



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

2018-2019

KONGU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

ERODE – 638 107

DEPARTMENT OF COMPUTER SCIENCE (U.G)

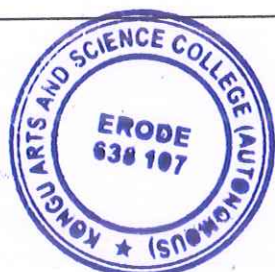
B.Sc.COMPUTER SCIENCE

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	Examination Details				Credits
					Duration in Hours.	CIA	ESE	Total Marks	
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	Examination Details				Credits
					Duration in Hours.	CIA	ESE	Total Marks	
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

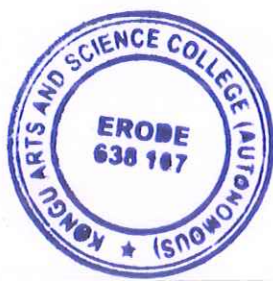



Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107

Part	Course code	Course Title	Inst. Hrs /Week	T/P	Examination Details				Credits
					Duration in Hours.	CIA	ESE	Total Marks	
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.J.
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	Course Name	Total Marks:100		Hours Per Week	Credits
III	17UAKCT301	Core 5 : Operating Systems	CIA:25	ESE:75	6	4

OBJECTIVE:

To enable the students learn the various aspects of the Operating Systems such as Process Management, Memory Management and I/O Management.

COURSE OUTCOMES:

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

- CO1 Understand the basic concepts of Process and its Transitions. (Understand)
- CO2 Identify and handles Deadlock in Multiprogramming Systems. (Remember)
- CO3 Analyze Virtual Storage Organization and Management Strategies. (Analyze)
- CO4 Classify different types of Processor Scheduling. (Understand)
- CO5 Acquire knowledge in Disk Performance Optimization and File Systems. (Apply)

UNIT- I

Introduction to Operating Systems – What is an Operating System? History – Distributed Computing – Process Concepts: Process States- Process State Transitions – Process Control Block – Operation on Processes – Interrupt Processing – Mutual Exclusion – Critical Sections

UNIT-II

Deadlock: Introduction- Conditions for Deadlock – Major Areas of Deadlock Research – Deadlock Prevention- Deadlock Avoidance -Deadlock Detection and Recovery.

Storage Management: Storage Organization – Storage Management – Storage Hierarchy- Storage Management Strategies – Contiguous versus Non- Contiguous Storage Allocation – Single User Contiguous Storage Allocation- Fixed Partition Multiprogramming- Variable Partition Multiprogramming

UNIT-III

Virtual Storage Organization- Introduction – Basic Concepts- Paging- Segmentation
Virtual Storage Management: Virtual Storage Management Strategies – Page Replacement Strategies – Working Set – Demand Paging – Page Size



↓

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

UNIT-IV

Processor Management Job and Processor Scheduling: Introduction- Scheduling Levels- Scheduling Objectives and Criteria – Preemptive versus Nonpreemptive Scheduling- Priorities – Deadline Scheduling- FIFO Scheduling – Round Robin Scheduling – SJF Scheduling- SRT Scheduling-HRN Scheduling – Multilevel Feedback Queues.

UNIT-V

Disk Performance Optimization- Introduction- Operation of Moving head Disk Storage-Need for Disk Scheduling – Seek Optimization.
File and Database Systems: Introduction- File System – Functions – Organization- Allocating and Freeing Space – File Descriptor – Access Control Matrix

TEXT BOOK:

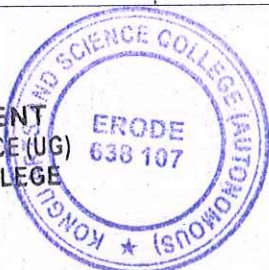
1. H.M.Deitel , “Operating Systems”, Second Edition, Pearson Education Publication, 2003.

BOOKS FOR REFERENCE:

1. Abraham Silberschatz Peter Baer Galvin Greg Gagne, “Operating System Principles”, Seventh Edition, 2007.
2. William Stalings, “Operating Systems Internals and Design Principles”, Seventh Edition, Pearson Education Publication, 2015.
3. D.M. Dhamdhere, “Operating Systems A Concept- Based Approach”, Second Edition, Tata McGraw-Hill, 2006.
4. Pramod Chandra P.Bhatt,”An Introduction to Operating Systems Concepts and Practice”, Second Edition, Prentice-Hall of India, 2007.
5. Charles Crowley, “Operating Systems A Design-Oriented Approach”, Tata McGraw-Hill, 2007.

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

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



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

Sem	Course Code	Course Name	Total Marks :100		Hours Per Week	Credits
III	17UAKCT302	Core 6: Java Programming	CIA : 25	ESE :75	6	4

OBJECTIVE:

To give basic knowledge of Object Oriented Programming paradigm and to impart the programming skills in JAVA.

COURSE OUTCOMES:

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

CO1 Review the basics of java Environment and java statements. [Remember]

CO2 Elaborate the concepts of Operators and Expressions and branching and looping statements [Understand]

CO3 Demonstrate the concepts of Constructors, Methods Overloading, Inheritance, Interfaces and Packages. [Apply]

CO4 Characterize the concepts of JAVA's Exceptional handling mechanism, threads and Applets. [Analyze]

CO5 Gain the knowledge of Graphics Programming and Managing Files. [Apply]

UNIT-I

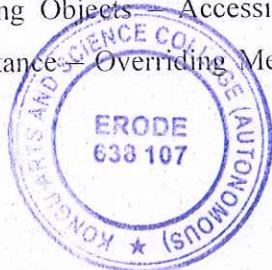
Java Evolution: Features – How Java differs from C and C++ – Java and Internet -Java and World Wide Web – Web Browsers – Java Environment - Overview of Java Language: Simple Java program – Structure – Java Tokens – Java Statements – Implementing a java Program - Java Virtual Machine - Constants, Variables, Data Types: Constants – Variables – Data Types - Declaration of Variables – Giving Values to Variables.

UNIT-II

Operators and Expressions – Decision Making and Branching: Simple If, If..Else, Nesting of If..Else, Else If Ladder, Switch,? : Operator - Decision Making and Looping: while, do, for – Jumps in Loops - Labeled Loops.

UNIT-III

Classes, Objects and Methods : Defining a Class – Fields and Methods Declaration – Creating Objects – Accessing Class Members – Constructors – Methods Overloading – Inheritance – Overriding Methods – Visibility Control. Arrays, Strings and Vectors – One-



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

dimensional Arrays-Creating an Array – Two-dimensional Arrays – Strings – Vectors -
Interfaces: Multiple Inheritance – Packages: Putting Classes Together.

UNIT-IV

Multithreaded Programming - Managing Errors and Exceptions – Applet Programming:
Preparing to Write Applets – Building Applet Code – Applet Life Cycle – Designing a Web
Page - Applet Tag – Adding Applet to HTML file – Running the Applet.

UNIT-V

Graphics Programming - Managing Input / Output Files in Java : Concepts of Streams-
Stream Classes – Byte Stream classes – Character stream classes – I/O exceptions – Creation
of files – Reading/Writing Characters - Reading/Writing Bytes - Random Access Files.

TEXT BOOK:

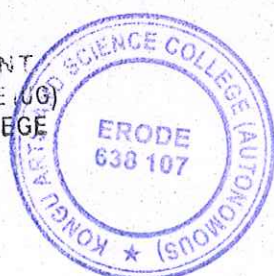
1. E. Balagurusamy, Programming With Java – A Primer, Fourth Edition, TMH, 2011

BOOKS FOR REFERENCE:

1. Hebert Schildt, The Complete Reference JAVA 2, Fifth Edition, TMH, 2011.
2. Patrick Naughton, The Java Handbook, TMH, 2011.
3. C.Muthu, Programming with Java, Second Edition, TMH, 2011.
4. John R. Hubbard, Programming With JAVA – Schaums Outlines, Second Edition, TMH,2004.
5. PaulDeitel & HarveyDeitel, JAVA How to program, Eighth Edition, PHI, 2009.

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

P.M.J.
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	Course Name	Total Marks :100		Hours Per Week	Credits
III	17UAKCP303	Core Lab 3: Programming Lab - Java	CIA : 40	ESE : 60	6	4

OBJECTIVE:

- To inculcate knowledge on object oriented programming concepts
- To learn the concepts of Applets, Exception Handling and Packages

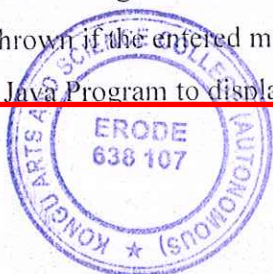
COURSE OUTCOMES:

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

- CO1 Describe the principles of object-oriented programming and write the algorithm in well-written modular code [Remember]
- CO2 Demonstrate the use of object oriented concepts in real world problems [Apply]
- CO3 Apply the concepts of inheritance, constructor, exception handling [Apply]
- CO4 Construct java programs to solve the given problems using basic programming constructs [Create]
- CO5 Develop and debug java programs using Package, multithreading, Exceptions and interface concepts [Create]

PRACTICAL LIST

1. Write a Java Program to extract a portion of a character string and print the extracted string.
2. Write a Java Program to check Armstrong number.
3. Write a Java Program to find the Area of Square, Rectangle and Circle using Method Overloading.
4. Write a Java Program to implement the concept of Multiple Inheritance using Interfaces.
5. Create a package called "Arithmetic" that contains methods to deal with all arithmetic operations. Also, write a program to use the package.
6. Write a Java Program to implement the concept of Multithreading with the use of any three multiplication tables and assign three different priorities to them.
7. Write a Java Program to define an exception called "Marks Out Of Bound" Exception, that is thrown if the entered marks are greater than 100.
8. Write a Java Program to display a clock using Applet.



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

9. Write a Java Program to draw several shapes in the created windows.
10. Write a Java Program to draw a human face using Applet.
11. Write a Java Program to read and write characters in files using file stream classes.
12. Write a Java Program which open an existing file and append text to that file.

F.N.J

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



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

Sem	Course Code	Course Name	Total Marks: 100		Hours Per Week	Credits
III	17UAKAT304	Allied 3: Computer Based Optimization Techniques	CIA:25	ESE:75	6	4

OBJECTIVE:

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

COURSE OUTCOMES:

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

CO1 Solve the Linear Programming Problem by graphical method [Apply]

CO2 Formulate the Transportation Problems [Create]

CO3 Optimize the Assignment Problems and Replacement Problems [analyze]

CO4 Discuss the types of Queueing Models and various strategies of Game Theory [Understand]

CO5 Construct a Network Diagram and find the Critical Path and PERT[Create]

UNIT - I

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

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

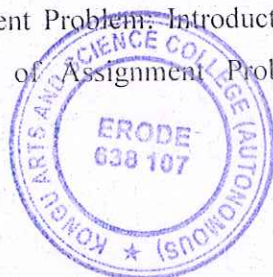
Simplex Method: Introduction – The Computational Procedure.

UNIT - II

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

UNIT - III

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



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

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

UNIT - IV

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

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

UNIT - V

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

TEXT BOOK:

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

Unit I: Chapter 2: 2.1 – 2.4

Chapter 3: 3.1, 3.2, 3.4

Chapter 4: 4.1, 4.3

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

Unit III: Chapter 11: 11.1 – 11.4

Chapter 18: 18.1, 18.2

Unit IV: Chapter 21: 21.1, 21.2, 21.7, 21.9

Chapter 17: 17.4, 17.5, 17.6

Unit V: Chapter 25: 25.1 – 25.8



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

BOOKS FOR REFERENCE:

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

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

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



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

Sem	Course Code	Course Name	Total Marks:75		Hours Per Week	Credits
III	17UAKNT306	Non-Major Elective 1: Internet Principles	CIA:--	ESE:75	2	2

OBJECTIVE:

To enable the Students understand the Basic Terminologies and Concepts of the Internet.

COURSE OUTCOMES:

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

- CO1 Understand the basics of Internet. (Understand)
- CO2 Discuss Create, sending and Receiving mails etc. (Understand)
- CO3 Acquire knowledge in the basics of internet and its function.(Apply)
- CO4 Recognize the IP address and Domain name. (Remember)
- CO5 Compare the different types of Protocols. (Analyze)

UNIT - I

Basics of Internet: Introduction-What is Internet-Evolution of Internet-Using the Internet-Search Engines-Mailing List.

UNIT - II

E-Mail Basics: E-Mail Addresses-Sending Mail- Sending Copies of a Message-Reading Mail-Replying to a Message-Forwarding and Bouncing Mail.

UNIT - III

The World Wide Web(WWW): Introduction-Web Page-Net Surfing. Browsers: Introduction-Internet Explorer-Netscape Navigator-Lynx.

UNIT - IV

Internet Addressing: Introduction-What is Internet Addressing-IP Address-Domain Name-Uniform Resource Locator(URL).

UNIT - V

Internet Protocols: Transmission Control Protocol / Internet Protocol(TCP/IP)-File Transfer Protocol(FTP)-Hyper Text Transfer Protocol(HTTP)-Telnet-Gopher.



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

TEXT BOOKS:

- 1.Harley Hahn –The Internet Complete Reference- Second Edition-Tata Mc-GRAW-HILL Publication- 2006 (Unit I and Unit II)
- 2.Alexis Leon , Mathews Leon –Internet for Everyone- First Edition-Vikas Publishing House Pvt Ltd 1998 (Unit III ,Unit IV and Unit V)


BOOKS FOR REFERENCE:

1. Bennett Falk – The Internet Basic Reference from A to Z – Second Edition-BPB Publications- 1996.
2. Christian Crumlish-The Internet No Experience Required-Second Edition-BPB Publications- 1999
3. Joshua Eddings-How the Internet Works-Ziff Davis Press-1999
- 4.Marcus Goncalves,Arthur Donker,Kathryn Toyer,Matthew Willis,Kitty Niles,Anne Hart and Jon-Paul Harkin-Internet Privacy Kit-Que Corporation -1997.
5. NIIT-Internetworking Infrastructure and Operations –Second Edition-Prentice-Hall of India (P) Ltd- 2004.

QUESTION PAPER PATTERN
SECTION – A
Five Questions
(Either or Choice)
Two Questions from each Unit
5x15=75 Marks

P.N.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	Course Name	Total Marks: 100		Hours Per Week	Credits
IV	17UAKCT402	Core 8: Web Programming	CIA: 25	ESE: 75	6	4

OBJECTIVE:

To understand and practice web development techniques and acquire knowledge and skills for creation of web pages

COURSE OUTCOMES:

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

CO1 Classify the various HTML tags (Understand)

CO2 Apply the various cascading style sheets for designing the web pages (Apply)

CO3 Create basic action script coding (Create)

CO4 Acquire knowledge about open sources languages (Apply)

CO5 Understand how server-side programming works on the web (Understand)

UNIT - I

Introduction to HTML: A Brief History – HTML Tags – HTML Documents – Header Section – Body Section – Headings – Link Documents using Anchor Tag – Formatting Characters – Font Tag – Images and Pictures – Listing – Tables in HTML.

UNIT - II

DHTML and Style Sheets: Defining Styles – Elements of Styles – Linking a Style Sheet to an HTML Document – In-line Styles – External Style Sheets – Internal Style Sheets – Multiple Styles – Frames: Frameset Definition – Frame Definition – Nested Framesets – Forms: Action Attribute – Method Attribute – Enctype Attribute – Drop Down List.

UNIT - III

Introduction to JavaScript: JavaScript in web pages – JavaScript – Writing JavaScript into HTML – Basic Programming Techniques – Operators and Expressions in JavaScript – JavaScript Programming Constructs – Conditional Checking – Super Controlled – Endless Loops – Functions in JavaScript – User Defined Functions – Placing Text in a Browser – Dialog Boxes




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

UNIT - IV

PHP Basics: Introduction – Identifiers – Variables – Constants – Data Types – Operators – Statements – PHP Loops.

UNIT - V

PERL: Introduction – Advantages and Working Environment of PERL – Variables – Strings – Statements – Subroutines – Files – Packages and Modules – Object-Oriented PERL.

TEXT BOOKS:

1. C. Xavier–Web Technology & Design – First Edition –New Age International Publishers – Reprint2008.

UNIT I – Chapter 2

2. C. Xavier – World Wide Web design with HTML – Tata McGraw Hill Publication – Eighteenth Reprint 2008.

UNIT II– Chapter 9, 10 & 12

3. Ivan Bayross – Web Enabled Commercial Applications Development Using HTML, JavaScript, DHTML and PHP – BPB Publications – 4th Revised Edition.

UNIT III – Chapter 8

4. M.N.Rao – Fundamentals of Open Source Software – PHI Publication – 2015.

UNIT IV – Chapter 4; UNIT V – Chapter 9

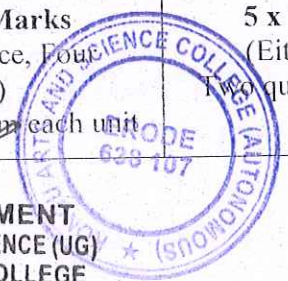
BOOKS FOR REFERENCE:

1. Raj Kamal–Internet and Web Technologies–First Edition–Tata McGraw Hill Publication– 2002.
2. Thomas A Powell–Web Design: The Complete Reference–Second Edition– Tata McGraw Hill Publication –2003.
3. Rasmus Lerdorf, Kevin Tatroe and Peter MacIntyre–Programming PHP–Second Edition– Shroff Publication – July 2009.
4. R. N. Srivastava – Web Technology– Global Academic Publication – First Edition 2011.
5. Vikas Gupta– Multimedia and Web Design – Dreamtech Publication– Reprint 2008.

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

DR. N. RAMAN
PRINCIPAL
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 639 007

HEAD OF THE DEPARTMENT
DEPARTMENT OF COMPUTER SCIENCE (UG)
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 639 007



Sem	Course Code	Course Name	Total Marks: 100		Hours Per Week	Credits
IV	17UAKCP403	Core Lab 4 : Web Programming Lab	CIA: 40	ESE: 60	6	4

OBJECTIVE:

To enable the students to get practical knowledge in HTML, JavaScript, Php and PERL

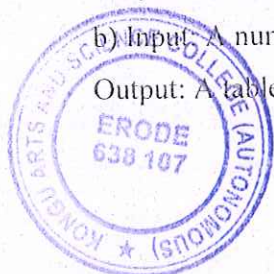
COURSE OUTCOMES:

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

- CO1 Acquire the knowledge of tools used in industry for web application development (Apply)
- CO2 Design web pages using HTML and style sheets (Create)
- CO3 Validate the forms (Evaluate)
- CO4 Create dynamic web pages using server side scripting (Create)
- CO5 Develop web based applications with Perl (Create)

PRACTICAL LIST

1. Create a HTML page to demonstrate the usage of
 - a) Text Formatting tags
 - b) Links
2. Create a HTML page to demonstrate the usage of
 - a) Images
 - b) Tables
3. Create a web page that displays college information using various style sheets.
4. Design a HTML page using Forms.
5. Design a HTML page using Frames.
6. Create a JavaScript that collect numbers from a page and then by adding them and print them to a blank field on the page.
7. Create a JavaScript for solving the following problems:
 - a) Input: A number n obtained using prompt
Output: The first n Fibonacci numbers
 - b) Input: A number n obtained using prompt
Output: A table of numbers from 1 to n and their squares using alert



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

8. Develop using JavaScript, a HTML document that use of onload and onfocus events.
9. Write a PHP program to count the number of visitors and display that number for each visitor.
10. Write a PHP program to validate Name, Email and URL.
11. Write a Perl program to display a digital clock which displays the current time of the server.
12. Write a Perl program to accept the User Name and display a greeting message randomly chosen from a list of 4 greeting messages.

P. N. J.

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



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

Sem	Course Code	Course Name	Total Marks :75		Hours Per Week	Credits
IV	17UAKSP405	Skill Based Course 2 (Lab):Software Development - CASE Tools Lab	CIA : 30	ESE : 45	4	3

OBJECTIVE:

To make the students understand the application of CASE Tools.

COURSE OUTCOMES:

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

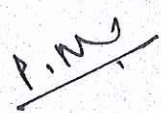
- CO1 Identify various objects and the relationship between them in the given projects (Remember)
- CO2 Recognize the actors and use cases in the projects (Remember)
- CO3 Design projects using Object Oriented concepts (Create)
- CO4 Use the UML analysis and design diagrams(Apply)
- CO5 Blueprint appropriate design patterns(Analyze)

PRACTICAL LIST

1. Create a UML model for Online Purchase System.
2. Create a UML model for Library Management System.
3. Create a UML model for E- Ticketing for Railway Reservation.
4. Create a UML model for ATM System.
5. Create a UML model for Student Mark Analyzing System.
6. Create a UML model for Foreign Trading System.
7. Create a UML model for Passport Automation System.




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	Course Name	Total Marks: 75		Hours Per Week	Credits
IV	17UAKNT406	Non-Major Elective II: Information Security and Cyber Laws	CIA: --	ESE:75	2	2

OBJECTIVE:

To enable the Students learn the basics of information security and gain the knowledge about all the aspects of Cyber laws and Cryptography.

COURSE OUTCOMES:

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

CO1 Understand the basics of Information Technology. (Understand)

CO2 Classify all types of crimes related to electronic records. (Understand)

CO3 Use authentication technology in case of digital signatures. (Apply)

CO4 Recognize Cyber laws and Security Policies and Cryptography. (Remember)

CO5 Identify the different sections in Information Technology Act, 2000. (Remember)

UNIT - I

Introduction – Computer: Evolution, Generation, Types, Major Components, Characteristics and Limitations- Information Technology.

UNIT – II

Cyber Space: Salient Features of Cyber Space- Netizen – Cyber Crime- Malware or malicious Computer Codes.

UNIT – III

Cryptography – Encryption Technique and Algorithm and Digital Signature- Electronic Signature.


UNIT – IV

Cyber Laws- Components of Cyber Law- Indian Position- Amendment of some conventional laws- Wider Interpretation of other conventional laws.

UNIT - V

Cyber Law in India: An overview of Information Technology Act 2000.




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

TEXT BOOK:

Dr.Jyoti Rattan-Cyber Laws & Information Technology- Sixth Edition, Bharat Law House Private Ltd., New Delhi, 2017.

BOOKS FOR REFERENCE:

1. Angur Shree Aggarwal, Sanjeev Kumar Sharma, Anuradha Tyagi, Shalu Goel- Information Security and Cyber Laws-First Edition, Vayu Education of India, New Delhi, 2011.
2. Richard E. Smith- Internet Cryptography –Pearson Education Private Ltd., 2013.
3. Neal Krawetz- Introduction to Network Security-Baba Barkha Nath Printers, New Delhi, 2007.
4. C K Shyamala, N.Harini, Dr T R Padmanabhan, Cryptography and Security- First Edition, Wiley India Private Ltd., New Delhi, 2011.
5. Atul Kahate- Crytography and Network Security- Second Edition, Tata McGraw – Hill Publishing Company Limited, New Delhi, 2008.

QUESTION PAPER PATTERN
<p>SECTION – A</p> <p>Five Questions</p> <p>(Either or Choice)</p> <p>Two Questions from each Unit</p> <p>5x15=75 Marks</p>

P.M.J

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



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

Sem	Course Code	Course Name	Total Marks:100		Hours Per Week	Credits
IV	17UAKAL407	Advanced Learners Course I(A): Software Testing	CIA :--	ESE:100	---	2

OBJECTIVE:

To inculcate knowledge on Software testing concepts

COURSE OUTCOMES:

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

CO1 Understand the basics of Software Testing. (UNDERSTAND)

CO2 Discuss Challenges in Testing. (UNDERSTAND)

CO3 Acquire knowledge in the Functional and Non Functional Testing (APPLY)

CO4 Apply different types of Testing. (APPLY)

CO5 Study the concepts of Testing Object Oriented Systems, Test Planning, Test Metrics and Measurements. (REMEMBER)

UNIT - I:

Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing –Challenges in White-Box Testing

UNIT - II:

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase of Testing – Scenario Testing – Defect Bash.

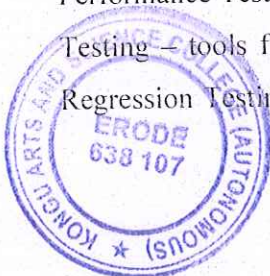
UNIT - III:

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

UNIT - IV:

Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges.

Regression Testing: What is Regression Testing? – Types of Regression Testing – When to



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

do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

UNIT - V:

Testing of Object -Oriented Systems: Introduction-Primer on Object-Oriented Software-Differences in OO Testing- Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics

TEXT BOOK:

Software Testing Principles and Practices, Srinivasan Desikan & Gopalswamy Ramesh, 2006, Pearson Education

(UNIT - I: 2.1 - 2.5, 3.1 - 3.4, UNIT - II: 4.1 - 4.4, 5.1 - 5.5, UNIT - III: 6.1 - 6.7,

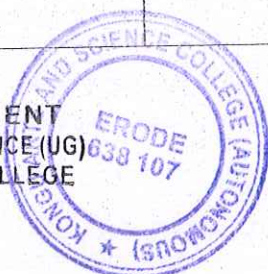
UNIT - IV: 7.1 - 7.6, 8.1 - 8.5, UNIT - V: 11.1 - 11.3, 15.1 - 15.6, 17.4 - 17.7)

BOOKS FOR REFERENCE:

1. Effective Methods for Software Testing, William E. Perry, Second edition, Wiley Computer Publishing John Wiley & Sons, Inc,2000.
2. Software Testing Effective Methods, Tools and Techniques Renu Rajani, Pradeep Oak, 2008, TMH.
3. Software Testing Application and Product Testing, Sanjay Mohapatra,Suman Kumar Kanth,2012, TMH.
4. Software Testing Concepts and Tools, Nageswara Rao Pusuluri, 2008, Himal Impressions, Delhi
5. The Art of Software Testing, Second Edition, Glenford J.Myers, 2008, Kanak enterprise, Ghaziabad,UP

QUESTION PAPER PATTERN		
SECTION – A	SECTION – B	SECTION – C
10 x 2 = 20 Marks (Answer any 10 questions out of 12)	5 x 7 = 35 Marks (Either or choice) Two questions from each unit	3 x 15 = 45 Marks (Answer any three questions out of 5) One question from each unit

P.N.S.
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	Course Name	Total Marks: 100		Hours Per Week	Credits
IV	17UAKAL408	Advanced Learners Course I(B) : UNIX Programming	CIA:	ESE: 100	-	2

OBJECTIVE: To enable the Students to learn the various aspects of the UNIX Operating Systems such as Process Management, Threads, Signals, Synchronization and File System.

COURSE OUTCOMES:

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

CO1 Understand the basic set of commands and utilities in UNIX systems.

[Understand]

CO2 Understand the mechanisms of UNIX Operating System to handle processes and threads and their communication. [Understand]

CO3 Use the systems calls provided in the UNIX environment. [Apply]

CO4 Recognize CPU Scheduling, Synchronization, and Interprocess Communication. [Remember]

CO5 Identify the UNIX utilities to create and manage simple file processing operations, organize directory structures with appropriate security. [Remember]

UNIT - I

Introduction-A Brief History-The Beginning-The Process and the Kernel: Introduction-Mode, Space, and Context-The Process Abstraction: Process State-Process Context-User Credentials-The u Area and the proc Structure-Executing in Kernel Mode: The System call Interface-Interrupt Handling-Synchronization: Blocking Operations-Interrupts-Multiprocessors-Process Scheduling-Signals-New Processes and Programs.

UNIT - II

Threads and Lightweight Processes: Introduction: Motivation-Multiple Threads and Processors-Concurrency and Parallelism-Fundamental Abstractions: Kernel Threads-Lightweight Processes-User Threads-Lightweight Process Design-Issues to Consider: Semantics of fork-Other System Calls-Signal Delivery and Handling-Visibility-Stack Growth-User Level Threads Libraries-Scheduler Activations.

UNIT - III

Signals and Session Management: Introduction-Signal Generation and Handling: Signal Handling-Signal Generation-Typical Scenarios-Sleep and Signals-Unreliable Signals-



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

Reliable Signals: Primary Features-The SVR3 Implementation-BSD Signal Management-Signals in SVR4-Signals Implementation-Exceptions-Mach Exception Handling: Exception Ports-Error Handling-Debugger Interactions-Analysis.

UNIT - IV

Process Scheduling: Introduction-Clock Interrupt Handling: Callouts-Alarms-Scheduler Goals-Traditional UNIX Scheduling: Process Priorities-Scheduler Implementation-Run Queue Manipulation-Analysis-Inter Process Communications: Universal IPC Facilities-Signals-Pipes-SVR4 Pipes-Process Tracing-Messages: Message Data Structures-Message Passing Interface-Ports: The Port Name Space-The Port Data Structure-Port Translations.

UNIT - V

Synchronization and Multiprocessing: Introduction- Synchronization in Traditional UNIX Kernels: Interrupt Masking-Sleep and Wakeup-Limitations of Traditional Approach-Multiprocessor Systems: Memory Model- Synchronization Support-Software Architecture-Semaphores-File System Interface and Framework: The User Interface to Files: Files and Directories-File Attributes-File Descriptors-File I/O-Scatter-Gather I/O-File Locking-Special Files.

TEXT BOOK:

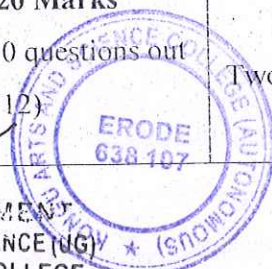
Uresh Vahalia, "UNIX Internals The New Frontiers", Pearson Education, 2008.

BOOKS FOR REFERENCE:

1. Brian W.Kernighan Rob Pike, "The UNIX Programming Environment", PHI Learning Private Limited, 2014.
2. N.B.Venkateswarlu, "Advanced UNIX Programming", BS Publications, 2005.
3. Sumitabha Das, "UNIX Concepts and Applications", Fourth Edition, Tata McGraw-Hill, 2010.
4. Paul Love, Joe Merlino, Jeremy C. Reed, Craig Zimmerman, Paul Weinstein, "Beginning UNIX", First Edition, Wiley Publishing Inc.,USA, 2005.
5. K.Sriengan, "Understanding UNIX", PHI Prentice-Hall India, 2006.

QUESTION PAPER PATTERN		
SECTION – A	SECTION – B	SECTION – C
10 x 2 = 20 Marks (Answer any 10 questions out of 12)	5 x 7 = 35 Marks (Either or choice) Two questions from each unit	3 x 15 = 45 Marks (Answer any three questions out of 5) 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