators and Connectives Assignment Operators Conditional Operators Bit-wise Operators Library Functions |
| 04. | Data Input/Output |
| 05. | Control Statements The while statements The do-while statements The for statements Nested loops The if-else statements The break statements The continue statements The switch statements The go to statements The comma operators |
| 06. | Arrays and Pointers One-dimensional arrays Two-dimensional arrays Declaration and simple use of Pointers Pointers and Arrays |
| 07. | Structures Defining a Structure Manipulating Structures Manipulation of a linked-list |

| Chapter | Topic |
|----------------|---|
| 08. | Functions General form of a function definition Simple use of functions Public and local function Functions, Arrays and Recursive Procedures Functions, Structures and Pointers |
| 09. | Data Files Opening and closing a data files Working with the text files Creating and Displaying data files and structures |
| 10. | Case Study |

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POST-GRADUATE DIPLOMA IN “**COMPUTER SCIENCE**”

SUBJECT: **Web Development (Client Side Scripting)**

FULL MARKS : 100

| Chapter | Topic |
|----------------|--------------------------------------|
| 01. | HTML |
| 02. | CGI & DHTML |
| 03. | Publishing Web Site |
| 04. | Java Script |
| 05. | Client Development using Java |
| 06. | Case Study |

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POST-GRADUATE DIPLOMA IN COMPUTER SCIENCE

SYLLABUS FOR PART-II

Evaluation Criteria :

Class Attendance : 10%
Class Test : 20%
Final Examination : 70%

Name of Subject:

1. Data Communication & Networking
2. Database Management System-II (Software Development)
3. System Analysis & Design
4. Operating System (Linux)
5. e-Commerce & Web programming (Server Side)
6. Term Paper & Syndicate Presentation
7. Viva-Voce

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POST-GRADUATE DIPLOMA IN “COMPUTER SCIENCE”
SUBJECT : **Data Communication and Networking**

FULL MARKS : 100

| Chapter | Topic |
|---------|--|
| 01. | Introduction to Data Communication Evaluation Purpose of data Communication |
| 02. | Data Communication Systems Operators Basic Terms and concepts Transmission Characteristics Transmission Models Synchronous and Asynchronous Transmission |
| 03. | Transmission Media |
| 04. | Interfaces and Protocols Types of Interfaces and Protocol used Concept of MODEM RS232D Communication Interface |
| 05. | Introduction to Networking Client/Server Topology LAN/WAN/MAN/Intranet & Internet/Wireless LAN/Blue tooth File System and Disk Management Workgroup/Domain Network Security/Resource Sharing/VPN Email, HTTP, FTP,VOD,VOIP |
| 06. | Distributed Network Architecture OSI Model Architecture and Protocols TCP/IP |
| 07. | Mobile Communication |
| 08. | Case Study |

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POST-GRADUATE DIPLOMA IN “COMPUTER SCIENCE”
SUBJECT : Database Management System-II (Software Development)
FULL MARKS : 100

| Chapter | Topic |
|---------|---|
| 01. | Introduction to Client-Server Application Development |
| 02. | Principles of Interface Designing |
| 03. | Introduction to Visual Tools |
| 04. | Using labels, Buttons, Text boxes |
| 05. | Variables, Controls and Operators |
| 06. | Looping Arrays and Lists |
| 07. | Functions |
| 08. | Debugging in Visual Tools |
| 09. | File Controls |
| 10. | API |
| 11. | Database |
| 12. | Programming |
| 13. | Application Development |
| 14. | Case Study |

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POST-GRADUATE DIPLOMA IN “COMPUTER SCIENCE”

SUBJECT: **System Analysis and Design**

FULL MARKS : 100

| Chapter | Topic |
|----------------|---|
| 01. | General concept of formal information systems |
| 02. | Software Development Life Cycle |
| 03. | Requirement Engineering tools |
| 04. | Feasibility Study |
| 05. | Cost Benefit Analysis |
| 06. | Input/Output Form Design |
| 07. | Introduction to OOAD, Iterative Development and Unified Process, Introduction to UML and its different nations, Use Case Modeling, Drawing System Sequence Diagram, Domain Model, Operation contracts, Interaction Diagram, GRASP Patterns and assigning Responsibilities, Use Case realization with GRASP patters, Modeling Generalization, Refining the Domain Model. |
| 08. | Case Study |

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POST-GRADUATE DIPLOMA IN “COMPUTER SCIENCE”

SUBJECT: **Operating System (Linux)**

FULL MARKS : 100

| Chapter | Topic |
|----------------|---|
| 01. | Introduction to Linux and Linux Files Systems |
| 02. | Installation of Linux and Partitioning |
| 03. | Installation and configuring DNS Serve |
| 04. | Installation and configuring Mail Server |
| 05. | Installation and configuring Web Server |
| 06. | Installation and configuring Proxy Server |
| 07. | Installation and configuring FTP Server |
| 08. | Installation and configuring DHCP Server |
| 09. | Configuring Devices in Linux |
| 10. | Printing with Linux |
| 11. | Linux System Administration |
| 12. | Scripting. |
| 13. | Case Study |

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POST-GRADUATE DIPLOMA IN “COMPUTER SCIENCE”
SUBJECT: e-Commerce and Web Programming (Server Side)
FULL MARKS : 100

| Chapter | Topic |
|---------|---|
| 01. | Use of Internet |
| 02. | Ethics in Internet |
| 03. | Security in the Internet <ul style="list-style-type: none">i. Public Keyii. Private Keyiii. Cryptography |
| 04. | E-Governance |
| 05. | VB Script |
| 06. | ASP/PHP |
| 07. | Web Database (MYSQL) |
| 08. | Configuring and Administering Web Server |
| 09. | Case Study |

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Marks Distribution of Term Paper, Syndicate Presentation & Viva-Voce for all Diploma Courses

Part-II

| Subject | Approved Marks | Remarks |
|-------------------------------|-----------------------|----------------|
| Term Paper | 75 | |
| Syndicate Presentation | 25 | |
| Viva-Voce | 100 | |