

STUDENT KIT

Bachelor of Computer Application - IV Semester

Jan-May 2015



Devi Ahilya Vishwavidyalaya

School of Computer Science & IT

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**SCHOOL OF COMPUTER SCIENCE & IT
DEVI AHILYA VISWAVIDYALAYA**

Takshashila Campus, Khandwa Road, Indore – 452017

Tel. (0731) – 2438518, 2438530 Fax : (0731) – 2761358

Email: head.scs@dauniv.ac.in

School of Computer Science & IT, DAVV, Indore

Scheme-Jan-May 2015 onwards

BCA – IV Semester

| Sub. Code | Subject Name | L | T | P | C | Internal | Practical /Project | End Sem | Total |
|--------------|--|---|---|---|-----------|----------|--------------------|---------|-------|
| CS-3006 | Microprocessor and Assembly Language programming | 3 | 1 | 2 | 5 | 30 | 20 | 50 | 100 |
| CS-3206 | Database Programming using VB | 2 | 0 | 4 | 4 | 30 | 20 | 50 | 100 |
| CS-2401 | Introduction to Information System | 3 | 1 | 0 | 4 | 40 | - | 60 | 100 |
| CS-2133 | Statistics & Probability | 3 | 1 | 0 | 4 | 40 | - | 60 | 100 |
| CS-1905A | English Language Lab | 0 | 0 | 2 | 1 | 30 | 20 | 50 | 100 |
| IC-2927 | Environmental Awareness | 3 | 1 | 0 | 4 | 40 | - | 60 | 100 |
| CS-3801A | Mini Project | | | 4 | 2 | 50 | - | 50 | 100 |
| CS-2809B | Comprehensive Viva | | | | 4 | | | 100 | 100 |
| Total | | | | | 28 | | | | 800 |

Note:

Proposed Scheme can be changed/amended/improved according to necessity and requirement.

BCA IV Semester

CS: 3006 - Microprocessor and Assembly language Programming

Unit-I

Basic Terminologies: Microprocessor, Centre Processing Unit (CPU), Minicomputer and Microcontroller, Basic Architecture of Computer. System Bus: Data bus, address bus and control bus. Programming concepts: Machine Language, Assembly Language, and High-Level Language, Evolution of Microprocessors.

Unit -II

Introduction of 8085 Microprocessor: Architecture of 8085 processor, Register Architecture: Accumulator, Temporally Register and Flag Register. Program Counter, Stack pointer and Instruction register.

Addressing Modes: Direct addressing mode and Register direct Addressing Mode. Register Indirect Addressing Mode, Immediate Addressing Mode and Implicit or Implied Addressing Mode. Overview of addressing modes of 8086 Microprocessor. Direct memory access (DMA), SID and SOD lines, Interrupt System.

Unit -III

Introduction to Assembly Language Programming: Various Instructions Classifications: Instruction Format, Opcode, Operand and Hex code. Instruction Operation Status, Various Instruction Sets: Data Transfer Group Instructions: Arithmetic Group Instructions, Logical Group Instruction, Branch Group Instruction, Conditional and Unconditional branch instruction I/O and Machine control Instructions.

Unit -IV

Solving Problems with Flowchart, Programming Techniques: Looping, Counting. Additional Data Transfer and 16 bit Arithmetic Instructions Additional Data Transfer and 16 bit Arithmetic Instructions, Arithmetic operations related to memory, Logic Operation: Rotate, Compare. Counters and Timing Delays, Programs for modulo counters, Some Programs based on Counters and Time-Delays, Debugging Counters and Time-Delay Programs, Stack, Subroutine, Conditional Call and Return Instruction, Some Programs based on Subroutine. Advanced Subroutine Concepts,

Unit -V

BCD to binary conversion, Binary to BCD conversion, BCD addition and subtraction. Introduction to advanced Applications, Multiplication, Basic Interfacing Concepts: Output Displays, Interfacing Input Keyboards (8212 device). Overview of Memory-Mapped I/O, Overview of Interfacing Memory. 8255 Peripheral Interfacing, Block Diagram of 8255, Pin description of 8255 IC, Parallel ports of 8255 IC.

Text Book(s) :

Microprocessor Architecture, Programming and Applications with 8085/8080 by Ramesh S. Gaonkar, Edition5, illustrated, ISBN0130195707, 9780130195708.

Reference Books:

1. Introduction to Microprocessor by D.A.Godse A.P.Godse, ISBN8184311265, 9788184311266
2. Microprocessor and Its applications by R Theagrajan,S Dhanapal Publisher-New Age International, 2004, ISBN-8122410405, 9788122410402
3. Microprocessors and Microcomputer Based System Design by Mohammed Rafiquzzman Edition2, illustrated Publisher Crc Press, 1995ISBN0849344751, 9780849344756

CS-3206 Database Programming in Visual Basic**Unit I**

Introduction: Data, Information, Data v/s Information, Database Management System, Advantages of DBMS approach over File System, Meta Data, Architecture of DBMS, Data independency. DBA(Roles & Responsibility), Data Models, Different Models of DBMS, Cardinality, Special Features of E-R Models

Unit II

Key Concepts: Primary, Unique, Secondary, Candidate, Super, Foreign Key Relational Algebra, SQL. **Exercise:** Queries (Simple & Complex). **MS-Access:** Database Files, Table, Fields, Data Types. Creating and Manipulating Database.

Unit III

Introduction of Visual Studio: IDE, Start Visual Studio, Open an existing project, Compile and run a program, Create a user interface. **Design Issues:** Use of text box, button, radio button, list box, drop-down list box and drop-down list box. Creation of menu Items, Tool Strip control, use of Dialog Box.

Unit IV

Programming Issues: Declare a variable, Change the value of a variable, Get input/output with a Textbox, Create a constant, formula, and Combine text strings. Write a conditional expression, Use an If...Then decision structure, Make two comparisons in a conditional expression, Use a Select Case decision structure. Loop Control Statements. Error handling, Error by try catch.

Unit V

Database Programming : Establish a connection to a database; Create a dataset, Create bound objects capable of displaying data from a dataset on a Windows form, Add navigation controls to a Windows form, Format database information on a form. Create a data grid view object on a form to display an entire database table, Preview data bound to a data grid view object. Connection with database. Data Access Components, Data Manipulation.

Text Books:

1. Beginning Visual C# 2005 by Wrox Publication.
2. Database System Concepts, Fourth Edition Silberschatz–Korth–Sudarshan.
3. SQL, PL/SQL - The Prog. Language of Oracle - 3rd Rev. Edn. Ivan Bayross

Reference Books:

1. Fundamentals of Database Systems, Shamkant B. Navathe
2. Database Management Systems,Alexis Leon and Mathews Leon, Leon Vikas, 2002
3. Database Management Systems, Raghu Ramakrishnan

CS-2401 Introduction to Information Systems

Unit-I

AN OVERVIEW: An introduction to information systems, Information systems in organizations.

Unit -II

INFORMATION TECHNOLOGY CONCEPTS: Hardware: input, processing, and output devices. Software: systems and application software. Telecommunications and networks: The Internet, intranets, and extranets.

Unit -III

BUSINESS INFORMATION SYSTEMS: Electronic and mobile commerce - Threats to Electronic and Mobile Commerce, Theft of Intellectual Property, Fraud.

Unit -IV

SYSTEMS DEVELOPMENT: Systems development: investigation and analysis. Design, implementation, maintenance and review.

Unit -V

An Overview of Artificial Intelligence : Artificial Intelligence in Perspective, The Nature of Intelligence, The Difference Between Natural and Artificial Intelligence, The Major Branches of Artificial Intelligence, Expert Natural Language Processing and Voice Recognition.

Text Books :

1. Principles of information systems (A Managerial Approach) by Ralph Stair CENGAGE Learning.
2. Internet and Web Technology by Dr. Rajkamal, Tata McGraw Hill publication.

CS-2133 Statistics & Probability

Unit-I

Measures of central tendency: Arithmetic Mean, Median and Mode. Geometric mean, Harmonic Mean and Partition values.

Measures of dispersion: Dispersion, Range, Quartile Deviation, Mean deviation, Standard Deviation, Variance and Coefficient of Dispersion.

Unit –II

Skewness, Kurtosis, Moments, Measure of skewness and kurtosis.

Theory of probability: Introduction and definition of Probability, Event, Sample Space, Law of addition and multiplication of Probabilities and Conditional Probability. Independent and Dependent events, Bayes' theorem, Mathematical Expectations and Moment generating functions.

Unit -III

Theoretical Distribution: Discrete Distribution- Binomial Distribution and Poisson Distribution. Continuous Distribution –Rectangular and Normal distribution.

Curve fitting: Curve fitting and Methods of Least square, fitting a Straight line and a Parabola.

Unit -IV

Correlation and Regression: Correlation, Coefficient of Correlation, Rank Correlation, Lines of Regression. Multiple and Partial Correlation.

Unit -V

Testing of hypothesis: Null and Alternative hypothesis, two types of errors, level of significance and power of the test.

Tests of significance: Chi-square distribution, test of popular variance and test of goodness of fit. t, F ,Z distribution and tests based on them.

Text Book(s) :

1. S.C.Gupta, V.K.Kapoor “Fundamentals of Mathematical Statistics”.
10th Edition, Publisher: Sultan Chand, 2000.ISBN: 8170147913, 9788170147916

Reference Books :

1. D.N.Elhance.- ‘Fundamentals of Mathematical Statistics’ Kitab Mahal, Allahabad
2. A.M.Goon, M.K.Gupta & B. Dasgupta (1980): An outline of Statistical theory, Vol. I, 6th revised edition, World Press.

IC-2927 Environmental Awareness

Unit – I

Environment meaning, structure and type of environment, components of environment, society and resources. Man environment relationship: Approach to study man interaction with environment(historical to present day)

Unit – II

Environmental degradation: Meaning of degradation, types of degradation, process of degradation, cause of degradation, Religious and philosophical factors, deforestation, agricultural development and degradation, population growth and degradation, urbanization and degradation, modern technology and degradation.

Unit – III

Ecology: Definition of ecology and ecosystem. Types of ecosystem, components of ecosystem, functions of ecosystem, productivity and stability of ecosystem.

Environmental disasters: Meaning and concepts, types of hazards and disaster, man induced and natural hazards, global warming, ozone depletion, green house effect and other major environmental problems.

Unit – IV

Environmental pollution: Air, water, solid, noise pollution. Meaning, definition, sources, types, adverse effects and methods of control.

Unit – V

Environmental planning and management: Concepts, aspects and approaches, resources management, ecological management. Biosphere reserves, management of wild life. Environmental regulation and rules, Vision of Environment by govt. of India, Environmental policy, waste disposal rules and laws and legislation enacted by parliament for environmental protection.

Text Book(s) :

1. Environmental Awareness : Dr. Dhananjay Verma, Published by : Madhya Pradesh Hindi Granth Academy.

