KUMARAGURU COLLEGE OF TECHNOLOGY

(Autonomous Institution Affiliated to Anna University, Chennai)

COIMBATORE – 641049

CURRICULUM AND SYLLABUS
(REGULATIONS 2013)

3rd - 8th Semesters

B. Tech. INFORMATION TECHNOLOGY

KUMARAGURU COLLEGE OF TECHNOLOGY, COIMBATORE 641 049
(An Autonomous Institution to Anna University, Chennai)

Regulations - 2013

B.Tech INFORMATION TECHNOLOGY

CURRICULUM AND SYLLABUS

SEMESTER III

Code No.	Course Title	L	T	P	C
THEORY					
U13MAT301	Numerical Methods	3	1	0	4
U13ITT301	Data Structures and Algorithms	3	0	0	3
U13ITT302	Digital Systems and Design	3	0	0	3
U13ITT303	Object Oriented Programming with C++	3	0	0	3
U13ECT314	Principles of Communication	3	1	0	4
U13GST001	Environmental Science and Engineering	3	0	0	3
PRACTICAL					
U13ITP301	Data Structures and Algorithms Laboratory	0	0	3	1
U13ITP302	Digital System and Design Laboratory	0	0	3	1
U13ITP303	Object Oriented Programming Laboratory	0	0	3	1
U13GHP301	Family Values – I	1	0	1	1

31 Hrs 24 Credits

SEMESTER IV

Code No.	Course Title	L	T	P	C
THEORY					
U13MAT401	Signals and Systems	3	0	2	4
U13ITT401	Microprocessors	3	0	0	3
U13ITT402	Design and Analysis of Algorithms	3	1	0	4
U13ITT403	User Interface Design	3	0	0	3
U13ITT404	Database Management Systems	3	0	0	3
U13ITT405	Computer Architecture	3	1	0	4
PRACTICAL					
U13ITP401	Microprocessors Laboratory	0	0	3	1
U13ITP402	Database Management Systems Laboratory	0	0	3	1
U13GHP401	Professional Values	1	0	1	1
U13ENP401	Communication Skills Laboratory	0	0	3	1

33 Hrs 25 Credits

SEMESTER V

Code No.	Course Title	L	T	P	C
THEORY					
U13ITT501	Operating Systems	3	1	0	4
U13ITT502	Software Engineering	3	0	0	3
U13ITT503	Computer Networks	3	1	0	4
U13ITT504	Java Programming	3	0	0	3
U13ECT511	Digital Signal Processing	3	1	0	4
	Elective – I	3	0-1	0	3-4
PRACTICAL					
U13ITP501	Software Engineering Laboratory	0	0	3	1
U13ITP502	Java Programming Laboratory	0	0	3	1
U13ITP503	Operating Systems Laboratory	0	0	3	1
U13GHP501	Human Excellence Social Values	0	0	2	1

32-33 Hrs 25-26 Credits

Code No.	Course Title	L	T	P	C
Electives – I					
U13ITE101	Theory of Computation	3	1	0	4
U13ITE102	Advanced Database Technologies	3	0	0	3
U13MAT501	Probability and Queuing theory	3	1	0	4
U13ITE103	Computer Graphics	3	0	0	3
U13ITE104	Information Coding Techniques	3	0	0	3

SEMESTER VI

Code No.	Course Title	L	T	P	C
THEORY					
U13ITT601	Principles of Compiler design	3	1	0	4
U13ITT602	Data Warehousing and Data Mining	3	0	2	4
U13ITT603	TCP / IP and Socket Programming	3	0	0	3
U13GST008	Professional Ethics	3	0	0	3
	Elective – II	3	0	0	3
	Elective – III	3	0-1	0	3-4
PRACTICAL					
	Elective – II Laboratory	0	0	3	1
U13ITP601	System Software Laboratory	0	0	3	1
U13ITP602	Computer Networks Laboratory	0	0	3	1
U13GHP601	Human Excellence National Values	1	0	1	1

32-33 Hrs 24-25Credits

Code No.	Course Title	L	T	P	C
Elective – II					
U13ITE201	Multimedia Systems	3	0	0	3
U13ITE202	C# and .NET Programming	3	0	0	3
U13ITE203	Embedded systems	3	0	0	3
U13ITE204	Mobile applications programming	3	0	0	3
Electives – III					
U13ITE301	Computational Intelligence	3	1	0	4
U13ITE302	Software Architecture	3	0	0	3
U13MAT601	Discrete Mathematics	3	1	0	4
U13ITE303	Cryptography and Network Security	3	0	0	3
Elective – II Laboratory					
U13ITEP201	Computer Graphics & Multimedia Systems Laboratory	0	0	3	1
U13ITEP202	C# and .NET Programming Laboratory	0	0	3	1
U13ITEP203	Embedded System Laboratory	0	0	3	1
U13ITEP204	Mobile applications programming laboratory	0	0	3	1

SEMESTER VII

Code No.	Course Title	L	T	P	C
THEORY					
U13ITT701	Mobile and Pervasive Computing	3	1	0	4
U13GST003	Principles of Management	3	0	0	3
U13ITT702	Web Technology	3	1	0	4
	Engineering Sciences Elective	3	0-1	0	3-4
	Elective IV	3	0	0	3
	Elective V	3	0	0	3
PRACTICAL					
U13ITP701	Wireless Networks Laboratory	0	0	3	1
U13ITP702	Web Technology Laboratory	0	0	3	1
U13ITP703	Mini Project Review / Industrial Training*	0	0	3	1
U13GHP701	Human Excellence Global Values	1	0	0	1

30-31 Hrs 24-25 Credits

* Mini Project/ Industrial Training has to be carried out for two weeks during the Summer Vacation of VI Semester.

Code No.	Course Title	L	T	P	C
Engineering Science Electives					
U13ITES01	Business Process Models	3	0	0	3
U13ITES02	Building Enterprise Applications	3	0	0	3
U13GST003	Total Quality of Management	3	0	0	3
U13GST004	Operations Research	3	1	0	4
U13GST005	Engineering Economics and Financial Management	3	0	0	3
U13GST006	Product Design and Development	3	0	0	3
Electives – IV					
U13ITE401	High Speed Networks	3	0	0	3
U13ITE402	Distributed Systems	3	0	0	3
U13ITE403	Information Security	3	0	0	3
U13ITE404	Grid Computing				
Electives – V					
U13ITE501	Digital Image Processing	3	0	0	3
U13ITE502	Software Quality Assurance & Testing	3	0	0	3
U13ITE503	Real Time Systems	3	0	0	3

SEMESTER VIII

Code No.	Course Title	L	T	P	C
THEORY					
	Elective VI	3	0	0	3
	Elective VII	3	1	0	4
	Elective VIII	3	0	0	3
PRACTICAL					
U13ITP801	Project Work	0	0	18	6

28 Hrs 16 Credits

Code No.	Course Title	L	T	P	C
Electives – VI					
U13ITE601	Cloud Computing	3	0	0	3
U13ITE602	Ad hoc & Sensor Networks	3	0	0	3
U13ITE603	Management Information System	3	0	0	3
Electives – VII					
U13ITE701	Open Source Software	3	1	0	4
U13ITE702	Service Oriented Architecture	3	1	0	4
U13ITE703	Semantic Web	3	1	0	4
Electives –VIII					
U13ITE801	Knowledge Based Decision Support Systems	3	0	0	3
U13ITE802	Software Project Management	3	0	0	3
U13ITE803	Business Intelligence and its Application	3	0	0	3

Total credits: 185-188

SEMESTER III

U13MAT301 NUMERICAL METHODS

L	T	P	C
3	0	2	4

OBJECTIVES

1. To Solve a set of algebraic equations representing steady state models formed in engineering problems
2. To Fit smooth curves for the discrete data connected to each other or to use interpolation methods over these data tables

COURSE OUTCOMES

On successful completion of this course, students should be able to:

3. Solve a set of algebraic equations representing steady state models formed in engineering problems
4. Fit smooth curves for the discrete data connected to each other or to use interpolation methods over these data tables
5. Find the trend information from discrete data set through numerical differentiation and summary information through numerical integration
6. Predict the system dynamic behaviour through solution of ODEs modeling the system
7. Solve PDE models representing spatial and temporal variations in physical systems through numerical methods.
8. Have the necessary proficiency of using MATLAB for obtaining the above solutions.

INTRODUCTION 2

Simple mathematical modeling and engineering problem solving – Algorithm Design – Flow charting and pseudocode - Accuracy and precision – round off errors

NUMERICAL SOLUTION OF ALGEBRAIC EQUATIONS 5

Solution of nonlinear equations - False position method – Fixed point iteration – Newton Raphson method for a single equation and a set of non- linear equations

Solution of linear system of equations by Gaussian elimination, Gauss Jordan method - Gauss Seidel method.

CURVE FITTING AND INTERPOLATION 5

Curve fitting – Method of least squares - Newton's forward and backward difference formulas – Divided differences – Newton's divided difference formula - Lagrange's interpolation – Inverse interpolation.

NUMERICAL DIFFERENTIATION AND INTEGRATION 5

Numerical differentiation by using Newton's forward, backward and divided differences – Numerical integration by Trapezoidal and Simpson's 1/3 and 3/8 rules – Numerical double integration.

NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS 10

Initial value problems - Single step methods: Taylor's series method – Truncation error – Euler and Improved Euler methods – Fourth order Runge – Kutta method – Multistep methods: Milne's predictor - corrector method.

NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS (PDEs) 13

PDEs and Engineering Practice – Laplace Equation derivation for steady heat conduction – Numerical solution of the above problem by finite difference schemes – Parabolic Equations from Fourier`s Law of Transient Heat Conduction and their solution through implicit schemes – Method of Lines – Wave propagation through hyperbolic equations and solution by explicit method.

Use of MATLAB Programs to workout solutions for all the problems of interest in the above topics.

L: 45 P: 15 TOTAL: 60 Hrs

REFERENCES

1. Steven C.Chapra and Raymond P. Canale, " Numerical Methods for Engineers with Programming and Software Applications", SixthEdition, WCB/McGraw-Hill, 1998.
2. John H. Mathews and Kurtis D. Fink, "Numerical Methods using Matlab", Fourth Edition, Prentice Hall of India, 2004.
3. Gerald C. F. and Wheatley P.O, "Applied Numerical Analysis", Sixth Edition, Pearson Education Asia, New Delhi, 2002.
4. Sastry S.S, "Introductory Methods of Numerical Analysis", Third Edition, Prentice – Hall of India Pvt Ltd, New Delhi, 2003.
5. Kandasamy P., Thilagavathy K. and Gunavathy K., "Numerical Methods", S.Chand Co. Ltd., New Delhi, 2007.

U13ITT301	DATA STRUCTURES AND ALGORITHMS (Common to CSE and IT)	L	T	P	C
		3	0	0	3

OBJECTIVES

- To understand different methods of organizing data
- To implement various data structures efficiently.
- To understand different sorting and searching algorithms.

COURSE OUTCOMES

On successful completion of this course, students should be able to

1. Explain the basic data structures and its operations. [K2]
2. Explain the concept of time complexity and space complexity. [K2]
3. Identify an appropriate data structure for a given problem. [K3]
4. Make use of basic data structures to solve problems. [K3]
5. Explain various searching and sorting algorithms. [K2]

LISTS, STACKS AND QUEUES **9**

Abstract Data Type (ADT) – The List ADT and its applications – The Stack ADT and its applications – The Queue ADT applications

TREES **9**

Preliminaries – Binary Trees – The Search Tree ADT – Binary Search Trees-Threaded Binary trees – Tree Traversals - Priority Queues (Heaps) – Model – Simple implementations – Binary Heap

SEARCH STRUCTURES AND HASHING **9**

AVL Trees – Splay Trees – B-Trees -Hashing – General Idea – Hash Function – Separate Chaining – Open Addressing – Linear Probing

GRAPHS **9**

Definitions – Topological Sort – Shortest-Path Algorithms – Unweighted Shortest Paths – Dijkstra's Algorithm – Minimum Spanning Tree – Prim's Algorithm – Kruskal's Algorithm - Applications of Depth-First Search – Undirected Graphs – Biconnectivity.

SORTING & SEARCHING **9**

Sorting-Preliminaries – Insertion Sort – Shellsort – Heapsort – Mergesort – Quicksort – External Sorting –Searching –Linear Search-Binary Search

TOTAL : 45 Hrs

REFERENCES

1. M.A.Weiss, "Data Structures and Algorithm Analysis in C", Second edition, Pearson Education Asia, 2007.
2. Y. Langsam, M. J. Augenstein and A. M. Tenenbaum, "Data Structures using C and C++", 2nd ed, Prentice-Hall of India, 2009.
3. Alfred V. Aho, John E. Hopcroft and Jeffry D. Ullman, Data Structures & Algorithms, Pearson Education, New Delhi, 2009.

U13ITT302 DIGITAL SYSTEMS AND DESIGN
(Common to CSE and IT)

L	T	P	C
3	0	0	3

OBJECTIVES

- To provide students in-depth theoretical base of the digital electronics.
- To provide the fundamental designing concepts of different types of logic gates, minimization techniques etc.
- To familiarize the students regarding designing of different types of the digital circuits.
- To provide the computational details for digital circuits. To introduce the basic concept of hardware components.

COURSE OUTCOMES

On successful completion of this course the student should be able to

1. Translate numerical values in various number systems and perform number conversions between number systems.[K2]
2. Demonstrate the knowledge of logic gates, Boolean algebra and apply optimal minimization techniques to simplify the Boolean function.[K2]
3. Analyze and design combinational and sequential circuits. [K4]
4. Apply the knowledge to solve the real time problems related to digital circuits.[K3]
5. Compare various programmable devices and digital logic families.[K2]

NUMBER SYSTEM AND BASIC LOGIC **10**

Number systems-Binary, Octal, Hexadecimal, Number base conversions, Binary codes: Weighted codes-BCD - 8421-2421, Non Weighted codes - Gray code - Excess 3 code Binary arithmetic, 1's complements, 2's complements, and Code conversions. Study of logic gates-Boolean algebra, Boolean postulates and laws –De-Morgan's Theorem- Principle of Duality – Minterm- Maxterm- Canonical forms - Conversion between canonical forms, Karnaugh map Minimization – Don't care conditions, Tabulation method.

COMBINATIONAL CIRCUITS **9**

Problem formulation and design of combinational circuits, adder, subtractor, Serial adder/ Subtractor - Parallel adder/ Subtractor- Carry look ahead adder- BCD adder- Magnitude Comparator , parity checker , Encoder , decoder, Multiplexer/ Demultiplexer , code converters, Function realization using gates and multiplexers.

SEQUENTIAL CIRCUIT **8**

Flip flops SR, JK, T, D and Master slave – Characteristic table and equation –Application table – Edge triggering –Level Triggering –Realization of one flip flop using other flip flops – Register – shift registers - Universal shift register. Classification of sequential circuits- Moore and Mealy.

DESIGN OF SEQUENTIAL CIRCUITS **10**

Design of synchronous sequential circuits: state diagram- State table –State minimization – State assignment. Counters: Synchronous Binary counters – Modulo-n counter- Decade - BCD counters, Asynchronous counter, Ring counters. Hazards: Static – Dynamic.

DIGITAL LOGIC FAMILIES AND PLD **8**

Memories – ROM, PROM, EEPROM, RAM.– Programmable Logic Devices: Programmable Logic Array (PLA)- Programmable Array Logic (PAL)- Implementation of combinational logic using PROM, PLA and PAL. Introduction to FPGA. Digital logic families: TTL, ECL, CMOS.

TOTAL : 45 Hrs

REFERENCES

1. M. Morris Mano, Digital Design, 3rd Edition., Prentice Hall of India Pvt. Ltd., New Delhi, 2003/Pearson Education (Singapore) Pvt. Ltd., New Delhi, 2003
2. John .M Yarbrough, Digital Logic Applications and Design, Thomson- Vikas Publishing House, New Delhi, 2002.
3. S. Salivahanan and S. Arivazhagan, "Digital Circuits and Design",Second Edition, Vikas Publishing House Pvt. Ltd, New Delhi, 2004
4. Charles H.Roth. "Fundamentals of Logic Design", Thomson Publication Company, 2003.
5. Donald P.Leach and Albert Paul Malvino, "Digital Principles and Applications", 5th Edition., Tata McGraw Hill Publishing Company Limited, New Delhi, 2003.
6. R.P.Jain, "Modern Digital Electronics", Third Edition., Tata McGraw–Hill publishing company limited, New Delhi, 2003.
7. Thomas L. Floyd, "Digital Fundamentals", Pearson Education, Inc, New Delhi, 2003
8. Donald D.Givone, "Digital Principles and Design", Tata Mc-Graw-Hill Publishing company limited, New Delhi, 2003.

U13ITT304	OBJECT ORIENTED PROGRAMMING WITH C++ (Common to CSE and IT)	L	T	P	C
		3	0	0	3

OBJECTIVES

- To understand object-oriented programming features.
- To study the implementation of various features of OOP in C++.
- To illustrates solution of different problems using C++

COURSE OUTCOMES

On successful completion of this course, students should be able to:

1. Compare the merits and demerits of object oriented programming over the structure programming [K2]
2. Explain overloading and inheritance concepts [K2]
3. Explain virtual, static and friend function concepts[K2]
4. Outline C++ streams and file manipulations[K2]
5. Develop applications using object oriented concepts[K3]

INTRODUCTION **9**

Object-Oriented Paradigm - Elements of Object Oriented Programming – Merits and Demerits of OO Methodology – C++ fundamentals – Data types, Operators and Expressions, Control flow, Arrays, Structure and Functions.

CLASSES AND OBJECTS **9**

Classes and Objects – Passing objects as arguments – returning objects – Friend functions – Static data and member functions - Constructors –Parameterized constructor – Destructor- Copy contractor- Array of Objects – pointer to object members.

POLYMORPHISM AND INHERITANCE **9**

Polymorphism – Function overloading – Unary operator overloading – binary operator overloading – Data Conversion- Overloading with Friend Functions. Inheritance –Derived class – Abstract Classes - Types of Inheritance

VIRTUAL FUNCTIONS AND TEMPLATES **9**

Virtual functions – Need- Definition - Pure Virtual Functions – Virtual Destructors Template – Class template, Function Template.

FILES AND EXCEPTION HANDLING **9**

C++ streams – console streams – console stream classes - formatted and unformatted console I/O operations – Manipulators File streams classes - File modes - File pointers and Manipulations -

File I/O – Exception handling.

TOTAL: 45 Hrs

REFERENCES

1. K.R.Venugopal, Rajkumar Buyya, T.Ravishankar, "Mastering C++", TMH, 2009.
2. Ira Pohl, “Object oriented programming using C++”, Pearson Education Asia, 2004
3. Bjarne Stroustrup, “The C++ programming language”, Addison Wesley, fourth edition, 2013
4. John R.Hubbard, “Progranning with C++”, Schaums outline series, TMH, 2003
5. E.Balagurusamy “Object Oriented Programming with C++”, 5th Edition,TMH 2/e,2011.

U13ECT436 PRINCIPLES OF COMMUNICATION

L	T	P	C
3	1	0	3

OBJECTIVES

- Acquire knowledge in analog and digital modulation concepts.
- Understand fundamental designing concepts modulation circuits
- Develop skills related to select a modulation schemes for an application.

COURSE OUTCOMES

On successful completion of this course, students should be able to:

1. Understand the fundamental concepts of communication systems
2. Distinguish the different modulation schemes with their transmitter and receiver parameters.
3. Identify and classify the different analog and digital modulation schemes.
4. Classify standard base band data transmission techniques.
5. Paraphrase the spread spectrum techniques and multiple access techniques

AMPLITUDE MODULATION: TRANSMISSION AND RECEPTION 9

Principles of amplitude modulation - AM envelope, Frequency spectrum and bandwidth, Modulation index and percent modulation, AM power distribution, AM modulator circuits - Low level AM modulator, Medium power AM modulator, AM demodulator, Receiver parameters. AM reception: AM receivers - TRF, Super heterodyne receivers.

ANGLE MODULATION: TRANSMISSION AND RECEPTION 9

Angle Modulation - FM and PM, Mathematical representation, waveform, Bandwidth, FM modulators and Demodulators, Direct and Indirect FM transmitters, Frequency Vs. Phase Modulation.

DIGITAL MODULATION TECHNIQUES 9

Introduction, Binary PSK, DPSK, QPSK, QASK, Binary FSK, MSK, Performance comparison of various systems of Digital Modulation.

BASEBAND DATA TRANSMISSION 9

Sampling theorem, Reconstruction of message from its samples, PCM DPCM, DM, ADM, ISI, Nyquist Criterion for distortion less baseband binary transmission.

SPREAD SPECTRUM AND MULTIPLE ACCESS TECHNIQUES 9

Introduction, Pseudo-noise sequence, DS spread spectrum with coherent binary PSK, Processing gain, Probability of error, FH spread spectrum, multiple access techniques.

L: 45 T: 15 TOTAL: 60 Hrs

REFERENCES

1. Wayne Tomasi, "Electronic Communication Systems: Fundamentals Through Advanced", Pearson Education, 2001.
2. Simon Haykin, Digital Communications, John Wiley & Sons, 2003.
3. Simon Haykin, Communication Systems, John Wiley & Sons, 4th edn.,2001.
4. Taub & Schilling, Principles of Communication Systems, TMH, 2nd edn., 2003.
5. Martin S.Roden, Analog and Digital Communication System, PHI, 3rd edn. 2002.
6. Blake, Electronic Communication Systems, Thomson Delman, 2nd edn., 2002

U13GST001	ENVIRONMENTAL SCIENCE AND ENGINEERING (Common to all branches)	L	T	P	C
		3	0	0	3

OBJECTIVES

At the end of this course the student is expected to understand what constitutes the environment, what are precious resources in the environment, how to conserve these resources, what is the role of a human being in maintaining a clean environment and useful environment for the future generations and how to maintain ecological balance and preserve bio-diversity.

COURSE OUTCOMES

On successful completion of this course, students should be able to:

1. Play an important role in transferring a healthy environment for future generations
2. Analyse the impact of engineering solutions in a global and societal context
3. Discuss contemporary issues that results in environmental degradation and would attempt to provide solutions to overcome those problems
4. Ability to consider issues of environment and sustainable development in his personal and professional undertakings
5. Highlight the importance of ecosystem and biodiversity
6. Paraphrase the importance of conservation of resources

INTRODUCTION TO ENVIRONMENTAL STUDIES AND NATURAL RESOURCES 10

Definition, scope and importance – Need for public awareness – Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people – Water resources: Use and overutilization of surface and ground water, floods, drought, conflicts over water, dams benefits and problems – Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies – Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies – Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies – Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification – Role of an individual in conservation of natural resources – Equitable use of resources for sustainable lifestyles.

ECOSYSTEMS AND BIODIVERSITY 14

ECOSYSTEM : Concept of an ecosystem – Structure and function of an ecosystem: Producers, consumers and decomposers, Energy flow in the ecosystem, Food chains, food webs and ecological pyramids - Ecological succession – Introduction, types, characteristic features, structure and function of the (a) Forest ecosystem (b) Grassland ecosystem (c) Desert ecosystem (d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) –

BIODIVERSITY : Introduction to Biodiversity – Definition: genetic, species and ecosystem diversity – Biogeographical classification of India – Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values – Biodiversity at global, National and local levels – India as a mega-diversity nation – Hot-spots of biodiversity – Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts – Endangered and endemic species of India – Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

ENVIRONMENTAL POLLUTION **8**

Definition – Causes, effects and control measures of: (a) Air pollution (b) Water pollution (c) Soil pollution (d) Marine pollution (e) Noise pollution (f) Thermal pollution (g) Nuclear hazards – Solid waste Management: Causes, effects and control measures of urban and industrial wastes – Role of an individual in prevention of pollution – Pollution case studies – Disaster management: floods, earthquake, cyclone and landslides.

SOCIAL ISSUES AND THE ENVIRONMENT **7**

From Unsustainable to Sustainable development – Urban problems related to energy – Water conservation, rain water harvesting, watershed management – Resettlement and rehabilitation of people; its problems and concerns, case studies – Environmental ethics: Issues and possible solutions – Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. – Wasteland reclamation – Consumerism and waste products – Environment Production Act – Air (Prevention and Control of Pollution) Act – Water (Prevention and control of Pollution) Act – Wildlife Protection Act – Forest Conservation Act – Issues involved in enforcement of environmental legislation – Public awareness

HUMAN POPULATION AND THE ENVIRONMENT **6**

Population growth, variation among nations – Population explosion – Family Welfare Programme – Environment and human health – Human Rights – Value Education – HIV / AIDS – Women and Child Welfare – Role of Information Technology in Environment and human health – Case studies.

Field Work

Visit to local area to document environmental assets- river / grassland / hill / mountain, visit to local polluted site- urban / rural / industrial / agricultural, study of common plants, insects, birds, study of simple ecosystems-pond, river, hill slopes etc.,

TOTAL: 45 Hrs

REFERENCES

1. Miller T.G. Jr., Environmental Science, Wadsworth Publishing Co., 2013
2. Masters G.M., and Ela W.P., Introduction to Environmental Engineering and Science, Pearson Education Pvt., Ltd., Second Edition.

3. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad India., 2002
4. Trivedi R.K and Goel P.K., "Introduction to Air pollution" Techno-science Pubications. 2003
5. Trivedi R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol. I and II, Enviro Media. 1996
6. Cunningham, W.P., Cooper, T.H.., & Gorhani E., Environmental Encyclopedia, Jaico Publ., House, Mumbai, 2001
7. Wager K.D., Environmental Management, W.B. Saunders Co., Philadelphia, USA, 1998
8. Townsend C., Harper J and Michael Begon, "Essentials of Ecology", Blackwell science Publishing Co., 2003
9. Syed Shabudeen, P.S. Environmental chemistry, Inder Publishers, Coimbatore. 2013

U13ITP301	DATA STRUCTURES AND ALGORITHMS LABORATORY	L	T	P	C
		0	0	3	1

OBJECTIVES

- To gain knowledge about the implementation of different data structures.
- To choose the appropriate data structure for a specified application.

COURSE OUTCOMES

On successful completion of this course, students should be able to:

1. Implement various basic data structures and its operations. [S]
2. Implement various sorting and searching algorithms. [S]
3. Perform various tree operations [S]
4. Solve problems using graphs. [S]
5. Develop simple applications using various data structures. [S]

List of Experiments

1. Array based implementation of stack and queue.
2. Linked list implementations and problems related to linked list such as inverting list, concatenation, etc.
3. Linked list based implementation of stack and queue
4. Problems related to applications of stack
5. Search Tree ADT - Binary Search Tree and traversal
6. AVL tree implementation
7. Implementation of Hash Tables
8. Implementation of graph traversal
9. Implementation of Dijkstra's algorithm
10. Implementation of minimum spanning tree algorithm
11. Sorting – Heap sort, Quick sort, Merge sort
12. Searching – Linear search, Binary search

U13ITP302 DIGITAL SYSTEMS AND DESIGN LABORATORY

L	T	P	C
0	0	3	1

OBJECTIVES

- To provide students in-depth practical base of the Digital Electronics.
- To familiarize the students regarding designing of different types of the Digital circuits.
- To provide the computational details for Digital Circuits.

COURSE OUTCOMES

On successful completion of this course the student should be able to

1. Construct truth table for specific digital logic functionality. [S]
2. Simplify digital logic function using optimal minimization techniques. [S]
3. Construct, analyze and troubleshoot the digital circuits. [S]
4. Solve the real time problems related to digital circuits. [S]
5. Examine the designed digital circuits using VHDL. [S]

List of Experiments

1. Verification of Boolean theorems using digital logic gates
2. Design and implementation of combinational circuits using basic gates for arbitrary functions, code converters, etc.
3. Design and implementation of 4-bit binary adder / subtractor using basic gates and MSI devices
4. Design and implementation of parity generator / checker using basic gates and MSI devices
5. Design and implementation of magnitude comparator
6. Design and implementation of application using multiplexers
7. Design and implementation of shift registers
8. Design and implementation of synchronous and asynchronous counters
9. Simulation study of any combinational and sequential circuit using VHDL.

U13ITP303 OBJECT ORIENTED PROGRAMMING LABORATORY

L	T	P	C
0	0	3	1

OBJECTIVES

- To learn an object oriented way of solving problems.
- To implement various concepts of OOP using C++.

COURSE OUTCOMES

On successful completion of this course, students should be able to:

1. Use C++ features that replace C Constructs
2. Apply class components that protect data integrity and produce classes that are re-usable and maintainable [S]
3. Implement polymorphism by using virtual functions in C++ [S]
4. Test a C++ program for errors and exceptions [S]
5. Construct a simple application using object oriented concepts [S]

List of Experiments

1. Simple class, objects and array of objects.
2. Function Overloading
3. Constructor, Destructor, Constructor Overloading
4. Unary and binary operator overloading
5. Inheritance, Data conversions
6. Static data and Static function
7. Virtual function and virtual base class
8. Class Templates, Function Templates
9. Exception handling
10. File operations

	L	T	P	C
U13GHP301 FAMILY VALUES	**1**	**0**	**1**	**1**

(Common to all branches of Engineering and Technology)

OBJECTIVES

- To inculcate the basic need for family life and peace in it.
- To lead spiritual development through good family life.
- To respect womanhood and live disease free life.
- To live with sound health.
- To reach Intuition.

Course outcomes

1. Develop skills in maintaining harmony among the family members.
2. Acquire skills in traditional yogasanas leading to sound health.
3. Behaves as a family member and leading to a blissful family life.
4. Learnt Food is Medicine.

RESTRAINT IN FAMILY **4**

Definition - Greatness of life force & mind. Introduction - Kayakalpa yoga -aim - maintaining youthfulness – sex & spirituality – ten stage of mind – mental frequency-method of concentration – kayakalpa philosophy - physical body – sexual vital fluid – life force – bio-magnetism - mind –food transformation into seven minerals – postponing the ageing process – death – importance of kayakalpa training.

SPIRITUAL DEVELOPMENT THROUGH GOOD FAMILY LIFE **4**

Kayakalpa exercise – methods –aswinimudhra – ojus breathing – explanations – benefits – practices – Responsibility of men and women – introduction a good education – need of morality – spiritual development.Revision of previous physical exercises. Introduction – hints & caution – body massaging – accu-pressure –relaxation.

PEACE IN FAMILY. **4**

Family value – meaning – Introduction – values – benefits of blessings – effect of vibrations – make blessings a daily habit – greatness of friendship – individual & family peace – reason for misunderstanding in the family – no comment – no command – no demand – no ego – peace of mind.

GREATNESS OF WOMANHOOD & FOOD IS MEDICINE **4**

Good–cultured behavioral patterns – love and compassion - Greatness of womanhood – Food is medicine (healthy food habits)

SIMPLIFIED PHYSICAL EXERCISES **7**

Simplified physical exercises – Kaya Kalpa Yoga (Benefits related to the Patient, Tolerance, Sacrifice)

MEDITATION & YOGASANAS **7**

Thuriya meditation – introduction – practice – benefits. Asanas– ashtanga yoga – pathanjali maharishi –hints & cautions – posture - movement – involvement – standing asanas: thadasana – ekapathasana – chakrasana(side) – uthkatasana – trikonasana. Sittingasanas: thandasana – padmasana – vajrasana – suhasana – siddhasana – parvathasana – yogamudhra.Downward lying asanas: makkarasana – bhujangasana – salabhasana –navukasana– dhanurasana. Upward lying asanas: savasana - arthapavanamukthasana– pavanamukthasana – utthanapathasana – navasana& Surya namaskara.

TOTAL: 30 Hrs

References Books:

1. Yoga for Modern Age ---- Vethathiri Maharishi
2. The Man making Messages ---- Swami Vivekananda
3. Manavalakalai Part- 1&2&3 ---- Vethathiri Maharishi
4. Value Education for Health & Happiness and Harmony. ---- Vethathiriyam

SEMSTER IV

U13MAT401	SIGNALS AND SYSTEMS (Common to CSE and IT)	L	T	P	C
		3	1	0	4

OBJECTIVES

- To identify continuous time systems and signals that interact with them
- To apply laws of physics to derive simple models for real-life dynamic systems
- To obtain system behavior through model based simulation
- To represent periodic signals using Fourier series and understand the significance of frequency spectra
- To understand Fourier Transformation of aperiodic signals and the resulting continuous spectra
- To infer linear time invariant system behavior through state space as well as frequency domain models.

COURSE OUTCOMES

On successful completion of this course, students should be able to:

1. Apply laws of Physics to model simple real life systems to predict its dynamic behavior
2. Use Fourier analysis to identify the frequency characteristics of signals of interest
3. Use time domain and frequency domain methods to understand the inherent behavior of LTI systems
4. Take up advanced courses on system dynamics, digital signal processing and design of feedback control systems

REPRESENTATION OF SIGNALS AND SYSTEMS **3**

Introduction to systems, signals and their interaction.

Continuous time and discrete time signals, periodic and aperiodic signals, energy and power signals.

Representation of simple systems with examples. Linear and nonlinear systems, Systems with and without memory, Time varying and time- invariant systems

DYNAMIC SYSTEM MODELING & SIMULATION **12**

Lumped element modeling - Laws of Physics applied to Simple Mechanical Systems and RLC Electrical circuits.

System State - State variables and forms of state equations. Matrix representation of state equations for linear dynamic systems – Free response and forced response

Time response from general system models through numerical integration. Use of Continuous System Simulation Tools (MATLAB)

PERIODIC SIGNALS AND FOURIER SERIES **7**

Obtaining trigonometric Fourier series – Exponential Fourier Series –Fourier Spectra – Parseval's Theorem- Linearity and time-shifting properties of Fourier Series

FOURIER TRANSFORMS FOR APERIODIC SIGNALS **10**

Fourier Transform(FT) pair and equations relating them – Magnitude and phase spectra from Fourier Transforms – Linearity, time scaling , time shifting, time differentiation and integration properties of FTs - Parseval's Energy Theorem – Existence condition for FT

ANALYSIS OF LINEAR TIME INVARIANT(LTI) SYSTEMS USING TRANSFORMS **13**

Impulse Response of LTI system- Convolution integral – FT for convolved time signals - Transfer function of LTI system using Fourier Transform – System gain and phase responses in sinusoidal steady state – Bode plots – Applications in Communication and Control – Analog filters

L: 45 T: 15 TOTAL: 60 Hrs

REFERENCES

1. Mrinal Mandal and Amrit Asif, `Continuous and Discrete Time Signals and Systems', Cambridge University Press, 2007
2. P.D. Cha, J.J. Rosenberg & C.L. Dym, `Fundamentals of Modeling and Analyzing Engineering Systems', Cambridge University Press, 2000
3. W.Y. Yang et. al., `Signals and Systems with MATLAB', Springer, 2009
4. A.V. Oppenheim & A.S. Willsky, `Signals & Systems', PHI Learning Pvt.Ltd.,2011
5. V. Krishnaveni & A. Rajeshwari, `Signals & Systems',Wiley – India, 2012.

U13ITT401 **MICROPROCESSORS** **L T P C**
(Common to CSE and IT) **3 0 0 3**

OBJECTIVES

- To study the architecture and instruction set of 8085.
- To develop assembly language programs in 8085.
- To study different peripheral devices and their interfacing to 8085.
- To study the architecture and instruction set of ARM processor and develop assembly language programs.

COURSE OUTCOMES

On successful completion of this course, students should be able to:

1. Identify the basic functions and explain the instruction set of 8085 microprocessor. [K3]
2. Make use of the instruction set of 8085 microprocessor and develop assembly code to solve problems. [K3]
3. Illustrate functions of various general purpose interfacing devices. [K2]
4. Explain the architecture and instruction set of ARM processor. [K2]
5. Compare the architecture and instruction set of ARM processor with 8085 microprocessor. [K2]

THE 8085 MICROPROCESSOR **9**

Introduction to 8085 - Microprocessor architecture and its operations –8085 MPU - Example of a 8085 based Microcomputer - Instruction set- Addressing modes- Timing diagram of 8085 (Opcode fetch, Memory Read/Write, I/O Read/Write).

PROGRAMMING THE 8085 **9**

Programming techniques –Counters – Time Delays – Stack and Subroutines – Code conversion – BCD Arithmetic - Interrupts- Memory mapped I/O and I/O mapped I/O for 8085.

GENERAL PURPOSE INTERFACING DEVICES **8**

8255A Programmable Peripheral Interface - IC 8251A Serial Communication Interface – 8253 Programmable Interval Timer IC - IC 8279 Programmable Keyboard /Display Interface – 8259A Programmable Interrupt Controller.

ARM ARCHITECTURE **9**

Acorn RISC Machine – Architecture Inheritance – ARM Programming Model- ARM Development Tools – 3 and 5 Stage Pipeline ARM Organization - ARM Instruction Execution and Implementation – ARM Co-Processor Interface.

ARM ASEEMBLY LANGUAGE PROGRAMMING **10**

ARM Instruction Types – Data Transfer, Data Processing and Control Flow Instructions - ARM Instruction Set – Co-Processor Instructions.

TOTAL: 45 Hrs

REFERENCES

1. Ramesh S.Gaonkar, "Microprocessor - Architecture, Programming and Applications with the 8085", Penram International Publishing Private Limited, Sixth Edition, 2013.
2. Steve Furber, "ARM System on Chip Architecture" Addison- Wesley Professional Second Edition.
3. Douglas V.Hall, "Microprocessors and Interfacing: Programming and Hardware", TMH, Third edition.
4. Krishna Kant, "Microprocessors and Microcontrollers: Architecture, Programming and System Design 8085, 8086, 8051, 8096, Prentice Hall of India Pvt. Ltd., 2012.
5. Andrew N.Sloss, Dominic Symes and Chris Wright " ARM System Developer's Guide : Designing and Optimizing System Software" , First edition, Morgan Kaufmann Publishers, 2004.

U13ITT402 DESIGN AND ANALYSIS OF ALGORITHMS
(Common to CSE and IT)

L	T	P	C
3	1	0	4

OBJECTIVES

- To introduce basic concepts of algorithms.
- To introduce mathematical aspects and analysis of algorithms.
- To introduce various algorithm design methods.

COURSE OUTCOMES

On successful completion of this course, students should be able to:

1. Explain the fundamentals of analysis of algorithm [K2]
2. Explain mathematical analysis for recursive and non-recursive Algorithms [K3]
3. Identify various algorithms design techniques suitable for different types of problem[K3]
4. Develop algorithms for real life problems using different design techniques[K3]
5. Analyze algorithms and estimate their best-case, worst-case and average-case behavior [K4]

INTRODUCTION 8

Notion of Algorithm - Fundamentals of Algorithmic Problem Solving - Important Problem Types – Fundamentals of the Analysis of Algorithm Efficiency: Analysis Framework - Asymptotic Notations and Basic Efficiency Classes.

ALGORITHM ANALYSIS 9

Mathematical Analysis of Non-recursive Algorithms - Mathematical Analysis of Recursive Algorithms - Fibonacci Numbers- Empirical Analysis of Algorithms - Algorithm Visualization.

ALGORITHM DESIGN METHODS 10

Brute Force Method: Selection Sort and Bubble Sort - Sequential Search and Brute-Force string matching-closest pair problem-Exhaustive search.

Divide and Conquer Method: Merge Sort - Multiplication of large integers-Strassen's Matrix Multiplication- closest pair problem and Convex Hull Problem

Decrease and Conquer Method: Josephus Problem.

Transform and Conquer Method: Presorting

ALGORITHM DESIGN METHODS 10

Dynamic Programming: Warshall's and Floyd's Algorithm - Optimal Binary Search Trees- 0/1 knapsack using dynamic programming – Travelling salesperson problem

Greedy Technique: General Method – Knapsack problem – Job sequencing with deadlines - Optimal storage on tapes –Huffman trees.

ALGORITHM DESIGN METHODS 8

Backtracking: N-Queen's Problem - Hamiltonian Circuit Problem - Subset-Sum Problem.- Graph colouring.

Branch and Bound: Assignment Problem - Knapsack Problem - Traveling Salesman Problem.

L: 45 T: 15 TOTAL: 60 Hrs

REFERENCES

1. Anany Levitin, "Introduction to the Design and Analysis of Algorithms", Third Edition, Pearson Education Asia, 2008.
2. Ellis Horowitz, Sartaj Sahni and Sanguthevar Rajasekaran, Fundamentals of Computer Algorithms, Second Edition, Universities Press, Hyderabad, 2008.
3. Thomas H Cormen, Charles E Leiserson, Ronald L Rivest and Clifford Stein, Introduction to Algorithms, Second Edition, Prentice Hall of India,New Delhi, 2007
4. Sara Baase and Allen Van Gelder, "Computer Algorithms - Introduction to Design and Analysis", Pearson Education Asia, 2003.
5. A.V.Aho, J.E. Hopcroft and J.D.Ullman, "The Design and Analysis of Computer Algorithms",Pearson Education Asia, 2003.

U13ITT403	USER INTERFACE DESIGN	L	T	P	C
		3	0	0	3

OBJECTIVES

- Know and be able to apply practical guidelines for making interfaces more usable.
- Ability to critically analyses real user interface needs for concrete software systems
- Able to develop how human –computer interaction (HCI) fits into the software design process

COURSE OUTCOMES

1. Describe Human Computer Interaction(K1)
2. Articulate and apply common design principles for making good decisions in the design of user interfaces.(K3)
3. Create effective instructions for test users for conducting usability tests (K3)
4. Identify cognitive mechanisms and explain how they account for common errors (K1)
5. Describe the results of a design process, both in oral and written form (K1)

8

Introduction – Importance – Human - Computer interface - characteristics of graphics interface - Direct manipulation graphical system - web user interface - popularity characteristic & principles.

10

User interface design process – obstacles – usability - human characteristics in design - Human interaction speed - business functions - requirement analysis – Direct - Indirect methods - basic business functions - Design standards - system timings – Human consideration in screen design - structures of menus - functions of menus - contents of menu - formatting - phrasing the menu - selecting menu choice- navigating menus – graphical menus.

9

Windows: Characteristics – components - presentation styles - types managements organizations – operations - web systems –device -based controls: characteristics -Screen - based controls: operate control - text boxes - selection control - combination control – custom - control-presentation control.

9

Text for web pages - effective feedback - guidance & assistance- Internationalization accessibility – Icons – Image - Multimedia - coloring.

9

Windows layout - test: prototypes - kinds of tests - retest - Information search - visualization - Hypermedia - www - Software tools.

TOTAL : 45 Hrs

REFERENCES

1. Wilbent. O. Galitz ,"The Essential Guide To User Interface Design", John Wiley& Sons,2007.
2. Ben Sheiderman, "Design The User Interface", Fourth Edition, Pearson Education, 2009.
3. Alan Cooper, "The Essential Of User Interface Design", Wiley - Dream Tech Ltd., 2002.

U13ITT404	DATABASE MANAGEMENT SYSTEMS (Common to CSE and IT)	L	T	P	C
		3	0	0	3

OBJECTIVES

- To learn the fundamentals of data models and to conceptualize and depict a database system.
- To study SQL commands and relational database design.
- To understand the internal storage structures and indexing techniques.
- To know the fundamental concepts of transaction processing and concurrent transaction processing.

COURSE OUTCOMES

On successful completion of this course, students should be able to:

1. Define the fundamental elements of a database management system and how they work together (K1)
2. Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and database language SQL(K2)
3. Explain the basic concepts of query processing, transaction management and storage and file structures(K2)
4. Take part in database design and implementation.[K4]
5. Construct a database for a given problem. [K3]

10

Database System Architecture: Purpose of Database Systems-Views of Data- Database Languages-Data Storage and Querying-Transaction Management-Database Architecture-Database Users and Administrators

Relational Databases: Structure of Relational Databases-Database Schema-Keys-Schema Diagram

Formal Relational Query Languages: Relational Algebra –Tuple and Domain Relational Calculus.

10

Database Design and E-R Model: Overview-Entity Relationship Model-Constraints-Removing Redundant Attributes in Entity Sets-E-R Diagrams

Introduction to SQL: Overview of SQL Query Languages-SQL Data Definition-Basic Structure Of SQL Queries- Additional Basic Operations-Set Operations-Aggregate Functions-Nested Sub Queries-Join Expressions-Views-Transactions-Integrity Constraints-SQL Data Types and Schemes-Authorization.

Advanced SQL: Accessing SQL from a Programming Languages-Functions and Procedures-Triggers,

8

Relational Database Design: Features of Good Relational Database Design –Informal Guide Lines For Relational Schemas- Decomposition Using Functional Dependencies-Functional Dependency Theory-First, Second, Third And Boyce Codd Normal Forms

Data Storage: Overview of Physical Storage Media-RAID-File Organization-Organization of Records in Files-Data Dictionary Storage.

8

Data Indexing and Hashing: Basic Concepts-Ordered Indices-B+ Tree Index Files-Multiple Key Access-Static and Dynamic Hashing.

Query Processing: Overview-Measures of Query Cost-Selection, Sorting and Join Operations-Other Operations-Evaluations of Expressions.

9

Transaction Management: Transaction Concept-Transaction Model-Transaction Atomicity, Durability and Isolation-Serializability

Concurrency Control: Lock Based Protocols-Time Stamped Based Protocols-Deadlock Handling

Recovery System: Failure Classification-Storage-Log Based Recovery-Shadow Paging

TOTAL: 45 Hrs

REFERENCES

1. Abraham Silberschatz, Henry Korth, and S. Sudarshan, Database System Concepts, Sixth edition, McGraw-Hill.2011.
2. R. Elmasri and S. Navathe, Fundamentals of Database Systems,Sixth Edition, Pearson Education,2011
3. Thomas M. Connolly and Carolyn E. Begg, "Database Systems - A Practical Approach to Design, Implementation, and Management", fifth edition, Pearson Education, 2010.
4. C.J.Date, A.Kannan and S.Swamynathan,"An Introduction to Database Systems", Eighth Edition, Pearson Education, 2006.

	L	T	P	C
U13CST302 COMPUTER ARCHITECTURE (Common to CSE and IT)	**3**	**1**	**0**	**4**

OBJECTIVES

- To understand the basic structure of a digital computer.
- To discuss the operation of various components of computing systems.
- To study the different ways of communicating with I/O devices.
- To enhance the processor operation by employing pipelining.

COURSE OUTCOMES

On successful completion of this course, students should be able to:

1. Explain the organization and working principle of computer hardware components (K2)
2. Demonstrate the operation of arithmetic unit.(K2)
3. Explain the hierarchical memory system and data transfer with in a digital computer(K2)
4. Explain the ways of communication between a processor and I/O devices.(K2)
5. Examine the execution sequence of an instruction through the processor(K3)

BASIC STRUCTURE OF COMPUTERS **7**

Functional Units - Basic Operational Concepts - Bus Structures - Software Performance - Memory Locations and Addresses - Memory Operations - Instruction and Instruction Sequencing - Addressing Modes - Assembly Language - Basic I/O Operations - Stacks and Queues.

MEMORY SYSTEM **8**

Basic Concepts - Semiconductor RAM- ROM- Speed, Size and Cost - Cache Memories - Performance Considerations - Virtual Memory- Memory Management Requirements.

ARITHMETIC UNIT **11**

Addition and Subtraction of Signed Numbers - Design of Fast Adders - Multiplication of Positive Numbers - Signed Operand Multiplication and Fast Multiplication - Integer Division - Floating Point Numbers and Operations.

BASIC PROCESSING UNIT AND PIPELINING **12**

Fundamental Concepts - Execution of a Complete Instruction - Multiple Bus Organization - Hardwired Control - Microprogrammed Control - Pipelining - Basic Concepts - Data Hazards - Instruction Hazards - Influence on Instruction Sets- Data path and control considerations- Superscalar operation.

I/O ORGANIZATION **7**

Accessing I/O Devices - Interrupts - Direct Memory Access - Buses - Standard I/O Interfaces (PCI, SCSI, USB).

L: 45 T: 15 TOTAL: 60 Hrs

REFERENCES

1. Carl Hamacher, Zvonko Vranesic and Safwat Zaky, "Computer Organization", 5th Edition McGraw-Hill, 2002.
2. William Stallings, "Computer Organization and Architecture - Designing for Performance", 9th Edition, Prentice Hall, 2012.
3. David A.Patterson and John L.Hennessy, "Computer Organization and Design: The hardware / software interface", 4th Edition, Morgan Kaufmann, 2008.
4. John P.Hayes, "Computer Architecture and Organization", 3rd Edition, McGraw Hill, 2002.

U13ITP401 MICROPROCESSORS LABORATORY

L	T	P	C
0	0	3	1

OBJECTIVES

- To understand the use of the 8085 trainer kit to execute programs for 8085.
- To develop assembly language programs in 8085 and ARM.
- To develop programs using interfacing devices with 8085.

COURSE OUTCOMES

On successful completion of this course, students should be able to:

1. Make use of assemble language program for code conversions. [S]
2. Develop assembly language programs to solve simple problems. [S]
3. Analyze and improve programs in assembly language. [S]
4. Experiment with interfacing devices. [S]
5. Develop simple real time applications using 8085 and ARM processor. [S]

List of Experiments using 8085 and ARM

1. Programs using loops.
2. Programs using counting.
3. Arranging the set of numbers in ascending order.
4. Code conversion - Binary to Hexadecimal and Hexadecimal to Binary.
5. Traffic Light Interface
6. Key board interfacing.
7. Stepper Motor Controller.
8. Mini project

	L	T	P	C
U13ITP402 DATABASE MANAGEMENT SYSTEMS LABORATORY	**0**	**0**	**3**	**1**

OBJECTIVES

- Acquire knowledge in relational database design
- Understand and use SQL queries, ODBC/JDBC and its implementations.
- Develop skills related to relational database design for real world problem.

COURSE OUTCOMES

On successful completion of this course, students should be able to:

1. Design entity-relationship diagrams to represent simple database application scenarios (S)
2. Convert entity-relationship diagrams into relational tables by using normalization (S)
3. Develop skills related to populating and querying a database (S)
4. Perform programming using high level language (S)
5. Design and build a database with GUI using a 4GL (S)
6. Develop team spirit and professional attitude towards the development of database applications (A)

Experiments

1. DDL and DML commands
2. Transaction control commands and aggregate functions
3. Joins and Nested Queries
4. Constraints and Views
5. High level programming language extensions (Control structures, Procedures and Functions).
6. Cursors and Triggers
7. Embedded SQL
8. Database Design and implementation with any one front end tool (Mini Project)

Sample List of projects

1. Hospital management
2. Railway ticket reservation
3. Student Mark list processing
4. Employee pay roll processing
5. Inventory control

U13GHP 401 PROFESSIONAL VALUES

L	T	P	C
1	0	1	1

(Common to all branches of Engineering and Technology)

OBJECTIVES:

- To know the 5 Cs (Clarity, courage, confidence, commitment, compassion)
- To Know the 5 Es(Energy, Enthusiasm, Efficiency, Enterprise, Excellence)
- To Practice the IQ Questions and given to the result
- To Learn about Professional Ethics
- To know the examples for Self Control

COURSE OUTCOMES

1. Acquire knowledge on the Clarity, courage, confidence, commitment, compassion for a good Professionalize
2. Demonstrate Skills of IQ test
3. Contribute to the better Management of Time
4. Behave a good Professionalism from Quality Enhancement

PERSONALITY CONCEPTS - 5C'S & 5E'S **5**

Personality-concepts, definition,-types of personality-personality development activities- how to develop a good personality factors affecting personality development tools of improve personality-steps to a dynamic personality-5 C's and 5 E's

TIME MANAGEMENT **5**

Self-development – importance of self development – how to develop oneself – continuous learning – laser focus +persistence – working a plan – sound mind follows sound body – complete responsibility – practice – those who make it, made it – never give-up – meditation – ten commandments of self development – self control technique for teenagers.

LEADERSHIP TRAITS **5**

Leadership traits – style – factors of leadership – principles of leadership - time management – importance of time management – benefits – top five time sucks of the average Human –time management for college students. Passion for excellence – what is passion? – Why passion? – Value of life – index of life – fuel for fulfillment – secret of physical & spiritual fitness – improves learning ability.

EMPOWERMENT OF MIND **5**

IQ, - Factors affecting the intelligence quotient – IQ and the brain – sex – race – age – relationship between IQ & intelligence – how to develop good intelligence quotient power –

exercise can improve IQ – food plan to increase IQ – meditation – reading – playing – try right with opposite hands – learn new things - the IQ tests. EQ – emotional Intelligence – list positive & negative emotions. SQ – spiritual quotients – definition – basic science of spiritual quotient – how to build SQ? – Relationship between IQ, EQ, SQ.

MEDITATION **3**

Panchendhriya meditation – Introduction – practice – benefits.

SIMPLIFIED PHYSICAL EXERCISE& YOGASANAS **7**

Asanas – revision of previous asanas–standing asanas: natarasana –virabhadrasana – pathangusthasana– ardhachandrasana–utthithatrikonasana–parsvakonasana.

TOTAL : 30 Hours

References Books:

1. Personality & Self Development –ICFAI University
2. Leadership-Dr.A Chandra Mohan
3. Intelligence-Swami Vivekananda
4. Ways to make every second valuable- Robert W. Bly
5. Manavalkkalai Part-II-Vethathiri Maharishi
6. Professional Ethics& Human Values-D.R Kiran&S.Bhaskar
7. Extraordinary performance from ordinary people- Keith Ward& Cliff Bowman,
8. Mind-Vethathiri Maharishi.
9. Manavalkkalai Part-I-Vethathiri Maharishi,
10. Self Cotrol-Russell Kelfer

		L	T	P	C
U13ENP401	**COMMUNICATION SKILLS LABORATORY**	**0**	**0**	**3**	**1**

(Common to all branches of Engineering and Technology)

OBJECTIVES

- To impart communicative ability to exhibit the individual's subject knowledge
- To achieve the desirable communicative competence by the students to meet the expectation of corporate
- To show the need for a comprehensive link language to share subject expertise
- To offer adequate exposure to soft skills needed for the corporate.
- To sensitize towards corporate culture.

COURSE OUTCOMES

On completion of the course the student should be able to

1. Present the individual, academic curricular and career profiles
2. Speak to prove the industry-ready communication competency in GDs & interviews
3. Project desirable soft skills to interface the corporate

GRAMMAR IN COMMUNICATION **9**

Grammar and Usage – Building Blocks, Homonyms, Subject and Verb Agreement, Error Correction - Grammar Application, Framing Questions – Question words, Verbal Questions, Tags, Giving Replies –Types of Sentences, Listening Comprehension –Listening and Ear training.

ASSERTIVE COMMUNICATION **9**

Listening Comprehension in Cross–Cultural Ambience, Telephonic Conversations/Etiquette, Role Play Activities, Dramatizing Situations- Extempore – Idioms and Phrases.

CORPORATE COMMUNICATION **9**

Video Sensitizing, Communicative Courtesy – Interactions – Situational Conversations, Time Management, Stress Management Techniques, Verbal Reasoning, Current Affairs – E Mail Communication / Etiquette.

PUBLIC SPEAKING **9**

Giving Seminars and Presentations, Nuances of Addressing a Gathering - one to one/ one to a few/ one to many, Communication Process, Visual Aids & their Preparation, Accent Neutralization, Analyzing the Audience, Nonverbal Communication.

INTERVIEW & GD TECHNIQUES **9**

Importance of Body Language –Gestures & Postures and Proxemics, Extempore, Facing the Interview Panel, Interview FAQs, Psychometric Tests and Stress Interviews, Introduction to GD, Mock GD Practices.

TOTAL: 45 Hrs

REFERENCES

1. Bhatnagar R.P. & Rahul Bhargava, "English for Competitive Examinations", Macmillian Publishers, India, 1989, ISBN: 9780333925591
2. Devadoss K. & Malathy P., "Career Skills for Engineers", National Book Publishers, Chennai, 2013.
3. Aggarwal R.S., "A Modern Approach to Verbal & Non–Verbal Reasoning", S.Chand Publishers, India, 2012, ISBN : 8121905516