



**(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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(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).

Regulation : R2017

Department : EIE

Year/ Semester : III/VI

Subject Code : CS8391

Subject Name : Data Structures

Course Outcomes

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

CO No.	Course Outcomes	Learning Level
CO1	Illustrate the basic concepts of List ADT and its applications	K2- Understand
CO2	Discuss the applications of Stack and Queue ADT for problem solving	K2- Understand
CO3	Demonstrate the different operations and applications of Tree ADTs	K2- Understand
CO4	Explain the algorithms on a Graph ADT for problem solving	K2-Understand
CO5	Identify appropriate sorting and searching techniques for problem Solving	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
CS8391	CO1	L	-	-	-	-	-	-	-	L	L	-	-	L	L
	CO2	L	L	L	-	-	-	-	-	L	-	-	L	L	L
	CO3	M	M	L	L	-	-	-	-	L	-	-	L	L	L
	CO4	M	M	L	L	-	-	-	-	L	-	-	L	L	L
	CO5	L	-	-	-	-	-	-	-	L	-	-	L	L	L

*K. Malid*  
 Subject Expert

*[Signature]*  
 HoD



**Regulation: R2017**

**Department: EIE**

**Year/ Semester: III / VI**

**Subject Code: EE8071**

**Subject Name: Applied Soft Computing**

**Course Outcomes**

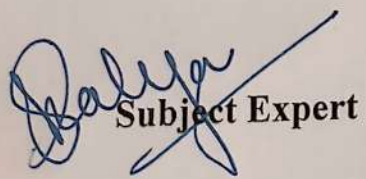
**On successful completion of this course, the students will be able to:**

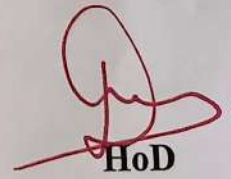
CO No.	Course Outcomes	Learning Level
CO1	Explain the basic architecture, model and types of neural networks	K2
CO2	Apply the neural networks in real time control processes	K3
CO3	Outline the basics of fuzzy systems and hybrid fuzzy systems	K2
CO4	Apply fuzzy intelligent controllers for real time problems	K3
CO5	Solve the optimization problems using genetic algorithm or any other search techniques	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
<b>17C314</b>	CO1	M	M						L	L	M		L	L	L
	CO2	M	M						L	L	M		L	M	L
	CO3	M	M						L	L	M		L	L	L
	CO4	H	M						L	L	M		L	M	L
	CO5	H	M						L	L	M		L	M	L

H-High, M-Moderate, L-Low

  
**Subject Expert**

  
**HoD**



Regulation: R2017

Department: EIE

Year/ Semester: III / VI

Subject Code: EI8077

Subject Name: POWER ELECTRONICS AND DRIVES

Course Outcomes

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

CO No.	Course Outcomes	Learning Level
R17C313.1	Classify various power semiconductor switching devices based on its construction, characteristics and design of snubber circuit.	K2 - Understand
R17C313.2	Solve the performance parameters of various controlled rectifiers, dual converters, AC Voltage controllers & Matrix Converters	K3 – Apply
R17C313.3	Explain the control strategies and commutation circuits of different DC- DC converters	K2 – Understand
R17C313.4	Interpret single phase and three phase VSI, CSI, resonant inverters and their different switching PWM techniques.	K2 – Understand
R17C313.5	Explain the control strategies of DC drives & AC drives with their static and dynamic equations	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
EI8077	17C313.1	H	L	L	-	M	-	-	-	M	M	M	M	L	-
	17C313.2	H	H	M	M	-	-	-	-	-	-	-	M	H	M
	17C313.3	H	H	M	-	-	-	-	-	-	M	-	M	M	M
	17C313.4	H	H	M	M	-	-	-	-	L	-	-	M	M	M
	17C313.5	H	L	L	-	-	-	-	-	L	M	M	L	L	-

H-High, M-Moderate, L-Low

  
Subject Expert

  
HoD

Regulation: 2020

Department: CHEMISTRY

Year/ Semester: I / I

Subject Code: CY1171

Subject Name: Engineering Chemistry

Course Outcomes

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

CO No.	Course Outcomes	Learning Level
CO1	Illustrate various methods in the purification of water	K3
CO2	Construct energy storage devices based on concepts of electrochemistry	K3
CO3	Recognize different forms of energy resources to apply them for suitable applications in energy sectors	K3
CO4	Demonstrate the methods to synthesize polymers for specific applications	K3
CO5	Identify the different materials used in engineering and technology applications	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	3											1		
	CO2	3											1		
	CO3	3											1		
	CO4	3											1		
	CO5	3											1		

H-High, M-Moderate, L-Low

*Sumas*  
Subject Expert

*J. Dhanalakshmi*  
HoD



Regulation: 2020

Department: EIE

Year/ Semester: II/IV

Subject Code: EE1481

Subject Name: Linear and Digital Integrated Circuits Laboratory

**Course Outcomes**

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

CO No.	Course Outcomes	Learning Level
C215.1	Design and demonstrate analog electronic circuits using operational amplifier	K3
C215.2	Design and demonstrate analog electronic circuits using timer 555.	K3
C215.3	Design and demonstrate digital circuits involving Boolean functions using basic logic gates.	K3
C215.4	Design and demonstrate combinational circuits such as adder, subtractor, code converters, encoders and decoders.	K3
C215.4	Design and demonstrate sequential logic circuits such as Flip-Flops, Counters (synchronous and asynchronous), and Shift Registers.	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
C215	CO1	H	M	L									M	H	M
	CO2	H	M	L									M	H	M
	CO3	H	M	L									M	H	M
	CO4	H	M	L									M	H	M
	CO5	H	M	L									M	H	M

H-High, M-Moderate, L-Low

  
Subject Expert

  
HoD



Regulation : R2020

Department : Information Technology

Year/ Semester : II / IV

Subject Code : CS1371

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
20ITC210.1	Infer the basic concepts of database system and model ER diagram for real time applications	K2 - Understand
20ITC210.2	Use appropriate SQL commands to store and access data from Relational Database	K3 – Apply
20ITC210.3	Construct normalized database for real world scenario using functional dependencies	K3 – Apply
20ITC210.4	Illustrate the importance of transaction and concurrency control to maintain consistency in a database	K2 - Understand
20ITC210.5	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	
CS1371	20ITC210.1	M	L	L	L	-	-	-	-	-	-	-	-	L	M	L
	20ITC210.2	M	M	-	L	-	-	-	-	-	-	-	-	L	M	L
	20ITC210.3	M	M	L	-	-	-	-	-	-	-	-	-	L	M	L
	20ITC210.4	M	M	-	-	-	-	-	-	-	-	-	-	L	M	L
	20ITC210.5	M	M	-	-	-	-	-	-	-	-	-	-	L	M	L

Correlation Levels: L:Slight

M:Moderate

H:Substantial

  
Subject Expert



HoD

Regulation : R2020

Department : Information Technology

Year/ Semester : II / IV

Subject Code : IT1401

Subject Name : Data Structures

**Course Outcomes**

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

CO No.	Course Outcomes	Learning Level
20ITC211.1	Utilize an appropriate linear data structure to provide solution for real life scenario	K3 – Apply
20ITC211.2	Make use of Stack and Queue ADTs for problem solving.	K3 – Apply
20ITC211.3	Illustrate the structural properties and operations on various types of Tree ADTs in balanced search.	K2 – Understanding
20ITC211.4	Select an appropriate graph algorithms to solve real life problems.	K3 – Apply
20ITC211.5	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
IT1401	20ITC211.1	M	L	L	-	-	-	-	-	L	-	-	M	M	M
	20ITC211.2	M	M	M	L	-	-	-	-	L	-	-	M	M	M
	20ITC211.3	M	M	M	M	-	-	-	-	L	-	-	L	M	M
	20ITC211.4	M	M	M	M	-	-	-	-	L	-	-	L	M	M
	20ITC211.5	M	M	M	M	-	-	-	-	L	-	-	L	M	M

Correlation Levels: L:Slight

M:Moderate

H:Substantial



**Subject Expert**



**HoD**



Regulation : R2020

Department : Information Technology

Year/ Semester : II / IV

Subject Code : IT1402

Subject Name : Operating Systems

**Course Outcomes**

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

CO No.	Course Outcomes	Learning Level
20ITC212.1	Elucidate the evolution of operating system along with its structure and functions	K2 - Understand
20ITC212.2	Demonstrate the various process management algorithms	K2 - Understand
20ITC212.3	Illustrate the performance of various memory management techniques	K2 - Understand
20ITC212.4	Describe file, directory system and I/O management techniques	K2 - Understand
20ITC212.5	Summarize some popular operating systems like Linux, Mobile OS like iOS and Android	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
IT1402	20ITC212.1	M	L	-	L	L	-	-	-	-	-	-	-	M	M
	20ITC212.2	M	H	-	M	L	-	-	-	-	-	-	-	M	M
	20ITC212.3	M	H	-	M	L	-	-	-	-	-	-	-	M	M
	20ITC212.4	M	H	-	M	L	-	-	-	-	-	-	-	M	M
	20ITC212.5	M	L	-	L	L	-	-	-	-	-	-	-	M	M

Correlation Levels: L:Slight

M:Moderate

H:Substantial

**Subject Expert**

**HoD**



Regulation : R2020

Department : Information Technology

Year/ Semester : II / IV

Subject Code : IT1403

Subject Name : Software Engineering

**Course Outcomes**

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

CO No.	Course Outcomes	Learning Level
20ITC213.1	Compare and contrast the various Process Models to develop software projects.	K2 - Understand
20ITC213.2	Explain the concepts of requirement engineering and analysis modelling.	K2 - Understand
20ITC213.3	Illustrate the software design process and various types of design models.	K2 - Understand
20ITC213.4	Paraphrase the relevant coding standards, testing practices and Reengineering Process Model.	K2 - Understand
20ITC213.5	Outline the various activities involved in the software project management.	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
IT1403	20ITC213.1	M	M	L	L	-	-	-	-	-	-	-	L	L	L
	20ITC213.2	M	L	M	M	-	-	-	-	-	H	L	L	M	M
	20ITC213.3	M	M	M	M	L	-	-	-	-	-	-	L	M	M
	20ITC213.4	M	M	L	M	L	-	-	-	-	-	-	L	M	M
	20ITC213.5	M	M	L	M	L	-	L	-	-	-	H	L	M	M

Correlation Levels: L: Slight

M: Moderate

H: Substantial

  
Subject Expert

  
HoD

Regulation : R2020

Department : Information Technology

Year/ Semester : II / IV

Subject Code : EC1406

Subject Name : Communication Engineering

**Course Outcomes**

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

CO No.	Course Outcomes	Learning Level
20ITC214.1	Explain the different analog communication techniques and their comparison.	K2- Understand
20ITC214.2	Interpret various pulse communication systems with the fundamentals of data communication for serial and parallel interface.	K2- Understand
20ITC214.3	Compare the different types of digital communication methods used for high bit rate transmission	K2- Understand
20ITC214.4	Explain the concepts of source, error control and block coding techniques for enhancing the rating of transmission and minimizing the errors in transmission	K2- Understand
20ITC214.5	Illustrate the various radio communication medium like GSM, CDMA, Satellite communication and Bluetooth for enhancing the number of users	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
EC1406	20ITC214.1	H	M	L	L	-	L	-	L	L	L	-	L	L	L
	20ITC214.2	H	M	L	L	-	L	-	-	L	L	-	L	L	L
	20ITC214.3	H	M	L	L	-	L	-	-	L	-	-	L	L	L
	20ITC214.4	H	M	L	L	-	L	-	-	L	-	-	L	L	L
	20ITC214.5	H	M	L	L	-	L	-	L	L	L	-	L	L	L

Correlation Levels: L:Slight

M:Moderate

H:Substantial



Subject Expert



HoD

Regulation : R2020

Department : Information Technology

Year/ Semester : II / IV

Subject Code : CS1381

Subject Name : Database Management Systems Lab

**Course Outcomes**

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

CO No.	Course Outcomes	Learning Level
20ITC215.1	Choose appropriate DDL, DML, DCL and TCL commands for creating and manipulating the databases	K3-Apply
20ITC215.2	Construct appropriate nested queries, sub queries and join queries for efficient retrieval of data	K3-Apply
20ITC215.3	Organize database using views, sequences, and synonyms	K3-Apply
20ITC215.4	Implement functions, procedures, triggers and exceptions using PL/SQL	K3-Apply
20ITC215.5	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
CS1381	20ITC215.1	M	M	L	-	L	-	-	-	-	-	-	-	M	L
	20ITC215.2	M	M	L	-	L	-	-	-	-	-	-	-	M	L
	20ITC215.3	M	M	L	-	L	-	-	-	-	-	-	-	M	L
	20ITC215.4	M	M	L	-	L	-	-	-	-	-	-	-	M	L
	20ITC215.5	M	H	M	L	L	-	-	-	L	-	-	L	M	L

Correlation Levels: L:Slight

M:Moderate

H:Substantial

  
**Subject Expert**

  
**HoD**



Regulation : R2020

Department : Information Technology

Year/ Semester : II / IV

Subject Code : IT1411

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
20ITC216.1	Implement linear data structures - Array, List, Stack and Queue ADTs for problem solving	K3 – Apply
20ITC216.2	Implement non-linear, hierarchical data structure - Trees for problem solving	K3 – Apply
20ITC216.3	Implement non-linear, non-hierarchical data structure - Graph for problem solving	K3 – Apply
20ITC216.4	Implement various Searching and Sorting Algorithms	K3 – Apply
20ITC216.5	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
<b>IT1411</b>	20ITC216.1	H	M	M	L	L	-	-	-	H	-	-	L	H	L
	20ITC216.2	H	M	M	L	L	-	-	-	H	-	-	L	H	L
	20ITC216.3	H	M	M	L	L	-	-	-	H	-	-	L	H	L
	20ITC216.4	H	M	M	L	L	-	-	-	H	-	-	L	H	L
	20ITC216.5	H	M	M	L	L	-	-	-	H	-	-	L	H	L

Correlation Levels: L:Slight

M:Moderate

H:Substantial

  
**Subject Expert**

  
**HoD**

Regulation : R2020

Department : Information Technology

Year/ Semester : II / IV

Subject Code : IT1412

Subject Name : Operating Systems Lab

**Course Outcomes**

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

CO No.	Course Outcomes	Learning Level
20ITC217.1	Practice UNIX commands, system calls and write shell scripts involving selection and loops	K3 - Apply
20ITC217.2	Execute various CPU scheduling algorithms	K3 - Apply
20ITC217.3	Create processes and implements inter process communication with synchronization	K3 - Apply
20ITC217.4	Implement deadlock avoidance and detection algorithms	K3 - Apply
20ITC217.5	Illustrate various memory allocation methods, page replacement algorithms, file allocation and organization techniques	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
IT1412	20ITC217.1	M	L	-	L	L	-	-	-	-	-	-	-	M	M
	20ITC217.2	H	H	-	M	L	-	-	-	-	-	-	-	M	M
	20ITC217.3	H	H	-	M	L	-	-	-	-	-	-	-	M	M
	20ITC217.4	H	H	-	M	L	-	-	-	-	-	-	-	M	M
	20ITC217.5	H	H	-	M	L	-	-	-	-	-	-	-	M	M

Correlation Levels: L:Slight

M:Moderate

H:Substantial

  
Subject Expert

  
HoD / IT

Regulation : R2020

Department : Information Technology

Year/ Semester : II

Subject Code : HS1421

Subject Name : An Introduction to Advanced Reading and Writing

**Course Outcomes**

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

CO No.	Course Outcomes	Learning Level
20ITC218.1	Develop a descriptive paragraph	K3 – Apply
20ITC218.2	State reasons and examples to support ideas in writing an opinion paragraph	K3 – Apply
20ITC218.3	Make use of standard English in writing various types of Essays	K3 – Apply
20ITC218.4	Demonstrate proper usage of grammar in writing E-Mails, Job application and project proposals	K3 – Apply
20ITC218.5	Understand how the text positions the reader	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	
<b>HS1421</b>	20ITC218.1	-	-	-	-	-	-	-	-	-	-	M	-	-	-	-
	20ITC218.2	-	-	-	-	-	-	-	-	-	-	M	-	-	-	-
	20ITC218.3	-	-	-	-	-	-	-	-	-	-	M	-	-	-	-
	20ITC218.4	-	-	-	-	-	-	-	-	-	-	M	-	-	-	-
	20ITC218.5	-	-	-	-	-	-	-	-	-	-	M	-	-	-	-

Correlation Levels: L:Slight

M:Moderate

H:Substantial

  
**Subject Expert**

  
**HoD**





(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).

Regulation: 2020

Department: Mechatronics Engineering

Year/ Semester: II / IV

Subject Code: MA1402

Subject Name: Statistics and Numerical Methods

**Course Outcomes**

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

CO. No.	CO Statements	Knowledge Level
CO1	Apply the concepts of testing of hypothesis for small and large samples in real life problems.	K3 - Apply
CO2	Apply the basic concepts of classifications of design of experiments.	K3 - Apply
CO3	Apply the techniques for solving the transcendental equations, system of equations and eigen value problems.	K3 - Apply
CO4	Apply the numerical techniques of differentiation and integration for engineering problems.	K3 - Apply
CO5	Solve the ordinary differential equations with initial conditions by various methods.	K3 - Apply

**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	3
MA1402	CO1	H	H	M	-	-	-	-	-	-	-	-	-	L	-	-
	CO2	H	M	L	-	-	-	-	-	-	-	-	-	L	-	-
	CO3	H	M	L	-	-	-	-	-	-	-	-	-	L	-	-
	CO4	H	M	L	-	-	-	-	-	-	-	-	-	L	-	-
	CO5	H	M	L	-	-	-	-	-	-	-	-	-	L	-	-

H-High, M-Moderate, L-Low

*S. H. Dily*

Subject Expert

*[Signature]*

HoD



Regulation: 2020

Department: Mechatronics Engineering

Year/ Semester: II / IV

Subject Code: EE1471

Subject Name: Control Systems Engineering

**Course Outcomes**

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

CO. No.	CO Statements	Knowledge Level
R20C211.1	To <b>develop</b> the transfer function of physical systems using block diagram reduction and signal flow graph techniques.	K3-Apply
R20C211.2	To <b>identify</b> the response of a system under time domain and to find the steady state error for the given system under various input conditions	K3-Apply
R20C211.3	To <b>construct</b> the closed loop frequency response of systems using various plots and to design suitable compensator to improve its performance..	K3-Apply
R20C211.4	To <b>apply</b> Routh stability criterion, Nyquist criterion and Root locus concept to inspect the stability of the system.	K3-Apply
R20C211.5	To <b>make use of</b> the state space model of physical systems to analyze its controllability and observability.	K3-Apply

**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	3
R20C211	R20C211.1	H	H	M	M	M	L	L	L	L	L	-	M	M	M	-
	R20C211.2	H	H	M	M	L	L	L	L	L	L	-	L	M	M	-
	R20C211.3	H	H	M	H	H	L	-	L	L	L	-	L	M	M	-
	R20C211.4	H	H	H	H	H	L	-	L	L	L	-	M	M	M	-
	R20C211.5	H	H	H	H	H	L	L	L	L	L	-	M	M	M	-

Enter H (for high), M (for moderate), L (for low) for mapping

*S. Rapolu*  
Subject Expert

*[Signature]*  
HoD





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S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

Regulation: 2020

Department: Mechatronics Engineering

Year/ Semester: II / IV

Subject Code: ME1471

Subject Name: Kinematics of Machinery

**Course Outcomes**

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

CO. No.	CO Statements	Knowledge Level
CO 1	Explain various components of mechanisms and its inversions used in machineries	K2- Understand
CO 2	Illustrate the kinematic linkages with respect to displacement, velocity, and acceleration at any point.	K3- Apply
CO 3	Design the cam profile for specified follower motions.	K3- Apply
CO 4	Demonstrate the basic concepts of toothed gearing and the kinematics of gear trains.	K3- Apply
CO 5	Compute the forces in various power transmission systems such as Clutches and Brakes.	K3- Apply

**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	3
ME1471	CO 1	H	M	H	H	L	-	L	-	-	-	-	L	M	L	L
	CO 2	H	M	H	H	L	-	L	-	-	-	-	L	M	L	L
	CO 3	H	H	H	H	L	-	L	-	-	-	-	L	M	L	L
	CO 4	H	H	H	H	L	-	L	-	-	-	-	L	M	L	L
	CO 5	H	H	H	H	L	-	L	-	-	-	-	L	M	L	L

H-High, M-Moderate, L-Low

*P. Balajunday*

Subject Expert

*[Signature]*

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Regulation: 2020

Department: Mechatronics Engineering

Year/ Semester: II / IV

Subject Code: MT1401

Subject Name: Manufacturing Technology

**Course Outcomes**

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

CO No.	Course Outcomes	Learning Level
CO1	Identify and Select suitable casting process for a specific component	K2
CO2	Explain the working principles and applications of different arc welding processes, special welding process and defects associated with it	K2
CO3	Select the suitable process for manufacturing of components using suitable conventional machining	K2
CO4	Select the suitable process for manufacturing of components using suitable unconventional machining	K2
CO5	Understand various metal forming process and manufacturing methods of plastic components	K2

**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	3
R20C213	1	H	L	L	L	M	M	M	M	M	M	M	M	L	L	L
	2	H	L	L	L	M	M	M	M	M	M	M	M	L	L	L
	3	H	L	L	L	M	M	M	M	M	M	M	M	L	L	L
	4	H	M	M	M	M	M	M	M	M	M	M	M	M	M	M
	5	H	L	L	L	M	M	M	M	M	M	M	M	L	L	L

H-High, M-Moderate, L-Low

Subject Expert

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**Regulation: 2020**

**Department: Mechatronics Engineering**

**Year/ Semester: II / IV**

**Subject Code: MT1402**

**Subject Name: Microprocessors and Its Applications**

**Course Outcomes**

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

CO. No.	CO Statements	Knowledge Level
CO1:	Distinguish the feature of the 8085 microprocessor, Hardware Architecture and PIN diagram.	K2- Understand
CO2:	Demonstrate programming proficiency using the various addressing modes and data transfer instructions of 8085 microprocessor	K3-Apply
CO3:	Acquaint the knowledge on architecture and programming of Microcontroller 8051.	K2- Understand
CO4:	Illustrate the interrupts handling and demonstrate peripherals applications in different IC and Know about A/D and D/A converters.	K2- Understand
CO5:	Apply the programming concepts to interface the hardware units with microprocessor and Microcontroller	K3-Apply

**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	3
R20C214	CO1	H	H	H	L	M	M	M	-	M	M	M	H	H	H	M
	CO2	H	H	H	L	M	M	M	-	M	M	M	H	H	H	M
	CO3	H	H	H	L	M	M	M	-	M	M	M	H	H	H	M
	CO4	H	H	H	L	M	M	M	-	M	M	M	H	H	H	M
	CO5	H	H	H	L	M	M	M	-	M	M	M	H	H	H	M

H (for high), M (for moderate), L (for low) for mapping

**Subject Expert**

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Regulation: 2020

Department: Mechatronics Engineering

Year/ Semester: II / IV

Subject Code: MT1403

Subject Name: Sensors and Instrumentation

**Course Outcomes**

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

CO. No.	CO Statements	Knowledge Level
R20C215.1	Outline the various calibration techniques and types of sensors and transducers.	K2 (Understand)
R20C215.2	Summarize the various sensors used in the Motion and Ranging applications.	K2 (Understand)
R20C215.3	Describe the working principle and characteristics of force, magnetic, heading and optical sensors.	K2 (Understand)
R20C215.4	Understand the basic principles of various pressure and temperature, smart sensors.	K2 (Understand)
R20C215.5	Ability to implement the DAQ systems with different sensors for real time applications.	K3-Apply

**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	3
R20C215	R20C215.1	M	L	-	-	-	M	L	M	L	L	L	-	M	M	M
	R20C215.2	H	M	L	L	-	M	L	M	M	M	L	-	M	M	M
	R20C215.3	M	L	-	-	-	M	L	M	L	L	L	-	M	M	M
	R20C215.4	M	L	-	-	M	M	L	M	L	L	M	-	M	M	M
	R20C215.5	H	M	M	M	M	H	M	M	M	M	H	M	H	H	H

H-High, M-Moderate, L-Low

  
Subject Expert

  
HoD





Regulation : R2020

Department : ECE

Year/ Semester : II / IV

Subject Code : EC1401

Subject Name : Communication Theory

C211

Course Outcomes

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

CO No.	Course Outcomes	Learning Level
CO1	Illustrate the generation and detection methods of amplitude modulation schemes with its spectral characteristics	K2- Understand
CO2	Explain NBFM and WBFM with its generation and detection methods.	K2- Understand
CO3	Make use of the probability, random process and noise theory concepts.	K3-Apply
CO4	Compare the noise performance of various analog modulation schemes.	K2- Understand
CO5	Explain the principles of sampling and quantization.	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
Communication Theor	CO1	H	H	M	M	-	-	-	-	-	-	-	-	M	M
	CO2	H	H	M	M	-	-	-	-	-	-	-	-	M	M
	CO3	H	H	M	M	-	-	-	-	-	-	-	-	M	M
	CO4	H	H	M	M	-	-	-	-	-	-	-	-	M	M
	CO5	H	H	M	M	-	-	-	-	-	-	-	-	M	M

L:Low

M:Moderate

H:High

*C. S. S.*

Subject Expert

*T. Rame*

HoD



Regulation : R2020

Department : ECE

Year/ Semester : II / IV

Subject Code : EC1402

Subject Name : Discrete Time Signal Processing

0212

Course Outcomes

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

CO No.	Course Outcomes	Learning Level
CO1	Solve Discrete Fourier Transform (DFT) and Fast Fourier transform (FFT) of any discrete time sequences	K3-Understand
CO2	Construct digital Butterworth and Chebyshev IIR filters using backward difference, impulse invariant and bilinear transformation methods.	K3-Understand
CO3	Construct FIR filters using Fourier series, windowing and frequency sampling methods	K3-Understand
CO4	Identify the finite word length effects in IIR filters.	K3-Understand
CO5	Explain different architectures of Digital Signal Processors with its functionalities.	K2-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 Time Signal Processing	CO1	H	M	L	L	L	L	-	-	-	-	L	L	M	M
	CO2	H	M	L	L	L	L	-	-	-	-	L	L	M	M
	CO3	H	M	L	L	L	L	-	-	-	-	L	L	M	M
	CO4	H	M	L	L	L	L	-	-	-	-	L	L	M	M
	CO5	H	M	L	L	L	L	-	-	-	-	L	L	M	M

L:Low

M:Moderate

H:High

*N.S - Su*  
 Subject Expert

*T. Ramesh*  
 HoD



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## COLLEGE OF ENGINEERING & TECHNOLOGY

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Regulation : R2020

Department : ECE

Year/ Semester : II / IV

Subject Code : EC1403

Subject Name : Electronic Circuits - I

C218

### Course Outcomes

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

CO No.	Course Outcomes	Learning Level
CO1	Elucidate the different biasing circuits in amplifiers using BJT and FET.	K2-Understand
CO2	Summarize about how small signal models are needed in various configurations of BJT and its simple, cascade and cascode amplifier circuits.	K3-Apply
CO3	Identify the significance of JFET and MOSFET amplifiers using small signal analysis.	K3-Apply
CO4	Interpret the low, high frequency response of amplifiers and to derive cut off frequencies for determining bandwidth.	K2-Understand
CO5	Illustrate the performance of power amplifiers.	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
Electronic Circuits-I	CO1	M	L	L	L	L	L	-	-	-	-	L	L	M	L
	CO2	H	M	L	L	L	L	-	-	-	-	L	L	H	M
	CO3	H	M	L	L	L	L	-	-	-	-	L	L	H	M
	CO4	M	L	L	L	L	L	-	-	-	-	L	L	M	L
	CO5	M	L	L	L	L	L	-	-	-	-	L	L	M	L

L:Low

M:Moderate

H:High

  
Subject Expert

  
HoD

Regulation : R2020

Department : ECE

Year/ Semester : II / IV

Subject Code : EC1404

Subject Name : Linear Integrated Circuits

C214

Course Outcomes

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

CO No.	Course Outcomes	Learning Level
CO1	Outline the basic building blocks of Analog ICs such as Current mirror & Current sources, Voltage sources & Voltage References, along with the internal circuitry of op amp-IC 741.	K2-Understand
CO2	Utilize the concepts of op amp for developing linear and non linear circuits.	K3-Apply
CO3	Explain various types of analog multiplier and PLL ICs with their applications.	K2-Understand
CO4	Interpret various A/D and D/A converters using operational amplifiers.	K2-Understand
CO5	Build various waveform generators and other circuits using operational amplifier, IC 555 and special function ICs.	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
Linear Integrated Circuits	CO1	M	L	L	L	L	L	-	-	-	-	L	L	M	L
	CO2	H	M	L	L	L	L	-	-	-	-	L	L	H	M
	CO3	M	L	L	L	L	L	-	-	-	-	L	L	M	L
	CO4	M	L	L	L	L	L	-	-	-	-	L	L	M	L
	CO5	H	M	L	L	L	L	-	-	-	-	L	L	H	M

L:Low

M:Moderate

H:High

*W. Srinivas*

Subject Expert

*T. Raju*

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Regulation : R2020

Department : ECE

Year/ Semester : II / IV

Subject Code : EC1471

Subject Name : Control Systems Engineering

2215

Course Outcomes

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

CO No.	Course Outcomes	Learning Level
CO1	Identify the various control system components and their representations.	K3-Apply
CO2	Analyze the various time domain parameters.	K3-Apply
CO3	Analysis the various frequency response plots and its system.	K3-Apply
CO4	Apply the concepts of various system stability criterions.	K3-Apply
CO5	Design various transfer functions of digital control system using state variable models.	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
Control Systems Engineering	CO1	H	H	M	M	M	L	L	L	L	L	-	M	M	M
	CO2	H	H	M	M	M	L	L	L	L	L	-	M	M	M
	CO3	H	H	M	H	H	L	-	L	L	L	-	L	M	M
	CO4	H	H	M	H	H	L	-	L	L	L	-	L	M	M
	CO5	H	H	H	H	H	L	L	L	L	L	-	M	M	M

L:Low

M:Moderate

H:High

*[Signature]*  
 Subject Expert

*[Signature]*  
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Regulation : R2020 Department : ECE  
 Year/ Semester : II / IV Subject Code : EC1412  
 Subject Name : Linear Integrated Circuits Laboratory C217

Course Outcomes

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

CO No.	Course Outcomes	Learning Level
CO1	Design filters, amplifiers and oscillators using operational amplifiers.	K3
CO2	Analyze the working of PLL and describe its application as a frequency multiplier.	K4
CO3	Design DC power supply using ICs.	K3
CO4	Analyze the performance of filters, multivibrators, converters and analog multiplier using SPICE	K4
CO5	Design and analyze multivibrators using opamps and 555 Timer ICs.	K4

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
Linear Integrated Circuits Laboratory	CO1	H	H	H	H	L	-	-	-	-	-	-	-	H	H
	CO2	H	H	H	H	L	-	-	-	-	-	-	-	H	H
	CO3	H	H	H	H	L	-	-	-	-	-	-	-	H	H
	CO4	H	H	H	H	L	-	-	-	-	-	-	-	H	H
	CO5	H	H	H	H	L	-	-	-	-	-	-	-	H	H

L:Low M:Moderate H:High

*[Signature]*  
 Subject Expert

*[Signature]*  
 HoD

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



Regulation: 2021

Year/ Semester: I / I

Subject Name: Technical English

Department: English

Subject Code: SH2101

Course Outcomes

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

CO No.	Course Outcomes	Learning Level
CO1	Utilize basic grammatical skills in writing instructions.	K3
CO2	Apply acquired knowledge of Grammar to prepare paragraphs	K3
CO3	Develop reading skills by familiarizing with different types of reading strategies	K3
CO4	Demonstrate proper usage of grammar in formal writing.	K3
CO5	Make use of communicative English in conversations.	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

*for P. Vairam*

*[Signature]*



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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

  
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