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

2021-2022

KONGUARTSANDSCIENCECOLLEGE

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

ERODE – 638 107

B.Sc.COMPUTERSCIENCE

(For the candidates admitted during the academic year 2021–2022 and onwards)

SCHEMEOFEXAMINATION–CBCSPATTERN

Part	CourseCode	CourseTitle	Inst.Hrs/Week	T/P	Duration inHours.	CIA	ESE	Total Marks	Credits
SEMESTERI									
I	21T01/21H01/ 21F01/21M01/ 21S01	Language–I	6	T	3 Hrs	25	75	100	4
II	21E01	Communicative English– I	6	T	3 Hrs	25	75	100	4
III	21UAKCT101	CoreI:Professional English – I	4	T	3 Hrs	50	50	100	4
III	21UAKCT102	CoreII:Programmingin C with Data Structures	4	T	3 Hrs	25	75	100	4
III	21UAKCP103	CorePracticalI:ProgrammingLab –C with Data Structures	3	P	3 Hrs	40	60	100	3
III	21UAKAT104	Allied I:NumericalandStatistical Methods	5	T	3 Hrs	25	75	100	4
IV	21ES01	Foundation CourseI: EnvironmentalStudies	2	T	3 Hrs	-	50	50	2
		Total	30					650	25
SEMESTERII									
I	21T02/21H02/ 21F02/21M02/ 21S02	Language– II	6	T	3 Hrs	25	75	100	4
II	21E02	Communicative English– II	6	T	3 Hrs	25	75	100	4
III	21UAKCT201	CoreIII:Professional English - II	4	T	3 Hrs	50	50	100	4
III	21UAKCT202	CoreIV:Python Programming	4	T	3 Hrs	25	75	100	4
III	21UAKCP203	CorePracticalII:ProgrammingLab- Python	3	P	3 Hrs	40	60	100	3
III	21UAKAT204	Allied II:Discrete Mathematics	5	T	3 Hrs	25	75	100	4
IV	21VE01	Foundation CourseII: ValueEducation	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	CourseCode	CourseTitle	Inst.Hrs/Week	T/P	Examination Details				Credits
					Duration inHours.	CIA	ESE	Total Marks	
SEMESTERIII									
III	21UAKCT301	Core V:OperatingSystems	5	T	3 Hrs	25	75	100	4
III	21UAKCT302	Core VI:Java Programming	5	T	3 Hrs	25	75	100	4
III	21UAKCT303	Core VII:Digital Fundamentals and Computer Architecture	4	T	3 Hrs	25	75	100	4
III	21UAKCP304	Core PracticalIII :Programming Lab-Java	5	P	3 Hrs	40	60	100	4
III	21UAKAT305	Allied III:ComputerBasedOptimization Techniques	5	T	3 Hrs	25	75	100	4
IV	21UAKSP306	SkillBased PracticalI: Multimedia Lab	4	P	3 Hrs	30	45	75	3
IV	21BT01/ 21AT01/ 21UAKNT307	BasicTamil * /AdvancedTamil # (OR)Non-Major Elective-I:Internet Principles@	2	T	3 Hrs	75		75	2
		Total	**30**					**650**	**25**
SEMESTERIV									
III	21UAKCT401	Core VIII:Software Engineering	6	T	3 Hrs	25	75	100	4
III	21UAKCT402	Core IX:Web Programming	6	T	3 Hrs	25	75	100	4
III	21UAKCP404	Core PracticalIV:Web ProgrammingLab	6	P	3 Hrs	40	60	100	4
III	21UAKAT405	Allied IV:BusinessAccounting	6	T	3 Hrs	25	75	100	4
IV	21UAKSP406	SkillBased PracticalII:Software Development-CASETools Lab	4	P	3 Hrs	30	45	75	3
IV	21BT02/ 21AT02/ 21UAKNT407	BasicTamil * /AdvancedTamil # (OR)Non-MajorElective -II: InformationSecurityandCyberLaws@	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	Coursecode	CourseTitle	Inst.Hrs/Week	T/P	Examination Details				Credits
					Duration inHours.	CIA	ESE	Total Marks	
SEMESTER V									
III	21UAKCT501	Core X:ComputerNetworks	6	T	3 Hrs	25	75	100	5
III	21UAKCT502	Core XI:VisualBasic and VB.net	5	T	3 Hrs	25	75	100	4
III	21UAKCT503	Core XII:RelationalDatabase ManagementSystem	5	T	3 Hrs	25	75	100	4
III	21UAKCP504	Core PracticalV:Programming Lab–VisualBasic, VB.net and Oracle	5	P	3 Hrs	40	60	100	4
III	21UAKET505/ 21UAKET506/ 21UAKET507	Elective-I:	6	T	3 Hrs	25	75	100	4
IV	21UAKSP508	SkillBased PracticalIII: Networking Lab	3	P	3 Hrs	30	45	75	3
		Total	**30**					**575**	**24**
SEMESTER VI									
III	21UAKCT601	Core XIII:Internet of Things (IoT)	6	T	3 Hrs	25	75	100	4
III	21UAKCP602	Core PracticalVI:Internet of Things (IoT) Lab	5	P	3 Hrs	40	60	100	4
III	21UAKET603/ 21UAKET604/ 21UAKET605	Elective-II:	6	T	3 Hrs	25	75	100	4
III	21UAKET606/ 21UAKET607/ 21UAKET608	Elective III:	6	T	3 Hrs	25	75	100	4
III	21UAKCV609	ProjectWorkLab :	4	P	3 Hrs	20	80	100	4
III	21USW01/ 21UMO01	SWAYAM / MOOC	Extra Credit Course (Minimum :1 Credit ; Maximum :2 Credits)						
IV	21UAKSP610	Skill based PracticalIV: Software TestingLab	3	P	3 Hrs	30	45	75	3
V	21NS01/21NC01 21YR01/21RR01 21EC01/21ET01 21SC01/21PE01	Extension Activities $ (NSS / NCC / YRC / RRC / ECO CLUB / ETHICS CLUB / SCIENCE FORUM / PHYSICAL EDUCATION)	-		-	50	-	50	1
		Total	**30**					**625**	**24**
		TOTAL	**180**					**3700**	**144**

$-CIAonly   @-Offeredto otherdepartmentstudents

-ESE only

LIST OFALLIED COURSES

Allied I	21UAKAT104	NumericalandStatisticalMethods
Allied II	21UAKAT204	Discrete Mathematics
Allied III	21UAKAT305	ComputerBased OptimizationTechniques
Allied IV	21UAKAT405	BusinessAccounting

LIST OFSKILLBASEDPRACTICAL

SkillBased Practical I	21UAKSP306	Multimedia Lab
SkillBased Practical II	21UAKSP406	Software Development-CASETools Lab
SkillBased Practical III	21UAKSP508	NetworkingLab
SkillBased Practical IV	21UAKSP610	SoftwareTestingLab

LIST OFADVANCEDLEARNERS COURSES

Advanced Learners CourseI	21UAKAL408	A	SoftwareTesting
	21UAKAL409	B	UNIXProgramming
Advanced Learners CourseII	21UAKAL509	A	Software ProjectManagement
	21UAKAL510	B	Linux Programming

LIST OFELECTIVE COURSES

Elective-I	21UAKET505	A	ComputerGraphics
	21UAKET506	B	Cloud Computing
	21UAKET507	C	Distributed Systems
Elective-II	21UAKET603	A	WebTechnology
	21UAKET604	B	Mobile Computing
	21UAKET605	C	Principles of Multimedia
Elective-III	21UAKET606	A	ArtificialIntelligenceandExpertSystems
	21UAKET607	B	DataMining
	21UAKET608	C	Cryptographyand NetworkSecurity

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

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

ERODE – 638 107

B.Sc. COMPUTER SCIENCE

(For the candidates admitted during the academic year 2019 – 2020 and onwards)

SCHEME OF EXAMINATION – CBCS PATTERN

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	19UAKCT101*	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	19UAKCP103*	Core Lab 1: Programming Lab – C with Linux	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	19UAKCT201*	Core 3: Python Programming	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	19UAKCP203*	Core Lab2 : Programming Lab- Python	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

*[The syllabi for the revised papers will be followed from the academic year 2019-2020 only and there is no change in the existing scheme of examination and syllabi of remaining papers]

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	19UAKCT301	Core 5: Operating Systems	6	T	3 Hrs	25	75	100	4
III	19UAKCT302	Core 6: Java Programming	6	T	3 Hrs	25	75	100	4
III	19UAKCP303	Core Lab 3: Programming Lab- Java	6	P	3 Hrs	40	60	100	4
III	19UAKAT304	Allied 3: Computer Based Optimization Techniques	6	T	3 Hrs	25	75	100	4
IV	19UAKSP305	Skill Based Course 1 (Lab): Multimedia Lab	4	P	3 Hrs	30	45	75	3
IV	17BT01/ 17AT01/ 19UAKNT306/ 19UAKNP307	Basic Tamil * / Advanced Tamil # (OR) Non-Major Elective - I : Internet Principles @ / Programming Lab- Office Automation and Applications @	2	T	3 Hrs	75		75	2
		Total	**30**					**550**	**21**
SEMESTER IV									
III	19UAKCT401	Core 7 : Software Engineering	6	T	3 Hrs	25	75	100	4
III	19UAKCT402	Core 8: Web Programming	6	T	3 Hrs	25	75	100	4
III	19UAKCP403	Core Lab 4: Web Programming Lab	6	P	3 Hrs	40	60	100	4
III	19UAKAT404	Allied-4: Business Accounting	6	T	3 Hrs	25	75	100	4
IV	19UAKSP405	Skill Based Course 2 (Lab): Software Development - CASE Tools Lab	4	P	3 Hrs	30	45	75	3
IV	17BT02/ 17AT02/ 19UAKNT406/ 19UAKNP409	Basic Tamil * /Advanced Tamil # (OR) Non-Major Elective - II : Information Security and Cyber Laws @ / Programming Lab- Web Development @	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				

Part	Course code	Course Title	Inst. Hrs /Week	T/P	Duration in Hours.	CIA	ESE	Total Marks	Credits
			SEMESTER V						
III	19UAKCT501	Core 9: Computer Networks	6	T	3 Hrs	25	75	100	5
III	19UAKCT502	Core 10: Visual Basic and VB.net	5	T	3 Hrs	25	75	100	4
III	19UAKCT503	Core 11: Relational Database Management System	5	T	3 Hrs	25	75	100	4
III	19UAKCP504	Core Lab 5: Programming Lab - Visual Basic, VB.net and Oracle	5	P	3 Hrs	40	60	100	4
III	19UAKET505/ 19UAKET506/ 19UAKET507	Elective - I :	6	T	3 Hrs	25	75	100	4
IV	19UAKSP508	Skill Based Course 3(Lab): Networking Lab	3	P	3 Hrs	30	45	75	3
		Total	30					575	24
			SEMESTER VI						
III	19UAKCT601	Core 12: Internet of Things (IoT)	6	T	3 Hrs	25	75	100	4
III	19UAKCP602	Core Lab 6: Internet of Things (IoT) Lab	5	P	3 Hrs	40	60	100	4
III	19UAKET603/ 19UAKET604/ 19UAKET605	Elective - II :	6	T	3 Hrs	25	75	100	4
III	19UAKET606/ 19UAKET607/ 19UAKET608	Elective III :	6	T	3 Hrs	25	75	100	4
III	19UAKCV609	Project Work Lab :	4	P	3 Hrs	20	80	100	4
IV	19UAKSP610	Skill based Course 4 (Lab) : Software Testing Lab	3	P	3 Hrs	30	45	75	3
V	19NS01/ 19NC01/ 19PE01/ 19YR01	Extension Activities $	-	-	-	50	-	50	1
		Total	30					625	24
		TOTAL	180					3600	140

$ - CIA only   @ - Offered to other department students

- ESE only

LIST OF ALLIED COURSES

Allied 1	17UAKAT104	Numerical and Statistical Methods
Allied 2	17UAKAT204	Discrete Mathematics
Allied 3	19UAKAT304	Computer Based Optimization Techniques
Allied 4	19UAKAT404	Business Accounting

LIST OF SKILL BASED COURSES

Skill Based Course 1	19UAKSP305	Multimedia Lab
Skill Based Course 2	19UAKSP405	Software Development - CASE Tools Lab
Skill Based Course 3	19UAKSP508	Networking Lab
Skill Based Course 4	19UAKSP610	Software Testing Lab

LIST OF ADVANCED LEARNERS COURSES

Advanced Learners Course 1	19UAKAL407	A	Software Testing
	19UAKAL408	B	UNIX Programming
Advanced Learners Course 2	19UAKAL509	A	Software Project Management
	19UAKAL510	B	Linux Programming

LIST OF ELECTIVE COURSES

Elective - I	19UAKET505	A	Computer Graphics
	19UAKET506	B	Cloud Computing
	19UAKET507	C	Distributed Systems
Elective - II	19UAKET603	A	Web Technology
	19UAKET604	B	Mobile Computing
	19UAKET605	C	Principles of Multimedia
Elective - III	19UAKET606	A	Artificial Intelligence and Expert Systems
	19UAKET607	B	Data Mining
	19UAKET608	C	Cryptography and Network Security

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

Sem	Course code	Core I: Professional English - I	Total Marks: 100		Hours Per Week	Credits
I	21UAKCT101		CIA:50	ESE: 50	4	4

Course Objectives:

1. To develop the language skills of students

2. To enhance the lexical, grammatical and socio-linguistic and communicative competence

3. To focus on developing students' knowledge in domain specific registers and the required language skills

Course Outcomes (CO): On completion of the course, students should be able to

CO 1	Identify the correct usage of vocabulary and grammar in speaking and writing	
CO 2	Apply the language for speaking efficiently and confidently	
CO 3	Build the reading skill by using unfamiliar texts with comprehension	K1 - K4
CO 4	Demonstrate the language skills through academic writing	
CO 5	Develop the leadership quality and team building through linguistic competence	

K1: Remember; K2: Understand; K3: Apply; K4: Analyze

Unit - I	Communication

Listening: Listening to audio text and answering questions - Listening to Instructions

Speaking: Pair work and small group work

Reading: Comprehension passages - Differentiate between facts and opinion

Writing: Developing a story with pictures

Vocabulary: Register specific - Incorporated into the LSRW tasks

Unit - II	Description
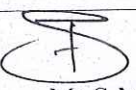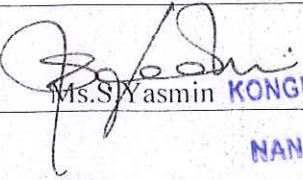
Listening: Listening to process description - Drawing a flow chart

Speaking: Role play (formal context)

Reading: Skimming/Scanning - Reading passages on products, equipment and gadgets

Writing: Process Description - Compare and Contrast Paragraph - Sentence Definition and Extended definition - Free Writing

Vocabulary: Register specific - Incorporated into the LSRW tasks

Unit - III	Negotiation Strategies

Listening: Listening to interviews of specialists / Inventors in fields(Subject specific)

Speaking: Brainstorming (Mind mapping) - Small group discussions(Subject-Specific)

Reading: Longer Reading text

Writing: Essay Writing (250 words)

Vocabulary: Register specific - Incorporated into the LSRW tasks

Unit - IV	Presentation Skills

Listening: Listening to lectures

Speaking: Short talks

Reading: Reading Comprehension passages

Writing: Writing Recommendations Interpreting Visuals inputs

Vocabulary: Register specific - Incorporated into the LSRW tasks

Unit - V	Critical Thinking Skills

Listening: Listening comprehension - Listening for information

Speaking: Making presentations (with PPT-practice)

Reading: Comprehension passages - Note making. Comprehension: Motivational article on Professional Competence, Professional Ethics and Life Skills)

Writing: Problem and Solution essay - Creative writing - Summary writing

Vocabulary: Register specific - Incorporated into the LSRW tasks

Skill Development Activities

1. Listening and Answering
2. Speaking Activities through Role Play
3. Reading and Answering
4. Resume Preparation
5. Vocabulary Enhancement Activities – Definitions, Synonyms, Antonyms, Keywords etc..,

TEXT BOOK

1	Professional English for Physical Sciences-I - TANSCHE.

REFERENCE BOOKS

1	Simon Sweeney, English for Business Communication, Student's Book, Second Edition, Cambridge University Press, 2003.
2	Michael McCarthy, Felicity O'Dell, English Vocabulary in Use: Advanced, First South Asian Edition, Cambridge University Press, 2003.

Web Resources

1	https://nptel.ac.in/courses/109/104/109104030/
2	https://www.edubull.com/courses/online-english-speaking-courses-video-english/tofel-ilets/basic-courses/professional-english-part-2

Course Designed By	Verified By	Approved By HOD
Mr.S.Muruganantham	Ms.S.Yasmin	Mr.P.Ramesh

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

SECTION – A	SECTION – B
(10 X 1 = 10 Marks) (Vocabulary) (MCQ, Info-gap questions - domain specific vocabulary)	(4 X 10 = 40 Marks) (Reading: Two long domain-specific comprehension passages with questions pertaining to understanding and analysis - 20 Marks) (Writing: Descriptive/narrative/persuasive writing questions pertaining to domain-specific vocabulary - 20 Marks)

Mapping of COs with POs and PSOs:

PO/PSO CO	PO							PSO				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	S	S	S	S	S	M	M	S	M	M	S	S
CO 2	S	S	S	S	S	M	M	S	S	M	S	M
CO 3	S	S	M	M	M	M	S	S	S	M	S	M
CO 4	S	S	M	M	M	M	M	S	S	M	S	M
CO 5	S	S	S	S	M	S	S	S	S	S	S	S

S - Strong, M - Medium, L - Low

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

Sem	Course code	Core II: Programming in C with Data Structures	Total Marks:100		Hours Per Week	Credits
I	21UAKCT102		CIA : 50	ESE : 50	4	4

Course Objectives:

1. To understand the concepts and techniques in C Programming.

2. To impart the basic concepts of data structures and algorithms.

3. To develop skills for building applications using C Language.

Course Outcomes (CO): On completion of the course, students should be able to

CO 1	Acquire the knowledge on the fundamental programming components of C	
CO 2	Design programs involving decision making and looping constructs in C	
CO 3	Implement the algorithms for solving Mathematical and computational problems	K1 - K4
CO 4	Understand the implementation of the basic linear data structures	
CO 5	Demonstrate various searching and sorting techniques	

K1: Remember; K2: Understand; K3: Apply; K4: Analyze

Unit – I	**Basics of C**

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. Managing Input and Output Operations: Reading and Writing a Character – Formatted Input and Output – Operators and Expressions.

Chapters - 3, 4, 5 & 6

Unit – II	**Decision Making and Branching**

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 – Arrays: One dimensional Arrays - Two dimensional Arrays – Character Arrays and Strings.

Chapters - 7, 8, 9.1-9.6 & 10

Unit – III	**Functions**

User-Defined Functions: Elements of User-Defined functions - Definition of Functions-Return values and their types – Function calls - Function Declaration– Recursion – Structures and Unions: Defining a Structure – Declaring Structure Variables – Accessing Structure Variables – Structure Initialization – Unions.
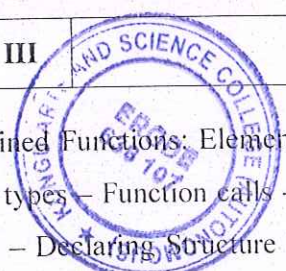
Dr. N. RAMAN
PRINCIPAL
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANGANAPURAM, ERODE : 638 107.

Pointers: Understanding Pointers – Accessing the Address of a Variable – Declaring Pointer Variables – Initialization of Pointer Variables – Accessing a Variable through its Pointer – Chain of Pointers – Pointer Expressions .

File Management in C: Introduction – Defining and Opening a File - Closing a File – Input / Output Operations on Files –Command Line Arguments.

Chapters - 11.4 - 11.8, 11.16, 12.2 – 12.5, 12.12, 13.2 – 13.8, 14.1 – 14.4, 14.7

Unit – IV	Linear Data Structures

Linear Data Structure : Introduction to Data Structure – Representation of Stack – Stack related terms- Operation on a Stack – Implementation of Stack – Queues - Various Positions of Queue – Representation of Queue – Single Linked List - Linked List with and Without Header – Insertion – Deletion – Double Linked List.

Chapters – 14.1 , 14.11 - 14.22

Unit – V	Searching and Sorting

Non Linear Data Structure: Trees – Binary Trees – Types of Binary Tree - Binary Tree Representation. Searching and Sorting: Introduction - Searching – Linear Search- Binary Search- Sorting - Insertion Sort – Quick Sort

Chapters - 15.1- 15.4, 16.1-16.6, 16.9

Skill Development Activities

1. Interpret the given C Program in stipulated time
2. Optimize the given C Program in terms of Memory Consumption and Execution Time.
3. Design database structure with appropriate data structures for the real world applications

TEXT BOOKS
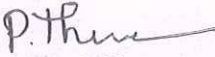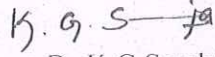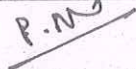
1	E.Balagurusamy - Computing Fundamentals & C Programming – First Edition – Tata Mc-Graw Hill - 2008. *[Unit I to III]*
2	Ashok N.Kamthane – Programming and Data Structures - First Edition - Pearson Publication - 2004. *[Unit IV to V]*

REFERENCE BOOKS

1	E.Balagurusamy – Programming in ANSI C- Third Edition- Tata Mc Graw Hill Publication- 2006.
2	Ashok N. Kamthane – Programming with ANSI and Turbo C- First Edition- Pearson Publications 2002.
3	A.Chitra, P.T.Rajan – Data Structures – Second Reprint – McGraw Hill Education -2007.
4	Ellis Horowitz, SartajSahni - Fundamentals of Data Structures - Galgotia Publications, 2005.

Web Resources	
1	www.tutorialspoint.com/cprogramming/
2	www.programiz.com/c-programming

Course Designed By	Verified By	Approved By HOD
P.Thenmozhi	K.G.S	P.N
Ms.P.Thenmozhi	Dr.K.G.Santhiya	Mr.P.Ramesh

QUESTION PAPER PATTERN

SECTION – A	SECTION – B	SECTION – C
10 x 1 = 10 Marks Answer ALL questions Choose the correct answer Two questions from each unit	5 x 3 = 15 Marks Answer ALL questions Either or type Two questions from each unit	5 x 5 = 25 Marks Answer ALL questions Either or type Two questions from each unit

Mapping of COs with POs and PSOs:

PO/PSO CO	PO							PSO				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	S	S	M	M	M	S	S	S	S	S	S	S
CO 2	S	M	M	M	M	S	S	S	S	S	S	S
CO 3	S	S	M	M	M	S	S	S	S	S	S	S
CO 4	S	S	M	M	M	S	S	S	S	S	S	S
CO 5	S	S	M	M	M	S	S	S	S	S	S	S

S - Strong, M - Medium, L - Low

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

Sem	Course code	Core Practical I: Programming Lab – C with Data Structures	Total Marks : 100		Hours Per Week	Credits
I	21UAKCP103		CIA : 50	ESE : 50	3	3

Course Objectives:

1. To make the student learn a programming language.
2. To develop skills for building applications using C Language.
3. To impart knowledge to implement various data structures.

Course Outcomes (CO): On completion of the course, students should be able to

CO 1	Apply the C programming concept to solve the given problem	
CO 2	Write C programs using decision making, branching and looping constructs	
CO 3	Build C programs to implement arrays	K1 - K4
CO 4	Design programs using functions	
CO 5	Write programs that perform operations using derived data types	

K1: Remember; K2: Understand; K3: Apply; K4: Analyze

PROGRAMS

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

2. Write a C program to print all leap years from 1 to 'n'.

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

4. Write a C program to generate 'n' prime numbers.

5. Write a C program to perform following string handling functions
   a) Length of the string.
   b) Reverse a string.
   c) Concatenation of two strings.

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

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

8. Write a C Program to find the given key in a set of numbers.

9. Write a C program to implement stack using arrays.
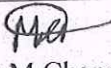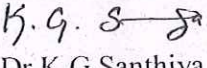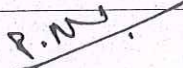
10. Write a C program to implement queue.
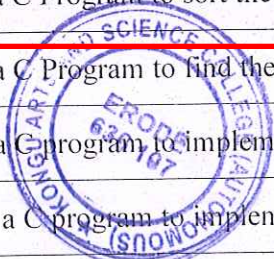
Dr. N. RAMAN
PRINCIPAL
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

	TEXT BOOK
1	E. Balagurusamy - Computing Fundamentals & C Programming – Thirteenth reprint – McGrawHill Education, 2013.

|	REFERENCE BOOKS
1	E.Balagurusamy – Programming in ANSI C- Third Edition- Tata Mc Graw Hill Publication-2006.
2	Ashok N. Kamthane – Programming with ANSI and Turbo C- First Edition- Pearson Publication - 2002.

	Web Resources
1	www.tutorialspoint.com/cprogramming/
2	www.programiz.com/c-programming

Course Designed By	Verified By	Approved By HOD
Mr.M.Chandru	Dr.K.G.Santhiya	Mr.P.Ramesh

Mapping of COs with POs and PSOs:

PO/PSO CO	PO							PSO				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	S	S	M	M	M	M	S	S	S	S	S	S
CO 2	S	S	M	M	M	M	S	S	S	S	S	S
CO 3	S	S	M	M	M	M	S	S	S	S	S	S
CO 4	S	S	M	M	M	M	S	S	S	S	S	S
CO 5	S	S	M	M	M	M	S	S	S	S	S	S

S - Strong, M - Medium, L - Low
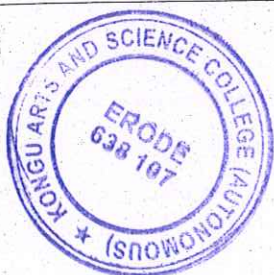
Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.

Sem	Course code	Core III: Professional English - II	Total Marks: 100		Hours Per Week	Credits
II	21UAKCT201		CIA: 50	ESE: 50	4	4

Course Objectives:

1. To develop their competence in the use of English with particular reference to the workplace situation.

2. To enhance the creativity of the students, which will enable them to think of innovative ways to solve issues in the workplace.

3. To develop their competence and competitiveness and thereby improve their employability skills.

Course Outcomes (CO): On completion of the course, students should be able to
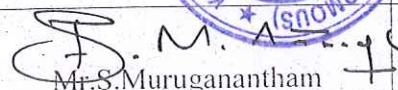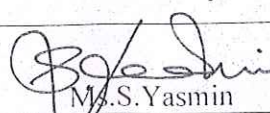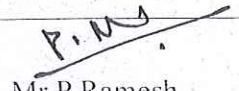
CO 1	Identify the importance of language competence in workplace situations	
CO 2	Develop LSRW skills for academic and career purposes	
CO 3	Build the employability skills through various speaking and writing tasks	K1 - K4
CO 4	Relate the communication skills suitable for employability	
CO 5	Illustrate the digital competence with innovation and imagination	

K1: Remember; K2: Understand; K3: Apply; K4: Analyze

Unit - I	Communicative Competence

Listening – Listening to two talks/lectures by specialists on selected subject specific topics -(TED Talks) and answering comprehension exercises (inferential questions)

Speaking: Small group discussions (the discussions could be based on the listening and reading passages- open ended questions

Reading: Two subject-based reading texts followed by comprehension activities/exercises

Writing: Summary writing based on the reading passages.

Unit - II	Persuasive Communication

Listening: listening to a product launch- sensitizing learners to the nuances of persuasive communication

Speaking: debates – Just-A Minute Activities

Reading: reading texts on advertisements (on products relevant to the subject areas) and answering inferential questions

Writing: dialogue writing- writing an argumentative /persuasive essay.

Unit - III	Digital Competence

Listening: Listening to interviews (subject related).

Speaking: Interviews with subject specialists (using video conferencing skills) Creating Vlogs (How to become a vlogger and use vlogging to nurture interests – subject related)

Reading: Selected sample of Web Page (subject area)

Writing: Creating Web Pages

Reading Comprehension: Essay on Digital Competence for Academic and Professional Life.

The essay will address all aspects of digital competence in relation to MS Office and how they can

be utilized in relation to work in the subject area.

Unit - IV	Creativity and Imagination

Listening to short (2 to 5 minutes) academic videos (prepared by EMRC/ other MOOC videos on

Indian academic sites – E.g. https://www.youtube.com/watch?v=tpvicScuDy0)

Speaking: Making oral presentations through short films – subject based

Reading: Essay on Creativity and Imagination (subject based)

Writing – Basic Script Writing for short films (subject based) - Creating webpages, blogs, flyers

and brochures (subject based) - Poster making – writing slogans/captions(subject based.)

Unit - V	Workplace Communication and Basics of Academic Writing

Speaking: Short academic presentation using PowerPoint

Reading & Writing: Product Profiles, Circulars, Minutes of Meeting.

Writing an introduction, paraphrasing, Punctuation (period, question mark, exclamation point, comma, semicolon, colon, dash, hyphen, parentheses, brackets, braces, apostrophe, quotation marks, and ellipsis) Capitalization (use of upper case)

Skill Development Activities

1. Group Discussion
2. Persuasive Speaking – Conversation
3. Listening Activities – Watching Videos and answering questions and summarizing the content
4. Creative Writing – Flyers, Brochures, Slogans, Captions
5. Powerpoint Presentation

	TEXT BOOK
1	Professional English for Physical Sciences-II - TANSCHE.

	REFERENCE BOOKS
1	Alice Oshima & Ann Hogue, Writing Academic English, Second Edition, Addison Wesley Publishing Company, 1991.
2	Lyn R. Clark, Kenneth Zimmer, Joseph Tinervia, Business English and Communication, Seventh Edition, MacMillan / McGraw-Hill, Imprint 1991.

	Web Resources
1	https://www.coursera.org/learn/speak-english-professionally
2	https://www.ted.com/talks/pranav_rajan_computer_science_education

Course Designed By	Verified By	Approved By HOD
Mr.S.Muruganantham	Ms.S.Yasmin	Mr.P.Ramesh

SECTION – A	SECTION – B
(10 X 1 = 10 Marks) (Vocabulary) (MCQ, Info-gap questions - domain specific vocabulary)	(4 X 10 = 40 Marks) (Reading: Two long domain-specific comprehension passages with questions pertaining to understanding and analysis - 20 Marks) (Writing: Descriptive/narrative/persuasive writing questions pertaining to domain-specific vocabulary - 20 Marks)

Mapping of COs with POs and PSOs:

PO/PSO CO	PO							PSO				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	S	S	S	M	S	M	M	S	S	M	S	M
CO 2	S	S	M	S	M	M	S	S	S	M	S	S
CO 3	S	S	S	M	S	M	M	S	S	M	S	S
CO 4	S	S	M	S	S	M	S	S	S	M	S	S
CO 5	S	S	S	M	M	M	M	S	S	M	S	M
S - Strong, M - Medium, L - Low												

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

Sem	Course code	Core IV: Python Programming	Total Marks : 100		Hours Per Week	Credits
II	21UAKCT202		CIA : 50	ESE : 50	4	4

Course Objectives:

1. To introduce the fundamental concepts of Python Programming.
2. To learn how to use lists, tuples, and dictionaries in Python.
3. To develop skills to design and implement applications using python.

Course Outcomes (CO): On completion of the course, students should be able to

CO 1	Acquire the knowledge on OOPs and python programming	
CO 2	Define and demonstrate the use of built-in data structures lists and dictionary	
CO 3	Read and write data from and to files in Python	K1 - K4
CO 4	Apply the concepts of python in developing various applications	
CO 5	Design and implement a program to solve real world problems	

K1: Remember; K2: Understand; K3: Apply; K4: Analyze

Unit – I	Overview of Python

Getting Started: Introduction – Installing Python on Windows and Linux – Meeting the Interpreter – Writing Your First Program – Obtaining User Input – Correcting Errors. Performing Operations: Doing Arithmetic – Assigning Values – Comparing Values – Assessing Logic – Examining Conditions – Setting Precedence – Casting Data Types – Manipulating Bits.

Chapters - 1 & 2

Unit – II	Decision Making & Functions

Making Statements: Writing Lists – Manipulating Lists – Restricting Lists – Associating List Elements – Branching With If – Looping While True – Looping over Items – Breaking out of Loops. Defining Functions: Understanding Scope – Supplying Arguments – Returning Values – Using Callbacks – Adding Placeholders – Producing Generators – Handling Exceptions – Debugging Assertions.
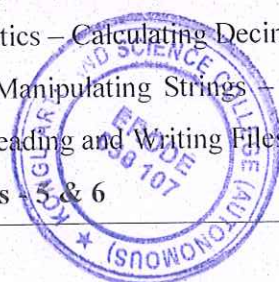
Chapters - 3 & 4

Unit – III	Strings & Files

Importing Modules: Storing Functions – Owning Function Names – Interrogating the System – Performing Mathematics – Calculating Decimals – Telling the Time – Running the Timer- Matching Patterns. Managing Strings: Manipulating Strings – Formatting Strings – Modifying Strings- Converting Strings – Accessing Files – Reading and Writing Files – Updating File Strings – Picking Data.
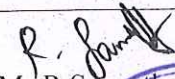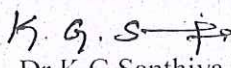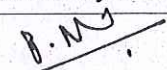
Chapters - 5 & 6

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

Unit – IV	Programming Objects

Programming Objects: Encapsulating Data – Creating Instance Objects – Addressing Class Attributes – Examining Built-In Attributes – Collecting Garbage – Inheriting Features – Overriding Base Methods – Harnessing Polymorphism. Processing Requests: Sending Responses – Handling Values – Submitting Forms – Providing Text Areas – Checking Boxes – Choosing Radio Buttons - Selecting Options – Uploading Files.

Chapters - 7 & 8

Unit – V	Developing Applications

Building Interfaces: Launching a Window – Responding to Buttons – Displaying Messages – Gathering Entries – Listing Options – Polling Radio Buttons – Checking Boxes – Adding Images. Developing Applications: Generating Random Numbers – Planning the Program – Designing the Interface – Assigning Static Properties – Initializing Dynamic Properties – Adding Runtime Functionality – Testing the Program – Freezing the Program – Deploying the Application.

Chapters - 9 & 10

Skill Development Activities

1. Write the equivalent Python Program for the given C Program.
2. Correct the bugs in the given Python Code.
3. Develop Python Live Coding for the given problem

TEXT BOOK	
1	Mcgrath Mike– Python in easy steps– First Edition, McGraw Hill Edition, TBH Publishers – 2013.

REFERENCE BOOKS	
1	Paul Barry–Head First Python: A Brain-Friendly Guide–First Edition, O'Reilly Publication – 2010.
2	John Paul Mueller – Professional Iron Python: Design and Develop Iron Python Techniques – First Edition, Wiley India Edition– 2010.

Web Resources	
1	www.w3schools.com / python
2	www.tutorialspoint.com/python/index.htm

Course Designed By	Verified By	Approved By HOD
Ms.R.Saveetha	Dr.K.G.Santhiya	Mr.P.Ramesh

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

QUESTION PAPER PATTERN		
SECTION – A	**SECTION – B**	**SECTION – C**
10 x 1 = 10 Marks Answer ALL questions Choose the correct answer Two questions from each unit	5 x 3 = 15 Marks Answer ALL questions Either or type Two questions from each unit	5 x 5 = 25 Marks Answer ALL questions Either or type Two questions from each unit

Mapping of COs with POs and PSOs:

PO/PSO CO	PO							PSO				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	S	S	M	M	M	S	S	S	S	S	S	S
CO 2	S	M	M	M	M	S	S	S	S	S	S	S
CO 3	S	S	M	M	M	S	S	S	S	S	S	S
CO 4	S	S	M	M	M	S	S	S	S	S	S	S
CO 5	S	S	M	M	M	S	S	S	S	S	S	S
S - Strong, M - Medium, L - Low												

Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 038 107

Sem.	Course Code	Core 10 : Visual Basic and VB.net	Total Marks: 100		Hours Per Week	Credits
V	19UAKCT502		CIA: 25	ESE: 75	5	4

OBJECTIVE:

To learn the concept of Event Driven Programming and VB.NET.

COURSE OUTCOMES:

On successful completion of the course the students will able to:

CO1: Describe Visual Basic Environment and its Fundamentals (Understand)

CO2: Enumerate about different VB controls (Remember)

CO3: Examine about Procedures, Arrays and Files (Analyze)

CO4: Determine various Operators and Controls in VB.NET (Evaluate)

CO5: Acquire knowledge file operations in VB.NET (Apply)

UNIT - I

Introducing Visual Basic: Event and Event Procedures – Object Related Concepts – Visual Basic Environment – Visual Basic Fundamentals: Constants –Numeric and String -Variables – Data Types and Data Declarations - Operators and Expressions – Hierarchy of Operations - Relational operators and Logical Expressions – Logical Operators – Branching and Looping: Branching with If-Then, If-Then-Else blocks – Selection: Select Case – Looping with For-Next, Do-Loop, While-Wend

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 - Menus And Dialog Boxes: Building Drop-Down Menus – Accessing a Menu from the Keyboard – Menu Enhancements – Submenus – Pop-Up Menus – Dialog Boxes.

UNIT - III

Procedures: Modules and Procedures – Sub Procedures. Arrays: Array Characteristics, Declarations – Processing Array Elements – Passing Arrays to Procedures – control Arrays. Data Files: Data File Characteristics –Accessing and Saving a File in VB: The Common Dialog Control–Sequential Data Files - Random Access Data Files.

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

UNIT - IV

Introduction to VB.Net – starting VB.NET- Creating and running the very first application- Variables and Data types – Displaying the output on the screen – Building the project : My variables – Arithmetic Operators- Using various data types – Text-box Controls – Radio button Control - Programming statements - Constants – Using Import Statements – Functions: MsgBox, Input Box Functions – Logical operators – Looping: Do Loop – For next statement.

UNIT - V

Menus and Dialog Boxes: Creating a simple menu application – pop-up menus – Structured Programming: What is Structured Programming – Scope of variables, procedures-creating multiple forms. Using Build-in Functions – String handling functions – Function format. Working with Files: Introduction - Classification of Files – Handling files and folders using Functions and Classes- Directory Class- File Class – File Processing using Functions.
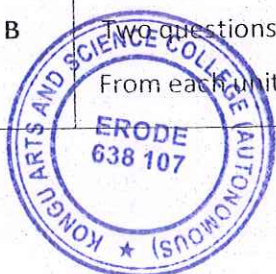
TEXTBOOKS:

1. Byron S. Gottfried, Ph.D., "SCHAUM'S Outlines VISUAL BASIC", Tata McGraw-Hill Publishing Company Limited, 2009. *[Unit 1 to 3]*

2. Shirish Chavan, "Visual Basic. NET", Person Eduction, 2009. *[Unit 4 to 5]*

REFERENCE BOOKS:

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

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

3. John Smiley, "Learn to Program with Visual Basic. NET", TMH, 2002.

4. Tim Anderson, "Visual Basic. NET", dreamtech Press,2002.

	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.W

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

Sem.	Course Code	Core Lab 5 : Programming Lab – Visual Basic, VB.net and Oracle	Total Marks: 100		Hours Per Week	Credits
V	19UAKCP504		CIA: 40	ESE: 60	5	4

OBJECTIVE:

To inculcate knowledge on Visual Basic concepts, application development in VB.NET and to instill awareness on RDBMS Programming concepts using Oracle.

COURSE OUTCOMES:

On successful completion of the course the students will able to:

CO1: Demonstrate a VB project using a common dialog control and DBGrid control. (Understand)

CO2: Develop a VB project by using the front end, back end and report generation. (Apply)

CO3: Build VB.NET programs using Console and Windows application. (Apply)

CO4: Examine the Oracle Programs with various queries. (Analyze)

CO5: Analyze the PL/SQL programs using Cursor and Trigger Concepts. (Analyze)

PRACTICAL LIST

VISUAL BASIC

1. 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 and change its color through a common dialog control.

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

3. Develop a Project for Student Database Management System using VB as front end and ORACLE / MS Access as back end.

4. Develop a VB Project to generate the report for Student Data Base Management System.

VB.NET

1. Write a VB.NET program that determines a students' grade.

2. Develop a menu based VB.NET application to implement a text editor with cut, copy, paste and close operations.

3. Develop a VB.NET project using Datagrid to display records using ORACLE / MS Access as back end.

4. Write a VB.NET program to create an Excel Application.
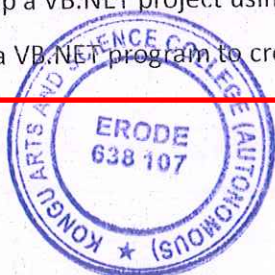
Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE – 638 107.

ERODE
638 107

ORACLE

1. Create a Employee table with the fields of Name, Designation, Gender, Age, Date of Joining and Salary. Set Employee Number as primary key. 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 program to split the student table into two tables based on the result, one table for "Pass" and another for "Fail" using cursors.

4. Create the following tables for banking system:

   I. Account_Details (Bank_name, Branch_code, Customer_name, Customer_id (Primary Key), Deposit_amount).

   II. Loan_Details (Branch_code, Customer_name, Customer_id(Foreign Key), Loan_amount).
      a) Write a Database trigger for checking data validity on the Account_Details table.
      b) Write a Database trigger before delete each row not allowing deletion and give the appropriate message on the Loan_ Details table.

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.

Sem.	Course Code	Core 12 : Internet of Things (IoT)	Total Marks: 100		Hours Per Week	Credits
VI	19UAKCT601		CIA: 25	ESE: 75	6	4

OBJECTIVE:

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

COURSE OUTCOMES:

On successful completion of the course the students will able to:

CO1: Clarify the vision of IoT (Understand)

CO2: Determine the Market perspective of IoT (Evaluate)

CO3: Classify the use of Devices, Gateways and Data Management in IoT (Understand)

CO4: Enumerate about the basic concepts of Python (Remember)

CO5: Create and execute Python programs through IoT Devices (Create)

UNIT - I

Introduction & Concepts: Introduction to Internet of Things - Physical Design of IOT - Logical Design of IOT - IOT Enabling Technologies - IOT Levels & Deployment Templates.

UNIT - II

Domain Specific IOTs: Introduction - Home Automation - Cities - Environment - Energy - Retail - Logistics - Agriculture - Industry - Health & Life Style. IoT and M2M: Introduction - M2M - Difference between IoT and M2M - SDN and NFV for IOT - Software defined Networking - Network Function Virtualization

UNIT - III

M2M & System Management with NETCONF-YANG: Need for IoT Systems Management - Simple Network Management Protocol - Limitations of SNMP - Network Operator Requirements - NETCONF - YANG - IoT Systems management with NETCONF-YANG - NETOPEER.

UNIT - IV

IoT Platforms Design Methodology: Introduction - IoT Design Methodology - Installing Python - Python Data Types & Data Structures - Control Flow - Functions - Modules - Packages - File Handling - Date/Time Operations - Classes.

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

UNIT - V

IOT Physical Devices & Endpoints: What is an IOT Device? - Exemplary Device: Raspberry Pi – About the Board - Linux on Raspberry Pi - Raspberry Pi Interfaces - Programming Raspberry Pi with Python - other IoT Devices

TEXT BOOK:

Vijay Madisetti, Arshdeep Bahga," internet of Things A Hands-On- Approach", 2014

REFERENCE BOOKS:

1. Adrian McEwen, "Designing the Internet of Things", Wiley Publishers, 2013

2. Daniel Kellmereit, "The Silent Intelligence: The Internet of Things", 2013

	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	Core Lab 6 : Internet of Things (IoT) Lab	Total Marks: 100		Hours Per Week	Credits
VI	19UAKCP602		CIA: 40	ESE: 60	5	4

OBJECTIVES

- To build small low cost embedded system using Arduino / Raspberry Pi or equivalent boards.
- To apply the concept of Internet of Things in the real world scenario

COURSE OUTCOMES:

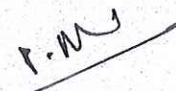On successful completion of the course the students will able to:

CO1: Explain the fundamental elements of Internet of Things [Understand]

CO2: Construct IoT systems using Raspberry Pi, Arduino Tools [Apply]

CO3: Build real world IoT systems [Apply]

CO4: Build interfaces for IoT applications [Apply]

CO5: Analyze the societal impact of IoT security events [Analyze]

PRACTICAL LIST

1. Build a Simple light controller (Traffic) using Arduino

2. Read a sensor data using Arduino

3. Develop a simple home monitoring system

4. Control and monitor the temperature and humidity of the elements using temperature sensor

5. Develop a system to control LED with Node MCU through webpage

6. Upload Sensor data using Node MCU and Google Firebase

7. Construct a system to interface Raspberry pi with LED and Sensor

8. Build a system to monitor pollution levels using Raspberry pi and Python

9. Develop a system to control Raspberry pi GPIO through webpage

10. Control Raspberry pi GPIO through blynk app

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.

Sem.	Course Code	Elective II (C): Principles of Multimedia	Total Marks: 100		Hours Per Week	Credits
VI	19UAKET605		CIA: 25	ESE: 75	6	4

OBJECTIVE:

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

COURSE OUTCOMES:

On successful completion of the course the students will able to:

CO1: Describe the basics of Multimedia Presentation (Understand)

CO2: Demonstrate various effects of Multimedia (Apply)

CO3: Design the figures using Multimedia tools (Apply)

CO4: Explain various file formats in the Audio system (Apply)

CO5: Use the concepts of Animation and Video file formats (Remember)

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

Visual 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.

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 - Audio File Format and CODECs - Audio Processing Software.

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.

REFERENCE BOOKS:

1. Prabhat K. Andleigh and Kiran Thakrar, "Multimedia System Design", Reprint 2009, PHI, 2009.

2. Tay Vaughan,"Multimedia Making it work" Seventh Edition, Tata McGraw Hill Publications, 2007.

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.

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

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.