

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

C# Programming AND .Net

Subject Code

: 06IS761

IA Marks

: 25

No. of Lecture Hours/Week

: 04

Exam Hours

: 03

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Total No. of Lecture Hours

: 52

Exam Marks

: 100

PART - A

Unit - 1

The philosophy of .NET: Understanding the Previous State of Affairs, The .NET Solution, The Building Block of the .NET Platform (CLR,CTS, and CLS), The Role of the .NET Base Class Libraries, What C# Brings to the Table, An Overview of .NET Binaries (aka

Assemblies), the Role of the Common Intermediate Language , The Role of .NET

Type Metadata, The Role of the Assembly Manifest, Compiling CIL to Platform –Specific Instructions, Understanding the Common Type System, Intrinsic

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

CTS Data Types, Understanding the Common Languages Specification, Understanding the Common Language Runtime A tour of the .NET Namespaces, Increasing Your Namespace Nomenclature, Deploying the .NET Runtime

6 Hours

Unit - 2

Building C# Applications: The Role of the Command Line Compiler (csc.exe), Building C # Application using csc.exe Working with csc.exe Response Files, Generating Bug Reports , Remaining C# Compiler Options, The Command Line Debugger (cordbg.exe) Using the, Visual Studio .NET IDE, Other Key Aspects of the VS.NET IDE, C# "Preprocessor:" Directives, An Interesting Aside: The System. Environment Class.

6 Hours

Unit - 3

C# Language Fundamentals: The Anatomy of a Basic C# Class, Creating objects: Constructor Basics, The Composition of a C# Application, Default Assignment and Variable Scope, The C# Member Initialization Syntax, Basic Input and Output with the Console Class, Understanding Value Types and Reference Types, The Master Node: System, Object, The System Data Types (and C# Aliases), Converting Between Value Types and Reference Types: Boxing and Unboxing, Defining Program Constants, C# Iteration Constructs, C# Controls Flow Constructs,

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

The Complete Set of C# Operators, Defining Custom Class Methods, Understating Static Methods, Methods Parameter Modifies, Array Manipulation in C #, String Manipulation in C#, C# Enumerations, Defining Structures in C#, Defining Custom Namespaces.

8 Hours

Unit - 4

Object- Oriented Programming with C#: Forms Defining of the C# Class, Definition the “Default Public Interface” of a Type, Recapping the Pillars of OOP, The First Pillars: C#'s Encapsulation Services, Pseudo- Encapsulation: Creating Read-Only Fields, The Second Pillar: C#'s Inheritance Supports, keeping Family Secrets: The “Protected” Keyword, Nested Type Definitions, The Third Pillar: C #'s Polymorphic Support, Casting Between.

6 Hours

PART - B

Unit - 5

Exceptions and Object Lifetime: Ode to Errors, Bugs, and Exceptions, The Role of .NET Exception Handling, the System. Exception Base Class, Throwing a Generic Exception, Catching Exception, CLR System – Level Exception (System. System Exception), Custom Application-Level Exception (System. System Exception), Handling Multiple Exception, The Family Block, the Last Chance Exception Dynamically Identifying Application – and System Level

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Exception

Debugging

System Exception

Using VS. NET, Understanding Object Lifetime, the CIT of 'new', The Basics of Garbage Collection,, Finalization a Type, The Finalization Process, Building an Ad Hoc Destruction Method, Garbage Collection Optimizations, The System. GC Type.

6 Hours

Unit - 6

Interfaces and Collections: Defining Interfaces Using C# Invoking Interface Members at the object Level, Exercising the Shapes Hierarchy, Understanding Explicit Interface Implementation, Interfaces As Polymorphic Agents, Building Interface Hierarchies, Implementing, Implementation, Interfaces Using VS .NET, understanding the IConvertible Interface, Building

a Custom Enumerator (IEnumerable and Enumerator), Building Cloneable objects (ICloneable), Building Comparable Objects (I Comparable), Exploring the system. Collections Namespace, Building a Custom Container (Retrofitting the Cars Type).

6 Hours

Unit - 7

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Callback Interfaces, Delegates, and Events, Advanced Techniques: Understanding Callback Interfaces, Understanding the .NET Delegate Type, Members of System. Multicast Delegate, The Simplest Possible Delegate Example, , Building More a Elaborate Delegate Example, Understanding

Asynchronous

Delegates, Understanding (and Using)Events.

The Advances Keywords of C#, A Catalog of C# Keywords Building a Custom Indexer, A Variation of the Cars Indexer Internal Representation of Type Indexer. Using C# Indexer from VB .NET. Overloading operators, The Internal Representation of Overloading Operators, interacting with Overload Operator from Overloaded- Operator- Challenged Languages, Creating Custom Conversion Routines, Defining Implicit Conversion Routines, The Internal Representations of Customs Conversion Routines

8 Hours

Unit - 8

Understanding .NET Assemblies: Problems with Classic COM Binaries, An Overview of .NET Assembly, Building a Simple File Test Assembly, A C#. Client Application, A Visual Basic .NET Client Application, Cross Language Inheritance, Exploring the CarLibrary's, Manifest, Exploring the CarLibrary's Types, Building the Multifile Assembly, Using Assembly, Understanding Private Assemblies, Probing for Private Assemblies (The Basics), Private A Assemblies XML Configurations Files, Probing for Private Assemblies (The Details), Understanding Shared Assembly,

Understanding Shared Names, Building a Shared Assembly, Understanding Delay Signing, Installing/Removing

Shared Assembly,

Using a Shared Assembly,

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

6 Hours

Text Books:

1. **Pro C# with .NET 3.0** - Andrew Troelsen, Special Edition, Dream Tech Press, India, 2007.
2. **Programming in C#** - E. Balagurusamy, 5th Reprint, Tata McGraw Hill, 2004.

Reference Books:

1. **Inside C#** - Tom Archer, WP Publishers, 2001.
2. **The Complete Reference C#** - Herbert Schildt, Tata McGraw Hill, 2004.

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Digital Image Processing

Subject Code

: **06IS762**

IA Marks

: 25

No. of Lecture Hours/Week

: 04

Exam Hours

: 03

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Unit - 3

Segmentation – 1: Thresholding, Edge-based segmentation.

6 Hours

Unit - 4

Segmentation – 2: Region based segmentation, Matching.

7 Hours

PART - B

Unit - 5

Image Enhancement: Image enhancement in the spatial domain: Background, Some basic gray level transformations, Histogram processing, Enhancement using arithmetic / logic

ELECTIVE-III (GROUP C)

Written by Administrator

Sunday, 08 November 2009 11:46 -

operations, Basics of spatial filtering, Smoothing spatial filters, Sharpening spatial filters.

Image enhancement in the frequency domain: Background, Introduction to the Fourier transform and the frequency domain, Smoothing Frequency-Domain filters, Sharpening Frequency Domain filters, Homomorphic filtering.

7 Hours

Unit - 6

Image Compression: Image compression: Fundamentals, Image compression models, Elements of information theory, Error-Free Compression, Lossy compression.

6 Hours

Unit - 7

Shape representation: Region identification, Contour-based shape representation and description, Region based shape representation and description, Shape classes.

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

7 Hours

Unit - 8

Morphology: Basic morphological concepts, Morphology principles, Binary dilation and erosion, Gray-scale dilation and erosion, Morphological segmentation and watersheds.

6 Hours

Text Books:

1. **Image Processing, Analysis and Machine Vision** - Milan Sonka, Vaclav Hlavac and Roger Boyle, 2nd Edition, Thomson Learning, 2001.

2. Digital Image Processing - Rafael C Gonzalez and Richard E Woods, 2nd Edition, Pearson Education, 2003.

Reference Books:

ELECTIVE-III (GROUP C)

Written by Administrator

Sunday, 08 November 2009 11:46 -

1. **Fundamentals of Digital Image Processing** - Anil K Jain, Pearson Education/Prentice-Hall of India Pvt. Ltd., 1997.

2. **Digital Image Processing and Analysis** - B.Chanda, D Dutta Majumder, Prentice-Hall, India, 2002.

Game Theory

Subject Code

: 06IS763

IA Marks

: 25

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

No. of Lecture Hours/Week

: 04

Exam Hours

: 03

Total No. of Lecture Hours

: 52

Exam Marks

: 100

PART - A

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Unit - 1

Introduction; Strategic Games: What is game theory? The theory of rational choice; Interacting decision makers.

Strategic games; Example: The prisoner's dilemma; Nash equilibrium; Examples of Nash equilibrium; Best-response functions; Dominated actions; Equilibrium in a single population: symmetric games and symmetric equilibria.

6 Hours

Unit - 2

Mixed Strategy Equilibrium: Introduction; Strategic games in which players may randomize; Mixed strategy Nash equilibrium; Dominated actions; Pure equilibria when randomization is allowed, illustration; Equilibrium in a single population, illustration; The formation of

players' beliefs; Extensions; Representing preferences by expected payoffs.

6 Hours

Unit - 3

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Extensive Games: Extensive games with perfect information; Strategies and outcomes; Nash equilibrium; Subgame perfect equilibrium; Finding subgame perfect equilibria of finite horizon games.

6 Hours

Unit - 4

Extensive games: Extensions, Coalitional Games and the Core: Extensions: Allowing for simultaneous moves, illustration: entry in to a monopolized industry; Discussion: subgame perfect equilibrium and backward induction.

Coalition games; The core; Illustration: ownership and the distribution of wealth; Other solution concepts.

8 Hours

PART - B

Unit - 5

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Bayesian Games: Motivational examples; General definitions; Two examples concerning information; Illustration: auctions; Auctions with an arbitrary distribution of valuations.

Extensive games with imperfect information; Strategies; Nash equilibrium; Beliefs and sequential equilibrium; Signaling games; Illustration: strategic information transmission.

6 Hours

Unit - 6

Strictly Competitive Games, Rationalizability: Strictly competitive games and maximization; Maximization and Nash equilibrium; Strictly competitive games; Maximization and Nash equilibrium in strictly competitive games.

Rationalizability; Iterated elimination of strictly dominated actions; Iterated elimination of weakly dominated actions; Dominance solvability.

6 Hours

Unit - 7

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Evolutionary Equilibrium, Iterated Games: Monomorphic pure strategy equilibrium; Mixed strategies and polymorphic equilibrium; Asymmetric contests; Variations on themes: Sibling behavior, Nesting behavior of wasps, the evolution of sex ratio. Repeated games: The main idea; Preferences; Repeated games; Finitely and infinitely repeated

Prisoner's dilemma; Strategies in an infinitely repeated

Prisoner's dilemma; Some Nash equilibria of an infinitely repeated

Prisoner's dilemma.

7 Hours

Unit - 8

Repeated Games: General Results, Bargaining: Nash equilibria of general infinitely repeated games; Subgame perfect equilibria of general infinitely repeated games; Finitely repeated games; Imperfect observability.

Bargaining as an extensive game; Trade in market as an illustration; Nash's axiomatic model; Relation between strategic and axiomatic models.

7 Hours

Text Book:

1. **An Introduction to Game Theory-** Martin Osborne, Oxford University Press, Indian Edition, 2004.

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Reference Books:

1. **Game Theory Analysis of Conflict** - Roger B. Myerson, Harvard University Press, 1997.
2. **Microeconomic Theory** - Andreu Mas-Colell, Michael D. Whinston, and Jerry R. Green Oxford University Press, New York, 1995.
3. **Game Theory and Strategy** - Philip D. Straffin, Jr., The Mathematical Association of America, January 1993.

Artificial Intelligence

Subject Code

:	06IS764	
---	----------------	--

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

IA Marks

: 25

No. of Lecture Hours/Week

: 04

Exam Hours

: 03

Total No. of Lecture Hours

: 52

Exam Marks

: 100

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

PART - A

Unit - 1

Introduction: What is AI? Intelligent Agents: Agents and environment; Rationality; the nature of environment; the structure of agents. Problem-solving: Problem-solving agents; Example problems; Searching for solution; Uninformed search strategies.

7 Hours

Unit - 2

Informed Search, Exploration, Constraint Satisfaction, Adversial Search: Informed search strategies; Heuristic functions; On-line search agents and unknown environment. Constraint satisfaction problems; Backtracking search for CSPs. Adversial search: Games; Optimal decisions in games; Alpha-Beta pruning.

7 Hours

Unit - 3

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Logical Agents: Knowledge-based agents; The wumpus world as an example world; Logic; propositional logic Reasoning patterns in propositional logic; Effective propositional inference; Agents based on propositional logic.

6 Hours

Unit - 4

First-Order Logic, Inference in First-Order Logic – 1:

Representation revisited; Syntax and semantics of first-order logic; Using first-order logic; Knowledge engineering in first-order logic. Propositional versus first-order inference; Unification and lifting.

6 Hours

PART - B

Unit - 5

Inference in First-Order Logic – 2: Forward chaining; Backward chaining; Resolution.

6 Hours

Unit - 6

Knowledge Representation: Ontological engineering; Categories and objects; Actions, situations, and events; Mental events and mental objects; The Internet shopping world; Reasoning systems for categories; Reasoning with default information; Truth maintenance systems.

7 Hours

Unit - 7

Planning, Uncertainty, Probabilistic Reasoning: □□ Planning: The problem; Planning with state-space approach; Planning graphs; Planning with propositional logic.

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Uncertainty: Acting under certainty; Inference using full joint distributions; Independence; Bayes' rule and its use.

Probabilistic Reasoning: Representing knowledge in an uncertain domain; The semantics of Bayesian networks; Efficient representation of conditional distributions; Exact inference in Bayesian networks.

7 Hours

Unit - 8

Learning, AI: Present and Future: Learning: Forms of Learning; Inductive learning; Learning decision trees; Ensemble learning; Computational learning theory.

AI: Present and Future: Agent components; Agent architectures; Are we going in the right direction? What if AI does succeed?

6 Hours

Text Book:

1. **Artificial Intelligence A Modern Approach** - Stuart Russel, Peter Norvig, 2nd Edition,

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Pearson Education, 2003.

Reference Books:

1. **Artificial Intelligence** - Elaine Rich, Kevin Knight, 2nd Edition, Tata McGraw Hill, 1991.
2. **Principles of Artificial Intelligence** - Nils J. Nilsson, Elsevier, 1980.

User Interface Design

Subject Code

:	06IS765	
---	----------------	--

IA Marks

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

: 25

No. of Lecture Hours/Week

: 04

Exam Hours

: 03

Total No. of Lecture Hours

: 52

Exam Marks

:100

PART - A

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Unit - 1

Human Factors of Interactive Software, Theories, Principles and Guidelines: Introduction, Goals of Systems Engineering, Goals of Interface Design, Motivation for Human Factors in Design, Accommodation of Human Diversity, Goals for the Profession, High Level Theories, Object-Action Interface Model, Principle 1:

Recognize the Diversity, Principle 2: Use the Eight Golden Rules of Interface Design, Principle 3:

Prevent Errors, Guidelines for Date Display, Guidelines for Data Entry, Balance of Automation and Human Control.

7 Hours

Unit - 2

Management Issues: Introduction, Organizational Design to Support Usability, The Three Pillars of Design, Development Methodologies, Ethnographic Observation, Participatory Design, Scenario Development, Social Impact Statement for Early Design Review, Legal Issues.

Expert Reviews, Usability Testing and Laboratories, Surveys, Acceptance Tests, Evaluation During Active Use, Controlled Psychologically Oriented Experiments

6 Hours

Unit - 3

Tools and Environments: Introduction, Specification Methods, Interface-Building Tools,

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Evaluation and Critiquing Tools.

Introduction, Examples of Direct-Manipulation Systems, Explanations of Direct Manipulation, Visual Thinking and Icons, Direct Manipulation Programming, Home Automation, Remote Direct Manipulation Virtual Environments.

7 Hours

Unit - 4

Menus, Forms, Dialog Boxes and Commands: Task Related Organization, Item Presentation Sequence, Response Time and Display Rate, Fast Movement through Menus, Menu Layout, Form Fillin, Dialog Boxes.

Functionality to support Users Tasks, Command-Organization Strategies, The Benefits of Structure, Naming and Abbreviations, Command Menus, Natural Language in Computing.

6 Hours

PART - B

Unit - 5

Interaction Devices AND RESPONSE Time: Interaction Devices, Introduction, Keyboards and Function Keys, Pointing Devices, Speech Recognition, Digitization, and Generation, Image and Vide Displays, Printers. Theoretical Foundations, Expectations and Attitudes.

7 Hours

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Unit - 6

Presentation Styles, Manuals, Help, and Tutorials – 1: Error Messages, Non-anthropomorphic Design, Display Design, Color. Reading from Paper Versus from Displays.

6 Hours

Unit - 7

Presentation Styles, Manuals, Help, and Tutorials – 2

Multiple-Window Strategies, Hypermedia and the World Wide Web – 1: Preparation of Printed Manuals, Preparation of Online Facilities.

Multiple-Window Strategies: Introduction, Individual-Window Design, Multiple- window Design, Co-ordination by Tightly Coupled Windows, Image Browsing and Tightly Coupled Windows, Personal Role Management an Elastic Windows.

7 Hours

Unit - 8

Multiple-Window Strategies, Hypermedia and the World Wide Web – 2: Genres and Goals and Designers, Users and Their Tasks, Object-Action Interface Model for Web Site Design.

6 Hours

Text Book:

1. **Designing the User Interface-** Ben Shneiderman, 3rd Edition, Addison-Wesley, 1998.

Reference Books:

1. **Human-Computer Interaction -** Alan J Dix et. al., 2nd Edition, Prentice-Hall, India, 1998
2. **User Interface Design –** Eberts, Prentice-Hall, 1994.

ELECTIVE-III (GROUP C)

Written by Administrator

Sunday, 08 November 2009 11:46 -

3. **The Essential Guide to User Interface Design - An Introduction to GUI Design -**
Wilber O Galitz, Principles and Techniques, Wiley-Dreamtech India Pvt. Ltd, 1998.

Fuzzy Logic

Subject Code

:	06IS766	
---	---------	--

IA Marks

	: 25
--	------

No. of Lecture Hours/Week

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

: 04

Exam Hours

: 03

Total No. of Lecture Hours

: 52

Exam Marks

: 100

PART - A

Unit - 1

ELECTIVE-III (GROUP C)

Written by Administrator

Sunday, 08 November 2009 11:46 -

Introduction, Classical Sets and Fuzzy Sets: Background, Uncertainty and Imprecision, Statistics and Random Processes, Uncertainty in Information, Fuzzy Sets and Membership, Chance versus Ambiguity.

Classical Sets - Operations on Classical Sets, Properties of Classical (Crisp) Sets, Mapping of Classical Sets to Functions. Fuzzy Sets - Fuzzy Set operations, Properties of Fuzzy Sets. Sets as Points in Hypercubes.

7 Hours

Unit - 2

Classical Relations and Fuzzy Relations: Cartesian Product, Crisp Relations - Cardinality of Crisp Relations, Operations on Crisp Relations, Properties of Crisp Relations, Composition. Fuzzy Relations - Cardinality of Fuzzy Relations, Operations on Fuzzy Relations, Properties of Fuzzy Relations, Fuzzy Cartesian Product and Composition, Non-interactive Fuzzy Sets. Tolerance and Equivalence Relations - Crisp Equivalence Relation, Crisp Tolerance Relation, Fuzzy Tolerance and Equivalence Relations. Value Assignments - Cosine Amplitude, Max-min Method, Other Similarity methods.

6 Hours

Unit - 3

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Equivalence, Exclusive Or and Exclusive Nor, Logical Proofs, Deductive Inferences. Fuzzy Logic, Approximate Reasoning, Fuzzy Tautologies, Contradictions, Equivalence and Logical Proofs, Other forms of the Implication Operation, Other forms of the Composition Operation.

6 Hours

Unit - 6

Fuzzy Rule- Based Systems: Natural Language, Linguistic Hedges, Rule-Based Systems - Canonical Rule Forms, Decomposition of Compound Rules, Likelihood and Truth Qualification, Aggregation of Fuzzy Rules. Graphical Techniques of Inference.

6 Hours

Unit - 7

Fuzzy Decision Making: Fuzzy Synthetic Evaluation, Fuzzy Ordering, Preference and consensus, Multiobjective Decision Making, Fuzzy Bayesian Decision Method, Decision Making under Fuzzy States and Fuzzy Actions.

7 Hours

ELECTIVE-III (GROUP C)

Written by Administrator
Sunday, 08 November 2009 11:46 -

Unit - 8

Fuzzy Classification: Classification by Equivalence Relations - Crisp Relations, Fuzzy Relations. Cluster Analysis, Cluster Validity, c-Means Clustering - Hard c-Means (HCM), Fuzzy c-Means (FCM). Classification Metric, Hardening the Fuzzy c-Partition, Similarity Relations from Clustering.

7 Hours

Text Book:

1. **Fuzzy Logic with Engineering Applications** - Timothy J. Ross, McGraw- Hill, 1997.

Reference Book:

1. **Neural Networks and Fuzzy systems: A Dynamical System approach** - B Kosko, Prentice Hall 1991.