KONGU ARTS AND SCIENCE COLLEGE

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

ERODE – 638 107

B.Sc (Computer Science)

KONGU ARTS AND SCIENCE COLLEGE

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

ERODE – 638 107

2017-2018

KONGU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)
ERODE – 638 107
DEPARTMENT OF COMPUTER SCIENCE (U.G)
B.Sc.COMPUTER SCIENCE
(For the Candidates admitted during the Academic Year 2015 – 2016 and onwards)
SCHEME OF EXAMINATION – CBCS PATTERN

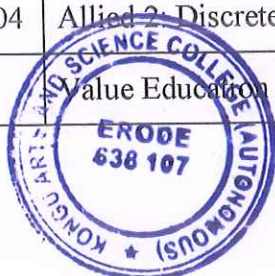### SEMESTER -I

Part	Course Code	Course	Hrs/Week	Credits	T/P	Exam Duration	CIA	ESE	Total Marks
I	15T01/15H01/ 15F01/15M01/ 15S01	Language – I	6	4	T	3 Hrs	25	75	100
II	15E01	English – I	6	4	T	3 Hrs	25	75	100
III	15UAKCT101	Core 1: COBOL Programming	4	4	T	3 Hrs	25	75	100
III	15UAKCT102	Core 2: Digital Fundamentals and Architecture	4	4	T	3 Hrs	25	75	100
III	15UAKCP103	Core Lab 1: Programming Lab – COBOL	3	3	P	3 Hrs	40	60	100
III	15UAKAT104	Allied 1: Mathematical Structures	5	4	T	3 Hrs	25	75	100
IV	15ES01	Foundation Course : Environmental Studies	2	2	T	3 Hrs	-	50	50

SEMESTER –II

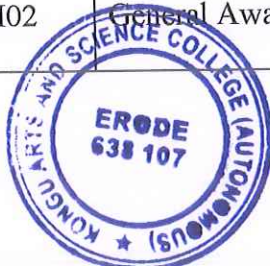| Part	Course Code	Course	Hrs/Week	Credits	T/P	Exam Duration	CIA	ESE	Total Marks
I	15T02/15H02/ 15F02/15M02/ 15S02	Language – II	6	4	T	3 Hrs	25	75	100
II	15E02	English – II	6	4	T	3 Hrs	25	75	100
III	15UAKCT201	Core 3: Computing Fundamentals and C Programming	4	4	T	3 Hrs	25	75	100
III	15UAKCT202	Core 4: Data Structures and Algorithms	4	4	T	3 Hrs	25	75	100
III	15UAKCP203	Core Lab2 :Programming Lab-C	3	3	P	3 Hrs	40	60	100
III	15UAKAT204	Allied 2: Discrete Structures	5	4	T	3 Hrs	25	75	100
IV	15VE01	Value Education : Human Rights	2	2	T	3 Hrs	-	50	50

Dr.T.N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

SEMESTER –III

Part	Course Code	Course	Hrs/Week	Credits	T/P	Exam Duration	CIA	ESE	Total Marks
III	15UAKCT301	Core 5: Software Engineering	6	4	T	3 Hrs	20	55	75
III	15UAKCT302	Core 6: C++ Programming	6	4	T	3 Hrs	25	75	100
III	15UAKCP303	Core Lab 3: Programming Lab - C++	6	4	P	3 Hrs	40	60	100
III	15UAKAT304	Allied 3: Computer Based Optimization Techniques	6	4	T	3 Hrs	25	75	100
IV	15UAKSP305	Skill Based Course 1 (Lab): CASE Tools Lab	4	3	P	3 Hrs	30	45	75
IV	15BT01/ 15AT01/ 15NM01	Basic Tamil * / Advanced Tamil # (OR) Non-major Elective - I : Yoga for Human Excellence #	2	2	T	3 Hrs	50		50

SEMESTER –IV

Part	Course Code	Course	Hrs/Week	Credits	T/P	Exam Duration	CIA	ESE	Total Marks
III	15UAKCT401	Core 7 : Operating Systems	6	4	T	3 Hrs	20	55	75
III	15UAKCT402	Core 8: Java Programming	6	4	T	3 Hrs	25	75	100
III	15UAKCP403	Core Lab 4: Programming Lab- Java	6	4	P	3 Hrs	40	60	100
III	15UAKAT404	Allied-4: Business Accounting	6	4	T	3 Hrs	25	75	100
IV	15UAKSP405	Skill Based Course 2 (Lab): Software Testing Lab	4	3	P	3 Hrs	30	45	75
IV	15BT02/ 15AT02/ 15NM02	Basic Tamil * /Advanced Tamil # (OR) Non-Major Elective - II : General Awareness #	2	2	T	3 Hrs	50		50

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

SEMESTER –V

Part	Course Code	Course	Hrs/Week	Credits	T/P	Exam Duration	CIA	ESE	Total Marks
III	15UAKCT501	Core 9: Computer Networks	6	5	T	3 Hrs	25	75	100
III	15UAKCT502	Core 10: Visual Programming - Visual Basic & VC++	5	4	T	3 Hrs	25	75	100
III	15UAKCT503	Core 11: Relational Database Management System	5	4	T	3 Hrs	25	75	100
III	15UAKCP504	Core Lab 5: Programming Lab - Visual Basic, VC++ & Oracle	5	4	P	3 Hrs	40	60	100
III	15UAKET505/ 15UAKET506/ 15UAKET507	Elective - I :	6	4	T	3 Hrs	25	75	100
IV	15UAKSP508	Skill Based Course 3(Lab): Networking Lab	3	3	P	3 Hrs	30	45	75

SEMESTER –VI

Part	Course Code	Course	Hrs/Week	Credits	T/P	Exam Duration	CIA	ESE	Total Marks
III	15UAKCT601	Core 12: DOT NET Programming	6	4	T	3 Hrs	25	75	100
III	15UAKCP602	Core Lab 6: Programming Lab- C# & ASP.Net	5	4	P	3 Hrs	40	60	100
III	15UAKET603/ 15UAKET604/ 15UAKET605	Elective - II :	6	4	T	3 Hrs	25	75	100
III	15UAKET606/ 15UAKET607/ 15UAKET608	Elective III :	6	4	T	3 Hrs	25	75	100
III	15UAKCV609	Project Work Lab :	4	4	P	3 Hrs	25	75	100
IV	15UAKSP610	Skill based Course 4 (Lab) : Multimedia Lab	3	3	P	3 Hrs	30	45	75
V	15NS01/ 15NC01/ 15PE01/ 15YR01	Extension Activities	-	1		-	50	-	50

Total Marks : 3500

Total Credits : 140

* - CIA only

- ESE only
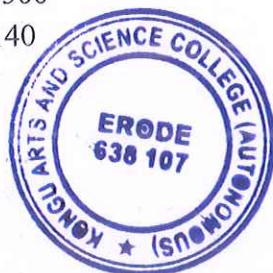
Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

KONGU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)
ERODE – 638 107
DEPARTMENT OF COMPUTER SCIENCE (U.G)
B.Sc.COMPUTER SCIENCE
(For the Candidates admitted during the Academic Year 2015 – 2016 and onwards)
SCHEME OF EXAMINATION – CBCS PATTERN

List of Elective Courses		
Elective I	15UAKET505	Artificial Intelligence and Expert Systems
	15UAKET506	Data Mining
	15UAKET507	Image Processing
Elective II	15UAKET603	Web Technology
	15UAKET604	Internet Of Things
	15UAKET605	Distributed Computing
Elective III	15UAKET606	Computer Graphics
	15UAKET607	Principles of Multimedia
	15UAKET608	Cryptography and Network Security

List of Allied and Skill Based Courses			
Allied	I	15UAKAT104	Mathematical Structures for Computer Science
	II	15UAKAT204	Discrete Mathematics
	III	15UAKAT304	Computer Based Optimization Techniques
	IV	15UAKAT404	Business Accounting
Skill Based Course	I	15UAKSP305	CASE Tools Lab
	II	15UAKSP405	Software Testing Lab
	III	15UAKSP508	Networking Lab
	IV	15UAKSP610	Multimedia Lab

| Advanced Learners Courses *		
S.No	COURSE CODE	COURSE
ALC 1	15UAKAL406	Computer Hardware and Interfacing
	15UAKAL407	Linux Programming
ALC 2	15UAKAL509	Software Project Management
	15UAKAL510	Programming in Python

* This course is offered to the UG students who have secured 7.5 and above CGPA up to III Semester in Part-III only.
* The students can choose any one of the above mentioned Course.
* Only **External** Assessment for **100 marks.**
* **2 Credits** allotted for ALC.
* This course is purely a Self Study Course and will not be considered for computation of Cumulative Grade Point Average (CGPA).
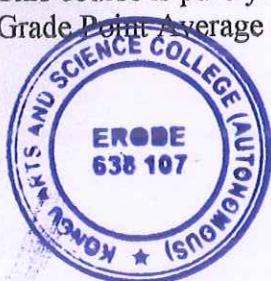
Mr.P.Ramesh
Chairman
Board of Studies / Computer Science (U.G)
Kongu Arts and Science College (Autonomous), Erode

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

KONGU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)
ERODE – 638 107
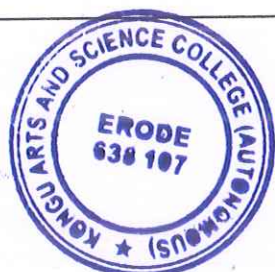## DEPARTMENT OF COMPUTER SCIENCE (U.G)
B.Sc.COMPUTER SCIENCE
SCHEME OF EXAMINATION – CBCS PATTERN
(For the candidates admitted during the academic year 2017 – 2018 and onwards)

| Part	Course Code	Course Title	Inst. Hrs/Week	T/P	Duration in Hours.	CIA	ESE	Total Marks	Credits
SEMESTER I									
I	17T01/17H01/ 17F01/17M01/ 17S01	Language – I	6	T	3 Hrs	25	75	100	4
II	17E01	English – I	6	T	3 Hrs	25	75	100	4
III	17UAKCT101	Core 1: Programming in C	4	T	3 Hrs	25	75	100	4
III	17UAKCT102	Core 2: Digital Fundamentals and Computer Architecture	4	T	3 Hrs	25	75	100	4
III	17UAKCP103	Core Lab 1: Programming Lab – C	3	P	3 Hrs	40	60	100	3
III	17UAKAT104	Allied 1: Numerical and Statistical Methods	5	T	3 Hrs	25	75	100	4
IV	17ES01	Foundation Course I: Environmental Studies	2	T	3 Hrs	-	50	50	2
		Total	**30**					**650**	**25**
SEMESTER II									
I	17T02/17H02/ 17F02/17M02/ 17S02	Language – II	6	T	3 Hrs	25	75	100	4
II	17E02	English – II	6	T	3 Hrs	25	75	100	4
III	17UAKCT201	Core 3: Object Oriented Programming with C++	4	T	3 Hrs	25	75	100	4
III	17UAKCT202	Core 4: Data Structures and Algorithms	4	T	3 Hrs	25	75	100	4
III	17UAKCP203	Core Lab2 : Programming Lab-C++	3	P	3 Hrs	40	60	100	3
III	17UAKAT204	Allied 2: Discrete Mathematics	5	T	3 Hrs	25	75	100	4
IV	17VE01	Foundation Course II: Value Education	2	T	3 Hrs	-	50	50	2
		Total	**30**					**650**	**25**

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

Part	Course Code	Course Title	Inst. Hrs/Week	T/P	Duration in Hours.	CIA	ESE	Total Marks	Credits
					Examination Details				
SEMESTER III									
III	17UAKCT301	Core 5: Operating Systems	6	T	3 Hrs	25	75	100	4
III	17UAKCT302	Core 6: Java Programming	6	T	3 Hrs	25	75	100	4
III	17UAKCP303	Core Lab 3: Programming Lab- Java	6	P	3 Hrs	40	60	100	4
III	17UAKAT304	Allied 3: Computer Based Optimization Techniques	6	T	3 Hrs	25	75	100	4
IV	17UAKSP305	Skill Based Course 1 (Lab): Multimedia Lab	4	P	3 Hrs	30	45	75	3
IV	17BT01/ 17AT01/ 17NM 01/ 17NM 02	Basic Tamil * / Advanced Tamil # (OR) Non-Major Elective - I :	2	T	3 Hrs	75		75	2
		Total	**30**					**550**	**21**
SEMESTER IV									
III	17UAKCT401	Core 7 : Software Engineering	6	T	3 Hrs	25	75	100	4
III	17UAKCT402	Core 8: Web Programming	6	T	3 Hrs	25	75	100	4
III	17UAKCP403	Core Lab 4: Web Programming Lab	6	P	3 Hrs	40	60	100	4
III	17UAKAT404	Allied-4: Business Accounting	6	T	3 Hrs	25	75	100	4
IV	17UAKSP405	Skill Based Course 2 (Lab): Software Development - CASE Tools Lab	4	P	3 Hrs	30	45	75	3
IV	17BT02/ 17AT02/ 17NM 03/ 17NM 04	Basic Tamil * /Advanced Tamil # (OR) Non-Major Elective - II :	2	T	3 Hrs	75		75	2
		Total	**30**					**550**	**21**

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

Part	Course code	Course Title	Inst. Hrs /Week	T/P	Duration in Hours.	CIA	ESE	Total Marks	Credits
					Examination Details				
SEMESTER V									
III	17UAKCT501	Core 9: Computer Networks	6	T	3 Hrs	25	75	100	5
III	17UAKCT502	Core 10: Visual Programming - Visual Basic	5	T	3 Hrs	25	75	100	4
III	17UAKCT503	Core 11: Relational Database Management System	5	T	3 Hrs	25	75	100	4
III	17UAKCP504	Core Lab 5: Programming Lab - Visual Basic & Oracle	5	P	3 Hrs	40	60	100	4
III	17UAKET505/ 17UAKET506/ 17UAKET507	Elective - I :	6	T	3 Hrs	25	75	100	4
IV	17UAKSP508	Skill Based Course 3(Lab): Networking Lab	3	P	3 Hrs	30	45	75	3
		Total	30					575	24
SEMESTER VI									
III	17UAKCT601	Core 12: DOT NET Programming	6	T	3 Hrs	25	75	100	4
III	17UAKCP602	Core Lab 6: Programming Lab- C# & ASP.Net	5	P	3 Hrs	40	60	100	4
III	17UAKET603/ 17UAKET604/ 17UAKET605	Elective - II :	6	T	3 Hrs	25	75	100	4
III	17UAKET606/ 17UAKET607/ 17UAKET608	Elective III :	6	T	3 Hrs	25	75	100	4
III	17UAKCV609	Project Work Lab :	4	P	3 Hrs	20	80	100	4
IV	17UAKSP610	Skill based Course 4 (Lab) : Software Testing Lab	3	P	3 Hrs	30	45	75	3
V	17NS01/ 17NC01/ 17PE01/ 17YR01	Extension Activities *	-		-	50	-	50	1
		Total	30					625	24
		TOTAL	180					3600	140

* - CIA only

\# - ESE only
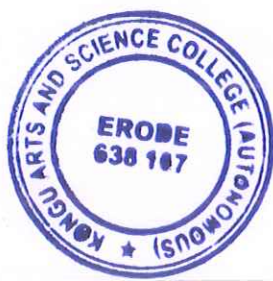
Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

LIST OF ALLIED COURSES

Allied 1	17UAKAT104	Numerical and Statistical Methods
Allied 2	17UAKAT204	Discrete Mathematics
Allied 3	17UAKAT304	Computer Based Optimization Techniques
Allied 4	17UAKAT404	Business Accounting

LIST OF SKILL BASED COURSES

Skill Based Course 1	17UAKSP305	Multimedia Lab
Skill Based Course 2	17UAKSP405	Software Development - CASE Tools Lab
Skill Based Course 3	17UAKSP508	Networking Lab
Skill Based Course 4	17UAKSP610	Software Testing Lab

LIST OF ADVANCED LEARNERS COURSES

Advanced Learners Course 1	17UAKAL406	A	Software Testing
	17UAKAL407	B	UNIX Programming
Advanced Learners Course 2	17UAKAL509	A	Software Project Management
	17UAKAL510	B	Linux Programming

LIST OF ELECTIVE COURSES

Elective - I	17UAKET505	A	Computer Graphics
	17UAKET506	B	Cloud Computing
	17UAKET507	C	Distributed Systems
Elective - II	17UAKET603	A	Web Technology
	17UAKET604	B	Mobile Computing
	17UAKET605	C	Internet Of Things
Elective - III	17UAKET606	A	Artificial Intelligence and Expert Systems
	17UAKET607	B	Data Mining
	17UAKET608	C	Cryptography and Network Security

P.N

Mr. P.Ramesh
Chairman
Board of Studies / Computer Science (U.G)
Kongu Arts and Science College (Autonomous), Erode

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

ERODE
638 107

Sem.	Course Code	Core 1 : Programming in C	Total Marks: 100		Hours Per Week	Credits
I	17UAKCT101		CIA: 25	ESE: 75	4	4

Objective(s):

To understand the Basic Terminology and to have the programming ability in C Language

Unit I

Fundamentals of Computers: Introduction - History of Computers - Classification of Computers- Types of Software. Overview of C: History of C – Importance of C – Basic structure of C Programs. Constants, Variables and Data types: Character set - C Tokens – Keywords and Identifiers - Constants - Variables - Data Types - Declaration of Variables - Assigning Values to Variables - Defining Symbolic Constants. Managing Input and Output Operations: Reading and Writing a Character - Formatted Input and Output.

Unit II

Operators and Expressions - Decision Making and Branching: Decision Making with if Statement – Simple if Statement-if...else Statement - Nesting of if ...else statements- Else if Ladder – The Switch Statement - The?: Operator – The Goto Statement. Decision Making and Looping: Introduction- The While statement- The do statement – The for statement-Jumps in loops.

Unit III

Arrays: introduction - declaration and initialization of One-dimensional Arrays - declaration and initialization of Two dimensional Arrays – Multi – dimensional Arrays - Dynamic Arrays - Character Arrays and Strings : Declaring and Initializing String Variables – Reading Strings from Terminal - Writing Strings to Screen – Comparison of Two Strings – String handling Functions – User-Defined Functions : Definition of Functions – Returns values and their types –Function calls - Function Declaration – Category of Functions - Nesting of Functions – Recursion.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

Unit IV

Structures and Unions: Defining a Structure – Declaring Structure Variables – Accessing Structure Members – Structure Initialization – Arrays of Structures – Arrays within Structures – Structures within Structures- Structures and Function – Unions. Pointers: Introduction- Understanding pointers-Accessing the address of a variable- Declaration and Initialization of pointer Variable – Pointers and Arrays - Pointers and Character Strings – Array of Pointers.

Unit V

File Management in C: Introduction – Defining and Opening a File - Closing a File – Input / Output Operations on Files – Error Handling during I/O Operations – Random Access to files – Command Line Arguments.

TEXT BOOK:

E.Balagurusamy - Computing Fundamentals & C Programming – First Edition - Tata Mc-Graw Hill-2008.

REFERENCE BOOKS:

1. E.Balagurusamy - Programming in ANSI C - Third Edition - Tata McGraw Hill Publication-2006.

2. Ashok N.Kamthane -Programming with ANSI and Turbo C - First Edition- Pearson Publication -2002.

3. Henry Mullish& Herbert L. Cooper -The Spirit of C - First Edition - Jaico Publication-1998.

4. YashavantKanetkar -Let us C– Sixth Edition- BPB Publication.- 2005.

5. Brain W. Kernighan, Dennis M. Ritchie – The C programming Language – Second Edition- PHI Publication- 1990.

	Question Paper Pattern				
Section A	10 x 1 = 10 Marks (Multiple Choice, Four options) Two questions from each unit	Section B	5 x 7 = 35 Marks (Either or choice) Two questions from each unit	Section C	3 x 10 = 30 Marks (Answer any three questions) One Question from each unit

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107

Dr. N. RAMAN
PRINCIPAL,
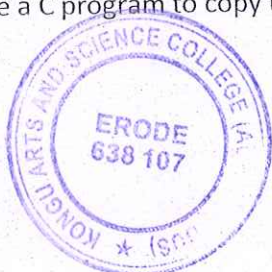KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

Sem.	Course Code	Core 2 : Digital Fundamentals and Computer Architecture	Total Marks: 100		Hours Per Week	Credits
I	17UAKCT102		CIA: 25	ESE: 75	4	4

Objective(s):

To enable the Students learn the fundamentals of Digital Electronics and the foundations of Computer Architecture

Unit I

Number System and Binary Codes: Decimal, Binary, Octal, Hexadecimal - Binary addition, Subtraction, Multiplication, Division - Floating point representation - Complements, BCD, Excess3, Gray Code. Boolean Algebra - The Basic Gates - NOR, NAND, XOR Gates - De Morgan's Theorem - Karnaugh map - Canonical Form1- Construction and properties.

Unit II

Arithmetic Circuits: Half adder, Full adder, Parallel binary adder, BCD adder, Halfsubtractor, Full subtractor, Parallel binary subtractor. Sequential circuits: Flip-Flops: RS, D, JK, and T -Multiplexers - Demultiplexers.

Unit III

Input - Output Organization: Input-output interface - I/O Bus and Interface - I/O Bus Versus Memory Bus - Example of I/O Interface. Asynchronous data transfer: Strobe Control and Handshaking - Direct Memory Access: DMA Controller, DMA Transfer.

Unit IV

Central Processing Unit: General Register Organization-Stack Organization- Instruction Formats- Addressing Modes - Data Transfer and Manipulation- Reduced Instruction Set Computer - CISC Characteristics - RISC Characteristics - Overlapped Register Window.

Unit V

Memory Organization: Memory Hierarchy - Main Memory - Associative memory: Hardware Organization. Cache Memory: Associative, Direct, Set-associative Mapping. Virtual Memory: Address Space and Memory Space, Address Mapping Using Pages, Associative Memory Page Table.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

TEXT BOOK(S):

1. V.K.Puri, "Digital Electronics Circuits and Systems", Fifteenth Reprint, Tata McGraw Hill Publications, 2007.*(Unit I and Unit II)*

2. M. Morris Mano, "Computer System Architecture", Third Edition, PHI Publications, 1993. *(Unit III to Unit V)*

REFERENCE BOOKS:

1. Albert Paul Malvino, Donald P Leach, "Digital principles and applications", Fourth Edition, TMH Publications, 1996.

2. S.Salivahanan&S.Arivazhagan , "Digital Circuits and Design", Second Edition, Vikas Publications, 2003.

3. Malvino& Brown, "Digital Computer Electronics", Third Edition, Tata McGraw Hill Publications, 1995.

4. John P.Hayes,"Computer Architecture and Organization", Second Edition, McGraw-Hill Publications, 1988.

5. V.CarlHamacher, Zvonko G. Vranesic&Safwat G. Zaky,"Computer Organization", Fourth Edition , McGraw-Hill Publications, 1996.

Question Paper Pattern					
Section A	10 x 1 = 10 Marks (Multiple Choice, Four options) Two questions from each unit	Section B	5 x 7 = 35 Marks (Either or choice) Two questions from each unit	Section C	3 x 10 = 30 Marks (Answer any three questions) One Question from each unit

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM,-ERODE -638 107.

Sem.	Course Code	Core Lab 1 : Programming Lab – C	Total Marks: 100		Hours Per Week	Credits
I	17UAKCP103		CIA: 40	ESE: 60	3	3

Objective(s):

To enable the students to get practical knowledge in C Programming

Practical List

1. Write a C program to generate "n" prime numbers.

2. Write a C program to check whether the entered number is Armstrong Number or not.

3. Write a C program to check whether the given number is Palindrome or not.

4. Write a C program to print all leap years from 1 to N.

5. Write a C program to print the Fibonacci series up to n numbers.

6. Write a C program to print the multiplication table of the derived numbers from 1 to 20 count.

7. Write a C Program to sort the given set of numbers in ascending order.

8. Write a C program to perform following string handling functions

    a) Find the Length of the string.

    b) Reverse a String.

    c) Concatenation of two strings.

    d) Compare two strings.

9. Write a C program to find the factorial of a given number using Recursive function.

10. Write a C program to generate patterns by using Symbols and Numbers.

11. Write a C program using following functions: a) Call by value   b) Call by reference.

12. Write a C program to print the students mark sheet assuming roll number name and marks for five subjects in a structure. Create a array of structures and print the mark sheet in the university pattern.

13. Write a C program to swap two numbers using pointers.

14. Write a C program to copy the content of one file into another file.

Sem	Course Code	Allied 1: Numerical and Statistical Methods	Total Marks :100		Hours Per Week	Credits
I	17UAKAT104		CIA : 25	ESE :75	5	4

Objective(s):

To enable the students to understand the concepts of numerical and statistical methods for Computer Science. (No Derivations, only problems)

UNIT I

The Solution of Numerical Algebraic and Transcendental Equations: The Bisection method – Regula Falsi Method – Newton - Raphson method.

Solution of Simultaneous Linear Algebraic Equations: Gauss-Elimination Method and Gauss-Seidel Method of Iteration.

UNIT II

Interpolation: Newton's Forward and Backward interpolation formulae.

Numerical Differentiation: Newton's Forward Difference – Newton's Backward Difference.

Numerical Integration: The Trapezoidal Rule – Simpson's one-third Rule.

UNIT III

Measures of Central Tendency: Mean, Median and Mode – Relationship among Mean, Median and Mode.

Measures of Dispersion: Range, Quartile Deviation and Standard Deviation – Coefficient of Variation.

UNIT IV

Correlation: Simple Correlation – Scatter Diagram – Karl Pearson's Coefficients of Correlation – Spearman's Rank Correlation Coefficient.

UNIT V

Regression: Regression Lines – Regression in two variables – Simple problems. Difference between Correlation and Regression.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

ERODE
638 107

TEXT BOOKS:

1. Dr. P.Kandasamy, Dr.K.Thilagavathy and Dr.K.Gunavathi,"Numerical Methods", S.Chand, 2016.

UNIT I	:	Chapter 3	: Sections 3.1, 3.3, 3.4
		Chapter 4	: Sections 4.2, 4.9
UNIT II	:	Chapter 6	: Sections 6.2, 6.3
		Chapter 9	: Sections 9.2, 9.3, 9.9, 9.11, 9.13, 9.16

2. S.P. Gupta, "Statistical Methods", Sultan Chand &Sons, 2012.

UNIT III	:	Chapter 7	: Pages 181, 183, 184, 197-200, 212-216, 221,222
		Chapter 8	: Pages 278-280, 287-293, 298
UNIT IV	:	Chapter 10	: Pages 395-401, 418-423
UNIT V	:	Chapter 11	: Pages 454, 459, 464-467

BOOKS FOR REFERENCE:

1. E. Balagurusamy," Numerical methods", Tata MC Graw Hill Publishing Company Ltd,2008.

2. S.C Gupta, V.K.Kapoor,"Fundamental of Mathematical statistics", Sultan Chand and Sons, 2008.

3. Richard W.Hamming, "Numerical Methods for Scientists and Engineers", Dover Publications Inc., 1987.

4. R.S.N.Pillai & Bagavathi, "Statistics", Sultan Chand &Co, 2010.

5. PA. Navnitham, "Business Mathematics & Statistics", Jai Publishers, 2011.

Question Paper Pattern					
Section A	10 x 1 = 10 Marks (Multiple Choice, Four options) Two questions from each unit	Section B	5 x 7 = 35 Marks (Either or choice) Two questions from each unit	Section C	3 x 10 = 30 Marks (Answer any three questions) One Question from each unit

P.M.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

Sem.	Course Code	Core 4 : Data Structures and Algorithms	Total Marks: 100		Hours Per Week	Credits
II	17UAKCT202		CIA: 25	ESE: 75	4	4

Objective(s):

On successful completion of the course the students should have understood the various data structures such as stack, queue, linked list, tree, graph and algorithms for sorting.

Unit I

Introduction: Overview – SPARKS. Arrays: Sparse Matrices: Transpose and Fast Transpose Algorithms - Representation of Arrays. Stacks and Queues: Fundamentals –Evaluation of Expression Infix to Postfix Conversion.

Unit II

Linked Lists: Singly Linked Lists - Linked Stacks and Queues - Polynomial Addition. Trees: Basic Terminology - Binary Trees - Binary Trees Traversal- Binary Tree Representation of Trees - Threaded Binary Trees - Counting Binary Trees.

Unit III

Graphs: Terminology and Representations: Introduction – Definition and Terminology – Graph Representations - Traversals, Connected Components and Spanning Trees –Shortest Paths and Transitive Closure.

Unit IV

Internal Sorting: Insertion Sort - Quick Sort - 2 Way Merge Sort - Heap Sort. External Sorting: Storage Devices: Magnetic Tapes – Disk Storage - Sorting with Disks: K-Way Merging.

Unit V

Symbol Tables: Hash Tables: Hashing Functions - Overflow Handling. Files: Files, Queries and Sequential Organizations - Index Techniques: Cylinder Surface Indexing– Hashed Indexes - File Organizations.

TEXT BOOK:

1. Ellis Horowitz, SartajSahni - Fundamentals of Data Structures - Galgotia Publications, 2005.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM. ERODE - 638 107.

REFERENCE BOOKS:

1. D.Samanta - Classic Data Structures – PHI Publications - 2001.

2. G.A.VijayalakshmiPai – Data Structures and Algorithms - Tata McGraw Hill Publications - 2008.

3. Jean Paul Tremblay , Paul G. Sorenson - An Introduction to Data Structures with Applications Second Edition - Tata McGraw Hill Publications – 1995.

4. A. Chitra , P. T .Rajan - Data Structures - Tata McGraw Hill Publications -2006.

5. ParagHimanshuDave ,HimanshuBhalchandra Dave – Design and Analysis of Algorithms – Pearson Edition – 2008.

	Question Paper Pattern				
Section A	10 x 1 = 10 Marks (Multiple Choice, Four options) Two questions from each unit	Section B	5 x 7 = 35 Marks (Either or choice) Two questions from each unit	Section C	3 x 10 = 30 Marks (Answer any three questions) One Question from each unit

P.N

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM. ERODE - 638 107.

Sem	Course Code	Allied 2: Discrete Mathematics	Total Marks :100		Hours Per Week	Credits
II	17UAKAT204		CIA : 25	ESE :75	5	4

Objective(s):

To enable the students to understand the concepts of Discrete Structures, relations, functions, lattices and Boolean algebra.

UNIT I

Connectives: Negation - Conjunction - Disjunction - Statement Formulas and Truth Tables - Conditional and Biconditional - Well-formed Formulas–Tautologies - Equivalence of formulas– Duality law–Tautological implications.

UNIT II

Normal Forms: Disjunctive Normal Form – Conjunctive Normal Form – Principle Disjunctive Normal Form – Principle Conjunctive Normal Form. Predicate Calculus: Predicates - The Statement Function, Variables and Quantifiers - Predicate Formulas - Free and Bound Variables. Inference Theory of the Predicate Calculus: Theory of Inference for the Predicate Calculus.

UNIT III

Relations and Ordering: Relations–Properties of Binary Relations in a Set–Relations Matrix and Graph of a Relation–Equivalence Relation–Composition of Binary Relations – Partial Ordering – Partially Ordered Set: Representation and Associated Terminology.

UNIT IV

Functions: Definition and Introduction–Composition of functions–Inverse functions. Grammar and Languages: Discussion of Grammars - Formal Definition of a Language.

UNIT V

Lattices: Definition and Examples – Some Properties of Lattices – Some Special Lattices. Boolean Algebra: Definition and Examples–Boolean Functions.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

TEXT BOOK:

J. P Tremblay and R Manohar, "Discrete Mathematics Structures with Applications to computer science", 32nd Reprint, Mc Graw Hill International, 2008.

UNIT I - Chapter 1	: Sections 1.2.1-1.2.4, 1.2.6-1.2.11
UNIT II - Chapter 1	: Sections 1.3.1-1.3.4, 1.5.1-1.5.4, 1.6.4
UNIT III - Chapter 2	: Sections 2.3.1-2.3.3, 2.3.5, 2.3.7-2.3.9
UNIT IV - Chapter 2	: Sections 2.4.1-2.4.3
Chapter 3	: Sections 3.3.1-3.3.2
UNIT V - Chapter 4	: Sections 4.1.1,4.1.2, 4.1.5, 4.2.1, 4.3.1,4.3.2

BOOKS FOR REFERENCE:

1. J.K.Sharma, "Discrete Mathematics", Second Edition, Macmillan India Ltd, 2005.

2. J. P Tremblay and R Manohar,"Discrete Mathematical Structures with Applications to Computer Science", 32nd Reprint, Tata McGraw-Hill Publishing Company Limited, 2008.

3. Dr.A.Singaravelu, Dr.M.P.Jeyaraman, "Discrete Mathematics", Meenakshi Agencies, 2012.

4. K. Balakrishnan, "Introductory Discrete Mathematics", Dover Publications Incs, October 2010.

5. A.Solairaju, M.Chadrasekhar, S.Ganesh and R.Krishnamoorthy, "Discrete Mathematics Structures", Anuradha Agencies, 2001.

Question Paper Pattern					
Section A	10 x 1 = 10 Marks (Multiple Choice, Four options) Two questions from each unit	Section B	5 x 7 = 35 Marks (Either or choice) Two questions from each unit	Section C	3 x 10 = 30 Marks (Answer any three questions) One Question from each unit

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM ERODE - 638 107.

SEMESTER – V

Course	: Core 9 : Computer Networks	Hours Per Week : 6
Course Code	: 15UAKCT501	Credit : 5

Objective(s):

To inculcate knowledge on different networking concepts like Layers, Protocols, Wireless Technologies, Cryptography and Network Security.

UNIT - I

Network Hardware: Local Area Networks – Metropolitan Area Networks – Wide Area Networks – Internetworks. Network Software: Protocol Hierarchies – Design Issues for the Layers – Connection-Oriented Versus Connectionless Services – Service Primitives – The Relationship of Services to Protocols. Reference Models: OSI Reference Models – TCP/IP Reference Model – Comparison of OSI and TCP/IP.

UNIT - II

PHYSICAL LAYER - Guided Transmission Media: Magnetic Media – Twisted Pairs - Coaxial Cable - Fiber Optics. Wireless Transmission: Electromagnetic Spectrum – Radio Transmission – Microwave Transmission – Infrared Transmission – Light Transmission. Communication Satellites: Geostationary, Medium-Earth Orbit, Low Earth-Orbit Satellites.

UNIT - III

DATA LINK LAYER: Data Link Layer Design Issues – Error Detection and Correction – Elementary Data Link Protocols – Sliding Window Protocols. MEDIUM ACCESS CONTROL SUBLAYER: The Channel Allocation Problem – Multiple Access Protocols: ALOHA – Carrier Sense Multiple Access Protocols – Collision Free Protocols – Bluetooth: Architecture – Applications.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

UNIT - IV

NETWORK LAYER: Routing Algorithms: The Optimality Principle – Shortest Path Algorithm – Flooding – Distance Vector Routing – Link State Routing – Hierarchical Routing – Congestion Control Algorithms: Approaches – Traffic Aware Routing. TRANSPORT LAYER: Elements of Transport Protocols – Internet Transport Protocols: TCP – Introduction to TCP – Service Model – TCP Protocol – TCP Segment Header – TCP Connection Establishment - TCP Connection Release.

UNIT - V

APPLICATION LAYER: Domain Name System - Electronic Mail. NETWORK SECURITY: Cryptography: Introduction – Substitution Ciphers – Transposition Ciphers. Symmetric Key Algorithms – Public Key Algorithms – Digital Signatures: Symmetric Key Signatures – Public Key Signatures.

Text Book:
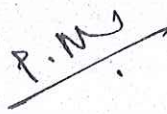
Andrew S.Tanenbaum, David J.Wetherall, "Computer Networks", Fifth Edition, Pearson Education, 2013.

Books for Reference:

1. James F. Kurose, Keith W.Ross,"Computer Networking A Top-Down Approach" Fifth Edition, Pearson Education, 2014.

2. Achyut Godbole, "Data Communication and Networks", Tata McGraw Hill Publications, 2002.

3. Larry L.Peterson, Bruce S.Davie, "Computer Networks", Fourth Edition, Elsevier Inc.2007.

4. Uyless Black,"Computer Networks Protocols, Standards and Interfaces", Second Edition, PHI, 1993.

5. William Stallings,"Cryptography & Network Security",Third Edition,Pearson Education 2006.

Dr. N. RAMAN
PRINCIPAL.
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

SEMESTER – V

Course: Core 10 : VISUAL PROGRAMMING - VISUAL BASIC & VC++	Hours Per Week : 5
Course Code : 15UAKCT502	Credits : 4

Objective(s) :

        To learn the concept of Event Driven Programming and to know about MFC and how to work with MFC AppWizard and MFC Class Wizard

UNIT - I

Introducing Visual Basic: Event and Event Procedures – Object Related Concepts –Visual Basic Program Development Process- Logical Program Organization –Visual Basic Program Components – Visual Basic Environment – Opening, Saving and Running a Visual Basic Project – Getting Help – A sample Visual Basic Project – Visual Basic Fundamentals: Constants – Numeric and String -Variables – Data Types and Data Declarations – Operators and Expressions – Hierarchy of Operations – Inserting Parentheses–String Expressions – Assigning Values to Variables – Displaying Output – The Print Statement – Library Functions – Program Comments. Branching and Looping: Relational operators and Logical Expressions – Logical Operators – Branching with If-Then, If-Then-Else blocks – Selection: Select Case – Looping with For-Next, Do-Loop, While-Wend – Stop statement.

UNIT - II

Visual Basic Control Fundamentals: VB Control tools – Control tool Categories – Working with Controls – Naming Forms and Controls – Assigning Property values to Forms and Controls – Executing commands – Displaying Output Data – Entering Input Data – Selecting Multiple Features, Exclusive Alternatives, from a List – Assigning Properties collectively – Generating Error Messages – Creating Timed Events – Scroll Bars – Menus And Dialog Boxes: Building Drop-Down Menus – Accessing a Menu from the Keyboard – Menu Enhancements – Submenus – Pop-Up Menus – Dialog Boxes – More about the MsgBox Function – The Input Box Function.

UNIT - III

Procedures: Modules and Procedures – Sub Procedures – Event Procedures – Function Procedures – Scope – Optional Arguments. Arrays: Array Characteristics, Declarations – Processing Array Elements – Passing Arrays to Procedures – Dynamic Arrays – Array-related Functions – Control Arrays – Data Files: Data File Characteristics –Accessing and Saving a File in VB : The Common Dialog Control– Processing a Data File –Sequential Data Files–Creating, Appending & Modifying a sequential Data File.

UNIT - IV

Visual C++: MFC Programming: MFC and Windows – MFC Fundamentals – MFC Class Hierarchy – MFC Member & Global Functions. Message Boxes and Menus: Message Boxes – Introducing Menus –Using Resources – Compiling .RC Files Creating a Simple Menu – Adding Menu Accelerator Keys.

UNIT - V

Thread – Based Multitasking: Thread Basics – Creating a Worker Thread – Terminating a Thread – Suspending and Resuming a Thread – Managing Thread Priorities – Synchronization – Using The Visual C++ AppWizard And ClassWizard: The MFC AppWizard – Basics of AppWizard – The MFC ClassWizard.

Text Book(s):

1. Byron S. Gottfried, Ph.D., " SCHAUM'S Outlines VISUAL BASIC", Tata McGraw-Hill Publishing Company Limited , 2009. *(Units - I , II and III)*

2. Herbert Schildt , " MFC PROGRAMMING from the GROUND UP", Second Edition, TATA McGRAW-HILL Publishing Company Limited - 2005. . *(Units - IV and V)*

Books for Reference:

1. Mohammed Azam, "Programming with Visual Basic 6.0", First Edition , Vikas Publishing House Pvt Ltd ,2007.

2. Eric A.Smith,Valor Whisler and Hank Marquis,"Visual Basic 6 Programming Bible",Wiley India (P) Ltd,2007.

3. Davis Chapman ,"Teach Yourself Visual C++ 6 in 21 Days", First Edition ,SAMS Techmedia , 2006.

4. Chris H. Pappas and William H.Murray,III ,"Visual C++ 6 : The Complete Reference", Tata McGraw - Hill Publishing Company Limited ,2007.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

ERODE
638 107

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

SEMESTER – V

Course : Core 11: Relational Database Management System	Hours Per Week : 5
Course Code : 15UAKCT503	Credits : 4

Objective(s):

　　　　To inculcate knowledge on RDBMS concepts, SQL and PL/SQL Operations

UNIT - I

Database Concepts: Database - Database system applications - DBMS - A Relational Approach: Relationships - Relational Data Model - Integrity Rules - Relational algebra - Relational calculus. Database Design: Data Modeling - ER Diagrams - Dependency - Normal forms - Dependency Diagrams

UNIT - II

Oracle9i: Overview: Personal Databases - Client/Server Databases - Oracle9i an introduction - SQL *Plus Environment - SQL - Logging into SQL *Plus - SQL *Plus Commands - Alternate Text Editors - SQL *Plus Worksheet - iSQL *Plus. Oracle Tables: DDL: Naming Rules and conventions - Data Types - Constraints - Creating Oracle Table - Displaying Table Information - Altering an Existing Table - Dropping, Renaming, Truncating Table -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 - Substitution Variables - DEFINE command - CASE structure. Built-in functions: Character functions - Number functions - Date functions - Group functions - Grouping Data. Multiple Tables: Joins and Set operations: Join operations - Set operations. Subqueries: Single-Row Subquery - Multiple Row Subquery. Advanced Features: Views: Creating a view - Removing a view - altering a view. Transactions: Transaction control statements.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

UNIT - IV

PL/SQL: A Programming Language: 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 - PL/SQL Cursors: Cursors - Implicit & Explicit Cursors and Attributes - Cursor FOR Loops - SELECT .... FOR UPDATE Cursor - Cursor with Parameters. Exceptions: Types of Exceptions.

UNIT - V

Named Blocks: Procedures - Calling a Procedure - Procedure Header - Procedure Body - Parameters - Functions – Function body – Return data types – Calling a function – Calling a function from an SQL Statement - Packages - Triggers - BEFORE Trigger - AFTER Trigger.

Text book(s):

1. Nilesh Shah , "Database Systems Using ORACLE" , Second Edition, PHI.
   (UNIT-I: Chapters 1 & 2; UNIT-II: Chapters 3 & 4; UNIT-III: Chapters 5, 6, 7 & 9; UNIT-IV: Chapters 10 & 11; UNIT-V: Chapters 12, 13 & 14) .

2. Silberschatz, Korth, Sudarshan , Database System Concepts , Fifth Edition
   (UNIT - 1: Chapters 1 & 6)

Books for Reference:

1. Arun Majumdar and Pritimoy Bhattacharya , "Database Management Systems", TMH, 2007.
2. Gerald V. Post , "Database Management Systems", Third Edition, TMH.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM. ERODE 638 107

SEMESTER – V

Course : Core Lab 5 : Programming Lab : VB , VC++ & ORACLE   Hours Per Week : 5

Course Code   : 15UAKCP504   Credits   : 4

(One Program either from VB or VC++ and one from ORACLE)

Objective(s) :

To inculcate knowledge on Visual programming concepts using VB and VC++ and to inculcate knowledge on RDBMS concepts and Programming with Oracle

PRACTICAL LIST

VISUAL BASIC

1. Write a VB Program to perform string operations based on the user choice.

2. Write a VB Program to allow the user to change the shape by selecting a particular shape from a list of options in a list box, as well as changing its color through a common dialog control.

3. Write a VB Program to create a Pop-Up menu to allow the user to change the rectangle shape fill color to red, green, blue or to clear the fill color (restoring the grey color).

4. Write a VB Program to manipulate the Employee Database with the Data Control and displays the fields from Recordset objects as a series of rows and columns using DBGrid Control.

5. Develop a VB Project for Student Database Management System using VB as front end and ORACLE as back end.
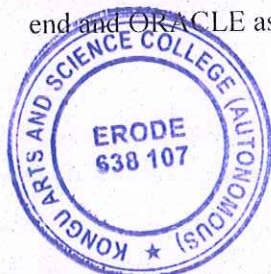
Dr. N. RAMAN
PRINCIPAL.
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

VISUAL C++

1. Write a VC++ Program to create a MFC Dialog Based application to add and delete a string in a list box.

2. Write a VC++ Program to perform Free Hand Drawing using MFC Dialog Based application.

3. Write a VC++ Program to create a MFC MDI application to display a rectangle and apply pattern brush in it.

4. Write a VC++ Program to create a MFC SDI application to display the Menu, Accelerator, Toolbar, Tool Tip and Status bar.

5. Write a VC++ Program to perform serialization-MDI

ORACLE

1. Create a table for Employee details with Employee Number as primary key and following fields: Name, Designation, Gender, Age, Date of Joining and Salary. Insert at least five rows and perform various queries using any one Comparison, Logical, Set, Sorting and Grouping operators.

2. Create tables for library management system which demonstrate the use of primary key and foreign key. Master table should have the following fields: Accno, Title, Author and Rate. Transaction table should have the following fields: User id, Accno, Date of Issue and Date of Return. Create a Report (Select verb) with fields Accno, Title, Date of Issue for the given Date of Return with column formats.

3. Write a PL/SQL to split the student table into two tables based on result (One table for "Pass" and another for "Fail"). Use cursor for handling records of student table. Assume necessary fields and create a student details table.

Dr. N. RAMAN
PRINCIPAL.
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM ERODE 638 107.

4. Create the following tables for banking system:

    I. Account_Details (Bank_name, Branch_code, Customer_name, Customer_id (Pk), Deposit_amount).

    II. Loan_Details (branch_code, Customer_name, Customer_id(fk), Loan_amount)

    i) Write a Database trigger for checking data validity on the Account_Details table

    ii) Write a Database trigger before delete each row not allowing deletion and give the appropriate message on the loan details table.

5. Write a PL/SQL program to handle a user-defined exception.

6. Write a PL/SQL program to find the factorial of 'n' numbers using recursive function

P. W

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

SEMESTER – V

Course : Elective I : Artificial Intelligence and Expert Systems   Hours Per Week : 6

Course Code   : 15UAKET505   Credits   : 4

Objective(s):

    To acquire knowledge on various AI Techniques, Knowledge Representation and Expert Systems and Expert systems

UNIT - I

Introduction: AI Problems – AI techniques – Criteria for success. Problems, Problem Spaces, Search: State space search – Production Systems – Problem Characteristics – Issues in design of Search.

UNIT - II

Heuristic search techniques – Hill climbing – Best first search – Problem reduction – Means end analysis – Knowledge representation issues – Representations and mappings – Approaches – Issues in knowledge representation.

UNIT - III

Using predicate logic – Representing simple facts, Instance – Computable functions and predicates – Representing knowledge using rules – Procedural versus Declarative – Logic programming – Control knowledge.

UNIT - IV

Symbolic reasoning – Nonmonotonic reasoning – Implementation issues – Breadth first search – Depth first searching. Game playing – Minimax search procedure – Alpha beta cutoffs.

UNIT - V

Expert Systems-Definition- Characteristics-architecture- Knowledge Engineering- Expert System Life Cycle-Knowledge Acquisition Strategies- Expert System Tools.
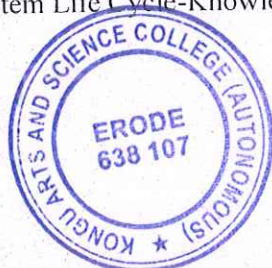
Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

Text Book(s):

1. Elaine rich , Kevin Knight and Shivashankar B.Nair , "Artificial Intelligence ", Tata McGraw Hill Publication, Third Edition, 2006 *(Units - I to IV)*

2. V S Janaki Raman, K Sarukesi and P Gopalakrishnan, "Foundations of Artificial Intelligent and Expert Systems". MacMillan India limited, 2000. *(Unit - V)*

Books for Reference:

1. Stuart Russell & Peter Norvig, "Artificial Intelligence a modern Approach ", Second Edition, Perason Education, 2003.

2. R.B.Mishra , "Artificial Intelligence ", PHI, 2011.

3. Dan W.Patterson, "Artificial Intelligence and Expert Systems", PHI, 1990

P.N

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

SEMESTER – V

Course : Elective 1 : Data Mining	Hours Per Week : 6
Course Code : 15UAKET506	Credits : 4

Objective(s):

To enable the students understand the Basic and advanced concepts of Data Mining

UNIT - I

Basic Data Mining Tasks – Data Mining Versus Knowledge Discovery in Data Bases – Data Mining Issues – Data Mining Matrices – Social Implications of Data Mining – Data Mining from Data Base Perspective.

UNIT - II

Data Mining Techniques – A Statistical Perspective on data mining – Similarity Measures– Decision Trees – Neural Networks – Genetic Algorithms.

UNIT - III

Classification : Introduction – Statistical – Based Algorithms – Distance Based Algorithms – Decision Tree – Based Algorithms – Neural Network Based Algorithms: Propagation-NN Supervised Learning – Rule Based Algorithms: Generating Rules from a DT – Generating Rules from a Neural Net.

UNIT - IV

Clustering : Introduction – Similarity and Distance Measures – Outliers – Hierarchical Algorithms. Partitional Algorithms: Minimum Spanning Tree-Squared Error , K-Means Clustering, Nearest Neighbor Algorithm - Association Rules : Introduction - Large Item Sets – Basic Algorithms : Apriori Algorithm-partitioning

Dr. N. RAMAN
PRINCIPAL.
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM ERODE - 63.

UNIT - V

Web Mining : Introduction-Web Content Mining: Crawlers-Web Structure Mining : PageRank-Web Usage Mining: Preprocessing-Data Structures-Pattern Discovery: Association Rules, Sequential Patterns, Frequent Episodes-Pattern Analysis.

Text book:

Margaret H.Dunbam, " Data Mining Introductory and Advanced Topics ", Pearson Education, 2003.

Books for Reference:

1. Jiawei Han and Micheline Kamber ," Data Mining Concepts & Techniques " , Kaufmann Publishers , 2006.

2. Arun K. Pujari , "Data Mining Techniques", Universities Press, 2001

3. Pieter Adriaans and Dolf Zantinge, "Data Mining", Pearson Education,2007

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

SEMESTER V

Course	: Elective I: Image Processing	Hours Per Week : 6

| Course Code | : 15UAKET507 | Credits | : 4 |

Objective(s):

To learn about the concepts and Principles of Digital Image processing.

UNIT - I

Digital Image Processing: Introduction - Definitions- Basic steps in image processing-Components of image processing- Digital image fundamentals: Visual perception- Basic concept of sampling and quantization- Example of digital image processing.

UNIT - II

Image Enhancement: Gray Level Transformations- Histogram processing- Histogram equalization- uses of Histogram for image enhancement-Arithmetic and logic operations-Basics of spatial Filtering-Sharpening Spatial filters.

UNIT - III

Image Restoration: Image Degradation and Restoration Process- -Periodic Noise-Estimation of Noise parameters- Noise Spatial filtering -Estimating the Degradation Functions-Geometric Mean Filter- Geometric Transformation.

UNIT - IV

Image Segmentation: Threshold-Basics of Threshold –Basic Adaptive Threshold - Basic Global Threshold -Region based segmentation –Basic formulation-Region growing- Segmentation by Morphological watershed-Basic concept- Segmentation Algorithm-uses of Motion in Segmentation.

UNIT - V

Image Compression: Image Compression Models- Error free Compression –Lossy Compression-Image Compression standards.

Dr. N. RAMAN
PRINCIPAL.
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM ERODE - 638 107.

Text book:

Rafael C.Gonzalez, Richard E.Woods,"Digital Image Processing", Second Edition, PHI, 2008.

Books for Reference:

1. B.Chanda,D.Dutta Majumder , " Digital Image Processing and Analysis", PHI, 2003.

2. William K.Pratt, "Digital Image Processing",Fourth Edition, Wiley India Edition.

3. Kenneth R.Castleman, "Digital Image Processing", PHI, 1996

4. S.Annadurai, R.Shanmugalakshmi,"Fundamentals of Digital Image Processing" Pearson, 2015

5. Milan Sonka, Vaclaw Hlavac, Roger Boyle,"Image Processing Analysis and Machine Vision",

   ITP, 1996.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

ERODE
638 107

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE 638 107

SEMESTER – V

Course : Skill Based Course 3 (Lab) : Networking Lab	Hours Per Week : 3
Course Code : 15UAKSP508	Credits : 3

Objective(s)

    To implement the services and operations of various layers of a network

PRACTICAL LIST

1. Implement Bit stuffing method in Data Framing.

2. Implement Cyclic Redundancy Check (CRC) method to detect errors.

3. Implement the Shortest Path Routing using Dijkstra's algorithm.

4. Implement socket programming using TCP.

5. Write a program to download a file from the server.

6. Implement Simple FTP.

7. Implement Domain Name System (DNS).

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL.
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

SEMESTER – V

Course : ALC II : Software Project Management

Course Code : 15UAKAL509   Extra Credits : 2

Objective(s):

       To enable the students understand the stages of software project, problems, concerns, and role of the Management

UNIT-I

INTRODUCTION TO SOFTWARE MANAGEMENT : Introduction-why is software Project Management important?-what is a project?-software project versus other types of project-activities covered by software project management-plans, methods and methodologies-some ways of categorizing software projects.

UNIT-II

AN OVERVIEW OF PROJECT PLANNING: Introduction to step wise project planning-select project-identify project scope and objectives-identify project infrastructure-analyze project characteristics-identify project products and activities-estimate effort for each activity-identify activity risks-allocate resources-review/publicize plan-execute plan/lower levels of planning .

UNIT-III

SOFTWARE EFFORT ESTIMATION: Introduction-where are estimates done?-problems with over and under estimates-the basics of software estimating-software effort estimation techniques-bottom-up estimating-the top-down approach and parametric models-expert judgment-COCOMO 13: a parametric productivity model.

UNIT-IV

ACTIVITY PLANNING : Objectives-when to plan-Forward and backward pass – RISK MANAGEMENT : Introduction-risk-categories of risk-a framework for dealing with risk-risk identification-risk assessment-risk planning-risk management-evaluating risks to the schedule-applying the PERT technique-Monte Carlo simulation-critical chain concepts.

Dr. N. RAMAN
PRINCIPAL
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
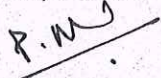NANJANAPURAM, ERODE - 638 107

UNIT-V

RESOURCE ALLOCATION: Introduction-the nature of resources-identifying resources requirement –scheduling resources-creating critical paths- counting the cost-publishing the resource schedule-cost schedules-Monitoring and Control: creating the framework-collecting the framework-visualizing progress-cost monitoring.

Text book:

Bob Hughes and Mike Cotterell "Software Project Management", Fifth Edition, TATA McGraw-HILL Publications, 2010.

Books for reference:

1. Walker Royce "Software Project Management – A Unified framework", Fifth Edition, Pearson Education , 2002.

2. Joel Henry , "Software Project Management - A Real world guide to success", Second Edition, Pearson Education , 2005.

3. Andrew Stellman and Jennifer Greene, "Applied Software Project Management", First Reprint, Shroff Publishers & Distributors Pvt.Ltd, 2005.

4. Robert K.Wysocki, "Effective Software Project Management", First edition, Wiley India Edition, 2006.

5. S.A.Kelkar , "Software Project Management A Concise Study", Revised Edition, Prentice Hall of India Pvt.Ltd , 2007.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

SEMESTER – V

Course   : ALC II: Programming in Python

Course Code   : 15UAKAL510   Extra Credits : 2

Objective(s) :

To learn the up-trending programming techniques with an open source environment in the advanced level.

UNIT - I

Discovering IronPython: An Overview of IronPython – Getting IronPython: Understanding the IronPython requirements, Getting the software, Performing the installation – Understanding the Dynamic Language Runtime – Using the IronPython console: Opening and using the default console, Getting Help with any function.

UNIT – II

Creating your first application – Understanding the IronPython basics: Using Visual Studio to create IronPython applications – Considering data types in IronPython – Interacting with the IronPython environment.

UNIT – III

Implementing Structured Language Elements: Stringing statements together – Selecting between options: if, if...else, if...elif...else – Creating loops: for...in, while – Performing enumerations.

UNIT – IV

Using arrays and collections: Working with Tuples, Lists And Arrays: Understanding Tuples, Lists and Arrays, Creating and accessing single-dimension arrays, Manipulating single-dimension arrays, Working with multi-dimension arrays, Processing arrays using the break and else clauses, Processing arrays using the continue clause.

UNIT – V

Interacting with structures and objects: Working with existing objects: Discovering IronPython objects, Working with numeric objects, Working with boolean objects – Creating new objects
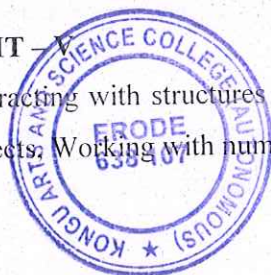
Text book:

John Paul Mueller – Professional IronPython: Design and Develop IronPython Techniques –
First Edition, Wiley India Edition – 2010.

Books for reference:

1. Paul Barry – Head First Python: A Brain-Friendly Guide – First Edition, O'Reilly Publication
   – 2010.

2. Mcgrath Mike – Python in easy steps – First Edition, McGraw Hill Edition, TBH Publishers –

   2013.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

SEMESTER – VI

Course : Core 12 : DOT NET Programming	Hours Per Week : 6
Course Code : 15UAKCT601	Credits : 4

Objective(s):

To enable the students learn the concepts of .NET Framework, C# and ASP.Net

UNIT - I

Understanding .NET : The C# Environment – The .Net Strategy – The Origins of .NET Technology – The .NET Framework – The Common Language Runtime – Framework Base Classes – Benefits of the .NET Approach. Overview of C#. Literals, Variables and Data Types. Methods in C#: Declaring Methods – The Main Method – Invoking Methods – Pass by Value – Pass by Reference.

UNIT - II

Classes and Objects, Inheritance and Polymorphism, Interfaces: Multiple Inheritance. Operator Overloading: Overloadable Operators – Defining Operator Overloading – Overloading Unary Operators - Overloading Binary Operators. Managing Console I/O Operations: The Console Class – Console Input – Console Output.

UNIT - III

Creating Form-Based Windows Applications: Windows Forms – A Skeletal Form-Based Windows Program – Adding a Button – Handling Messages – Using a Message Box – Adding a Menu. Data Access with ADO.NET: Understanding ADO.NET – New Features of ADO.NET in .NET Framework – Architecture of ADO.NET – Data Reader – Creating Connection Strings – Creating a connection to a Database.

UNIT - IV

ASP.NET Essentials: Introducing New Features of ASP.NET – ASP.NET Core Services – ASP.NET Web Forms - ASP.NET Web Pages 2 – Describing the ASP.NET Technologies. Developing a Web Application: Specifying a Location for a Web Application - ASP.NET Coding Models – Understanding ASP.NET Page Directives – Working with Server Controls. Application Structure and State: Structure of an Application – The Global.asax Application File - Using States– HTTP Handlers.

Dr. N. RAMAN
PRINCIPAL.
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

UNIT – V

Validation Controls, ASP.NET Web Services: Introducing Web Services – Infrastructure of ASP.NET Web Services – HTTP-GET and HTTP-POST – Simple Object Access Protocol – Creating a Web Services – The Code Model of ASP.NET Web Services.

Text book(s):

1. E.Balagurusamy, "Programming in C#", A Primer Second Edition, Tata McGraw Hill Publications, 2008. *(Unit - I & II)*
2. Herbert Schildt, "The Complete Reference C# 2.0", Second Edition Tata McGraw Hill Publications, 2006. *(Unit – III - Chapter - 26)*
3. ".NET 4.5 Programming (6-in-1) Black Book", Dreamtech Press, 2013. *(Unit – III - Chapter - 12, IV & V)*

Books for Reference:

1. B.Rama Krishna Rao, "Programming with C# Concepts and Practice", PHI Publications, 2007.
2. Vikas Gupta, ".NET Programming", Reprint Edition, Dreamtech, 2008.
3. Dave Mercer, "ASP.NET A Beginner's Guide", Seventh Reprint, Tata McGraw Hill Publications, 2010.
4. Matt J. Crouch, "ASP.NET and VB.NET Web Programming", Pearson Education, 2002.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

SEMESTER – VI

Course : Core Lab 6: Programming Lab : C# and ASP.Net   Hours Per Week   : 5

Course Code : 15UAKCP602   Credits   : 4

Objective(s):

To improve the students Programming skills in .Net Framework in the area of C# and ASP.Net

Practical List

C#

1. Develop a Windows Forms Application using C#.

2. Build a Calculator Widget in Windows Application using C#.

3. Write a C# Program for the Payroll Management System using Console Application.

4. Write a C# program for Bank Transaction using the concept of Interfaces using Console Application.

5. Create an application for Student Information System using Database Connectivity.

ASP.Net

1. Write an ASP.Net program to change the text of Label control to Bold, Italic and change its background color programmatically.

2. Write an ASP.Net program using Calendar Control.

3. Create an Application for Quiz Programme using ASP.Net.

4. Create a Web Page for the Railway Ticket Reservation System .

5. Create a Website for College using ASP.Net.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM. ERODE - 638 107

SEMESTER – VI

Course : Elective II: Web Technology	Hours Per Week : 6
Course Code : 15UAKET603	Credits : 4

Objective(s):

      To inculcate knowledge on web Technological concepts.

UNIT - I

DNS — FTP – TFTP – History of WWW – Basics of WWW and Browsing -Local information on the internet – HTML — Web Browser Architecture – Web Pages and Multimedia – Remote Login (TELNET)-An introduction to Electronic Commerce-Aspects of Electronic Commerce-Types of Electronic Commerce.

UNIT - II

Introduction to Web Technology: Web pages – Tiers – Concept of a Tier – Comparison of Microsoft and Java Technologies – Web Pages – Static Web Pages – Plug-ins – Frames – Forms.

UNIT - III

Dynamic Web Pages: Need – Magic of Dynamic Web Pages – Overview of Dynamic Web Page Technologies – Overview of DHTML – Common Gateway Interface – ASP – ASP Technology – ASP Example – Modern Trends in ASP – Java and JVM – Java Servlets – Java Server Pages.

UNIT - IV

Active Web Pages: Active Web Pages in better solution – Java Applets – Why are Active Web Pages Powerful? – Lifecycle of Java Applets – ActiveX Controls – Java Beans. Middleware and Component-Based E-Commerce Architectures: CORBA – Java Remote Method Invocation – DCOM. EDI: Overview – Origins of EDI – Understanding of EDI – Data Exchange Standards – EDI Architecture – Significance of EDI – Financial EDI – EDI and internet.

Dr. N. RAMAN
PRINCIPAL.
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

UNIT - V

XML: SGML – Basics of XML – XML Parsers – Need for a standard. WAP: Limitations of Mobile devices – Emergence of WAP – WAP Architecture – WAP Stack – Concerns about WAP and its future – Alternatives to WAP.

Text book:

Achyut S Godbole and Atul Kahate, "WEB TECHNOLOGIES TCP/IP to Internet Applications Architectures ", Tata McGraw-Hill Publishing company Limited, 2003.

Books for Reference:

1. David Mercer , "HTML- Introduction to Web Page Design and Development", Tata McGraw-Hill Publishing company Limited, Schaum's Outlines, 2004.
2. C Xavier, "World Wide Web Design With HTML", Tata McGraw-Hill Publishing company Limited, Tata McGraw-Hill Publishing company Limited, 2008.
3. N.P.Gopalan & J.Akilandeswari ,"Web Technology- A Developers Perspective", Second Edition, PHI, 2014
4. Achyut S Godbole and Atul Kahate,"Web Technologies –TCP/IP Architecture, and Java Programming", Second Edition, Tata McGraw-Hill Publishing company Limited,2002.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL.
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM. ERODE 638 107

SEMESTER – VI

Course	: Elective II: Internet of Things	Hours Per Week : 6
Course Code	: 15UAKET604	Credits : 4

Objective(s) :

To enable the learners understand constraints and opportunities of networks for Internet of Things and to recognize the fundamental concepts of Internet-connected product

UNIT - I

From M2M to IoT: A brief background- M2M communication – IOT – M2M towards IoT- the global context: Game changers-General technology and scientific trends- Trends in information and communication technologies-Implications for IoT- Barriers and concerns – A use case example.

UNIT - II

M2M to IoT - A Market Perspective: Introduction - Information marketplaces- Some definitions - M2M value chains- IoT value chains - An emerging industrial structure for IoT - The international-driven global value chain and global information monopolies.

UNIT - III

M2M to IOT – An Architecture outline. IOT Technologies and Architectures : M2M and IOT Technology fundamentals – Devices and gateways - Local and wide area networking :The need for networking- Wide Area Networking-Local Area Networking.

UNIT - IV

Data management: Introduction- Managing M2M data – considerations for M2M data - Business process in IOT : IoT integration with enterprise systems-Distributed business processes in IoT Everything as a service (XaaS).

UNIT- V

M2M and IoT analytics : Introduction-purposes and considerations-analytics architecture-methodolgy-Knowledge management: Data, information and knowledge- A knowledge management reference and architecture-Retrieval layer - IoT Use Cases: Smart Cities.
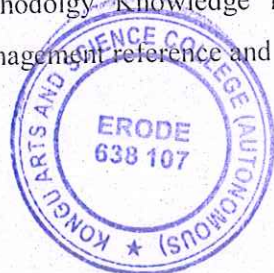
Text book:

Jan Holler, Vlasios Tsiatsis, Catherine Mulligan, Stamatis Karnouskos, Stefan Avesand and David Boyle, —From Machine-to-Machine to the Internet of Things - Introduction to a New Age of Intellegnce, 1st Edition, Academic Press, 2014.

Books for Reference:

1. Honbo Zhou, "The Internet of Things in the Cloud: A Middleware Perspective", 1st Edition, CRC Press, 2012.

2. Adrian McEwen and Hakim Cassimally, "Designing the Internet of Things", 1st Edition, John Wiley and Sons Ltd., 2014.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL.
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM ERODE 638 107

SEMESER -VI

Course : Elective II: Distributed Computing	Hours Per Week : 6
Course Code : 15UAKET605	Credits : 4

Objective(s):

To learn about the core concepts and principles of distributed computing techniques.

UNIT - I

Distributed Computing- Definitions- Different forms of Computing- Strength and Weakness of Distributed Computing- Basics of Operating Systems- Network Basics: Protocols- Network Architecture- Connection-oriented versus Connectionless Communication- E-mail Addresses.

UNIT - II

Interprocess Communications- An Archetypal IPC program interface- Event Synchronization- Timeouts and Threading- Deadlocks and Timeouts- Text Based Protocols- Request-Response Protocols- Event Diagram and Sequence Diagram.

UNIT - III

Distributed Computing Paradigms- Paradigms and Abstraction- Paradigms for Distributed Applications- The Client-Server Paradigm- Client-Server Paradigm issues- Connection oriented and Connectionless Servers- Stateful servers.

UNIT - IV

Group communication- Unicasting versus Multicasting- An Archetypal Multicast API-Connectionless versus connection-oriented Multicast- Reliable Multicasting versus unreliable Multicasting- Reliable Multicast API- Distributed Objects- Message Passing versus Distributed Objects. Remote Procedure Calls- Remote Method Invocation.

UNIT - V

Internet Applications- HTML-XML-HTTP-Common Gateway Interface- Applets- Servlets- Web Services- Advanced Distributed Computing Paradigms- Message Queue System Paradigm-Mobile Agents-Basic Architecture- Object Spaces.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE 6.

Text book:

M.L.Liu , " Distributed Computing: Principles and Applications", Pearson Education, 2008.

Books for Reference:

1. Hagit Attiya, Jennifer Welch, "Distributed Computing: Fundamentals, Simulations and Advanced Topics", Second Edition, Wiley India(P) Ltd.,2012

2. Vijay K.Garg, "Elements of Distributed Computing", John Wiley & sons, Inc., Publication, 2006.

3. Andrew S. Tanenbaum, Maarten Van Steen, "Distributed Systems: Principles and Paradigms", Second Edition, PHI Private Ltd., 2008.

4. George Coulouris, Jean Dollimore, Tim Kindberg, "Distributed Systems- Concepts and Design", Fourth Edition, Pearson Education, 2006.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL.
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

SEMESER -VI

Course	: Elective III: Computer Graphics
Course Code	: 15UAKET606

Hours Per Week : 6

Credits : 4

Objective(s):

To inculcate knowledge on graphics systems and various Two Dimensional and Three Dimensional concepts.

UNIT - I

Overview of Graphics Systems - Video display devices - Refresh Cathode Ray Tubes - Raster scan Displays – Random scan displays – Color CRT Monitors – Direct view Storage Tubes – Flat Panel Displays Three Dimensional viewing devices – stereoscopic and virtual reality Systems – Raster Scan Systems - Random Scan Systems – Input devices - Graphics software.

UNIT - II

Output Primitives: Points and Lines – Line - Drawing algorithms – Circle -Generating algorithms. 2D Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations - Other Transformations.

UNIT - III

2D Viewing: The Viewing Pipeline – Viewing Co-ordinate Reference Frame – Window-to-Viewport Co-ordinate Transformation - 2D Viewing Functions – Clipping Operations.

UNIT - IV

Three dimensional concepts - Three dimensional display methods - Parallel Projection Perspective Projection - Depth Cueing - Visible line and surface identification – Surface rendering - Three dimensional and stereoscopic Views – 3D Graphics packages.

Dr. N. RAMAN
PRINCIPAL
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE -638 107

UNIT - V

Visible surface detection methods –Classification, back-face detection, depth-buffer, scan-line, depth sorting, BSP tree methods, area sub-division and octree methods.

Text book:

Donald Hearn and M.Pauline Baker, "Computer Graphics (C version)", Second Edition, Pearson Education, 2011.

Books for Reference:

1. Malay K Pakhira, "Computer Graphics Multimedia And Animation", PHI, 2008.
2. Roy A Plostock and Zhigang Xiang, "Computer Graphics", Second Edition, Tata McGraw Hill, New Delhi, 2007.
3. Amarendra N Sinha, Arun D Udai, "Computer Graphics", Tata McGraw Hill, New Delhi, 2008.
4. Foley, Vandam, Feiner and Huges, "Computer Graphics: Principles & Practice", Second edition in C, Pearson Education, Asia, 2001.
5. William M Newman, Robert F Sproull, "Principles of Interactive Computer Graphics", Tata McGraw Hill International Edition.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL.
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM ERODE 638

SEMESTER – VI

Course	: Elective III : Principles of Multimedia	Hours Per Week : 6

Course Code   : 15UAKET607   Credits   : 4

Objective(s):

To enable the Students learn the major components of multimedia and their integrated effect.

UNIT - I

MULTIMEDIA: Introduction-Multimedia Presentation and production- Characteristics of a multimedia Presentation - Multiple Media-Hardware and Software requirements-uses of Multimedia- Steps for creating Multimedia Presentation. Digital Representation: Analog Representation-Waves-Digital Representation- Need for Digital Representation.

UNIT - II

Video Display Systems: Introduction- Cathode Ray Tube – Video Adapter Card-Video Adapter Cable- Liquid Crystal Display-Plasma Display Panel. TEXT: Introduction-Types of Text-Unicode Standard-Font-Insertion of Text-Text Compression – File Formats.

UNIT - III

Image: Introduction-Image Types- Seeing Colors- Color Models-Basic Steps for Image Processing- scanner-Digital Camera-Interface Standards-Specification of Digital Images-CMS-Image Processing Software-File Formats-Image Output on Monitor - Image Output on Printer. Graphics: Advantages of Graphics-Uses of Graphics - Components of Graphics System.

UNIT - IV

AUDIO: Introduction-Acoustics-Nature of sound waves-Fundamental Characteristics of Sound Elements of Audio Systems-Microphone-Amplifier-Loudspeaker –Audio Mixer-Digital Audio-Synthesizers- MIDI -Sound Card-audio Transmission-Audio File Format and CODECs- Audio Recording System-Digital Audio Broadcasting-Voice Recognition and Response-Audio Processing Software.
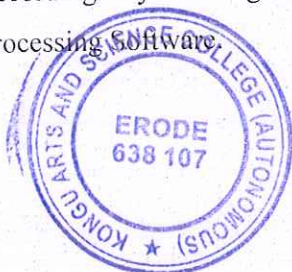
Dr. N. RAMAN
PRINCIPAL
KONGU ARTS AND SCIE
(AUTONOM
NANJANAPUR

UNIT - V

VIDEO: Introduction- Analog Video Camera-Transmission of video signals-Video Signal Formats-Television Broadcasting Standards-PC video-Video File Formats and CODECs-Video editing. ANIMATION: Uses of Animation-Types of Animation-Principles of Animation-Special Effects-Animation Software-File Formats.

Text Book:

Ranjan Parekh, "Principles of Multimedia", Thirteenth Reprint 2011, Tata McGraw Hill Publications, 2006.

Books for Reference:

1. Prabhat K. Andleigh and Kiran Thakrar, "Multimedia System Design", Reprint 2009, PHI, 2009.
2. Tay Vaughan" Multimedia Making it work" Fifth Edition, Tata McGraw Hill Publications, 2001.
3. Weixel, Fulton, Barksdale, Morse,"Multimedia Basics", Thomson Course Technology, 2004.
4. Judith Jeffcoate, "Multimedia in Practice Technology and Applications", 1995 Edition, Prentice Hall of India, 2003.
5. Vishnu Priya Singh, "A Text Book of Multimedia", First edition, Asian Comptech Book, 2006.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOM
ERODE - 638 107

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM ERODE 6

ERODE
638 107

SEMESTER – VI

| Course | : Elective III: Cryptography and Network Security | Hours Per Week : 6 |

Course Code : 15UAKET608   Credits   : 4

Objective(s):

    To impart knowledge regarding cryptography and network security.

UNIT - I

symmetric Cipher model – Substitution techniques – transposition techniques – ROTOR machines – Steganography – traditional Block Cipher Structure – The DES – The strength of DES - block chipper design principles.

UNIT - II

Multiple Encryption and Triple DES- Electronic Code Book – Cipher Block Chaining Mode - Cipher Feedback Mode – Output Feedback Mode – Counter Mode

UNIT - III

Public Key Cryptography and RSA : Principles of Public-Key Cryptosystems - The RSA Algorithm- Other Public-Key Cryptosystems: Diffie-Hellman Key Exchange- Elgamal Cryptograpic System

UNIT - IV

Cryptographic Hash Functions: Applications of Cryptographic Hash functions-Two Simple Hash Functions-Requirements and Security-Hash Functions based on Cipher Block Chaining- SHA-SHA-3

UNIT - V

Digital Signatures – Elgamal Digital Signature Scheme – Schnorr Digital Signature Scheme – NIST Digital Signature Algorithm – Elliptic Curve Digital Signature Algorithm- RSA-PSS Digital Signature Algorithm
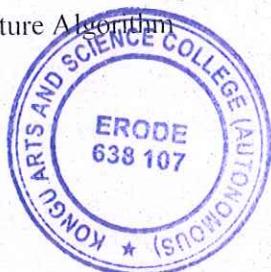
Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS
NANJANAPURAM ERO

Text Book:

William Stallings, "Cryptography and Network Security Principles and Practices", Sixth Edition, PHI Education Inc. , 2016

Books for Reference:

1. Atul kahate, "Cryptography and Network Security", Second Edition, Third Edition,TMH, 2013

2. Behrouz A.forouzan, "Cryptography and Network Security", Second Edition, TMH 2013

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

ERODE
638 107

Dr. N. RAMAN
PRINCIPAL
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

SEMESTER – VI

Course   : Project Work

Hours per week : 4

Course Code   : 15UAKCV609

Credit   : 4

GUIDELINES FOR PROJECT WORK

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 should be compulsorily done in the college only under the supervision of the department staff concerned.

- Students should communicate with their guides regularly about the progress of the project.

- Review Presentation is to be given only on the approval of the guide.

- Rough Draft report should be submitted to their guides after 10 days from Review - II.

- Students should submit one copy of the fair draft report in the form of hard binding during the End Semester Examination after they are duly signed by the concerned guides and the Head of the Department.

- 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'**.

- One and a half 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''. The format for typing Chapter headings, Division headings and Sub-division headings are explained by the following illustrative

  Chapter Heading : CHAPTER 1

  INTRODUCTION

  Division Heading : 1.1 SYSTEM SPECIFICATION

  1.1.1 HARDWARE CONFIGURATION

- All page numbers should be typed in Arabic numbers and the preliminary pages should be numbered in lower case Roman numerals.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

- Cover wrapper should be in Silver Grey colour.
- The specimen is annexed along with the Project guidelines.

DISTRIBUTION OF INTERNAL MARKS

S.No.	Parameters	Maximum Marks
1.	Review – I	10
2.	Review – II	15
	Total	25

DISTRIBUTION OF EXTERNAL MARKS

S.No.	Parameters	Maximum Marks
1.	Project Work	50
2.	Viva voce	25
	Total	75*

* Jointly evaluated by Internal and External Examiners.

A candidate who secures not less than 40% in the end semester examination (external) and 40% marks in the external examination and continuous internal assessment put together shall be declared to have passed the examination in the course .

P.N.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

SEMESTER – VI

Course	: Skill Based Course4 (Lab): Multimedia Lab	Hours Per Week : 3
Course Code	: 15UAKSP610	Credits : 3

Objective(s) :

To implement the various designing and animation techniques of multimedia

PRACTICAL LIST

1. Design a logo for your own company.

2. Design an invitation for your college.

3. Create a movie to represent the growing moon.

4. Create an animation to display the background image through your name using masking tool.

5. Create a stick figure animation.

6. Create a flash movie using button script

7. Create an awareness movie using movie maker software.

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOM
NANJANAP