

statements, Arrays, Functions, Pattern matching, Form handling, Files, Cookies, Session tracking, Database access with PHP and MySQL.

#### **UNIT - 8**

**7 Hours**

**Ruby, Rails:** Origins and uses of Ruby, Scalar types and their operations, Simple input and output, Control statements, Arrays, Hashes, Methods, Classes, Code blocks and iterators, Pattern matching.

Overview of Rails, Document requests, Processing forms, Rails applications with Databases, Layouts.

#### **Text Books:**

1. Robert W. Sebesta: Programming the World Wide Web, 4<sup>th</sup> Edition, Pearson Education, 2008.  
(Listed topics only from Chapters 1 to 9, 11 to 15)

#### **Reference Books:**

1. M. Deitel, P.J. Deitel, A. B. Goldberg: Internet & World Wide Web How to Program, 4<sup>th</sup> Edition, Pearson Education, 2004.
2. Chris Bates: Web Programming Building Internet Applications, 3<sup>rd</sup> Edition, Wiley India, 2007.
3. Xue Bai et al: The web Warrior Guide to Web Programming, Cengage Learning, 2003.

### **ADVANCED COMPUTER ARCHITECTURES**

**Subject Code: 10CS74**

**Hours/Week : 04**

**Total Hours : 52**

**I.A. Marks : 25**

**Exam Hours: 03**

**Exam Marks: 100**

#### **PART - A**

#### **UNIT - 1**

**6 Hours**

**Fundamentals Of Computer Design:** Introduction; Classes of computers; Defining computer architecture; Trends in Technology, power in Integrated Circuits and cost; Dependability; Measuring, reporting and summarizing Performance; Quantitative Principles of computer design.

#### **UNIT - 2**

**6 Hours**

**Pipelining:** Introduction; Pipeline hazards; Implementation of pipeline; What makes pipelining hard to implement?

#### **UNIT - 3**

**7 Hours**

**Instruction -Level Parallelism - 1:** ILP: Concepts and challenges; Basic Compiler Techniques for exposing ILP; Reducing Branch costs with

prediction; Overcoming Data hazards with Dynamic scheduling; Hardware-based speculation.

**UNIT – 4**

**7 Hours**

**Instruction –Level Parallelism – 2:** Exploiting ILP using multiple issue and static scheduling; Exploiting ILP using dynamic scheduling, multiple issue and speculation; Advanced Techniques for instruction delivery and Speculation; The Intel Pentium 4 as example.

**PART - B**

**UNIT – 5**

**7 Hours**

**Multiprocessors and Thread –Level Parallelism:** Introduction; Symmetric shared-memory architectures; Performance of symmetric shared-memory multiprocessors; Distributed shared memory and directory-based coherence; Basics of synchronization; Models of Memory Consistency

**UNIT – 6**

**6 Hours**

**Review of Memory Hierarchy:** Introduction; Cache performance; Cache Optimizations, Virtual memory

**UNIT – 7**

**6 Hours**

**Memory Hierarchy design:** Introduction; Advanced optimizations of Cache performance; Memory technology and optimizations; Protection: Virtual memory and virtual machines.

**UNIT – 8**

**7 Hours**

**Hardware and Software for VLIW and EPIC:** Introduction: Exploiting Instruction-Level Parallelism Statically; Detecting and Enhancing Loop-Level Parallelism; Scheduling and Structuring Code for Parallelism; Hardware Support for Exposing Parallelism: Predicated Instructions; Hardware Support for Compiler Speculation; The Intel IA-64 Architecture and Itanium Processor; Conclusions.

**Text Books:**

1. John L. Hennessey and David A. Patterson: Computer Architecture, A Quantitative Approach, 4<sup>th</sup> Edition, Elsevier, 2007.  
(Chapter. 1.1 to 1.9, 2.1 to 2.10, 4.1 to 4.6, 5.1 to 5.4, Appendix A, Appendix C, Appendix G)

**Reference Books:**

1. Kai Hwang: Advanced Computer Architecture Parallelism, Scalability, Programability, 2<sup>nd</sup> Edition, Tata Mc Graw Hill, 2010.



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Alva's Institute of Engg. & Technology  
Mijar, MOODBIDRI - 574 225

2. David E. Culler, Jaswinder Pal Singh, Anoop Gupta: Parallel Computer Architecture, A Hardware / Software Approach, Morgan Kaufman, 1999.

### ADVANCED DBMS

Subject Code: 10CS751

Hours/Week : 04

Total Hours : 52

I.A. Marks : 25

Exam Hours: 03

Exam Marks: 100

### PART - A

#### UNIT - 1

7 Hours

**Overview of Storage and Indexing, Disks and Files:** Data on external storage; File organizations and indexing; Index data structures; Comparison of file organizations; Indexes and performance tuning  
Memory hierarchy; RAID; Disk space management; Buffer manager; Files of records; Page formats and record formats

#### UNIT - 2

7 Hours

**Tree Structured Indexing:** Intuition for tree indexes; Indexed sequential access method; B+ trees, Search, Insert, Delete, Duplicates, B+ trees in practice

#### UNIT - 3

6 Hours

**Hash-Based Indexing:** Static hashing; Extendible hashing, Linear hashing, comparisons

#### UNIT - 4

6 Hours

**Overview of Query Evaluation, External Sorting :** The system catalog; Introduction to operator evaluation; Algorithms for relational operations; Introduction to query optimization; Alternative plans: A motivating example; what a typical optimizer does.  
When does a DBMS sort data? A simple two-way merge sort; External merge sort

### PART - B

#### UNIT - 5

6 Hours

**Evaluating Relational Operators :** The Selection operation; General selection conditions; The Projection operation; The Join operation; The Set operations; Aggregate operations; The impact of buffering

