Indra Ganesan
COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Accredited by NAAC with 'B+' Grade, 2(f) & 12B Status Institution by UGC

IG Valley, Madurai Main Road, Manikandam, Tiruchirappalli - 620012

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION – 2

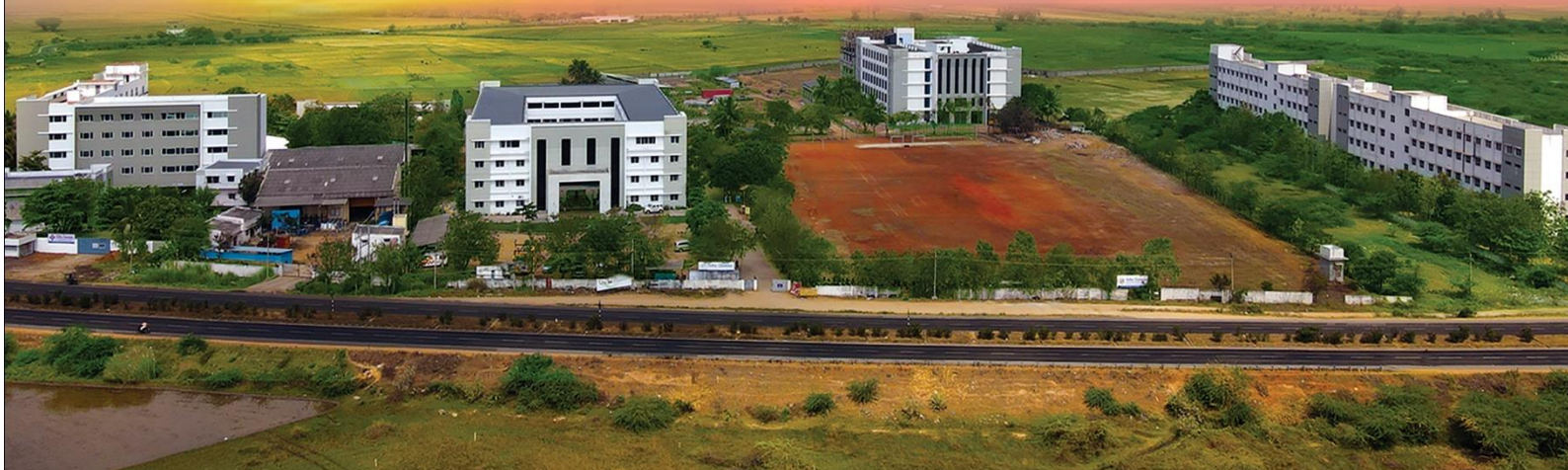
TEACHING-LEARNING AND EVALUATION

SUBMITTED BY

IQAC

INTERNAL QUALITY ASSURANCE CELL

INDRA GANESAN COLLEGE OF ENGINEERING



Indra Ganesan
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Criteria 2	Teaching-Learning and Evaluation	350

Key Indicator-2.6 Student Performances and Learning Outcome (90)

2.6.1 Programme Outcomes (POs) and Course Outcomes (COs) for all programmes offered by the institution are stated and displayed on website

DEPARTMENT OF COMPUTER SCIENCE RG-2021

INDRA GANESAN COLLEGE OF ENGINEERING

IG Valley, Manikandam, Tiruchirappalli, Tamil Nadu – 620 012, India
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

REGULATION -2021

COURSE OUTCOMES

SEM –I
RM4151- RESEARCH METHODOLOGY AND IPR

After the course, the student should be able to:

CO	Course Outcomes	POs
C101.1	To familiarize students with the different aspects of research	1,2,3,4,5,6
C101.2	To provide an idea of good scientific writing and proper presentation skills.	1,2,3,4,5,6
C101.3	To provide an understanding of philosophical questions behind scientific research.	1,2,3,4,5,6
C101.4	To provide a brief background on the historical legacy of science.	1,2,3,4,5,6
C101.5	To provide an insight of nature of Intellectual Property and new developments in IPR.	1,2,3,4,5,6

Mappping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C101.1	3	2	2	1	1	1
C101.2	3	2	2	1	1	1
C101.3	3	2	2	1	1	1
C101.4	3	2	2	1	1	1
C101.5	3	2	2	1	1	1
C101	3	2	2	1	1	1

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CP4151- ADVANCED DATA STRUCTURES AND ALGORITHMS

After the course, the student should be able to:

CO	Course Outcomes	POs
C102.1	Design data structures and algorithms to solve computing problems	1,2,3,4,5
C102.2	Choose and implement efficient data structures and apply them to solve problems.	1,2,3,4,5
C102.3	Design algorithms using graph structure and various string-matching algorithms to solve real-life problems	1,2,3,4,5
C102.4	Design one's own algorithm for an unknown problem.	1,2,3,4,5
C102.5	Apply suitable design strategy for problem solving.	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C102.1	3	2	1	1	1	-
C102.2	3	2	1	1	1	-
C102.3	3	2	1	1	1	-
C102.4	3	2	1	1	1	-
C102.5	3	2	1	1	1	-
C102	3	2	1	1	1	-

CP4152 - DATABASE PRACTICES

After the course, the student should be able to:

CO	Course Outcomes	POs
C103.1	Convert the ER-model to relational tables, populate relational databases and formulate SQL queries on data	1,2,3,4,5
C103.2	Understand and write well-formed XML.	1,2,3,4,5
C103.3	Be able to apply methods and techniques for distributed query processing	1,2,3,4,5
C103.4	Design and Implement secure database systems.	1,2,3,4,5
C103.5	Use the data control, definition, and manipulation languages of the NoSQL databases	1,2,3,4,5

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Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C103.1	3	2	1	1	1	-
C103.2	3	2	1	1	1	-
C103.3	3	2	1	1	1	-
C103.4	3	2	1	1	1	-
C103.5	3	2	1	1	1	-
C103	3	2	1	1	1	-

CP4153 - NETWORK TECHNOLOGIES

After the course, the student should be able to:

CO	Course Outcomes	POs
C104.1	Explain basic networking concepts	1,2,3,4,5
C104.2	Compare different wireless networking protocols	1,2,3,4,5
C104.3	Describe the developments in each generation of mobile data networks	1,2,3,4,5
C104.4	Explain and develop SDN based applications	1,2,3,4,5
C104.5	Explain the concepts of network function virtualization	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C104.1	3	2	1	1	1	-
C104.2	3	2	1	1	1	-
C104.3	3	2	1	1	1	-
C104.4	3	2	1	1	1	-
C104.5	3	2	1	1	1	-
C104	3	2	1	1	1	-

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DS4015-BIG DATA ANALYTICS

After the course, the student should be able to:

CO	Course Outcomes	POs
C304.1	Understand the basics of big data analytics	1,2,3,4,5
C304.2	Ability to use Hadoop, Map Reduce Framework.	1,2,3,4,5
C304.3	Ability to identify the areas for applying big data analytics for increasing the business outcome.	1,2,3,4,5
C304.4	Gain knowledge on R language	1,2,3,4,5
C304.5	Contextually integrate and correlate large amounts of information to gain faster insights.	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C304.1	3	2	1	1	1	-
C304.2	3	2	1	1	1	-
C304.3	3	2	1	1	1	-
C304.4	3	2	1	1	1	-
C304.5	3	2	1	1	1	-
C304	3	2	1	1	1	-

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C302.5	Critically analyse different data structures and algorithms used in the building of an optimising compiler	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C302.1	3	2	1	1	1	-
C302.2	3	2	1	1	1	-
C302.3	3	2	1	1	1	-
C302.4	3	2	1	1	1	-
C302.5	3	2	1	1	1	-
C302	3	2	1	1	1	-

MP4292-MOBILE APPLICATION DEVELOPMENT

After the course, the student should be able to:

CO	Course Outcomes	POs
C303.1	Identify various concepts of mobile programming that make it unique from programming for other platforms	1,2,3,4,5
C303.2	Create, test and debug Android application by setting up Androiddevelopment	1,2,3,4,5
C303.3	Demonstrate methods in storing, sharing and retrieving data inAndroid applications 80	1,2,3,4,5
C303.4	Utilize rapid prototyping techniques to design and develop sophisticated mobile interfaces	1,2,3,4,5
C303.5	Create interactive applications in android using databases with multiple activities including audio, video and notifications and deploy them in marketplace	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C303.1	3	2	1	1	1	-
C303.2	3	2	1	1	1	-
C303.3	3	2	1	1	1	-
C303.4	3	2	1	1	1	-
C303.5	3	2	1	1	1	-
C303	3	2	1	1	1	-

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CP4391-SECURITY PRACTICES

After the course, the student should be able to:

CO	Course Outcomes	POs
C301.1	Understand the core fundamentals of system security	1,2,3,4,5
C301.2	Apply the security concepts to wired and wireless networks	1,2,3,4,5
C301.3	Implement and Manage the security essentials in IT Sector	1,2,3,4,5
C301.4	Explain the concepts of Cyber Security and Cyber forensics	1,2,3,4,5
C301.5	Be aware of Privacy and Storage security Issues.	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C301.1	3	2	1	1	1	-
C301.2	3	2	1	1	1	-
C301.3	3	2	1	1	1	-
C301.4	3	2	1	1	1	-
C301.5	3	2	1	1	1	-
C301	3	2	1	1	1	-

IF4091-COMPILER OPTIMIZATION TECHNIQUES

After the course, the student should be able to:

CO	Course Outcomes	POs
C302.1	Design and implement techniques used for optimization by a Compiler.	1,2,3,4,5
C302.2	Modify the existing architecture that supports parallelism.	1,2,3,4,5
C302.3	Modify the existing data structures of an open source optimising compiler.	1,2,3,4,5
C302.4	Design and implement new data structures and algorithms for code optimization.	1,2,3,4,5

C207.4	Produce Final Draft of the Research Paper	1,2,3,4,5
C207.5	Prepare Presentation for the research undergone	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C 207.1	3	2	1	1	1	-
C207.2	3	2	1	1	1	-
C207.3	3	2	1	1	1	-
C207.4	3	2	1	1	1	-
C207.5	3	2	1	1	1	-
C207	3	2	1	1	1	-

CP4212 -SOFTWARE ENGINEERING LABORATORY

After the course, the student should be able to:

CO	Course Outcomes	POs
C208.1	Can produce the requirements and use cases the client wants for the software being Produced	1,2,3,4,5
C208.2	Participate in drawing up the project plan. The plan will include at least extent and work assessments of the roject, the schedule,available resources, and risk management can model and specify the requirements of mid-range software and their architecture	1,2,3,4,5
C208.3	Create and specify such a software design based on the requirement specification that the software can be implemented based on the design.	1,2,3,4,5
C208.4	Can assess the extent and costs of a project with the help of severaldifferent assessment methods	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C208.1	3	2	1	1	1	-
C208.2	3	2	1	1	1	-
C208.3	3	2	1	1	1	-
C208.4	3	2	1	1	1	-
C208.5	3	2	1	1	1	-
C208	3	2	1	1	1	-

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Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C205.1	3	2	1	1	1	-
C205.2	3	2	1	1	1	-
C205.3	3	2	1	1	1	-
C205.4	3	2	1	1	1	-
C205.5	3	2	1	1	1	-
C205	3	2	1	1	1	-

CP4096-SOFTWARE QUALITY ASSURANCE

After the course, the student should be able to:

CO	Course Outcomes	POs
C206.1	Utilize the concepts of SQA in software development life cycle	1,2,3,4,5
C206.2	Demonstrate their capability to adopt quality standards.	1,2,3,4,5
C206.3	Assess the quality of software products	1,2,3,4,5
C206.4	Apply the concepts in preparing the quality plan & documents.	1,2,3,4,5
C206.5	Ensure whether the product meets company's quality standards and client's expectations and demands	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C206.1	3	2	1	1	1	-
C206.2	3	2	1	1	1	-
C206.3	3	2	1	1	1	-
C206.4	3	2	1	1	1	-
C206.5	3	2	1	1	1	-
C206	3	2	1	1	1	-

CP4211 -TERM PAPER WRITING AND SEMINAR

After the course, the student should be able to:

CO	Course Outcomes	POs
C 207.1	Identify the Domain Specific Objective	1,2,3,4,5
C207.2	Summarize the literature Survey	1,2,3,4,5
C207.3	Analyzing different Methodologies	1,2,3,4,5

SE4151-ADVANCED SOFTWARE ENGINEERING

After the course, the student should be able to:

CO	Course Outcomes	POs
C204.1	Identify appropriate process models based on the Project requirements	1,2,3,4,5
C204.2	Understand the importance of having a good Software Architecture	1,2,3,4,5
C204.3	Understand the five important dimensions of dependability, namely, availability, reliability, safety, security, and resilience.	1,2,3,4,5
C204.4	Understand the basic notions of a web service, web service standards, and service-oriented architecture	1,2,3,4,5
C204.5	Be familiar with various levels of Software testing	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C204.1	3	2	1	1	1	-
C204.2	3	2	1	1	1	-
C204.3	3	2	1	1	1	-
C204.4	3	2	1	1	1	-
C204.5	3	2	1	1	1	-
C204	3	2	1	1	1	-

MU4251-DIGITAL IMAGE PROCESSING

After the course, the student should be able to:

CO	Course Outcomes	POs
C205.1	Apply knowledge of Mathematics for image processing operations	1,2,3,4,5
C205.2	Apply techniques for image restoration	1,2,3,4,5
C205.3	Identify and extract salient features of images.	1,2,3,4,5
C205.4	Apply the appropriate tools (Contemporary) for image compression and analysis.	1,2,3,4,5
C205.5	Apply segmentation techniques and do object recognition	1,2,3,4,5

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Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C202.1	3	2	1	1	1	-
C202.2	3	2	1	1	1	-
C202.3	3	2	1	1	1	-
C202.4	3	2	1	1	1	-
C202.5	3	2	1	1	1	-
C202	3	2	1	1	1	-

CP4252-MACHINE LEARNING

After the course, the student should be able to:

CO	Course Outcomes	POs
C203.1	Understand and outline problems for each type of machine learning	1,2,3,4,5
C203.2	Design a Decision tree and Random forest for an application	1,2,3,4,5
C203.3	Implement Probabilistic Discriminative and Generative algorithms for an application and analyze the results.	1,2,3,4,5
C203.4	Use a tool to implement typical Clustering algorithms for different types of applications	1,2,3,4,5
C203.5	Design and implement an HMM for a Sequence Model type of application and identify applications suitable for different types of Machine Learningwith suitable justification.	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C203.1	3	2	1	1	1	-
C203.2	3	2	1	1	1	-
C203.3	3	2	1	1	1	-
C203.4	3	2	1	1	1	-
C203.5	3	2	1	1	1	-
C203	3	2	1	1	1	-

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CP4291-INTERNET OF THINGS

After the course, the student should be able to:

CO	Course Outcomes	POs
C201.1	Understand the various concept of the IoT and their technologies	1,2,3,4,5
C201.2	Develop the IoT application using different hardware platforms	1,2,3,4,5
C201.3	Implement the various IoT Protocols	1,2,3,4,5
C201.4	Understand the basic principles of cloud computing	1,2,3,4,5
C201.5	Develop and deploy the IoT application into cloud environment	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C201.1	3	2	1	1	1	-
C201.2	3	2	1	1	1	-
C201.3	3	2	1	1	1	-
C201.4	3	2	1	1	1	-
C201.5	3	2	1	1	1	-
C201	3	2	1	1	1	-

CP4292-MULTICORE ARCHITECTURE AND PROGRAMMING

After the course, the student should be able to:

CO	Course Outcomes	POs
C202.1	Describe multicore architectures and identify their characteristics and challenges.	1,2,3,4,5
C202.2	Identify the issues in programming Parallel Processors	1,2,3,4,5
C202.3	Write programs using OpenMP and MPI.	1,2,3,4,5
C202.4	Design parallel programming solutions to common problems	1,2,3,4,5
C202.5	Compare and contrast programming for serial processors and programming for parallel processors.	1,2,3,4,5

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Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C106.1	3	2	1	1	1	-
C106.2	3	2	1	1	1	-
C106.3	3	2	1	1	1	-
C106.4	3	2	1	1	1	-
C106.5	3	2	1	1	1	-
C106	3	2	1	1	1	-

CP4161-ADVANCED DATA STRUCTURES AND ALGORITHMS LABORATORY

After the course, the student should be able to:

CO	Course Outcomes	POs
C107.1	Design and implement basic and advanced data structures extensively	1,2,3,4,5
C107.2	Design algorithms using graph structures	1,2,3,4,5
C107.3	Design and develop efficient algorithms with minimum complexity using design techniques	1,2,3,4,5
C107.4	Develop programs using various algorithms.	1,2,3,4,5
C107.5	Choose appropriate data structures and algorithms, understand the ADT/libraries, and use it to design algorithms for a specific problem.	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C107.1	3	2	1	1	1	-
C107.2	3	2	1	1	1	-
C107.3	3	2	1	1	1	-
C107.4	3	2	1	1	1	-
C107.5	3	2	1	1	1	-
C107	3	2	1	1	1	-

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CP4154-PRINCIPLES OF PROGRAMMING LANGUAGES

After the course, the student should be able to:

CO	Course Outcomes	POs
C105.1	Describe syntax and semantics of programming languages	1,2,3,4,5
C105.2	Explain data, data types, and basic statements of programming languages	1,2,3,4,5
C105.3	Design and implement subprogram constructs	1,2,3,4,5
C105.4	Apply object-oriented, concurrency, and event handling programming constructs	1,2,3,4,5
C105.5	Develop programs in Scheme, ML, and Prolog and Understand and adopt new programming language	1,2,3,4,5

Mapping of COs, C, PSOs with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6
C105.1	3	2	1	1	1	-
C105.2	3	2	1	1	1	-
C105.3	3	2	1	1	1	-
C105.4	3	2	1	1	1	-
C105.5	3	2	1	1	1	-
C105	3	2	1	1	1	-

AX4091-ENGLISH FOR RESEARCH PAPER WRITING

After the course, the student should be able to:

CO	Course Outcomes	POs
C106.1	Understand that how to improve your writing skills and level of readability	1,2,3,4,5
C106.2	Learn about what to write in each section	1,2,3,4,5
C106.3	Understand the skills needed when writing a Title	1,2,3,4,5
C106.4	Understand the skills needed when writing the Conclusion	1,2,3,4,5
C106.5	Ensure the good quality of paper at very first-time submission	1,2,3,4,5

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