

The Head,
University Department of Physics,
Vidyanagari Campus,
Kalina,
Santacruz (East),
Mumbai - 400 098.

No.UG/ 406 of 2007
Mumbai 400 032
10th October, 2007

Sir,

I am to invite your attention to the Ordinances, Regulations and Syllabi relating to the Post-Graduate Diploma course in Information Technology (PGDIT) vide this office Circular No.UG/36 of 2001 dated 25th January, 2001 and No.UG/375 of 2001 dated 23rd October, 2001 and to inform you that the recommendation made by the Board of Studies in Physics at its meeting held on 23rd July, 2007 has been accepted by the Academic Council at its meeting held on 10th August, 2007 vide item No.4.18 and that in accordance therewith the syllabus of Post-Graduate Diploma course in Information Technology (PGDIT) is revised as per Appendix and that the same has been brought into force with effect from the academic year 2007-2008.

Yours faithfully,


for I/c REGISTRAR.

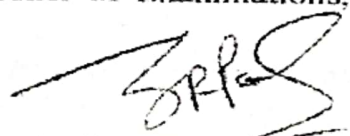
A.C.4.18/10.08.07

No.UG/ 406-A of 2007

10th October, 2007

Copy forwarded with compliments for information to :-

- 1) The Dean, Faculty of Technology,
- 2) The Dean, Faculty of Science,
- 3) The Chairman, Board of Studies in Physics,
- 4) The Officer on Special Duty and Controller of Examinations, Examination Section.


for I/c REGISTRAR.

P.T.O. 10


UNIVERSITY OF MUMBAI



Revised Syllabus For Post-Graduate Diploma Course in Information Technology (PGDIT)

(With effect from the academic year 2007-2008)

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**Revised Syllabus for Post-graduate
Diploma Course in Information Technology
(PGDIT)**

Semester I

Paper I: Network Integration and Data communication Hardware

SECTION I: Data communication Hardware (30 Hrs) 50 %

Introduction to Networks and Networking ; Networking Fundamentals; Local and Wide Area Networks; Clients, Peers, and Servers; The Network Medium, Network Protocols, Network Software, Network Services, Network Types; Network Design Essentials-Network Design, Designing a Network Layout, Standard Topologies; Hubs, Switches, Variations of the Major Topologies; Interconnecting Multiple Virtual LANs, Selecting a Topology, Selecting VLAN Topologies; Constructing a Network Layout; Networking Media; Network Cabling: Tangible Physical Media; Primary Cable Types.. Network Interface Card (NIC) ;Choosing Network Adapters for Best Performance, Special-Purpose NICs, Wireless Adapters, Remote Boot Adapters, Driver Software. OSI and 802 Networking Models

Network Communications and Protocols-Function of Packets in Network Communications: Protocols: Common Protocols-Transmission Control Protocol/Internet Protocol (TCP/IP), IP Addressing; NetBIOS and NetBEUI, IPX/SPX, Putting Data on the Cable: Channel Access Methods, Function of Access Methods, Major Access Methods, Choosing an Access Method.

Enterprise and Distributed Networks: Modems in Network Communications, Carriers, Remote Access Networking: Creating Larger Networks; Repeaters, Bridges, Routers, Brouters, Gateways, Switches.

Wide Area and Large-Scale Networks: Advanced WAN Technologies::X.25; ISDN (Integrated Services Digital Network); Frame Relay; ATM (Asynchronous Transfer Mode); FDDI (Fiber Distributed Data Interface); SONET (Synchronous Optical Network); SMDS (Switched Multimegabit Data Service).

The Internet: A World-Wide Resource. What's on the Internet? Domain Name System (DNS). Making an Internet Connection, Dial-Up Connections. Digital Connection Types. Connection Considerations.

SECTION II: Network Integration (30 Hrs) 50 %

Network Architectures Ethernet ;Token Ring ,How Token Ring Works, Beaconing, Hardware Components, Cabling in a Token Ring Environment. AppleTalk and ARCNet: The AppleTalk Environment, LocalTalk, EtherTalk and TokenTalk; The ARCNet Environment, ARCNet Hubs, ARCNet Cabling, FDDI, Other Networking Alternatives. Simple Network Operations: Network Operating Systems, Software Components of Networking, General NOS Components; Client Network Software, Server Network Software, Client and Server, Installing a Network Operating System, Installing Microsoft Windows Servers, Installing Novell NetWare 5.1, Installing Red Hat Linux 7.0, Network Services, Installing, Removing, and Configuring Network Services; Network Bindings, Network Printing, Network Directory Shares, Network Applications, E-Mail or Messaging, Scheduling or Calendaring, Groupware. Understanding Complex Networks: Interconnectivity in Multivendor Environments. Implementing Multivendor Solutions, Centralized vs. Client/Server Computing, Client/Server Environment, Network Administration and Support:

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Managing Networked Accounts, Managing Network Performance ;Managing Network Data Security; Avoiding Data Loss..
Solving Network Problems; Preventing Problems with Network Management and Planning; Backing Up Network Data; Setting Security Policies; Setting Hardware and Software Standards; Establishing Upgrade Guidelines; Maintaining Documentation; Performing Preemptive Troubleshooting; Using Network Monitoring Utilities; Network Troubleshooting. Network Support Resources: Microsoft TechNet, Microsoft Knowledge Base. Server Hardware Requirements, Specialized Servers, Selecting the Right Type of Network.

Cable Selection Criteria, The IBM Cabling System; Wireless Networking: Intangible Media; The Wireless World, Types of Wireless Networks, Wireless LAN. Applications, Wireless LAN Transmission, Wireless Extended LAN Technologies Microwave Networking Technologies-High-speed Wireless Networking Technologies. VLANs Introduction Basic Configuration VLANs, DHCP, Configuring the Switch Using the Console Interface, User Accounts Management Configuration, Network Monitoring, Port Utilization , Browse MAC Address Switch History, IGMP Snooping . Dynamic Group Registration Table, VLAN Status , Web-Based Network Management Configuration IP Address, Port LACP Trucking, IGMP Snooping, Port GMRP, MAC Address, IGMP Snooping , Dynamic Group Registration, TFTP Service 141, RJ-45 Pin Specification, Runtime Switching Software Default Settings, Understanding and Troubleshooting the Spanning Tree Protocol.

Paper II LINUX & Operating System

SECTION I : LINUX Operating System

50 %

Introduction to GNU/LINUX, How to obtain and install GNU/Linux, basic commands and X-windows. File System Partitions, Installation, Boot Loader GRUB.

Networking & Server setup: Configuring GNU/Linux as Network Server, Setting up Web server using Apache software, DNS server, squid, Proxy, Mail server, telnet, SSH and FTP server, Shell Programming in Linux, System administration, Linux text editor vi/vim or Emacs Editor.

Applications: KDE, GNOME, GIMP, RPM and apt-get, Mozilla, Nautilus, Konqueror, Open Office, K office, Abiword, gnumeric etc.

SECTION II : WINDOWS 2003/NT Operating System

50 %

Introduction, The Organisation of NT, Installation commands, Networking and server set-up, Study of Application Packages.

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Paper III : Object Oriented Programming & Database Concepts

SECTION I. : Object Oriented Programming

50 %

Introduction to Computer Programming, Introduction To C++, Expressions And Interactivity, Making Decisions, Looping, Functions. Arrays, Sorting and Searching Arrays, Pointers, Characters and Strings , Structured Data, File Operations. Classes. Inheritance and Polymorphism, Exception, Templates and the Standard Template Library, Recursion, Introduction to C#.

SECTION II.

Database Concepts:

50 %

Introduction to Oracle 9i, Data types and In-built functions, Introduction to SQL, Data Correlation, An introduction to PL/SQL, Triggers, Procedures, Oracle OOP Concepts. Writing basic SQL select statements. Restricting and Sorting data, Single row functions, Displaying data from Multiple tables: Joins and Sub-Queries, Aggregating data using group functions. Producing readable output with iSQL* plus, Manipulating data, Creating and Managing tables. Including constraints, Creating view ,Other Database Objects, Controlling User Access,

Semester II

Paper IV : JAVA Programming & Applications

SECTION I

JAVA Programming :

50%

Introduction to JAVA. Object Oriented Programming in JAVA, Overview of JAVA language. Constants, Variables and Data types. Operators and Expression. Control Statements. Object and Classes in JAVA, Arrays, Strings and Vectors, Multithreaded Programming, Inheritance, Packages and Interfaces, Exception Handling. JAVA Applets Programming and Applet API, JAVA graphics programming, Creating JAVA User Interface. I/O and applets, Introduction to AWT, Networking with JAVA.

SECTION IIA

J2EE

25 %

Introduction to J2EE and Enterprise Java Beans, J2EE Platform and Application. JDBC, RMI, Servlets Programming. Java Server Pages, Filters for Web Applications. JSP Applications, J2EE Security, Web Services and Web Service Registries.

SECTION II B. J2ME Introduction to Wireless Applications & Devices

25%

WAP & I- Mode, J2ME, Hardware Requirements, MIDP / CLDC / KVM ,Installing the J2ME Toolkit, J2ME Programming ,CLDC Libraries, MIDP Libraries, MIDLET and MIDLET Suites, Create your first Wireless Application, CLDC Limitations. Security in J2ME, Package and Deployment. Advanced J2ME Programming ,UI for Wireless Devices, AWT in MIDP. Using the Canvas Class, Graphics and Drawing in J2ME. Persistent Storage, Network programming in Java, Using XML in J2ME.

SECTION I:

ASP.NET XML HTML

50 %

Introduction, VBScript Language Elements, VBScript Functions and Objects, Using the Request Object, Using Cookies, Using the Application, Session and Server Objects. Error Handling, Building Active Server Pages, Active Server Pages and the HTTP Protocol, Working with Connections and Data Sources, Working with Recordsets. Working with the Command Object, Introduction to .NET technology

SECTION II:

Visual Basic.Net:

50%

Microsoft .Net Frame work, Writing Software, Controlling the flow, Working with Data Structures, Building Windows Applications, Displaying Dialog Boxes. Creating Menus, Debugging and Error handling, Building objects, Accessing Databases, Web forms and Forms Authentication.

Paper VI : E-Commerce

SECTION I.

E-Business:

50 %

E-Business Architecture, E-Business Models, E-Commerce as E- Transaction issues and design consideration, Security, Secure E-Business framework, Network Security. Transaction Security and Application security, various security standards, Encryption Technology. Concepts of e-commerce and its designs. Designing of an online transaction system with graphics, audio, animation, input forms with query capability, database interaction. Authenticated logins and secured data transactions with encrypted data transfers.

SECTION II.

Software Engineering:

50%

System and software requirement analysis, Various Application Architecture, System analysis and design. Software quality assurance: various techniques, Software metrics. ISO, CMM and other quality approaches, Software testing techniques, CMM based process engg practices. ISO & ISO audits for IT, S/W testing practices S/w project estimation Project planning with MS project and tracking S/W configuration mngt. S/W product engg.. Software quality mngt. Metrics AND Measurement

References:

1. Guide to Networking Essentials: Ed Tittel and D. Jhonson; Thomson Learning.
2. Computer Networks : Andrew S. Tanenbaum , PHI.
3. Red Hat Linux 6 Unleashed : David Pitts, Bill Ball, Techmedia.
4. Starting out with C++. Tony Gaddis, Penram International Publishing(India).
5. Object Oriented Programming with C++ : E. Balaguruswamy, TMH
6. The JAVA tutorial : Mary Campione, Kathy Walrath, Addison-Wesley
7. J2EE in 21 days.(Sams teach yourself) –Pearson Education
8. E-Business with Net.Commerce: Samantha Shurety; Pearson Education Asia [PEA].

9. E-Commerce-Fundamentals & Applications: H.Chan, R.Lee, T.Dillon, E.Chang; Wiley.
10. Data Management-Databases and Organizations : Richard T.Watson : Wiley.
11. Oracle 9i The Complete Reference.-Oracle Press.
12. IT for Management : Turban,Mclean,Wetherbe ; Wiley.
13. Windows NT operating Systems : Gary Nutt; PEA.
14. Object Oriented Software Engineering; Bruegge, Dutoit;PHI
15. Object Oriented Software Engineering; Jacobson, Chritenson, Jonsson; PEA
16. Introduction to Personal Software Processes; Humphrey; Addison-Wesley

Additional References:

1. Schaum's Outline Programming in C/C++ : John Hubbard, Mcgraw-Hill
 2. Linux in a Nutshell: A desktop quick reference, Shroff Pubs., Mumbai. 1999.
 3. Learning Debian GNU/LINUX : Bill Mcarty;O'Reilly
 4. The Complete Reference-SQL,-James Groff and Paul N.weinberg
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