



KONGU ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)

ERODE – 638 107

PROGRAM NAME

PGDCA



KONGU ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)

ERODE – 638 107

2022-2021



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ERODE – 638 107

SYLLABUS

Sem.	Course Code	CORE PAPER – I OPERATING SYSTEMS	Total Marks: 100		Hours Per Week	Credits
I	20PBJCT101			CIA:25	ESE:75	4

Objective(s): On successful completion of the course the students should have:

- Understood the operating system overview.
- Understood the different types of operating systems, servers, DNS and administrative tools.
- Learnt using case studies in different OS.

Course Outcomes:

At the end of the course, students will be able to

- CO1 Understand the operating system overview.
- CO2 Know the different types of operating systems, servers and DNS.
- CO3 Do the server installation and monitoring.
- CO4 Do the server backup and storage management.
- CO5 Develop the server group policy management.

UNIT-I

Windows - Hardware Basics, Operating System overview and Windows, Windows 7 Essential, Client OS-Windows 7 - Users and Groups-IP Configuration, Client OS-Windows 7-Tools and Utilities-Client OS Windows 7- Installation-Features-Disk Management-File Systems.

UNIT-II

Server OS - Windows Server 2012 Overview - Server DNS - Zone Creation - DHCP LAB- Advanced server storage Management-server ADS concepts and FSMO - Server OS Windows Server 2012 Roles and features - Server OS Windows Server 2012 File and Print Services.

UNIT-III

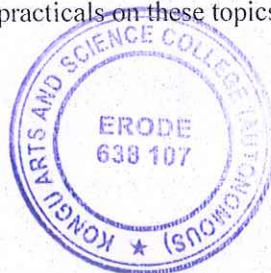
Windows Server 2012 Installation– OS monitoring and managing Windows Server 2012- Server OS Windows Server 2012 DNS and DHCP- Server OS Windows server 2012 Administrative Tools and ADS.

UNIT-IV

Server OS - Windows Server 2012 - Storage and Backup Management - Client OS Windows 7 Devices and Printers - Server OS (practicals on these topics).

UNIT-V

Group Policy Management – Server Windows Server 2012 - File and print services - Group Policy- Server Storage Management – Server Scenario - Server OS Windows Server 2012 - DNS and DHCP -Server- ADS scenario (practicals on these topics)

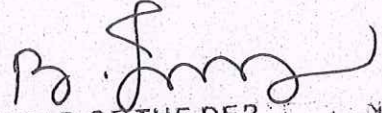



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BOOKS FOR REFERENCE:

1. Mitch Tulloch, "Windows 7 Essential Guidance", 2009.
2. William Panek Tylor Wentworth, "Microsoft Windows 7 Administration", Wiley Publishing, 2010
3. Charles Edge, Chris Barker Ehren Schwiebert, "Beginning Mac OS X Snow Leopard Server", 2010
4. Greg Tomsho, "Guide to Operating System", 5th Edition, 2017.

QUESTION PAPER PATTERN		
SECTION - A	SECTION - B	SECTION - C
<p>10 × 1 = 10 Marks (Multiple Choice, Four options) Two questions from each unit</p>	<p>5 × 7 = 35 Marks (Either or choice) Two questions from each unit</p>	<p>3 × 10 = 30 Marks (Answer any three Questions) One question from each unit</p>


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Sem.	Course Code	CORE PAPER –II DATABASE MANAGEMENT SYSTEMS	Total Marks: 100		Hours Per Week	Credits
			CIA:25	ESE:75	4	4
I	20PBJCT102					

Objective(s): On successful completion of the course the students should have:

- Understood the basic database concepts, normalization, oracle database and data management
- Gained knowledge over various database models, schemes and SQL statements.

Course Outcomes:

At the end of the course, students will be able to

- CO1 Understand the basic database concepts and normalization.
- CO2 Gain knowledge over Oracle 9i.
- CO3 Implement the data management and retrieval by using DML
- CO4 Work on the basics of PL/SQL.
- CO5 Gain knowledge over advanced concepts of PL/SQL.

UNIT-I

Database Concepts: A Relational approach: Database – Relationships – DBMS – Relational Data Model – Integrity Rules – Theoretical Relational Languages. Database Design: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams – De-normalization – Another Example of Normalization.

UNIT-II

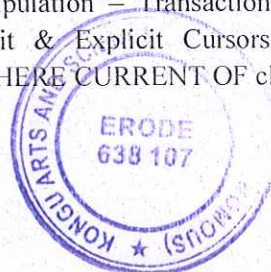
Oracle9i: Oracle9i an introduction – SQL. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

UNIT-III

Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping: Built-in functions – Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations.

UNIT-IV

PL/SQL: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. Control Structures and Embedded SQL: Control Structures – Nested Blocks – SQL in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT...FOR UPDATE – WHERE CURRENT OF clause – Exceptions – Types of Exceptions.



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UNIT-V

PL/SQL Composite Data Types: Records – Tables – arrays. Named Blocks: Procedures – Functions – Packages – Triggers.

BOOK FOR REFERENCE:

1. Nilesh Shah, "Database Systems Using ORACLE", PHI, 2nd Edition, 2011.

QUESTION PAPER PATTERN		
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10 × 1 = 10 Marks (Multiple Choice, Four options) Two questions from each unit	5 × 7 = 35 Marks (Either or choice) Two questions from each unit	3 × 10 = 30 Marks (Answer any three Questions) One question from each unit

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Sem.	Course Code	CORE PAPER – III SCRIPTING LANGUAGES	Total Marks: 100		Hours Per Week	Credits
I	20PBJCT103		CIA:25	ESE:75	4	4

Objective(s): On successful completion of the course the students should have:

- Understood the basic concepts of HTML, XML and CSS and Java Script
- Gained knowledge over various scripting languages

Course Outcomes:

At the end of the course, students will be able to

- CO1 Develop the basic concepts of HTML programming.
- CO2 Work the basic concepts of XML and CSS.
- CO3 Do scripting with Java Script.
- CO4 Understand the Power shell scripting basics.
- CO5 Gain knowledge over advanced features of Power shell scripting.

UNIT-I

HTML Programming : HTML - Basic Tags - Various versions of HTML - HTML forms - HTML frames - Browser (IE, Netscape communicator, Lynx(Text)) -Browser dependent -HTML tags.

UNIT-II

CSS - Concept of Style Sheets – CSS rules – types – CSS properties (Font, Text, Border, Margin, Color, Link, Position, Padding and List). XML –Introduction – XML Tree Structure, XML With Cascading Style Sheet - XML with Data Source Object - XML Document Type Definition and XML Schemas.

UNIT-III

Java Scripting: Introduction, Advantages, Limitations, Syntax, Comparison between Java Script and VB Script, Java Script objects, Methods, and Event, Event and Program flow, Java Script Functions

UNIT-IV

Power shell Scripting, Meeting Windows Power shell, using the help system, Running Commands, Connecting Commands in the Pipeline, Working with Providers, Extending the Shell. Variables (User Defined, System, Environmental Variables) Power shell Operators -Filtering and Comparisons, Loops Available, Remote Control [1:1 and 1: N (Many)] , Inbuilt Security, Using Windows Management Instrumentation

UNIT-V

Arrays and Hash Tables, Working with Objects, Tips and Tricks Around Days Topic- Formatting(List, Table, Wide), Power shell Functions.

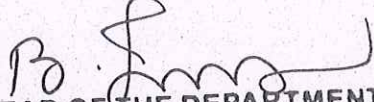


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BOOKS FOR REFERENCE:

1. Jon Duckett, "HTML & CSS: Design and Build Web Sites", John Wiley and Sons Inc. 2011
2. MarijuHaverbeker, Eloquent Java Script (A modern introduction to Programming), 2011.
3. BrentonJ.W.Blawat, "Mastering Windows Powershell Scripting", Packt Publishing 2015
4. Lee Holmes "The complete guide to Scripting Microsoft New Command Shell" 2010

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Sem.	Course Code	ELECTIVE-I PYTHON PROGRAMMING	Total Marks: 100		Hours Per Week	Credits
			CIA:25	ESE:75	4	4
I	20PBJET104					

Objective(s): On successful completion of the course the students should have:

- Understood the Python programming techniques
- Gained knowledge on various problem solving techniques and Plot data using appropriate Python visualization libraries

Course Outcomes:

At the end of the course, students will be able to

- CO1 Understand the algorithmic problem solving concepts.
- CO2 Gain knowledge over the data, expressions and statements of Python
- CO3 Work with control flow statements and functions of Python
- CO4 Develop the lists, tuples and dictionaries of Python
- CO5 Implement the files, modules and packages of Python

UNIT-I

Algorithmic Problem Solving: Algorithms, building blocks of algorithms (statements, state, control flow, functions), notation (pseudo code, flow chart, programming language), algorithmic problem solving, simple strategies for developing algorithms (iteration, recursion). Illustrative problems: find minimum in a list, insert a card in a list of sorted cards, and guess an integer number in a range, Towers of Hanoi.


UNIT-II

Data, Expressions, Statements: Python interpreter and interactive mode; values and types: int, float, boolean, string, and list; variables, expressions, statements, tuple assignment, precedence of operators, comments; modules and functions, function definition and use, flow of execution, parameters and arguments; Illustrative programs: exchange the values of two variables, circulate the values of n variables, distance between two points.

UNIT-III

Control Flow, Functions: Conditionals: Boolean values and operators, conditional (if), alternative (if-else), chainedconditional (if-else if-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. Illustrative programs: square root, gcd, exponentiation, sum an array of numbers, linear search, binary search.




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UNIT-IV

Lists, Tuples, Dictionaries: 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, merge sort, histogram.

UNIT-V

Files, Modules, Packages: 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; Database connectivity

TEXT BOOKS:

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.

BOOKS FOR REFERENCE:

1. Charles Dierbach, "Introduction to Computer Science using Python: A Computational Problem-Solving Focus, Wiley India Edition, 2013.
2. John V.Guttag, "Introduction to Computation and Programming Using Python", Revised and expanded Edition, MIT Press , 2013
3. Kenneth A. Lambert, "Fundamentals of Python: First Programs", CENGAGE Learning, 2012.
4. Paul Gries, Jennifer Campbell and Jason Montojo, "Practical Programming: An Introduction to Computer Science using Python 3", Second edition, Pragmatic Programmers,LLC,2013.
5. Robert Sedgewick, Kevin Wayne, Robert Dondero, "Introduction to Programming in Python: An Inter-disciplinary Approach, Pearson India Education Services Pvt. Ltd., 2016.
6. Timothy A. Budd, "Exploring Python", Mc-Graw Hill Education (India) Private Ltd. , 2015.

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Sem.	Course Code	ELECTIVE - I VIRTUALISATION AND CLOUD	Total Marks: 100		Hours Per Week	Credits
I	20PBJET105			CIA:25	ESE:75	4

Objective(s): On successful completion of the course the students should have:

- Understood the basic concepts of distributed systems, cloud computing concepts and AWS
- Gained knowledge over various virtualization and virtual machines

Course Outcomes:

At the end of the course, the students will be able to

- CO1 Gain knowledge over distributed systems.
- CO2 Understand the cloud computing concepts.
- CO3 Gain knowledge over virtualization.
- CO4 Know the features of virtual machines.
- CO5 Develop the data center architecture for cloud computing.

UNIT-I

Distributed Systems: Distribute a system - Distributed algorithm - Distributed Data Stores - Distributed Computing - File Systems - Distributed Messaging - Distributed Applications - Distributed Transaction - Parallel and distributed computing - Applications

UNIT-II

Cloud Concepts: Introduction Cloud Computing - Advantages of Cloud - Public Cloud - five essential characteristics - three service models - Four deployment models - Benefits of Cloud Computing - Cloud Vendors - Traditional Infrastructure setup and Challenges - AWS.

UNIT-III

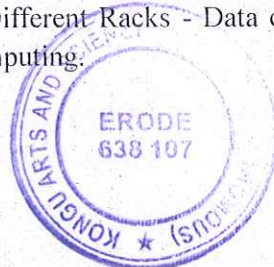
Virtualization : Introduction to vSphere and the Software - Defined Data Center Creating Virtual Machines - VCenter Server - Configuring and Managing - Virtual Networks Configuring and Managing Virtual Storage - Virtual Machine Management - Resource Management and Monitoring.

UNIT-IV

Virtual Machines: vSphere HA - vSphere Fault Tolerance - Protecting Data vSphere DRS - Network Scalability - vSphere Update Manager and Host Maintenance - Storage Scalability - Securing Virtual Machines.

UNIT-V

Datacenter: Data center overview - Components - Provisions - Need of Data Center - Data Center Architecture - Different Racks - Data center architecture for cloud computing - role of data center in cloud computing.

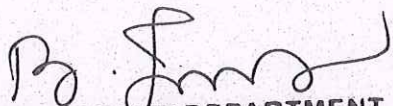



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BOOKS FOR REFERENCE:

1. Jean Dollimore formerly of Queen Mary, Tim Kindberg, "Distributed Systems Concepts and Design", 5th Edition Cambridge University, University of London
2. Venkata Josyula, Malcolm Orr, Greg Page, "Cloud Computing: Automating the Virtualized Data Center", 1st Edition.
3. Brian J.S. Chee, Curtis Franklin Jr., "Cloud Computing: Technologies and Strategies of the Ubiquitous Data Center", 1st Edition.

QUESTION PAPER PATTERN		
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Sem.	Course Code	ELECTIVE - II SOFTWARE TESTING	Total Marks: 100		Hours Per Week	Credits
			CIA:25	ESE:75	4	4
I	20PBJET106					

Objective(s): On successful completion of the course the students should have:

- Understood the basic concepts of Software Testing
- Gained knowledge over various selenium methods and automation frameworks

Course Outcomes:

At the end of the course, the students will be able to

- CO1 Introduce to testing automation with Selenium.
- CO2 Working on basics of Selenium IDE.
- CO3 Gain knowledge over Selenium methods and features.
- CO4 Understand the dialogs and windows of Selenium.
- CO5 Gain knowledge over frameworks and grids of Selenium.

UNIT-I

Introduction to Automation - Planning before Automation - Introduction to Selenium - Installing Selenium Components

UNIT-II

Using Selenium IDE - Managing User Interface Controls - Creating First Selenium Web Driver Script.

UNIT-III

Selenium Methods - Common Selenium Web Driver Methods - Verification Point in Selenium - Exploring the Features of Web Driver.

UNIT-IV

Handling Pop-up Dialogs and Multiple Windows - Working with Dynamic UI Objects- Data driven testing using TestNG - Selenium Functions, Common Questions and Tips.

UNIT-V

Reporting in Selenium - Batch Execution - Automation Frameworks - Understanding Selenium Grid.

BOOKS FOR REFERENCE:

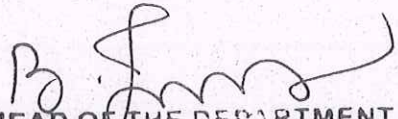
1. AdithyaGarg, Ashish Mishra "A Practitioner"s Guide to Test Automation Using Selenium", Tata McGraw Hill Education, 2015.
2. NavneeshGarg, "Test Automation Using Selenium WebDriver with Java", AdactIn Group Pvt Ltd. 2014.
3. SatyaAvasarala, "Selenium Web Driver Practical Guide", Packt Publishing, 2014.




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4. Rex Allen Jones II. "Selenium Web Driver for Functional Automation Testing", Test 4 Success, LLC. 2016.
5. David Burns, "Selenium 1.0 Testing Tools", Packt Publishing, 2010.

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SECTION - A	SECTION - B	SECTION - C
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Sem.	Course Code	ELECTIVE - II COGNITION AND PROBLEM SOLVING	Total Marks: 100		Hours Per Week	Credits
			CIA:25	ESE:75	4	4
I	20PBJET107					

Objective(s): On successful completion of the course the students should have:

- Understood the basic concepts of cognitive psychology.
- Gained knowledge over various problem solving techniques, decision making, critical thinking and design thinking.

Course Outcomes:

At the end of the course, the students will be able to

- CO1 Understand the basic concepts of cognitive psychology.
- CO2 Gain knowledge over perceptual processes.
- CO3 Know the different types of memory and it's strategies.
- CO4 Gain knowledge over problem solving, reasoning and decision making.
- CO5 Gain knowledge over future skills.

UNIT-I

INTRODUCTION TO COGNITION: Meaning cognitive processes, Development of cognitive psychology: Structuralism, Functionalism, Behaviourism, Memory Research, Gestalt Psychology, Emergence of cognitive psychology, Information Processing, Connectionism, Alternate approaches to cognitive psychology, Research Methods in Cognitive Psychology.

UNIT-II

PERCEPTUAL PROCESSES-Object Recognition- theories of object recognition, Bottom-Up and Top-Down Processing, Face Perception, Change Blindness. Attention: Divided attention, Selective Attention, Visual attention and Auditory attention. Consciousness: Varieties, Subliminal Perception. Visual Perception "Perceptual Organizational Processes, Multisensory interaction and Integration – Synesthesia, Comparing the senses, Perception and Action.

UNIT-III

MEMORY Working Memory: Research on Working Memory, Factors affecting the capacity of working Memory, Baddeley's Working Memory Approach. Long Term Memory: Encoding and Retrieval in Long Term Memory, Autobiographical Memory. Memory Strategies: Practice, Mnemonics using Imagery, Mnemonics using organization, The Multimodal Approach, Improving Prospective Memory. Metacognition :Metamemory, TOT, Metacomprehension.



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UNIT-IV

PROBLEM SOLVING, REASONING AND DECISION MAKING: VUCA World Problem Solving – Types of problem. Understanding the problem, Problem-Solving Approaches, Factors that influence Problem Solving, creativity. Reasoning – Inductive and Deductive Reasoning Decision Making – Heuristics in decision making – representativeness, availability and Anchoring and adjustment. The framing effect, Overconfidence in decisions, The Hindsight Bias.

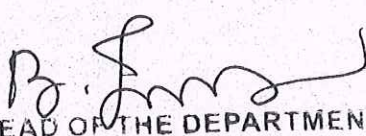
UNIT-V

FUTURE SKILLS - Critical thinking, Adaptive thinking, Cognitive Load Management, Design thinking, Virtual Collaboration and Cultural Sensitivity


BOOKS FOR REFERENCE:

1. Matlin M.W. (2003) "Cognition", 5th Edition, Wiley Publication.
2. Riegler, B.R., Reigler, G.L. (2008), "Cognitive Psychology – Applying the Science of Mind", 2nd Edition, Pearson Education.
3. Benjafield J G (2007), "Cognition" , 3rd Edition, Oxford University Press.
4. Goldstein B.E.(2008), "Cognitive Psychology" , 2nd Edition, Wadsworth.

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Sem.	Course Code	CORE PRACTICAL – I PYTHON PROGRAMMING LAB	Total Marks: 100		Hours Per Week	Credits
I	20PBJCP108		CIA:40	ESE:60	5	4

Objective(s): On successful completion of the course the students should have:

- Practical knowledge in implementing the basic concepts in Python

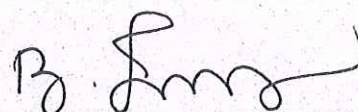
Course Outcomes:

At the end of the course, students will be able to

- CO1 Implement dynamic and interactive Python applications
- CO2 Develop programs using different data types in python
- CO3 Implement mail merge concepts in Python
- CO4 Develop games using GUI
- CO5 Develop a Python application and establish connectivity with a MySQL

LIST OF PROGRAMS

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
12. Simulate elliptical orbits in Pygame
13. Simulate bouncing ball using Pygame



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Sem.	Course Code	CORE PRACTICAL – II SCRIPTING LANGUAGES LAB	Total Marks: 100		Hours Per Week	Credits
I	20PBJCP109		CIA:40	ESE:60	5	4

Objective(s): On successful completion of the course the students should have:

- Practical knowledge in implementing the basic concepts in Python

Course Outcomes:

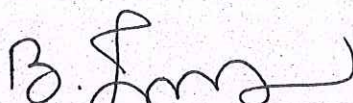
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 KONGU ARTS AND SCIENCE COLLEGE
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 NANJANA M. ERODE - 638 107.

Sem.	Course Code	PROJECT WORK AND VIVA VOCE	Total Marks: 100		Hours Per Week	Credits
II	20PBJCV201		CIA:--	ESE:425	--	17

Objective(s): On successful completion of the course the students should have:

- Practical knowledge in developing a project.

Course Outcomes:

At the end of the course, students will be able to

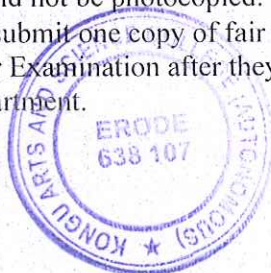
- CO1 Acquire practical knowledge within a area of technology
- CO2 Identify, analyze, formulate projects with a comprehensive and systematic approach
- CO3 Compare and contrast the several existing solutions
- CO4 Contribute as an individual or in a team in development of technical projects
- CO5 Develop effective communication skills for presentation of project related activities

Guidelines for Project Work & Viva-Voce

GENERAL

Student has to take up the project work for a period of six months.

- The project may be developed using the software package that they have learned from the courses studied or implementation of any innovative idea.
- Guide will be allocated to each student and the project title should be approved by the guide.
- The project work can be done in the companies or organizations.
- Students should communicate with their guide regularly about the progress of the project.
- Review Presentation is to be given only on approval of the guide.
- No Students will be permitted to appear for viva voce without the project report.
- The impressions on the typed copies should be black in colour. The font and size should be: "TimesNewRoman - 12 point".
- The project report may be about 50 to 80 pages; A-4 size typed pages (excluding Program code) One and a half line spacing should be used for typing the general text and all paragraphs should be justified. The margins should be: Left - 1.25", Right - 1", Top and Bottom - 0.75".
- All page numbers should be typed in Arabic numbers and the preliminary pages should be numbered in lower case Roman numerals.
- Cover wrapper should be in Silver Grey colour.
- The specimen is annexed along with the Project guidelines.
- The project report should be hard bound; should consist of a contents page; all pages of report should be numbered; content should be well organized in a meaningful manner; paragraph alignment should be maintained, printouts of text & screen layouts should be original and should not be photocopied.
- Students should submit one copy of fair draft report in the form of hard binding during the End Semester Examination after they are duly signed by the concerned guide and the Head of the Department.



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FORMAT OF PROJECT REPORT

CONTENTS

ACKNOWLEDGEMENT

1. INTRODUCTION

- 1.1 System overview
- 1.2 About the organization

2. SYSTEM STUDY AND ANALYSIS

- 2.1 Problem Statement
- 2.2 Existing System
 - 2.2.1 Drawbacks
- 2.3 Proposed System
 - 2.3.1 Advantages
- 2.4 Feasibility Analysis
 - 2.4.1 Technical Feasibility
 - 2.4.2 Economic Feasibility
 - 2.4.3 Operational Feasibility

3. DEVELOPMENT ENVIROMENT

- 3.1 Hardware Requirement
- 3.2 Software Requirement
- 3.3 Programming Environment

4. SYSTEM DESIGN AND DEVELOPMENT

- 4.1 Physical/Process Design
- 4.2 Input Design
- 4.3 Output Design
- 4.4 Database Design
- 4.5 Table Relationship Structure

5. SYSTEM TESTING AND IMPLEMENTATION

- 5.1 System Testing
 - 5.1.1 Unit Testing
 - 5.1.2 Integration Testing
 - 5.1.3 User Acceptance Testing
 - 5.1.4 Output Testing
 - 5.1.5 Validation Testing
- 5.2 Test Cases
- 5.3 System Implementation

6. CONCLUSION AND ENHANCEMENT

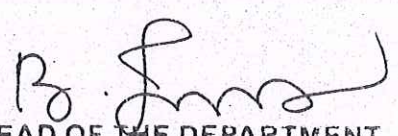
- 6.1 Conclusion
- 6.2 Future Enhancement

7. SCREEN SHOTS

8. REPORTS

9. BIBLIOGRAPHY




HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (PG)
KONGU ARTS AND SCIENCE COLLEGE
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