

SAURASHTRA UNIVERSITY, RAJKOT
B.E. SEMESTER V(CE)

Code No.	Subject	Teaching Scheme			Exam Scheme			
		Lect.	Pract.	Theory	Paper Hrs.	Prac. Oral	Term Work	Total
501	Data Base Management	4	2	100	3	50	25	175
502	Data Structure & Algorithms	4	2	100	3	50	25	175
503	Advanced Microprocessors Interfacing & Programming	4	2	100	3	50	25	175
504	Computer Oriented Numeric Technique	4	2	100	3	50	25	175
505	Economics & Business Management	4	-	100	3	-	-	100
506	Seminar	-	2	-	-	-	50	50
Total		20	10	500	-	200	150	850

SAURASHTRA UNIVERSITY, RAJKOT
B.E. SEMESTER V(CE)
501 - DATABASE MANAGEMENT SYSTEMS

TEACHING SCHEME		EXAMINATION SCHEME				
THEORY Hours	PRACTICAL Hours	THEORY Marks	PAPER Hours	PRACTICAL/ORAL Marks	TERMWORK Marks	TOTAL Marks
4	2	100	3	50	25	175

1. Introduction, Basic concepts: Architecture of a Database Management System. Advantages. Storage structures; indexing techniques; use of hashing.
2. Database structure. Relational, hierarchical & network models. Data dictionary. Examples using simple database. Higher level operations.
3. Relational model. Relations; domains and attributes; keys; integrity rules. Examples based on available relational DBMS.
4. Data manipulation. Introduction; retrieval, update, insertion and deletion operations using SQL; built in functions; sub-queries; meaning and importance of the join operation. Concept of database transaction.
5. Introduction to database design. Modeling real-world data using the relational model Consistency of data. Functional dependence between attributes. Normalization; first, second and third normal forms; further normal forms.
6. Database administration. Database security; physical organization of data; transaction logging and database recovery methods.

REFERENCE BOOKS :

1. Database System Concepts by Henry Karth and Abraham, Silberschatz, Tata Macgraw Hill.
2. C. J. Date
An Introduction to Database Systems, Addition Wesley.
3. J. D. Ullman
Principles of Database Systems (Second Edition), Galgotia Publication.
4. Foxpro 2.5 for DOS & Windows – R.K.Taxali

SAURASHTRA UNIVERSITY, RAJKOT
B.E. SEMESTER V(CE/IT)
502 DATA STRUCTURE AND ALGORITHMS

TEACHING SCHEME		EXAMINATION SCHEME				
THEORY Hours	RACTICAL Hours	THEORY Marks	PAPER Hours	PRACTICAL/ORAL Marks	TERMWORK Marks	TOTAL Marls
4	2	100	3	50	25	175

• **INTRODUCTION TO DATA STRUCTURES :**

Data Management Concepts : Data types (Primitive, Compound), Data Structures (Simple, Linear, Non-linear), File structures, Program Development Process, Program Testing, Development & Verifications of Algorithm, Time & Space Analysis.

- Array , Stack, Queue (Simple, Circular), Linked Lists (Singly & Doubly), Implementation of Stack & Queue using Static & Dynamic structure, Recursion & Iteration in Algorithms, Binary Trees, Search trees (Binary & m-way search, B-trees), Graph Structure (Mapping & Traversal, Application of Graph).

• **SORTING & SEARCHING ALGORITHMS :**

Insertion sort, selection sort, shell sort, quick sort, merge sort

• **FILE STRUCTURES :**

Concept of fields, Records and files, File organization (Sequential, Indexed, Relative/random), Hashing, Multi-key file organization and access methods.

REFERENCE BOOKS :

- 1) An Introduction to Data Structure with Applications By Trembly & Sorenson, McGraw-Hill.
- 2) Data Structure Using C By Tanenbaun, Prentice Hall.
- 3) Data Structure Using C (Labwork Book) By R.Y. Shukla, BPB Publication.

SAURASHTRA UNIVERSITY, RAJKOT

B.E. SEMESTER V (CE / IT)

503 ADVANCED MICROPROCESSORS INTERFACING & PROGRAMMING

TEACHING SCHEME		EXAMINATION SCHEME				
THEORY Hours	PRACTICAL Hours	THEORY Marks	PAPER Hours	PRACTICAL/ORAL Marks	TERMWORK Marks	TOTAL Marls
4	2	100	3	50	25	175

[A] Architecture & Interfacing :

- (1). Microprocessor, Microcomputer & Languages : Introduction of microprocessor & microcomputer, High level & low level languages, Introduction of large computer, Medium size computer, Microcomputers & different terms related to microprocessor.
- (2). Overview of 8085 - Microprocessor Architecture : 8085 pin out & internal (functional) block diagram, 8085 pin signals.

[B] Architecture of 8086 :

- (1) Architecture : Introduction to 16-bit microprocessor, Comparison of 8085 & 8086, Internal block dia. (BIU, EU etc...), GPRS, Index & Pointers etc..., Memory Segmentation concepts & its advantages. Pinout diagram & its signal details Clock generator (8284A), 8086 minimum mode module details Bus controller (8288), Bus arbiter (8289), 8086 Maximum mode module details, Multiprocessor Bus systems.
- (2) 8086 interrupts & service routines : Introduction, 8086 interrupt & actions, working of interrupt, Interrupts & ROM – BIOS service, Hardware or exception interrupts, Software (System calls) interrupt, Interrupt vectors to store Pointers, Interrupt service routines.
- (6) Advanced microprocessors : Introduction of 80186, 80286, 80386, 80486 & Pentium Processor, RISC, CISC, Real & Protected Virtual mode of each processor.
- (7) Overview of general purpose periferal chips like 8255, 8254, 8279.

[C] Programming :

- (1) Various addressing modes, overview of various registers & pointers, classification of instructions & its details.
- (2) Assembler directives : Introduction, classifications & details study of all assembler directives.
- (3) Program development tools & debug commands : Introduction, details of different program development tools (Text editors, assemblers, Linker, Loader etc ...) Program development process with flowchart, different debug commands
- (4) Programming using 8086 instructions.
- (5) DOS interrupts: DOS system call (INT 21H) and its sub functions

REFERENCE BOOKS :

- (1) Microprocessor architecture, Programming & its appl. – R.S. Gaonkar (PRI)
- (2) Microprocessor X86 programming - K.R. Venugopal (BPB)
- (3) Microcomputer System: The 8086/8088 family Archi., program. & design -Liu & Gibson (PHI)
- (4) Microcomputers & microprocessor – John Uffenbeck (PHI)
- (5) Microprocessor & interfacing - Douglas V. Hall (TMH)
- (6) Advanced Microprocessor Interfacing & Programming – K. Wandra & H. Wandra
- (7) Advanced microprocessor & Interfacing - B. Ram (TMH)
- (8) Intel Micro processor – Brey (PHI).
- (9) Advance Microprocessors & Peripherals – A.K.Ray & K.M.Bhurchadi (TMH)

SAURASHTRA UNIVERSITY, RAJKOT
B.E. SEMESTER V (CE)
504 COMPUTER ORIENTED NUMERIC TECHNIQUE

TEACHING SCHEME		EXAMINATION SCHEME				
THEORY Hours	PRACTICAL Hours	THEORY Marks	PAPER Hours	PRACTICAL/ORAL Marks	TERMWORK Marks	TOTAL Marls
4	2	100	3	50	25	175

- Methods for solution of Equations.
Bisection, False Position, Newton Raphson, Iteration.
- Errors (and Numerical and Instabilities) in Numerical Methods.
Truncation Error, Round off Error, Absolute Error, Relative Error, Percentage Error.
- Solution of Simultaneous Linear Algebraic Equation.
Gauss Elimination Method, Pivoting Method, Gauss Seidal Iterative Method.
- Interpolation.
Newton, Langrange & Stirling's Interpolation Formula.
- Least Squares Approximations.
- Numerical Differentiation and Integreation.
Numerical Differentiation, Numerical Integreation by Newton Cote's Formulas.
- Ordinary Differential Equations.
- Correlation : coefficient of correlations, methods of calculation (direct method and step-deviation method), rank correlation
- Regression: Lines of regression ,

REFERENCE BOOKS :

1. Numerical Analysis B.S.Grewal (PHI)
2. Introductory Methods of Numerical Analysis By S. S. Sastry.
3. Computer Oriented Numerical Methods By V. Rajaraman.
4. Computer Oriented Numerical Technique Balagurusami (TMH)
5. Higher Engineering Mathematics By B. S. Grewal

SAURASHTRA UNIVERSITY, RAJKOT
B.E. SEMESTER V (CE/IT)
505 : ECONOMICS & BUSINESS MANAGEMENT

TEACHING SCHEME		EXAMINATION SCHEME				
THEORY Hours	PRACTICAL Hours	THEORY Marks	PAPER Hours	PRACTICAL/ORAL Marks	TERMWORK Marks	TOTAL Marks
4		100	3			100

ECONOMICS

1. Nature of Economics
Definations, Scope of Economics.
2. Utility analsis& Demand Analysis
Law of Demand, Elsticiti of Demand, Law of Diminishing Marghinal Utiliti.
3. Nature & Factorss of Production
Land,Labour,Capital, Enterpreneures.
4. Scale of Production
5. Cost Analysis, Law of Returns.
6. Price Determination under Different Markets.
7. Public finance.

MANAGEMENT

1. Organisation
Concept-Principles, Line & Staff Structure, Parkinson's Law-Peter's Law.
2. Managment
concept- development Thought, Approaches to Managerial Analysis, Functions of Managment.
3. Personnel Management
Concept, Man Planning & Assessment, Recruitment, Training.
4. Humanside of Management
Leadership, Motivation, Group Cohesieness.
5. Financial Management
An Overview, Indian Financial System, Dervatives & Coporat Finance Corporate Risk Management ,
Break Even Analysis.

REFERENCE BOOK:

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| 1. Industrial Engg. & Management | by O. P. Khanna. |
| 2. Management Anaysis, Concepts & Cases | by Haynes & Massie. |
| 3. Principles of Economics | by Devett & Verma. |
| 4. Economics | by Stonier & Hague. |

SAURASHTRA UNIVERSITY, RAJKOT
B.E. SEMESTER V (CE/IT)
506 - SEMINAR

TEACHING SCHEME		EXAMINATION SCHEME				
THEORY Hours	PRACTICAL Hours	THEORY Marks	PAPER Hours	PRACTICAL/ORAL Marks	TERMWORK Marks	TOTAL Marls
	2				50	50

Students have to prepare a seminar report & have to present the seminar on the topics of current interest.