

E.G.S. PILLAY ENGINEERING COLLEGE

(Autonomous)

Approved by AICTE, New Delhi | Affiliated to Anna University, Chennai
 Accredited by NAAC with 'A' Grade | Accredited by NBA
 NAGAPATTINAM – 611 002



B.E.Computer Science and Engineering

Third Year – Sixth Semester

Course Code	Course Name	L	T	P	C	Maximum Marks		
						CA	ES	Total
Theory Course								
1701MGX01	Professional Ethics	3	0	0	3	40	60	100
1702CS601	Web Technology	3	2	0	4	40	60	100
1702CS602	Artificial Intelligence	3	0	0	3	40	60	100
1702CS603	Distributed Systems	3	0	0	3	40	60	100
1703CS012/ 1703MG008	Data Warehousing and Data Mining / Human Rights	3	0	0	3	40	60	100
	Elective IV(Open)	3	0	0	3	40	60	100
Laboratory Course								
1702CS651	Web Technology Lab	0	0	2	1	50	50	100
1704CS652	Mobile Application Development Lab (Mini Project II)	0	0	2	1	50	50	100
1704CS653	Industrial Visit Presentation	0	0	0	1	100	-	100
1704GE651	Life Skills: Aptitude II	0	0	2	1	100	-	100

1701MGX01

PROFESSIONAL ETHICS

L	T	P	C
3	0	0	3

PREREQUISITE:

Ethical Thinking

COURSE OBJECTIVES:

1. To understand Human values, ethical theory, codes of ethics, work place responsibilities and rights.
2. To understand engineering experimentation, global issues and contemporary ethical issues
3. To understand personal ethics, legal ethics, cultural associated ethics and engineer's responsibility.

UNIT I HUMAN VALUES

09 Hours

Morals and Ethics - Honesty - Integrity - Values - Work Ethic - Civic Virtue - Respect for Others - Living Peacefully - Caring and Sharing - Self-Confidence - Courage - Co-operation - Commitment - Empathy.

UNIT II ENGINEERING ETHICS AND PROFESSIONALISM

09 Hours

Scope of 'Engineering Ethics'- Variety of moral issues - Types of inquiry - Accepting and sharing responsibility - Ethical dilemmas - Moral autonomy - Kohlberg's and Gilligan's theory - Consensus and controversy - Profession and Professionalism - Models of Professional Roles - Right action theories - Senses of corporate responsibility - Codes of ethics: Importance - justification - limitation - Abuse - Sample codes NSPE - IEEE - Institution of Engineers (India).

Unit III ENGINEERING AS SOCIAL EXPERIMENTATION

09 Hours

Engineering as experimentation - Engineers as responsible experimenters - Balanced outlook on law - Cautious optimism - Safety and risk - Assessing and reducing risk - Safe exits - The Challenger case study - Bhopal Gas Tragedy - The Three Mile Island and Chernobyl.

UNIT IV WORKPLACE RESPONSIBILITIES AND RIGHTS

09 Hours

Fundamental Rights - Responsibilities and Duties of Indian Citizens - Teamwork - Ethical corporate climate - Collegiality and loyalty - Managing conflict - Respect for authority - Collective bargaining - Confidentiality - Conflicts of interest - Occupational crime - Professional rights - Employee rights

UNIT V GLOBAL ISSUES

09 Hours

Multinational corporations: Technology transfer and appropriate technology - International rights promoting morally just measures - Environmental ethics: Engineering, ecology - economics - Human and sentient centred - and bio and eco centric ethics - Computer ethics and internet - Engineers as managers - Consulting engineers - Engineers as expert witnesses and advisors - Moral leadership.

TOTAL: 45 HOURS

FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :

1. Sample code of ethics like IETE, ASME, ASCE, Indian Institute of Materials Management.
2. Virtues for life

REFERENCES:

1. Mike W Martin and Roland Schinzinger, Ethics in Engineering, 4th edition, Tata McGraw Hill Publishing Company Pvt Ltd, New Delhi, 2014.
2. M Govindarajan, S Natarajan and V S Senthil Kumar, Engineering Ethics, PHI Learning Private Ltd, New Delhi, 2012.
3. R S Naagarazan, A text book on professional ethics and human values, New age international limited, New Delhi, 2006.
4. Charles E Harris, Michael S Protchard and Michael J Rabins, Engineering Ethics - Concepts and Cases, Wadsworth Thompson Learning, United States, 2005.
5. Charles D Fleddermann, Engineering Ethics, Pearson Education/ Prentice Hall of India, New Jersey, 2004.
6. [http://www.slideworld.org/slidestag.aspx/human-values-and- Professional-ethics](http://www.slideworld.org/slidestag.aspx/human-values-and-Professional-ethics).

1702CS601

WEB TECHNOLOGY

L	T	P	C
3	2	0	4

PREREQUISITE:

Computer basics and Programming Knowledge

COURSE OBJECTIVES:

1. To impart the new concepts in Web Technologies
2. To develop understanding about the different technologies used in the World Wide Web including XML, Perl, Rails and PHP

UNIT I INTRODUCTION

12 Hours

XHTML Evolution of HTML and XHTML- Standard XHTML Document Structure- Basic Text Markup- Images-Hypertext Links-Lists- Tables- Forms- Frames. Cascading Style Sheets Introduction to CSS – Levels of Style Sheets- Style Specification Formats- Selector Forms- Property Value Forms – Font Properties- List Properties – Color- Alignment of Text – Background Images- Span and Div Tags.

UNIT II XML

12 Hours

Introduction to SGML – features of XML - XML as a subset of SGML – XML Vs HTML – Views of an XML document - Syntax of XML- XML Document Structure – Namespaces- XML Schemas- simple XML documents – Different forms of markup that can occur in XML documents - Document Type declarations – Creating XML DTDs – Displaying XML Data in HTML browser – Converting XML to HTML with XSL minimalist XSL style sheets – XML applications

UNIT III PERL

12 Hours

Origin and Use of Perl- Scalars and their Operations – Assignment Statements and Simple Input and Output – Control Statements- Fundamentals of Arrays – Hashes References- Functions- Pattern Matching – File Input and Output – Simple programs in Perl -Using Perl for CGI Programming.

UNIT IV PHP & MySQL

12 Hours

Origin and Use of PHP- Overview of PHP- General Syntactic Characteristics Operations and Expressions- Control Statements- Arrays- Functions-Pattern Matching- Form Handling- Files-Cookies-Session Tracking - Database Connectivity, Simple programs in PHP and MySQL.

UNIT V RAILS & AJAX

12 Hours

RAILS - Overview of Rails- Document Requests- Processing Forms- Rails Application with Databases – Layouts AJAX - Ajax Overview of Ajax – Basics of Ajax – Rails with Ajax.

TOTAL: 60 HOURS

FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :

1. J query,
2. Ruby,
3. Quantum CSS

REFERENCES:

1. Deitel&Deitel, Nieto, Lin, Sadhu, XML How to Program, Pearson Education ,New Delhi, 2011
2. Kogent Learning Solutions Inc, Web Technologies Black Book, Dreamtech Press, New Delhi, 2009
3. Chris Bates, Web Programming Building Internet Applications 3rd ed., Wiley India Edition, New Delhi, 2009
4. Phil Ballard, Michael Moncur, Sams Teach Yourself Ajax, JavaScript and PHP, Pearson Education ,New Delhi, 2009.
5. Achyut S Godbole , AtulKahate, Web Technologies TCP/IP Architecture and Java Programming, 2nd ed., Tata McGraw Hill Education Private Limited, New Delhi, 2010
6. Pankaj Sharma, Introduction to Web Technology, Katson Books, New Delhi, 2008
7. Bankim Patel, LalBihariBarik, Introduction to Web Technology & Internet, Acme Learning Private Limited, New Delhi, 2009

1702CS602

ARTIFICIAL INTELLIGENCE

L	T	P	C
3	0	0	3

PREREQUISITE:

Computer algorithm design

COURSE OBJECTIVES:

1. To impart the new concepts in Web Technologies
2. To develop understanding about the different technologies used in the World Wide Web including XML, Perl, Rails and PHP

UNIT I INTRODUCTION

9 Hours

Introduction to AI-Problem formulation, Problem Definition, Problem solving methods - Problem graphs, Matching, Indexing and Heuristic functions –Hill Climbing-Depth first and Breath first, Constraints satisfaction - Related algorithms, Measure of performance and analysis of search algorithms-Game Playing

UNIT II REPRESENTATION OF KNOWLEDGE

9 Hours

Knowledge representation, Knowledge representation using Predicate logic, Introduction to predicate calculus, Resolution, Use of predicate calculus, Knowledge representation using other logic-Structured representation of knowledge.

UNIT III KNOWLEDGE INFERENCE

9 Hours

Knowledge representation -Production based system, Frame based system. Inference – Backward chaining, Forward chaining, Rule value approach, Fuzzy reasoning - Certainty factors, Bayesian Theory-Bayesian Network-Dempster - Shafer theory

UNIT IV PLANNING AND MACHINE LEARNING

9 Hours

Basic plan generation systems - Strips -Planning with state-space search – partial-order planning – planning graphs – Learning from observation - Inductive learning – Decision trees – Explanation based learning – Statistical Learning methods - Reinforcement Learning

UNIT V AI PROGRAMMING LANGUAGES

9 Hours

Introduction to Prolog: Introduction To Prolog: Syntax and Numeric Function, Basic List Manipulation Functions In Prolog, Functions, Predicates and Conditional, Input, Output and Local Variables, Iteration and Recursion, Property Lists and Arrays, Miscellaneous Topics, LISP and Other AI Programming Languages.

TOTAL: 45 HOURS

FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :

Bot Applications,
Deep Learning

REFERENCES:

1. “Artificial Intelligence” -By Elaine Rich And Kevin Knight (2nd Edition) Tata Mcgraw-Hill
2. Artificial Intelligence: A Modern Approach, Stuart Russel, Peter Norvig, PHI
3. Introduction to Prolog Programming By Carl Townsend.
4. “PROLOG Programming For Artificial Intelligence” -By Ivan Bratko(Addison-Wesley)

PREREQUISITE:

1. Operating Systems
2. Computer Networks

COURSE OBJECTIVES:

1. To know the various distributed computing system strategies.
2. To understand the levels of message passing and call semantics.
3. To learn the architecture of Remote Procedure Call.
4. To be aware of the transaction models and deadlocks.
5. To understand the purpose and categories of clock synchronization.

UNIT I BASIC CONCEPTS

9 Hours

Characterization of Distributed Systems – Examples – Resource Sharing and the Web – Challenges – System Models– Architectural and Fundamental Models – Networking and Internetworking – Types of Networks – Network Principles- Internet Protocols.

UNIT II INTERPROCESS COMMUNICATION AND DISTRIBUTED OBJECTS

9 Hours

Interprocess Communication – The API for the Internet Protocols – External Data Representation and Marshalling –Client –Server Communication – Group Communication – Case Study – Distributed Objects and Remote Invocation– Communication Between Distributed Objects – Remote Procedure Call – Events and Notifications.

UNIT III DISTRIBUTED TRANSACTIONS AND CONCURRENCY CONTROL

9 Hours

Transactions - Locks - Optimistic Concurrency Control - Timestamp Ordering - Comparison - Flat and Nested Distributed Transactions - Atomic Commit Protocols - Concurrency Control in Distributed Transactions – Distributed Deadlocks - Transaction Recovery.

UNIT IV RESOURCE MANAGEMENT

9 Hours

Time and Global States-Introduction-Clocks, Events and Process states-Synchronizing physical clocks-Logical time and logical clocks-Global states-Distributed debugging-Coordination and Agreement-Introduction-Distributed mutual exclusion-Elections Algorithm- Multicast communication-Consensus and related problems.

UNIT V DISTRIBUTED FILE SYSTEM AND NAME SERVICES

9 Hours

Distributed File Systems-Introduction-File service architecture-Network File System- Name Services – introduction -Name Services and the Domain Name System-Directory Services.

TOTAL: 45 HOURS

FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :

1. Google system Architecture
2. Amazon System Architecture

REFERENCES:

1. Andrew S. Tanenbaum, Maarten van Steen, Distributed Systems, Principles and Paradigms, Pearson Education, 2014.
2. MugheshSinghal, Niranjana G Shivaratri, Advanced Concepts in Operating Systems, Tata McGraw Hill Edition, 2011.
3. M. L. Liu, Distributed Computing Principles and Applications, Pearson Education, 2011.
4. George Coulouris, Jean Dollimore and Tim Kindberg, Distributed Systems Concepts and Design, Pearson Education, 2010
5. Pradeep K Sinha, "Distributed Operating Systems: Concepts and Design", Prentice Hall of India, 2012
6. https://onlinecourses.nptel.ac.in/noc17_cs42

PREREQUISITE:

1. Database Management Systems
2. Artificial Intelligence(classification & Knowledge Management)

COURSE OBJECTIVES:

1. To understand the concepts of data warehousing with special emphasis on architecture and design.
2. To understand the concepts of data mining
3. To understand the use of Mathematics, Statistics and Information Sciences in discovering knowledge from large databases.

UNIT I DATA WAREHOUSING

9 Hours

Introduction, Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation-Data Warehousing to Data Mining

UNIT II INTRODUCTION TO DATA MINING

9 Hours

Relation to Statistics, Databases- Data mining on Different Kind of Data – Data Mining Functionalities-Steps in Data Mining Process-Architecture of a Typical Data Mining Systems- Classification of Data Mining Systems – Data Mining Task Primitives – Integration of a Data Mining System with a Database or Data Warehouse System- Major Issues in Data Mining

UNIT III DATA PREPROCESSING AND DATA GENERALIZATION

9 Hours

Data Cleaning, Integration, Transformation, Reduction, Discretization, Concept Hierarchy Generation, Attribute Oriented Induction – An Alternative Method for Data Generalization and Concept Description

UNIT IV ASSOCIATION RULES

9 Hours

Association Rule Mining, Single-Dimensional Boolean Association Rules from Transactional Databases, Multi-Level Association Rules from Transaction Databases, Multi-dimensional Association rules from Relational Databases and Data Ware houses , Association Mining to Correlation analysis.

UNIT V CLASSIFICATION AND CLUSTERING

9 Hours

Classification and Prediction, Issues, Decision Tree Induction, Bayesian Classification, Rule Based Classification,Other Classification Methods, Prediction, Accuracy and Error Measures, Cluster Analysis, Types of data, Categorization of major clustering methods, Partitioning methods, Hierarchical methods

TOTAL: 45 HOURS

FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :

1. Descriptive data summarization
2. Constraint-Based Association Mining

REFERENCES:

1. Jiawei Han and MichelineKamber, *Data Mining: Concepts and Techniques*, Morgan Kauffman, 2011
2. Margaret H.Dunham, *Data Mining: Introductory and Advanced Topics*, Pearson Education 2006
3. PaulrajPonniah, *Data Warehousing Fundamentals: A Comprehensive Guide for IT Professionals* ,Wiley-India Pvt Ltd, 2006
4. Sam Anahory, Dennis Murry, *Data Warehousing in the Real World : A Practical Guide for Building Decision Support Systems*, Dorling Kindersley , 2005
5. David Hand, Heikki Manila, PadhraicSymth, *Principles of Data Mining*, PHI, 2004
6. NPTEL Reference :https://onlinecourses.nptel.ac.in/noc18_cs14/preview

1703MG008

HUMAN RIGHTS

L	T	P	C
3	0	0	3

PREREQUISITE:

Human Values, Basic knowledge about Indian Constitution, Needs of Human Equality

COURSE OBJECTIVES:

1. To define the term human rights and understand why it is important.
2. To sensitize the Engineering students to various aspects of Human Rights
3. To know the historical foundations and current practice of protecting human rights.

UNIT I FOUNDATION OF HUMAN RIGHTS

9 Hours

Meaning and concepts of human rights- Notion and classification of Rights –three generations of human rights- Basis and sources of human rights – Theories of human rights

UNIT II SOCIALLY AND ECONOMICALLY DISADVANTAGE AND HUMAN RIGHTS

9 Hours

Social Hierarchy, prejudices and exploitation- Economic problems: poverty, illiteracy, food security and habitation – Rural to urban migration: domestic displace to persons- Human rights of SC, ST, OBC and Minorities. Mechanisms for the protection of the rights of disadvantaged groups.

UNIT III HUMAN RIGHTS OF THE WOMEN, CHILDREN AND WORKERS

9 Hours

Gender Bias, Harassment and offenses against women – Special laws and institutional mechanism for the protection of women’s rights- Nature and Issues in child rights in India and mechanism for the protection of the child rights. (UN Convention, UNESCO Convention, and ILO Conventions) – Occupational health hazards: Bonded and unorganized workers: Protection mechanisms.

UNIT IV ENVIRONMENTAL AND HUMAN RIGHTS

9 Hours

Forest depletion and pollution of reverse system (culprits and victims)- hazards waste and discarded technological instruments-National and international obligation and Laws: RIO and KYOTO Declarations- Pollution control Mechanisms- Measures taken in India

UNIT V HUMAN RIGHTS AND DUTIES IN INTERNATIONAL PERSPECTIVE

9 Hours

Emergence of international humanitarian law- UN charter provisions of human rights- the role of the UN security council and other international organization- Amnesty and red cross- International convention on elimination of all forms of racial discrimination

TOTAL: 45 HOURS

FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :

1. Role of NGO
2. Human Rights Education: **Problems and Prospects.**

REFERENCES:

1. Kapoor S.K., —Human Rights under International law and Indian Laws, Central Law Agency, Allahabad, 2014.
2. Chandra U., —Human Rights, Allahabad Law Agency, Allahabad, 2014.
3. Landman, Todd. “Comparative Politics and Human Rights,” Human Rights Quarterly.2002
4. Forsythe, David. P - Human Rights in International Relations, New York: Cam-bridge University Press, 2001
5. Lauren, Paul Gordon. -“The Universal Declaration of Human Rights,” in The Evolution of Human Rights, University of Pennsylvania Press,1998
6. UpendraBaxi, The Future of Human Rights, Oxford University Press, New Delhi.

1702CS651

WEB TECHNOLOGY LAB

L T P C

PREREQUISITES Computer basics and Programming Knowledge

COURSE OBJECTIVES:

1. Learn to develop webpages using HTML and CSS
2. Be familiar with advanced programming such as PHP/Perl
3. Know to use AJAX in implementing Rails

LIST OF EXPERIMENTS:

1. Basic Programs using HTML
2. Programs using cascading style sheets
3. Programs to create dynamic web pages
4. Programs using HTML & XML as data store
5. Programs using Perl
6. Programs to demonstrate PHP & MySQL database connectivity
7. Programs using Perl
8. Programs using AJAX
9. Programs using Rails
10. Case Study : Create a web application for the given problem statement

Total: 45 Hours

ADDITIONAL EXPERIMENTS:

1. Programs for Rails with AJAX
2. Programs to implement JSON

REFERENCES:

1. Deitel&Deitel, Nieto, Lin, Sadhu, XML How to Program, Pearson Education ,New Delhi, 2011
2. Kogent Learning Solutions Inc, Web Technologies Black Book, Dreamtech Press, New Delhi, 2009
3. Chris Bates, Web Programming Building Internet Applications 3rd ed., Wiley India Edition, New Delhi, 2009
4. Phil Ballard, Michael Moncur, Sams Teach Yourself Ajax, JavaScript and PHP, Pearson Education ,New Delhi, 2009.
5. Achyut S Godbole , AtulKahate, Web Technologies TCP/IP Architecture and Java Programming, 2nd ed., Tata McGraw Hill Education Private Limited, New Delhi, 2010
6. Pankaj Sharma, Introduction to Web Technology, Katson Books, New Delhi, 2008
7. Bankim Patel, LalBihariBarik, Introduction to Web Technology & Internet, Acme Learning Private Limited, New Delhi, 2009

1704CS652	MOBILE APPLICATION DEVELOPMENT LAB (MINI PROJECT II)	L	T	P	C
		0	0	2	1

PREREQUISITES Java Programming

COURSE OBJECTIVES:

1. To explore about the structure of mobile development framework
2. To analyze the issues of mobile application
3. To develop the dynamic application using various parts of android projects

LIST OF EXPERIMENTS:

1. Develop an interactive application with different layout managers
2. Develop Applications with Multiple Activities and a Simple Menu using various Viewoptions
3. Develop an application for calculator operation
4. Develop an application that implements multi thread concepts
5. Develop an application using all Google map API functionalities
6. Develop an dynamic application that implements database manipulation
7. Develop an media oriented application using A/V function
8. Develop an application that writes data to the SD card.
9. Develop an application that creates an alert upon receiving a message.
10. Develop an sensor based application for ballgame sensor

Total: 30 Hours

ADDITIONAL EXPERIMENTS:

1. Develop an application that makes use of RSS Feed.
2. Write a mobile application that creates alarm clock.

COURSE OUTCOMES:

After completion of the course, Student will be able to

1. To understand the working of mobile application development
2. To paraphrase the multiple activity options in one application
3. To understand the background data processing about the application
4. To analyze the inter-thread communication between the activities and functions
5. To describe about the sensor implementation in android

REFERENCES:

1. Android 6 for Programmers: An App-Driven Approach by Paul J. Deitel , Harvey Deitel , Alexander WaldPrentice Hall; 3 edition 2015
2. Android Application Development in 24 Hours, by Carmen Delessio , Lauren Darcey , Shane ConderSams Publishing; 4 edition 2015
3. Android Cookbook: Problems and Solutions for Android Developers by Ian Darwin Shroff/O'Reilly; Second edition 2017
4. Beginning Android Programming with Android Studio by J. F. DiMarzio Wiley publication Fourth edition 2016

1704CS653

INDUSTRIAL VISIT PRESENTATION

0 0 1

In order to provide the experiential learning to the students, shall take efforts to arrange at least two industrial visit / field visits in a year. A presentation based on Industrial visits shall be made in this semester and suitable credit may be awarded.

Internal Assessment Only	
Test	40
Presentation / Quiz / Group Discussion	40
Report	20
Grades (Excellent / Good / Satisfactory / Not Satisfactory)	

1704GE651

LIFE SKILLS: APTITUDE II

L	T	P	C
0	0	2	1

PREREQUISITE :

Problem Solving techniques

COURSE OBJECTIVES:

1. To brush up problem solving skill and to improve intellectual skill of the students
2. To be able to critically evaluate various real life situations by resorting to Analysis Of key issues and factors
3. To be able to demonstrate various principles involved in solving mathematical problems and thereby reducing the time taken for performing job functions.
4. To enhance analytical ability of students
5. To augment logical and critical thinking of Student

**UNIT I Partnership, Mixtures and Allegations, Problem on Ages, Simple Interest, 6 Hours
Compound Interest**

Introduction Partnership - Relation between capitals, Period of investments and Shares- Problems on mixtures - Allegation rule - Problems on Allegation – Problems on ages - Definitions Simple Interest - Problems on interest and amount - Problems when rate of interest and time period are numerically equal - Definition and formula for amount in compound interest - Difference between simple interest and compound interest for 2 years on the same principle and time period.

UNIT II Blood relations, , Clocks, Calendars 6 Hours

Defining the various relations among the members of a family - Solving Blood Relation puzzles - Solving the problems on Blood Relations using symbols and notations - Finding the angle when the time is given - Finding the time when the angle is known - Relation between Angle, Minutes and Hours - Exceptional cases in clocks - Definition of a Leap Year - Finding the number of Odd days - Framing the year code for centuries - Finding the day of any random calendar date

UNIT III Time and Distance, Time and Work 6 Hours

Relation between speed, distance and time - Converting kmph into m/s and vice versa - Problems on average speed - Problems on relative speed - Problems on trains - Problems on boats and streams - Problems on circular tracks - Problems on races - Problems on Unitary method - Relation between Men, Days, Hours and Work - Problems on Man-Day-Hours method - Problems on alternate days - Problems on Pipes and Cisterns.

UNIT IV Data Interpretation and Data Sufficiency 6 Hours

Problems on tabular form - Problems on Line Graphs - Problems on Bar Graphs - Problems on Pie Charts - Different models in Data Sufficiency - Problems on data redundancy

UNIT V Analytical and Critical Reasoning 6 Hours

Problems on Linear arrangement - Problems on Circular arrangement - Problems on Double line-up - Problems on Selections - Problems on Comparisons - Finding the Implications for compound statements - Finding the Negations for compound statements- Problems on assumption - Problems on conclusions - Problems on inferences - Problems on strengthening and weakening of arguments .

Total: 30 Hours

FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :

REFERENCES:

1. Arun Sharma, 'How to Prepare for Quantitative Aptitude for the CAT', 7th edition, McGraw Hills publication, 2016.
2. Arun Sharma, 'How to Prepare for Logical Reasoning for CAT', 4th edition, McGraw Hills publication, 2017.
3. R S Agarwal, 'A modern approach to Logical reasoning', revised edition, S.Chand publication, 2017.
4. R S Agarwal, 'Quantitative Aptitude for Competitive Examinations', revised edition, S.Chand publication, 2017.
5. Rajesh Verma, "Fast Track Objective Arithmetic", 3rd edition, Arihant publication, 2018.
6. B.S. Sijwalii and InduSijwali, "A New Approach to REASONING Verbal & Non-Verbal", 2nd edition, Arihant publication, 2014.