



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

1702CA302

DATA WAREHOUSING AND MINING

L	T	P	C
3	0	0	3

**COURSE OBJECTIVE:**The student should be able to

1. To Understand Data mining principles and techniques and Introduce DM as a cutting edge business intelligence.
2. business intelligence.
3. To expose the students to the concepts of Data warehousing Architecture and Implementation.
4. To study the overview of developing areas – Web mining, Text mining and ethical aspects of Data mining.
5. To identify Business applications and Trends of Data mining.

## UNIT I DATA WAREHOUSE

8

Data Warehousing - Operational Database Systems vs Data Warehouses - Multidimensional Data Model - Schemas for Multidimensional Databases – OLAP operations – Data Warehouse Architecture – Indexing – OLAP queries & Tools.

## UNIT II DATA MINING & DATA PREPROCESSING

9

Introduction to KDD process – Knowledge Discovery from Databases - Need for Data Preprocessing – Data Cleaning – Data Integration and Transformation – Data Reduction.

## UNIT III ASSOCIATION RULE MINING

8

Introduction - Data Mining Functionalities - Association Rule Mining –Market Basket Analysis – Mining Frequent Itemsets with Candidate Generation –Mining Frequent Itemsets without Candidate Generation Mining Various Kinds of Association Rules

## UNIT IV CLASSIFICATION & PREDICTION

10

Classification vs Prediction – Data preparation for Classification and Prediction –Naïve Bayes Classifier– Classification by Decision Tree Introduction –Associative Classification – Support Vector Machines – Prediction: Introduction –Accuracy and Error Measures – Evaluating the Accuracy of a Classifier or Predictor – Model Section

## UNIT V CLUSTERING

10

Cluster Analysis - Types of Data in Cluster Analysis – A Categorization of Major Clustering Methods – Partitioning Methods – Hierarchical methods– Grid-Based Methods –Clustering High-Dimensional Data – Constraint-Based Cluster Analysis – Outlier Analysis.

**TOTAL : 45 PERIODS**

## COURSE OUTCOMES :

Upon completion of this course, the student will:

- i. Evolve Multidimensional Intelligent model from typical system.
- ii. Discover the knowledge imbibed in the high dimensional system.
- iii. Evaluate various mining techniques on complex data objects.



## **E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)**

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

---

### **REFERENCE BOOKS:**

1. Jiawei Han and Micheline Kamber, "Data Mining Concepts and Techniques", Second Edition, Elsevier, Reprinted 2011.
2. K.P. Soman, Shyam Diwakar and V. Ajay, "Insight into Data mining Theory and Practice", Easter Economy Edition, Prentice Hall of India, 2006.
3. G. K. Gupta, "Introduction to Data Mining with Case Studies", Easter Economy Edition



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

1702CA303	OBJECT ORIENTED ANALYSIS AND DESIGN	L	T	P	C
		3	0	0	3

## COURSE OBJECTIVE:

1. To provide a brief, hands-on overview of object-oriented analysis in software process
2. To discuss Case studies based project specifications to develop object-oriented models and
3. To identify implementation strategies.
4. To demonstrate and apply basic object oriented techniques to create and modify object oriented analysis and design models.
5. To understand and apply testing techniques for object oriented software

## UNIT I INTRODUCTION 9

An overview – Object basics – Object state and properties – Behavior – Methods – Messages – Information hiding – Class hierarchy – Relationships – Associations – Aggregations – Identity – Dynamic binding – Persistence – Metaclasses – Object oriented system development life cycle.

## UNIT II METHODOLOGY AND UML 9

Introduction – Survey – Rumbaugh, Booch, Jacobson methods – Patterns – Frameworks – Unified approach – Unified modeling language – Static and Dynamic models – UML diagrams – Class diagram – Use case diagrams – Dynamic modeling – Model organization – Extensibility.

## UNIT III OBJECT ORIENTED ANALYSIS 9

Identifying Use case – Business object analysis – Use case driven object oriented analysis – Use case model – Documentation – Classification – Identifying object, relationships, attributes, methods – Super-sub class – A part of relationships Identifying attributes and methods – Object responsibility

## UNIT IV OBJECT ORIENTED DESIGN 9

Design process – Axioms – Corollaries – Designing classes – Class visibility – Refining attributes – Methods and protocols – Object storage and object interoperability – Databases – Object relational systems – Designing interface objects – Macro and Micro level processes – The purpose of a view layer interface

## UNIT V SOFTWARE QUALITY 9

Quality assurance – Testing strategies – Object orientation testing – Test cases – Test Plan – Debugging principles – Usability – Satisfaction – Usability testing – Satisfaction testing

**TOTAL : 45 PERIODS**

## COURSE OUTCOMES:

- i. Understand the basic concepts to identify state & behavior of real world objects
- ii. Able to learn the various object oriented methodologies and choose the appropriate one for solving the problem with the help of various case studies
- iii. Understand the concept of analysis, design & testing to develop a document for the project
- iv. Able to implement analysis, design & testing phases in developing a software project



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai  
(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

- v. Able to understand the testing strategies and know about automated testing tools

## REFERENCES:

1. Craig Larman, Applying UML and Patterns, 2nd Edition, Pearson, 2002.
2. Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modeling Language User Guide", Addison Wesley Long man, 1999.
3. Bernd Bruegge, Allen H. Dutoit, Object Oriented Software Engineering using UML, Patterns and Java, Pearson 2004.
4. Ali Bahrami, "Object Oriented System Development", McGraw Hill International Edition, 1999.

1702CA304

WEB PROGRAMMING

L	T	P	C
3	0	0	3

## COURSE OBJECTIVE:

1. To understand the concepts and architecture of the World Wide Web.
2. To understand and practice mark up languages
3. To understand and practice embedded dynamic scripting on client side Internet Programming
4. To understand and practice web development techniques on client-side

## UNIT I INTRODUCTION TO WWW

9

Internet Standards – Introduction to WWW – WWW Architecture – SMTP – POP3 – File Transfer Protocol - **Overview of HTTP, HTTP** request – response — Generation of dynamic web pages.

## UNIT II UI DESIGN

9

**Markup Language (HTML):** Introduction to HTML and HTML5 - Formatting and Fonts – Commenting Code – Anchors – Backgrounds – Images – Hyperlinks – Lists – Tables – Frames – HTML Forms. **Cascading Style Sheet (CSS):** The need for CSS, Introduction to CSS – Basic syntax and structure - Inline Styles – Embedding Style Sheets - Linking External Style Sheets – Backgrounds – Manipulating text - Margins and Padding - Positioning using CSS.

## UNIT III INTRODUCTION TO JAVASCRIPT

9

Introduction - Core features - Data types and Variables - Operators, Expressions, and Statements - Functions - Objects - Array, Date and Math related Objects - Document Object Model - Event Handling - Controlling Windows & Frames and Documents - Form handling and validations.

## UNIT IV ADVANCED JAVASCRIPT

9

Browser Management and Media Management – Classes – Constructors – Object-Oriented Techniques in JavaScript – Object constructor and Prototyping - Sub classes and Super classes – JSON - jQuery and AJAX.

## UNIT V PHP

9



# **E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)**

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

Introduction - How web works - Setting up the environment (LAMP server) - Programming basics - Print/echo - Variables and constants – Strings and Arrays – Operators, Control structures and looping structures – Functions – Reading Data in Web Pages - Embedding PHP within HTML – Establishing connectivity with MySQL database.

**TOTAL : 45 PERIODS**

## **COURSE OUTCOMES:**

- i. Acquire knowledge about functionalities of world wide web
- ii. Explore markup languages features and create interactive web pages using them
- iii. Learn and design Client side validation using scripting languages
- iv. Acquire knowledge about Open source JavaScript libraries
- v. Able to design front end web page and connect to the back end databases.

## **REFERENCE BOOKS:**

1. Harvey & Paul Deitel & Associates, Harvey Deitel and Abbey Deitel, “Internet and World Wide Web - How To Program”, Fifth Edition, Pearson Education, 2011.
2. Achyut S Godbole and Atul Kahate, “Web Technologies”, Second Edition, Tata McGraw Hill, 2012.
3. Thomas A Powell, Fritz Schneider, “JavaScript: The Complete Reference”, Third Edition, Tata McGraw Hill, 2013.
4. David Flanagan, “JavaScript: The Definitive Guide, Sixth Edition”, O'Reilly Media, 2011
5. Steven Holzner, “The Complete Reference - PHP”, Tata McGraw Hill, 2008
6. Mike Mcgrath, “PHP & MySQL in easy Steps”, Tata McGraw Hill, 2012.
7. <http://php.net/manual/>



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai  
(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

**1704CA307**

**TECHNICAL SEMINAR AND REPORT WRITING**

L	T	P	C
0	0	2	1

## COURSE OBJECTIVE:

1. To help students develop listening skills for academic and professional purposes.
2. To help students acquire the ability to speak effectively in English in real-life situations.
3. To inculcate reading habit and to develop effective reading skills.

The goal of this course is to train the students to critically evaluate a well-defined set of research subjects and to summarize the findings concisely in a paper of scientific quality. The paper will be evaluated based on the ability to understand a topic, communicate it and identify the issues. Results from this term paper will be presented to fellow students and a committee of faculty members.

1. Every student selects a topic related to current trends and the same should be approved by the respective committee. This selection should have at least 5 distinct primary sources.
2. Every student must write a short review of the topic and present it to fellow students and faculty (discuss the topic – expose the flaws – analyze the issues) every week.
3. The faculty should evaluate the short review and award marks with respect to the following.
  - a. Has the student analyzed – not merely quoted – the most significant portions of the primary sources employed?
  - b. Has the student offered original and convincing insights?
  - c. Plagiarism to be checked.
4. Every student should re-submit and present the review article including issues/ comments/conclusions which had arisen during the previous discussion.
5. Every student should submit a final paper as per project specifications along with all short review reports (at least 4 internal reviews) and corresponding evaluation comments.
6. Every student should appear for a final external review exam to defend themselves.

**TOTAL :30 PERIODS**

## COURSE OUTCOMES Upon completion of this course, the student will be able to:

- i. Gain confidence in facing the placement interview.
- ii. Develop effective communication skills (spoken and written).
- iii. Interact with each other and face a wide variety of issues, topics, and situations that they are likely to come across as entry level professionals.



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

2019-2020

2001CA101		<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
	<b>LINEAR ALGEBRA, PROBABILITY AND STATISTICS</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>3</b>

## COURSE OBJECTIVES:

6. To find the basis and dimension of vector space
7. To obtain the matrix of linear transformations and its eigenvalues and eigenvectors
8. To provide foundation on Applied probability
9. To use various statistical techniques in Application Problems
10. To introduce the concept of Design of Experiments for data analysis

### UNIT I VECTOR SPACES 12 Hours

Real and Complex fields - Vector spaces over Real and Complex fields - Sub space - Linear space - Linear independence and dependence - Basis and dimension.

### UNIT II LINEAR TRANSFORMATION 12 Hours

Linear transformation - Rank space and null space - Rank and nullity - Dimension theorem - Matrix representation of linear transformation - Eigenvalues and Eigenvectors of linear transformation.

### UNIT III PROBABILITY AND RANDOM VARIABLES 12 Hours

Probability - Axioms of Probability - Conditional Probability - Addition and multiplication laws of Probability - Baye's theorem - Random Variables - Discrete and continuous random variables - Probability mass function and Probability density functions - Cumulative distribution function - Moments and variance of random variables - Properties - Binomial, Poisson, Geometric, Uniform, Exponential, Normal distributions and their properties.

### UNIT IV TESTING OF HYPOTHESIS 12 Hours

Sampling distributions - Tests based on small and large samples - Normal, Student's t, Chi-square and F distributions for testing of mean, variance and proportion and testing of difference of means variances and proportions - Tests for independence of attributes and goodness of fit.

### UNIT V DESIGN OF EXPERIMENTS 12 Hours

Analysis of variance - Completely randomized design - Random block design (One-way and Twoway classifications) - Latin square design -  $2^2$  Factorial design.

**TOTAL: 60 HOURS**

## COURSE OUTCOMES:

On the successful completion of the course, students will be able to

- CO1: Test the consistency and solve system of linear equations.
- CO2: Find the basis and dimension of vector space.
- CO3: Apply the Probability axioms as well as rules and the distribution of discrete and continuous also the random variable ideas in solving real world problems.
- CO4: Use statistical techniques in testing hypothesis on data analysis.
- CO5: Use the appropriate statistical technique of design of experiments in data analysis.

## REFERENCES:





# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

7. Friedberg A.H, Insel A.J. and Spence L, Linear Algebra, Prentice Hall of India, New Delhi, 2004.
8. Faires J.D. and Burden R., Numerical Methods, Brooks/Cole (Thomson Publications), New Delhi, 2002.
9. Devore, J.L, Probability and Statistics for Engineering and Sciences, Cengage Learning, Eighth Edition, New Delhi, 2014.
10. I. Miller and M. Miller, Mathematical Statistics, Pearson Education Inc., Asia Seventh Edition, New Delhi, 2011.
11. Richard Johnson, Miller and Freund's Probability and Statistics for Engineer, Prentice Hall of India Private Ltd., Eighth Edition, New Delhi, 2011.
12. <https://nptel.ac.in/>

<b>2002CA102</b>	<b>ADVANCED DATA STRUCTURES AND ALGORITHMS</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

## PREREQUISITE :

Problem Solving And Programming

## COURSE OBJECTIVES:

1. To understand the linear and non linear data structures available in solving problems
2. To know about the sorting and searching techniques and its efficiencies
3. Using the Graph data structures and algorithms in real time applications
4. To use algorithm design paradigms for algorithm design

### UNIT I LINEAR DATA STRUCTURES

**9 Hours**

Introduction – Arrays – Structures- Abstract Data Types (ADT)- Stack- Representing Stacks- Applications of stack – Infix to postfix conversion – evaluation of expression- Queue- Representing Queue- Applications of Queue- Linked Lists –singly Linked list- Doubly Linked lists.

### UNIT II TREE STRUCTURES

**9 Hours**

Binary Trees – Operations on Binary trees – Binary Tree Representations – Node representation – Internal and External nodes- Binary tree Traversals - Binary search tree -Huffman Algorithm-

### UNIT III BALANCED SEARCH TREES, SORTING AND INDEXING

**9 Hours**

Red-Black trees –B-Trees - Sorting – Bubble sort - Quick Sort - Insertion Sort – Heap sort – Hashing - Hashing functions - Collision Resolution Techniques - Separate chaining - Open addressing - Multiple Hashing.

### UNIT IV GRAPHS

**9 Hours**

Definitions – Representation of graph - Graph Traversals - Depth-first traversal – breadth-first traversal - applications of graphs - Topological sort – shortest-path algorithms – minimum spanning tree – Prim's and Kruskal's algorithms – Single Source Shortest Path -Dijkstra's Algorithm -biconnectivity – Euler circuits.

### UNIT V ALGORITHM DESIGN AND ANALYSIS

**9 Hours**

Algorithm Analysis – Asymptotic Notations - Divide and Conquer – Merge Sort – Binary Search - Greedy Algorithms – Activity Selection Problem – Dynamic Programming – Matrix Chain Multiplication – Longest Common Subsequence- Backtracking – Sum of Subset Problem-NP Problems -Polynomial Time – Polynomial-time Verification -Vertex Cover Problem-Clique .

**TOTAL: 45 HOURS**

## FURTHER READING:

Geometric Algorithms

## COURSE OUTCOMES:

On the successful completion of the course, students will be able to

CO1: To select and apply the data structure to suit any given problem







# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

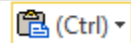
Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

2002CA104		ADVANCED DATABASES	L	T	P	C
<b>PREREQUISITE:</b>			3	0	0	3
1. Basic Data Structures.						
2. Database management system						
<b>COURSE OBJECTIVES:</b>						
1. To learn the fundamentals of Parallel and Distributed Databases						
2. To make a study on Object Oriented Databases						
3. To explore the concepts of XML Databases and Mobile Databases						
4. To gain knowledge on the intelligent Databases.						
<b>UNIT I</b>	<b>PARALLEL AND DISTRIBUTED DATABASES</b>		<b>09 Hours</b>			
Database System Architectures: Centralized and Client-Server Architectures - Server System Architectures - Parallel Systems- Distributed Systems - Parallel Databases- IO Parallelism - Inter and Intra Query Parallelism - Inter and Intra operation Parallelism - Distributed Database Concepts - Distributed Data Storage - Distributed Transactions - Commit Protocols - Server Architectures- Case Studies.						
<b>UNIT II</b>	<b>OBJECT AND OBJECT RELATIONAL DATABASES</b>		<b>09 Hours</b>			
Concepts - Object Databases - Object Oriented Database Architectures - Constructors - Encapsulation of Operations - Methods - Persistence - Type and Class Hierarchies - Inheritance - Complex Objects - Object Database Standards, Languages and Design: ODMG Model - ODL - OQL - Object Relational and Extended - Relational Systems - Object Relational features in SQL / Oracle - Case Studies.						
<b>UNIT III</b>	<b>XML DATABASES</b>		<b>09 Hours</b>			
XML Databases- XML Data Model - DTD - XML Schema - XML Querying - Web Databases - JDBC - Information Retrieval - Data Warehousing - Data Mining.						
<b>UNIT IV</b>	<b>MOBILE DATABASES</b>		<b>09 Hours</b>			
Mobile Databases- Location and Handoff Management - Effect of Mobility on Data Management - Location - Dependent Data Distribution - Mobile Transaction Models - Concurrency Control - Transaction Commit Protocols- Mobile Database Recovery- Schemas.						
<b>UNIT V</b>	<b>INTELLIGENT DATABASES</b>		<b>09 Hours</b>			
Active databases - Deductive Databases - Knowledge bases - Multimedia Databases- Multidimensional Data Structures - Image Databases - Text/Document Databases- Video Databases- Audio Databases - Multimedia Database Design - Spatial Databases.						
<b>TOTAL: 45 HOURS</b>						
<b>FURTHER READING:</b>						
Data mining and Warehousing, Big Data						
<b>COURSE OUTCOMES:</b>						
On the successful completion of the course, students will be able to						
CO1: Develop transaction processing systems with concurrency control.						
CO2: Design Object oriented databases for real time applications.						
CO3: Develop XML databases for web applications.						
CO4: Design Mobile databases for mobile devices.						
CO5: Apply intelligent/real in database development.						
<b>REFERENCES:</b>						
1. Henry F Korth, Abraham Abraham and S. Abraham, "Database System Concepts", Sixth Edition, McGraw Hill, 2011.						
2. C.J.Data, A.Kannan, S.Srinivasan, "An Introduction to Database Systems", Eighth Edition, Pearson Education, 2006.						

3. K. Elmasri, S.B. Navathe, "Fundamentals of Database Systems", Fifth Edition, Pearson Education/Addison Wesley, 2007.
4. Thomas Connolly and Carolyn Begg, "Database Systems, A Practical Approach to Design, Implementation and Management", Third Edition, Pearson Education, 2007.
5. Sebastiao, "Multimedia Databases", Morgan Kaufman Publishers, 2003.
6. Frank F. Coyler, "XML, Web Services and The Data Revolution", Pearson Education, 2012.
7. <a href="http://www.geeksforgeeks.org/introduction-of-dms-database-management-system-act-1/">http://www.geeksforgeeks.org/introduction-of-dms-database-management-system-act-1/</a>
8. <a href="http://www.javatpoint.com/dms-tutorial">http://www.javatpoint.com/dms-tutorial</a>
9. <a href="http://www.tutorialspoint.com/dms/index.htm">http://www.tutorialspoint.com/dms/index.htm</a>





# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai  
(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

2002CA201

## ADVANCED JAVA PROGRAMMING

L	T	P	C
3	0	0	3

### PREREQUISITE :

2. Programming Concepts using C and C++

### COURSE OBJECTIVES:

4. To understand and apply the fundamentals core java, packages, database connectivity for computing
5. To enhance the knowledge to server-side programming
6. To provide knowledge on advanced features like Swing , Sockets and MVC architecture.

### UNIT I JAVA FUNDAMENTAL

08 Hours

Java features – Java Platform – Expressions, Operators, and Control Structures – Classes, Methods and Inheritance- Packages and Interfaces – Exception Handling - Garbage Collection – Multithreading

### UNIT II GUI and I/O PROGRAMMING

09 Hours

AWT package – Layouts – Event Package – Event Model – Painting- Swing Fundamentals- Swing Classes- Working with Text Fields, Buttons, List and Scroll panes - Input Output Package

### UNIT III JDBC AND WEB APPLICATION DEVELOPMENT

12 Hours

Accessing Database with JDBC – Basics – Manipulating Databases with JDBC – Overview of Servlets – Servlet API – Servlet Life Cycle – Servlet Configuration – Running Servlet with Database Connectivity – Session Tracking – Basics of JSP – Java Server Faces – Multitier Application Architecture – MVC Architecture of JSF Apps – Common JSF Components – Session Tracking.

### UNIT IV DISTRIBUTED APPLICATION AND NETWORKING BASICS

07 Hours

Remote Method Invocation-Java and the Net – Inet Address – TCP/IP Client Sockets – URL –URL Connection – TCP/IP Server Sockets –Datagrams.

### UNIT V ADVANCED FRAMEWORKS

09 Hours

Understanding Struts – MVC framework – Struts Control Flow –Building Model View Controller Component – Hibernate – Architecture – Understanding O/Rmapping – Query language – Spring Framework – Architecture – Case Studies.

**TOTAL: 45 HOURS**

### FURTHER READING:

2. Enterprise Java Beans

### COURSE OUTCOMES:

On the successful completion of the course, students will be able to

- CO1: Develop programs using Java Classes, Interfaces and Exception Handling (K3)
- CO2: Create GUI application using AWT packages and Swing (K6)
- CO3: Create dynamic web applications with database connectivity using server-side technologies(K6)
- CO4: Design and Implement applications using RMI, TCP and UDP sockets(K3)
- CO5: Design and development of applications using advanced frameworks(K3)

### REFERENCES:

8. “Core and Advanced Java, Black Book”, Dreamtech Press, 2018.
9. Paul J. Deitel, Harvey Deitel, “Java How to Program”, Eleventh Edition, Pearson, 2017.
10. Cay S. Horstmann, “Core Java Volume I & II”, Pearson Education, 2018.
11. Herbert Schildt , “Java The Complete Reference”, Eighth Edition, Tata McGraw Hill, 2011.
12. Paul Dietel, Harvey Dietel, Abbey Dietel, “Internet and World Wide Web”, Fifth Edition,
13. Pearson Education, 2012.



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

14. <https://www.oracle.com/corporate/pressrelease/Java-10-032018.html>

2002CA202	<b>MOBILE TECHNOLOGIES</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

### PREREQUISITE :

1. Computer Networks

### COURSE OBJECTIVES:

1. To understand the basics of wireless voice and data communication technologies.
2. To learn the basic concepts, aware of the GSM, Routing and GPRS Architecture.
3. To study the working principles of wireless LAN and its standards
4. To build knowledge on various Mobile Computing algorithms
5. To Know the Network, Transport Functionalities of Mobile communication
6. To understand the concepts of Adhoc and wireless sensor networks.

### UNIT I WIRELESS COMMUNICATION FUNDAMENTALS 9 Hours

Introduction – Wireless transmission – Frequencies for radio transmission – Signals – Antennas – Signal Propagation – Multiplexing – Modulations – Spread spectrum – MAC – SDMA – FDMA – TDMA – CDMA – Cellular Wireless Networks- Comparison of 2G and 3 G .

### UNIT II TELECOMMUNICATION SYSTEMS 9 Hours

GSM – Mobile services -System Architecture – Protocols – Localization and calling – Handover – Security – GPRS – System Architecture – Protocols- SMS Architecture- Value Added Service through SMS.

### UNIT III MOBILE WIRELESS NETWORK SHORT RANGE NETWORKS 8 Hours

Introduction-WLAN Equipment-WLAN Topologies-WLAN Technologies-IEEE 802.11 Architecture- Protocol architecture- WAP Architecture- Bluetooth- Bluetooth Protocol- Security in Bluetooth- IrDA- ZigBee.

### UNIT IV MOBILE NETWORK LAYER, TRANSPORT LAYER 9 Hours

Mobile IP – Mobile IP – Mobile IP – Goals – Assumptions and Requirement – Entities – IP packet Delivery – Agent Advertisement and Discovery – Registration – Tunneling and Encapsulation- IPv6 – DHCP – Ad hoc Networks- DSDV – DSR.- Traditional TCP – Indirect TCP – Snooping TCP – Mobile TCP – Fast Retransmit/ Fast Recovery – Transmission/ Timeout Freezing – Selective Retransmission .

### UNIT V PLATFORMS AND RECENT TRENDS 10 Hours

Mobile Applications Development- Android Application Architecture- The Android Application Life Cycle- Creating User Interfaces- Appcelerator Architecture-types mobile os- Geo services- creating mobile applications like game, Clock, calendar, Converter, phone book, Text Editor

**TOTAL: 45 HOURS**

### FURTHER READING / CONTENT BEYOND SYLLABUS / SEMINAR:

1. Mobile Adhoc Networks(MANET)

### COURSE OUTCOMES:

On the successful completion of the course, students will be able to

- CO1: Analyze the terminals signal separation and cell capacity of SDMA, FDMA and CDMA in wireless communication. (K4)
- CO2: Categorize the GSM and GPRS system architecture in Telecommunication system. (K2)



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai  
(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

- CO3: Categorize the System architectures and protocols of Wireless LAN. (K2)
- CO4: Analyze the performance of fast transmit and fast recovery for a given Mobile Network.
- CO5: Develop the game application using Android Controls. (K3)
- CO6: Develop the mobile application for location tracking system using GPRS.(K3)

## REFERENCES:

1. KavehPahlavan, PrasanthKrishnamoorthy, "Principles of Wireless Networks", Pearson Education, 2003.
2. UweHansmann, LotharMerk, Martin S. Nicklons and Thomas Stober, "Principles of Mobile Computing", Springer, New York, 2003.
3. C.K.Toth, "AdHoc Mobile Wireless Networks", Prentice Hall Inc., 2002.
4. Jochen Schiller, "Mobile Communications", Second Edition, Prentice Hall of India, Pearson Education, 2003.
5. William Stallings, "Wireless Communications and Networks", Second Edition, Prentice Hall of India, Pearson Education, 2004.
6. [https://www.tutorialspoint.com/mobile\\_computing/mobile\\_computing\\_pdf\\_version.html](https://www.tutorialspoint.com/mobile_computing/mobile_computing_pdf_version.html)
7. <https://www.tutorialspoint.com/android/>



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai  
(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

2002CA203

## DATA MINING TECHNIQUES

L	T	P	C
2	0	2	3

### PREREQUISITE :

2. Database Management Techniques

### COURSE OBJECTIVES:

6. To Understand Data mining principles and techniques and Introduce DM as a cutting edge Business intelligence
7. To expose the students to the concepts of Data warehousing Architecture and Implementation.
8. To know the data mining techniques in details for better organization and retrieval of data
9. To learn to use association rule mining for handling large data
10. To identify Business applications and Trends of Data mining.

### UNIT I DATA MINING & DATA PREPROCESSING

12 Hours

Introduction to KDD process – Knowledge Discovery from Databases - Need for Data Preprocessing – Data Cleaning – Data Integration and Transformation – Data Reduction.

### UNIT II ASSOCIATION RULE MINING

12 Hours

Introduction - Data Mining Functionalities - Association Rule Mining –Market Basket Analysis – Mining Frequent Itemsets with Candidate Generation –Mining Frequent Itemsets without Candidate Generation Mining Various Kinds of Association Rules

### UNIT III CLASSIFICATION AND PREDICTION

12 Hours

Classification vs Prediction – Data preparation for Classification and Prediction –Naïve Bayes Classifier– Classification by Decision Tree Introduction –Associative Classification – Support Vector Machines – Prediction: Introduction –Accuracy and Error Measures – Evaluating the Accuracy of a Classifier or Predictor – Model Section

### UNIT IV CLUSTERING AND CLUSTER ANALYSIS IN PYTHON

12 Hours

Cluster Analysis - Types of Data in Cluster Analysis – A Categorization of Major Clustering Methods – Partitioning Methods – Hierarchical methods– Grid-Based Methods –Clustering High- Dimensional Data – Constraint-Based Cluster Analysis – Outlier Analysis.- K means clustering in python-DBSCAN-HAC.

### UNIT V OPEN SOURCE DATA MINING TOOLS

12 Hours

Introduction –RapidMiner-Attributes-Modeling-Design and Analysis process-Visualization

**TOTAL: 60 HOURS**

### FURTHER READING:

2. Bootstrap

### COURSE OUTCOMES:

On the successful completion of the course, students will be able to

- CO1: Preprocess the data for mining applications
- CO2: Apply the association rules for mining the data
- CO3: Design and deploy appropriate classification techniques
- CO4: Cluster the high dimensional data for better organization of the data
- CO5: Able to understand the Open Source Mining tools

### REFERENCES:

8. Jiawei Han and MichelineKamber, “Data Mining Concepts and Techniques”, Second Edition, Elsevier, Reprinted 2011.
9. K.P. Soman, ShyamDiwakar and V. Ajay, “Insight into Data mining Theory and Practice”, Easter Economy Edition, Prentice Hall of India, 2006.
10. G. K. Gupta, “Introduction to Data Mining with Case Studies”, Easter Economy Edition





## **E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)**

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai  
(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

---

BERSON, ALEX & SMITH, STEPHEN J, Data Warehousing, Data Mining, and OLAP, TMH Pub..

11. Pang-Ning Tan, Michael Steinbach and Vipin Kumar, "Introduction to Data Mining", Pearson Education, 2007
12. MARAKAS, GEORGE M, Modern Data Mining, and Visualization, Pearson Education, 2011
13. George Seif's article, "The 5 Clustering Algorithms Data Scientists Need to Know."
14. [www.wideskills.com/data-mining-tutorial/data-mining-techniques](http://www.wideskills.com/data-mining-tutorial/data-mining-techniques)



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai  
(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

2002CA204

## INTERNET OF THINGS

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>2</b>	<b>0</b>	<b>2</b>	<b>3</b>

### PREREQUISITE:

3. Computer Organization and Design
4. Computer Communications and Networks

### COURSE OBJECTIVES:

4. To understand the fundamentals of Internet of Things.
5. To build a small low cost IoT application using Raspberry Pi and Arduino.
6. To apply the concept of Internet of Things in the real world scenario.

#### UNIT I FUNDAMENTALS OF IoT

12 Hours

Internet of Things – Physical Design – Logical Design – IoT Enabling Technologies – IoT Levels & Deployment Templates – Domain Specific IoTs – IoT and M2M – IoT System Management with NETCONF – YANG – IoT Platforms Design Methodology.

#### UNIT II IoTARCHITECTURE

12 Hours

M2M high-level ETSI architecture – IETF architecture for IoT – OGC architecture – IoT reference model – Domain model – Information model – functional model – communication model – IoT reference architecture.

#### UNIT III IoT PROTOCOLS

12 Hours

Protocol Standardization for IoT – Efforts – M2M and WSN Protocols – SCADA and RFID Protocols – Unified Data Standards – Protocols – IEEE 802.15.4 – BACNet Protocol – Modbus – Zigbee Architecture – Network layer – 6LowPAN – CoAP – Security.

#### UNIT IV BUILDING IoT WITH RASPBERRY PI AND ARDUINO

12 Hours

Building IOT with Raspberry Pi – IoT Systems – Logical Design using Python – IoT Physical Devices & Endpoints – IoT Device – Building blocks – Raspberry Pi –Board – Linux on Raspberry Pi – Raspberry Pi Interfaces –Programming Raspberry Pi with Python – Other IoT Platforms – Arduino Basics – Arduino Software IDE – Arduino Boards – Arduino Programming Language – Developing IoT Applications using Arduino – Case study Applications.

#### UNIT V CASE STUDIES AND ADVANCED TOPICS

12 Hours

Real world design constraints – Applications – Asset management, Industrial automation, Smart grid, Commercial building automation, Smart cities – Participatory sensing – Data Analytics for IoT – Software & Management Tools for IoT– Cloud StorageModels & Communication APIs – Cloud for IoT – Amazon Web Services for IoT.

**TOTAL: 60 HOURS**

### FURTHER READING:

FOG Computing

### COURSE OUTCOMES:

On the successful completion of the course, students will be able to

- CO1: Explain the fundamentals of IoT. (K2)
- CO2: Describe the Architecture of IoT.(K2)
- CO3: Categorize the Protocols of IoT.(K2)
- CO4: Develop IoT applications using Raspberry Pi. (K3)
- CO5: Develop IoT applications using Arduino.(K3)
- CO6: Make use of Cloud to deploy real time IoT Applications.(K3)

### REFERENCES:

11. ArshdeepBahga, VijayMadiseti, "InternetofThings–A hands–on approach", Universities Press, 2015.



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

12. Dieter Uckelmann, Mark Harrison, Michahelles, Florian (Eds), "Architecting the Internet of Things", Springer, 2011.
13. Honbo Zhou, "The Internet of Things in the Cloud: A Middleware Perspective", CRC Press, 2012.
14. Olivier Hersent, David Boswarthick, Omar Elloumi, "The Internet of Things – Key applications and Protocols", Wiley, 2012.
15. ManoelCarlosRamon, "Intel@Galileo and Intel@GalileoGen2:API Features and ArduinoProjectsfor Linux Programmers", Apress, 2014.
16. MarcoSchwartz, "Internetof Things with the ArduinoYun", PacktPublishing, 2014.
17. "Internet of Things: Science Fiction or Business Fact?" (PDF). *Harvard Business Review*. November 2014. Retrieved 23 October 2016.
18. Kyriazis, D.; Varvarigou, T.; Rossi, A.; White, D.; Cooper, J. (4–7 June 2013). "Sustainable smart city IoT applications: Heat and electricity management & Eco-conscious cruise control for public transportation"
19. [https://www.tutorialspoint.com/internet\\_of\\_things/](https://www.tutorialspoint.com/internet_of_things/)
20. <https://www.edureka.co/blog/iot-tutorial/>

<b>2002CA105</b>	<b>PYTHON PROGRAMMING</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

### PREREQUISITE :

3. Objected Oriented Programming
4. Advanced Java Programming

### COURSE OBJECTIVES:

5. To introduce the basics of Python .
6. To implement python programs with conditionals and loops
7. Demonstrate the use of Python lists and dictionaries
8. Describe and apply object-oriented programming methodology

### UNIT I INTRODUCTION PYTHON 9 Hours

Introduction –Python –Interpreter-keywords and identifier-Data types-Variables-operators-Expression-Comments- list—statements-tuple assignment- operators-module--illustrative programs..

### UNIT II CONTROL FLOW AND FUNCTION 9 Hours

Conditionals- Boolean values and operators- conditional (if)-alternative (if-else),-chained conditional (if-elif-else);-Iteration: state-while-for-break- continue- pass- functions- return values-parameters-local and global scope-function composition- recursion-Strings-string slices- immutability- string functions and methods-string module- Lists as arrays.

### UNIT III LISTS,TUPLES,DICTIONARIES 9 Hours

Lists: list operations-list slices- list methods-list loop- mutability-aliasing-cloning lists-list parameters-Tuples: tuple assignment- tuple as return valued-Dictionaries-operations and methods-advanced list processing - list comprehension- **Illustrative programs-selection sort- insertion sort,-Mergesort-histogram.**

### UNIT IV NumPy 9 Hours

**NumPy- NumPy Array-NumPy** Side Effects-SubsettingNumPy Arrays-2D NumPy Arrays-2D Arithmetic - Basic Statistics

### UNIT V FILES,MODULES AND PACKAGES 9 Hours

Files and exception-text files- reading and writing files-format operator-command line arguments-errors and exceptions-handling modules-packages- Represent compound data using Python lists, tuples, dictionaries - word count- copy file.



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

**2018-2019**

2004CA208 LIFE SKILL II - APTITUDE – I

**L T P C**

**0 0 2 1**

## Course Objective (s):

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

### Unit 1 Introduction to Number System, Basic Shortcuts of addition, Multiplication, Division

6 Hours

Classification of numbers – Types of Numbers - Divisibility rules - Finding the units digit - Finding remainders in divisions involving higher powers - LCM and HCF Models - Fractions and Digits – Square, Square roots – Cube, Cube roots – Shortcuts of addition, multiplication, Division.

### Unit 2 Ratio and proportion, Averages

6 Hours

Definition of Ratio - Properties of Ratios - Comparison of Ratios - Problems on Ratios - Compound Ratio - Problems on Proportion, Mean proportional and Continued Proportion Definition of Average - Rules of Average - Problems on Average - Problems on Weighted Average - Finding average using assumed mean method.

### Unit 3 Percentages, Profit And Loss

6 Hours

Introduction Percentage - Converting a percentage into decimals - Converting a Decimal into a percentage - Percentage equivalent of fractions - Problems on percentages - Problems on Profit and Loss percentage- Relation between Cost Price and Selling price - Discount and Marked Price - Two different articles sold at same Cost Price - Two different articles sold at same Selling Price - Gain% / Loss% on Selling Price.

### Unit 4 Coding and decoding, Direction sense

6 Hours

Coding using same set of letters - Coding using different set of letters - Coding into a number - Problems on R-model - Solving problems by drawing the paths - Finding the net distance travelled - Finding the direction - Problems on clocks - Problems on shadows - Problems on direction sense using symbols and notations.

### Unit 5 Number and letter series Number and Letter Analogies, Odd man out

6 Hours

Difference series - Product series - Squares series - Cubes series - Alternate series - Combination series - Miscellaneous series - Place values of letters - Definition of Analogy - Problems on number analogy - Problems on letter analogy - Problems on verbal analogy - Problems on number Odd man out - Problems on letter Odd man out - Problems on verbal Odd man out

**Total 30 Hours**

## COURSE OUTCOMES:

On the successful completion of the course, students will be able to

CO1: Learners should be able to understand number and solving problems least time using various shortcut

CO2: Solve problems on averages; compare two quantities using ratio and proportion.



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

CO3: Calculate concept of percentages, implement business transactions using profit and loss. CO4: Workout concepts of Coding and Decoding, ability to visualize directions and understand the logic behind a sequence.

CO5: Learners should be able to find a series the logic behind a sequence.

## References:

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

1704CA307	TECHNICAL SEMINAR AND REPORT WRITING	L	T	P	C
		0	0	2	1

## COURSE OBJECTIVE:

4. To help students develop listening skills for academic and professional purposes.
5. To help students acquire the ability to speak effectively in English in real-life situations.
6. To inculcate reading habit and to develop effective reading skills.

The goal of this course is to train the students to critically evaluate a well-defined set of research subjects and to summarize the findings concisely in a paper of scientific quality. The paper will be evaluated based on the ability to understand a topic, communicate it and identify the issues. Results from this term paper will be presented to fellow students and a committee of faculty members.

1. Every student selects a topic related to current trends and the same should be approved by the respective committee. This selection should have at least 5 distinct primary sources.
2. Every student must write a short review of the topic and present it to fellow students and faculty (discuss the topic – expose the flaws – analyze the issues) every week.
3. The faculty should evaluate the short review and award marks with respect to the following.
  - a. Has the student analyzed – not merely quoted – the most significant portions of the primary sources employed?
  - b. Has the student offered original and convincing insights?
  - c. Plagiarism to be checked.
4. Every student should re-submit and present the review article including issues/comments/conclusions which had arisen during the previous discussion.
5. Every student should submit a final paper as per project specifications along with all short review reports (at least 4 internal reviews) and corresponding evaluation comments.
6. Every student should appear for a final external review exam to defend themselves.

**TOTAL :30 PERIODS**



## **E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)**

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

---

### **COURSE OUTCOMES Upon completion of this course, the student will be able to:**

- iv. Gain confidence in facing the placement interview.
- v. Develop effective communication skills (spoken and written).
- vi. Interact with each other and face a wide variety of issues, topics, and situations that they are likely to come across as entry level professionals.





# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

1702CA401

## ADVANCED JAVA PROGRAMMING

L	T	P	C
3	0	0	3

**COURSE OBJECTIVE:** The student should be able to

1. To understand the advanced concepts of java.
2. To learn the concepts of web applications and MVC architecture.
3. To learn the concept of distributed objects including web services.
4. To understand the importance of advanced frameworks.

### UNIT I INTERNET APPLICATIONS

9

Domain Name System - Exchanging E-mail – Sending and Receiving Files - Fighting Spam, Sorting Mail and avoiding e-mail viruses – Chatting and Conferencing on the Internet – Online Chatting - Messaging – Usenet Newsgroup – Voice and Video Conferencing – Web Security, Privacy, and siteblocking – FTP.

### UNIT II JAVA FUNDAMENTAL

9

Java features – Java Platform – Java Fundamentals – Expressions, Operators, and Control Structures – Classes, Packages and Interfaces – Exception Handling.

### UNIT III PACKAGES

9

AWT package – Layouts – Containers – Event Package – Event Model – Painting – Garbage Collection – Multithreading – Language Packages.

### UNIT IV ADVANCED JAVA PROGRAMMING

9

Utility Packages – Input Output Packages – Inner Classes – Java Database Connectivity - Servlets -RMI – Swing Fundamentals - Swing Classes.

### UNIT V JAVA BEANS AND NETWORKING

9

Java Beans – Application Builder Tools - Using the Bean Developer Kit-Jar Files-Introspection-BDKUsingBeanInfo Interface – Persistence- Java Beans API – Using Bean Builder - Networking Basics - Java and the Net – InetAddress – TCP/IP Client Sockets – URL –URL Connection – TCP/IP Server Sockets – A Caching Proxy HTTP Server – Datagrams.

**TOTAL : 45 PERIODS**

### COURSE OUTCOMES:

- i. Able to understand the internet standards & recent web technologies like Conferencing, newsgroup etc.
- ii. Able to implement, compile, test and run Java program,
- iii. Able to make use of hierarchy of Java classes to provide a solution to a given set of requirements
- iv. found in the Java API
- v. Able to understand the components and patterns that constitute a suitable architecture for a web
- vi. application using java servlets



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

**1702CA403**

**MOBILE COMPUTING**

L	T	P	C
3	0	0	3

- vii. Able to demonstrate systematic knowledge of backend and front end by developing an appropriate application.

## REFERENCES:

1. Margaret Levine Young, "Internet and WWW", 2nd Edition, Tata McGraw Hill, 2002.
2. Paul J. Deitel, Harvey M. Deitel, "Internet & World Wide Web: How to Program", Pearson Education International, 2009
3. Herbert Schildt, The Complete Reference – Java 2, 4th Edition, Tata McGraw Hill, 2001
4. C. Xavier, "Java Programming: A Practical Approach", Tata McGraw Hill, 2011
5. Keyur shah, "Gateway to Java Programmer Sun Certification", Tata McGraw Hill 2002
6. PoornachandraSarang, "Java Programming", McGraw Hill Professional, 2012
7. John Dean, Raymond Dean, " Introduction to Programming with JAVA – A Problem Solving Approach", Tata McGraw Hill, 2012

## COURSE OBJECTIVE:

1. To learn the basic concepts, aware of the GSM, SMS, GPRS Architecture.
2. To have an exposure about wireless protocols -WLN, Bluetooth, WAP, ZigBeeissues.
3. To Know the Network, Transport Functionalities of Mobile communication
4. To understand the concepts of Adhoc and wireless sensor networks.
5. To impart knowledge about Mobile Application Development



# **E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)**

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai  
(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

## **UNIT I WIRELESS COMMUNICATION FUNDAMENTALS**

9

Introduction – Wireless transmission – Frequencies for radio transmission – Signals – Antennas – Signal Propagation – Multiplexing – Modulations – Spread spectrum – MAC – SDMA – FDMA – TDMA – CDMA – Cellular Wireless Networks.

## **UNIT II TELECOMMUNICATION SYSTEMS**

9

GSM – System Architecture – Protocols – Connection Establishment – Frequency Allocation – Routing – Handover – Security - GPRS

## **UNIT III WIRELESS NETWORKS**

9

Wireless LAN – IEEE 802.11 Standards – Architecture – services – AdHoc Network – WAP 2.0- Blue Tooth.

## **UNIT IV MOBILE NETWORK LAYER, TRANSPORT LAYER**

9

Mobile IP – Dynamic Host Configuration Protocol – Routing – DSDV – DSR – AODV – ZRP – ODMR-Traditional TCP – Indirect TCP – Snooping TCP – Mobile TCP – Fast transmit/ Fast Recovery – Transmission/ Timeout Freezing – Selective Retransmission – Transaction Oriented TCP.

## **UNIT V MOBILE APPLICATION DEVELOPMENT**

9

Mobile Applications Development - Understanding the Android Software Stack – Android Application Architecture – Developing for Android – The Activity Life Cycle – Creating Your First Android Activity – Creating User Interfaces – Intents – Broadcast Receivers – Adapters – Data Storage, Retrieval, and Sharing.-Geo services- creating mobile applications like game, Clock, calendar, Converter, phone book, Text Editor

**TOTAL : 45 PERIODS**

### **COURSE OUTCOMES:**

- i. Gain the knowledge about various types of Wireless Data Networks and Wireless Voice Networks.
- ii. Understand the architectures, the challenges and the Solutions of Wireless Communication those are in use.
- iii. Able to Realize the role of Wireless Protocols in shaping the future Internet.
- iv. Able to know about different types of Wireless Communication Networks and their functionalities.
- v. Able to develop simple Mobile Application Using Android

### **REFERENCES:**

1. Kaveh Pahlavan, Prasanth Krishnamoorthy, “Principles of Wireless Networks”, Pearson Education, 2003.
2. Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, “Principles of Mobile Computing”, Springer, New York, 2003.
3. C.K. Toh, “AdHoc Mobile Wireless Networks”, Prentice Hall Inc., 2002.
4. Jochen Schiller, “Mobile Communications”, Second Edition, Prentice Hall of India/ Pearson Education, 2003.





# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

3 0 0 3

**COURSE OBJECTIVE:** The student should be able to

1. To introduce the basics and necessity of Software testing.
2. To introduce various testing techniques along with software production.
3. To introduce the concepts of Software bugs and its impact.

## UNIT I INTRODUCTION

9

Software Testing Background – Software Bugs- Cost of Bugs-Software Testing Realities - Testing Axioms – Precision and Accuracy - Verification and Validation - Quality and Reliability -Testing and Quality Assurance.

## UNIT II SOFTWARE TESTING METHODOLOGY

9

Functional Testing - Structural Testing – Static and Dynamic Testing – Low Level Specification Test Techniques – Equivalence Partitioning – Data Testing – State Testing – Formal Reviews – Coding Standards and Guidelines – Code Review Checklist – Data Coverage - Code Coverage.

## UNIT III SOFTWARE TESTING TECHNIQUES

9

Configuration Testing – Compatibility Testing – Foreign Language Testing – Usability Testing – Testing the Documentation - Testing for Software Security – Website Testing - Testing Internet Applications - Mobile Application Testing.

## UNIT IV AUTOMATED TESTING AND TEST TOOLS

9

Benefits of Automation and Tools – Viewers and Monitors – Drivers – Stubs – Stress and Load Tools – Analysis Tools - Software Test Automation – Random Testing – Beta Testing.

## UNIT V TEST DOCUMENTATION

9

Goal of Test Planning – Test Phases – Test Strategy – Resource Requirements – Test Schedule – Writing and Tracking Test Cases - Bug Tracking Systems – Metrics and Statistics - Risks and Issues.

**TOTAL : 45 PERIODS**

## COURSE OUTCOMES :

**Upon completion of this course, the student will:**

- i. Perform automated testing using test tools.
- ii. Document the testing procedures.

## REFERENCES:

- i. GlenfordJ.Myers, Tom Badgett, Corey Sandler, “The Art of Software Testing”,3rd edition, John Wiley & Sons publication, 2012.
- ii. SrinivasanDesikan, Gopaldaswamy Ramesh, “Software testing- Principles and Practices”, Pearson education, 2009.
- iii. Ron Patton, “Software testing”, second edition, Pearson education, 2009.
- iv. Boris Beizer, “Software testing techniques”, Dream Tech Press, 2009.



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

<b>1702CA502</b>	<b>VIRTUALIZATION AND CLOUD COMPUTING</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		<b>3</b>	<b>0</b>	<b>2</b>	<b>4</b>

## COURSE OBJECTIVE:

The student should be able to

1. To introduce the broad perceptive of cloud architecture and model
2. To understand the concept of Virtualization and design of cloud Services
3. To understand the concept of cloud and utility computing and its various issues.
4. To appreciate the emergence of cloud as the next generation computing paradigm.
5. To be able to set up a private cloud.

## UNIT I VIRTUALIZATION

15

Basics of Virtualization - Types of Virtualization - Implementation Levels of Virtualization -Virtualization Structures - Tools and Mechanisms - Virtualization of CPU, Memory, I/O Devices -Virtual Clusters and Resource management – Virtualization for Data-center Automation.

## UNIT II SERVER CONSOLIDATION

15

Hardware Virtualization – Virtual Hardware Overview - **Sever Virtualization** – Physical and Logical Partitioning - Types of Server Virtualization – Business cases for Sever Virtualization – Uses of Virtual server Consolidation – Planning for Development –Selecting server Virtualization Platform.

## UNIT III CLOUD ARCHITECTURE AND MODEL

15

Technologies for Network-Based System – System Models for Distributed and Cloud Computing –NIST Cloud Computing Reference Architecture.Cloud Models:- Characteristics – Cloud Services – Cloud models (**IAAS, PAAS, SAAS – Lab Experiment using VMWare**) – Public vs Private Cloud –Cloud Solutions - Cloud ecosystem – Service management – Computing on demand.

## UNIT IV CLOUD INFRASTRUCTURE

15

Architectural Design of Compute and Storage Clouds – Layered Cloud Architecture Development –Design Challenges - Inter Cloud Resource Management – Resource Provisioning and PlatformDeployment – Global Exchange of Cloud Resources

## UNIT VVIRTUALIZATION AND CLOUD SECURITY 15

Guest hopping, attacks on the VM (delete the VM, attack on the control of the VM,code or file injection into the virtualized file structure), VM migration attack, hyper jacking-Cloud Security and Trust Management– Cloud Security Challenges – Cloud Security Defense Strategies– Distributed Intrusion/Anomaly Detection – Data and Software Protection Techniques

**TOTAL : 75 PERIODS**

## COURSE OUTCOMES :

Upon completion of this course, the student will:

- i. Identify the architecture, infrastructure and delivery models of cloud computing
- ii. Apply suitable virtualization concept





# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

- iii. Articulate the main concepts, key technologies, strengths and limitations of cloud computing.
- iv. Identify the architecture, infrastructure and delivery models of cloud computing.
- v. Explain the core issues of cloud computing such as security, privacy and interoperability.

## REFERENCES :

1. Kai Hwang, Geoffrey C. Fox and Jack J. Dongarra, Distributed and Cloud Computing, Morgan Kaufmann, 2012.
2. Cloud Computing: A Practical Approach, Anthony T. Velte, Toby J. Velte, Robert Elsenpeter, Tata-McGraw- Hill, New Delhi – 2010.
3. George Coulouris, Jean Dollimore, Tim Kindberg, Distributed Systems Concepts and Design,

**1702CA503**

**PYTHON PROGRAMMING**

L	T	P	C
3	0	0	3

Fifth Edition, Pearson Education Asia, 2012.

## COURSE OBJECTIVE:

Upon successful completion of this course, the student will be able to:

1. Describe the major components of computer architecture
2. Apply decision and repetition structures in program design.
3. Implement methods and functions to improve readability of programs
4. Demonstrate the use of Python lists and dictionaries
5. Describe and apply object-oriented programming methodology

## UNIT I INTRODUCTION PYTHON9

Introduction –Python –Interpreter-keywords and identifier-Data types-Variables-operators-Expression-Comments-python I/O and import-Namespace.

## UNIT II CONTROL FLOW, FUNCTIONS

9

Conditionals: Boolean values and operators, conditional (if), alternative (if-else), chained conditional (if-elif-else); Iteration: state, while, for, break, continue, pass; Fruitful functions: return values, parameters, local and global scope, function composition, recursion; Strings: string slices, immutability, string functions and methods, string module; Lists as arrays.

## UNIT III LISTS, TUPLES, DICTIONARIES 9

Lists: list operations, list slices, list methods, list loop, mutability, aliasing, cloning lists, list parameters; Tuples: tuple assignment, tuple as return value; Dictionaries: operations and methods; advanced list processing - list comprehension; Illustrative programs: selection sort, insertion sort, mergesort, histogram.

## UNIT IV FILES, MODULES, PACKAGES 9

Files and exception: text files, reading and writing files, format operator; command line arguments, errors and exceptions, handling exceptions, modules, packages; Illustrative programs: word count, copy file.

## UNIT V DATABASE MULTITHREADING EMAIL CGI 9



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

SQL Database- Creating and searching tables- Reading and storing CONFIG information on database- Database connections- multithreading- Sending email- CGI applications

**TOTAL : 45 PERIODS**

## **COURSE OUTCOMES:**

**Upon completion of the course, students will be able to**

- i. Develop algorithmic solutions to simple computational problems
- ii. Read, write, execute by hand simple Python programs.
- iii. Structure simple Python programs for solving problems.
- iv. Represent compound data using Python lists, tuples, dictionaries.
- v. Read and write data from/to files in Python Programs.

## **REFERENCES:**

1. Allen B. Downey, ``Think Python: How to Think Like a Computer Scientist``, 2nd edition, Updated for Python 3, Shroff/O'Reilly Publishers, 2016 (<http://greenteapress.com/wp/think-python/>)
2. Guido van Rossum and Fred L. Drake Jr, —An Introduction to Python – Revised and updated for Python 3.2 Network Theory Ltd., 2011.
3. John V Guttag, —Introduction to Computation and Programming Using Python``, Revised and expanded Edition, MIT Press , 2013
4. Robert Sedgewick, Kevin Wayne, Robert Dondero, —Introduction to Programming in Python: An Interdisciplinary Approach, Pearson India Education Services Pvt. Ltd., 2016.
5. Timothy A. Budd, —Exploring Python, Mc-Graw Hill Education (India) Private Ltd.,, 2015.
6. Paul Gries, Jennifer Campbell and Jason Montojo, —Practical Programming: An Introduction to Computer Science using Python 3, Second edition, Pragmatic Programmers, LLC, 2013.



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

2002CA304	<b>DATA ANALYTICS</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>PREREQUISITE :</b>					
	Data Mining				
<b>COURSE OBJECTIVES:</b>					
	1. To understand the competitive advantages of big data analytics.				
	2. To understand the big data frameworks				
	3. To learn data analysis methods				
	4. To learn stream computing				
	5. To gain knowledge on Hadoop related tools such as HBase, Cassandra, Pig, and Hive for big data analytics				
<b>UNIT I</b>	<b>INTRODUCTION TO BIG DATA</b>	<b>9 Hours</b>			
	Big Data – Definition, Characteristic Features – Big Data Applications - Big Data vs Traditional Data - Risks of Big Data - Structure of Big Data - Challenges of Conventional Systems - Web Data – Evolution of Analytic Scalability - Evolution of Analytic Processes, Tools and methods - Analysis vs Reporting - Modern Data Analytic Tools.				
<b>UNIT II</b>	<b>HADOOP FRAMEWORK</b>	<b>9 Hours</b>			
	Distributed File Systems - Large-Scale FileSystem Organization – HDFS concepts - MapReduce Execution, Algorithms using MapReduce, Matrix-Vector Multiplication – Hadoop YARN				
<b>UNIT III</b>	<b>DATA ANALYTIC METHODS USING R</b>	<b>8 Hours</b>			
	Introduction to R- R Graphical User Interfaces- Data Import and Export - Attribute and Data Types - Descriptive Statistics- Visualization Before Analysis- Decision Trees in R - Naïve Bayes in R				
<b>UNIT IV</b>	<b>MINING DATA STREAMS</b>	<b>9 Hours</b>			
	Streams: Concepts – Stream Data Model and Architecture - Sampling data in a stream - Mining Data Streams and Mining Time-series data - Real Time Analytics Platform (RTAP) Applications - Case Studies - Real Time Sentiment Analysis, Stock Market Predictions.				
<b>UNIT V</b>	<b>BIG DATA FRAMEWORKS</b>	<b>10 Hours</b>			
	Introduction to NoSQL – Aggregate Data Models – Hbase: Data Model and Implementations – Hbase Clients – Examples – .Cassandra: Data Model – Examples – Cassandra Clients – Hadoop Integration. Pig – Grunt – Pig Data Model – Pig Latin – developing and testing Pig Latin scripts. Hive – Data Types and File Formats – HiveQL Data Definition – HiveQL Data Manipulation – HiveQL Queries				
<b>TOTAL: 45 HOURS</b>					
<b>FURTHER READING:</b>					
	Logical data warehouses and federation technology, like data lake, APIs				
<b>COURSE OUTCOMES:</b>					
	On the successful completion of the course, students will be able to				
CO1:	Understand how to leverage the insights from big data analytics				



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

CO2:	Analyze the HADOOP and Map Reduce technologies associated with big data analytics
CO3:	Analyze data by utilizing various statistical and data mining approaches
CO4:	Perform analytics on real-time streaming data
CO5:	Understand the various NoSQL alternative database models
CO6:	Explore on Big Data applications Using Pig and Hive
<b>REFERENCES:</b>	
1. Bill Franks, —Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams Advanced Analytics, Wiley and SAS Business Series, 2012	
2. David Loshin, "Big Data Analytics: From Strategic Planning to Enterprise Integration with Tools, Techniques, NoSQL, and Graph", 2013	
3. Michael Berthold, David J. Hand, —Intelligent Data Analysis, Springer, Second Edition, 2007	
4. Michael Minelli, Michelle Chambers, and AmbigaDhiraj, "Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses", Wiley, 2013.	
5. P. J. Sadalage and M. Fowler, "NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence", Addison-Wesley Professional, 2012	
6. Richard Cotton, "Learning R – A Step-by-step Function Guide to Data Analysis, , O'Reilly Media, 2013.	
7. <a href="https://www.sas.com/en_us/insights/analytics/big-data-analytics.html">https://www.sas.com/en_us/insights/analytics/big-data-analytics.html</a>	

2004CA307	<b>TECHNICAL SEMINAR AND REPORT WRITING</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>
<b>Course Objectives:</b>					
	1. To help students develop listening skills for academic and professional purposes.				
	2. To help students acquire the ability to speak effectively in English in real-life situations				
	3. To inculcate reading habit and to develop effective reading skills.				
	4. To learn and use client server architecture based applications.				
	5. To explore server side functionalities of an application.				
<b>List of Experiments:</b>					
The goal of this course is to train the students to critically evaluate a well-defined set of research subjects and to summarize the findings concisely in a paper of scientific quality. The paper will be evaluated based on the ability to understand a topic, communicate it and identify the issues. Results from this term paper will be presented to fellow students and a committee of faculty members:					
1. Every student selects a topic related to current trends and the same should be approved by the respective committee. This selection should have at least 5 distinct primary sources.					
2. Every student must write a short review of the topic and present it to fellow students and faculty (discuss the topic – expose the flaws – analyze the issues) every week.					
The faculty should evaluate the short review and award marks with respect to the following.					
3. Has the student analyzed – not merely quoted – the most significant portions of the primary sources employed?					
4. Has the student offered original and convincing insights?					
5. Plagiarism to be checked.					



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

6. Every student should re-submit and present the review article including issues/ comments/conclusions which had arisen during the previous discussion.
7. Every student should submit a final paper as per project specifications along with all short review reports (at least 4 internal reviews) and corresponding evaluation comments.
8. Every student should appear for a final external review exam to defend themselves.

	<b>Total:</b>	<b>30 Hours</b>
--	---------------	-----------------

<b>Course Outcomes:</b>	
-------------------------	--

	After completion of the course, Student will be
--	---

	1. Gain confidence in facing the placement interview.
--	---

	2. Develop effective communication skills (spoken and written).
--	---

	3. Interact with each other and face a wide variety of issues, topics, and situations that they are likely to come across as entry level professionals
--	--

**2017-20182018**



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

Master of Computer Applications | E.G.S. Pillay Engineering College | Regulations 2017  
Approved in I Academic Council Meeting held on 16-07-2017

1704CA108

LIFE SKILL I – BUSINESS ENGLISH

L	T	P	C
0	0	2	1

## COURSE OBJECTIVES:

1. To help students understand and develop the necessary skills to equip them for whatever career path they choose.
2. To guide students in making responsible decisions, to create a desire and to fulfill individual goals by improving their soft skill.
3. To get better students reading, listening, writing and speaking skills by breaking their barriers.
4. To help students improve their problem solving skills by ignite their minds through aptitude sessions.

## UNIT I

4 HOURS

Career Opportunities  
Industry Expectations

## UNIT II SOFT SKILL TRAINING

6 HOURS

Introduction to Soft Skill – motivational programming – personality development – self confidentiality – inner confidence beauty.

## UNIT III GOAL SETTING

4 HOURS

Environmental awareness – Genetic Engineering – people management – time management - domain management – communication skills – trait attitude skills & videos

## UNIT IV

8 HOURS

Communication skills – ICE breaking and activity sheets.

## UNIT V APTITUDE

8 HOURS

Numbers: basics – H.C.F & L.C.M of numbers- Decimal fractions and problems on numbers.

**TOTAL: 30 HOURS**

## COURSE OUTCOMES:

- On the successful completion of the course, students will be able to
- CO1: Understand how to make out opportunities in their career path.
  - CO2: Apply their soft skills in making decision in order to solve issues in their everyday life.
  - CO3: To some extent improvement in their reading, writing and speaking skills
  - CO4: Started to solve problems in a swift way.

## REFERENCES:

1. You Can Win – Shiv Khera.
2. Soft Skills Training: A Workbook to Develop Skills for Employment Paperback – Large Print, May 2012 by Frederick H. Wentz .
3. Steven Covey – 7 Habits of Effective people 67.
4. How to Prepare for Quantitative Aptitude for the CAT Paperback – Jun 2016 by, Arun Sharma





# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

<b>1704CA208</b>	<b>Life Skill II- Verbal Ability</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>
<b>COURSE OBJECTIVES:</b>					
	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				
<b>UNIT I</b>	<b>VOCABULARY USAGE</b>	<b>06 Hours</b>			
Introduction - Synonyms and Antonyms based on Technical terms – Single word Substitution – Newspaper, Audio and video listening activity.					
<b>UNIT II</b>	<b>COMPREHENSION ABILITY</b>	<b>06 Hours</b>			
Skimming and Scanning – Social Science passages – Business and Economics passages – latest political and current event based passages – Theme detection – Deriving conclusion from passages					
<b>UNIT III</b>	<b>BASIC GRAMMAR AND ERROR DETECTION</b>	<b>06 Hours</b>			
Parallelism – Redundancy – Ambiguity – Concord - Common Errors – Spotting Errors – Sentence improvement – Error Detection FAQ in Competitive exams.					
<b>UNIT IV</b>	<b>REARRANGEMENT AND GENERAL USAGE</b>	<b>06 Hours</b>			
Jumble Sentences – Cloze Test - Idioms and Phrases – Active and passive voice – Spelling test.					
<b>UNIT V</b>	<b>APPLICATION OF VERBAL ABILITY</b>	<b>06 Hours</b>			
Business Writing - Business Vocabulary - Delivering Good / Bad News - Media Communication - Email Etiquette – Report Writing - Proposal writing – Essay writing– Indexing –Market surveying.					
<b>TOTAL: 30 HOURS</b>					
<b>FURTHER READING:</b>					
	Non-Linear Models				
<b>COURSE OUTCOMES:</b>					
	On the successful completion of the course, students will be able to				
	CO1: Students are enabled to use new words in their day to day communication				
	CO2: Students are capable to gather information swiftly while reading passages.				
	CO3: Students are proficient during their oral and written communication.				
	CO4: Students are equipped to 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				
<b>REFERENCES:</b>					
	1. Arun Sharma and MeenakshiUpadhyav, How to Prepare for Verbal Ability and Reading Comprehension for CAT, McGrawHill Publication, Seventh Edition 2017				





# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai  
(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

- |  |
|--|
| 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 |

MC7104

DATA STRUCTURES AND ALGORITHMS

L T P C  
3 1 0 4

## COURSE OBJECTIVES

- To understand the linear and non linear data structures available in solving problems
- To know about the sorting and searching techniques and its efficiencies
- To get a clear idea about the various algorithm design techniques
- Using the data structures and algorithms in real time applications
- Able to analyze the efficiency of algorithm

### UNIT I LINEAR DATA STRUCTURES

9+3

Introduction - Abstract Data Types (ADT) – Arrays and its representation – Structures – Stack – Queue – Circular Queue - Applications of stack – Infix to postfix conversion – evaluation of expression – Applications of Queue - Linked Lists – Doubly Linked lists – Applications of linked list – Polynomial Addition

### UNIT II TREE STRUCTURES

9+3

Need for non-linear structures – Trees and its representation – Binary Tree – expression trees – Binary tree traversals – left child right sibling data structures for general trees – applications of trees – Huffman Algorithm - Binary search tree.

### UNIT III BALANCED SEARCH TREES, SORTING AND INDEXING

9+3

AVL trees –B-trees - Sorting – Bubble sort - Quick Sort - Insertion Sort – Heap sort – Hashing - Hashing functions - Collision Resolution Techniques - Separate chaining - Open addressing - Multiple hashing.



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

**UNIT IV**      **GRAPHS**      9+3  
Definitions – Representation of graph - Graph Traversals - Depth-first traversal – breadth-first traversal - applications of graphs - Topological sort – shortest-path algorithms – minimum spanning tree – Prim's and Kruskal's algorithms – biconnectivity – Euler circuits.

**UNIT V**      **ALGORITHM DESIGN AND ANALYSIS**      9+3  
Algorithm Analysis – Asymptotic Notations - Divide and Conquer – Merge Sort – Binary Search - Greedy Algorithms – Knapsack Problem – Dynamic Programming – Warshall's Algorithm for Finding Transitive Closure – Backtracking – Sum of Subset Problem – Branch and Bound – Travelling Salesman Problem.

**TOTAL 45+15: 60 PERIODS**

## COURSE OUTCOMES:

- Able to select and apply the data structure to suit any given problem.
- Able to design their own data structure according to the application need.
- Able to apply the algorithm design techniques to any of the real world problem.
- Able to develop any new application with the help of data structures and algorithms.
- Able to write efficient algorithm for a given problem and able to analyze its time complexity.

## REFERENCES:

1. M. A. Weiss, "Data Structures and Algorithm Analysis in C++", Pearson Education Asia, 2013.
2. Tomerbaum, A.S. Leorem, Y. Augustein, M.L. "Data Structures using C" Pearson



# E.G.S. PILLAY ENGINEERING COLLEGE (AUTONOMOUS)

NAGAPATTINAM – 611 002. TAMILNADU, INDIA

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai  
(Accredited by NAAC with 'A' Grade and NBA)

Email: [principal@egspec.org](mailto:principal@egspec.org) website: [www.egspec.org](http://www.egspec.org) Ph: 04365-251112

MC7201 OBJECT ORIENTED PROGRAMMING L T P C  
3 0 0 3

**COURSE OBJECTIVES:**

- To learn how C++ supports Object Oriented principles such as abstraction, polymorphism etc
- To understand and apply the principles hiding, localization and modularity in software development.
- Use the generic programming features of C++ including the STL
- Design and implement reliable and maintainable object-oriented applications of moderate complexity composed of several classes

**UNIT I FUNDAMENTALS OF OBJECT ORIENTED PROGRAMMING 9**  
Object-Oriented Programming concepts – Encapsulation – Programming Elements – Program Structure – Enumeration Types – Functions and Pointers – Function Invocation – Overloading Functions – Scope and Storage Class – Pointer Types – Arrays and Pointers – Call-by-Reference – Assertions – Standard template library.

**UNIT II IMPLEMENTING ADTs AND ENCAPSULATION 9**  
Aggregate Type structures – Pointer Operators – Unions – Bit Fields – Data Handling and Member Functions – Classes – Constructors and Destructors – Static Member – this Pointer – reference semantics – implementation of simple ADTs.

**UNIT III POLYMORPHISM 9**  
ADT Conversions – Overloading – Overloading Operators – Unary Operator Overloading – Binary Operator Overloading – Function Selection – Pointer Operators – Visitation – Iterators – containers – Sequence Containers – List – List Iterators – Associative Containers.

**UNIT IV TEMPLATES AND FILE HANDLING 9**  
Template Class – Function Templates – STL Templates – Class Templates – Parameterizing – STL – Algorithms – Function Adaptors – Streams and Formatted I/O – I/O Manipulations – File handling – Random Access

**UNIT V INHERITANCE 9**  
Derived Class – Typing Conversions and Visibility – Code Reuse – Virtual Functions – Templates and Inheritance – Run-Time Type Identifications – Exceptions – Handlers – Standard Exceptions.

**TOTAL: 45 PERIODS**

**COURSE OUTCOMES:**

- Able to understand and design the solution to a problem using object-oriented programming concepts.
- Able to use proper class protection mechanism to provide security.
- Able to demonstrate the use of virtual functions to implement polymorphism.
- Understand and implement the features of C++ including templates, exceptions and file handling for providing programmed solutions to complex problems
- Able to reuse the code with extensible Class types, User-defined operators and function overloading