



VEL TECH MULTI TECH
Dr RANGARAJAN Dr.SAKUNTHALA
ENGINEERING COLLEGE



(An ISO 9001: 2008 Certified Institution)

(Owned by Vel Trust)

(Approved by Govt. of Tamil Nadu and affiliated to Anna University and
Accredited by NBA, New Delhi)



SYLLABUS

WEEKLY SCHEDULE

III SEMESTER 2014 - 2015

DEPARTMENT OF CSE

IV DEGREE COURSE

42, Avadi – Alamathi Road,

Chennai – 600062

Telefax – 044-26841061

E-mail: emailto@veltechmultitech.org

Website : www.veltechmultitech.org



WEEK DETAILS

SL.NO.	WEEK	FROM	TO
1	WEEK1	24-06-2014	27-06-2014
2	WEEK2	30-06-2014	04-07-2014
3	WEEK3	07-07-2014	11-07-2014
4	WEEK4	14-07-2014	18-07-2014
5	WEEK5	21-07-2014	25-07-2014
6	WEEK6	28-07-2014	01-08-2014
7	WEEK7	04-08-2014	08-08-2014
8	WEEK8	11-08-2014	14-08-2014
9	WEEK9	18-08-2014	22-08-2014
10	WEEK10	25-08-2014	28-08-2014
11	WEEK11	01-09-2014	05-09-2014
12	WEEK12	08-09-2014	12-09-2014
13	WEEK13	15-09-2014	19-09-2014
14	WEEK14	22-09-2014	26-09-2014
15	WEEK15	29-09-2014	01-10-2014
16	WEEK16	06-10-2014	10-10-2014
17	WEEK17	13-10-2014	17-10-2014
18	WEEK18	20-10-2014	24-10-2014
19	WEEK19	27-10-2014	31-10-2014

SUBJECT CONTENTS

SL.NO	SUBJECT CODE	SUBJECT NAME
THEORY		
1	MA6351	Transforms and Partial Differential Equations
2	CS6301	Programming and Data Structure II
3	CS6302	Database Management Systems
4	CS6303	Computer Architecture
5	CS6304	Analog and Digital Communication
6	GE6351	Environmental Science and Engineering
PRACTICAL		
7	CS6311	Programming and Data Structure
8	CS6312	Database Management Systems

TEST / EXAM SCHEDULE

SL.NO	SUBJECT CODE	SUBJECT NAME	UNIT TEST I	UNIT TEST II	UNIT TEST III	UNIT TEST IV	UNIT TEST V
1	MA6351	Transforms and Partial Differential Equations	08/07/14 FN	30/07/14 FN	20/08/14 FN	09/09/14 FN	29/09/14 FN
2	CS6301	Programming and Data Structure II	08/07/14 AN	30/07/14 AN	20/08/14 AN	09/09/14 AN	29/09/14 AN
3	CS6302	Database Management Systems	09/07/14 FN	31/07/14 FN	21/08/14 FN	10/09/14 FN	30/09/14 FN
4	CS6303	Computer Architecture	09/07/14 AN	31/07/14 AN	21/08/14 AN	10/09/14 AN	30/09/14 AN
5	CS6304	Analog and Digital Communication	10/07/14 FN	01/08/14 FN	22/08/14 FN	11/09/14 FN	01/10/14 FN
6	GE6351	Environmental Science and Engineering	10/07/14 AN	01/08/14 AN	22/08/14 AN	11/09/14 AN	01/10/14 AN

SL.NO	SUBJECT CODE	SUBJECT NAME	MODEL EXAM
1	MA6351	Transforms and Partial Differential Equations	13-10-2014
2	CS6301	Programming and Data Structure II	14-10-2014
3	CS6302	Database Management Systems	15-10-2014
4	CS6303	Computer Architecture	16-10-2014
5	CS6304	Analog and Digital Communication	17-10-2014
6	GE6351	Environmental Science and Engineering	20-10-2014

MA6351 TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS

UNIT I PARTIAL DIFFERENTIAL EQUATIONS

WEEK 1 : Formation of partial differential equations – Singular integrals .

WEEK 2 : Solutions of standard types of first order partial differential equations.

WEEK 3 : Grange's linear equation -- Linear partial differential equations of second and higher order with constant coefficients of both homogeneous and non-homogeneous types.

UNIT II FOURIER SERIES

WEEK 4 : UNIT TEST-I

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

WEEK5 : Half range cosine series – Complex form of Fourier series – Parseval's identity – Harmonic analysis.

UNIT III APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS

WEEK 6 : UNIT TEST-II

WEEK 7 : Classification of PDE

WEEK 8:– Method of separation of variables - Solutions of one dimensional wave equation.

WEEK 9: One dimensional equation of heat conduction – Steady state solution of two dimensional. Equation of heat conduction (excluding insulated edges)

UNIT IV FOURIER TRANSFORMS

WEEK 10: UNIT TEST-III

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

WEEK 11: cosine transforms – Properties – Transforms of simple functions

WEEK 12: Convolution theorem – Parseval's identity.

WEEK 13 : UNIT TEST-IV

WEEK 14 :- UNIT V Z - TRANSFORMS AND DIFFERENCE EQUATIONS

Z- transforms - Elementary properties

WEEK 15 :- Inverse Z - transform (using partial fraction and residues) .

WEEK 16 :Convolution theorem - Formation of difference equations – Solution of difference equations using Z - transform.

WEEK 17: UNIT TEST-V

WEEK 18: MODEL PRACTICAL EXAM

WEEK 19: 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 Mc Graw Hill Publishing Company Limited, NewDelhi, 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.**

CS6301 PROGRAMMING AND DATA STRUCTURES II

UNIT I OBJECT ORIENTED PROGRAMMING FUNDAMENTALS

WEEK 1: C++ Programming features - Data Abstraction - Encapsulation - class - object - constructors – static members –

WEEK 2: Constant members – member functions – pointers – references - Role of this pointer –

WEEK 3: Storage classes – function as arguments.

UNIT II OBJECT ORIENTED PROGRAMMING CONCEPTS

WEEK 4: UNIT TEST-I

String Handling – Copy Constructor - Polymorphism – compile time and run time polymorphisms – function overloading

WEEK 5: operators overloading – dynamic memory allocation –

WEEK 6: Nested classes - Inheritance – virtual functions.

WEEK 7: UNIT TEST-II

UNIT III C++ PROGRAMMING ADVANCED FEATURES

WEEK 8 : Abstract class – Exception handling - Standard libraries - Generic Programming - templates –.

WEEK 9: class template - function template – STL – containers – iterators – function adaptors –

WEEK 10 : Allocators - Parameterizing the class - File handling concepts.

UNIT IV ADVANCED NON-LINEAR DATA STRUCTURES

WEEK 11: UNIT TEST-III

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

WEEK 12 :Disjoint Sets – Amortized Analysis – accounting method potential method – aggregate analysis.

WEEK 13: UNIT TEST-IV

WEEK 14:

UNIT V GRAPHS

Representation of Graphs

WEEK 15 :- Breadth-first search – Depth-first search – Topological sort –

WEEK 16 :Minimum Spanning Trees – Kruskal and Prim algorithm – Shortest path algorithm –

WEEK 17 :Dijkstra’s algorithm – Bellman-Ford algorithm – Floyd - Warshall algorithm.

WEEK 18: UNIT TEST-V

WEEK 19: 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

UNIT I INTRODUCTION TO DBMS

WEEK 1: File Systems Organization - Sequential, Pointer, Indexed, Direct - Purpose of Database System- Database System Terminologies-

WEEK 2: Database characteristics- Data models – Types of data models – Components of DBMS- Relational Algebra. LOGICAL DATABASE DESIGN: Relational DBMS - Codd's Rule - Entity-

WEEK 3: Relationship model - Extended ER Normalization – Functional Dependencies, Anomaly- 1NF to 5NF- Domain Key Normal Form – enormalization.

UNIT II SQL & QUERY OPTIMIZATION

WEEK 4: UNIT TEST-I

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

WEEK 5 : Static Vs Dynamic SQL - QUERY PTIMIZATION: Query Processing and Optimization -

WEEK 6: Heuristics and Cost Estimates in Query Optimization.

WEEK 7 : UNIT TEST-II

**UNIT III TRANSACTION PROCESSING AND
CONCURRENCY CONTROL**

**WEEK 8 :Introduction-Properties of Transaction- Serializability-
Concurrency Control –**

**WEEK 9: Locking Mechanisms- Two Phase Commit Protocol-
Dead lock.**

UNIT IV TRENDS IN DATABASE TECHNOLOGY

WEEK 10 : UNIT TEST-III

**Overview of Physical Storage Media – Magnetic Disks RAID –
Tertiary storage – File Organization –**

**WEEK 11 : Organization of Records in Files – 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: UNIT V ADVANCED TOPICS

DATABASE SECURITY: Data Classification

**WEEK 15 : -Threats and risks – Database access Control – Types
of Privileges –**

WEEK 16 :Cryptography- Statistical Databases.- Distributed Databases-Architecture- Transaction Processing-Data Warehousing and Mining-Classification-Association rules-

WEEK 17 :Clustering-Information Retrieval- Relevance ranking- Crawling and Indexing the Web- Object Oriented Databases- XML Databases.

WEEK 18: UNIT TEST-V

WEEK 19: MODEL EXAM

TEXT BOOK:

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

REFERENCES:

- 1. Abraham Silberschatz, Henry F. Korth and S.Sudharshan, “Database System Concepts”, Sixth Edition, Tata Mc Graw 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. Raghuram Krishnan, “Database Management Systems”, Fourth Edition, Tata Mc Graw Hill, 2010.

6. G.K.Gupta, “Database Management Systems”, Tata Mc Graw Hill, 201

7. Rob Cornell, “Database Systems Design and Implementation”, Cengage Learning, 2011.

CS6303 COMPUTER ARCHITECTURE

UNIT I OVERVIEW & INSTRUCTIONS

WEEK 1 :Eight ideas – Components of a computer system – Technology – Performance – Power wall – Uni-processors to multiprocessors;

WEEK 2: Instructions – operations and operands – representing instructions – Logical operations – control operations – Addressing and addressing modes.

UNIT II ARITHMETIC OPERATIONS

WEEK 3: UNIT TEST-I

ALU - Addition and subtraction – Multiplication –

WEEK 4 : Division – Floating Point operations –

WEEK 5 : Subword parallelism.

WEEK 6: UNIT TEST-II

WEEK 7 : UNIT III PROCESSOR AND CONTROL UNIT

WEEK 8: Basic MIPS implementation – Building datapath – Control Implementation scheme .

WEEK 9 :Pipelining – Pipelined data path and control – Handling Data hazards & Control hazards – Exceptions.

UNIT IV PARALLELISM

WEEK 10: UNIT TEST-III

Instruction-level-parallelism – Parallel processing challenges –

WEEK 11 : Flynn's classification – Hardware multithreading –

WEEK 12:Multicore processors

WEEK 13: UNIT TEST-IV

WEEK 14: UNIT V MEMORY AND I/O SYSTEMS

WEEK 15 :Memory hierarchy - Memory technologies – Cache basics

WEEK 16 :Measuring and improving cache performance -

Virtual memory, TLBs –

WEEK 17 :Input/output system, programmed I/O, DMA and interrupts, I/O processors.

WEEK 18: UNIT TEST-V

WEEK 19: MODEL EXAM

TEXT BOOK:

1. David A. Patterson and John L. Hennessey, “Computer organization and design”, Morgan Kauffman / Elsevier, Fifth edition, 2014.

REFERENCES:

1. V.Carl Hamacher, Zvonko G. Varanescic and Safat G. Zaky, “Computer Organisation“, VI th edition, Mc Graw-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 Mc Graw Hill, 1998.

6. <http://nptel.ac.in/>.

CS6304 ANALOG AND DIGITAL COMMUNICATION

UNIT I ANALOG COMMUNICATION

WEEK 1 :Noise: Source of Noise - External Noise- Internal Noise- Noise Calculation. Introduction to Communication Systems: Modulation – Types .

WEEK 2 :Need for Modulation. Theory of Amplitude Modulation Evolution and Description of SSB Techniques - Theory of Frequency and Phase Modulation –

WEEK 3 :Comparison of various Analog Communication System (AM – FM – PM)

UNIT II DIGITAL COMMUNICATION

WEEK 4 : UNIT TEST-I

Amplitude Shift Keying (ASK) – Frequency Shift Keying (FSK) Minimum Shift Keying (MSK) –Phase Shift Keying (PSK) .

WEEK 5 :BPSK – QPSK – 8 PSK – 16 PSK - Quadrature Amplitude Modulation (QAM) – 8 QAM – 16 QAM –

WEEK 6:Bandwidth Efficiency– Comparison of various Digital Communication System (ASK – FSK – PSK – QAM).

WEEK 7: UNIT TEST-II

WEEK 8 : UNIT III DATA AND PULSE COMMUNICATION

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

WEEK 9 - Data Communication Codes - Error Detection and Correction Techniques - Data communication Hardware - serial and parallel interfaces.

WEEK 10 :Pulse Communication: Pulse Amplitude Modulation (PAM) – Pulse Time Modulation (PTM) – Pulse code Modulation (PCM) - Comparison of various Pulse Communication System (PAM – PTM – PCM).

UNIT IV SOURCE AND ERROR CONTROL CODING

WEEK 11 : UNIT TEST-III

Entropy, Source encoding theorem, Shannon fano coding, Huffman coding, mutual information, channel capacity.

WEEK 12: channel coding theorem, Error Control Coding, linear block codes, cyclic codes, convolution codes, viterbi decoding algorithm.

WEEK 13: UNIT TEST-IV

WEEK 14: UNIT V MULTI-USER RADIO

COMMUNICATION

Advanced Mobile Phone System

WEEK 15 : (AMPS) - Global System for Mobile Communications (GSM) –

WEEK 16: Code division multiple access (CDMA) – Cellular Concept and Frequency Reuse - Channel Assignment and Hand –

WEEK 17: Overview of Multiple Access Schemes - Satellite Communication - Bluetooth.

WEEK 18: UNIT TEST-V

WEEK 19: 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” 2 nd Edition Pearson Education 2007.**

GE6351 ENVIRONMENTAL SCIENCE AND ENGINEERING

UNIT I ENVIRONMENT, ECOSYSTEMS AND BIODIVERSITY

WEEK1:Definition, scope and importance of Risk and hazards; 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 .

WEEK2: 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, productive use, social, ethical, aesthetic and option values – Biodiversity at global, national and local levels .

WEEK3: 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. Field study of common plants, insects, birds Field study of simple ecosystems – pond, river, hill slopes, etc.

UNIT II ENVIRONMENTAL POLLUTION

WEEK4: UNIT TEST-I

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 SO₂, NO_x, CO and HC)

WEEK5: (b) Water pollution : Physical and chemical properties of terrestrial and marine water and their environmental significance; Water quality parameters – physical, chemical and

biological; absorption of heavy metals - Water treatment processes. (c) Soil pollution .

WEEK6: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 7: UNIT TEST-II

WEEK 8 : 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

WEEK9:– 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, salinity.

WEEK10: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 .

WEEK11:role of an individual in conservation of natural resources – 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.

UNIT IV SOCIAL ISSUES AND THE ENVIRONMENT

WEEK12: UNIT TEST-III

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, case studies. – Wasteland reclamation – consumerism and waste products.

WEEK13: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). enforcement machinery involved in environmental legislation.

WEEK14: central and state pollution control boards- disaster management: floods, earthquake, cyclone and landslides. Public awareness.

WEEK 15: UNIT TEST-IV

WEEK 16:

UNIT V HUMAN POPULATION AND THE ENVIRONMENT

WEEK 17: Population growth, variation among nations – population explosion – family welfare programme – environment and human health – human rights – value education – HIV / AIDS .

WEEK 18: women and child welfare –Environmental impact analysis (EIA)- -GIS-remote sensing-role of information technology in environment and human health – Case studies.

WEEK 19: UNIT TEST-V

WEEK 20: 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 Mc Graw-Hill, New Delhi, 2006.

REFERENCES:

1. R.K. Trivedi, “Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standard”, 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.

CS6311 PROGRAMMING AND DATA STRUCTURE

LABORATORY II

LIST OF EXPERIMENTS:

IMPLEMENTATION IN THE FOLLOWING TOPICS:

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

CS6312 DATABASE MANAGEMENT SYSTEMS

LABORATORY

LIST OF EXPERIMENTS:

IMPLEMENTATION IN THE FOLLOWING TOPICS:

- 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**