KONGU ARTS AND SCIENCE COLLEGE

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

ERODE – 638 107

PROGRAM NAME

B.C.A.

KONGU ARTS AND SCIENCE COLLEGE

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2018-2019

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SYLLABUS

SEM	Course Code	Core 4: Data Structures	Total Marks: 100		Hours per Week	Credits
III	17UAJCT301		CIA: 25	ESE: 75	6	5

Objectives: To enable the students to understand the concepts of Data structure and to know various algorithms in data structures.

Course Outcome: On Completion of this course the students will be able to

CO1 Understand the needs of the data structure, Problem solving strategies and Algorithms.

CO2 Understand the types of list and its representations.

CO3 Understand the applications of tree data structure.

CO4 Apply the graph representations, searching and sorting methods.

CO5 Know the need of algorithm and its designing strategy.

UNIT – I: Introduction to Data structures: Need for Data Structures – Algorithm Analysis: Problem Solving - Categories of Problem Solving - Problem Solving Strategies - Algorithm Analysis – Time Complexity Cases - Arrays – Stack: ADT Stack - Implementation of Stack - Infix, Prefix and Postfix Expressions. Queue – Implementation of Queues - Circular queue.

UNIT – II: Linked Lists : Introduction – Types of Linked List – Singly Linked Lists – Doubly Linked Lists – Circular Linked Lists – Multiply Linked List – Sparse Matrix Representation – Linked List Applications – Polynomial Representation - Polynomial Addition – Representation of Polynomials with Multivariables.

UNIT – III: Trees: Introduction - Representation of Binary Trees – Binary Tree Traversals – Applications of Trees. Binary Search Trees – Creating a BST – Inserting an Element into BST – Deleting an Element in a BST.

UNIT – IV: Graphs: Introduction - Representation of Graphs – Operations on Graph: Breadth First Search (BFS) – Depth First Search (DFS). Search: Binary Search – Linear Search. Sorting: Introduction – Types of Sorting: Insertion Sort – Shell Sort – Merge Sort – Quick Sort – Heap Sort – Bubble Sort.

UNIT V: Introduction to Algorithm: Definition – Expression and Implementation of Algorithms – Analysis of Algorithms – Algorithm Complexity: Space Complexity – Time Complexity – Determination of Complexities – Cases of Complexity – Importance of Constants during the Analysis of Algorithms – Designing of Algorithms: Approaches for Designing Algorithm - Difference Between Incremental and Divide and Conquer Approach.

TEXT BOOKS:

1. Dr.A.Chitra, P.T.Rajan, "Data Structures", Tata McGraw-Hill, Second Reprint 2007.
2. Prabhakar Gupta, Vineet Agarwal, Manish Varshney, "Design and Analysis of Algorithms", 2008, PHI Publications.

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REFERENCE BOOKS:

1. "Fundamentals of Data Structures", Ellis Horowitz, Sartaj Shani, Galgotia Publication.
2. "Analysis of Algorithms", Jeffrey J. McConnell, Narosa Publishing House.

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

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Sem	Course Code	ALLIED PAPER – III COMPUTER BASED OPTIMIZATION TECHNIQUES	Total Marks: 100		Hours Per Week	Credits
III	17UAJAT304/ 17UAKAT304		CIA:25	ESE:75	6	4

OBJECTIVE:

To enable the students to understand the concepts of the mathematical applications in industries and decision making using optimization techniques.

COURSE OUTCOME:

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

CO1 solve the Linear Programming Problem by graphical method (Apply)

CO2 formulate the Transportation problems (Create)

CO3 optimize the assignment problems and Replacement Problems (Analyze)

CO4 discuss the types of Queueing models and various Strategies of Game Theory (Understand)

CO5 construct a Network diagram and find the Critical path and PERT (Create)

UNIT I

Linear Programming Problem: Introduction – Linear Programming Problem - Mathematical Formulation of the Problem – Illustration on Mathematical Formulation of LPPs.

Graphical Solution and Extension: Introduction – Graphical Solution Method – General Linear Programming Problem.

Simplex Method: Introduction – The Computational Procedure.

UNIT II

Transportation Problem : Introduction – LP Formulation of the Transportation Problem –The Transportation Table – Loops in Transportation Tables – Solution of a Transportation Problem – Finding an Initial Basic Feasible Solution – Transportation Algorithm (MODI Method).

UNIT III

Assignment Problem: Introduction – Mathematical Formulation of the Problem – Solution Methods of Assignment Problem – Special Cases in Assignment Problems (Except Theorems).

Replacement Problem and System Reliability: Introduction – Replacement of Equipment/Asset that Deteriorates Gradually.

UNIT IV

Queueing Theory: Introduction – Queueing System – Classification of Queueing Models – Poisson Queueing Systems: Model I and Model III (Problems Only).

Games and Strategies: The Maximin - Minimax Principle – Games Without Saddle Points-Mixed Strategies – Graphical Solution of 2 x n and m x 2 Games.

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UNIT V

Network Scheduling by PERT/CPM: Introduction – Network: Basic Components – Logical Sequencing – Rules of Network Construction – Concurrent Activities – Critical Path Analysis – Probability Consideration in PERT – Distinction between PERT and CPM.

Text book:

Kanti Swarup, P.K.Gupta and Man Mohan. "Operations Research", Fourteenth Edition, Sultan Chand & Sons, 2008.

Unit I: Chapter 2: 2.1 – 2.4
Chapter 3: 3.1, 3.2, 3.4
Chapter 4: 4.1, 4.3

Unit II: Chapter 10: 10.1, 10.2, 10.5, 10.6, 10.8, 10.9 and 10.13

Unit III: Chapter 11: 11.1 – 11.4
Chapter 18: 18.1, 18.2

Unit IV: Chapter 21: 21.1, 21.2, 21.7, 21.9
Chapter 17: 17.4, 17.5, 17.6

Unit V: Chapter 25: 25.1 – 25.8

Books for Reference:

1. J.K.Sharma, " Operations Research Theory and Applications", Macmillan India Ltd, Third Edition, 2007.
2. Hamdy A.Taha, "Operations Research An Introduction", Prentice-Hall of India Private Limited, Eighth Edition, 2006.
3. Premkumar Gupta and D.S.Hira, " Problems in Operations Research Principles and Solutions", S.Chand & Company Ltd, First Edition, Reprint 2007.
4. A.M.Natarajan, P.Balasubramani and A.Tamilarasi, "Operations Research", Pearson Education Pvt Ltd, Second Edition, 2007.
5. R.Sivarethinamohan, "Operations Research", Tata McGraw-Hill Publishing Company Limited, First Edition, 2005.

QUESTION PAPER PATTERN		
SECTION – A	SECTION – B	SECTION – C
10x1=10 Marks (Multiple choice, Four options) Two questions from each unit	5 x 7 = 35 Marks (Either or choice) Two questions from each unit	3x10 = 30 Marks (Answer any three questions) One question from each unit

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SEM	Course Code	Skill Based Subject - I: Web Graphics	Total Marks: 75		Hours per Week	Credits
III	17UAJST305		CIA: 20	ESE: 55	5	3

Objectives: To enhance the profession skill set of the students in web oriented applications.

Course Outcome: On Completion of this course the students will be able to

CO1 Know the structure of HTML programming and body section characteristics.

CO2 Use the Lists and Table formats in HTML programming.

CO3 Understand the Concepts of DHTML, style sheets and Frames and Forms.

CO4 Classify the elements and menus of photoshop.

CO5 Know the file formats and animation procedures in photoshop.

UNIT – I: Introduction to HTML: Designing a Home Page - History of HTML - HTML Generations – HTML Documents - Anchor Tag - Hyper Links. Head and Body Sections: Header Section – Title - Prologue – Links - Colorful Web Page - Comment Lines. Designing the Body Section: Heading Printing - Aligning the Headings - Horizontal Rule – Paragraph – Tab Settings – Images and Pictures – Embedding PNG Format Images.

UNIT – II: Ordered and Unordered Lists: Lists – Unordered Lists – Headings in a list – Ordered Lists – Nested Lists. Table Handling: Tables – Table Creation in HTML - Width of the Table and Cells – Cells Spanning Multiple Rows/Columns – Coloring Cells – Column Specification.

UNIT – III: DHTML and Style Sheets. Frames: Frameset Definition – Frame Definition – Nested Framesets. Forms: Action Attribute - Method Attribute – Enctype Attribute – Drop Down List.

UNIT – IV: Launching Photoshop – Exploring the Interface – Using Screen Modes – Exploring Commonly used Tools in the Tools Panel – Creating, Saving and Closing Documents in Photoshop – Working with Panels in Photoshop – Understanding Image Resolution – Editing Images – Color Modes – Making Color Adjustments.

UNIT – V: File Formats in Photoshop – Creating a PDF File in Photoshop – Making a Selections Tools – Working with Layers – Exploring Drawing Tools – Exploring Painting Tools – Exploring Retouching Tools – Working with Animation in Photoshop.

TEXT BOOKS:

1. C. Xavier, "World Wide Web Design with HTML", Tata McGraw Hill Education Private Limited, 2012
2. "Photoshop CS5 in Simple Steps", Kogent Learning Solutions Inc. – Dreamtech Press, 2011.

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REFERENCE BOOKS:

1. "Photoshop CS in Easy Steps", Robert Shufflebotham, Dreamtech Press, 2004.
2. "Photoshop 6", Ramesh Bangia, First Edition 2001, ISBN 81-87522-70-4.

QUESTION PAPER PATTERN		
SECTION - A	SECTION - B	SECTION - C
10 x 1 = 10 Marks (Multiple Choice, Four options) Two questions from each unit	5 x 3 = 15 Marks (Either or choice) Two questions from each unit	3 x 10 = 30 Marks (Answer any three Questions) One Question from each unit

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SEM	Course Code	Non – Major Elective - 1: Web Designing Using HTML	Total Marks: 75		Hours per Week	Credits
III	17UAJNT306		CIA: -	ESE: 75	2	2

Course Objective: This course provides a platform for designing a webpage using HTML.
Course Outcome: On Completion of this course the students will

CO1 Able to understand the basics of HTML.

CO2 Able to format the text and insert an image in a HTML document.

CO3 Gain knowledge about tables and its tags.

CO4 Understand the concept of table handling.

CO5 Able to design a user interactive webpages.

UNIT – I: Introduction to HTML: Designing a Home Page – History of HTML – HTML Documents – Anchor Tag – Hyper links. Head and Body Sections: Header Section – Title – Colorful Web Page – Comment Lines.

UNIT – II: Designing the Body Section: Heading Printing – Aligning the Heading – Paragraph – Tab Settings – Image and Pictures.

UNIT – III: Ordered and Unordered Lists: Lists – Unordered Lists – Headings in a List – Ordered Lists – Nested lists.

UNIT – IV: Table Handling: Table Creation in HTML – Width of the Table and Cells - Cells Spanning Multiple Rows and Columns – Coloring Cells.

UNIT – V: Frames: Frameset Definition – Frame Definition – Nested Framesets. Forms: Action Attribute Method Attribute – Drop Down List.

TEXT BOOK:

1. C.Xavier, "World Wide Web Design with HTML", Tata McGraw- Hill, 2000.

REFERENCE BOOK:

1. "Web Graphics", G.M. Meenakshi, SciTech publications India PVT Ltd.2015.

QUESTION PAPER PATTERN
SECTION - A
5 x 15= 75 Marks (Either or choice) Two questions from each unit

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SEM	Course Code	Core 6: Operating Systems	Total Marks: 100		Hours per Week	Credits
IV	17UAJCT401		CIA: 25	ESE: 75	5	5

Objective: To learn about the fundamentals of Operating System concepts.

Course Outcome: On Completion of this course the students will able to

CO1 Understand the structure of Operating System and its working procedures.
CO2 Know the Concept of Process handling and multiprogramming.
CO3 Understand the inter process communication process handling in OS.
CO4 Know types of memory and its storing and retrieving procedures.
CO5 Understand the Virtual Memory management and UNIX.

UNIT I: Operating System - Different Services - Uses of System Calls - Issue of Portability – GUI – Operating System Structure – Virtual Machine – Booting. Device Driver: Basics – Submodules – I/O Procedure – I/O Scheduler – Device Handler.

UNIT II: Process - Evolution of Multiprogramming - Context Switching - Process States - Process State Transitions - Process Control Block – Process Hierarchy – Process Scheduling – Multi Threading.

UNIT III: Deadlocks - Graphical Representation – Deadlock Prerequisities - Deadlock strategies - Memory Management: Single Contiguous Memory Management - Fixed Partitioned Memory Management - Variable Partitions.

UNIT IV: - Non-contiguous Allocation: General Concepts - Paging – Segmentation - Virtual Memory Management Systems: Introduction – Relocation and Address Translation – Swapping – Protection and Sharing.

UNIT V: – Case Study: UNIX – History – Overview - File system: User's View – Types of File System – UNIX Directories / Files. LINUX – A Case Study.

TEXT BOOK:

1. Achyut S Godbole, "Operating Systems", 2nd Edition - TMH Publications, 2008.

REFERENCE BOOKS:

1. "Operating Systems", H. M Deitel, 2nd Edition, Pearson Education Publication, 2003.
2. "Operating Systems – A concept based approach", D.M. Dhamdhere, 2nd Edition, TMH Publications, 2008.

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

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SEM	Course Code	Skill Based Subject II: Web Graphics Lab	Total Marks: 75		Hours per Week	Credits
IV	17UAJSP406		CIA: 30	ESE: 45	4	3

1. Design a HTML document describing your personal details. Assign a suitable background design and a text color.
2. Design a HTML document to list your friends and their family members using ordered and unordered list.
3. Write a HTML document to print your class Time Table.
4. Develop a Complete Web Page using Frames and Framesets which gives the information about your college using HTML.
5. Develop a HTML document to display a Registration Form for an inter-collegiate meet.
6. Create See-through text using Photoshop.
7. Design a Creative Business Card.
8. Change the background of an image using Photoshop.
9. Design a Simple Logo.
10. Animate Plane Flying in the Clouds using Photoshop.

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SEM	Course Code	Non – Major Elective - 2: Web Designing Using HTML Lab	Total Marks: 75		Hours per Week	Credits
IV	17UAJNP407		CIA: -	ESE: 75	2	2

1. Create a HTML document to display your personal details.
2. Create a HTML document with a background color and text color.
3. Design a HTML document with a background design.
4. Design a HTML document with the following tags
   Heading, Paragraph, Bold, Italic, Underline.
5. Create a HTML document to display ten colleges name using ordered list.
6. Display the following using HTML

KONGU ARTS AND SCIENCE COLLEGE (Autonomous), ERODE.

Courses offered

1. B.Com.,
   - Commerce
   - Commerce (CA)
   - Professional Accounting
   - Corporate Secretaryship
   - Banking & Insurance
2. B.SC.,
   - Mathematics
   - Computer Science
   - Costume Design and Fashion
   - Bio-Chemistry
   - Bio-Technology
3. B.C.A

7. Create a HTML document to display your class timetable
8. Design a webpage for a computer centre with a link to the second containing courses offered.
9. Create a webpage with frames.
10. Design a registration form for an alumni meet.

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ACTIVITIES

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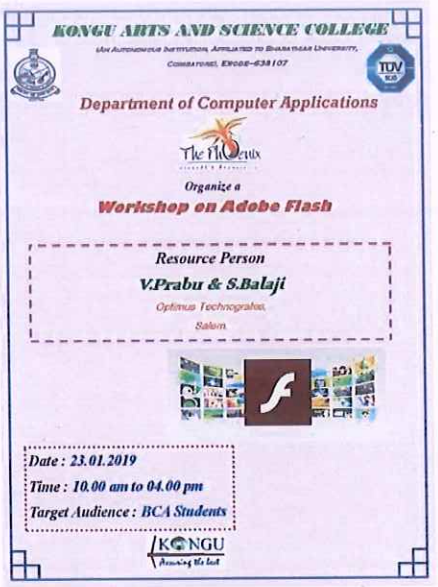
DEPARTMENT OF COMPUTER APPLICATIONS

Workshop on Adobe Flash on 23.01.2019

A workshop on Adobe Flash was conducted by Department of Computer Applications on 23.01.2019. The session was handled Mr.V.Prabu andMr.S.Balaji, Optimus Technograte, Salem. The main objective of this programme is to make students to learn about the basics of Adobe Flash. They demonstrated on how to develop the flash applications. They also make the students to create animations using flash practically. He cleared queries of the students in the session.



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