

Vikram University, Ujjain

Board of studies in Computer science (Faculty of Engineering Science)

SYLLABUS of

PG Diploma in .NET Technology

Exclusively for University Teaching Department (ICS,VUU)

ONE YEAR PG Diploma in .NET Technology

PROGRAMME of UTD (ICS,VUU)

(Effective from Academic Session 2020-21)

[Modified as according to the provision of “Ordinance”]

COURSE STRUCTURE

PG DIPLOMA IN .NET TECHNOLOGY

FIRST SEMESTER

SN	Course code	Title	End term sem Exam	Internal	Max Marks
1	DNET101	Fundamental of Information Technology	70	30	100
2	DNET102	PC-Packages	70	30	100
3	DNET103	Programming and Problem Solving in C	70	30	100
4	DNET104	Digital computer Organization	70	30	100
5	DNET105	Modern Technologies of Computer Science	70	30	100
					500

COURSE STRUCTURE

PG DIPLOMA IN .NET TECHNOLOGY

SECOND SEMESTER

SN	Course code	Title	End term sem Exam	Internal	Max Marks
1	DNET201	Systems Analysis and Design	70	30	100
2	DNET202	Internet Programming	70	30	100
3	DNET203	Programming with Visual Basic .NET	70	30	100
4	DNET204	ASP.NET Technology using C#	70	30	100
5	DNET205	Project Work	70	30	100
					500

DNET101:Fundamental of Information Technology

UNIT-1

Computer Fundamental: Characteristics of Computers, History of Computer, Evolution of Computers, Computer Generations and Types of Computer. **Components of a Computer:** Registers, instruction Set, Bus Architecture. **Computer Hardware:** Input Devices, Output Devices. **Storage Devices:** Primary Storage capacity, Memory Types, Memory Measuring Units, Secondary Storage. Software & Software Types, Computer Languages, Compiler, Interpreter.

UNIT-2

Introduction of Programming: Procedure Oriented Programming, Object oriented programming, Concepts used in OOP, Benefits of OOP, Main advantages and disadvantage of OOP, Applications of OOP, OOP vs. POP.

UNIT-3

Operating System Overview: Computer System Startup, Computer System Structure, computer system components, operating System classifications, operating System Services, Major Functions of operating system, Process Management, CPU Scheduling, Scheduling Criteria. **Memory and File Management:** Memory Management Requirements, Swapping, Memory Management Techniques.

UNIT-4

Introduction to DBMS: File System, Traditional File Oriented Approach, DBMS Advantages and Disadvantage, Role of DBMS, Three views of data, DBMS Architecture. Data Models, Data Independence, Major components of DBMS, Data Dictionary, Types of Users, DBMS applications, Keys in Databases, Database Languages.

UNIT-5

Introduction to computer Networks: computer Network Definition, Importance of Networking, Types of Networks, Network Topology, Advantages and Disadvantage of computer Networks, Applications of computer networks, Reference Model, Internet, introduction to Internet Technology, Electronic Mail, World Wide Web.

References:

1. Operating Systems Concepts, A. Silberschaz, P.Galvin, G.Gagne, John Wiley & Sons
2. Object Oriented Programming in C++, Robert Lafore, Galgotia Publication.
3. Data base management systems vol. 1., Date C.J.
4. Fundamental of Computer Science & IT, Singh Umesh Kumar, Jain S., Maheshwari A., SSDN publications New Delhi,
5. Data Communications and Networks, Godbole A, Tata Mccraw-Hill Publications.

DNET102:PC-Packages

UNIT-1

MS windows: Introduction to MS windows; Features of windows; working with windows; My computer & Recycle bin; Desktop, Icons and windows Explorer; Screen description & working styles of windows; Dialog Boxes & Toolbar; working with files & Folders, Simple operations like copy, delete, moving of files and folders from one drive to another; Accessories and. windows settings using control panel-setting common devices using control panel, modem, printers, audio, network, fonts, creating users, internet settings, Start button & program lists ;Installing and uninstalling new Hardware & software program on your computer.

UNIT-2

MS word Basics - Introduction to MS office; introduction to MS- word; Features & area of use, working with MS- word; Menus & commands; Toolbars & Buttons; shortcut Menus, wizards & Templates, creating a New Document; Different page views and Layouts; Applying various Text Enhancements; working with - Styles, Text .Attributes; paragraph and Page. Formatting; Text Editing using various features; Bullets, Numbering, Auto formatting, Printing & various print options.

UNIT-3

Advanced Features of MS- word- Spell check, Thesaurus, Find & Replace; Headers & Footers: Inserting- Page Number, Pictures, Files, Auto texts, Symbols etc.; working with columns, Creation and working with Tables including conversion to and from text; Margins and Space management in Documents.

UNIT- 4

MS Excel: Introduction and area of use; working with MS Excel: concept of workbook and worksheet; Using Wizards; Various Data Types; Using different features with Data, Cell and Texts; Inserting, Removing & Resizing of Columns & Rows; Working with Data & Ranges; Different views of Worksheet; Column Freezing, Labels, Hiding, Splitting etc.; Using different features of Data and Text; Use of Formulas, Calculation & Functions; Cell formatting including Borders and Shading; Working with Different Chart Types; Printing of Workbook & Worksheets with Various options.

UNIT-5

MS PowerPoint: Introduction and area of use; Working with MS PowerPoint; Creating a New Presentation; Working with Presentation; Using Wizards; Slides & its Different Views; Inserting, Deleting and Copying of Slides; Working with Notes, Handouts; Columns and Lists; Adding Graphics, Sounds and Movies to a slide; Working with PowerPoint Objects; Designing and Presentation of a Slide Show; Printing presentations; Notes, Handouts with print options.

References:

1. Windows XP Complete Reference. BPB publications
2. MS Office XP complete BPB Publication.

DNET103: Programming and Problem Solving in C

UNIT - 1

Problem identification analysis, design, coding, testing & debugging, implementation, modification & maintenance, algorithms & flowcharts, Characteristics of a good program - accuracy, simplicity, robustness, portability, minimum resource & time requirement, modularization; documentation, naming variables; Top down design; Bottom-up design.

UNIT 2

History of C, Structure of a C program, Data types, Constant & Variable, Operators & expressions, **Control Constructs** - if-else, for, while, do-while, Case statement, Arrays, Type modifiers & Storage classes, Ternary operator, Type conversion & type casting.

UNIT -3

Functions, Arguments, return value, Parameter passing - call by value, call by reference, return statement, Scope, visibility and life time rules for various types of variable, static variable, calling a function, Recursion - basics, comparison with iteration, tail recursion, when to avoid recursion examples.

UNIT 4

Special constructs - break, continue, exit , goto & labels; pointers - & and * operators, pointer expression, pointer arithmetic, String, Pointer to function, Function to parameter, structure - basic, declaration, membership operator, pointer to structure, referential operator, self-referential structures, structure within structure, array in structure, array of structures, Union - basic, declaration: Enumerated data type, Command line arguments.

UNIT 5

File handling and related functions: p d n t f & family, c preprocessor- basics, # Include, # define, # undef, conditional compilation directive like #if, #else, #endif, #ifdef and #ifndef, Variable argument list functions.

Reference Books:

1. Kernighan & Ritchie: The C programming language, PHI
2. Cooper Mullish: The Spirit of C, Jaico publishing-House Delhi
3. Kanetkar Y: Let us C 4, Kanetkar Y: Pointers in C.

DNET104: Digital computer Organization

UNIT-1:

Digital components: Functional units of a computer, logic gates, Minimization of Boolean Expressions, Flip-Flips, Decoders, Encoders, Multiplexers, Counters, and Registers.

UNIT-2:

Data Representation: Number systems, Representations of signed and unsigned numbers, alphanumeric codes, Addition of binary numbers, subtraction, 2's complement, and Floating point number representation.

UNIT-3:

Register Transfer Language & Micro-operations: Concepts of the Bus, Timings in Register transfer, Languages used for data transfer in registers, Data movement from/to memory.

UNIT-4:

Arithmetic circuits, Half adder, full adder, N-bit adder, Logical micro operation, arithmetic logic unit. Instruction sets for basic computer: Addressing modes, Instruction cycles, Control signal generation.

UNIT-5:

Central Processing Unit: General register organization, Memory stacks, Instruction types, Interrupts, Instruction pipelining, Arithmetic pipelining. .

Reference Books:

1. P. N. Basu, Computer Organization and Architecture, Vikas Publication, 2nd Edition.
2. H. Patterson, Computer Architecture: A Quantitative approach, Elsevier, 5th Edition.
3. W. Stalling, Computer Organization and architecture, Pearson Education Asia, 5th Edition.
4. Donald Leach & Albert Malvino, Digital Principles & Applications, McGraw Hill, 7th Edition.

DNET105: Modern Technologies of Computer Science

UNIT 1:

Introduction to Computer Security: The Challenges of Computer Security, The OSI Security Architecture. Security Attacks (Passive Attacks, Active Attacks). Security Services (Authentication, Access Control, Data Confidentiality, Data Integrity, Nonrepudiation, Availability Service).

UNIT 2:

Introduction to Artificial Intelligence: What is AI ? The Importance of AI. AI and related fields. Introduction to Natural Language Processing., Application of AI.. Basic Problem solving methods: Production systems-state space search, control strategies, Breadth first search, Depth first search, Heuristic search.

UNIT 3:

Introduction to Machine Learning : Learning Problems - Perspectives and Issues - Concept Learning - Version Spaces and Candidate Eliminations - Inductive bias - Decision Tree learning - Representation Algorithm- Heuristic Space Search.

UNIT 4:

Introduction to IoT: Definition, Characteristics, Conceptual framework, Architectural view. Technology involved - Server-end technology, Hardware and Software components, Development tools & Open source framework, APIs & Device interfacing components, Platforms & Integration tools, Sources of IoT, Advantages and Disadvantages of IoT.

UNIT 5:

Introduction to Data Mining: Definitions, KDD v/s Data Mining, DBMS v/s Data Mining , DM techniques, Mining problems, Issues and Challenges in DM, DM Application areas.

Reference Books:

1. Charles P. Pleege, "Security in Computing", Pearson Education Asia, 5th Edition, 2001.
2. William Stallings, "Network Security Essentials: Applications and standards", Person Education Asia, 2000
3. Dan W. Patterson: Introduction to Artificial Intelligence and Expert System, Prentice Hall.
4. Adrian McEwen, Hakim Cassimally, "Designing the Internet of Thing", Wiley
5. 2. Rajkamal, "Internet of Things: Architecture and Design Principles", McGraw Hill Educ

DNET201: Systems Analysis and Design

UNIT 1

Overview of system analysis and design, system development life cycle, project selection, feasibility analysis, design, implementation, testing and evaluation.

UNIT 2

Feasibility study- Technical and economical feasibility, cost and benefit analysis.

UNIT 3

System requirement specification and analysis: Fact finding techniques, Data flow diagrams, Data dictionaries, process organisation and interactions, decision analysis, decision trees and tables.

UNIT 4

Detailed design- Modularisation, module specification, file design, system development involving data bases. System Control and Quality Assurance- reliability and maintenance.

UNIT 5

Software design and documentation tools, top-down ,bottom-up and variants. Units and integration testing, testing practices and plans. System controls , Audit trails.

Reference Books:

1. James,A.S.: Analysis of design of Information systems,Mcgraw Hill 1986.
2. Ludeberg, M., Golkuhl, G. and hilsson,A. : Information systems development, Asystematis approach, Prentice Hall international 1981.
3. lesson,M.: System analysis and design, science research associates,1985
4. Sempriv,P.C.: System analysis-Definition Process and Design,1982
5. Richard,D.: System analysis design,Irwin Inc.1979.
6. Awad,E. Homewood : System analysis and design,Awad,Irwin 1979.

DNET202: Internet Programming

UNIT 1

Introduction to Internet Programming- Client-Server model, Browsers-Graphical and Hypertext Access to the Internet, HTTP–Hyper Text Transfer Protocol (how it actually works), The Phases of Web Site Development

UNIT 2

Creating Internet World Wide Web pages- HTML - Hypertext Markup Language , Basic HTML Concepts, HTML: Structured Language ,headers, body, html tags, tables , Text, graphics, sounds, video clips, multi- media ,Client side image mapping

UNIT 3

HTML forms programming: Building a form, Text fields and value, size, max length html buttons, radio, checkboxes, Selection lists.

CSS: Introduction To Style sheet, types of style sheets- Inline, External, Embedded CSS, text formatting properties, CSS Border, margin properties, Positioning Use of classes in CSS, color properties, use of <div>&

UNIT 4

Intro to script, types, intro of JavaScript, JavaScript identifiers, operators, control & Looping structure, Intro of Array, Array with methods, Math, String, Date Objects with methods User defined & Predefined functions, DOM objects, Window Navigator, History, Location, Event handling, Validations On Forms

UNIT 5

Intro & features of XML, XML writing elements, attributes etc. XML with CSS, DSO, XML Namespaces XML, DTD, XML Schemas, Writing Simple sheets using XSLT, SAX & DOM Parsers, SOAP Introduction.

Reference Books:

1. Joe Fawcett,Danny Ayers,Liam R.E. Quin, “Beginning XML” Wrox Press, 5th Ed., 2012
2. Deitel & Deitel, “XML how to program”, Pearson, 2000
3. Hofstetter fred , “Internet Technology at work”, Osborne pub. , ISBN : 9780072229998, 2004
4. Ivan Bayross , “HTML, DHTML, JavaScript, Perl & CGI” ,BPB pub. 3rd Ed.,2004
5. Ivan Bayross, “Web enabled commercial application development using HTML, DHTML, JavaScript, PERL-CGI”, BPB pub., 2nd Ed., 2000

DNET203: Programming with Visual Basic.Net

UNIT 1

Introduction to .NET, .NET Framework features & architecture, CLR, Common Type System, MSIL, Assemblies and class libraries. Introduction to visual studio, Project basics, types of project in .Net, IDE of VB.NET- Menu bar, Toolbar, Solution Explorer, Toolbox, Properties Window, Form Designer, Output Window, Object Browser.

UNIT 2

The VB.NET Language- Variables -Declaring variables, Data Type of variables, Forcing variables declarations, Scope & lifetime of a variable, Constants, Arrays, types of array, control array, Collections, Subroutines, Functions, Passing variable, Number of Argument, Optional Argument, Returning value from function. Control flow statements: conditional statement, loop statement. MsgBox & Inputbox.

UNIT 3

Working with Forms : Loading, showing and hiding forms, controlling One form within another. Using MDI form. Windows Form Control (with Properties, Methods and events): Textbox, Rich Text Boxes, Label, Link Label, Button, Checkbox, Radio Button, Panel, Group Box, Picture Box, Listbox, Combobox, Check Listbox, scroll bar, Timer. Advance Controls: Menus, Context Menus , Built-in Dialog Box: OpenFileDialog, SaveFileDialog, FontDialog, ColorDialog, PrintDialog, Printing. ListView, TreeView, toolbar, StatusBar..

UNIT 4

Object oriented Programming: Classes & objects, constructor, destructor, inheritance. Access Specifiers, Interfaces, Polymorphism. Exception Handling: using Try, Catch, Finally, Throw Keywords. Graphics Handling: Using Graphics & Pen classes for drawing colors and figures. File Handling: Opening or Creating a File, Writing & Reading Text.

UNIT 5

Database programming with ADO.NET – Overview of ADO, from ADO to ADO.NET, Accessing Data using Server Explorer. Creating Connection, Command, Data Adapter and Data Set with OLEDB and SQLDB. Display Data on data bound controls, display data on data grid. Generate Reports Using CrystalReportViewer.

Reference Books:

1. VB.NET Programming Black Book by steven holzner –dreamtech publications
2. Mastering VB.NET by Evangelos petroutsos- BPB publications
3. Introduction to .NET framework-Worx publication

DNET204: ASP. NET TECHNOLOGY USING C#

UNIT -1

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 webform, Buttons, TextBox, Labels, Checkbox, Radio Buttons, List Box, etc. Running a web Application, creating a multiform web project.

UNIT -2

Form Validation: Client side validation, server Side validation, Validation Controls: Required Field Comparison Range. Calendar control, Ad rotator Control, Internet Explorer Control. State management-Viewstate, Session state, Application state

UNIT -3

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 DataGrid. 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 -4

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

UNIT -5

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.

Reference Books:

1. Pressman R.S. Software Engineering: A Practitioner's Approach, MGH
2. Pankaj Jalote. An Intergrated Approach to Software Engineering, Narosa
3. VB.NET Black Book by steven holzner –dreamtech
4. ASP.NET Unleashed
5. C# programming–wrox publication
6. C# programming Black Book by Matt telles.