

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
M.Sc. (Information & Communication Technology)

Effective from July 2005

Semester II

Teaching and Evaluation Scheme

Paper Sr. No.	Paper Title	Teaching Schedule (Hours/Week)		University Exam Theory / Practical Duration Marks		Internal Exam Theory / Practical Duration Marks		Total Theory / Practical
		Lect	Prac	Hrs.	Marks	Hrs.	Marks	
ICT201	APE – I	4	-	3	70	2	30	100
ICT202	APE – II	4	-	3	70	2	30	100
ICT203	Artificial Intelligence	4	-	3	70	2	30	100
ICT204	Mobile Computing	4	-	3	70	2	30	100
ICT205	Seminar	-	2		35		15	50
ICT206	Project	-	12	-	140	-	60	200
Total		30			455		195	650

APE: Advance Programming Environment

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Semester II

Paper No : ICT201

L: 4, T:0, P:0 Hrs

Paper Title : APE - I

(Advance Programming Environment – I)

1 NET Architecture

2 Introduction to C#

The development of C#, Comparison with C, C++, VB, and Java

3 C# Language

Data Types, C# Predefined Types, Complex Types, Variables, Constants, Operators, Flow Control, Program Structure

4 Object Oriented C#

Method Overloading, Construction & Disposal, Operator Overloading, Indexers, Interfaces, Collections

5 Exception & Error Handling

6 Delegates

7 Events

8 C# Preprocessor Directives

9 Assemblies, Threads, and AppDomains

10 C# & Windows Forms

Main Readings :

1. C# and the .NET Platform – Andrew Troelsen – a! Press
2. Professional C# - Wrox

Supplementary Readings :

1. C# The Basics – Vijay Mukhi
2. C# Essentials – Ben Albabari
3. C# The Nuts & Bolts – Akash Sarat & Sonal Mukhi
4. C# Made Simple – BPB Publication

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Paper No : ICT202

L: 4, T:0, P:0 Hrs

Paper Title : APE - II

(Advance Programming Environment – II)

1. VB .NET Programming Basic

Working with Data Structures, VB.NET Controls, VB.NET Events, Building Windows Applications, Sub Procedure, Functions, Arrays, Timers, Files, Printing Displaying Dialog Boxes, Multiple forms, Standard Modules, Menus

2. Advanced Object-Oriented Techniques

Classes, Objects, Inheritance, Containment, Event Handling, Delegates, Interface. Interacting with objects, early – late binding

3. Debugging and Error Handling.

4. Interacting with Input/Output files.

Directories, Files, Path, DirectoryInfo, FileInfo Classes, Streams, etc.

5. Accessing Databases with SQL Server and ADO.NET

ADO.Net Important components, Providers, Structure & working with DataSet., Using DataSet& Dataviews.

6. Building Class Libraries, Your Own Custom Controls & Programming Custom Graphics

7. Programming ASP .NET with VB.NET

Constants, Variables, Data types, Operators, Control Structure & Procedural Programming., How dynamic Website Application works, Processing of ASP.NET Application., The Common Language Runtime (CLR).

8. Event driven Programming and Postback.

ASP.NET Events, HTML Events, Server Control Events in ASP.NET. Event Driven Programming and Postback.

9. Objects & Components in ASP.NET.

Namespace, Page Class, Request Object, Response Object, Server Object, Components & Control State Handling
Session State, Cookies
Scripting Object Model

10. Objects & Structured Data

Collection, types of Collection, Arrays as Collection, Array list, Hash table, Sorted List

11. Web Services and ASP.NET

Web Service Development, WSDL & SOAP, Web Services Background

12. Reading & Manipulating with Data Source

ADO .NET, ADO .NET Object, Connection, Command, Data Reader, Data Set, Data Table, Data Row Object., Disconnected Data., Methods for Updating Data. Data Adapter Command.

13. ASP .NET Server Controls

Rich Object Model., Automatic Browser Detection., Properties, Events., Page Lifecycle

Main Readings:

1. Beginning VB.Net – Wrox.
2. Visual Basic .Net Programming. – Dreamtech. - Peter Aitken's
3. Beginning ASP.NET using VB.NET – Wrox.
4. Visual Basic .NET Object Oriented Programming – Techmedia – New Riders.

Supplementary Reading:

1. Visual Basic .Net Programming Black Book. – Dreamtech.
2. VB.NET Programming Developer's Guide. – Dreamtech.
3. Visual Basic .Net Programming Little Black Book. – Dreamtech. – Steven Holzner
4. Programming VB.NET A guide for Experienced Programmers.– Apress – Cornell and Morrison.
5. Visual Basic .Net Projects. – Dreamtech. – Martin
6. Developing Web Applications with Visual Basic .Net and ASP.Net. – Dreamtech.

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Semester II

Paper No : ICT203

L: 4, T:0, P:0 Hrs

Paper Title : Artificial Intelligence

1. Prolog

Facts, Objects, Predicates and Rules, Prolog variable and its type, Arithmetic & relational operators, I/O predicates, String operations, fail & ! predicates, Recursion & repeat predicates, List and various operation on lists, File operations predicates, Dynamic & Static database, Type conversions, Screens & Window predicates, Graphics predicates

2. Introduction to AI

Overview of AI application area

Automated reasoning & Theorem proving, Expert systems, Natural Language, Understanding & Semantic modeling, Modeling Human performance

Planning & Robotics

AI problem characteristics

3. Calculus

Propositional, Predicate, Produce predicate calculus expressions from Inference rules

4. State Space Search

Structures for State Space Search, State Space representation of Problem,

Strategies for State Space Search, Represent reasoning with predicate calculus using state space, Recursive & Pattern-Directed search, Production system

5. Heuristic Search

6. Knowledge representation

Approaches & issues in knowledge representation, Network representation

Structures

Semantic nets, Frames, Scripts, Fuzzy Logic

7. Natural Language Understanding

Level & Stages of Natural language analysis, Specification & Parsing using Context-Free grammars, Transition Network Parsers, Chomsky Hierarchy & Context-Sensitive Grammars, Combining Syntax & Semantics

8. Expert Systems

Representing & Using Domain Knowledge, Expert System Shells, Explanation, Knowledge Acquisition

9. Handling Uncertainty

Non-Monotonic Reasoning, Probabilistic Reasoning, Use of certainty factors, Fuzzy Logic

10. Learning

Concept of Learning, Learning Automation, Genetic Algorithms, Learning by Inductions, Neural nets

Main Readings:

1. Charniak, E. - Introduction of Artificial Intelligence, - Narosa Publishing House.
2. Elaine R. - Artificial Intelligence - Prentice-Hall Inc.
3. Carl To nsend - Introduction to Turbo Prolog - B. P. B. Publication
4. Ivan Brtko - Prolog Programming for AI - Pearson Education

Supplementary Readings:

1. Marcellus, - Expert Systems Programming in TURBO PROLOG, - Prentice-Hall Inc.
2. Hunt, E. B. - Artificial Intelligence - Academic Press
3. Clockskin, W. F. and Mellish, C. S. - Programming in Prolog - Narosa Publ. House.
4. Lloyd, J. - Foundation of Logic Programming - Springer-Verlag

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Paper No : ICT204

L: 4, T:0, P:0 Hrs

Paper Title : Mobile Computing

- 1. Introduction to Mobile Computing and Personal Communications Services**
Mobility, Nomadic, Mobile and Ubiquitous computing,
Mobile Computing Architecture, Mobile Devices,
Mobile Computing Technology (H/W, S/W, Communication),
PCS Architecture, Mobility Management, Networks signaling,
- 2. Global System for Mobile Communication (GSM) system overview:**
GSM Architecture, Mobility Management, Network Signaling
- 3. General Packet Radio Service (GPRS)**
GPRS Architecture, GPRS Network Nodes
- 4. Wireless Application Protocol (WAP)**
The Mobile Internet Standards, WAP Gateway and Protocols,
Wireless Markup Language (WML)
- 5. Third Generation (3G) Mobile Services**
Introduction to International Mobile Telecommunications 2000 (IMT 2000)
Vision, Wideband Code Division Multiple Access (W-CDMA)
CDMA 2000, Quality of Services in 3G
- 6. Wireless Local Loop (WLL)**
Introduction to WLL Architecture, WLL Technologies
- 7. Global Mobile Satellite Systems**
Case studies of the IRIDIUM and GLOBALSTAR systems
- 8. Wireless Enterprise Networks**
Introduction to virtual Networks, Blue tooth Technology, IR,
Blue tooth Protocols

Main Readings:

1. "Mobile and Personal Communication systems and services", by Raj Pandya, PHI 2001
2. "Principles of Wireless Networks", by Kaveh Pahlavan, Prashant Krishnamurti, Pearson Education

Supplementary Readings:

1. "Wireless and Mobile Networks Architectures", by Yi-Bing Lin & Imrich Chlamtac, John Wiley & Sons, 2001
2. 'Guide to Designing and Implementing wireless LANs', by Mark Ciampa, Thomson learning, Vikas Publishing house, 2001
3. "Wireless Web Development" Ray Rischapter, Springer Publishing, 2000
4. "The Wireless Application protocol" by Sandeep Singhal, Pearson Education Asia 2000.

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Semester II

Paper No : ICT205
Paper Title : Seminar

L: 0, T:0, P:2 Hrs

The students will be required to prepare a seminar paper and give presentation.

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Paper No : ICT206
Paper Title : Project

L: 0, T:0, P:12 Hrs

The students are required to carry out project work for part time during the semester based upon the Theory subjects.