VELTECH HIGH TECH

DR RANGARAJAN DR. SAKUNTHALA ENGINEERING COLLEGE

(Owned by Vel Trust 1997)
(AN ISO 9001: 2008 CERTIFIED INSTITUTION)
Accredited By NAAC with 'A' Grade and NBA Accredited Institution
(Approved by AICTE New Delhi and Govt. of Tamil Nadu, Affiliated to Anna University Chennai)

SYLLABUS

WEEKLY SCHEDULE

III SEMESTER   2017-18

DEPARTMENT OF INFORMATION TECHNOLOGY

IV YEAR DEGREE COURSE

#42, Avadi – Vel Tech Road,
Avadi
Chennai – 600062
Telephone – 044-26840181
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Institution vision and mission

The vision

- Elevating well being of humanity by augmenting human resource potential through quality technical education and training.

The mission

- To Effectuate supremacy in technical education through articulation of research and industry practices for social relevance .
- To inculcate the habit of lifelong learning.
- To exhibit professional ethics, commitment and leadership qualities

Department of Information Technology

Vision

- To emerge as centre for academic eminence in the field of information technology through innovative learning practices.

Mission

- **M1** - To provide good teaching and learning environment for quality education in the field of information technology.
- **M2** - To propagate lifelong learning.
- **M3** - To impart the right proportion of knowledge, attitudes and ethics in students to enable them take up positions of responsibility in the society and make significant contributions.

PROGRAM EDUCATIVE OBJECTIVES

1. The graduates of Information Technology Engineering Program should be able to Excel in professional carrier and or higher education by acquiring knowledge in mathematical, computing and engineering principles.

2. The Graduates of Information Technology Engineering Program should have an exposure to emerging cutting edge technologies, adequate training and opportunities to work as teams on multidisciplinary projects with effective communication skills.

3. The Graduates of Information Technology Engineering Program should be able to establish an understanding of professionalism, ethics, public policy and aesthetics that allows them to become good professional Engineers

4. The graduates should be able to advance professionally through organized training or self-learning in areas related to computer science and information technology.

5. The graduates of Information Technology Engineering Program should be able to develop an ability to analyze the requirements, understand the technical specifications, design and provide novel engineering solutions and produce efficient product designs.

Programme Outcomes (POs)

Graduates of the 4-year B.Tech. Information Technology (IT) Programme will:

1. Apply knowledge of **mathematics, natural science**, **engineering** fundamentals, software development, Database management, computer networking, data communication, and information security to the solution of complex engineering problems in Information Technology.

2. Ability to **identify**, **formulate** and **analyze complex** technical problems in the recent cutting edge areas of hardware and software applications to reach significant conclusions by applying Mathematics, Natural sciences.

3. Ability to analysis, **design**, test and documentation of computer programs, maintenance of networks, databases, security and computer systems (both hardware and software) and providing optimum **design solutions** to meet specified needs of the recent trends.

4. Ability to use **research based knowledge** and **research methods** to perform literature survey, design experiments for complex problems in designing, developing

and maintaining a computing system, collect data from the experimental outcome, analyze and interpret valid / interesting patterns and conclusions from the data points.

5. Ability to create, select and apply **state of the art tools** and techniques in designing, developing and testing a computing system with the help of latest application software, operating systems, simulation and databases tools.

6. Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to **professional engineering practice** in system development and solutions to **complex engineering problems** related to Information technologies

7. Understand and evaluate the sustainability and **impact of professional engineering** work in the solution of complex engineering problems related to societal and environmental contexts with full responsibilities.

8. An understanding of **professional** and **ethical responsibility** and commitment to them.

9. Ability to function effectively to strive towards **achieving a common goal** as an individual in a group and with the capacity to be a team leader.

10. **Communicate effectively** on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions

11. Ability to function on **multi-disciplinary** teams, apply engineering and **management knowledge** and techniques to estimate time and resources needed to complete a computer **engineering projects**

12. Recognize the need for, and have the preparation and ability to **engage in independent** and **lifelong learning** in the broadest context of technological change.

WEEK DETAILS

SL.NO.	WEEK	FROM	TO
1	WEEK1	24.06.2017	-
2	WEEK2	27.06.2017	01.07.2017
3	WEEK3	03.07.2017	08.07.2017
4	WEEK4	10.07.2017	15.07.2017
5	WEEK5	17.07.2017	22.07.2017
6	WEEK6	24.07.2017	29.07.2017
7	WEEK7	31.07.2017	05.08.2017
8	WEEK8	07.08.2017	12.08.2017
9	WEEK9	16.08.2017	19.08.2017
10	WEEK10	21.08.2017	26.08.2017
11	WEEK11	28.08.2017	1.09.2017
12	WEEK12	4.09.2017	9.09.2017
13	WEEK13	11.09.2017	16.09.2017
14	WEEK14	18.09.2017	23.09.2017
15	WEEK15	25.09.2017	28.09.2017
16	WEEK16	3.10.2017	7.10.2017
17	WEEK17	09.10.2017	14.10.2017

SUBJECT CONTENTS

SL.NO	SUBJECT CODE	SUBJECT NAME
THEORY		
1	MA6351	Transforms and Partial Differential Equations
2	CS6301	Programming and Data structures -II
3	CS6302	Database Management Systems
4	CS6303	Computer Architecture
5	CS6304	Analog and Digital Communication
6	GE6351	Environmental science and Engineering
PRACTICAL		
7	IT6311	Programming and Data structures Laboratory-II
8	IT6312	Database Management Systems Laboratory
9	IT6313	Digital Communication Laboratory

TEST / EXAM SCHEDULE

SL. NO	SUBJECT CODE	SUBJECT NAME	UNIT TEST I	UNIT TEST II	Pre Model Exam	UNIT TEST IV	MODEL EXAM
1	MA6351	Transforms and Partial Differential Equations	10.07.2017 FN	27.07.2017 FN	06.08.2017 FN	7.09.17 FN	28.09.2017 FN
2	CS6301	Programming and Data structures -II	10.07.2017 AN	27.07.2017 AN	07.08.2017 AN	7.09.17 AN	04.10.2017 FN
3	CS6302	Database Management Systems	11.07.2017 FN	28.07.2017 FN	08.09.2017 FN	8.09.17 FN	06.10.2017 FN
4	CS6303	Computer Architecture	11.07.2017 AN	28.07.2017 AN	09.08.2017 AN	8.09.17 AN	9.10.2017 FN
5	CS6304	Analog and Digital Communication	12.07.2017 FN	29.07.2017 FN	10.08.2017 FN	9.09.17 FN	11.10.2017 FN
6	GE6351	Environmental science and Engineering	12.07.2017 AN	29.07.2017 AN	12.08.2017 AN	9.09.17 AN	13.10.2017 FN

MA6351 TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS

WEEK 1

UNIT I PARTIAL DIFFERENTIAL EQUATIONS

Formation of partial differential equations

WEEK 2

– Singular integrals - Solutions of standard types of first order partial differential equations - Lagrange's linear equation --

WEEK 3

Non-homogeneous types - Linear partial differential equations of second and higher order with constant coefficients of both homogeneous

WEEK 4 UNIT TEST-I

UNIT II FOURIER SERIES

Dirichlet's conditions – General Fourier series – Odd and even functions – Half range sine series

WEEK 5

Half range cosine series – Complex form of Fourier series Parseval's identity – Harmonic analysis

WEEK 6 UNIT TEST-II

WEEK 7

UNIT III APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS

Classification of PDE – Method of separation of variables **WEEK 8**

- Solutions of one dimensional wave Equation

WEEK 9 PRE MODEL - 1

WEEK 10

One dimensional equation of heat conduction – Steady state solution of two dimensional Equation of heat conduction (excluding insulated edges)

UNIT IV FOURIER TRANSFORMS

Statement of Fourier integral theorem – Fourier transforms pair – Fourier sine

WEEK 11

Cosine transforms – Properties

WEEK 12

Transforms of simple functions – Convolution theorem – Parseval**'**s identity

WEEK 13 UNIT TEST-IV

WEEK 14

UNIT V Z - TRANSFORMS AND DIFFERENCE EQUATIONS

Z- transforms - Elementary properties – Inverse Z - transform (using partial fraction and residues)

WEEK 15

Convolution theorem - Formation of difference equations Solution of difference equations using Z – transforms

WEEK-16 MODEL EXAM
WEEK-17- MODEL EXAM

TEXT BOOKS:

1. Veerarajan. T., "Transforms and Partial Differential Equations", Tata McGraw Hill Education Pvt.Ltd., New Delhi, Second reprint, 2012.

2. Grewal. B.S., "Higher Engineering Mathematics", 42nd Edition, Khanna Publishers, Delhi, 2012.

3. Narayanan.S, Manicavachagom Pillay.T.K and Ramanaiah.G "Advanced Mathematics for Engineering Students" Vol. II & III, S.Viswanathan Publishers Pvt Ltd.1998.

REFERENCES:

1. Bali.N.P and Manish Goyal, "A Textbook of Engineering Mathematics", 7th Edition, Laxmi Publications Pvt Ltd , 2007.

2. Ramana.B.V., "Higher Engineering Mathematics", Tata McGrawHill Publishing Company Limited, New Delhi, 2008.

3. Glyn James, "Advanced Modern Engineering Mathematics", 3rd Edition, Pearson Education, 2007.

4. Erwin Kreyszig, "Advanced Engineering Mathematics", 8th Edition, Wiley India, 2007.

5. Ray Wylie. C and Barrett.L.C, "Advanced Engineering Mathematics" Tata Mc Graw Hill Education Pvt Ltd, Sixth Edition, New Delhi, 2012.

6. Datta.K.B., "Mathematical Methods of Science and Engineering", Cengage Learning India Pvt Ltd, Delhi, 2013

CS6301PROGRAMMING AND DATA STRUCTURES -II

WEEK 1: UNIT I OBJECT ORIENTED PROGRAMMING FUNDAMENTALS
C++ Programming features - Data
WEEK 2:
Constant members – member functions – pointers – references - Abstraction - Encapsulation - class - object - constructors - static members
WEEK 3:
Role of this pointer – Storage classes – function as arguments.

WEEK 4: UNIT TEST-I
UNIT II OBJECT ORIENTED PROGRAMMING CONCEPTS
String Handling – Copy Constructor - Polymorphism – compile time and run time polymorphisms – function overloading
WEEK 5:
Operators overloading – dynamic memory allocation - Nested classes - Inheritance.

WEEK 6: UNIT TEST-II
virtual functions- Abstract class
WEEK 7: UNIT III C++ PROGRAMMING ADVANCED FEATURES
Exception handling - Standard libraries - Generic Programming - templates – class template
WEEK 8:
Function template – STL – containers – iterators – function adaptors Allocators - Parameterizing the class - File handling concepts.
WEEK 9: PRE MODEL
WEEK 10: UNIT TEST-III

UNIT IV ADVANCED NON-LINEAR DATA STRUCTURES

AVL trees – B-Trees – Red-Black trees – Splay trees - Binomial Heaps

WEEK 11:

Fibonacci Heaps – Disjoint Sets – Amortized Analysis

WEEK 12:

Accounting method – potential method – aggregate analysis **WEEK 13: UNIT TEST-IV**

WEEK 14: REVISION CLASSES (UNIT 1- IV)

WEEK 15: UNIT V   GRAPHS

Representation of Graphs – Breadth-first search – Depth-first search – Topological sort – Minimum Spanning Trees – Kruskal and Prim algorithm - Shortest path algorithm – Dijkstra's algorithm – Bellman-Ford algorithm – Floyd-Warshall algorithm.

WEEK 16: **MODEL EXAM**

WEEK 17: MODEL EXAM

Text Books:

1.Bjarne Stroustrup, **"The C++ Programming Language"**, 3rd Edition, Pearson Education, 2007.
2. Mark Allen Weiss, **"Data Structures and Algorithm Analysis in C++"**, 2nd Edition, Pearson Education, 2005.

REFERENCES:

1. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein, "Introduction to Algorithms", Second Edition, Mc Graw Hill, 2002.
2. Michael T Goodrich, Roberto Tamassia, David Mount, **"Data Structures and Algorithms in C++"**, 7th Edition, Wiley Publishers, 2004.

CS6302 DATABASE MANAGEMENT SYSTEMS

WEEK 1: UNIT I INTRODUCTION TO DBMS
File Systems Organization – Sequential

WEEK 2:

, Pointer, Indexed, Direct - Purpose of Database System- Database System Terminologies-Database characteristics- Data models – Types of data models – Components of DBMS

WEEK 3:
Relational Algebra. Logical Database Design: Relational DBMS - Codd's Rule - Entity-Relationship model - Extended ER Normalization – Functional Dependencies, Anomaly- 1NF to 5NF-Domain Key Normal Form – Demoralization

WEEK 4: UNIT TEST-I
UNIT II   SQL & QUERY OPTIMIZATION

SQL Standards - Data types - Database Objects- DDL-DML-DCL-TCL-Embedded SQL-Static Vs Dynamic SQL

WEEK 5:
QUERY OPTIMIZATION: Query Processing and Optimization - Heuristics and Cost Estimates in Query Optimization

WEEK 6: UNIT TEST-II
WEEK 7:.UNIT III   TRANSACTION PROCESSING AND CONCURRENCY CONTROL
 Introduction-Properties of Transaction- Serializability

WEEK 8:
Concurrency Control – Locking Mechanisms - Two Phase Commit Protocol-Dead lock

WEEK 9: PRE MODEL
WEEK 10: UNIT TEST-III
UNIT IV TRENDS IN DATABASE TECHNOLOGY Overview of Physical Storage Media – Magnetic Disks – RAID – Tertiary storage – File Organization – Organization of Records in Files

WEEK 11

Indexing and Hashing –Ordered Indices – B+ tree Index Files – B tree Index Files – Static Hashing – Dynamic Hashing - Introduction to Distributed Databases- Client server technology

WEEK 12:

Multidimensional and parallel databases- Spatial and multimedia databases- Mobile and web databases- Data Warehouse-Mining- Data marts

WEEK 13: UNIT TEST-IV

WEEK 14:

Types of Privileges –Cryptography- Statistical Databases.-Distributed Databases-Architecture-Transaction Processing

WEEK 15: UNIT V ADVANCED TOPICS

DATABASE SECURITY: Data Classification-Threats and risks – Database access Control – Data Warehousing and Mining-Classification-Association rules-Clustering-Information Retrieval-Relevance ranking-Crawling and Indexing the Web- Object Oriented Databases-XML Databases.

WEEK 16: MODEL EXAM

WEEK-17- MODEL EXAM

TEXT BOOKS:

1. Ramez Elmasri and Shamkant B. Navathe, "Fundamentals of Database Systems", Fifth Edition, Pearson Education, 2008.

REFERENCE:

1.Abraham Silberschatz, Henry F. Korth and S. Sudharshan, "Database System Concepts", Sixth Edition, Tata McGraw Hill, 2011.
2. C.J.Date, A.Kannan and S.Swamynathan, "An Introduction to Database Systems", Eighth Edition, Pearson Education, 2006.
3. Atul Kahate, "Introduction to Database Management Systems", Pearson Education, New Delhi, 2006.
4. Alexis Leon and Mathews Leon, "Database Management Systems", Vikas Publishing House Private Limited, New Delhi, 2003.

5. Raghu Ramakrishnan, **"Database Management Systems"**, Fourth Edition, Tata McGraw Hill, 2010.
6. G.K.Gupta,**"Database Management Systems"**, Tata McGraw Hill, 2011.
7. Rob Cornell, **"Database Systems Design and Implementation"**, Cengage Learning, 2011.

CS6303 COMPUTER ARCHITECTURE

WEEK 1: UNIT I OVERVIEW & INSTRUCTIONS
Eight ideas – Components of a computer system – Technology – Performance
WEEK 2:
Power wall – Uniprocessors to multiprocessors; Instructions – operations and operands
WEEK 3:
Representing instructions – Logical operations – control operations – Addressing and addressing modes.

WEEK 4: UNIT TEST-I
UNIT II ARITHMETIC OPERATIONS
ALU - Addition and subtraction – Multiplication – Division
WEEK 5:
Floating Point operations – Subword parallelism.
WEEK 6: UNIT TEST-II
WEEK 7: UNIT III PROCESSOR AND CONTROL UNIT
Basic MIPS implementation – Building data path
WEEK 8:
Control Implementation scheme – Pipelining – Pipelined datapath and control - Handling Data hazards & Control hazards – Exceptions

WEEK 9: PRE MODEL
WEEK 10: UNIT TEST-III
UNIT IV PARALLELISM
Instruction-level-parallelism – Parallel processing challenges

WEEK 11:
Flynn's classification – Hardware multithreading
WEEK 12:
Multicore processors.

WEEK 13: UNIT TEST-IV

WEEK 14:
Memory hierarchy - Memory technologies – Cache basics –
Measuring and improving cache performance

WEEK 15: UNIT V MEMORY AND I/O SYSTEMS
Virtual memory, TLBs - Input/output system, programmed I/O, DMA
and interrupts, I/O processors.

WEEK 16: MODEL EXAM
WEEK-17- MODEL EXAM

TEXT BOOK:
1. David A. Patterson and John L. Hennessey, **"Computer organization
and design, Morgan auffman / lsevier, Fifth edition, 2014.

.

REFERENCES:

1. V.Carl Hamacher, Zvonko G. Varanesic and Safat G. Zaky,
"Computer Organisation", VI edition, McGraw-Hill Inc, 2012.
2. William Stallings **"Computer Organization and
Architecture"**, Seventh Edition, Pearson Education, 2006.

3. Vincent P. Heuring, Harry F. Jordan, **"Computer System
Architecture"**, Second Edition, Pearson Education, 2005.
4. Govindarajalu, **"Computer Architecture and Organization,
Design Principles and Applications"**, first edition, Tata McGraw
Hill, New Delhi, 2005.
5. John P. Hayes, **"Computer Architecture and Organization"**,
Third Edition, Tata McGraw Hill, 1998.
6. http://nptel.ac.in/.

CS6304 ANALOG AND DIGITAL COMMUNICATION

WEEK 1: UNIT I ANALOG COMMUNICATION
Noise: Source of Noise - External Noise-

WEEK 2:
Modulation – Types - Need for Modulation. Theory of Amplitude Modulation - Evolution and Description of SSB Techniques - Internal Noise- Noise Calculation.
WEEK 3:
Introduction to Communication Systems - Theory of Frequency and Phase Modulation – Comparison of various Analog Communication System (AM – FM – PM).

WEEK 4: UNIT TEST-I
UNIT II   DIGITAL COMMUNICATION
Amplitude Shift Keying (ASK) – Frequency Shift Keying (FSK) Minimum Shift Keying (MSK) –Phase Shift Keying (PSK) – BPSK – QPSK – 8 PSK – 16 PSK
WEEK 5:
Quadrature Amplitude Modulation (QAM) – 8 QAM – 16 QAM – Bandwidth Efficiency– Comparison of various Digital Communication System (ASK – FSK – PSK – QAM).
WEEK 6: UNIT TEST-II
WEEK 7: UNIT III DATA AND PULSE COMMUNICATION

Data Communication: History of Data Communication - Standards Organizations for Data Communication- Data Communication Circuits

WEEK 8:

Data Communication Codes - Error Detection and Correction Techniques - Data communication Hardware - serial and parallel interfaces. Pulse Communication: Pulse Amplitude Modulation (PAM) - Pulse Time Modulation (PTM) – Pulse code Modulation (PCM) - Comparison of various Pulse Communication System (PAM – PTM – PCM).

WEEK 9: PRE MODEL
WEEK 10: UNIT TEST-III
UNIT IV SOURCE AND ERROR CONTROL CODING

Entropy, Source encoding theorem, Shannon fano coding, Huffman coding

WEEK 11:.

mutual information, channel capacity, channel coding theorem, Error Control Coding

WEEK 12:

linear block codes, cyclic codes, convolution codes, viterbi decoding algorithm.

WEEK 13: UNIT TEST-IV

WEEK 14:

Channel Assignment and Hand off - Overview of Multiple Access Schemes - Satellite Communication - Bluetooth. Code division multiple access (CDMA)

WEEK 15: UNIT V MULTI-USER RADIO COMMUNICATION
Advanced Mobile Phone System (AMPS) - Global System for Mobile Communications (GSM) - Code division multiple access (CDMA) Cellular Concept and Frequency Reuse -

WEEK 16: MODEL EXAM
WEEK17: MODEL EXAM
TEXT BOOK:

1.Wayne Tomasi, **"Advanced Electronic Communication Systems"**, 6th Edition, Pearson Education, 2009.

REFERENCES:
1.Simon Haykin, **"Communication Systems"**, 4th Edition, John Wiley & Sons, 2004

2. Rappaport T.S, "Wireless Communications: Principles and Practice", 2nd Edition, Pearson Education, 2007

3. H.Taub, D L Schilling and G Saha, **"Principles of Communication"**, 3rd Edition, Pearson Education, 2007.
4. B. P.Lathi, **"Modern Analog and Digital Communication Systems"**, 3rd Edition, Oxford University Press, 2007.
5. Blake, **"Electronic Communication Systems"**, Thomson Delmar Publications, 2002.
6. Martin S.Roden, **"Analog and Digital Communication System"**, 3rd Edition, Prentice Hall of India, 2002.
7. B.Sklar, **"Digital Communication Fundamentals and Applications"** 2nd Edition Pearson Education 2007.

GE6351   ENVIRONMENTAL SCIENCE AND ENGG

WEEK 1: UNIT-1 ENVIRONMENT, ECOSYSTEMS AND BIODIVERSITY
Definition, scope and importance of Risk and hazards;
WEEK 2:
Chemical hazards, Physical hazards, Biological hazards in the environment – concept of an ecosystem – structure and function of an ecosystem – producers, consumers and decomposers-Oxygen cycle and Nitrogen cycle – energy flow in the ecosystem – ecological succession processes – 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)

Introduction to biodiversity definition: genetic, species and ecosystem diversity – biogeographical classification of India – value of biodiversity: consumptive use,

WEEK 3: UNIT TEST-I
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 wildlifeman-wildlife conflicts – endangered

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and endemic species of India – conservation of biodiversity: In-situ and ex-situ conservation of biodiversity. Field study of common plants, insects, birds Field study of simple ecosystems – pond, river, hill slopes, etc.

WEEK 4: UNIT TEST I
ENVIRONMENTAL POLLUTION

Definition – causes, effects and control measures of: (a) Air pollution (Atmospheric chemistry- Chemical composition of the atmosphere; Chemical and photochemical reactions in the atmosphere - formation of smog, PAN, acid rain, oxygen and ozone chemistry;- Mitigation procedures- Control of particulate and gaseous emission, Control of SO_2, NO_X, CO and HC) (b) Water pollution : Physical and chemical properties of terrestrial and marine water and their environmental significance; Water quality parameters – physical, chemical and biological

WEEK 5:

absorption of heavy metals - Water treatment processes. (c) Soil pollution - soil waste management: causes, effects and control measures of municipal solid wastes – (d) Marine pollution (e) Noise pollution (f) Thermal pollution (g) Nuclear hazards–role of an individual in prevention of pollution – pollution case studies – Field study of local polluted site – Urban / Rural / Industrial / Agricultural.

WEEK 6: UNIT TEST-II
WEEK 7: UNIT III NATURAL RESOURCES

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, 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

WEEK 8:

Salinity, case studies – Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Energy Conversion processes – Biogas – production and uses, anaerobic digestion; 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

WEEK 9: PRE MODEL

Equitable use of resources for sustainable lifestyles. Introduction to Environmental Biochemistry: Proteins –Biochemical degradation of pollutants, Bioconversion of pollutants. Field study of local area to document environmental assets – river / forest / grassland / hill / mountain.

WEEK 10: UNIT TEST-III
UNIT IV SOCIAL ISSUES AND THE ENVIRONMENT

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 – role of non-governmental organization- environmental ethics: Issues and possible solutions – 12 Principles of green chemistry- nuclear accidents and holocaust

WEEK 11:

Case studies. – wasteland reclamation – consumerism and waste products – environment production act – Air act – Water act – Wildlife protection act – Forest conservation act –The Biomedical Waste (Management and Handling) Rules; 1998 and amendments-scheme of labeling of environmentally friendly products (Ecomark).

WEEK 12:

Enforcement machinery involved in environmental legislation- central and state pollution control boards- disaster management: floods, earthquake, cyclone and landslides. Public awareness.

WEEK 13: UNIT TEST-IV

WEEK 14: REVISION CLASSES (UNIT 1- IV)

WEEK 15: UNIT V HUMAN POPULATION AND THE ENVIRONMENT

Population growth, variation among nations – population explosion – family welfare programme – environment and human health – human rights – value education - HIV / AIDS – women and child welfare – Environmental impact analysis (EIA)- -GIS-remote sensing-role of information technology in environment and human health – Case studies.

WEEK 16: MODEL EXAM
WEEK-17- MODEL EXAM

TEXT BOOKS:
1. Gilbert M.Masters, „Introduction to Environmental Engineering and Science", 2nd Edition, Pearson Education 2004.
2. Benny Joseph, „Environmental Science and Engineering", Tata McGraw-Hill, New Delhi, 2006.

REFERENCES:
1.R.K. Trivedi, „Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards", Vol. I and II, Enviro Media.
2. Cunningham, W.P. Cooper, T.H. Gorhani, "Environmental Encyclopedia", Jaico Publ., House, Mumbai, 2001.
3. Dharmendra S. Sengar, „Environmental law", Prentice hall of India PVT LTD,New Delhi, 2007.
4. Rajagopalan, R, „Environmental Studies-From Crisis to Cure", Oxford University Press 2005

IT6311 PROGRAMMING AND DATA STRUCTURE LTPC LABORATORY II

1. Constructors & Destructors, Copy Constructor.
2. Friend Function & Friend Class.
3. Inheritance.
4. Polymorphism & Function Overloading.
5. Virtual Functions.
6. Overload Unary & Binary Operators Both as Member Function & Non Member Function.
7. Class Templates & Function Templates.
8. Exception Handling Mechanism.
9. Standard Template Library concept.
10. File Stream classes.
11. Applications of Stack and Queue
12. Binary Search Tree
13. Tree traversal Techniques
14. Minimum Spanning Trees
15. Shortest Path Algorithms

IT6312 DATABASE MANAGEMENT SYSTEMS LABORATORY

1. Creation of a database and writing SQL queries to retrieve information from the database.

2. Performing Insertion, Deletion, Modifying, Altering, Updating and Viewing records based on conditions.

3. Creation of Views, Synonyms, Sequence, Indexes, save point.

4. Creating an Employee database to set various constraints.

5. Creating relationship between the databases.

6. Study of PL/SQL block.

7. Write a PL/SQL block to satisfy some conditions by accepting input from the user.

8. Write a PL/SQL block that handles all types of exceptions.

9. Creation of Procedures.

10. Creation of database triggers and functions

11. Mini project (Application Development using Oracle/ Mysql)
   a) Inventory Control System
   b) Material Requirement Processing.
   c) Hospital Management System.
   d) Railway Reservation System.
   e) Personal Information System.
   f) Web Based User Identification System.
   g) Timetable Management System.
   h) Hotel Management System

IT6313 DIGITAL COMMUNICATION LABORATORY

1. Signal Sampling and reconstruction
2. Amplitude modulation and demodulation
3. Frequency modulation and demodulation
4. Pulse code modulation and demodulation.
5. Delta modulation, adaptive delta Modulation
6. Line Coding Schemes
7. BFSK modulation and Demodulation (Hardware (Kit based) & Simulation using MATLAB / SCILAB / Equivalent)
8. BPSK modulation and Demodulation (Hardware& Simulation using MATLAB/SCILAB/ Equivalent)
9. FSK, PSK and DPSK schemes (Simulation)
10. Error control coding schemes (Simulation
11. Spread spectrum communication (Simulation)
12. Communication link simulation
13. TDM and FDM

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