# Integral University

**STUDY & EVALUATION SCHEME**  
B.Tech Computer Science Engineering

<table>
<thead>
<tr>
<th>S. No</th>
<th>Course Code</th>
<th>Subject</th>
<th>Periods</th>
<th>Evaluation Scheme</th>
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<tr>
<td>1.</td>
<td>IT-801</td>
<td>Data Warehousing &amp; Data Mining</td>
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<td>CS-801</td>
<td>Fuzzy Logic &amp; Neural Networks</td>
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<td>CS-852</td>
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<td>CS-853</td>
<td>Project</td>
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<td>CS-854</td>
<td>Industrial Interaction</td>
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<td>GP-801</td>
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</table>
List of Electives

Elective-1:

1. Principle of Programming Languages-CS 011
2. Principles of Operation Research-MA 012
3. Graph Theory-MA 013
4. Storage Technology and Management- CS 013

Elective-2:

1. Data Compression CS-021
2. Computer Architecture-CS 022
3. Embedded System-CS 023

Elective-3:

1. Mobile Computing-CS 031
2. Expert Systems-CS 032
3. Advance concepts of TCP/IP-CS 033

Elective-4:

1. Robotic System-CS 041
2. Parallel Algorithms-CS 042
3. Real Time Systems-CS 043

Elective-5:

1. Advance Concepts in Database system-CS 051
2. Natural Language Processing-CS 052
3. GIS Terminology and its Applications –CS 053
UNIT 1
Overview & Concepts- The Compelling Need for Data Warehousing: Introduction to Data Warehousing, Failures of Past Decision Support System, Data Warehousing- The Only Viable Solution., Architecture: Understanding Data Warehouse Architecture, Architectural Framework, Data Warehouses and Data Marts; Overview of Components,

UNIT 2
Technical Architecture: Introduction to Principles of Dimensional Modeling; Data Extraction, Transformation, and Loading, Data Quality: Why is data Quality Critical? , Data Quality Challenges; OLAP in the Data Warehouse: Demand for Online Analytical Processing, Major Features and Functions, OLAP Models.

UNIT 3
Data Mining: Introduction, Data Mining Functionalities, Classification of Data Mining System; Major Issues in Data Mining, Data Preprocessing: Preprocess, Descriptive Data Summarization, Data Cleaning, Data Integration & Transformation, Data Reduction, Mining Frequent Patterns, Association, and Correlations, Basic Concept, Efficient & Scalable Frequent Itemset Mining Methods, Mining Various Kinds of Association Rules.

UNIT 4
Classification & Prediction: Issues, Classification by Decision Tree Induction, Bayesian Classification, Classification by Back Propagation, Associative Classification, nearest neighbor classified , Prediction, Cluster Analysis: What is Cluster Analysis, Types, Categorization of Major Clustering Methods, Partitioning Methods, Hierarchical Methods- cure and chameleon , Density-Based Methods: DBSCAN & OPTICS, Wave Cluster, CLIQUE, Mining Stream: Mining Data Stream, Spatial Data Mining, Text Mining, Mining the WWW.

REFERENCES
1. “Data Warehousing Fundamental” by Paulraj Ponniah,John Wiley & Sons INC.
2. Data Mining,Second Edition; Concepts & Techniques by Jiawei Han & Michline Kamber.
4. M.H.Dunham, “Data Mining:Introductory and Advanced Topics” Pearson Education
UNIT 1

UNIT 2
Adaptive Multilayers Networks: Network Pruning Algorithms, Marchands Algorithm, Upstart Algorithm, Cascade Correlation. Prediction Networks: Feed Forward Networks for Forecasting, Recurrent Networks (Partially, Fully), Radial Basis Functions and Probabilistic Neural Networks. [8]

UNIT 3

UNIT 4

UNIT 5
REFERENCES:
2. Simon Haykin, Neural Network a comprehensive Foundation, Macmillan College, proc, Con, Inc.
UNIT 1
Issue in Mobile Computing, Digital Cellular Standard, IEEE 802.11, channel allocation in cellular system, GSM: air interface, channel structure, location management, HLR VLR, hierarchical, Handoff, CDMA and GPRS. [8]

UNIT 2
Mobile Computing Architecture: Peer to Peer architecture for mobile application, three tier architecture, wireless networking, wireless LAN over MAC, wireless multiple Access Protocol, TCP over wireless, WAP architecture, Protocol stack, application environment. [8]

UNIT 3

UNIT 4
Emerging technology: Bluetooth, wireless broad band (Wi MAX), Internet Protocol version6(IPV6), radio frequency identification, cellular digital packet data(CDPD) standard, SMS: mobile computing over SMS, value added service through SMS. [8]

UNIT 5
Adhoc Network, Routing Protocol, Global State Routing (GSR), Dynamic State Routing (DSR), Fisheye State Routing (FSR). Adhoc On-demand Distance Vector Routing (AODV), Destination Sequenced Distance Vector Routing (DSDV), temporary ordered routing algorithm(TORA), QoS in ad hoc network application. [8]

REFERENCE
1. Asoke K Talukdar, mobile computing, TATA MC Graw HILL
2. J. schiller, mobile communication, Addison Wesley
3. Charles Perkins, ad hoc networks, Addision Wesley
UNIT 1

UNIT 2

UNIT 3

UNIT 4
Inference Engine and User Interface, Techniques for Inference Mechanism, Forward Chaining and Backward Chaining, Interface Language, Terminal Interface, Inferencing and Explanation. [10]

UNIT 5

REFERENCES:
2. Introduction to Expert System, Jackson, P, International Computer Science Series
UNIT 1

UNIT 2
IP Addresses: Introduction: Address Space, Notation, Classful Addressing: Recognizing Classes, Netid and Hostid, Classes and Blocks, Network Addresses, Mask, Address Depletion. Other Issues, Multihomed Devices, Location, Special Addresses, Private Addresses, Unicast, Multicast and Broadcast, Addresses, Sub Netting, Super Netting, Subnet Mask, Supernet Mask and Classless Addressing. [8]

UNIT 3

UNIT 4
Transmission Control Protocol (TCP): Process to Process Communication, TCP Services, TCP Timers, Connection, TCP Operation, TELNET, Concept, Network Virtual Terminal (NVT), File Transfer Protocol (FTP), Trivial File Transfer Protocol (TFTP), Messages, Connection, Data Transfer, Simple Mail Transfer Protocol (SMTP), User Agent, Addresses, Mail Transfer Phases, Multipurpose Internet Mail Extensions (MIME), Mail Delivery, Mail Access Protocol. [8]

UNIT 5
IP Over ATM, ATM WANs, Carrying a Datagram in Cells, Routing the Cells, Mobile IP, Addressing, Agents, Data Transfer, Real-Time Traffic Over the Internet, Characteristics, Internet Security, Introduction, Privacy, Digital Signature, Firewalls, Private Networks, Virtual Private Networks (VPN), Network Address Transmission (NAT), IP Next Generation, IPv6 Addresses, IPv6 Packet Format. [8]

REFERENCES
UNIT 1
Introduction: Classification of Robots, Basic Robot Components, Manipulator End Effectors, Controller, Power Unit, Sensing Devices, Specification of Robot System, Accuracy Precision and Repeatability.

UNIT 2

UNIT 3

UNIT 4

UNIT 5

REFERENCES
1. Introduction to Robotics, J.craig, Addition Wesley
3. Fundamental of Robotics analysis and control: Robert J. Schiling
UNIT 1
Introduction- Parallel Algorithm, Classifying MIMD Algorithm, Reduction, Broadcast, Model of Computation, Analysis of Parallel Algorithms, Prefix Computation, Prefix Sums, Problem, Prefix Problem, Parallel Prefix Problem. [8]

UNIT 2
Sorting- Sorting on Different Models, Enumerations Sort, Radix Sort, Lower Board on Parallel Sorting, Odd Even Transposition Sort, Sorting Networks- BITONIC Sort, Quick Sort Based Algorithm, Bubble Sort & its Variants, Selection Algorithms. [8]

UNIT 3

UNIT 4

UNIT 5

REFERENCES
1. QUINN, “Parallel Computing” TMH.
3. V. Rajaraman, “Parallel Computers”, PHI.
UNIT 1  

UNIT 2  

UNIT 3  
**Real Time Database**: Real Time vs. General purpose Database, Main Memory database, Concurrency Control Issues , Real Time OS- Threads and Tasks, Kernel, Case Study of QNX, VRTX, Vx Works. [8]

UNIT 4  

UNIT 5  

**REFERENCE**
UNIT 1

UNIT 2
Extended Relational Model & Object Oriented Database System: New Data Types, User Defined Abstract Data Types, Structured Types, Object Identity, Containment, Class Hierarchy, Logic Based Data Model, Datalog, Nested Relational Model and Expert Database System.

UNIT 3
Distributed Database System: Structure of Distributed Database, Data Fragmentation, Data Model, Query Processing, Semi Join, Parallel & Pipeline Join, Distributed Query Processing in R* System, Concurrency Control in Distributed Database System, Recovery in Distributed Database System, Distributed Deadlock Detection and Resolution, Commit Protocols.

UNIT 4

UNIT 5

REFERENCES
1. Majumdar & Bhattacharya, “Database Management System”, TMH.
UNIT 1
Linguistic Background: An Outline of English.

UNIT 2
Features and Augmented Grammars:

UNIT 3

UNIT 4

UNIT 5

REFERENCES

UNIT 1

UNIT 2

UNIT 3
GIS Spatial Analysis: Computational Analysis Methods (CAM), Visual Analysis Methods (VAM), Data Storage, Vector Data Storage. Attribute Data Storage, Raster Data Storage, Overview of Data Manipulation and Analysis. [8]

UNIT 4
Data Quality: Introduction, Components of Data Quality, Sources of Error, Overview of GIS Analysis Functions, Data Layers, A Classification of GIS Analysis Functions, Implementing GIS. [8]

UNIT 5

REFERENCES
4. Fundamentals of Spatial Information System by Robert Laurini and Derek Thompson, Academy Press.
Basic of the .Net framework: .Net architecture, managed code, assemblies, clr, execution of assemblies code, il, jit, net framework class library, common type system, common language specification, interoperability with unmanaged code.

Introduction to VB.Net and C#:
VB.Net : Net features, Data Types C# : Data Types, Operators, Garbage Collection, Jagged Array, Collection (Array list, Hash table), Indexer(One Dimension) and property, Delegates and events(Multicasting, Multicasting Event), Exception Handling, Window forms.

ADO.Net & Object Oriented Concepts (Using VB.Net Or C#): Basic window control, Architecture of ADO.Net, Comparison with ADO, .Net Data provider, Data Adapter, Data Set, Data Row, Data Column, Data Relation, command, Data Reader, Data Grid Constructor, Destructor, Abstraction, interface, polymorphism (Over loading and over ridding).

Practical
1. A program of binary operator Over loading
2. A program using delegation in which addition and subtraction of two integer value possible
3. A program-using Interface.
4. A program to display the caption, height of command button into label.
5. A window program for list box give the facility for adding, removing and clearing the list with conformation and store the deleted file in another list box.
6. Creating a window form through which user can enter details of employee: empid, enmame, basic salary, sex, date of birth, date of joining, Designation, total income, total deduction and gross salary will be calculated automatically.
7. Also in above program all details of employee will be appear in Grid and depending upon selection particular actual record will be appear in form.

ASP.Net : Anatomy of ASP.NET Page, Server Controls : label, dropdown list box, validation controls, list box, text box, radio button, check box, State Management : session, caching, Authentication (window, .Net Passport, Forms Based), Authorization, web services, Advance Grid Manipulation.
Practical

1. Create an ASP.Net web page using different validation controls.
2. Create an ASP.Net Web page that lists the customer from customers database table in a sortable Data Grid with paging option. The Data Grid should display three columns, one for the customers’ ids, one for the customer’s names and one for the customer’ phone numbers. The user should be able to sort the Data Grid by customer ID.
3. Create simple web service.

REFERENCES:
22. Complete Reference C# - Herbert schildt (TMH Publication)
44. Microsoft ASP.Net with C#.Net step by step - G.Andew Duthie (PHI Publication)
Students will complete the project identified in previous semester, coding, implementation etc of the project should be done in this semester. At the end of the semester, student will submit detail project report and soft copy of project work which will be evaluated by the expert from the University.