

# 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



## MASTER OF COMPUTER APPLICATIONS

### Full Time Curriculum and Syllabus

#### Third Year – Fifth Semester

Course Code	Course Name	L	T	P	C	Maximum Marks		
						CA	ES	Total
<b>Theory Course</b>								
1702CA501	Software Testing	3	0	0	3	40	60	100
1702CA502	Virtualization and Cloud Computing	2	0	2	3	40	60	100
1702CA503	Python Programming	4	0	0	4	40	60	100
1703CA024	Intelligent Data Analysis	3	0	0	3	40	60	100
1703CA026	Human Resources Management	3	0	0	3	40	60	100
<b>Laboratory Course</b>								
1702CA504	Software Testing Laboratory	0	0	4	2	50	50	100
1702CA505	Python Programming Laboratory	0	0	4	2	50	50	100
1704CA506	Mini Project Using .Net	0	0	4	2	50	50	100
1704CA507	Life Skill V- Competitive Exam Preparation	0	0	2	1	100	-	100

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

1702CA501

**SOFTWARE TESTING**

<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. Software Engineering Methodologies
2. Object Oriented Analysis and Design

**COURSE OBJECTIVES:**

1. To provide an insight into software life cycle and various software process models
2. To estimate the resources for developing the application and to prepare the schedule
3. To know the various designing concepts and notations for modeling the software
4. To prepare the test cases for the project, apply various testing techniques, strategies and metrics to evaluate the software.
5. To construct software with high quality and reliability.

**UNIT I INTRODUCTION TO TESTING AND FUNDAMENTALS 9 Hours**

Introduction: Evolving Profession of Software Engineering – Role of Process in Software Quality – Testing as a process – Testing Maturity Model. Fundamentals: Software Testing Principals – Tester Role in Software Development Organization. Software Development Life Cycle Model: Phases of Software Project – Quality – Quality Assurance – Quality Control – Life Cycle Model.

**UNIT II DEFECTS, HYPOTHESES AND TEST 9 Hours**

Origin of Defects –Defect Classes: Requirement and Specification Defects Classes – Design Defect Classes –Coding Defect Classes – Defect Repository – Testing Defect – Tester Support for Developing a Defect Repository.

**UNIT III SOFTWARE TESTING STRATEGIES AND TECHNIQUES 9 Hours**

Introduction to Testing Design Strategies – Test Case Specification –Test Case Design Techniques - Functional: Equivalence Partitioning – Boundary Value Analysis – Extreme Input Testing – State Transition Testing – Cause Effect Graphing. Test Case Design Techniques - Structural: Statement Testing – Branch/Decision Testing –Dynamic and Static Analysis.

**UNIT IV LEVELS OF TESTING 9 Hours**

Unit Testing – Integration Test : Goals – Integration Strategies for Procedures and functions – Integration Strategies for Classes – Designing Integration Test – Integration Test Planning – System Test: Functional Testing – Performance Testing – Stress Testing – Configuration Testing – Security Testing – Recovery Testing . Regression Test – Alpha beta and Acceptance Test

**UNIT V TESTING GOALS, POLICIES, PLANS AND DOCUMENTATION 9 Hours**

Introduction – Testing, Debugging Goals and Policies – Test Planning – Test Plan Components – Test plan Attachments –Locating Test Items – Reporting test Results – Role of three Critical Groups in Testing, Planning and Test Policy Development.

**TOTAL: 45 HOURS**

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

1. Software Testing Tools: Selenium
2. Apache Master

**COURSE OUTCOMES:**

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

- CO1: Describe the fundamentals of Software Testing.
- CO2: Perform automated testing using test tools.
- CO3: Evaluate the system with various testing techniques and strategies.
- CO4: Explain the various levels of testing.
- CO5: Describe the Concepts of Document testing procedures.

**REFERENCES:**

1. Illene Burnstein, “Practical Software Testing”, Springer International Edition, Chennai, 2003.
2. Naresh Chauhan , “Software Testing Principles and Practices ”, Oxford University Press , New Delhi, 2010.
3. Ron Patton, “Software Testing”, Second Edition, Pearson Education, 2009.
4. Adithya P. Mathur, “Foundations of Software Testing – Fundamentals algorithms and techniques”, Dorling Kindersley (India) Pvt. Ltd., Pearson Education, 2008.
5. Boris Beizer, “Software Testing Techniques”, Dream Tech Press, 2009.
6. Renu Rajani, Pradeep Oak, “Software Testing – Effective Methods, Tools and Techniques”, Tata McGraw Hill, 2004.
7. Srinivasan Desikan and Gopaldaswamy Ramesh, “Software Testing – Principles and Practices”, Pearson Education, 2009.
8. [https://www.tutorialspoint.com/software\\_testing/index.html](https://www.tutorialspoint.com/software_testing/index.html)

<b>1702CA502</b>	<b>VIRTUALIZATION AND CLOUD COMPUTING</b>	<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 :**

1. Database management system

**COURSE OBJECTIVES:**

1. To introduce the broad perspective 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 6 Hours**

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 6 Hours**

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 6 Hours**

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 6 Hours**

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

**UNIT V VIRTUALIZATION AND CLOUD SECURITY 6 Hours**

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, hyperjacking-Cloud Security and Trust Management– Cloud Security Challenges – Cloud Security Defense Strategies– Distributed Intrusion/Anomaly Detection – Data and Software Protection Techniques.

**TOTAL: 30+30 HOURS**

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

1. Network Virtualization
2. Software Defined Network

**COURSE OUTCOMES:**

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

- CO1: Identify the architecture and delivery models of cloud computing
- CO2: Apply suitable virtualization concept
- CO3: Explain the main concepts, key technologies, strengths and limitations of cloud computing
- CO4: Describe the architecture, infrastructure and delivery models of cloud computing
- CO5: 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, Fifth Edition, Pearson Education Asia, 2012.
4. John W.Rittinghouse and James F.Ransome, “Cloud Computing: Implementation, Management, and Security”, CRC Press, 2010.
5. Toby Velte, Anthony Velte, Robert Elsenpeter, “Cloud Computing, A Practical Approach”, TMH, 2009.
6. George Reese, “Cloud Application Architectures: Building Applications and Infrastructure in the Cloud” O'Reilly.
7. [www.cse.iitd.ernet.in/~sbansal/cs1862-virt/2010/lec/lec01.pdf](http://www.cse.iitd.ernet.in/~sbansal/cs1862-virt/2010/lec/lec01.pdf)

1702CA503

**PYTHON PROGRAMMING**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>

**PREREQUISITE :**

1. Objected Oriented Programming
2. Advanced Java Programming

**COURSE OBJECTIVES:**

1. To introduce the basics of Python
2. To implement python programs with conditionals and loops
3. Demonstrate the use of Python lists and dictionaries
4. Describe and apply object-oriented programming methodology

**UNIT I INTRODUCTION PYTHON 12 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 12 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 12 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 12 Hours**

NumPy- NumPy Array-NumPy Side Effects-Subsetting NumPy Arrays-2D NumPy Arrays-2D Arithmetic - Basic Statistics.

**UNIT V FILES,MODULES AND PACKAGES 12 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.

**TOTAL: 60 HOURS**

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

1. Intermediate Python Resources

**COURSE OUTCOMES:**

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

- CO1: Describe the basics of python programming
- CO2: Develop the python programs using Conditional Statements.
- CO3: Develop the python program using Lists, Tuples, Dictionaries
- CO4: Develop the real time application using NumPy array concepts,
- CO5: Develop the python programs using files and packages.

**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
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 Inter-disciplinary Approach, Pearson India Education Services Pvt. Ltd., 2016.
5. Timothy A. Budd, —Exploring Python!, Mc-Graw Hill Education (India) Private Ltd., 2015.
6. <http://greenteapress.com/wp/think-python.html>

1703CA024

**INTELLIGENT DATA ANALYSIS**

<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. Data Base Management System
2. Data mining Techniques

**COURSE OBJECTIVES:**

1. To understand data mining principles and techniques.
2. To expose the students to the concepts of Big Data.
3. To understand various data analysis tasks.

**UNIT I INTRODUCTION TO BIG DATA 8 Hours**

Introduction to Big Data Platform–Challenges of conventional systems–Web data–Evolution of Analytic scalability –analytic processes and tools –Analysis vs reporting–Modern data analytic tools -Statistical concepts–Sampling distributions–re-sampling -statistical inference–prediction error.

**UNIT II DATA PREPROCESSING & ASSOCIATION RULE MINING 8 Hours**

Need for Data Preprocessing–Data Cleaning–Data Integration and Transformation– Data Reduction –Data Discretization and Concept Hierarchy Generation–Association Rule Mining - Mining Frequent Item sets with and without Candidate Generation–Mining Various Kinds of Association Rules.

**UNIT III DATA ANALYSIS 10 Hours**

Regression modeling - Multivariate analysis - Bayesian modeling - inference and Bayesian networks–Support vector and kernel methods–Analysis of time series–linear systems analysis–nonlinear dynamics–Rule induction–Neural networks–learning and generalization – competitive learning–principal component analysis and neural networks–Fuzzy logic–extracting fuzzy Models from data- fuzzy decision trees – Stochastic search methods.

**UNIT IV CLUSTERING 9 Hours**

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

**UNIT V CLASSIFICATION & PREDICTION 10 Hours**

Classification VS Prediction–Data preparation for Classification and Prediction–Classification by Decision Tree Introduction–Bayesian Classification–Rule Based Classification–Classification by Back propagation–Support Vector Machines–Associative Classification– Other Classification Methods– Prediction–Accuracy and Error Measures–Evaluating the Accuracy of a Classifier or Predictor –Ensemble Methods–Model Section.

**TOTAL: 45 HOURS**

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

Machine Learning, Deep Learning, R tool.

**COURSE OUTCOMES:**

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

- CO1: Explain the fundamental concepts of Big Data Analytics.
- CO2: Apply Data mining techniques for Big Data Analysis.
- CO3: Employ Statistical models in Data Analytics.
- CO4: Perform Clustering of data using clustering methods.
- CO5: Perform Classification and Prediction of data.

**REFERENCES:**

1. Michael Berthold, David J. Hand, “Intelligent Data Analysis”, Springer, 2007.
2. Jiawei Han, Micheline Kamber, “Data Mining Concepts and Techniques”, Second Edition, Elsevier, reprinted 2008.
3. Anand Rajaraman and Jeffrey David Ullman, “Mining of Massive Datasets”, Cambridge University Press, 2012.
4. Pete Warden, “Big Data Glossary”, O’Reilly, 2011.
5. FrankJ Ohlhorst, “Big Data Analytics: Turning Big Data into Big Money”, Wiley and SAS Business Series, 2012.
6. [https://www.tutorialspoint.com/big\\_data\\_analytics/](https://www.tutorialspoint.com/big_data_analytics/)
7. <https://intellipaat.com/blog/big-data-tutorial-for-beginners/>
8. <https://data-flair.training/blogs/data-analytics-tutorial/>

1703CA026

HUMAN RESOURCES MANAGEMENT

L	T	P	C
3	0	0	3

**PREREQUISITE :**

1. Software Quality Management
2. Software Project Management

**COURSE OBJECTIVES:**

1. To enable the students to understand the various HR functions in-depth.
2. To familiarize students with contemporary practices.
3. To enable the students to understand the challenges in domestic and IHRM

**UNIT I PERSPECTIVES IN HUMAN RESOURCE MANAGEMENT 8 Hours**

Evolution of human resource management – The importance of the human factor – Challenges – HR functions -Role of human resource manager – Human resource policies – Computer applications in human resource management – Human resource accounting and audit – environment of HRM.

**UNIT II THE CONCEPT OF BEST FIT EMPLOYEE 8 Hours**

Importance of Human Resource Planning – Forecasting human resource requirement –matching supply and demand - Internal and External sources. Recruitment - Selection – induction – Socialization benefits.

**UNIT III TRAINING AND EXECUTIVE DEVELOPMENT 10 Hours**

Types of training methods –purpose- benefits- resistance. Executive Development Programme – Common Practices - Benefits – Self development – Knowledge management.

**UNIT IV SUSTAINING EMPLOYEE INTEREST 9 Hours**

Compensation plan – Reward, remuneration, incentives and benefits – Career management – Development of mentor – Protégé relationships.

**UNIT V PERFORMANCE EVALUATION AND IHRM 10 Hours**

Method of performance evaluation–Feedback—Promotion–Demotion- Transfer and Separation – Implication of job change - The control process – Importance– Methods–grievances–Causes–Implications – Redressal methods.

**TOTAL: 45 HOURS**

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

1. HRIS, Social networking, e-learning, Recent trends in compensation
2. Changing roles of HR during the transition from Local to Global

**COURSE OUTCOMES:**

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

- CO1: Design policies and methods for all HR sub-functions.
- CO2: Deal with multi-cultural workforce.
- CO3: Forecast human resource requirement.
- CO4: Apply techniques in recruitment, career management and compensation planning.
- CO5: Identify and explain how to best implement a performance management system.

**REFERENCES:**

1. Anne-WilHarzing, Ashly Pinnington, Human Resource Management, Sage Publication 4<sup>th</sup> edition, 2017.
2. Dessler & Varkkey, Human Resource Management, 14th edition, Pearson Education Limited, 2016
3. K. Aswathappa, Human Resource and Personnel Management- Text & Cases, Tata McGraw Hill, 2013
4. Luis R. Gomez-Mejia, David B. Balkin, Robert L. Cardy. Managing Human Resource. PHI Learning, 2012
5. Ivancevich, Human Resource Management, McGraw Hill 2012
6. Bernadin, Human Resource Management, Tata McGraw Hill, 8th edition 2012
7. Uday Kumar Haldar, Juthika Sarkar. Human Resource management. Oxford. 2012.
8. Decenzo and Robbins, Human Resource Management, Wiley, 8th Edition, 2007.
9. Biswajeet Pattanayak, Human Resource Management, PHI, Third Edition, 2005
10. Dr. V.P. Michael, Human Resource Management & Human Relations, Himalaya Publishing House, 2005
11. <https://www.inc.com/encyclopedia/human-resource-management.html>

1702CA504

SOFTWARE TESTING LABORATORY

L	T	P	C
0	0	4	2

**COURSE OBJECTIVES:**

1. To apply various testing techniques and to detect the errors in the software.
2. To generate and apply the test cases using the automated testing tool.
3. To learn the functionality of automated testing tools to apply in the specialized environment
4. To get insight into the levels of testing in the user environment.

**LIST OF EXPERIMENTS:**

The following experiments should be practiced:

1. Study of software testing tools such as Rational Rose Test Suite, Selenium Tool
2. Implementation of testing techniques using Automation Tools.
3. Mini-project: Developing automated test case generation.

**TOTAL: 60 HOURS**

**ADDITIONAL EXPERIMENTS / INNOVATIVE EXPERIMENTS:**

1. Using Selenium IDE, Write a test suite containing minimum 4 test cases.
2. Write and test a program to update 10 student records into table into Excel file.

**COURSE OUTCOMES:**

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

- CO1: Test the software by applying various testing techniques.
- CO2: Debug the project and to test the entire computer based systems at all levels.
- CO3: Test the applications in the specialized environment using various automation tools.
- CO4: Design and develop automated test case generation tools.

**REFERENCES:**

1. Prof.N.Ilakkiya, “Software Testing Laboratory Manual”
2. Illene Burnstein, “Practical Software Testing”, Springer International Edition, Chennai, 2003.
3. Naresh Chauhan, “Software Testing Principles and Practices ” Oxford University Press , New Delhi , 2010.
4. Ron Patton, “Software Testing”, Second Edition, Pearson Education, 2009.
5. Adithya P. Mathur, “ Foundations of Software Testing – Fundamentals algorithms and techniques”, Dorling Kindersley (India) Pvt. Ltd., Pearson Education, 2008
6. Boris Beizer, “ Software Testing Techniques” , Dream Tech Press, 2009
7. RenuRajani, Pradeep Oak, “Software Testing – Effective Methods, Tools and Techniques”, Tata McGraw Hill,2004
8. SrinivasanDesikan and Gopaldaswamy Ramesh, “Software Testing – Principles and Practices”, Pearson Education, 2009.
9. [https://www.tutorialspoint.com/software\\_testing/index.html](https://www.tutorialspoint.com/software_testing/index.html)

1702CA505

PYTHON PROGRAMMING LABORATORY

L	T	P	C
0	0	4	2

**COURSE OBJECTIVES:**

1. To write, test, and debug simple Python programs
2. To implement Python programs with conditionals and loops.
3. Use functions for structuring Python programs
4. Represent compound data using Python lists, tuples, dictionaries
5. Read and write data from/to files in Python.

**LIST OF EXPERIMENTS:**

1. Compute the GCD of two numbers
2. Find the square root of a number (Newton's method)
3. Exponentiation (power of a number)
4. Find the maximum of a list of numbers
5. Linear search and Binary search
6. Selection sort, Insertion sort
7. Merge sort
8. First n prime numbers
9. Multiply matrices
10. Programs that take command line arguments (word count)
11. Find the most frequent words in a text read from a file
  1. Simulate elliptical orbits in Pygame
  2. Simulate bouncing ball using Pygame

**COURSE OUTCOMES:**

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

- CO1: Write, test, and debug simple Python programs
- CO2: Develop the python programs using Conditional Statements.
- CO3: Develop the python programs using sorting.
- CO4: Develop the python program using Lists
- CO5: Develop the python programs using files.

**REFERENCES:**

1. Prof.A.Hema, "Python Programming Laboratory Manual"
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 Inter-disciplinary Approach, Pearson India Education Services Pvt. Ltd., 2016.
5. Timothy A. Budd, —Exploring Python!, Mc-Graw Hill Education (India) Private Ltd., 2015.
6. <http://greenteapress.com/wp/think-python.html>



1704CA506

**MINI PROJECT USING .NET**

L	T	P	C
0	0	4	2

**COURSE OBJECTIVES:**

1. To enable students to understand the Phases involved in Software development.
2. To prepare the students to develop socially relevant projects.
3. To explore the latest tools and technologies in software development.

**LIST OF EXPERIMENTS:**

1. Students are required to develop Mini Project that is socially relevant using latest technologies.
2. Project Phases: Requirement Analysis – System Design – Application Development – Testing.
3. Suggested Applications: Management Systems – Mobile Applications – Web Applications – Gaming Applications – System Software.
4. Assessment Pattern: Review I - Review II - Project Presentation - Report - Viva Voce.
5. User Based Testing and feedback from the benefited society required.

**TOTAL: 60 HOURS**

**COURSE OUTCOMES:**

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

- CO1: Apply the fundamentals of software engineering principles.
- CO2: Apply the Software Development Phases involved in Software applications.
- CO3: Develop software applications using latest technologies.
- CO4: Apply the database connectivity concepts.
- CO5: Create Project Report and Presentation

**REFERENCES:**

1. Prof. P. Arunkumar, “Mini Project Using .NET Manual”
2. Jesse Liberty , ‘Programming C#, “ , 4th Edition, O’Reilly Media
3. James Lee, Brent Ware , “Open Source Development with LAMP: Using Linux, Apache, MySQL, Perl, and PHP” Addison Wesley, Pearson 2009
4. [www.anglertech.com/services/web-application-development/](http://www.anglertech.com/services/web-application-development/)

<b>1704CA507</b>	<b>LIFE SKILL V- COMPETITIVE EXAM PREPARATION</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>

**PREREQUISITE :**

1. To write, test, and debug simple Python programs
2. To implement Python programs with conditionals and loops.
3. Use functions for structuring Python programs
4. Represent compound data using Python lists, tuples, dictionaries
5. Read and write data from/to files in Python.

**COURSE OBJECTIVES:**

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

**UNIT I Programming in C and C++ 10 Hours**

Programming in C and C++ Programming in C: Elements of C–Tokens, identifiers, data types in C. Control structures in C. Sequence, selection and iteration(s). Structured data types in C–arrays, struct, union, string, and point- C++ Programming: Elements of C++ –Tokens, identifiers. Variables and constants, Data types, Operators, Control statements. Functions parameter passing. Class and objects. Constructors and destructors. Overloading, Inheritance, Templates, Exception handling.

**UNIT II Relational Database Design and SQL 10 Hours**

E-R diagrams and their transformation to relational design-normalization– 1NF, 2NF, 3NF, BCNF and 4NF–Limitations of 4NF and BCNF–SQL : Data Definition Language (DDL) –Data Manipulation Language (DML) –Data Control Language (DCL) commands–Database objects like Views, indexes, sequences, synonyms, data dictionary.

**UNIT III Data and File structures 10 Hours**

Data, Information–Definition of data structure Arrays, stacks, queues, linked lists, trees, graphs, priority queues and heaps– File Structures : Fields, records and files– Sequential, direct, index-sequential and relative files–Hashing, inverted lists and multilists–B trees and B+ trees.

**TOTAL: 30 HOURS**

**COURSE OUTCOMES:**

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

- CO1: Learners should be able to crack both analytical and logical problems in an active manner
- CO2: Able to work challenging and Critical work place
- CO3: Learners know about various competitive exams

**REFERENCES:**

1. R. K. Ahuja and J. B. Orlin. Distance directed augmenting path algorithms for maximum flow and parametric maximum flow problems. Naval Research Logistics, 38(3):413–430, 1991.
2. M. Andrew. Another efficient algorithm for convex hulls in two dimensions. Information Processing Letters, 9(5):216–219, 1979.
3. Aspvall, M. F. Plass and R. E. Tarjan. A linear-time algorithm for testing the truth of certain quantified boolean formulas. Information Processing Letters, 8(3):121–123, 1979.
4. V. Aho, J. E. Hopcroft and J. Ullman. Data Structures and Algorithms, Addison-Wesley, 1983.