KAMARAJ
COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)
S.P.G.Chidambara Nadar - C.Nagammal Campus
S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

NAAC – CRITERION2

Teaching – Learning& Evaluation

2.6.1 Sample Course Outcomes and its mapping with Programme Outcomes & Programme Specific Outcomes

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Regulation: R2020 **Department: ECE**

Year/ Semester: IV/VII **Subject Code: EC1701**

Subject Name: Embedded and Real Time systems (Theory cum Lab)

Course Outcomes (Theory)

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
CO1	Describe the Architecture and programming of ARM processor.	K2- Understand
CO2	Outline the concepts of embedded systems.	K2- Understand
CO3	Explain the basic concepts of embedded programming.	K2- Understand
CO4	Elucidate the concepts of scheduling and operating system	K3- Apply
CO5	Model real-time applications using embedded-system concepts	K2- Understand

Course Outcomes (Lab)

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
CO1	Build ARM based embedded C program in Microkeil environment.	K3- Apply
CO2	Experiment with temperature sensor using analog to digital Conversion.	K3- Apply
CO3	Model DAC conversion in the ARM system.	K3- Apply
CO4	Develop IO programming in ARM system to interface LCD.	K3- Apply
CO5	Build IO programming in ARM system to rotate stepper motor with delays.	K3- Apply

Mapping of Course Outcomes with Program Outcome (Theory)

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
EC1701	CO1	M	L	-	-	-	M	-	-	-	-	-	-	L	-
	CO2	M	L	L	L	-	M	-	-	-	-	L	L	L	L
	CO3	M	L	L	L	-	M	-	-	-	-	L	L	L	L
	CO4	M	L	L	L	-	M	-	-	-	-	L	L	L	L
	CO5	H	M	L	L	L	H	-	-	-	-	L	L	M	L

Mapping of Course Outcomes with Program Outcomes (Lab)

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
EC1701	CO1	H	M	L	L	L	H	-	-	-	-	L	-	H	M
	CO2	H	M	L	L	L	H	-	-	-	-	L	L	H	M
	CO3	H	M	L	L	L	H	-	-	-	-	L	L	H	M
	CO4	H	M	L	L	L	H	-	-	-	-	L	L	H	M
	CO5	H	M	L	L	L	H	-	-	-	-	L	-	H	M

H-High, M-Moderate, L-Low

Subject Expert

HoD

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Regulation: R2020 **Department: ECE**

Year/ Semester: IV/VII **Subject Code: EC1702**

Subject Name: Optical Communication

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
CO1	Illustrate the various elements of fiber optics transmission link.	K2- Understand
CO2	Demonstrate and calculate various losses and signal distortion.	K2- Understand
CO3	Describe the fiber optics sources and various coupling techniques.	K2- Understand
CO4	Explain the concept of working of optical receivers and identify the type of receiver for different links.	K2- Understand
CO5	Explain the concepts of WDM, optical amplifiers and Soliton Propagation	K2- Understand

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
EC1702	CO1	M	M	L	L	L	L	L	L	L	L	-	L	M	L
	CO2	H	M	L	L	L	L	L	L	L	L	-	L	M	L
	CO3	M	M	L	L	L	L	L	L	L	L	-	L	M	L
	CO4	H	M	L	L	L	L	L	L	L	L	-	L	M	L
	CO5	M	M	L	L	L	L	L	L	L	L	-	L	M	L

H-High, M-Moderate, L-Low

Subject Expert **HoD**

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Regulation: R2020 **Department: ECE**

Year/ Semester: IV/VII **Subject Code: EC1731**

Subject Name: Ad hoc and Wireless Sensor Networks

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
CO1	Infer about the network architectures, Issues & design challenges and routing protocols of ad hoc and wireless sensor networks.	K2- Understand
CO2	Outline the challenges, enabling technologies and architecture for wireless sensor networks.	K2- Understand
CO3	Interpret the MAC and routing protocols for wireless sensor networks with respect to some protocol design issues.	K2- Understand
CO4	Summarize the different attacks and secure routing for sensor networks.	K2- Understand
CO5	Illustrate the sensor level hardware and node level simulators used to design the sensor networks.	K2- Understand

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
EC1731	CO1	M	L	L	L	-	M	-	-	-	-	-	L	L	L
	CO2	M	L	L	L	-	M	-	-	-	-	-	L	L	L
	CO3	M	L	L	L	-	M	-	-	-	-	-	L	L	L
	CO4	M	M	M	M	-	M	-	-	-	-	L	M	M	M
	CO5	M	M	M	M	H	M	-	-	-	-	M	M	M	M

H-High, M-Moderate, L-Low

Subject Expert **HoD**

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Regulation: R2020 **Department: ECE**

Year/ Semester: IV/VII **Subject Code: GE1471**

Subject Name: Professional Ethics and Human Values

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
CO1	Summarize the various morals, values, ethics, integrity and other human values	K2- Understand
CO2	Examine the senses of engineering, its related theories and models of professional roles	K2- Understand
CO3	Examine the codes of ethics for various engineering experimentation in design and manufacturing	K2- Understand
CO4	Examine the various risk, safety, and risk benefit analysis for a product/service in an organization	K2- Understand
CO5	Explain the various global issues in ethics and review the responsibilities and rights of professionals and employees in an organization	K2- Understand

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
EC1471	CO1	-	-	-	-	-	-	H	H	L	-	M	L	-	L
	CO2	-	-	-	-	-	-	H	H	-	-	-	L	-	L
	CO3	-	-	-	-	-	-	H	H	L	L	M	L	-	L
	CO4	-	-	-	-	-	M	H	H	L	L	L	L	-	L
	CO5	-	-	-	-	-	M	H	H	L	L	L	L	-	L

H-High, M-Moderate, L-Low

Subject Expert **HoD**

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Regulation: R2020 **Department: ECE**

Year/ Semester: IV/VII **Subject Code: GE1771**

Subject Name: Principles of Management

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
CO1	Interpret the basics and evolution of management, types of business organization and current trends in management.	K2- Understand
CO2	Make use of different strategies in planning and set effective plans using appropriate decision-making tools	K2- Understand
CO3	Outline the organization structure and process involved in Human Resource Management	K2- Understand
CO4	Explain the various motivational theories, communication process and leadership types.	K2- Understand
CO5	Summarize various control techniques and the use of computer and Information Technology in management control.	K2- Understand

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
GE1771	CO1	M	M	M	-	-	-	-	H	M	H	M	M	L	-
	CO2	M	H	H	-	-	-	-	-	M	-	M	H	L	-
	CO3	L	M	M	-	-	-	-	H	H	H	H	M	L	-
	CO4	M	L	M	-	-	-	-	M	M	H	H	H	L	-
	CO5	H	H	M	-	-	-	-	-	M	H	H	H	L	-

H-High, M-Moderate, L-Low

Subject Expert **HoD**

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Regulation : R2020 **Department : AD**

Year/ Semester : IV / VII **Subject Code : AD1702**

Subject Name : Fundamentals of Natural Language Processing

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
CO1	Explain the fundamental concepts of Natural Language Processing	K2 – Understand
CO2	Illustrate the algorithms used in word level analysis	K2 – Understand
CO3	Demonstrate the use of CFG in syntactic analysis	K2 – Understand
CO4	Outline the need for semantics and pragmatics	K2 – Understand
CO5	Interpret the context of the discourse using coherence and various resources	K2 – Understand

Mapping of Course Outcomes with Program Outcomes

Course Code	CO No.	Program outcomes											Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
AD1702	CO1	M	M	M	L	L	L	-	-	-	-	-	L	M	M
	CO2	M	M	M	L	L	L	-	-	-	-	-	L	M	M
	CO3	M	M	M	L	L	L	-	-	-	-	-	L	M	M
	CO4	M	M	M	L	L	L	-	-	-	-	-	L	M	M
	CO5	M	M	M	L	L	L	-	-	-	-	-	L	M	M

Subject Expert **HoD-CSE**

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Regulation : R2021 **Department** : IT

Year/ Semester : I / II **Subject Code** : MA2151

Subject Name : Vector calculus, Complex integration and Laplace Transform

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
CO1	Apply multiple integral techniques to calculate area and volume.	K3 – Apply
CO2	Solve engineering problems using the concepts of vector calculus.	K3 – Apply
CO3	Construct an analytic function, when its real or imaginary part is known.	K3 – Apply
CO4	Evaluate integrals using Cauchy's integral formula and residue theorem.	K3 – Apply
CO5	Apply Laplace transform techniques in solving ordinary differential equations.	K3 – Apply

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
MA2151	CO1	H	M	L	-	-	-	-	-	-	-	-	-	L	-
	CO2	H	H	L	-	-	-	-	-	-	-	-	-	L	-
	CO3	H	M	L	-	-	-	-	-	-	-	-	-	L	-
	CO4	H	H	L	-	-	-	-	-	-	-	-	-	L	-
	CO5	H	L	L	-	-	-	-	-	-	-	-	-	L	-

H-High, M-Moderate, L-Low

Subject Expert **HoD / MATHS**

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Regulation: 2021 **Department: English**

Year/ Semester: I /II **Subject Code: SH2151**

Subject Name: Professional English

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
CO1	Compare and contrast products and ideas in technical texts.	K3
CO2	Identify cause and effects in events, industrial processes through technical texts	K3
CO3	Analyse problems in order to arrive at feasible solutions and communicate them orally and in the written format.	K3
CO4	Report events and the processes of technical and industrial nature.	K3
CO5	Present their opinions in a planned and logical manner, and draft effective resumes in context of job search.	K3

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	-	-	-	-	-	-	-	-	-	M	-	-	-	-
	CO2	-	-	-	-	-	-	-	-	-	M	-	-	-	-
	CO3	-	-	-	-	-	-	-	-	-	M	-	-	-	-
	CO4	-	-	-	-	-	-	-	-	-	M	-	-	-	-
	CO5	-	-	-	-	-	-	-	-	-	M	-	-	-	-

H-High, M-Moderate, L-Low

Subject Expert **HoD**

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Regulation : R2021 **Department** : Information Technology

Year/ Semester : II / III **Subject Code** : IT2201

Subject Name : Computer Organization and Architecture

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
CO1	Summarize the functionalities of various parts, instruction sets and operations of a digital computer.	K2 – Understand
CO2	Utilize the logic design for fixed-point and floating point arithmetic.	K3 – Apply
CO3	Interpret the role of a processing unit and multiple functional units.	K3 – Apply
CO4	Explain the various elements in memory hierarchy and the basic and complex I/O structures.	K2 – Understand
CO5	Demonstrate how parallelism is used at instruction-level and data-level parallelism.	K2 – Understand

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
IT2201	CO1	M	L	-	-	-	-	-	-	-	-	-	L	L	L
	CO2	M	L	-	-	-	-	-	-	-	-	-	L	L	L
	CO3	M	L	-	-	-	-	-	-	-	-	-	L	L	L
	CO4	M	L	-	-	-	-	-	-	-	-	-	L	L	L
	CO5	M	L	-	-	-	-	-	-	-	-	-	L	L	L

Correlation Levels: L:Slight M:Moderate H:Substantial

R. Muthselvi
Subject Expert
(Dr. R. Muthselvi
Prof / CSE)

HoD

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Regulation : R2021 **Department : Information Technology**

Year/ Semester : II / III **Subject Code : IT2202**

Subject Name : Object Oriented Programming

Course Outcomes

On successful completion of this course, the students will be able to:

Course No.	Course Outcome (Students should be able to...)	Knowledge Level
21ITC203.1	Demonstrate the basic concepts of object oriented programming using JAVA	K2
21ITC203.2	Make use of the OOP concept and non-access modifiers to solve real world problems	K3
21ITC203.3	Choose an appropriate exception handler and generic data type for writing a JAVA application	K3
21ITC203.4	Select the appropriate features of event driven programming and I/O streams to give solution to real time problems	K3
21ITC203.5	Apply multithreading programming to generate synchronized threads	K3

Mapping of Course Outcomes with Program Outcomes

Course Outcomes	Program out comes												Program Specific outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
21ITC203.1	M	H	L	M	L	-	-	-	-	-	-	L	M	M
21ITC203.2	M	H	L	M	L	-	-	-	-	-	-	L	M	M
21ITC203.3	M	H	L	M	L	-	-	-	-	-	-	L	M	M
21ITC203.4	M	H	L	M	L	-	-	-	-	-	-	L	M	M
21ITC203.5	M	H	L	M	L	-	-	-	-	-	-	L	M	M
21ITC203	M	H	L	M	L	-	-	-	-	-	-	L	M	M

Correlation Levels: L:Slight M:Moderate H:Substantial

1/8/2022

Subject Expert **HoD**

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Regulation : R2021 **Department** : Information Technology

Year/ Semester: II / III **Subject Code** : EC2203

Subject Name : Digital Systems

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
21ITC205.1	**Outline** the Boolean functions and various minimization techniques.	K2-Understand
21ITC205.2	**Illustrate** the combinational circuits used to perform basic digital operations.	K2-Understand
21ITC205.3	**Develop** the synchronous/ asynchronous counters and shift registers using sequential logic.	K3-Apply
21ITC205.4	**Implement** combinational and sequential logic circuits using Verilog HDL.	K3-Apply
21ITC205.5	**Design** combinational circuits using programmable logic devices and Memory Devices.	K3-Apply

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO
EC2203	21ITC205.1	M	L	L	L	L	-	-	-	-	-	-	L	L	L
	21ITC205.2	H	M	M	L	L	-	-	-	-	-	-	L	M	L
	21ITC205.3	H	M	M	L	L	-	-	-	-	-	-	L	M	L
	21ITC205.4	H	H	H	L	L	-	-	-	-	-	-	L	M	L
	21ITC205.5	M	L	L	L	L	-	-	-	-	-	-	L	M	L

Correlation Levels: L:Slight M:Moderate H:Substantial

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Subject Expert **HoD**

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Regulation : **R2021** **Department** : **Information Technology**

Year/ Semester : **II / III** **Subject Code** : **EE2201**

Subject Name : **Fundamentals of Electrical and Electronics Engineering**

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
20ITC206.1	Solve simple dc circuits using basic electrical laws.	K2 –Understand
20ITC206.2	Describe the construction and working principle of various DC and AC Machines.	K2 –Understand
20ITC206.3	Elucidate characteristics of various semiconductor devices used in electronic circuits	K3 – Apply
20ITC206.4	Design simple digital circuits for various electronic applications	K3 – Apply
20ITC206.5	Explain the construction and working of electrical measuring instruments and transducers.	K2 –Understand

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2
EE2201	20UIT206.1	M	L	-	-	L	-	-	-	L	-	-	L	L	L
	20UIT206.2	M	L	-	-	L	-	-	-	L	-	-	L	L	L
	20UIT206.3	H	M	L	L	M	-	-	-	L	-	-	M	M	M
	20UIT206.4	H	M	L	L	M	-	-	-	L	-	-	M	M	M
	20UIT206.5	M	L	-	-	L	-	-	-	L	-	-	L	L	L

Correlation Levels: L:Slight M:Moderate H:Substantial

Subject Expert

J. MARIAPPAN.

18/1/2022

HoD

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Regulation : R2021 **Department** : Information Technology

Year/ Semester : II / III **Subject Code** : IT2204

Subject Name : Object Oriented programming Laboratory

Course Outcomes

On successful completion of this course, the students will be able to:

Course No.	Course Outcome (Students will be able to)	Knowledge Level
21ITC208.1	Develop JAVA applications using Fundamental Programming Structures	K3 – Apply
21ITC208.2	Make use of the OOPs features to implement various JAVA applications	K3 – Apply
21ITC208.3	Apply the exception handling mechanism to handle the exceptions that arise in JAVA applications	K3 – Apply
21ITC208.4	Build Java application using event driven programming and JDBC concepts	K3 – Apply
21ITC208.5	Utilize Generics programming and Multithreaded programming for developing JAVA applications	K3 – Apply

Mapping of Course Outcomes with Program Outcomes

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
21ITC208.1	M	H	L	M	L	-	-	-	-	L	-	L	H	M
21ITC208.2	M	H	L	M	L	-	-	-	-	L	-	L	H	M
21ITC208.3	M	H	L	M	L	-	-	-	-	L	-	L	H	M
21ITC208.4	M	H	M	M	L	-	-	-	H	H	-	L	H	M
21ITC208.5	M	H	L	M	L	-	-	-	-	L	-	L	H	M
21ITC208	M	H	L	M	L	-	-	-	H	L	-	L	H	M

Correlation Levels: L:Slight M:Moderate H:Substantial

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Subject Expert **HoD**

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Regulation : R2021 **Department : Information Technology**

Year/ Semester: II / III **Subject Code : EC2204**

Subject Name : Digital Systems Laboratory

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
21ITC209.1	Experiment with the basics of gates.	K3-Apply
21ITC209.2	Build different combinational circuits.	K3-Apply
21ITC209.3	Construct various sequential circuits.	K3-Apply
21ITC209.4	Model combinational & Sequential circuits using HDL.	K3- Apply
21ITC209.5	Make use of the concepts for implementation of a simple digital system.	K3-Apply

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO
EC2204	21ITC209.1	H	H	L	L	L	-	-	-	-	-	M	M	M	L
	21ITC209.2	H	H	L	L	L	-	-	-	-	-	M	M	M	L
	21ITC209.3	H	H	L	L	L	-	-	-	-	-	M	M	M	L
	21ITC209.4	H	H	L	L	L	-	-	-	-	-	M	M	M	L
	21ITC209.5	H	H	L	L	L	-	-	-	-	-	M	M	M	L

Correlation Levels: L:Slight M:Moderate H:Substantial

1/8/2022

Subject Expert

ARAVIND P

AP/ECE

HoD

Department of Computer Science & Engineering

Regulation : R2021 **Department :** CSE

Year / Semester : II / IV **Subject Code :** CS2253

Subject Name : SOFTWARE ENGINEERING WITH UML DESIGN

Course Outcomes:

On the successful completion of this course, the students will be able to,

CO No.	CO statements	Knowledge Level
CO1	Develop life cycle models for software development.	K3- Apply
CO2	Model the static features of the system.	K3- Apply
CO3	Model the dynamic features of the system.	K3- Apply
CO4	Illustrate the different management techniques.	K2-Understand
CO5	Demonstrate the various testing strategies.	K2-Understand

Mapping of Course Outcomes with Program Outcomes:

Course Code	CO No.	POs												PSOs	
		1	2	3	4	5	6	7	8	9	10	11	12	1	2
CS2253	CO1	M	M	L	-	-	-	-	-	-	-	-	-	M	M
	CO2	H	M	M	-	-	-	-	-	-	-	-	-	L	L
	CO3	H	M	M	-	-	-	-	-	-	-	-	-	H	H
	CO4	H	M	M	-	-	-	-	-	-	-	-	-	M	M
	CO5	H	M	M	-	-	-	-	-	-	-	-	-	M	M

H- High, M- Moderate, L- Low

Subject Expert **HoD-CSE**

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Regulation : R2021 **Department : Information Technology**

Year/ Semester : II / IV **Subject Code : MA2251**

Subject Name : Discrete Mathematics and Probability

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
CO1	Use propositional and predicate logic to derive new inference from a given scenario.	K3 – Apply
CO2	Solve problems using mathematical induction, permutation, combination and recurrence relations.	K3 – Apply
CO3	Apply graph theory to find shortest path and Euler's circuits in a given network.	K3 – Apply
CO4	Apply the concepts of probability distributions to solve engineering problems.	K3 – Apply
CO5	Compute the correlation between two random variables and linear regression equation for a given set of data.	K3 – Apply

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Discrete Mathematics and Probability	CO1	H	M	L	-	-	-	-	-	-	-	-	-	L	-
	CO2	H	M	L	-	-	-	-	-	-	-	-	-	L	-
	CO3	H	M	L	-	-	-	-	-	-	-	-	-	L	-
	CO4	H	M	L	-	-	-	-	-	-	-	-	-	L	-
	CO5	H	M	L	-	-	-	-	-	-	-	-	-	L	-

Correlation Levels: L:Slight M:Moderate H:Substantial

Subject Expert **HoD**

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Regulation : R2021 **Department** : Information Technology

Year/ Semester : II / IV **Subject Code** : CS2251

Subject Name : Database Management Systems

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
21ITC211.1	Infer the basic concepts of database system and model ER diagram for real time applications	K2 - Understand
21ITC211.2	Use appropriate SQL commands to store and access data from Relational Database	K3 – Apply
21ITC211.3	Construct normalized database for real world scenario using functional dependencies	K3 – Apply
21ITC211.4	Illustrate the importance of transaction and concurrency control to maintain consistency in a database	K2 - Understand
21ITC211.5	Interpret the mechanism incorporated in file organization and Query processing	K2 - Understand

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CS2251	21ITC211.1	M	L	L	L	-	-	-	-	-	-	-	L	M	L
	21ITC211.2	M	M	-	L	-	-	-	-	-	-	-	L	M	L
	21ITC211.3	M	M	L	-	-	-	-	-	-	-	-	L	M	L
	21ITC211.4	M	M	-	-	-	-	-	-	-	-	-	L	M	L
	21ITC211.5	M	M	-	-	-	-	-	-	-	-	-	L	M	L

Correlation Levels: L:Slight M:Moderate H:Substantial

Subject Expert **HoD**

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Regulation : R2021 **Department : Information Technology**

Year/ Semester : II / IV **Subject Code : IT2251**

Subject Name : Data Structures

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
21ITC212.1	Utilize an appropriate linear data structure to provide solution for real life scenario	K3 – Apply
21ITC212.2	Make use of Stack and Queue ADTs for problem solving.	K3 – Apply
21ITC212.3	Illustrate the structural properties and operations on various types of Tree ADTs in balanced search.	K2 – Understand
21ITC212.4	Select an appropriate graph algorithm to solve real life problems.	K3 – Apply
21ITC212.5	Choose an appropriate sorting, searching or indexing strategy for effective data storage and retrieval.	K3 – Apply

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
IT2251	21ITC212.1	M	L	L	-	-	-	-	-	L	-	-	M	M	M
	21ITC212.2	M	M	M	L	-	-	-	-	L	-	-	M	M	M
	21ITC212.3	M	M	M	M	-	-	-	-	L	-	-	L	M	M
	21ITC212.4	M	M	M	M	-	-	-	-	L	-	-	L	M	M
	21ITC212.5	M	M	M	M	-	-	-	-	L	-	-	L	M	M

Correlation Levels: L:Slight M:Moderate H:Substantial

Subject Expert **HoD**

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Regulation : R2021 **Department** : Information Technology

Year/ Semester : II / IV **Subject Code** : IT2252

Subject Name : Operating Systems

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes - [illegible] Lab	Learning Level
21ITC213.1	Execute UNIX commands, system calls and shell script programs	K3 - Apply
21ITC213.2	Utilize the various CPU scheduling and deadlock avoidance algorithm for process management	K3 - Apply
21ITC213.3	Choose an appropriate memory allocation method and page replacement algorithm to manage memory	K3 - Apply
21ITC213.4	Implement various file allocation strategies and disk scheduling algorithms	K3 - Apply
21ITC213.5	Experiment the installation of guest OS in virtualized environment	K3 - Apply

Mapping of Course Outcomes with Program Outcomes

Course	CO. No.	Program Outcomes												Program Specific Outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
IT2252 Lab	21ITC213.1	M	L	-	L	L	-	-	-	-	-	-	-	M	M
	21ITC213.2	H	H	-	M	L	-	-	-	-	-	-	-	M	M
	21ITC213.3	H	H	-	M	L	-	-	-	-	-	-	-	M	M
	21ITC213.4	H	H	-	M	L	-	-	-	-	-	-	-	M	M
	21ITC213.5	H	H	-	M	L	-	-	-	-	-	-	-	M	M

Correlation Levels: L:Slight M:Moderate H:Substantial

Subject Expert

HoD / IT

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Regulation : R2021 **Department** : Information Technology

Year/ Semester : II / IV **Subject Code** : IT2252

Subject Name : Operating Systems

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes - Theory	Learning Level
21ITC213.1	Elucidate the evolution of operating system along with its structure and functions	K2 - Understand
21ITC213.2	Demonstrate the various process management algorithms	K2 - Understand
21ITC213.3	Illustrate the performance of various memory management techniques	K2 - Understand
21ITC213.4	Describe file, directory system and I/O management techniques	K2 - Understand
21ITC213.5	Summarize the concepts of virtualization and various Mobile OS	K2 - Understand

Mapping of Course Outcomes with Program Outcomes

Course	CO. No.	Program Outcomes												Program Specific Outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
IT2252 Theory	21ITC213.1	M	L	-	L	L	-	-	-	-	-	-	-	M	M
	21ITC213.2	M	H	-	M	L	-	-	-	-	-	-	-	M	M
	21ITC213.3	M	H	-	M	L	-	-	-	-	-	-	-	M	M
	21ITC213.4	M	H	-	M	L	-	-	-	-	-	-	-	M	M
	21ITC213.5	M	L	-	L	L	-	-	-	-	-	-	-	M	M

Correlation Levels: L:Slight M:Moderate H:Substantial

Subject Expert **HoD / IT**

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Regulation : R2021 **Department** : Information Technology

Year/ Semester : II / IV **Subject Code** : IT2253

Subject Name : Web Essentials

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
21ITC214.1	Describe the fundamental concepts of website	K2 - Understand
21ITC214.2	Identify the appropriate HTML tags for creating a formatted static website in client server communication	K2 - Understand
21ITC214.3	Choose appropriate tags to format and validate the front end of web application	K2 - Understand
21ITC214.4	Make use of sever side scripting and database concepts for creating an interactive web application	K3 - Apply
21ITC214.5	Utilize the features of Servlet and JDBC to interact with server.	K3 - Apply

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
IT2253	21ITC214.1	M	L	L	-	-	-	-	-	-	-	-	L	M	M
	21ITC214.2	M	L	L	L	L	-	-	-	-	-	-	L	M	M
	21ITC214.3	M	M	M	L	L	-	-	-	-	-	-	L	M	M
	21ITC214.4	M	M	M	L	L	-	-	-	-	-	-	L	M	M
	21ITC214.5	M	M	M	L	L	-	-	-	-	-	-	L	M	M

Correlation Levels: L:Slight M:Moderate H:Substantial

Subject Expert **HoD**

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Regulation : R2021 **Department** : Information Technology

Year/ Semester : II / IV **Subject Code** : IT2254

Subject Name : Data Structures Laboratory

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
21ITC216.1	Implement linear data structures - Array, List, Stack and Queue ADTs for problem solving	K3 – Apply
21ITC216.2	Implement non-linear, hierarchical data structure - Trees for problem solving	K3 – Apply
21ITC216.3	Implement non-linear, non-hierarchical data structure - Graph for problem solving	K3 – Apply
21ITC216.4	Implement various Searching and Sorting Algorithms	K3 – Apply
21ITC216.5	Apply appropriate hash functions in a hash ADT to facilitate collision free data storage and retrieval	K3 – Apply

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes											Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
IT2254	21ITC216.1	H	M	M	L	L	-	-	-	H	-	-	L	H	L
	21ITC216.2	H	M	M	L	L	-	-	-	H	-	-	L	H	L
	21ITC216.3	H	M	M	L	L	-	-	-	H	-	-	L	H	L
	21ITC216.4	H	M	M	L	L	-	-	-	H	-	-	L	H	L
	21ITC216.5	H	M	M	L	L	-	-	-	H	-	-	L	H	L

Correlation Levels: L:Slight M:Moderate H:Substantial

Subject Expert HoD

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Regulation : R2021 **Department** : Information Technology

Year/ Semester : II / IV **Subject Code** : IT2255

Subject Name : Web Essentials Laboratory

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
21ITC217.1	Apply HTML and CSS technologies for creating interactive webpage	K3 – Apply
21ITC217.2	Develop a dynamic web application using DHTML and JavaScript	K3 – Apply
21ITC217.3	Design a simple website using PHP script	K3 – Apply
21ITC217.4	Make Use of server-side scripting like servlets to implement three tier web applications	K3 – Apply
21ITC217.5	Utilize the features of PHP to implement client server communication	K3 – Apply

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
21ITC217	21ITC217.1	L	L	L	L	L	L	-	-	-	-	-	M	M	M
	21ITC217.2	L	L	M	L	L	L	-	-	-	-	-	M	M	M
	21ITC217.3	M	M	H	M	L	L	-	-	-	-	-	M	M	M
	21ITC217.4	M	M	H	M	L	L	-	-	-	-	-	M	M	M
	21ITC217.5	L	H	M	M	L	L	-	-	-	-	-	M	M	M

Correlation Levels: L:Slight M:Moderate H:Substantial

Subject Expert HoD

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Regulation : R2021 **Department** : Information Technology

Year/ Semester : II / IV **Subject Code** : CS2254

Subject Name : Database Management Systems Laboratory

Course Outcomes

On successful completion of this course, the students will be able to:

CO No.	Course Outcomes	Learning Level
21ITC215.1	Choose appropriate DDL, DML, DCL and TCL commands for creating and manipulating the databases	K3 - Apply
21ITC215.2	Construct appropriate nested queries, sub queries and join queries for efficient retrieval of data	K3 - Apply
21ITC215.3	Organize database using views, sequences, and synonyms	K3 - Apply
21ITC215.4	Implement functions, procedures, triggers and exceptions using PL/SQL	K3 - Apply
21ITC215.5	Develop a GUI based environment for storage and retrieval of data for a real time application	K3 - Apply

Mapping of Course Outcomes with Program Outcomes

Course	CO No.	Program outcomes												Program Specific outcomes	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CS2254	21ITC215.1	M	M	L	-	L	-	-	-	-	-	-	-	M	L
	21ITC215.2	M	M	L	-	L	-	-	-	-	-	-	-	M	L
	21ITC215.3	M	M	L	-	L	-	-	-	-	-	-	-	M	L
	21ITC215.4	M	M	L	-	L	-	-	-	-	-	-	-	M	L
	21ITC215.5	M	H	M	L	L	-	-	-	L	-	L	L	M	L

Correlation Levels: L:Slight M:Moderate H:Substantial

Subject Expert

HoD