

GOVERNMENT DEGREE COLLEGE  
LARKANA



*SYLLABUS*

*BS (CS)-V*

*5<sup>th</sup> SEMESTER*

GOVT. DEGREE COLLEGE, LARKANA  
BS in COMPUTER SCIENCE  
SEMESTER-V  
AUTOMATA THEORY

1. LANGUAGE RECOGNITION  
Basics
2. R.Es
3. Finite State Machines
4. Deterministic Finite State Automata (DFA)  
Non-Deterministic Finite State Automata (NFA)
5. Transition Graph, GTG  
Kleen's theorem,
6. MOORE, MEALY MACHINES  
Conversion
7. CFGs
8. Push Down Automata
9. TURING MACHINE  
Computability

**BOOKS:**

1. Introduction to Computer Theory (Automata Theory)  
By Daniel I.A.Cohen

**MARKS DISTRIBUTION**

	Mid(Th)	Final(Th)	Attendance	Assig:	Total
Internal	10	20	10	10	50
External	by S.A.L.U Khairpur				50
Total					100

**GOVT. DEGREE COLLEGE, LARKANA**

**BS IN COMPUTER SCIENCE**

**SEMESTER # 5**

**Course Outline Computer Organization & Assembly Language**

1. **Computer Organization & Architecture**
  - 1.1 **Memory Address Calculation.**
    - 1.1.1 Segment Address.
    - 1.1.2 Offset Address
    - 1.1.3 Segment / Offset Address
    - 1.1.4 Physical / Absolute Address Calculation
  - 1.2 **Microprocessor Architecture**
    - 1.2.1 Bus Interface Unit
      - 1.2.1.1 Segment Registers (CS, DS, SS, ES)
      - 1.2.1.2 Bus Control Logic
      - 1.2.1.3 Pre Fetch Queue
    - 1.2.2 Execution Unit
      - 1.2.2.1 A.L.U.
      - 1.2.2.2 Offset Registers (SI, DI, IP, BP, SP)
      - 1.2.2.3 Temporary Registers
      - 1.2.2.4 Flag Registers
      - 1.2.2.5 General Purpose Registers (AX, BX, CX, DX)
2. **Instruction Execution Cycle For IBM-Pc Family**
  - 2.1 Fetching Of Instructions.
  - 2.2 Decoding Of Instructions.
  - 2.3 Execution Of Instructions.
  - 2.4 Interrupt Vector Table (IVT)
3. **Introduction To Assembly Language**
  - 3.1 Assembly Language Format & Machine Language Format.
  - 3.2 Basic Elements Of Assembly.
    - 3.2.1 Constants
    - 3.2.2 Statements
    - 3.2.3 Comments
    - 3.2.5 Variables
4. **Data Allocation Directives**
  - 4.1 Define Byte (DB)
  - 4.2 Define Word (DW)
  - 4.3 Define Double Word (DD)
5. **Data Transfer Instructions**
  - 5.1 MOV Instructions
  - 5.2 XCHG Instruction
6. **Arithmetic Instruction**
  - 6.1 INC & DEC Instructions.
  - 6.2 ADD, SUB MUL, DIV
  - 6.3 Flags Affected By ADD, SUB, MUL AND DIV
7. **Basic Operand Types**
  - 7.1 Register Operands
  - 7.2 Immediate Operands
  - 7.3 Direct Operands
8. **Symbolic Constant**
  - 8.1 Equal-Sign Directive
  - 8.2 EQU Directive
9. **Memory Models**
  - 9.1 Tiny
  - 9.2 Small
  - 9.3 Medium
  - 9.4 Compact
  - 9.5 Large
  - 9.6 Huge

## DEPARTMENT OF COMPUTER SCIENCE

10. **Jump And Loop Instruction**
  - 10.1 Jmp Instructions
  - 10.2 Loop Instructions
  - 10.3 Loop Z And Loop NZ Conditional Looping
- 11.1 **Shift And Rotate Instructions.**
  - 11.1 SHL 11.2 SHR 11.3 SAL 11.4 SAR 11.5 ROL
  - 11.6 ROR 11.7 RCL 11.8 RCR
12. **Boolean & Comparison**
  - 12.1 AND Instruction
  - 12.2 NOT Instruction
  - 12.3 OR Instruction
  - 12.4 XOR Instruction
  - 12.5 NEG Instruction
  - 12.6 CMP Instruction
13. **Strings**
  - 13.1 Strings Types
  - 13.2 MOVS
  - 13.3 CMPS
  - 13.4 SCAS
  - 13.4 STOS
  - 13.5 LOPS
14. **Macros**
  - 14.1 Defining a MACRO
  - 14.2 Calling a MACRO
  - 14.3 Parameter PASSING IN MACRO
15. **Stacks Operations**
  - 15.1 PUSH Operation
  - 15.2 POP Operation
16. **File I/O Services**
  - 16.1 Creation of File
  - 16.2 Opening of File
  - 16.3 Reading Data From File
  - 16.4 Writing Data Into File
  - 16.5 Closing of File
17. **Video Handling**
  - 17.1 Get Video Mode
  - 17.2 Set Video Mode
  - 17.3 Get Cursor Position
  - 17.4 Set Cursor Position

### Recommend Books

#### Text Book

1. ASSEMBLY LANGUAGE FOR INTEL-BASED COMPUTERS  
BY KIP R.IRVINE

#### Reference Book

1. Assembly Language Programming And Organization of the IBM PC  
By Ytha Yu & Charles Marut

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External					50
<b>Total</b>					<b>100</b>
<b>PRACTICAL</b>					
INTERNAL			EXTERNAL		
	25			25	
<b>TOTAL</b>				<b>50</b>	

DEPARTMENT OF COMPUTER SCIENCE

GOVT. DEGREE COLLEGE, LARKANA

BS in COMPUTER SCIENCE

SEMESTER-V

Course Name: Multimedia Systems and Design

**Course Structure:** Lectures: 2, Lab: 3

**Prerequisites:** Fundamentals of Information Technology (required)

**Objectives:**

To introduce students to the complete process of multimedia system specification, design, testing, and prototyping, including the tools and techniques for integrating multimedia content (text, graphics, images, sound, animation, motion video and virtual reality) into a product, to present design principles and techniques to maximize the effectiveness of such products, and to give the students practice in the production using a variety of media and tools. Introduction to multimedia systems, multimedia applications and development tools.

**Course Outline:**

Introduction to multimedia systems, software, hardware, various equipment, video and audio capture, annotation, storage and playback techniques, multimedia software development tools, multimedia applications, step-by-step procedure in developing multimedia systems: (specification, design, testing, and prototyping), multimedia standards, Student projects - developing multimedia systems in the laboratory.

**Suggested Books:**

1. Multimedia: Making it Work, Seventh Edition by Tay Vaughan (Paperback - Dec 20, 2006)
2. Shuman, James, Multimedia Concepts, Enhanced Edition, Cengage Learning, 2002
3. Lake, Susan and Karen Bean, Digital Multimedia: The Business of Technology, Cengage Learning, 2007.

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SEMESTER-V

Course Name: Data Warehousing

**Course Structure:** Lectures: 2/Labs: 3

**Prerequisites:** Introduction to Database Systems

**Objectives:**

- (a) to manage large database systems,
- (b) to monitor the processing of database system.

**Course Outline:**

Introduction of the business context for data warehousing and decision support systems. Differences between TPS and DSS environments. Data warehouse Architecture. Data Marts. Differentiate Data Marts and Data Warehouse. Evaluation of Data Warehouse. Data Warehouse Design Methodology: Entity Relationship Modeling and Dimensional Modeling. OLAP in data warehousing and different types of OLAP such as MOLAP ROLAP and HOLAP. Indexing techniques used in data warehousing. Hardware and software systems consideration for data warehousing. Data warehouse maintenance.

**Suggested Books/ Reference Material:**

1. Paulraj Ponniah, Data Warehousing Fundamentals, John Wiley & Sons Inc., NY.
2. W.H. Inmon, Building the Data Warehouse (Second Edition), John Wiley & Sons Inc., NY.
3. Ralph Kimball and Margy Ross, The Data Warehouse Toolkit (Second Edition), John Wiley & Sons Inc., NY.

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	<b>INTERNAL</b>			<b>EXTERNAL</b>	
	25			25	
<b>TOTAL</b>				<b>50</b>	

DEPARTMENT OF COMPUTER SCIENCE

GOVT. DEGREE COLLEGE, LARKANA

BS in COMPUTER SCIENCE

SEMESTER-V

Course Name: Professional Practice

Course Structure: Lectures:3, Labs: 0

Prerequisites: None

**Objectives:** A Computing graduate as professional has some responsibilities with respect to the society. This course develops student understanding about historical, social, economic, ethical, and professional issues related to the discipline of Computing. It identifies key sources for information and opinion about professionalism and ethics. Students analyze, evaluate, and assess ethical and professional computing case studies.

**Course Outline:** Historical, social, and economic context of Computing (software engineering, Computer Science, Information Technology); Definitions of Computing (software engineering, Computer Science, Information Technology) subject areas and professional activities; professional societies; professional ethics; professional competency and life-long learning; uses, misuses, and risks of software; information security and privacy; business practices and the economics of software; intellectual property and software law (cyber law); social responsibilities, software related contracts, Software house organization

**Resources:**

1. *Professional Issues in Software Engineering*, M.F. Bott et al.

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