DEPARTMENT OF COMPUTER ENGINEERING

YTIET-DI-38	**List of CO-PO-PSO**	Academic Year: 2023-24
Rev : R22		Semester: EVEN
Date: 11-11-2023		

Date:

Subject Name – Distributed Computing
Semester – VIII
Class / Scheme – BE COMP/ Rev 2019 (C scheme)
The following Program Outcomes (POs) and Program Specific Outcome (PSOs) statements are considered to setup correlation with individual Courses Outcomes (COs).

PO	Engineering Graduates will be able to:
PO1	**Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.
PO2	**Problem Analysis:** Identify, formulate, 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 public health and safety, and 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 modelling 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 t h e 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 in 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.

Program Specific Outcomes (PSOs)

At the time of graduation students should be able to do

PSO	At the time of graduation students should be able to do;
PSO1	Model computational problems by applying mathematical concepts and design solutions using suitable data structures and algorithmic techniques.
PSO2	Design and develop computer programs/computer-based systems in the areas related to algorithms, operating system, artificial Intelligence, cloud computing, IoT and data analytics of varying problems.
PSO3	Familiarize with the modern trends in industrial/research settings and thereby inventive novel solutions to existing problems.

Course Outcomes: On Completion of this course, the successful students should be able to:
SUBJECT: Distributed Computing (CSC801)

CO	Statement
CO1	Demonstrate the knowledge of basic elements and concepts related to distributed system Technologies.

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CO2	Illustrate the middleware technologies that support distributed applications such as RPC, RMI and Object-based middleware.
CO3	Analyze the various techniques used for clock synchronization, mutual exclusion and Deadlock.
CO4	Demonstrate the concepts of Resource and Process management.
CO5	Demonstrate the concepts of Consistency, Replication Management and fault Tolerance.
CO6	Apply the knowledge of Distributed File systems in building large-scale distributed Applications.

SUBJECT: Distributed Computing Lab (CSL801)

CO	Statement
CO1	Develop test and debug using Message-Oriented Communication or RPC/RMI based Client-server programs.
CO2	Implement techniques for clock synchronization.
CO3	Implement techniques for Election Algorithms.
CO4	Demonstrate mutual exclusion algorithms and deadlock handling.
CO5	Implement techniques of resource and process management.
CO6	Describe the concepts of distributed File Systems with some case studies.

Subject In charge   **HOD**

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YTIET-DI-38	**List of CO-PO-PSO**	Academic Year: 2023-24
Rev : 00		Semester: EVEN
Date: 11-11-2023		

Subject Name – Digital Forensics
Semester – VIII
Class / Scheme – BE COMP/ Rev 2019 (C scheme)
The following Program Outcomes (POs) and Program Specific Outcome (PSOs) statements are considered to setup correlation with individual Courses Outcomes (COs).

PO	Engineering Graduates will be able to:
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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 modelling 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 t h e 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 in 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.

Program Specific Outcomes (PSOs)

At the time of graduation students should be able to do

PSO	At the time of graduation students should be able to do;
PSO1	Model computational problems by applying mathematical concepts and design solutions using suitable data structures and algorithmic techniques.
PSO2	Design and develop computer programs/computer-based systems in the areas related to algorithms, operating system, artificial Intelligence, cloud computing, IoT and data analytics of varying problems.
PSO3	Familiarize with the modern trends in industrial/research settings and thereby inventive novel solutions to existing problems.

Course Outcomes: On Completion of this course, the successful students should be able to:
SUBJECT: Distributed Computing (CSDC8012)

CO	Statement
CO1	Discuss the phases of Digital Forensics and methodology to handle the computer security incident.

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CO2	Describe the process of collection, analysis and recovery of the digital evidence.
CO3	Explore various tools to analyze malwares and acquired images of RAM/hard drive.
CO4	Acquire adequate perspectives of digital forensic investigation in mobile devices
CO5	Analyze the source and content authentication of emails and browsers.
CO6	Produce unambiguous investigation reports which offer valid conclusions.

SUBJECT: Distributed Computing Lab (CSDL8022)

CO	Statement
CO1	Explore various forensics tools and use them to acquire, duplicate and analyze data and recover deleted data.
CO2	Implement penetration testing using forensics tools.
CO3	Explore various forensics tools and use them to acquire and analyze live and static data.
CO4	Verification of source and content authentication of emails and browsers.
CO5	Demonstrate Timeline Report Analysis using forensics tools.
CO6	Discuss real time crime forensics investigations scenarios.

Subject In charge   **HOD**

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YTIET-DI-38	**List of CO-PO-PSO**	Academic Year: 2023-24
Rev : 00		Semester: EVEN
Date: 11-11-2023		

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Date:

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Subject Name – High Performance Computing
Semester – VIII
Class / Scheme – BE COMP/ Rev 2019 (C scheme)
The following Program Outcomes (POs) and Program Specific Outcome (PSOs) statements are considered to setup correlation with individual Courses Outcomes (COs).

PO	Engineering Graduates will be able to:
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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

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	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
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PSO3	Familiarize with the modern trends in industrial/research settings and thereby inventive novel solutions to existing problems.

Course Outcomes: On Completion of this course, the successful students should be able to:
SUBJECT: High Performance Computing (CSDC8022)

CO	Statement
CO1	Understand parallel and pipeline processing approaches
CO2	Design a parallel algorithm to solve computational problems and identify issues in parallel programming.

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CO3	Analyze the performance of parallel computing systems for clusters in terms of execution time, total parallel overhead, speedup.
CO4	Develop efficient and high-performance parallel algorithms using OpenMP and message passing paradigm
CO5	Develop high-performance parallel programming using OpenCL and CUDA framework
CO6	Perform the range of activities associated with High Performance Computing in Cloud Computing

SUBJECT: High Performance Computing Lab (CSDL8022)

CO	Statement
CO1	Perform Linux based commands on remote machine
CO2	Compare the performance of sequential algorithms with parallel algorithm in terms of execution time, speedup and throughput.
CO3	Implement parallel program using OpenMP libraryand analyze its performance
CO4	Implement parallel program using MPIplatform and analyze its performance
CO5	Implement parallel program using OpenCL framework and analyze its performance
CO6	Implement parallel program using CUDA framework and analyze its performance

Subject In charge   **HOD**

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YTIET-DI-38	**List of CO-PO-PSO**	Academic Year: 2023-24
Rev : 00		Semester: EVEN
Date: 11-11-2023		

Subject Name – Project Management

Semester – VIII

Class / Scheme – BE COMP/ Rev 2019 (C scheme)

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Course Outcomes: On Completion of this course, the successful students should be able to:
SUBJECT: Project Management (CSDC8022)

CO	Statement
CO1	Apply selection criteria and select an appropriate project from different options.
CO2	Write work breakdown structure for a project and develop a schedule based on it.

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CO3	Identify opportunities and threats to the project and decide an approach to deal with them Strategically.
CO4	Use Earned value technique and determine & predict status of the project.
CO5	Capture lessons learned during project phases and document them for future reference

Subject In charge   **HOD**