

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 (CSE, EEE, MECH)
NAGAPATTINAM – 611 002



B.E. COMPUTER SCIENCE AND ENGINEERING

Second Year – Fourth Semester

Course Code	Course Name	L	T	P	C	Maximum Marks		
						CA	ES	Total
Theory Course								
1701MA401	Probability and Queuing Theory	3	2	0	4	40	60	100
1702CS401	Computer Networks	3	0	0	3	40	60	100
1702CS402	Programming Paradigms	3	2	0	4	40	60	100
1702CS403	Design & Analysis of Algorithms	3	0	0	3	40	60	100
1702CS404	Microprocessors and Microcontrollers	3	0	2	4	50	50	100
1702CSX02	Database Management Systems	3	0	0	3	40	60	100
Laboratory Course								
1702CS451	Networks Lab	0	0	2	1	50	50	100
1702CSX52	Database Management Systems Lab	0	0	2	1	50	50	100
1704GE451	Life Skills: Verbal Ability	0	0	2	1	100	-	100

L – Lecture | T – Tutorial | P – Practical | CA – Continuous Assessment | ES – End Semester

1701MA401	PROBABILITY AND QUEUEING THEORY	L	T	P	C
	(Common to B.E / B.Tech – CSE, IT)	3	2	0	4

PREREQUISITE:

Engineering Mathematics I
Engineering Mathematics II
Engineering Mathematics III

COURSE OBJECTIVES:

1. To establish the necessary background in basic probability tools and concepts.
2. To provide students with the ability to understand and conduct computer systems modeling and performance analysis.
3. To emphasis on more advance topics that are particularly useful in modeling, such as Markov models and queuing theory.

UNIT I PROBABILITY AND RANDOM VARIABLES 12 Hours

Probability- Conditional probability-Bayes's theorem-Discrete and continuous random variables –Expectation-Variance- Moments – Moment generating functions –Real Time Problems

UNIT II THEORETICAL DISTRIBUTIONS 12 Hours

Discrete Distributions: Binomial, Poisson, Geometric - Continuous Distributions: Uniform, Exponential, Normal, Gamma distributions - Application of Distribution in Engineering Problems

Unit III TWO - DIMENSIONAL RANDOM VARIABLES 12 Hours

Joint distributions – Marginal and conditional distributions – Covariance – Correlation and Linear regression

UNIT IV RANDOM PROCESSES 12 Hours

Classification – Stationary process – Markov process - Poisson process – Discrete parameter - Markov chain – Chapman Kolmogorov equations – Limiting distributions.

UNIT V QUEUEING MODELS 12 Hours

Birth and Death processes – Single and multiple server queueing models – Little's formula - Queues with finite waiting rooms- Computer Science Applications - Finite source models - M/G/1 queue – Pollaczek-Khinchine formula - M/D/1 and M/EK/1 as special case

TOTAL: 60 HOURS

FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :

- 1.Transformation of random variables.
- 2.Series queues, Jackson networks.

COURSE OUTCOMES:

After completion of the course, Students will be able to

- CO1: Determine the parameters of unpredictable experiments using probability concepts.
CO2: Construct probabilistic models for observed phenomena through discrete and continuous distributions.
CO3: Associate the random variables, by designing joint distribution and correlate the random variables.
CO4: Make use of discrete time Markov chains in probabilistic manner, to model computer systems.
CO5: Solve the queuing approaches problems using basic characteristics of queuing theory.
CO6: Utilize the queuing models to minimize the time of service in a queuing system.

REFERENCES:

- 1.Ibe.O.C., "Fundamental of Applied Probability and random Processes", Elsevier, Ist Indian Reprint, 2007
- 2.Gross.D and Harris C.M, "Fundamentals of Queuing Theory", Wiley Student Edition, 2004.
- 3.Robertazzi, "Computer Networks and Systems: Queuing Theory and performance Evaluation", Springer, 3rd Edition, 2006
- 4.TahaH.A."Operations Research", Pearson education, Asia, 8th Edition, 2007
- 5.Trivedhi K.S, "Probability and statistics with Reliability, queuing and Computer Science Applications", John Wiley and Sons, 2nd Edition, 2002
- 6.nptel.ac.in/courses/111105035, www.nptelvideos.in/2012/11/Mathematics.html
7. www.learnerstv.com/Free-maths-video lectures - ltv348-page1.html

1702CS401

COMPUTER NETWORKS

L	T	P	C
3	0	0	3

PREREQUISITE:

1. Basic Computer knowledge.
2. Computer Organization and Architecture

COURSE OBJECTIVES:

1. Understand the state-of-the-art in network protocols, architectures and applications.
2. Gain knowledge about the functions of different network layers.
3. Familiarize in the various aspects of computer networks.

UNIT I INTRODUCTION

9 Hours

Data Communications – Network Criteria - Components of Networks -Types of Connection - Direction of Data Flow - Network Topologies – Categories of Networks – Network Models: Layered Architecture - The OSI Model - TCP/IP Protocol Suite - Addressing - Networking Devices.

UNIT II PHYSICAL AND DATA LINK LAYER

10 Hours

Physical Layer- Guided transmission Media and Wireless Transmission, Media Access Control: CSMA, CSMA/CD, CSMA/CA-Ethernet-Wireless LAN- Bluetooth - Flow Control-Error Control - Error Detection Techniques- HDLC and other Data Link Protocols

UNIT III NETWORK LAYER

9 Hours

Internetworking - IPv4 - IPv6 –Network Layer: Delivery, Forwarding and Routing-Routing Protocols - IP Protocols: ARP and RARP, BOOTP, ICMP, DHCP

UNIT IV TRANSPORT LAYER

9 Hours

Overview of Transport layer, Reliable/Unreliable Transmission, TCP, UDP – TCP Connection Management - Flow Control – Congestion Control, Congestion Avoidance and Quality of Service: (QoS).

UNIT V APPLICATION LAYER

8 Hours

Domain Name System (DNS): Domain Name Space - DNS in the Internet - HTTP – Email: SMTP, POP3and IMAP - File Transfer Protocol -SNMP-Web Services.

TOTAL: 45 HOURS

FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :

SSH: Simple Socket Shell - Security Services - Firewalls.

COURSE OUTCOMES:

After completion of the course, Student will be able to

- CO1: Describe the basics of computer networks and protocols
- CO2: Apply the functions of different layers and in depth knowledge of data link layer.
- CO3: Analyze the different protocols and network layer components.
- CO4: Identify the basic functions of transport layer and congestion in networks.
- CO5: Explain the working of application layer

REFERENCES:

1. BehrouzA.Forouzan, Data Communication and Networking, 5th Edition, Tata McGraw-Hill, 2013
2. James F.Kurose and Keith W.Ross, Computer Networking: A Top-Down Approach Featuring the Internet, Pearson Education, 2017
3. Larry L.Peterson and Bruce S.Davie, Computer Networks, Elsevier, 2009
4. Andrew S.Tanenbaum, Computer Networks, Pearson Education, 2010
5. William Stallings, Data and Computer Communication, Pearson Education, 2007
6. profameencse.weebly.com
7. <http://nptel.ac.in/courses/106105081/1>

1702CS402	PROGRAMMING PARADIGMS	L	T	P	C
		3	2	0	4

PREREQUISITE:

- 1.Fundamental knowledge in programming

COURSE OBJECTIVES:

1. To evaluate fundamental concept of object oriented programming language.
- 2.To analyze the graphics application in java

UNIT I INTRODUCTION 9 Hours

Overview of java-data types-variables-operators-arrays-control statements-object and classes-methods-access specifiers-static members-finalize methods-constructors-exception handling

UNIT II INHERITANCE AND POLYMORPHISM 9 Hours

Inheritance-super keyword-types of inheritance –polymorphism-method overriding-method overloading-abstract class-inner class-interfaces-reflections

UNIT III STRING HANDLING 9 Hours

String methods-special string operation-string buffer-collection framework: collection interfaces and classes-utility classes: string utility-file utility-I/O utility-entity utility-array utility

UNIT IV GENERICS AND CONCURRENT PROGRAMMING 9 Hours

Generics overview-bounded types-wildcard arguments-generics interfaces-generics class hierarchy-restrictions in generics-multithreaded programming: thread model-thread class and runnable interfaces-extending threads-inbuilt methods-thread priorities-synchronization-inter thread communication-deadlock

UNIT V GRAPHICAL PROGRAMMING 9 Hours

Applets-architecture-working with multidimensional shapes-colors, fonts, images-event handling :event classes-listener interfaces-menus and controls-swing: key features-model view controller-swing packages-interactive application with JDBC

TOTAL: 45+15 HOURS

FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :

1. Basics of Mobile application Development
2. Java hibernate

COURSE OUTCOMES:

After completion of the course, Student will be able to

- CO1: To give examples for Basic Java constructs like constructor, methods and inheritance
CO2: Demonstrate the working of string builder and string buffer in String handling
CO3: Select one among 9 key interfaces (Collection, List, Set, Sorted Set, Navigable Set, Queue, Map, Sorted Map, Navigable Map) for manipulation of group of object
CO4: Predict the cause of deadlock by using thread class and interface
CO5: Use the model view control architecture(Applets and Swing) in real time applications

REFERENCES:

1. Murach's Beginning Java with Eclipse by Joel Murach Mike Murach& Associates Inc 2015
2. Java 8 in Action: Lambdas, Streams, and functional-style programming by by Raoul-Gabriel Urma ,Mario Fusco , Alan Mycroft Manning Publications; 1 edition 2014
3. Java Cookbook: Solutions and Examples for Java Developers by Ian F. Darwin O'Reilly Media; 3 edition 2014
4. Thinking in Java by Harry Programmers Mind Inc. 2014

1702CS403

DESIGN & ANALYSIS OF ALGORITHMS

L	T	P	C
3	0	0	3

PREREQUISITE:

- 1.Data Structures

COURSE OBJECTIVES:

1. Learn the algorithm analysis techniques.
2. Become familiar with the different algorithm design techniques.
3. Understand the limitations of Algorithm power

UNIT I INTRODUCTION TO ALGORITHM ANALYSIS

9 Hours

Notion of an Algorithm – Fundamentals of Algorithmic Problem Solving – Important Problem Types – Fundamentals of the Analysis of Algorithm Efficiency – Analysis Framework – Asymptotic Notations and its properties – Mathematical analysis for Recursive and Non-recursive algorithms.

UNIT II DIVIDE-AND-CONQUER

9 Hours

Divide and conquer methodology – Merge sort – Quick sort – Binary search –Strassen’s Matrix Multiplication-Finding Max & Min

UNIT III DYNAMIC PROGRAMMING

9 Hours

Warshall’s and Floyd’s algorithm – Optimal Binary Search Trees – 0/1 Knapsack Problem and Memory functions-Travelling Salesman Problem.

UNIT IV BACKTRACKING

9 Hours

Backtracking – n-Queens problem – Graph Coloring Problem-Hamiltonian Circuit Problem – Subset Sum Problem- Knapsack problem

UNIT V BRANCH AND BOUND

9 Hours

Branch and Bound – Assignment problem – Knapsack Problem – Traveling Salesman Problem- Approximation Algorithms for NP – Hard Problems – Traveling Salesman problem – Knapsack problem.

TOTAL: 45 HOURS

FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :

Iterative Methods – Simplex Linear Problem, Stable Marriage Problem, Bipartite Problem, Max Flow problem

COURSE OUTCOMES:

After completion of the course, Student will be able to

- CO1: Analyze the time and space complexity of algorithms.
CO2: Derive and solve recurrences describing the performance of Divide and Conquer algorithms.
CO3: Recite algorithms that employ this paradigm. Synthesize Dynamic Programming Algorithms, and Analyze them.
CO4: Synthesize new graph algorithms and algorithms that employ graph computations as key components, and analyze them.
CO5: Identify the limitations of algorithms in problem solving.

REFERENCES:

1. Harsh Bhasin, “Algorithms Design and Analysis”, Oxford university press, 2016.
2. S. Sridhar, “Design and Analysis of Algorithms”, Oxford university press, 2014.
3. Thomas H.Cormen, Charles E.Leiserson, Ronald L. Rivest and Clifford Stein, “Introduction to Algorithms”, Third Edition, PHI Learning Private Limited, 2012.
4. Alfred V. Aho, John E. Hopcroft and Jeffrey D. Ullman, “Data Structures and Algorithms”, Pearson Education, Reprint 2006.
5. Donald E. Knuth, “The Art of Computer Programming”, Volumes 1& 3 Pearson Education, 2009.
6. Steven S. Skiena, “The Algorithm Design Manual”, Second Edition, Springer, 2008
7. NPTEL Reference: <http://nptel.ac.in/courses/106101060/>

1702CS404	MICROPROCESSORS AND MICROCONTROLLERS	L	T	P	C
		3	0	2	4

PREREQUISITE:

- 1.C Programming
- 2.Digital Systems

COURSE OBJECTIVES:

- 1.To understand the architecture and functions of 8085 processor
- 2.To understand the Architecture of 8086 microprocessor
- 3.To understand the concepts of 8051 microcontroller
- 4.To learn the design aspects of I/O and Memory Interfacing circuits.
- 5.To gain the basic knowledge about advanced processors

UNIT I INTRODUCTION TO MICROPROCESSORS 9 Hours

Evolution Of Microprocessors - 8-Bit Processor - 8085 Architecture – Register Organization - Instruction Set – Timing Diagram- Addressing Modes – Interrupts- Interrupt Service Routines- Assembly Language Programming Using 8085.

UNIT II THE 8086 MICROPROCESSOR 9 Hours

Introduction to 8086 – Microprocessor architecture – Addressing modes - Instruction set and assembler directives – Assembly language programming – Modular Programming - Linking and Relocation - Stacks - Procedures – Macros – Interrupts and interrupt service routines - 8086 signals.

UNIT III MICROCONTROLLER 9 Hours

Architecture of 8051 – Special Function Registers(SFRs) - I/O Pins Ports and Circuits - Instruction set - Addressing modes - Assembly language programming.

UNIT IV I/O INTERFACING 9 Hours

Memory Interfacing and I/O interfacing - Parallel communication interface – Serial communication interface – D/A and A/D Interface - Timer – Keyboard /display controller – Interrupt controller – DMA controller – Programming and applications Case studies: Traffic Light control, LED display , LCD display, Keyboard display interface and Alarm Controller.

UNIT V ADVANCED PROCESSORS 9 Hours

Multiprocessor configurations – Intel 80286 – Internal Architectural – Register Organization – Internal Block Diagram – Architectural features and Register Organization of i386, i486 and Pentium processors. ARM architecture.

Total: 45 +15 Hours

EXPERIMENTS:

8085 Programs

1. Basic arithmetic and Logical operations
2. Sorting of an array in Ascending order and Descending order
3. Finding greatest and smallest number in an array
4. Stepper motor control
5. A/D and D/A interface and Waveform Generation

8086 Programs using kits and MASM

6. Basic arithmetic and Logical operations
7. Floating point operations, string manipulations, sorting and searching
8. Serial interface and Parallel interface

8051 Experiments using kits and MASM

9. Basic arithmetic and Logical operations
10. Square and Cube program, Find 2's complement of a number Unpacked BCD to ASCII

FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :

Intel Core i3, i5 and i7

Course Outcomes:

After completion of the course, Student will be able to

- CO1: Rerword hardware, software and programming concepts of microprocessor
- CO2: Summarize architecture, instructions and addressing modes of 8086 microprocessor
- CO3: Describe addressing modes, architecture and pin diagram of 8051 microcontroller
- CO4: Demonstrate of serial, parallel, keyboard display with microprocessor
- CO5: Apply programming concepts to make assembly language programs
- CO6: Restate architecture features of advanced processors

References:

1. Ramesh Gaonkar "Microprocessor Architecture, Programming, and Applications with the 8085"- 5th edition Penram International Publishing-2000.
2. A. K. Ray & K. M. Bhurchandi, "Advanced Microprocessors and peripherals- Architectures, Programming and Interfacing", TMH, 2002 reprint.
3. Mohamed Ali Mazidi, Janice GillispieMazidi, RolinMcKinlay, "The 8051 Microcontroller and Embedded Systems: Using Assembly and C", Second Edition, Pearson education, 2011.
4. Barry B. Brey, "The Intel Microprocessors, 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, PentiumPro Processor, PentiumII, PentiumIII, PentiumIV, Architecture, Programming & Interfacing", 6th Edition, Pearson Education/PHI, 2002.

1702CSX02	DATABASE MANAGEMENT SYSTEMS (Common to CSE and IT)	L	T	P	C
		3	0	0	3

PREREQUISITE:

- 1.Computer Programming Languages

COURSE OBJECTIVES:

- 1.To understand the fundamentals of data models and conceptualize and depict a database system using ER diagram
- 2.To make a study of SQL and relational database design
- 3.To know about data storage techniques a query processing
- 4.To impart knowledge in transaction processing, concurrency control techniques and recovery procedures.
- 5.To familiarize the students with the different types of databases.

UNIT I INTRODUCTION

9 Hours

Introduction to database - Data Base Architecture - Data Independence - Functional Dependencies -- Relational Algebra-Entity relationship model - mapping cardinalities-keys, E-R diagrams.

UNIT II QUERY LANGUAGE & OPTIMIZATION

9 Hours

Relational Calculus – Tuple Relational Calculus – Domain Relational Calculus - SQL — DDL- DML-DCL- TCL-Embedded SQL-Static Vs Dynamic SQL - Views – Constraints – Query processing and optimization- - Normal Forms – 1NF to 5NF-Domain Key Normal Form

UNIT III TRANSACTION PROCESSING

9 Hours

Transaction Processing – Properties of Transactions –Serializability - Concurrency Control-Locking Mechanisms – Time Stamp ordering –Two phase Commit Protocol-Deadlock-Recovery systems-Log-based recovery.

UNIT IV FILES AND INDEXING

9 Hours

Overview of Physical Storage Media-RAID -File Organization-File operations – Hashing Techniques – Indexing -Single level and Multi-level Indexes-B+ tree Index Files-B tree Index Files.

UNIT V ADVANCED TOPICS

9 Hours

Data warehousing, heterogeneous component systems-Data mining and knowledge discovery-OODBMS- Object Relational Databases –XML Data Base - Cloud based systems – NOSQL introduction -Hbase data model -Database Tuning -Case Study for Design and Manage the Database for any Project.

TOTAL: 45 HOURS

FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR :

1. Advanced Database Technology
2. Data mining and Data warehousing, Data Analytics

COURSE OUTCOMES:

After completion of the course, Student will be able to

- CO1: Understand the basic concepts of the database and data models.
CO2: Illustrate a database using ER diagrams and map ER into Relations and normalize the Relations.
CO3: Acquire the knowledge of query evaluation to monitor the performance of the DBMS.
CO4: Acquire the knowledge about different special purpose databases and to critique how they differ from traditional database systems.
CO5: Explain the basic concepts of distributed databases, XML and Database Security.

REFERENCES:

- 1.Abraham Silberschatz, Henry F.Korth and S.Sundarshan “Database System Concepts”, Sixth Edition, McGraw Hill, 2017.
- 2.RamezElmasri and Shamkant B. Navathe, “Fundamentals of Database Systems”, Fifth Edition, Pearson Education, 2013.
- 3.Thomas M. Connolly and Carolyn E. Begg, —Database Systems - A Practical Approach to Design, Implementation, and Managementl, fifth edition, Pearson Education, 2011
- 4.C.J.Date, A.Kannan and S.Swamynathan, —An Introduction to Database Systemsll, Eighth Edition, Pearson Education, 2012.
- 5.Raghu Ramakrishnan, —Database Management Systemsll, Fourth Edition, McGraw-Hill College Publications, 2015.
- 6.Frank. P. Coyle, “XML, Web Services And The Data Revolution”, Pearson Education, 2012
7. <http://nptel.ac.in/>
8. <http://coursera.org/>

1702CS451

NETWORKS LAB

L	T	P	C
0	0	2	1

PREREQUISITE :

1. Electronics Circuits Lab.

COURSE OBJECTIVES:

1. To configure networking in system
2. To Familiarize with different protocols and network components using java program
3. To gain knowledge about the working of routing algorithms.

LIST OF EXPERIMENTS:

1. Study of Colour coding Jack RJ45 and do the following Cabling works in a network
 - a. Cable Crimping
 - b. Standard Cabling
 - c. Cross Cabling
2. Implementation of Stop and Wait Protocol and Sliding Window Protocol
3. Implementation of distance vector and link state routing
4. Write a code simulating PING and TRACEROUTE commands
5. Create a socket for HTTP for web page upload and download
6. Implementation of Subnetting
7. Applications using TCP and UDP Sockets like a) DNS b). SNMP c). File Transfer
8. Echo client and echo server b. Chat c. File Transfer
9. Write a program to implement RPC (Remote Procedure Call)

TOTAL:45 HOURS

ADDITIONAL EXPERIMENTS/ INNOVATIVE EXPERIMENTS:

1. Socket programming
2. Implementation of Networking concepts in Linux

COURSE OUTCOMES:

After completion of the course, Student will be able to

- CO1 Identify the different types of cables in networks.
- CO2 Configure networking in a system.
- CO3 Implement and simulate protocols.
- CO4 Compare the performance of different routing algorithms using java program

REFERENCES:

- 1.. Behrouz A. Forouzan, Data Communication and Networking, 5th Edition, Tata McGraw-Hill, 2013
2. James F. Kurose and Keith W. Ross, Computer Networking: A Top-Down Approach Featuring the Internet, Pearson Education, 2012
3. Larry L. Peterson and Bruce S. Davie, Computer Networks, Elsevier, 2009
4. Andrew S. Tanenbaum, Computer Networks, Pearson Education, 2010
5. William Stallings, Data and Computer Communication, Pearson Education, 2007
6. Douglas E. Comer and M.S. Narayanan, Computer Networks and Internets, Pearson Education, 2008.
7. <http://nptel.ac.in>
8. profameencse.weebly.com

1702CSX52	DATABASE MANAGEMENT SYSTEMS LAB (Common to CSE and IT)	L	T	P	C
		0	0	2	1

PREREQUISITE:

Computer Programming Languages

COURSE OBJECTIVES:

1. Learn to create and use a database
2. Be familiarized with a query language
3. Have hands on experience on DDL Commands
4. Have a good understanding of DML Commands and DCL commands
5. Familiarize advanced SQL queries.
6. Be exposed to different applications

LIST OF 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. Procedures, Functions and Report
9. Database Design and implementation with any one front end tool (Mini Project)

Sample list of Projects

- a) Hospital management
- b) Railway ticket reservation
- c) Student Mark list processing
- d) Employee pay roll processing
- e) Inventory control

TOTAL : 45 HOURS

ADDITIONAL EXPERIMENTS/ INNOVATIVE EXPERIMENTS:

Under MoU with Oracle Academy, a programme Oracle Workforce Development Programme (OWDP) is conducted. In this programme extensive hands-on training on SQL and PL/SQL will be given to students during the Lab sessions.

1. Writing SQL queries for Hierarchical retrieval of data (tree structured data)
2. Querying Data Dictionary static Views
3. Using stored procedures and Functions for implementing object level data security

COURSE OUTCOMES:

After completion of the course, Student will be able to

- CO1 Design and implement a database schema for a given problem-domain
- CO2 Create and maintain tables using various PL/SQL statements
- CO3 Apply Triggers, Views and Embedded SQL commands to solve real time problems
- CO4 Create reports using functions and procedures
- CO5 Apply front end and back end tools for real time projects

REFERENCES:

1. <http://illearning.oracle.com>
2. <http://coursera.org/>
3. <http://nptel.ac.in/>
4. DBMS Lab Manual by EGSPEC

1704GE451	LIFE SKILLS: VERBAL ABILITY	L	T	P	C
		0	0	2	1

PREREQUISITE:

Technical English – I and II

COURSE OBJECTIVES:

1. To help students comprehend and use vocabulary words in their day to day communication.
2. To apply appropriate reading strategies for interpreting technical and non-technical documents used in job-related settings.
3. To ensure students will be able to use targeted grammatical structures meaningfully and appropriately in oral and written production.
4. To enable the students to arrange the sentences in meaningful unit and to determine whether constructions rely on active or passive voice.
5. To apply the principles of effective business writing to hone communication skills.

UNIT I VOCABULARY USAGE 6 Hours

Introduction - Synonyms and Antonyms based on Technical terms – Single word Substitution – Newspaper, Audio and video listening activity.

UNIT II COMPREHENSION ABILITY 6 Hours

Skimming and Scanning – Social Science passages – Business and Economics passages – latest political and current event based passages – Theme detection – Deriving conclusion from passages.

UNIT III BASIC GRAMMAR AND ERROR DETECTION 6 Hours

Parallelism – Redundancy – Ambiguity – Concord - Common Errors – Spotting Errors – Sentence improvement – Error Detection FAQ in Competitive exams.

UNIT IV REARRANGEMENT AND GENERAL USAGE 6 Hours

Jumble Sentences – Cloze Test - Idioms and Phrases – Active and passive voice – Spelling test.

UNIT V APPLICATION OF VERBAL ABILITY 6 Hours

Business Writing - Business Vocabulary - Delivering Good / Bad News - Media Communication - Email Etiquette – Report Writing - Proposal writing – Essay writing– Indexing –Market surveying.

Total: 30 Hours

ASSESSMENT PATTERN

1. Two assignments (2 x 25 marks = 50 marks)
2. Pragmatic assessment (50 marks)

COURSE OUTCOMES:

After completion of the course, Student will be able to

- CO1: Use new words in their day to day communication.
- CO2: Gather information swiftly while reading passages.
- CO3: Students are proficient during their oral and written communication.
- CO4: Rearrange the sentences and able to identify the voice of the sentence.
- CO5: Students use their knowledge of the best practices to craft effective business documents

REFERENCES:

1. Arun Sharma and Meenakshi Upadhyav, How to Prepare for Verbal Ability and Reading Comprehension for CAT, McGrawHill Publication, Seventh Edition 2017.
2. R S Aggarwal and Vikas Aggarwal , Quick Learning Objective General English, S.Chand Publishing House, 2017.
3. Dr.K.Alex , Soft Skills, S.Chand Publishing House, Third Revise Edition, 2014.
4. Raymond Murphy, Essential English Grammar in Use, Cambridge University press, New Delhi, Third Edition, 2007.