



Shree Warana Vibhag Shikshan Mandal's

Tatyasaheb Kore Institute of Engineering & Technology



Warananagar, Tal- Panhala, Dist- Kolhapur -416 113. Maharashtra

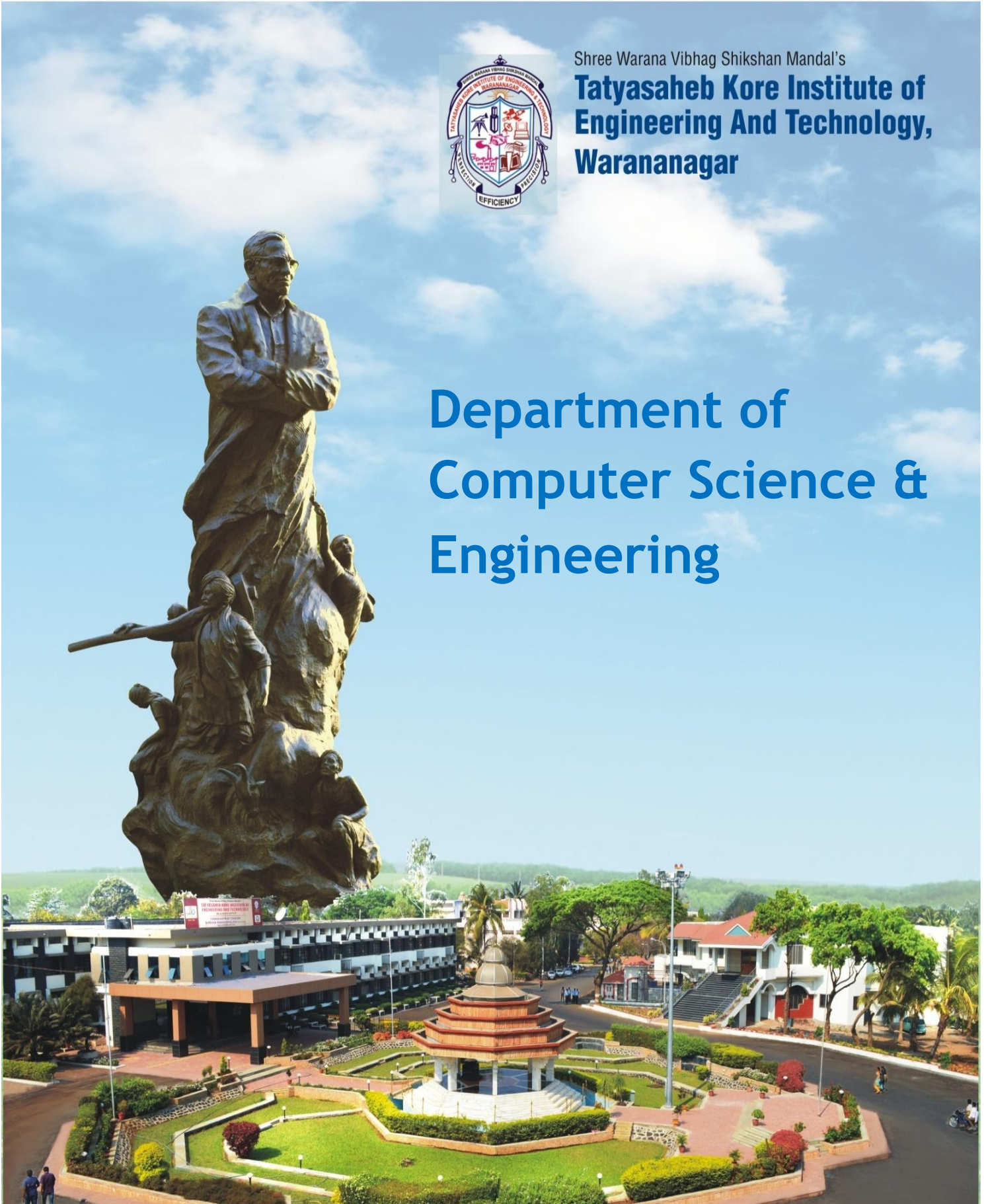
An Autonomous Institute, affiliated to Shivaji University, Kolhapur



Shree Warana Vibhag Shikshan Mandal's

Tatyasaheb Kore Institute of Engineering And Technology, Warananagar

Department of Computer Science & Engineering





An Autonomous Institute, affiliated to Shivaji University, Kolhapur

Department of Computer Science & Engineering

Vision

To become center of excellence in the field of Computer Science and Engineering and develop competent IT technocrats

Mission

- To develop engineering graduates with high degree of professional excellence
- To excel in academics and research through contemporary and real world problems
- To enhance graduate employability through work based learning in social entrepreneurship
- To encourage industrial and nationally recognized institutes collaboration
- To create an environment to nurture lifelong learning

Program Educational Objectives (PEOs)

Graduates will be,

- Able to design and develop computing system using modern technologies by adapting business intelligence and challenges.
- Able to acquire capabilities with aptitude for higher education and entrepreneurship
- Able to function effectively as professionals having excellent interpersonal skills with ethical and social obligations.
- Able to work efficiently in multidisciplinary and multicultural environment
- Able to lead in their respective domain and contribute positively to the needs of society.

Program Specific Outcomes (PEOs)

Graduate will be able to

- Identify, design and develop solution for real world problems by implementing phases of software development process model
- Analyze and apply the computer science engineering solutions in societal and human context
- Demonstrate the skills and knowledge of contemporary issues in the field of Computer science and Engineering

Quality Policy

- To promote excellence in academic and training activities by inspiring students to become competent professionals to cater industrial and social needs.





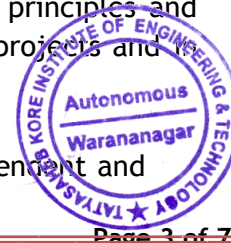
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Department of Computer Science & Engineering

Program Outcomes (POs)

The students after successfully completing this programme will have ability to:

- **PO1: Engineering Knowledge:**
Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **PO2: Problem Analysis:**
Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3: Design/Development of Solutions:**
Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO4: Conduct Investigations of Complex Problems:**
Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **PO5: Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- **PO6: The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
- **PO7: Environment and Sustainability:**
Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **PO8: Ethics:**
Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **PO9: Individual and Team Work:**
Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **PO10: Communication:**
Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **PO11: Project Management and Finance:**
Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and multidisciplinary environments.
- **PO12: Life-long learning:**
Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



**An Autonomous Institute, affiliated to Shivaji University, Kolhapur****Department of Computer Science & Engineering****Abbreviations**

Sr. No.	Acronym	Definition
1	ISE	In-Semester Examination
2	ISE-I	In-Semester Examination-I
3	ISE-II	In-Semester Examination-II
4	ESE	End Semester Examination
5	ISA	In-Semester Assessment (Term Work)
6	L	Lecture
7	T	Tutorial
8	P	Practical
9	CH	Contact Hours
10	C	Credit

Course Categories

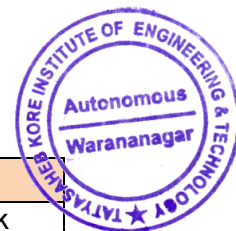
Sr. No.	Acronym	Definition
1	BSC	Basic Science Course
2	HSC	Humanity Science Course
3	ESC	Engineering Science Course
4	PCC	Professional Core Course
5	OEC	Open Elective Course
6	MC	Mandatory Course
7	PEC	Professional Elective Course
8	PW	Project Work (Mini and Major Project)
9	II	Industrial Internship

Course/ Subject Code

C	S	E	3	0	1
Branch Code			Semester	Course Number	

Course Term work and POE Code

C	S	E	3	0	1	T / P / A
Branch Code			Semester	Course Number		T- Term work P- POE A- Audit Course



**Second Year B. Tech. (Computer Science & Engineering)****Semester-IV**

(To be implemented from 2021 - 22)

Credit Scheme

Course Code	Category	Course Title	Teaching and Credit Scheme					Examination & Evaluation Scheme		
			L	T	P	CH	C	Component	Marks	Min for Passing
CSE401	PCC	Automata Theory	3	--	--	3	3	ESE	60	24
								ISE	40	---
CSE402	PCC	Computer Networks	3	--	--	3	3	ESE	60	24
								ISE	40	---
CSE403	PCC	Computer Organization & Microcontroller	3	--	--	3	3	ESE	60	24
								ISE	40	---
CSE404	PCC	Operating Systems	3	--	--	3	3	ESE	60	24
								ISE	40	---
CSE405	PCC	Software Engineering	3	--	--	3	3	ESE	60	24
								ISE	40	---
CSE402P	PCC	Computer Networks	--	--	2	2	1	ESE	50	20
								ISA	50	20
CSE406P	PCC	Object Oriented Programming Using C++	2	--	2	4	3	ESE	50	20
								ISA	50	20
CSE407P	PW	Mini-Project - I	--	--	2	2	1	ESE	50	20
								ISA	50	20
CSE408A	--	Audit Course - IV Computer Proficiency & Ethics	--	--	2	2	--	ESE	--	--
								ISA	--	--
TOTAL			17	--	8	25	20	--	800	---





Shree Warana Vibhag Shikshan Mandal's

Tatyasaheb Kore Institute of Engineering & Technology



Warananagar, Tal- Panhala, Dist- Kolhapur -416 113. Maharashtra

An Autonomous Institute, affiliated to Shivaji University, Kolhapur

Second Year B. Tech. in Computer Science & Engineering

Fourth (IV) Semester Detailed Syllabus



**An Autonomous Institute, affiliated to Shivaji University, Kolhapur****Second Year B. Tech(CSE) (Semester - IV)****CSE401: Automata Theory**

Teaching Scheme Lectures: 03 Hrs / Week	Credits : 03	Examination Scheme ESE: 60 Marks ISE: 40 Marks
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Course Description:

The course introduces some fundamental concepts in automata theory and formal languages including grammar, finite automaton, regular expression, formal language, pushdown automaton, and Turing machine.

Prerequisites:

1. CS-L-302 Discrete Mathematical Structure
2. CS-L-301 Mathematics for Computer Science

Course Objectives:

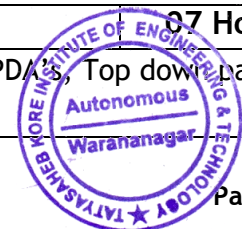
1. To introduce students to the mathematical foundations of computation, the theory of formal languages and grammars.
2. To strengthen the students' ability to understand and conduct mathematical proofs for computations
3. To make the students understand the use of automata theory in Compilers & System Programming.
4. To analyze and design finite automata, pushdown automata, grammars & Turing machines

Course Outcomes:

COs	At the end of successful completion of the course the student will be able to	Blooms Taxonomy
CO1	State and explain grammar, languages and machines.	Remember
CO2	Classify different languages and abstract machines.	Understand
CO3	Represent a language, write a grammar and design a machine to recognize a language.	Apply

Course Contents:

Unit-I	Regular Languages and Finite Automata	08 Hours
Proofs, Recursive Definitions, Regular expressions and regular languages, Finite Automata, unions, intersection & complements of regular languages, Case Study: JFlap Tool		
Unit-II	Non-determinism and Kleene's Theorem	06 Hours
Non-deterministic finite automata, NFA with null transition, Kleene's Theorem (Part I & Part II), Minimal Finite Automata		
Unit-III	Context free Grammars	06 Hours
Definition, Regular Grammar, Derivation trees and ambiguity, Simplified forms and normal forms		
Unit-IV	Parsing and Pushdown Automata	07 Hours
Definition of Pushdown Automata, Deterministic PDA, Equivalence of CFG's & PDA, Top down parsing, bottom up parsing		



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Unit-V	Context free and non context free languages	04 Hours
CFL's and non CFL's, Pumping Lemma, intersections and complements of CFLs		
Unit-VI	Turing Machines	08 Hours
Definition, TM as language acceptors, combining Turing Machines, Computing partial function with a TM, Multi-tape TMs, and Universal TM.		

Course delivery methods	Assessment methods
1. Black Board Teaching 2. Power Point Presentation	1. Internal Assessment 2. Assignment 3. Quiz

Text Book:

1. "Introduction to Languages & the Theory of Computations" - John C. Martin (Tata MGH Edition)

Reference Books:

1. "Introduction to Automata Theory, Languages and computation" - John E. Hopcraft, Rajeev Motwani, Jeffrey D. Ullman (Pearson Edition)
2. "Introduction to theory of Computations" - Michael Sipser (Thomson Books/Cole)
3. "Theory of Computation" - Vivek Kulkarni
4. "Theory of Computation a problem Solving Approach" - Kavi Mahesh Wiley India
5. <http://www.jflap.org/>

CO-PO Mapping:

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	--	--	1	--	--	--	--	--	--	--	1
CO2	3	1	1	2	1	--	--	--	1	--	--	1
CO3	3	--	2	2	2	2	--	--	1	--	--	--

1-Low, 2-Medium, 3-High





Syllabus Setting Committee:

Sr. No.	Name of the faculty	Email-Id	Mobile
1	Prof. R. B. Patil	rbpatil@tkietwarana.ac.in	9975419483
2	Prof. A. T. Sonale	atsonale@tkietwarana.ac.in	9552214195
3	Prof. M. S. Bhosale	msbhosale@tkietwarana.ac.in	9766362070



**An Autonomous Institute, affiliated to Shivaji University, Kolhapur****Second Year B. Tech(CSE) (Semester - IV)****CSE402: Computer Networks**

Teaching Scheme Lectures: 03 Hrs / Week	Credits : 03	Examination Scheme ESE: 60 Marks ISE: 40 Marks
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Course Description:

This Course is designed to understand the Network Communication protocols and Internet Application Programs.

Prerequisites:

1. Data Communication and Networks Basics

Course Objectives:

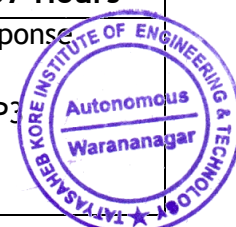
1. To provide knowledge about protocols from Transport and Application Layer.
2. To identify client-server model and implement it using socket programming.
3. To make students familiar with architecture and working of Network Communication Protocols in TCP/IP Layers.
4. To install and configure the various Network Services on Operating Systems like Windows and Linux.

Course Outcomes:

COs	At the end of successful completion of the course the student will be able to	Blooms Taxonomy
CO1	Explain the basic concept of Transport and Application Layer.	Remember
CO2	Describe different terminologies of client server programming.	Understand
CO3	Explain the importance of Network Security and related protocols.	Understand
CO4	Configure & Illustrate different application layer protocols	Analyze

Course Contents

Unit-I	Transport Layer	06 Hours
Transport layer Services, functions, Process to Process Communication, Addressing-Port numbers, UDP-datagram, services & Applications, TCP - services, Segments and connection, state transition diagram, congestion control & Prevention policies, Jitter Control		
Unit-II	Application Layer, DHCP and DNS	06 Hours
Client-Server Paradigm, Server, Client, Concurrency, DHCP: Introduction, DHCP operation, Packet Format and configuration. DNS: Need, Name Space, Domain Name Space, Distribution of name space, DNS in internet		
Unit-III	Remote Login, TELNET, FTP	05 Hours
Concept, NVT, Embedding, Options and Sub-option negotiation, Out of band Signalling, Mode of Operation, User Interface. FTP: Connections, Communication, Command processing, User interface, Anonymous FTP, TFTP		
Unit-IV	WWW, HTTP and Electronic Mail	07 Hours
Architecture, Web Client, Web Browser, Web Documents, HTTP Transaction, Request & Response messages, Persistent vs. non persistent HTTP. Electronic Mail:-Architecture, User Agent, SMTP commands & responses, MIME, IMAP and POP3		



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Unit-V	Client server model & socket interface	07 Hours
The Socket Interface, The Client Server model and Software design, Concurrent processing in client-server software, Algorithms and issues in Client-Server design, Multiprotocol Servers, Multiservice Servers, Concurrency in clients, Unix Internet Super server (inetd).		
Unit-VI	Network Security	05 Hours
Network Layer Security: Modes, Two security Protocols, Services provided by IPsec, Virtual Private Network(VPN), Transport Layer Security:-SSL Architecture, Four Protocols Application Layer Security:- Email Security, Pretty Good Privacy(PGP), Key Rings, PGP Certificates, S/MIME, Firewalls		

Course Delivery Method	Course Assessment Method
<ul style="list-style-type: none"> Chalk and board Presentation Slides Pre recorded Video lectures/Animations Use of VLAB/MOOC/NPTEL/FOSSEE etc Demonstration of Standard Tools, Software related to the course 	<ul style="list-style-type: none"> Internal assessment Assignment/Case studies Problem Solving Lab/Topic wise Quizzes Periodic Journal Evaluation Viva-voce

Text Book:

1. "TCP/IP Protocol Suite" by B. A. Forouzan, TMGH Publication
2. "Computer Networks" by Andrew Tanenbaum, PHI Publication
3. "Internetworking with TCP/IP, Vol. III, Client-Server Programming and Applications" (2nd Ed.) D.E. Comer, David L. Stevens (Pearson Ed.)

Reference Books:

1. "Computer Networks by William Stallings", PHI Publication

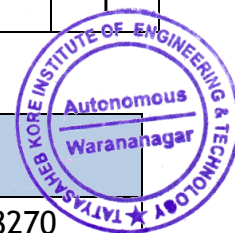
CO-PO Mapping:

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	--	--	--	--	--	--	1	--	--	--	--
CO2	2	2	2	--	--	--	--	1	--	--	--	--
CO3	2	--	--	--	2	1	1	1	--	--	--	1
CO4	2	2	3	--	2	--	--	1	--	--	--	1

1-Low, 2-Medium, 3-High

Syllabus Setting Committee:

Sr. No.	Name of the faculty	Email-Id	Mobile
1	Prof. A. G. Patil	amol_patil@tkietwarana.ac.in	9822558270
2	Prof. S. R. Shetake	sandip_shetake@tkietwarana.ac.in	7385692497



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**An Autonomous Institute, affiliated to Shivaji University, Kolhapur****Second Year B. Tech(CSE) (Semester - IV)****CSE403: Computer Organization & Microcontroller**

Teaching Scheme Lectures: 03 Hrs / Week	Credits : 03	Examination Scheme ESE: 60 Marks ISE: 40 Marks
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Course Description:

This course introduces the principles of computer organization and the basic Microcontroller concepts.

Prerequisites:

1. Fundamental knowledge of Computers.
2. Digital System and Microprocessor

Course Objectives:

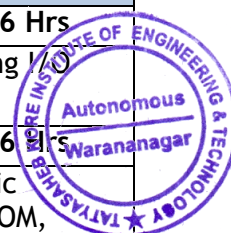
1. To understand the structure, function, I/O organization and Generation of computer systems.
2. To understand Memory Organization and different computer arithmetic algorithms for various arithmetic operations.
3. Understand the fundamentals of ARM based systems, basic hardware components, selection method and attributes of an Embedded system
4. To know about the Program ARM controller using various instruction Set.
5. To identify the application of the embedded system

Course Outcomes:

COs	At the end of successful completion of the course the student will be able to	Blooms Taxonomy
CO1	Recall the Evolution of Computer and Organization of Central Processing Unit (CPU), Memory Units and Input/Outputs devices.	Remember
CO2	Apply computer Arithmetic Algorithms (Booth's, Restoring and non-restoring) on fixed point numbers and Use IEEE 754 standard format to represent the floating point numbers.	Understand
CO3	Describe the Architectural features and instructions of ARM micro-controller	Remember
CO4	Interpret the basic hardware components and their selection method based on the characteristics and a of attributes of an Embedded system	Understand
CO5	Apply the knowledge gained for programming ARM for different applications	Apply

Course Contents

Unit-I	Basic Structure and I/O Organization of Computer	06 Hrs
Computer Types, Basic Operational Concepts, Performance, Historical Perspectives, Accessing I/O Devices, Interrupts, Direct Memory Access, Buses, Standard I/O Interfaces		
Unit-II	Memory Systems	06 Hrs
Basic Concepts, Semiconductor RAM Memories: Internal organization of Memory Chips, Static Memories, Asynchronous DRAMS, Synchronous DRAMS, Read Only Memories: ROM, PROM, EPROM, EEPROM, Flash Memory, Memory Hierarchy: Speed, Size and Cost, Cache Memories: Introduction, Mapping Functions, Replacement Algorithms, Performance Consideration: Interleaving, Hit Rate and Miss Penalty, Caches on Processor Chip		



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Unit-III	Computer Arithmetic and Processing Unit	07 Hrs
Design of Fast Adders, Signed Operand Multiplication, Integer Division, Floating Point Numbers and Operations: IEEE 754 Standard for Floating Point Numbers, Some Fundamental Concepts, Execution of Complete Instructions		
Unit-IV	ARM Embedded System and Processing Fundamental	07 Hrs
ARM EMBEDDED SYSTEM: The RISC Design Philosophy, The ARM Design Philosophy, Embedded System Hardware, Embedded System Software. ARM PROCESSING FUNDAMENTALS: Registers, Current Program Status Register, Pipeline, Exception, Interrupts Vector Table, Core Extensions		
Unit-V	ARM Instruction Set and Assembly Code	07 Hrs
INTRODUCTION TO THE ARM INSTRUCTION SET: Data Processing Instructions, Branch Instructions, Load-Store Instructions, Software Interrupt Instruction, Program Status Register Instructions, Loading Constants. WRITING AND OPTIMIZING ARM ASSEMBLY CODE: Writing Assembly Code, Profiling and Cycle Counting, Instruction Scheduling, Register Allocation, Conditional Execution, Looping Constructs, Bit Manipulation		
Unit-VI	Typical Embedded System and Its Components	6 Hrs
EMBEDDED COMPONENTS: Embedded Vs general Computing System, History of Embedded systems, Classification of Embedded systems, Major applications areas of embedded systems. THE TYPICAL EMBEDDED SYSTEM: Core of Embedded System including all types of processors/Controllers, Memory, sensor, Actuators, LED, 7 segment display, stepper motor, keyboard, Push button switch, Communication interface, Embedded firmware.		

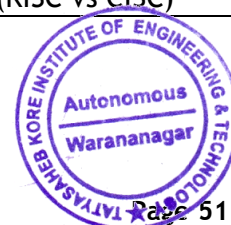
Course delivery methods	Assessment methods
1. Black Board Teaching 2. Power Point Presentation	1. Internal Assessment 2. Assignment 3. Quiz

Text Book:

1. "Computer Organization" - Carl Hamacher , Zvonko Vranesic and Safwat Zaky . Publisher: Tata McGraw Hill. 5th Edition
2. "ARM System Developer's Guide: Design and Optimizing System Software" by Andrew N. SLOSS, Dominic SYMES, Cris WRIGHT Published by Elsevier
3. "Introduction to Embedded Systems" by Shibu K. V. Tata McGraw Hill Education, Private Limited 2nd Edition

Reference Books:

1. "Computer Architecture and Organization" by William Stallings 8th Edition
2. "Computer Systems Organization & Architecture" - John D. Carpinelli (Pearson Education)
3. "Microcontroller (ARM) and Embedded System" by Raghunandan G. H. Cengage learning Publication, 2019
4. "Embedded Systems: Architecture, Programming and Design" by Raj Kamal, Tata McGraw Hill Education, private Limited
5. "ARM System on-chip Architecture" by Steve Furber ,Pearson Second Edition
6. <http://cse.stanford.edu/class/sophomore-college/projects-00/risc/riscisc/> (RISC vs CISC)



**CO-PO Mapping:**

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	--	--	--	--	1	--	--	--	--	2
CO2	1	1	1	1	--	1	--	1	--	1	2	1
CO3	3	2	1	1	--	1	1	1	1	1	1	2

1-Low, 2-Medium, 3-High

Syllabus Setting Committee:

Sr. No.	Name of the faculty	Email-Id	Mobile
1	Prof. (Mrs.) B. A. Chougule	bsmagadum@tkietwarana.ac.in	8698248242
2	Prof. V. B. Biradar	vbbiradar@tkietwarana.ac.in	8983449119



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**An Autonomous Institute, affiliated to Shivaji University, Kolhapur****Second Year B. Tech(CSE) (Semester - IV)****CSE404: Operating Systems**

Teaching Scheme Lectures: 03 Hrs / Week	Credits : 03	Examination Scheme ESE: 60 Marks ISE: 40 Marks
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Course Description:

This course is introduced at Second year level to get the students familiar with the basic concepts of computer operating systems in detail.

Prerequisites:

1. Basic Knowledge of Computers
2. Data Structures and Algorithms

Course Objectives:

1. To make the students understand basic concepts of operating system.
2. To understand what a process is and how processes are synchronized and scheduled.
3. To understand different approaches to memory management and I/O Management.

Course Outcomes:

COs	At the end of successful completion of the course the student will be able to	Blooms Taxonomy
CO1	To learn basic concepts of OS & its services.	Understand
CO2	To describe various features of processes including creating, scheduling, communication and termination.	Apply
CO3	To present process synchronization and critical section problem with its solutions and different methods for preventing or avoiding deadlocks in computer system.	Apply
CO4	To Understand various memory management strategies like paging, swapping, and virtual memory management.	Understand
CO5	To explore the operating systems I/O subsystem by understanding the principles and complexities of I/O hardware and software.	Understand

Course Contents

Unit-I	Introduction to Operating Systems	6 Hours
Introduction to Operating Systems, System structures: What operating systems do?, Computer System organization, Computer System architecture, Operating System structure, Operating System operations, Types of Operating Systems: Distributed system, Operating System Services, User - Operating System interface, System calls, Types of system calls, Operating System structure, Virtual machines, and System boot.		
Unit-II	Process Management	6 Hours
Process concept, Process scheduling, Operations on processes, Inter-process communication. Multi-Threaded Programming: Overview, Multi-threading models, Thread Libraries.		



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Unit-III	Process Scheduling and Synchronization	7 Hours
Process Scheduling: Basic concepts, Scheduling criteria, Scheduling algorithms, Multiple-Processor scheduling, Thread scheduling. Synchronization: The Critical section problem, Peterson's solution, Synchronization hardware, Semaphores, Classical problems of synchronization, Monitors.		
Unit-IV	Deadlocks	6 Hours
System model, Deadlock characterization, Methods for handling deadlocks, Deadlock prevention, Deadlock avoidance, Deadlock detection and recovery from deadlock		
Unit-V	Memory Management	8 Hours
Memory Management Strategies: Background, Swapping, Contiguous memory allocation, Paging, Structure of page table, Segmentation. Virtual Memory Management: Background, Demand paging, Copy-on-write, Page replacement, Allocation of frames, Thrashing		
Unit-VI	IO Systems	6 Hours
Overview, I/O Hardware, Application I/O Interface, Kernel IO Subsystem, Transforming I/O Request to Hardware Operations, Streams.		

Course delivery methods	Assessment methods
<ol style="list-style-type: none"> 1. Black Board Teaching 2. Power Point Presentation 	<ol style="list-style-type: none"> 1. Internal Assessment 2. Assignment 3. Quiz

Text Book:

1. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne: *"Operating System Principles"*, 8th Edition, Wiley India, 2009.

Reference Books:

1. *"Operating Systems -Concepts and design"* -Milan Milenkovic (TMGH) (For Types of Operating Systems - Refer Chapter 1 in Operating Systems - Concepts and design -Milan Milenkovic (TMGH))
2. *"Operating Systems: Internals and Design Principles (8th Edition)"*- by William Stallings(Pearson Education International)
3. *"Modern Operating Systems"* by Andrew S. Tanenbaum (Pearson Education International)



**CO-PO Mapping:**

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	--	--	--	--	--	--	--	--	--	1
CO2	2	1	1	1	--	--	--	--	--	--	--	1
CO3	2	1	1	1	--	--	--	--	--	--	1	2
CO4	2	1	1	--	--	--	--	--	--	--	--	2
CO5	1	--	--	--	--	--	1	--	--	--	1	1

1-Low, 2-Medium, 3-High

Syllabus Setting Committee:

Sr. No.	Name of the faculty	Email-Id	Mobile
1	Prof. A. S. Phalle	asphalle@tkietwarana.ac.in	9764638007
2	Prof. R. G. Hiregoudar	rghiregoudar@tkietwarana.ac.in	7892151003
3	Prof. A. V. Surve	avsurve@tkietwarana.ac.in	7620131901



**An Autonomous Institute, affiliated to Shivaji University, Kolhapur****Second Year B. Tech(CSE) (Semester - III)****CSE405: Software Engineering**

Teaching Scheme Lectures: 03 Hrs / Week	Credits : 03	Examination Scheme: ESE: 60 Marks ISE: 40 Marks
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Course Description:

This course provides fundamentals of Software Development Life Cycle (SDLC), principles of software engineering practices and introductory concepts of software project management

Prerequisites:

NIL

Course Objectives:

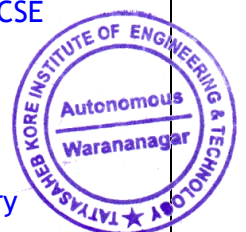
1. To understand software process models and importance of Software Development Life Cycle (SDLC)
2. To learn of software requirements gathering and analysis process and prepare SRS (Software Requirement Specification) document.
3. To understand the different software design and architectural styles.
4. To learn different software testing approaches and software quality management

Course Outcomes:

COs	At the end of successful completion of the course the student will be able to	Blooms Taxonomy
CO1	Describe various software engineering concepts, SDLC models and understand requirement gathering and requirement analysis.	Remember
CO2	Prepare Software Requirement Specification (SRS) document and understand different architectural views and identify software architecture for a given problem.	Understand/Apply
CO3	Create a design document for a given problem after preparing an SRS document.	Understand/Apply
CO4	Identify different software testing techniques and understand standards related to software reliability and quality management.	Understand

Course Contents

Unit-I	Introduction to Software Engineering	08 Hours
Cost, Schedule & Quality, Scale and Change, Software Processes: Process & Project, Software Development Process Models, Extreme programming and agile software development, Other Software Processes, Using process models in a project		
Unit-II	Software Requirement Engineering	06 Hours
Requirement Gathering and Analysis, Software Requirement Specification (SRS)		
Case Study 2.1	<ul style="list-style-type: none"> Gather the requirements for automation of the office work at CSE department 	
Case Study 2.2	<ul style="list-style-type: none"> Study the SRS of Library Management Software. Write SRS in IEEE format for given Project Statement 	
Case Study 2.3	<ul style="list-style-type: none"> Study the functional and non-functional requirements of Library Management Software (or any software) 	



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Identify the important functional and non-functional requirement for given Project Statement		
Unit-III	Software Architecture	05 Hours
Role of Software Architecture, Architecture View, Component and Connector View, Architecture styles for Component and Connector View, Evaluating Architectures. Project Planning: Sliding Window Planning, SPMP Document, COCOMO Model. Project Scheduling: WBS, Activity Networks, PERT, Gantt Charts.		
Case Study 3.1 • Prepare SPMP document for allocated problem.		
Unit-IV	Software Design	10 Hours
Design Concepts, Function Oriented Design: Structure Charts, Structured Design Methodology, An Example. Object Oriented Design: OO Concepts, Unified Modeling Language(UML), A Design Methodology, Examples. Detailed Design, Verification, Metrics		
Case Study 4.1 • Study the design of Library Software / or any project statement		
Unit-V	Coding and Testing	07 Hours
Coding, Code Review, Software Documentation, Testing, Unit Testing, Black-Box Testing, White-Box Testing, Program Analysis Tools, Integration Testing, System Testing		
Case Study 5.1 • Study of Automation Testing Tools: Selenium.		
Unit-VI	Software Reliability and Quality Management	05 Hours
Software Reliability, Software Quality, ISO 9000, SEI Capability Maturity Model, Six Sigma		

Course delivery methods	Assessment methods
<ol style="list-style-type: none"> 1. Black Board Teaching 2. Power Point Presentation 3. Virtual Labs 4. NPTEL Video 	<ol style="list-style-type: none"> 1. Internal Assessment 2. Assignments 3. Case Study 4. Quiz

Note:-

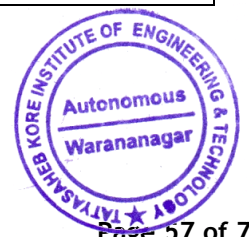
Refer below books for Software Requirement Specification (SRS) and Case Studies

Books:

- “Software Engineering” by Roger Pressman, McGraw-Hill Publication, 9th Edition
- “Fundamentals of Software Engineering” by Rajib Mall, PHI, 3rd Edition

Additional Student Resources for Case Study

1. <http://www.mhhe.com/engcs/compsci/pressman/student/olc/cases.mhtml>
- MOOC/Video Lectures at SWAYAM
 1. https://onlinecourses.nptel.ac.in/noc19_cs69/preview (IIT, Kharagpur)
 2. https://onlinecourses.swayam2.ac.in/cec20_cs07/preview (University of Madras)



**An Autonomous Institute, affiliated to Shivaji University, Kolhapur****Text Book:**

1. "Software Engineering: A Precise Approach", Pankaj Jalote, Wiley India (Unit I,III,IV).
2. "Fundamentals of Software Engineering", Rajib Mall, PHI, 3rd/4th Edition. (Unit II,V,VI)

Reference Books:

1. "Software Engineering", Ian Sommerville, Pearson Publication, 9th Edition
2. "Software Engineering : A Practitioner's Approach", Roger Pressman, McGraw-Hill Publication, 6th/7th/8th Edition
3. "The Unified Modeling Language User Guide" by Grady Booch, James Rumbaugh, Ivar Jacobson

CO-PO Mapping:

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	--	1	1	--	1	1	2	1	--	1
CO2	2	2	3	1	1	--	--	1	--	1	--	--
CO3	1	1	2	--	1	--	--	--	--	1	--	--
CO4	1	1	3	3	--	--	--	--	--	--	--	--

1-Low, 2-Medium, 3-High

Syllabus Setting Committee:

Sr. No.	Name of the faculty	Email-Id	Mobile
1	Prof. I. I. Tamboli	iitamboli@tkietwarana.ac.in	9881748648
2	Prof. B. B. Somwanshi	somwanshibalaji@tkietwarana.ac.in	7499639590
3	Prof. (Mrs.) P. K. Patil	pkpatil@tkietwarana.ac.in	8888868266



**An Autonomous Institute, affiliated to Shivaji University, Kolhapur****Second Year B. Tech(CSE) (Semester - III)****CSE406P: Object Oriented Programming using C++**

Teaching Scheme:	Credits :	Examination Scheme
Lectures: 02 Hrs / Week	03	ESE: 50 Marks
Practical: 02 Hrs / Week		ISA: 50 Marks

Course Description:

This course exposes students to the concepts of Object Oriented Programming (OOP). It helps students to choose proper OOP concepts to solve different problems. Upon completion, students should be able to write efficient, reusable programs for a given problem using OOP concepts.

Prerequisites:

1. Basics Of C Programming Language

Course Objectives:

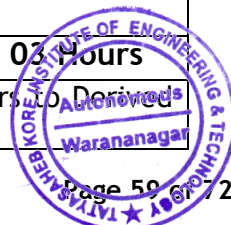
1. To learn advanced features of the C++ programming language as a continuation of the previous course.
2. To learn the characteristics of an object-oriented programming language: data abstraction, inheritance, and dynamic binding of the messages to the methods..
3. To learn the basic principles of object-oriented design and software engineering in terms of software reuse and managing complexity.
4. To enhance problem solving and programming skills in C++ with extensive programming projects.
5. To become familiar with the UNIX software development environment.

Course Outcomes:

COs	At the end of successful completion of the course the student will be able to	Blooms Taxonomy
CO1	Demonstrate the features of OOP.	Remember
CO2	Implement a given Problem with advanced features of the C++ programming language.	Analyze
CO3	Implement the concepts of various data structures in object oriented paradigm using C++. Represent structures, logic design in digital computer and to solve basic computer science problems respectively.	Analyze
CO4	Understand the concept of template and exception handling using C++	Understand
CO5	Develop programs in the various programming environment	Remember

Course Contents

Unit-I	Basics of Object Oriented Programming	05 Hours
The Origins of C++, Features of Object Oriented Programming, relations of Classes & Structures, Classes & Objects, Encapsulation, Data Abstraction, Inheritance, Inline Function, Constructor & Destructor, function overloading & Operator overloading, Static class member, Static Member Function, Scope resolution Operator, Access members Data member & member Function, Defining member functions, Passing Object to Functions, Nested classes, local classes, Friend functions, Friend class		
Unit-II	Pointers, Arrays, Dynamic allocation Operator	03 Hours
Arrays Of Object, Pointers to Object, This pointers, type checking C++ Pointers, Pointers to Derived types, Pointers to Class members, Dynamic Allocation Pointers :-New & Delete Operator		



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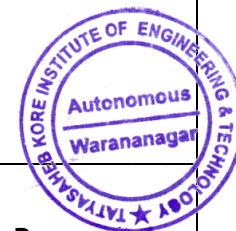
Unit-III	Functions & Operator Overloading	04 Hours
Functions Overloading, Operator Overloading, Types Of Constructors, Destructors, Operator Overloading Using Friend Function, Unary & Binary Operator Overloading(Arithmetic, Comparison Operator Overloading),Assignment Operator Overloading(=, +=)		
Unit-IV	Inheritance & Virtual Function	05 Hours
Inheritance, Single Inheritance, Types of Derivations, Passing parameters to base ,Multiple Inheritance, Multilevel Inheritance, Hybrid Inheritance ,Hierarchical Inheritance , Virtual function, Calling a Virtual function through a base class reference, Virtual functions are hierarchical, Pure virtual functions, Abstract classes, Early and late binding.		
Unit-V	Templates & Exception handling	05 Hours
Function Template ,Class Template, Generic Classes ,Generic Functions, Applying Generic Functions Type Name, export keyword Power of Templates Standard Template Library (STL):-STL Container, STL Algorithm, STL iterator. Exception handling:-Exception handling fundamentals, Catching, Throwing, & Handling Exception, Exception handling options.		
Unit-VI	I/O System Basics, File I/O	04 Hours
Streams, File Pointers & Redirections Streams, C++ stream, C++ Predefined stream classes, Formatted I/O, C++ file I/O, manipulators, fstream and the File classes, File operations, namespaces, std namespace.		

Course delivery methods	Assessment methods
1. Black Board Teaching 2. Power Point Presentation 3. Hands on practice	1. Internal Assessment 2. Assignment 3. Quiz

ISA (Term Work) Assignments:

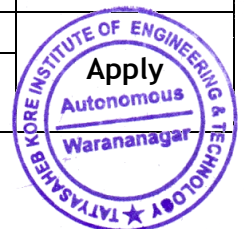
- It should consist of minimum 10-12 experiments based on the syllabus and concepts mention below.
- Students of different batches should implement different programs based on the following guidelines
- Student should perform the Practicals on UNIX/Linux/windows platform
- Students must complete following assignments based on above topics

Sr. No	Title/problem statements	Blooms Taxonomy
1.	Title: Implementation of simple class and object concept. Create a class called 'employee' that has 1) Empcode and Empname as data members. 2) Member function gestdata() to input data. 3) Member function display to output data. 4) Create array of objects to accept and display the details of at least 5 employees.	Remember
2.	Title: Implementation of different types of constructors and destructors. Write a program to calculate fix deposit for specific no of Years and particular rate by using constructor and destroy the object by using destructor	Remember



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3.	Title: Implementation of inline function.	Remember
	Write a program to find out largest of three numbers by using inline function.	
4.	Title: Implementation of 'this' pointer.	Remember
	Write a program to display the value and address of an object using 'this' pointer	
5.	Title: Implementation of function overloading.	Remember
	Write a program to compute power (m,n) where <ul style="list-style-type: none"> 'm' is double and 'n' is integers 'm' and 'n' are integers 	
6.	Title: Implementation of operator overloading.	Understand
	Create a matrix class of size m*n overload the '+' Operator to add two matrix objects	
7.	Title: Implementation of friend function.	Understand
	Create a class 'Complex' to hold a complex Number, write a friend function to add two complex numbers.	
8.	Title: Implementation of friend class.	Understand
	Create a friend class 'Customer' containing member functions withdraw, deposit and balance enquiry which access data members from class 'Account'	
9.	Title: Implementation of Multilevel inheritance concept.	Apply
	Write a program to implement multilevel inheritance to calculate student result. By creating a Class student-name, roll-no, Test-marks, result-average.	
10.	Title: Implementation of Hybrid inheritance concept.	Apply
	The 'MASTER' class derives information from 'ACCOUNT' and 'ADMIN' classes which in turn derives information from 'PERSON' class. Define four classes and write a Program to create, update and display all information. Person(name, code) Account(pay) Admin(Experience)	
11.	Title: Implementation of virtual function.	Apply
	Write a program to implement virtual function for Bubble sort and selection sort.	
12.	Title: Implementation of function template.	Apply
	Define function template for displaying transpose of Integer and float matrices.	
13.	Title: Implementation of class template.	Apply
	Create a class template to hold two data members, write a program to add two integer and double numbers.	
14.	Title: Implement of exception handling.	Understand
	Write a program to implement exception handling for Exception divide by zero.	
15.	Title: Implementation of file handling.	Apply
	Using class and object write employee information to file named "EMPLOYEE" and by reading from the same file display the contents on the screen	



**ISA (Term Work) Evaluation:**

The ISA (term work) will be assessed and evaluated based on performance of students in various activities conducted in tutorial and practical sessions.

The distribution for ISA (term work) marks shall be as follows (For 50 Marks)

Timely performance and submission of assignments	Attendance	Journal	Quizzes/Activities/Presentations /VLABS/Problem Solving etc.	Oral Performance
10 Marks	10 Marks	10 Marks	10 Marks	10 Marks

Minimum marks required to qualify for ISA: 20 out of 50 marks

End Semester Examination (Practical & Oral Examination):

1.	It will be conducted for 50 marks having 3 hours/2 hours duration.		
2.	Only one experiment to be conducted.		
3.	Initial write up: Algorithm/Flowchart/Tracing	10 Marks	50 Marks
	Oral/ Providing Theoretical Solution	10 Marks	
	Conduct of experiment(s), result and conclusion	20 Marks	
	One marks question	10 Marks	
4.	oral is conducted for individual student and not in group		
5.	Minimum passing marks to be scored in ESE-POE: 20 out of 50 marks		

Text Book:

1. "Object oriented Programming in C++" by Rajesh K. Shukla (Wiley) India Edition Manohar (MGH International).
2. "The Complete Reference C++" by Herbert Schildt (Tata McGraw Hill) 4th Edition and onwards.

Reference Books:

1. "Object-Oriented Programming with C++" by E. Balaguruswamy, (Tata McGraw Hill) 6th Edition onwards.
2. "Object oriented Programming With C++" by Sourav Sahay (Oxford) 2nd edition



**CO-PO Mapping:**

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	2	2	--	--	--	--	1	--	--	1	3
CO2	3	2	2	1	--	--	--	1	--	--	--	2
CO3	3	2	2	1	--	1	--	--	--	--	--	2
CO4	3	2	2	--	--	1	--	2	--	1	--	1
CO5	1	--	1	--	2	--	--	2	--	--	--	2

1-Low, 2-Medium, 3-High

Syllabus Setting Committee:

Sr. No.	Name of the faculty	Email-Id	Mobile
1	Prof. Kiran K. Awale	kiran_awale@tkietwarana.ac.in	8793453354
2	Prof. Swapnil S. Matsagar	ssmatsagar@tkietwarana.ac.in	8421507130
3	Prof. H. M. Kelur	huchchayyakelur@tkietwarana.ac.in	7841898877



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**An Autonomous Institute, affiliated to Shivaji University, Kolhapur****Second Year B. Tech(CSE) (Semester - IV)****CSE402P: Computer Networks**

Teaching Scheme Practical: 02 Hrs/Week	Credits : 01	Examination Scheme IES: 50 Marks ISA: 50 Marks
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Course Description:

This Course is designed to understand the Network Communication protocols and Internet Application Programs.

Prerequisites:

1. Data Communication and Networking Basics
2. Understanding of Windows and Linux Operating System Network Services.

Course Objectives:

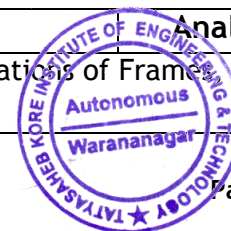
To provide knowledge about protocols from Transport and Application Layer.
To identify client-server model and implement it using socket programming.
To make students familiar with architecture and working of Network Communication Protocols in TCP/IP Layers.
To install and configure the various Network Services on Operating Systems like Windows and Linux.

Course Outcomes:

COs	At the end of successful completion of the course the student will be able to	Blooms Taxonomy
CO1	Explain the basic concept of Transport and Application Layer.	Remember
CO2	Describe different terminologies of client server programming.	Understand
CO3	Explain the importance of Network Security and related protocols.	Understand
CO4	Configure & Illustrate different application layer protocols	Analyze

Course Contents

Experiment	Topic	Outcome
Experiment 1	Study of DNS Tools with its options.	Understand
Students should use the DNS Tools: nslookup, dig, host, whois lookup and tracert.		
Experiment 2	Installation and Configuration of DHCP Server.	Apply
Students should Install and configure the DHCP Client-Server and discover the modes of operations.		
Experiment 3	Installation and Configuration of File and Web Server.	Apply
Students should Install and configure the File and Web Client-Server and discover the Request/Reply Model using Basic FTP and HTTP Commands.		
Experiment 4	Study of various Remote Login Services.	Understand
Students should configure TELNET Client-Server, Interpretation of NVT Character Set , and Option Negotiation. Use and understand Remote Desktop Sharing Applications.		
Experiment 5	Study of Email Services.	Understand
Students should configure the SMTP, POP3 and IMAP Client-Server and be able to use the Modes of Operations using Basic SMTP, POP3 and IMAP Commands.		
Experiment 6	Packet Capturing, Tracing and Analysis.	Analyze
Students should be to Capture the live packets & discover the layered Encapsulations of Frame, IP Packets, and TCP Segment/UDP Datagram for Services such as File and Web.		



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Experiment 7	Implementation of Connection less Client-server Program	Develop
Student should be able to write the Client-Server Program with the help of Primitive Socket functions in C for well known ECHO Service (Port Number 07).		
Experiment 8	Implementation of Connection Oriented Client-server Program	Develop
Student should be able to write the Client-Server Program with the help of Primitive Socket functions in C for well known Day-Time Service (Port Number 13).		
Experiment 9	Implementation of iterative TCP Client and server Program.	Develop
Student should be able to write the Client and Server Program with the help of Primitive Socket functions in C.		
Experiment 10	Simulation of different protocols using NS-2.	Design
Student should be able to design and simulate various network topologies using NS-2 Scripts.		

Course Delivery Method	Course Assessment Method
<ul style="list-style-type: none"> • Chalk and board • Presentation Slides • Pre recorded Video lectures/Animations • Use of VLAB/MOOC/NPTEL/FOSSEE etc • Demonstration of Standard Tools, Software related to the course 	<ul style="list-style-type: none"> • Internal assessment • Assignment/Case studies • Problem Solving • Lab wise Quizzes • Periodic Journal Evaluation • Viva-voce

ISA (Term Work) Evaluation:

The ISA (term work) will be assessed and evaluated based on performance of students in various activities conducted in tutorial and practical sessions.				
The distribution for ISA (term work) marks shall be as follows (For 50 Marks)				
Timely performance and submission of assignments	Attendance	Journal	Quizzes/Activities/Presentations /VLABS/Problem Solving etc.	Oral Performance
10 Marks	10 Marks	10 Marks	10 Marks	10 Marks

Minimum marks required to qualify for ISA: 20 out of 50 marks

**End Semester Examination - ESE (Practical & Oral Examination):**

1.	It will be conducted for 50 marks having 3 hours/2 hours duration.		
2.	Only one experiment to be conducted.		
3.	Initial write up: Algorithm/Flowchart/Tracing	10 Marks	50 Marks
	Oral/ Providing Theoretical Solution	20 Marks	
	Conduct of experiment(s), result and conclusion	20 Marks	
4.	oral is conducted for individual student and not in group		
5.	Minimum passing marks to be scored in ESE (POE): 20 out of 50 marks		

Text Books:

1. "TCP/IP Protocol Suite" by B. A. Forouzan, TMGH Publication
2. "Computer Networks" by Andrew Tanenbaum, PHI Publication
3. "Internetworking with TCP/IP, Vol. III, Client-Server Programming and Application" (2nd Ed.) D.E. Comer, David L. Stevens (Pearson Ed.)

Reference Books:

1. "Computer Networks" by William Stallings, PHI Publication

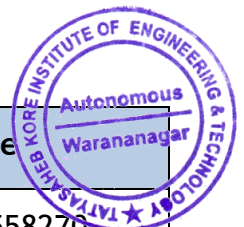
CO-PO Mapping:

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	--	--	--	--	--	--	1	--	--	--	--
CO2	2	2	2	--	--	--	--	1	--	--	--	--
CO3	2	--	--	--	2	1	1	1	--	--	--	1
CO4	2	2	3	--	2	--	--	1	--	--	--	1

1-Low, 2-Medium, 3-High

Syllabus Setting Committee:

Sr. No.	Name of the faculty	Email-Id	Mobile
1	Prof. A. G. Patil	amol_patil@tkietwarana.ac.in	9822558270
2	Prof. S. R. Shetake	sandip_shetake@tkietwarana.ac.in	7385692497



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**An Autonomous Institute, affiliated to Shivaji University, Kolhapur****Second Year B. Tech. (CSE) (Semester - IV)****CSE407P: Mini Project-I**

Teaching Scheme Practical: 02 hrs/Week	Credits : 01	Examination Scheme ESE: 50 Marks ISA: 50 Marks
Course Description:		
Implementation of Mini Project using Programming Concepts.		
Prerequisites:	1. CS-L-303- Data Structures 2. CS-P-307- Data Structures Lab 3. CS-P-306- Problem Solving using C Programming	
Course Objectives:		
1. To expose the students to solve the real-world problems. 2. To utilize the techniques, skills and modern Engineering tools for building the mini project. 3. To follow the methods and tasks as per SDLC Approach 4. To effectively demonstrate and present the ideas, methodology and technology used for the mini project		
Course Outcomes:		
COs	At the end of successful completion of the course the student will be able to	Blooms Taxonomy
CO1	Define the problem statement by analyzing the gathered requirement.	Understand
CO2	Design the various modules of proposed system and construct different kinds of diagrams.	Analyze
CO3	Implement and test the solution for the proposed system	Apply
CO4	Effectively work in team and present the ideas, methodology and technology used for the project	Apply
Course Contents		
Activity-1	Choosing your area of Mini Project	Understand
Students must choose the area to solve different kinds of problems.		
Activity-2	Problem Identification	Apply
Students must identify the problem to solve from chosen area.		
Activity-3	Requirement elicitation	Understand
Students must elicit the requirement for identified problem.		
Activity-4	Design Methodology and Modeling	Analyse
Students must determine the data structures and algorithms suitable to solve identified problem and build the required models.		
Activity-5	Module Implementation	Apply
Students must choose the technology and use it for implementation of functional modules.		
Activity-7	System Integration	Apply
Students must integrate the different functional modules to build whole system.		
Activity-6	Test Specifications	Analyse
Students must prepare test cases for the testing the system.		

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Activity-8	Conclusion and Future Enhancement	Analyze
Students must draw the conclusions and mention how system can be enhanced in future.		
Activity-9	Mini Project Report Preparation	Apply
Students must prepare the final mini project report and presentation.		
Activity-10	Final Presentation	Apply
Students must present their mini project work in front of panel of examiner.		

Course delivery methods	Assessment methods
1. Programming tools	1. Internal Mini Project Presentation 2. Mini Project Report 3. Demonstration of Mini Project work in front of panel

ISA (Term Work) Evaluation:

The ISA (term work) will be assessed and evaluated based on performance of students in various activities conducted in practical sessions.

The distribution for ISA (term work) marks shall be as follows (For 50 marks):

Timely Completion of Work	Attendance	Report	Presentations
10 Marks	10 Marks	15 Marks	15 Marks

Minimum marks required to qualify for ISA: 20 out of 50 marks

End Semester Examination ESE-(Practical & Oral Examination):

1.	It will be conducted for 50 marks.		
2.	Requirement Analysis	5 Marks	50 Marks
	Design	5 Marks	
	Coding & Testing	10 Marks	
	Report	5 Marks	
3.	Presentation	10 Marks	
4.	Demonstration of work	10 Marks	
5.	Oral (One-mark questions)	5 Marks	
Minimum passing marks to be scored in ESE (POE): 20 out of 50 marks			



**CO-PO Mapping:**

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	--	2	--	1	1	1	3	3	2	2
CO2	2	--	3	2	2	1	1	1	2	2	2	2
CO3	2	--	--	1	2	1	--	1	2	2	2	2
CO4	1	1	1	1	2	--	1	1	3	2	1	2

1-Low, 2-Medium, 3-High

Syllabus Setting Committee:

Sr. No.	Name of the faculty	Email-Id	Mobile
1	Dr. G. V. Patil	hodcse@tkietwarana.ac.in	8975757898
2	Prof. A. S. Phalle	asphalle@tkietwarana.ac.in	8888843820
3	Prof. K. N. Kamble	knkamble@tkietwarana.ac.in	9922095130



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**An Autonomous Institute, affiliated to Shivaji University, Kolhapur****Second Year B. Tech(CSE) (Semester - IV)****CSE408: Computer Proficiency and Ethics**

Teaching Scheme Practical: 02 Hrs/Week	Audit Points : 03	Examination Scheme ESE: NA ISE: NA
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Course Description:

Computer Proficiency and Ethics audit course is growing and changing rapidly as computer technology also grows and develops. This Course covers Basics and standards of professional practice, codes of conduct, aspects of computer law, public policy, corporate ethics etc.

Prerequisites:

1. Basic knowledge of computers;
2. Value system in society.

Course Objectives:

1. Become familiar with the basics of computer system & its operations for IT skills.
2. Demonstrate the ability to include ethical considerations in your decision-making
3. Discuss ethical issues associated with the use of social networks and social media
4. Examine the scope of intellectual property issues and the available protection measures

Course Outcomes:

COs	At the end of successful completion of the course the student will be able to	Blooms Taxonomy
CO1	Demonstrate a basic understanding of computer hardware and software.	Understand
CO2	Understand IT skills and Operations required for Computer profession.	Remember and Understand
CO3	Understand laws and regulations related to ethics.	Understand
CO4	Apply the knowledge of IT skills in internet surfing and social media access	Apply

Course Contents

Unit-I	Familiarity with computer systems	04 Hours
Awareness about different aspects regarding computer hardware such as generations and types of computers, printers, input and output devices and hardware components such as Central Processing Unit (CPU) like arithmetic logic unit, control unit, memory unit; Universal Serial Bus (USB), Liquid Crystal Display (LCD), Motherboard, Sound Card, Graphics Card, and related concepts; Input Devices such as light pen, touch screens, graphics tablets, joystick, Microphone, Optical Character Reader, MICR, Scanner, digital or web camera, card reader, barcode reader, biometric sensor; Output Devices such as printer (impact or non-impact), speaker, plotter; and Secondary Storage Devices such as USB Pen Drives, floppy disks, Compact Disk (CD), Digital Video Disk (DVD), Blue Ray Disk, Solid State Drive etc.		
Unit-II	Knowledge of Basic Computer Operations	04 Hours
Awareness of generic steps required for setting up a computer, booting and shutting down, logging on and off to a network, determining an IP address, verifying physical connectivity to a network, installing and updating software packages, disabling applications from running on start-up, uninstalling a software from computer, customizing desktop background, resizing windows, volume controls of		

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computer, setting up a new printer or webcam or scanner or other peripheral devices, understanding of steps to protect computers from power Disturbances and basic troubleshooting including power backups.		
Unit-III	Proficiency in general IT skills	04 Hours
<ul style="list-style-type: none"> • Word processing skills such as creating a document, using spell check, creating tables, working with headers or footers, mail merge, document formatting etc. and common word processing related keyboard commands; • Numeric Skills to deal with numbers and digits, using formulas, references, macros, tables, graphs through spreadsheets and common keyboard commands for spreadsheets. Presentation skills for sharing and understanding data in form of charts, graphs and data. • Internet skills such as using search engine effectively to get the best desired result within short time; uploading and downloading information from the Internet and usage of Internet applications such as web sites, browsers, blogs, and Internet services such as Email, video conferencing, Online Collaboration etc. 		
Unit-IV	Foundational Issues and Methodological Frameworks	04 Hours
Foundations of Information Ethics, Milestones in the History of Information Ethics, Moral Methodology and Information Technology, Value Sensitive Design and Information Systems.		
Unit-V	Theoretical Issues Affecting Property, Privacy, Anonymity and Security.	04 Hours
Personality-Based, Rule Utilitarian, and Lockean Justifications of Intellectual Property, Informational Privacy: Concepts, Theories, and Controversies, Online Anonymity, Ethical Issues Involving Computer Security: Hacking, Hacktivism, and Counter hacking		
Unit-VI	Professional Issues and the Information-Related Professions.	04 Hours
Information Ethics and the Library Profession, Ethical Interest in Free and Open Source, Internet Research Ethics: The Field and its Critical Issues, Health Information Technology: Challenges in Ethics, Science, and Uncertainty, Ethical Issues of Information and Business		

Course delivery methods	Assessment methods
1. Black Board Teaching 2. Practical Demonstration	1. Assignment 2. Quiz

Text Book:
1. "CPCT Computer Proficiency and Certification Test" by AISECT 2. "The Handbook of Information and Computer Ethics" by Kenneth E. Himma (Editor), Herman T. Tavani (Editor)



**CO-PO Mapping:**

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	--	--	--	--	--	--	--	--	--	--	2
CO2	--	--	--	--	2	2	--	--	--	--	--	--
CO3	--	--	--	--	--	3	--	3	--	--	--	--
CO4	2	1	2	--	--	--	--	--	--	--	--	--

1-Low, 2-Medium, 3-High

Syllabus Setting Committee:

Sr. No.	Name of the faculty	Email-Id	Mobile
1	Prof. D. B. Mirajkar	dineshmirajkar@tkietwarana.ac.in	9225819159
2	Prof. Manjunath R. Hudagi	mrhudagi@tkietwarana.ac.in	7083042017

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Dean Academics
T.K.I.E.T.,
Warananagar

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