SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Department of Electronics and Communication Engineering

CO-PO matrices of courses

Regulations 2017

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Department of Electronics and Communication Engineering

Vision and Mission - Institute

Vision

To carve the youth as dynamic competent, valued and knowledgeable Technocrats through research, innovation and entrepreneurial development for accomplishing the global expectations.

Mission

M1 : To Inculcate **academic excellence** in engineering education to create talented professionals

M2 : To Promote **research in basic sciences and applied engineering** among faculty and students to fulfill the societal expectations

M3 : To enhance the holistic development of students through meaningful **interaction with industry and academia**

M4 : To foster the students on par with **sustainable development goals** thereby contributing to the process of nation building

M5 : To nurture and retain conducive **lifelong learning environment t**owards professional excellence

Vision and Mission - Department of Electronics & Communication Engineering

Vision

To be a globally recognized centre for education and research in the field of electronics and communication engineering, by indulging students with their technological innovation to serve the society.

Mission

M1 : To provide students with an **excellent education** in core and associated disciplines of Electronics and Communication Engineering

M2 : To incite passion for excellence in **emerging research** areas among faculty and students.

M3 : To establish a bridge between academia and industry by incorporating **employable skills** among students.

M4 : To enrich the Students with **Broad Intellectual Spectra** Pertaining to the Sustainable Development Goals

M5 : To cultivate a passion for **lifelong learning** in technocrats to succeed in their chosen field.

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Program Educational Objectives (PEO's)

The graduate of Electronics and Communication Engineering will have,

PEO 1 : To provide knowledge in mathematical, scientific and engineering concepts to achieve successful career path in corporate scenario.

PEO 2 : To enable students with the capability to analyze, design, develop, optimize and to implement electronic gadgets with domain knowledge of Electronics and Communication Engineering.

PEO 3 : To nurture and consolidate the knowledge in various domains that affords solutions for real time problems with an understanding on its economical, environmental and social impacts.

PEO 4 : To inculcate core knowledge with ethical values to work in a multi-fascinated environment exhibiting professionalism in career and to excel in every aspect with leadership.

PEO 5 : To imbibe persistent lifelong learning with amenable etiquette in emerging technologies to proliferate their skills for professional excellence and in research and innovations

Program Outcomes (PO`s)

The students after successful completion of the program will acquire:

PO1: Engineering knowledge: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Investigation: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The Engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communications: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and 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 (PSO's)

The graduates of Bachelor of Engineering in Electronics and Communication Engineering Programme will be able to:

PSO1: Design and develop electronic circuits assimilating Futuristic technologies of Signal Processing, Communication, VLSI and Embedded Systems using Modern Hardware and software tools to cater the expectation of solving real time problems.

PSO2: Instill the professional skill sets with ethical principles and tools for Networking, Communication and integrated circuits to provide Solutions for societal benefits.

HoD/ECE
Head of the Department
Department of Electronics and Communication Engineering
SRM TRP Engineering College
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CO Mapping with POs - I to VIII SEMESTER

S.No	Course title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Communicative English	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**1.0**	**0.0**	**0.0**
2	Engineering Mathematics - I	**3.0**	**3.0**	**2.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**1.0**	**1.0**	**1.0**
3	Engineering Physics	**3.0**	**2.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**2.0**	**0.0**
4	Engineering Chemistry	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**1.0**	**1.0**	**1.0**	**0.0**
5	Problem Solving and Python Programming	**3.0**	**2.0**	**2.0**	**1.7**	**3.0**	**1.0**	**1.3**	**1.0**	**1.5**	**1.3**	**2.5**	**3.0**	**1.0**	**1.0**
6	Engineering Graphics	**2.3**	**1.0**	**1.5**	**1.5**	**1.7**	**1.0**	**1.0**	**1.0**	**1.0**	**3.0**	**0.0**	**1.0**	**0.0**	**1.0**
7	Problem Solving and Python Programming Laboratory	**3.0**	**3.0**	**2.3**	**2.0**	**2.5**	**1.0**	**1.3**	**1.0**	**2.0**	**1.7**	**2.0**	**3.0**	**2.8**	**2.8**
8	Physics and Chemistry Laboratory	**3.0**	**1.7**	**1.6**	**1.0**	**1.0**	**1.0**	**1.0**	**2.0**	**1.0**	**1.0**	**0.0**	**1.0**	**1.0**	**0.0**
9	Technical English	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**1.0**	**0.0**	**0.0**
10	Engineering Mathematics - II	**3.0**	**3.0**	**3.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
11	Physics for Electronics Engineering	**2.0**	**1.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**2.0**	**0.0**
12	Basic Electrical and Instrumentation Engineering	**3.0**	**2.7**	**2.0**	**1.0**	**0.0**	**1.0**	**1.0**	**0.0**	**0.0**	**1.0**	**1.0**	**1.0**	**2.0**	**1.0**
13	Circuit Analysis	**3.0**	**3.0**	**3.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**1.0**	**1.0**	**2.0**	**1.0**
14	Electronic Devices	**3.0**	**2.3**	**1.7**	**1.7**	**1.0**	**1.0**	**0.0**	**0.0**	**1.0**	**1.0**	**1.0**	**2.0**	**1.5**	**1.5**
15	Circuits and Devices Laboratory	**3.0**	**2.0**	**2.0**	**2.0**	**1.0**	**1.0**	**1.0**	**1.5**	**2.0**	**1.0**	**1.0**	**2.0**	**1.8**	**1.0**
16	Engineering Practices Laboratory	**3.0**	**1.0**	**2.0**	**1.5**	**2.0**	**1.0**	**1.0**	**1.0**	**1.0**	**2.0**	**0.0**	**1.0**	**1.0**	**0.0**

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S.No	Course title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
17	Linear Algebra and Partial Differential Equations	3.0	3.0	2.0	1.5	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	1.0	1.0
18	Fundamentals of Data Structures In C	2.8	1.8	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	1.0
19	Electronic Circuits- I	3.0	2.2	2.5	1.5	1.0	1.3	1.0	1.0	1.0	1.0	1.0	1.2	3.0	1.0
20	Signals and Systems	3.0	3.0	2.5	1.8	1.0	1.8	1.8	0.0	1.0	1.0	0.0	1.0	1.0	2.8
21	Digital Electronics	3.0	2.0	2.3	1.7	1.0	1.5	0.0	0.0	1.0	1.0	1.0	2.0	2.0	1.0
22	Control Systems Engineering	3.0	2.0	1.0	1.0	0.0	1.6	1.4	0.0	0.0	0.0	0.0	1.0	1.8	1.3
23	Fundamentals of Data Structures in C Laboratory	2.8	1.8	1.0	1.0	1.0	2.0	1.0	0.0	1.5	1.0	1.0	1.0	0.0	1.0
24	Analog and Digital Circuits Laboratory	3.0	3.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	1.0
25	Interpersonal Skills/Listening &Speaking	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	3.0	0.0	1.0	0.0	1.0
26	Probability and Random Processes	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	0.0	2.0	1.5	1.5	1.3	1.0
27	Electronic Circuits II	3.0	2.0	2.0	2.0	1.0	1.0	0.0	0.0	1.0	1.0	1.0	2.0	2.0	1.0
28	Communication Theory	3.0	2.3	2.5	1.5	0.0	1.0	1.0	0.0	0.0	1.0	0.0	2.0	1.0	2.7
29	Electromagnetic Fields	3.0	3.0	2.0	1.3	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.5	2.5
30	Linear Integrated Circuits	3.0	2.0	2.0	2.0	1.0	1.0	1.0	0.0	1.0	1.8	1.0	1.0	2.0	1.5
31	Environmental Science and Engineering	1.0	1.0	0.0	0.0	0.0	2.0	2.0	1.2	0.0	1.0	0.0	1.0	1.0	0.0
32	Circuits Design and Simulation Laboratory	3.0	3.0	3.0	2.0	1.0	1.3	0.0	1.5	2.0	2.0	1.0	2.0	2.0	1.0
33	Linear Integrated Circuits Laboratory	3.0	2.8	2.8	1.8	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5

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34	Digital Communication	3.0	3.0	2.8	2.7	2.2	2.0	1.5	1.0	1.0	1.0	2.0	1.7	1.0	2.5
35	Discrete-Time Signal Processing	3.0	2.8	2.3	2.3	2.0	1.5	0.0	0.0	1.0	1.8	1.0	2.0	2.0	1.3
36	Computer Architecture and Organization	2.0	1.7	1.7	1.7	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	2.0
37	Communication Networks	2.0	2.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	1.0	1.0	2.0
38	Basics of Biomedical Instrumentation	2.0	1.7	1.5	1.5	1.0	1.7	1.3	1.0	1.0	1.0	1.0	2.0	1.3	1.0
39	Total Quality Management	0.0	1.0	0.0	0.0	1.0	1.0	2.0	3.0	1.7	2.0	3.0	2.0	1.0	1.0
40	Digital Signal Processing Laboratory	3.0	2.3	2.0	2.0	3.0	2.0	1.0	0.0	1.0	1.0	1.0	2.0	1.0	3.0
41	Communication Systems Laboratory	3.0	2.0	2.0	1.0	2.0	1.0	1.0	2.0	2.0	2.0	1.0	1.0	2.0	1.0
42	Communication Networks Laboratory	2.4	2.0	2.5	1.0	2.3	1.0	1.0	1.0	2.5	2.5	3.0	2.5	2.0	2.7
43	Microprocessors and Microcontrollers	3.0	3.0	2.0	1.0	0.0	1.0	0.0	0.0	1.0	1.0	1.0	2.0	2.0	1.0
44	VLSI Design	2.7	2.0	3.0	2.7	2.3	2.7	2.0	2.0	1.0	1.0	0.0	2.0	2.0	1.0
45	Wireless Communication	3.0	2.3	2.0	1.0	1.0	1.8	1.0	0.0	1.0	1.7	1.2	2.0	1.2	1.3
46	Principles of Management	0.0	0.0	0.0	0.0	0.0	0.0	1.8	2.0	2.3	1.8	2.2	0.0	1.0	1.0
47	Transmission Lines and RF Systems	3.0	2.7	2.7	2.6	1.3	1.0	1.3	1.0	1.0	1.2	1.0	1.0	1.0	2.0
48	Wireless Networks	2.0	3.0	1.8	1.7	1.5	1.8	1.7	1.2	1.5	1.7	1.8	2.0	1.0	3.0
49	Microprocessors and Microcontrollers Laboratory	2.0	1.0	2.0	2.0	2.3	1.0	1.0	1.0	2.0	2.0	1.0	2.0	2.5	1.0
50	VLSI Design Laboratory	2.3	2.0	2.0	2.5	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	1.0

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S.No	Course title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
51	Technical Seminar	**3.0**	**2.0**	**3.0**	**2.0**	**1.0**	**1.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**1.0**
52	Professional Communication	**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**2.0**	**2.0**	**3.0**	**0.0**	**1.0**	**0.0**	**1.0**
53	Antennas and Microwave Engineering	**3.0**	**2.8**	**2.8**	**1.8**	**1.4**	**1.8**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**2.0**	**1.0**
54	Optical Communication	**2.8**	**2.7**	**2.6**	**2.4**	**0.0**	**1.0**	**1.0**	**0.0**	**1.3**	**1.0**	**1.0**	**1.3**	**1.0**	**2.0**
55	Embedded and Real Time Systems	**2.5**	**2.0**	**1.2**	**1.0**	**2.0**	**1.0**	**1.0**	**0.0**	**1.0**	**1.0**	**1.3**	**1.0**	**2.0**	**1.0**
56	Ad hoc and Wireless Sensor Networks	**2.0**	**2.0**	**1.0**	**1.7**	**1.0**	**1.3**	**1.0**	**1.0**	**1.0**	**1.7**	**1.0**	**1.0**	**1.0**	**2.0**
57	Cognitive Radio	**3.0**	**3.0**	**1.5**	**1.2**	**1.2**	**1.0**	**1.0**	**0.0**	**1.0**	**1.3**	**1.3**	**1.5**	**1.7**	**2.0**
58	Fundamentals of Planetary Remote Sensing	**2.0**	**2.0**	**0.0**	**0.0**	**1.0**	**0.0**	**1.0**	**0.0**	**0.0**	**1.0**	**0.0**	**1.0**	**1.0**	**1.0**
59	Embedded Laboratory	**2.0**	**1.8**	**2.0**	**2.0**	**2.0**	**2.0**	**1.0**	**1.5**	**2.0**	**2.0**	**2.0**	**2.0**	**1.5**	**2.8**
60	Advanced Communication Laboratory	**3.0**	**3.0**	**2.3**	**2.8**	**2.0**	**2.0**	**1.0**	**1.0**	**2.0**	**2.0**	**1.5**	**3.0**	**1.0**	**3.0**
61	Satellite Communication	**2.8**	**2.7**	**2.2**	**2.2**	**0.0**	**1.5**	**1.7**	**1.0**	**1.5**	**1.5**	**1.0**	**1.5**	**1.0**	**2.8**
62	Electro Magnetic Interference& Compatibility	**2.0**	**1.8**	**1.0**	**1.2**	**0.0**	**1.8**	**1.3**	**0.0**	**1.0**	**1.3**	**1.0**	**1.0**	**1.0**	**1.8**
63	Project Work	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**2.0**	**3.0**	**3.0**	**2.0**	**2.0**	**3.0**	**3.0**

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Course Outcomes - I to VIII SEMESTER

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Course Code / Title	HS8151 / Communicative English
Semester	I
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Discuss effectively in conversation by asking/sharing questions with the support of language development.	K2
CO2	Interpret and comprehend the passages for improving parts of speech and language development	K2
CO3	Create the sentence coherently and describe the product effectively.	K5
CO4	Compose different genres of texts for improving language skills such as email etiquette and personal letters	K5
CO5	Construct well organized essays, and dialogue writing in English effectively.	K5
CO6	Improve their knowledge in language skills and grammar for the workplace.	K2

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	-	-	-	-	1	-	-	-	-	3	-	1	-	-
CO2	-	-	-	-	1	-	-	-	-	3	-	1	-	-
CO3	-	-	-	-	1	-	-	-	-	3	-	1	-	-
CO4	-	-	-	-	1	-	-	-	-	3	-	1	-	-
CO5	-	-	-	-	1	-	-	-	-	3	-	1	-	-
CO6	-	-	-	-	1	-	-	-	-	3	-	1	-	-
CO	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**1.0**	**0.0**	**0.0**

1	slight	2	Moderate	3	Substantial

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Course Code / Title	MA8151 / Engineering Mathematics-I
Semester	I
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Assess limit, continuity, derivatives, maxima, minima of functions of one variable	K4
CO2	Apply differentiation techniques to solve maxima, minima in engineering problems	K3
CO3	Evaluate integrals using techniques of integration and understand convergence and divergence of improper integrals	K5
CO4	Estimate multiple integrals in Cartesian and polar coordinates	K4
CO5	Formulate various techniques in solving differential equations	K3
CO6	Test the knowledge in the concept of differentiation and techniques of integration in solving engineering problems.	K4

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	-	-	-	-	-	-	1	-	1	1	1
CO2	3	3	1	-	-	-	-	-	-	1	-	1	1	1
CO3	3	3	3	-	-	-	-	-	-	1	-	1	1	1
CO4	3	3	1	-	-	-	-	-	-	1	-	1	1	1
CO5	3	3	3	-	-	-	-	-	-	1	-	1	1	1
CO6	3	3	3	-	-	-	-	-	-	1	-	1	1	1
CO	**3.0**	**3.0**	**2.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**1.0**	**1.0**	**1.0**

1	slight	2	Moderate	3	Substantial

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Course Code / Title	PH8151/Engineering Physics
Semester	I
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Assess the knowledge about the concepts involved in the elastic properties of solids.	L4AP
CO2	Create the knowledge on generation of waves, application of photonics and fiber optics.	K5
CO3	Build the skills of thermal properties and its applications in expansion joints and heat exchangers.	K5
CO4	Appraise knowledge on advanced concepts of physics on quantum theory and its applications in tunnelling microscopes	K4
CO5	Examine various defects, structures, characters in crystals and different growth techniques involved.	K3
CO6	Develop the fundamental knowledge in physics and its applications relevant to various streams of engineering and technology	K3

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	2	-	1	-	-	-	-	-	-	-	1	2	-
CO2	3	2	-	1	-	-	-	-	-	-	-	1	2	-
CO3	3	2	-	1	-	-	-	-	-	-	-	1	2	-
CO4	3	2	-	1	-	-	-	-	-	-	-	1	2	-
CO5	3	2	-	1	-	-	-	-	-	-	-	1	2	-
CO6	3	2	-	1	-	-	-	-	-	-	-	1	2	-
CO	**3.0**	**2.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**2.0**	**0.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	CY8151 / Engineering Chemistry
Semester	I
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Solve the problems of using hard water in boiler and methods of water treatment.	K3
CO2	Examine the knowledge about the surface chemistry and catalysis.	K3
CO3	Analysis the making of alloys with help of the basic concepts of phase rule.	K4
CO4	Distinguish the significance of solids, liquids and gaseous fuels and calculate the calorific values of fuel and the requirements of air for complete combustion in fuels.	K2
CO5	Discuss the components, functions of nuclear reactor and the constructions, applications of batteries and fuel cells.	K2
CO6	Compile the knowledge gained on engineering materials and fuels, energy sources and water treatment techniques will facilitate better understanding of engineering Process and applications	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	3	3	3	-	-	-	3	-	1	1	1	-
CO2	3	3	3	3	3	-	-	-	3	-	1	1	1	-
CO3	3	3	3	3	3	-	-	-	3	-	1	1	1	-
CO4	3	3	3	3	3	-	-	-	3	-	1	1	1	-
CO5	3	3	3	3	3	-	-	-	3	-	1	1	1	-
CO6	3	3	3	3	3	-	-	-	3	-	1	1	1	-
CO	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**1.0**	**1.0**	**1.0**	**0.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	GE8151 / Problem Solving and Python Programming
Semester	**I**
Regulation	**2017**

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Develop algorithmic solutions to simple computational problems	K3
CO2	Compile simple python programs and structure simple python programs for solving problems.	K3
CO3	Dissect a python program into functions.	K4
CO4	Formulate compound data using python lists, tuples, and dictionaries.	K3
CO5	Interpret the data from/to files in python programs.	K2
CO6	Simplify the structure of python programs for solving real world problems.	K3

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	2	1	1	3	1	1	-	1	1	2	3	1	1
CO2	3	2	2	2	3	1	1	-	1	1	2	3	1	1
CO3	3	2	2	2	3	1	2	-	1	-	2	3	1	1
CO4	3	2	2	2	3	1	1	1	2	-	3	3	1	1
CO5	3	2	2	1	3	1	1	1	2	1	3	3	1	1
CO6	3	2	3	2	3	1	2	-	2	2	3	3	1	1
CO	**3.0**	**2.0**	**2.0**	**1.7**	**3.0**	**1.0**	**1.3**	**1.0**	**1.5**	**1.3**	**2.5**	**3.0**	**1.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	GE8152 / Engineering Graphics
Semester	I
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Discuss the fundamentals of curves and free hand sketching of engineering graphics	K2
CO2	Propose Project orthographic projections of lines and plane surfaces.	K5
CO3	Design projections of solids in different planes	K3
CO4	Examine true shape of sectioned solids and development of surfaces	K4
CO5	Construct and Visualize, project isometric and perspective sections of simple solids.	K3
CO6	Propose the applications of scales used in the engineering field.	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	1	1	1	1	-	-	-	1	3	-	1	-	1
CO2	2	1	2	2	2	-	-	-	1	3	-	1	-	1
CO3	3	1	2	1	1	-	-	-	1	3	-	1	-	1
CO4	2	1	1	2	2	-	-	-	1	3	-	1	-	1
CO5	2	1	2	2	2	-	-	-	1	3	-	1	-	1
CO6	2	1	1	1	2	1	1	1	1	3	-	1	-	1
CO	**2.3**	**1.0**	**1.5**	**1.5**	**1.7**	**1.0**	**1.0**	**1.0**	**1.0**	**3.0**	**0.0**	**1.0**	**0.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	GE 8161 / Problem Solving and Python Programming Lab
Semester	I
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Develop solutions to simple computational problems using python programs	K3
CO2	Solve problems using conditionals and loops in python.	K3
CO3	Compile python programs by defining functions and calling them.	K5
CO4	Create python lists, tuples and dictionaries for representing compound data and develop python real world applications.	K5
CO5	Compose Python programs using files	K3
CO6	Analyse Python real world applications	K4

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	1	2	2	1	1	-	2	3	2	3	3	2
CO2	3	3	2	2	2	1	1	1	2	2	2	3	2	3
CO3	3	3	2	2	2	1	2	1	2	2	2	3	3	3
CO4	3	3	3	2	3	1	1	1	2	1	2	3	3	3
CO5	3	3	3	2	3	1	1	-	2	1	2	3	3	3
CO6	3	3	3	2	3	1	2	-	2	1	2	3	3	3
CO	**3.0**	**3.0**	**2.3**	**2.0**	**2.5**	**1.0**	**1.3**	**1.0**	**2.0**	**1.7**	**2.0**	**3.0**	**2.8**	**2.8**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	BS8161 / Physics and Chemistry laboratory
Semester	I
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Examine the characteristics of light in the visible region	K2
CO2	Estimate the elastic moduli of a solid	K4
CO3	Elaborate the band of a semiconductor	K2
CO4	Value the ferrous ion and copper content of the given solution by potentiometer and iodometric.	K5
CO5	Evaluate the strength of given acids using various meter.	K5
CO6	Measure the amount of sodium content in water sample using flame photometry.	K3

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	1	2	1	1	1	-	2	1	1	-	1	1	-
CO2	3	2	2	1	1	1	1	2	1	1	-	1	1	-
CO3	3	1	-	1	1	1	1	2	1	1	-	1	1	-
CO4	3	2	1	-	1	1	1	2	1	1	-	1	1	-
CO5	3	2	1	-	1	1	1	2	1	1	-	1	1	-
CO6	3	2	2	1	1	1	1	2	1	1	-	1	1	-
CO	**3.0**	**1.7**	**1.6**	**1.0**	**1.0**	**1.0**	**1.0**	**2.0**	**1.0**	**1.0**	**0.0**	**1.0**	**1.0**	**0.0**

	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	HS8251 / Technical English
Semester	II
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Appraise Enhance the lexical terms through grammar and vocabulary for improving technical writing skill	K5
CO2	Interpret visual images into descriptive passage with grammar and vocabulary.	K2
CO3	Perceive the speed reading task to develop vocabulary and language.	K2
CO4	Compose emails, job application letter and issue based essays with the support of language skills.	K5
CO5	Develop the wide range of vocabulary for preparing minutes and reports effectively.	K5
CO6	Improve their knowledge in language skills and grammar for the work place.	K2

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	-	-	-	-	1	-	-	-	-	3	-	1	-	-
CO2	-	-	-	-	1	-	-	-	-	3	-	1	-	-
CO3	-	-	-	-	1	-	-	-	-	3	-	1	-	-
CO4	-	-	-	-	1	-	-	-	-	3	-	1	-	-
CO5	-	-	-	-	1	-	-	-	-	3	-	1	-	-
CO6	-	-	-	-	1	-	-	-	-	3	-	1	-	-
CO	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**1.0**	**0.0**	**0.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	MA8251 / Engineering Mathematics-II
Semester	II
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Assess Eigen values and Eigen vectors concept to diagonalize a matrix.	K5
CO2	Evaluate the line, surface and volume integrals using Gauss, Green's and Stoke's theorems.	K5
CO3	Create knowledge in Analytic functions and conformal mapping.	K5
CO4	Develop the knowledge in concept of standard techniques of complex variable theory.	K5
CO5	Estimate contour integrals.	K5
CO6	Maximize knowledge in Laplace transform techniques and its applications to solve linear differential equations	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	3	-	-	-	-	-	1	1	1	1	1	1
CO2	3	3	3	-	-	-	-	-	1	1	1	1	1	1
CO3	3	3	3	-	-	-	-	-	1	1	1	1	1	1
CO4	3	3	3	-	-	-	-	-	1	1	1	1	1	1
CO5	3	3	3	-	-	-	-	-	1	1	1	1	1	1
CO6	3	3	3	-	-	-	-	-	1	1	1	1	1	1
CO	**3.0**	**3.0**	**3.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

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Course Code / Title	PH8253/ Physics for Electronics Engineering
Semester	II
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Adapt the classical and quantum concepts involved in the conduction process of materials.	K3
CO2	Estimate the carrier concentration and hall coefficients of a semiconductor.	K5
CO3	Classify the different behaviors of magnetic materials; implement the zero resistance features in the field of engineering like maglev train construction.	K4
CO4	Discuss the functioning of optical materials for optoelectronics.	K2
CO5	Formulate the basic knowledge of quantum structures and their applications in spintronic and carbon electronics.	K5
CO6	Create the knowledge about various sorts of materials in the field of engineering & technology.	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	2	-	-	-	-	-	-	-	-	-	-	1	2	-
CO2	2	1	-	1	-	-	-	-	-	-	-	1	2	-
CO3	2	-	-	-	-	-	-	-	-	-	-	1	2	-
CO4	2	1	-	1	-	-	-	-	-	-	-	1	2	-
CO5	2	-	-	-	-	-	-	-	-	-	-	1	2	-
CO6	2	1	-	1	-	-	-	-	-	-	-	1	2	-
CO	**2.0**	**1.0**	**0.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**2.0**	**0.0**

1	slight	2	Moderate	3	Substantial

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	BE8254 / Basic Electrical and Instrumentation Engineering
Semester	II
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Analyze electrical network using network theorems	K4
CO2	Evaluate transformers and other rotating electrical machines	K5
CO3	Determine energy conversion principle and identify the different features of DC machines.	K2
CO4	Estimate different AC machines with its performance	K5
CO5	Assess different types of instruments and calibrate them	K5
CO6	Develop electrical circuits and able to choose a particular machine according to their application	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	2	1	-	1	1	-	-	1	1	1	2	1
CO2	3	3	2	1	-	1	1	-	-	1	1	1	2	1
CO3	3	3	2	1	-	1	1	-	-	1	1	1	2	1
CO4	3	2	2	1	-	1	1	-	-	1	1	1	2	1
CO5	3	2	2	1	-	1	1	-	-	1	1	1	2	1
CO6	3	3	2	1	-	1	1	-	-	1	1	1	2	1
CO	**3.0**	**2.7**	**2.0**	**1.0**	**0.0**	**1.0**	**1.0**	**0.0**	**0.0**	**1.0**	**1.0**	**1.0**	**2.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

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Course Code / Title	EC8251/ Circuit Analysis
Semester	II
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Assess the concepts of electric circuits and its analysis	K4
CO2	Analyze AC and DC circuit equations using network theorems	K4
CO3	Design the phenomenon of resonance in coupled circuits.	K5
CO4	Evaluate the transient and steady state response of the circuits subjected to step and sinusoidal excitations.	K5
CO5	Justify different methods of circuit analysis using network theorems, duality and topology.	K5
CO6	Build electrical circuits and circuit theorems in real time applications	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	**3**	**3**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**1**	2	1
CO2	**3**	**3**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**1**	2	1
CO3	**3**	**3**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**1**	2	1
CO4	**3**	**3**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**1**	2	1
CO5	**3**	**3**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**1**	2	1
CO6	**3**	**3**	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**1**	2	1
CO	**3.0**	**3.0**	**3.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**1.0**	**1.0**	**2.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

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Course Code / Title	EC8252/Electronic Devices
Semester	II
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Choose the structure, operations and characteristics of PN junction diode	K4
CO2	Categorize the current flow of a bipolar transistor in CB, CE and CC configurations	K4
CO3	Analyze the operation of various field effect transistors.	K4
CO4	Elaborate the operations of special semiconductor devices.	K5
CO5	Explain the basic concepts of power and display devices	K2
CO6	Design electronic circuits for basic application.	K5

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	2	2	1	1	-	-	1	1	1	2	1	1
CO2	3	2	2	2	1	1	-	-	1	1	1	2	2	2
CO3	3	3	2	2	1	1	-	-	1	1	1	2	2	2
CO4	3	2	1	1	-	1	-	-	1	1	1	2	1	1
CO5	3	2	1	1	1	1	-	-	1	1	1	2	1	1
CO6	3	3	2	2	1	1	-	-	1	1	1	2	2	2
CO	**3.0**	**2.3**	**1.7**	**1.7**	**1.0**	**1.0**	**0.0**	**0.0**	**1.0**	**1.0**	**1.0**	**2.0**	**1.5**	**1.5**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	EC8261/Circuits and Devices Laboratory
Semester	II
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Analyze and interpret the characteristics of diodes and transistors.	K4
CO2	Test and verify Thevinin & Norton theorem KVL & KCL, maximum power transfer and superposition theorems	K5
CO3	Design RL, RC. series and parallel RLC circuits and obtain the transient and its frequency responses	K6
CO4	Build and design FET, SCR, Clipper, Clamper & FWR	K6

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	2	2	2	1	1	1	2	2	1	1	2	2	1
CO2	3	2	2	2	-	-	-	1	2	1	-	2	1	-
CO3	3	2	2	2	1	-	-	1	2	1	-	2	2	1
CO4	3	2	2	2	1	1	1	2	2	1	1	2	2	1
CO	**3.0**	**2.0**	**2.0**	**2.0**	**1.0**	**1.0**	**1.0**	**1.5**	**2.0**	**1.0**	**1.0**	**2.0**	**1.8**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	GE8261 / Engineering Practices Laboratory
Semester	II
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Build carpentry components and pipe connections for residential and industrial buildings	K5
CO2	Function welding equipment's to join the structures and carryout the various basic machining operation in lathe and drilling machine	K3
CO3	Construct various models using sheet metal works and to demonstrate the assembly of centrifugal pump, air conditioner, operation of smithy, foundry and fittings	K6
CO4	Elaborate the various home electrical works and appliances	K2
CO5	Develop electronics equipment's using various components, gates and soldering	K6
CO6	Improve hands-on experience on various basic engineering practices in civil, mechanical, electrical and electronics engineering.	K3

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	-	2	2	2	1	1	1	1	2	-	1	-	-
CO2	3	-	2	1	2	1	1	1	1	2	-	1	-	-
CO3	3	-	2	1	2	1	1	1	1	2	-	1	-	-
CO4	3	-	2	2	2	1	1	-	1	2	-	1	-	-
CO5	3	-	2	1	2	1	1	-	1	2	-	1	1	-
CO6	3	1	2	2	2	1	1	1	1	2	-	1	1	-
CO	**3.0**	**1.0**	**2.0**	**1.5**	**2.0**	**1.0**	**1.0**	**1.0**	**1.0**	**2.0**	**0.0**	**1.0**	**1.0**	**0.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

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Course Code / Title	MA8352 / Linear Algebra and Partial Differential Equations
Semester	III
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Assess the concept of vector spaces, properties, linear system of equations , linear independence and linear dependence	K5
CO2	Analyze the knowledge of linear transformation , its matrix representation and diagonalization	K4
CO3	Evaluate the concept of inner product spaces , process of orthogonalization and least square approximation	K5
CO4	Formulate and solve partial differential equation with different methods	K5
CO5	Adapt the Fourier series analysis and solving boundary value problems	K3
CO6	Improve the knowledge in linear algebra , partial differential equations, Fourier series and solution of partial differential equations which are used in solving engineering problems	K2

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	2	1	1	-	-	-	-	1	-	1	1	1
CO2	3	3	2	1	1	-	-	-	-	1	-	1	1	1
CO3	3	3	2	1	-	-	-	-	-	1	-	1	1	1
CO4	3	3	2	2	-	-	-	-	-	1	-	1	1	1
CO5	3	3	2	2	1	-	-	-	-	1	-	1	1	1
CO6	3	3	2	2	1	-	-	-	-	1	-	1	1	1
CO	**3.0**	**3.0**	**2.0**	**1.5**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**1.0**	**1.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	EC8393/ Fundamentals of Data Structures in C
Semester	III
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Discuss the features of C programming to solve real world problems	K2
CO2	Influence the concepts of the functions, pointers, structures and unions in real world solutions	K3
CO3	Formulate the linear data structures such as stack and queue and its operation using C in solving real time problems	K5
CO4	Develop the non linear data structures such as trees and graphs and its operation using C in solving real time problems	K5
CO5	Choose appropriate sorting, searching and hashing algorithm to solve real world applications	K5
CO6	Modify or suggest the appropriate linear or non linear data structures for any given data set using C.	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	2	1	1	1	-	1	-	-	-	-	1	-	-	-
CO2	3	2	1	1	-	1	-	-	-	-	1	-	-	-
CO3	3	2	-	-	-	1	-	-	-	-	-	1	-	-
CO4	3	2	-	-	1	1	-	-	-	-	-	1	-	1
CO5	3	2	1	-	-	1	-	-	-	-	-	1	-	-
CO6	3	2	1	1	-	1	-	-	-	-	-	1	-	-
CO	**2.8**	**1.8**	**1.0**	**1.0**	**1.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**1.0**	**0.0**	**1.0**

1	slight	2	Moderate	3	Substantial

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Department of Electronics and Communication Engineering

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Course Code / Title	EC8351 / Electronic Circuits-I
Semester	III
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Evaluate the different biasing techniques in BJT and FET transistors	K5
CO2	Analyze the characteristics of BJT and FET amplifiers using AC small signal equivalent circuit	K4
CO3	Design, Analyze and compare the performance of small signal BJT and FET amplifiers single stage and multi stage amplifiers	K5
CO4	Measure the cut-off frequency and bandwidth of BJT and FET amplifiers	K5
CO5	Construct a DC power supply using rectifiers and filters	K5
CO6	Propose an effective amplifiers with power supply for electronic applications	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	3	1	1	-	-	1	1	1	1	1	3	1
CO2	3	3	3	2	1	-	-	1	1	1	1	1	3	1
CO3	3	3	3	2	1	-	-	1	1	1	1	1	3	1
CO4	3	2	3	1	1	1	-	1	1	1	1	1	3	1
CO5	3	1	1	1	1	1	-	1	1	1	1	1	3	1
CO6	3	1	2	2	-	2	1	1	1	1	1	2	3	1
CO	**3.0**	**2.2**	**2.5**	**1.5**	**1.0**	**1.3**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.2**	**3.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	EC8352 / Signals and Systems
Semester	III
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Identify the different classification of signals and systems	K2
CO2	Evaluate continuous time signals using Laplace and Fourier transforms	K4
CO3	Determine the characteristics of CT-LTI systems.	K5
CO4	Analyze the different DT signals.	K4
CO5	Estimate the characteristics of DT-LTI systems	K5
CO6	Design, develop and implement a system for processing different signals.	K4

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	2	1	1	1	1	-	-	1	-	1	-	2
CO2	3	3	2	2	1	2	2	-	1	1	-	1	1	3
CO3	3	3	2	2	1	2	2	-	1	1	-	1	1	3
CO4	3	3	3	2	1	2	2	-	1	1	-	1	1	3
CO5	3	3	3	2	1	2	2	-	1	1	-	1	1	3
CO6	3	3	3	2	1	2	2	-	1	1	-	1	1	3
CO	**3.0**	**3.0**	**2.5**	**1.8**	**1.0**	**1.8**	**1.8**	**0.0**	**1.0**	**1.0**	**0.0**	**1.0**	**1.0**	**2.8**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	EC8392 / Digital Electronics
Semester	III
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Determine the knowledge on number representation, conversion between different representation and reduction of Boolean function in digital electronic circuits	K2
CO2	Select the logic processes and implement logical operations using combinational logic circuits	K3
CO3	Inspect the concepts of synchronous sequential circuits in the design in terms of state machines	K4
CO4	Analyze concepts of asynchronous sequential circuits in terms of state reduction	K4
CO5	Asses characteristics of memory and their classification, concept of Programmable devices, PLA, PAL, CPLD and FPGA	K5
CO6	Develop the design of combinational and sequential circuits.	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	2	2	1	-	-	-	-	1	1	1	2	2	1
CO2	3	2	2	2	-	1	-	-	-	1	1	2	2	1
CO3	3	2	3	2	1	-	-	-	-	1	1	2	2	1
CO4	3	2	2	2	-	-	-	-	-	1	1	2	2	1
CO5	3	2	2	2	-	2	-	-	-	1	1	2	2	1
CO6	3	2	3	1	1	-	-	-	1	1	1	2	2	1
CO	**3.0**	**2.0**	**2.3**	**1.7**	**1.0**	**1.5**	**0.0**	**0.0**	**1.0**	**1.0**	**1.0**	**2.0**	**2.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	EC8391/ Control System Engineering
Semester	III
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Formulate the use of transfer function models for analysing physical systems and introduce the control system components.	K2
CO2	Adapt adequate knowledge in the time response of systems and steady state error analysis.	K3
CO3	Evaluate basic knowledge in obtaining the open loop and closed–loop frequency responses of systems	K5
CO4	Analyze stability analysis and design of compensators	K4
CO5	Develop state variable representation of physical systems and study the effect of state feedback	K5
CO6	Support basic science, circuit theory, control theory, signal processing and apply them to electrical engineering problems.	K3

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	2	1	-	-	2	2	-	-	-	-	1	2	2
CO2	3	2	1	1	-	2	1	-	-	-	-	1	2	1
CO3	3	2	-	1	-	-	-	-	-	-	-	-	1	1
CO4	3	2	1	1	-	1	1	-	-	-	-	1	2	1
CO5	3	2	-	1	-	1	1	-	-	-	-	-	1	1
CO6	3	2	1	1	-	2	2	-	-	-	-	1	3	2
CO	**3.0**	**2.0**	**1.0**	**1.0**	**0.0**	**1.6**	**1.4**	**0.0**	**0.0**	**0.0**	**0.0**	**1.0**	**1.8**	**1.3**

1	slight	2	Moderate	3	Substantial

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Department of Electronics and Communication Engineering

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Course Code / Title	EC8381/ Fundamentals of Data Structures in C Laboratory
Semester	III
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Develop a basic and advanced programs to solve real world problems using C	K6
CO2	Interpret recursive functions to solve real time problems	K4
CO3	Evaluate the linear data structures such as stack and queue using C	K5
CO4	Build the nonlinear data structures tree and graph using C	K6

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	2	1	1	1	-	2	1	-	2	1	1	-	-	-
CO2	3	2	1	1	-	2	1	-	2	1	1	-	-	-
CO3	3	2	-	-	-	2	-	-	1	1	-	1	-	-
CO4	3	2	-	-	1	2	-	-	1	1	-	1	-	1
CO	**2.8**	**1.8**	**1.0**	**1.0**	**1.0**	**2.0**	**1.0**	**0.0**	**1.5**	**1.0**	**1.0**	**1.0**	**0.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	EC8361/ Analog and Digital Circuits Laboratory
Semester	III
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Develop and analyze different types of amplifiers and biasing techniques.	K6
CO2	Assess and analyze amplifier circuits using PSPICE	K4
CO3	Design and test the digital logic circuits.	K6
CO4	Construct and implement various sequential and counter circuits.	K6

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	2	2	-	1	1	1	1	1	1	2	3	1
CO2	3	3	2	2	2	-	-	1	1	1	1	2	3	1
CO3	3	3	2	2	-	-	-	-	1	1	1	2	3	1
CO4	3	3	2	2	-	1	-	-	1	1	1	2	3	1
CO	**3.0**	**3.0**	**2.0**	**2.0**	**2.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**2.0**	**3.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	HS8381/ Interpersonal Skills/Listening and Speaking
Semester	III
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Propose video lectures and talks for improving pronunciation by giving personal information.	K5
CO2	Make up lecture and videos for delivering a five minute talk about familiar topics with simple lexical terms and routine tasks in both formal and informal situations.	K5
CO3	Defend actively in GD by giving a non verbal feedback and summarize academic readings and lectures.	K5
CO4	Value their productive skills (listening and speaking) to develop communicative competence in their workplace and daily routine	K2

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	-	-	-	-	2	-	-	2	2	3	-	1	-	1
CO2	-	-	-	-	2	-	-	2	2	3	-	1	-	1
CO3	-	-	-	-	2	-	-	2	2	3	-	1	-	1
CO4	-	-	-	-	2	-	-	2	2	3	-	1	-	1
CO	**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**2.0**	**2.0**	**3.0**	**0.0**	**1.0**	**0.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	MA8451 / Probability and Random Process
Semester	IV
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Analyze one dimensional random variable	K4
CO2	Estimate the two dimensional random variable	K3
CO3	Evaluate different types of random process	K5
CO4	Examine the concepts of correlation & spectral densities	K4
CO5	Improve the response of random inputs to linear time invariant system	K5
CO6	Propose the concept of probability & random process in communication system and image processing	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	3	3	3	-	-	-	-	2	1	1	1	1
CO2	3	3	3	3	3	-	-	-	-	2	1	1	1	1
CO3	3	3	3	3	3	-	-	-	-	2	2	2	1	1
CO4	3	3	3	3	3	-	-	-	-	2	2	2	1	1
CO5	3	3	3	3	3	-	-	-	-	2	2	2	2	1
CO6	3	3	3	3	3	-	-	-	-	2	1	1	2	1
CO	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**1.5**	**1.5**	**1.3**	**1.0**

1	slight	2	Moderate	3	Substantial

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Department of Electronics and Communication Engineering

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Course Code / Title	EC8452/Electronic Circuits-II
Semester	IV
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Analyze various feedback amplifiers.	K4
CO2	Design RC, LC and crystal oscillators	K5
CO3	Evaluate the various neutralization methods and also analyze tuned amplifiers.	K5
CO4	Construct various multivibrators & wave shaping circuits	K5
CO5	Determine various power amplifiers and DC converters.	K5
CO6	Compare various feedback amplifiers, oscillators and mutivibrators to design electronic circuits.	K4

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	2	2	1	1	-	-	1	1	1	2	2	1
CO2	3	2	2	2	1	1	-	-	1	1	1	2	2	1
CO3	3	2	2	2	1	1	-	-	1	1	1	2	2	1
CO4	3	2	2	2	1	1	-	-	1	1	1	2	2	1
CO5	3	2	2	2	1	1	-	-	1	1	1	2	2	1
CO6	3	2	2	2	1	1	-	-	1	1	1	2	2	1
CO	**3.0**	**2.0**	**2.0**	**2.0**	**1.0**	**1.0**	**0.0**	**0.0**	**1.0**	**1.0**	**1.0**	**2.0**	**2.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	EC8491/Communication Theory
Semester	IV
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Discuss the principles of different amplitude modulation techniques	K2
CO2	Develop and design angle modulated communication systems	K5
CO3	Analyze the noise in terms of random process and its effect on communication system	K4
CO4	Compare the performance of AM, FM and PM schemes with reference to SNR	K5
CO5	Evaluate different pulse modulation techniques	K5
CO6	Predict the analog modulation technique for real time communication systems	K3

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	2	2	1	-	1	1	-	-	1	-	2	1	3
CO2	3	2	2	1	-	1	1	-	-	1	-	2	1	3
CO3	3	3	3	2	-	1	1	-	-	-	-	2	1	2
CO4	3	2	3	2	-	1	1	-	-	-	-	2	1	2
CO5	3	3	2	1	-	1	1	-	-	1	-	2	1	3
CO6	3	3	3	2	-	1	1	-	-	1	-	2	1	3
CO	**3.0**	**2.3**	**2.5**	**1.5**	**0.0**	**1.0**	**1.0**	**0.0**	**0.0**	**1.0**	**0.0**	**2.0**	**1.0**	**2.7**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	EC8451 / Electromagnetic Fields
Semester	IV
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Analyze the fundamentals in scalar and vector coordinates	K2
CO2	Evaluate static electric fields	K5
CO3	Determine static magnetic fields	K4
CO4	Interpret the electric and magnetic fields in terms of maxwell's equations and wave equations	K5
CO5	Estimate the wave propagation in lossless and lossy media	K5
CO6	Develop knowledge about static electric field, magnetic field and associated laws and also introduce the methods in computational electromagnetic.	K3

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	2	1	-	1	-	-	-	1	-	1	1	3
CO2	3	3	2	1	1	1	-	1	-	1	-	1	2	2
CO3	3	3	2	1	1	1	1	-	-	1	-	1	1	3
CO4	3	3	2	2	-	1	1	1	-	1	-	1	1	2
CO5	3	3	2	2	-	1	1	-	-	1	-	1	2	2
CO6	3	3	2	1	-	1	-	-	1	1	-	1	2	3
CO	**3.0**	**3.0**	**2.0**	**1.3**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**0.0**	**1.0**	**1.5**	**2.5**

1	slight	2	Moderate	3	Substantial

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Department of Electronics and Communication Engineering

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Course Code / Title	EC8453 / Linear Integrated Circuits
Semester	IV
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Assess the basics of operational amplifiers.	K2
CO2	Design linear and nonlinear applications of operational amplifiers.	K5
CO3	Interpret the applications using analog multiplier and PLL.	K4
CO4	Construct ADC and DAC using operational amplifiers.	K5
CO5	Explain the different waveforms generated using operational amplifier circuits.	K2
CO6	Analyze special function ICs and its applications.	K4

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	2	2	2	1	1	1	-	-	1	1	1	2	1
CO2	3	2	2	2	1	1	1	-	1	2	1	1	2	1
CO3	3	2	2	2	1	1	1	-	1	2	1	1	2	1
CO4	3	2	2	2	1	1	1	-	1	2	1	1	2	2
CO5	3	2	2	2	1	1	1	-	1	2	1	1	2	2
CO6	3	2	2	2	1	1	1	-	1	2	1	1	2	2
CO	**3.0**	**2.0**	**2.0**	**2.0**	**1.0**	**1.0**	**1.0**	**0.0**	**1.0**	**1.8**	**1.0**	**1.0**	**2.0**	**1.5**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	GE8291/ Environmental Science and Engineering
Semester	IV
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Elaborate the importance of public awareness on environment and nature of biodiversity.	K2
CO2	Explain the causes, effect and control measures of different pollution and disasters.	LAN
CO3	Compose the human development that leads to environmental disasters, the values of natural resources and their conservation.	K5
CO4	List the knowledge about the social issues related to environmental problems.	K1
CO5	Measure the environmental effects due to population explosion.	K5
CO6	Implement the scientific, technological, economical and political solutions to environmental problems.	K3

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	1	1	-	-	-	2	2	1	-	1	-	1	1	-
CO2	1	1	-	-	-	2	2	1	-	1	-	1	1	-
CO3	1	1	-	-	-	2	2	1	-	1	-	1	1	-
CO4	1	1	-	-	-	2	2	2	-	1	-	1	1	-
CO5	1	1	-	-	-	2	2	1	-	1	-	1	1	-
CO6	1	1	-	-	-	2	2	1	-	1	-	1	1	-
CO	**1.0**	**1.0**	**0.0**	**0.0**	**0.0**	**2.0**	**2.0**	**1.2**	**0.0**	**1.0**	**0.0**	**1.0**	**1.0**	**0.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	EC8461 / Circuits Design and Simulation Laboratory
Semester	IV
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Analyze various types of feedback amplifiers	K4
CO2	Develop oscillators and tuned amplifiers	K6
CO3	Construct wave-shaping circuits and multivibrators	K6
CO4	Design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave-shaping circuits and multivibrators using spice tool	K6

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	3	2	1	1	-	1	2	2	1	2	2	1
CO2	3	3	3	2	1	1	-	2	2	2	1	2	2	1
CO3	3	3	3	2	1	1	-	1	2	2	1	2	2	1
CO4	3	3	3	2	1	2	-	2	2	2	1	2	2	1
CO	**3.0**	**3.0**	**3.0**	**2.0**	**1.0**	**1.3**	**0.0**	**1.5**	**2.0**	**2.0**	**1.0**	**2.0**	**2.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	EC8462 / Linear Integrated Circuits Laboratory
Semester	IV
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Design oscillators, amplifiers, Multivibrators and R-2R ladder D/A converter using operational amplifiers and examine the DC power supply using ICs LM317 and LM 723	K6
CO2	Analyze the various types of filters using operational amplifiers and perform experiment on frequency response	K4
CO3	Evaluate the working of PLL, PLL as frequency multiplier, Clock Synchronization and examine the response of Multivibrators using NE555 Timer	K5
CO4	Measure the performance of filters, Multivibrators, A/D Converters and Analog multipliers using SPICE	K5

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	3	2	1	1	1	2	2	2	2	2	2	1
CO2	3	3	3	2	1	1	1	2	2	2	2	2	2	2
CO3	3	3	2	1	1	1	1	2	2	2	2	2	2	1
CO4	3	3	3	2	1	1	1	2	2	2	2	2	2	2
CO	**3.0**	**2.8**	**2.8**	**1.8**	**1.0**	**1.0**	**1.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**1.5**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	EC8501 / Digital Communication
Semester	V
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Compare various channel modeling and channel coding schemes	K5
CO2	Evaluate various waveform coding techniques	K5
CO3	Analyze the spectral characteristics of band pass signaling schemes and their noise performance	K4
CO4	Compare various digital modulation techniques	K5
CO5	Discuss various linear block codes and error control codes	K2
CO6	Develop applications of digital communication systems	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	3	2	2	-	-	-	-	1	-	2	1	2
CO2	3	3	3	3	2	1	-	-	-	1	-	2	1	2
CO3	3	3	3	3	2	2	2	-	-	1	-	1	1	2
CO4	3	3	2	2	2	-	-	-	-	1	-	2	1	3
CO5	3	3	3	3	2	-	-	-	-	1	-	1	1	3
CO6	3	3	3	3	3	3	1	1	1	1	2	2	1	3
CO	**3.0**	**3.0**	**2.8**	**2.7**	**2.2**	**2.0**	**1.5**	**1.0**	**1.0**	**1.0**	**2.0**	**1.7**	**1.0**	**2.5**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	EC8553/Discrete-Time Signal Processing
Semester	V
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Analyze discrete Fourier transform and its properties related to computational complexity	K4
CO2	Design IIR digital filter using bilinear transformation and impulse invariant method.	K5
CO3	Construct FIR filter using windowing technique	K5
CO4	Discuss on various finite word length effects	K4
CO5	Interpret the operation of different processors and its applications	K2
CO6	Compare various design methodologies in real time signal processing	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	2	2	2	-	-	-	1	1	1	2	2	1
CO2	3	3	3	3	2	-	-	-	1	2	1	2	2	1
CO3	3	3	3	2	2	-	-	-	1	2	1	2	2	1
CO4	3	3	2	3	2	-	-	-	1	2	1	2	2	1
CO5	3	2	1	1	2	1	-	-	1	2	1	2	2	2
CO6	3	3	3	3	2	2	-	-	1	2	1	2	2	2
CO	**3.0**	**2.8**	**2.3**	**2.3**	**2.0**	**1.5**	**0.0**	**0.0**	**1.0**	**1.8**	**1.0**	**2.0**	**2.0**	**1.3**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	EC8552/ Computer Architecture and Organization
Semester	V
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Develop basic structure and operations of digital computer.	K5
CO2	Design arithmetic and logic unit and implementation of fixed and floating point arithmetic operations.	K5
CO3	Elaborate the concept of pipelining.	K2
CO4	Analyze parallelism concept and hierarchical memory system including cache memories and virtual memory.	K4
CO5	Choose I/O devices and standard I/O interfaces.	K5
CO6	Create system architecture for different systems for various applications.	L6EV

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	2	2	1	1	-	1	-	-	1	1	-	1	1	2
CO2	2	2	1	1	-	1	-	-	1	1	-	1	1	2
CO3	2	1	2	2	-	1	-	-	1	1	-	1	1	2
CO4	2	1	2	2	-	1	-	-	1	1	-	1	1	2
CO5	2	2	2	2	-	1	-	-	1	1	-	1	1	2
CO6	2	2	2	2	-	1	-	-	1	1	-	1	1	2
CO	**2.0**	**1.7**	**1.7**	**1.7**	**0.0**	**1.0**	**0.0**	**0.0**	**1.0**	**1.0**	**0.0**	**1.0**	**1.0**	**2.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	EC8551 / Communication Networks
Semester	V
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Interpret the division of network functionalities into layers.	K2
CO2	Develop the components required to build different types of networks.	K5
CO3	Explain about the different types of routing algorithm.	K2
CO4	Elaborate the flow control and congestion control algorithms.	K4
CO5	Discuss the functions of application layer.	K2
CO6	Identify the solution for individual functionality at each layer.	K5

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	2	2	1	1	1	1	-	-	-	1	-	1	1	2
CO2	2	2	1	1	1	1	-	-	-	1	-	1	1	2
CO3	2	2	-	-	1	1	-	-	-	1	-	1	1	2
CO4	2	2	-	-	1	1	-	-	-	1	-	1	1	2
CO5	2	2	1	-	1	1	-	-	-	1	-	1	1	2
CO6	2	2	1	1	1	1	-	-	-	1	-	1	1	2
CO	**2.0**	**2.0**	**1.0**	**1.0**	**1.0**	**1.0**	**0.0**	**0.0**	**0.0**	**1.0**	**0.0**	**1.0**	**1.0**	**2.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	OMD551 / Basics of Bio-Medical Instrumentation
Semester	V
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Analyze the different bio potentials and its propagation	K4
CO2	Determine the different electrode placement for various physiological recording	K5
CO3	Design bio amplifiers for various physiological recording	K5
CO4	Propose the different non-electrical parameter measurement techniques and explain the working of those measurement devices.	K5
CO5	Compare and classify the bio chemical measurement techniques	K5
CO6	Develop knowledge in the design and modification of measurement methods and devices.	K2

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	2	1	1	1	-	1	1	1	-	1	-	2	1	1
CO2	2	1	1	1	-	2	1	1	1	1	-	2	1	1
CO3	2	2	2	1	1	2	1	1	-	1	1	2	2	1
CO4	2	2	2	2	-	2	1	1	-	1	1	2	1	1
CO5	2	2	1	2	-	1	2	1	1	1	1	2	1	1
CO6	2	2	2	2	1	2	2	1	1	1	1	2	2	1
CO	**2.0**	**1.7**	**1.5**	**1.5**	**1.0**	**1.7**	**1.3**	**1.0**	**1.0**	**1.0**	**1.0**	**2.0**	**1.3**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	GE8077/Total Quality Management
Semester	V
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Adapt quality management principles in engineering	K3
CO2	Develop leadership skills and team work abilities for leading a team in terms of project and finance	K5
CO3	Analyze and investigate the quality related problems by continuously upgrading management tools	K4
CO4	Recommend statistical tools for analyzing the quality related engineering problem and provide solutions.	K5
CO5	Develop a quality system in an ethical way that preserves the environment for the society	K5
CO6	Support continuous improvement in quality by applying quality tools by keeping in mind the environmental outcome for the society	K3

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	-	1	-	-	-	1	2	3	2	2	3	2	-	-
CO2	-	1	-	-	-	1	2	3	2	2	3	2	-	-
CO3	-	1	-	-	1	-	2	3	1	2	3	2	-	-
CO4	-	1	-	-	1	1	2	3	2	2	3	2	-	-
CO5	-	1	-	-	-	1	2	3	1	2	3	2	1	1
CO6	-	1	-	-	1	1	2	3	2	2	3	2	1	1
CO	**0.0**	**1.0**	**0.0**	**0.0**	**1.0**	**1.0**	**2.0**	**3.0**	**1.7**	**2.0**	**3.0**	**2.0**	**1.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	EC8562/Digital Signal Processing Laboratory
Semester	V
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Develop and experiment coding from basic mathematical operations to complex operations like DFT and FFT.	K6
CO2	Determine the amplitude and phase spectrum of the signal in frequency domain	K4
CO3	Compile FIR and IIR filter using MATLAB and DSP processor	K3
CO4	Analyze the finite word length effect.	K4

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	2	2	3	2	1	-	1	1	1	2	1	3
CO2	3	2	2	2	3	2	1	-	1	1	1	2	1	3
CO3	3	3	2	2	3	2	1	-	1	1	1	2	1	3
CO4	3	2	2	2	3	2	1	-	1	1	1	2	1	3
CO	**3.0**	**2.3**	**2.0**	**2.0**	**3.0**	**2.0**	**1.0**	**0.0**	**1.0**	**1.0**	**1.0**	**2.0**	**1.0**	**3.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	**EC8561 / Communication Systems Laboratory**
Semester	V
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Compare analog modulation techniques	K5
CO2	Construct various receiver circuits	K6
CO3	Apply various channel coding schemes	K3
CO4	Develop various pulse modulation techniques	K6

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	2	2	1	2	1	1	2	2	2	1	1	2	1
CO2	3	2	2	1	2	1	1	2	2	2	1	1	2	1
CO3	3	2	2	1	2	1	1	2	2	2	1	1	2	1
CO4	3	2	2	1	2	1	1	2	2	2	1	1	2	1
CO	**3.0**	**2.0**	**2.0**	**1.0**	**2.0**	**1.0**	**1.0**	**2.0**	**2.0**	**2.0**	**1.0**	**1.0**	**2.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	EC8563/ Communication Networks Laboratory
Semester	V
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Select and implement the error correction and detection technique	K3
CO2	Make use of the networks commands and identifying its characteristics and protocol used	K2
CO3	Develop the configuration of IP address and routing algorithm	K6
CO4	Analyze the concepts of network simulator and its working principles	K4
CO5	Build and utilize the simulator techniques and know the performance	K3
CO6	Discover the working nature of networks protocol and simulator techniques.	K2

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	-	-	-	-	-	-	2	3	-	3	2	3
CO2	3	-	-	-	-	-	-	-	-	-	-	-	-	3
CO3	2	-	-	-	-	-	-	-	-	-	-	2	-	3
CO4	-	2	2	-	2	-	-	-	-	-	-	-	-	1
CO5	1	1	-	-	2	-	-	-	-	-	-	-	-	3
CO6	3	2	3	1	3	1	1	1	3	2	3	-	-	3
CO	**2.4**	**2.0**	**2.5**	**1.0**	**2.3**	**1.0**	**1.0**	**1.0**	**2.5**	**2.5**	**3.0**	**2.5**	**2.0**	**2.7**

	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

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Course Code / Title	EC8691/ Microprocessors and Microcontrollers
Semester	VI
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Maximize knowledge about the fundamentals of 8086 microprocessor architecture and its addressing modes.	K2
CO2	Design a multiprocessor and co-processor system using an 8086 microprocessor.	K5
CO3	Develop different I/O interfacing systems with 8086 Microprocessors.	K5
CO4	Test the hardware architecture of 8051 microcontroller and its i/o ports.	K5
CO5	Construct any system operation based on the knowledge and system design using microcontroller.	K3
CO6	Discuss and develop different applications based on microprocessor and microcontroller.	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	2	-	-	1	-	-	-	1	-	-	2	1
CO2	3	3	2	-	-	1	-	-	-	1	-	-	2	1
CO3	3	3	2	1	-	1	-	-	1	1	1	2	2	1
CO4	3	3	2	-	-	1	-	-	-	1	-	2	2	1
CO5	3	3	2	1	-	1	-	-	1	1	1	2	2	1
CO6	3	3	2	1	-	1	-	-	1	1	1	2	2	1
CO	**3.0**	**3.0**	**2.0**	**1.0**	**0.0**	**1.0**	**0.0**	**0.0**	**1.0**	**1.0**	**1.0**	**2.0**	**2.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

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Course Code / Title	EC8095 / VLSI Design
Semester	VI
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Improve knowledge about the basic CMOS circuits and the process technology	K2
CO2	Interpret the process of basic combination blocks using CMOS logic circuits	K4
CO3	Compare various clocking strategies, memory control circuits in building synchronous and asynchronous design	K5
CO4	Analyze the design of various arithmetic building blocks with speed and area trade off	K4
CO5	Evaluate the performance in implementation of knowledge about the techniques of chip design using programmable devices.	K5
CO6	Develop knowledge on the design and fabrication of VLSI integrated circuits.	K5

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	3	3	3	-	-	2	1	1	-	2	2	1
CO2	3	2	3	3	2	-	-	2	1	1	-	2	2	1
CO3	2	2	3	2	2	2	2	2	1	1	-	2	2	1
CO4	3	2	3	3	3	-	2	2	1	1	-	2	2	1
CO5	3	2	3	2	1	3	2	2	1	1	-	2	2	1
CO6	2	2	3	3	3	3	-	2	1	1	-	2	2	1
CO	**2.7**	**2.0**	**3.0**	**2.7**	**2.3**	**2.7**	**2.0**	**2.0**	**1.0**	**1.0**	**0.0**	**2.0**	**2.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

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Course Code / Title	EC8652/Wireless Communication
Semester	VI
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Analyze the characteristics of wireless channels.	K4
CO2	Elaborate the various multiple access techniques and design a cellular system.	K2
CO3	Design and implement various digital signaling schemes for fading channels.	K5
CO4	Compare multipath mitigation techniques and analyze their performance.	K5
CO5	Implement systems with transmit/receive diversity and MIMO systems and analyze their performance.	K5
CO6	Discuss various characteristics of cellular system with its applications.	K2

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	2	1	1	1	1	-	1	2	1	2	1	1
CO2	3	2	2	1	1	2	1	-	1	2	1	2	1	2
CO3	3	2	2	1	1	2	1	-	1	1	1	2	1	1
CO4	3	3	2	1	1	2	1	-	1	2	1	2	1	1
CO5	3	2	2	1	1	2	1	-	1	1	1	2	1	1
CO6	3	3	2	1	1	2	1	-	1	2	2	2	2	2
CO	**3.0**	**2.3**	**2.0**	**1.0**	**1.0**	**1.8**	**1.0**	**0.0**	**1.0**	**1.7**	**1.2**	**2.0**	**1.2**	**1.3**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Name / Code / Title	C313/ MG8591 / Principles of Management
Semester	VI
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Compare the various basic management process and related terms.	K5
CO2	Explain the planning and decision making skills.	K2
CO3	Analyze the formal and informal organization and perform planning and event management.	K4
CO4	Develop leadership and effective communication skills.	K5
CO5	Classify and differentiate the budgetary and nonbudgetary terms and its controlling.	K4
CO6	Implement the various skills related to management with the help of analyzing and problem solving abilities.	K3

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	-	-	-	-	-	-	-	1	2	-	1	-	-	-
CO2	-	-	-	-	-	-	2	2	2	1	2	-	-	-
CO3	-	-	-	-	-	-	-	1	3	2	2	-	-	-
CO4	-	-	-	-	-	-	1	3	3	3	2	-	1	1
CO5	-	-	-	-	-	-	1	2	1	1	3	-	1	1
CO6	-	-	-	-	-	-	3	3	3	2	3	-	1	1
CO	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.8**	**2.0**	**2.3**	**1.8**	**2.2**	**0.0**	**1.0**	**1.0**

1	slight	2	Moderate	3	Substantial

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Department of Electronics and Communication Engineering

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Course Name / Code / Title	C314/ EC8651 / Transmission lines and RF systems
Semester	VI
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Interpret the fundamentals of transmission lines and propagation of signals through transmission lines.	K2
CO2	Analyze the signal propagation at high frequency transmission lines and examine the impedances and losses associated in it.	K4
CO3	Design and analyze the impedance matching by stubs using smith chart	K5
CO4	Evaluate the radio propagation in wave guides and analyze the characteristics of TE and TM waves	K5
CO5	Create a RF transceiver system for wireless communication	K5
CO6	Develop the knowledge to design various transmission lines with proper impedance matching network and RF system for communication applications.	K3

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	2	3	2	-	1	1	-	1	1	1	1	1	2
CO2	3	3	3	3	-	1	1	1	1	1	1	1	1	2
CO3	3	3	3	3	1	-	-	-	1	1	-	1	1	2
CO4	3	3	2	3	1	1	-	1	1	1	1	1	1	2
CO5	3	2	2	-	2	1	2	1	1	2	1	1	1	2
CO6	3	3	3	2	1	1	1	1	1	1	1	1	1	2
CO	**3.0**	**2.7**	**2.7**	**2.6**	**1.3**	**1.0**	**1.3**	**1.0**	**1.0**	**1.2**	**1.0**	**1.0**	**1.0**	**2.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	EC8004/Wireless Networks
Semester	VI
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Analyze the concept about wireless networks, protocol stack and standards	K4
CO2	Discuss the network layer solutions for wireless networks	K2
CO3	Develop knowledge about the fundamentals of 3G Services, its protocols and applications	K2
CO4	Elaborate the internetworking of WLAN and WWAN	K2
CO5	Explain the evolution of 4G networks, its architecture and applications	K2
CO6	Design and analyze different type of applications for smart phones and mobile devices with latest network strategies	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	2	3	2	1	-	2	2	1	-	2	2	2	1	3
CO2	2	3	3	3	-	2	2	-	-	2	2	2	1	3
CO3	2	3	1	1	1	2	1	1	-	1	1	2	-	3
CO4	2	3	1	1	1	1	1	1	-	1	2	2	-	3
CO5	2	3	1	1	2	2	2	1	1	2	2	2	1	3
CO6	2	3	3	3	2	2	2	2	2	2	2	2	1	3
CO	**2.0**	**3.0**	**1.8**	**1.7**	**1.5**	**1.8**	**1.7**	**1.2**	**1.5**	**1.7**	**1.8**	**2.0**	**1.0**	**3.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Course Code / Title	EC8681 / Microprocessor and Microcontroller Laboratory
Semester	VI
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Develop ALP Programs for fixed , Floating Point and Arithmetic using 8086 Microprocessors	K6
CO2	Propose interfacing different I/O's with processor and generate waveforms using Microprocessors.	K5
CO3	Justify programs in 8051 microcontroller based system with interfacing	K5
CO4	Compare difference between simulator and emulator	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	2	1	2	2	2	1	1	-	2	2	1	2	2	1
CO2	2	1	2	2	-	1	1	-	2	2	1	2	2	1
CO3	2	1	2	2	2	1	1	1	2	2	1	2	3	1
CO4	2	1	2	2	3	1	1	-	2	2	1	2	3	1
CO	**2.0**	**1.0**	**2.0**	**2.0**	**2.3**	**1.0**	**1.0**	**1.0**	**2.0**	**2.0**	**1.0**	**2.0**	**2.5**	**1.0**

1	slight	2	Moderate	3	Substantial

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Department of Electronics and Communication Engineering

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Course Code / Title	EC8661/VLSI Design Laboratory
Semester	VI
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Adapt HDL and fundamental principles of VLSI circuits in digital and analog domain	K3
CO2	Build Fuse logic modules FPGA boards	K6
CO3	Construct Synthesize, place and route in the digital ICs	K6
CO4	Analyze the design, simulate and extract the layouts of Analog IC blocks using EDA tools	K4

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	2	2	2	1	1	1	1	2	2	2	2	2	1
CO2	2	2	2	2	1	1	1	1	2	2	2	2	2	1
CO3	2	2	2	3	1	1	1	1	2	2	2	2	2	1
CO4	2	2	2	3	1	1	1	1	2	2	2	2	2	1
CO	**2.3**	**2.0**	**2.0**	**2.5**	**1.0**	**1.0**	**1.0**	**1.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	EC8611/ Technical Seminar
Semester	VI
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Contrast the understanding perceptive of techniques applicable to their domain.	K6
CO2	Construct the solutions upon their own knowledge.	K6
CO3	Improve their Presentation and Communication skills	K5
CO4	Make them to pursue their placements and higher studies.	K3

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	2	3	2	1	1	2	2	2	2	2	2	1	1
CO2	3	2	3	2	1	1	2	2	2	2	2	2	2	1
CO3	3	2	3	2	1	1	2	2	2	2	2	2	2	1
CO4	3	2	3	2	1	1	2	2	2	2	2	2	3	1
CO	**3.0**	**2.0**	**3.0**	**2.0**	**1.0**	**1.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	HS8581/ Professional Communication
Semester	VI
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Improve soft skills, hard skills and current affairs for professional development in employability skills.	K4
CO2	Develop an individual presentation either by oral or visual by introducing oneself effectively.	K6
CO3	Make use of different GD strategies to participate and interact effectively in GD.	K3
CO4	Dissect orient interview etiquettes make them to attend various mock interviews by asking FAQs.	K5
CO5	Determine the different between teams and groups for developing time, stress and career management towards the lifelong learning	K2
CO6	Support career planning and creative skills to work towards lifelong learning	K6

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	-	-	-	-	2	-	-	2	2	3	-	1	-	1
CO2	-	-	-	-	2	-	-	2	2	3	-	1	-	1
CO3	-	-	-	-	2	-	-	2	2	3	-	1	-	1
CO4	-	-	-	-	2	-	-	2	2	3	-	1	-	1
CO5	-	-	-	-	2	-	-	2	2	3	-	1	-	1
CO6	-	-	-	-	2	-	-	2	2	3	-	1	-	1
CO	**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**0.0**	**0.0**	**2.0**	**2.0**	**3.0**	**0.0**	**1.0**	**0.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	EC8701 / Antennas and Microwave Engineering
Semester	VII
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Discuss the concept of antenna fundamentals and its radiation effects.	K2
CO2	Analyze and apply the aperture antenna concepts.	K4
CO3	Evaluate antenna array parameters and analyze radiation characteristics of special antennas.	K5
CO4	Adapt knowledge about active & passive microwave devices used in microwave communication systems.	K5
CO5	Elaborate the RF amplifiers, oscillators with impedance matching techniques.	K3
CO6	Design microwave Amplifiers and Antennas for different Applications.	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	2	2	1	-	-	-	-	-	1	-	1	2	1
CO2	3	3	3	2	1	2	1	1	1	1	-	1	2	1
CO3	3	3	3	2	1	2	1	1	1	1	-	1	2	1
CO4	3	3	3	2	1	1	-	-	1	1	1	1	2	1
CO5	3	3	3	2	2	-	-	-	-	1	1	1	2	1
CO6	3	3	3	2	2	2	1	1	1	1	1	1	2	1
CO	**3.0**	**2.8**	**2.8**	**1.8**	**1.4**	**1.8**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**2.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	EC8751 / Optical Communication
Semester	VII
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Design various optical fiber modes and configurations.	K5
CO2	Analyze about various signal degradation factors associated with optical fiber.	K4
CO3	Explain about various optical sources and optical detectors and their use in the optical communication system	K2
CO4	Formulate optical fiber measurement systems.	K5
CO5	Discuss optical fiber networks algorithm such as SONET/SDH and optical CDMA.	K5
CO6	Categorize digital transmission link and its associated parameters on system performance.	K4

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	2	-	-	-	-	-	-	-	1	1	2
CO2	3	3	2	2	-	-	-	-	1	1	-	1	1	2
CO3	3	3	2	2	-	-	-	-	1	1	-	1	1	2
CO4	2	1	-	-	-	1	1	-	-	-	-	1	1	2
CO5	3	3	3	3	-	1	-	-	2	1	1	2	1	2
CO6	3	3	3	3	-	-	-	-	-	-	-	2	1	2
CO	**2.8**	**2.7**	**2.6**	**2.4**	**0.0**	**1.0**	**1.0**	**0.0**	**1.3**	**1.0**	**1.0**	**1.3**	**1.0**	**2.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

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Course Code / Title	EC8791 / Embedded and Real Time Systems
Semester	VII
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Analyze knowledge about the fundamental of architecture and programming of ARM processor.	K4
CO2	Predict the outline concepts of embedded system and its performance optimization.	K5
CO3	Discuss the basic concepts of real time operating system.	K2
CO4	Adapt the system design techniques to develop software for embedded system.	K3
CO5	Estimate the difference between general purpose operating system and real time operating system.	K5
CO6	Develop a model of real time applications using embedded system concepts.	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	2	2	1	1	2	1	1	-	1	1	1	1	2	1
CO2	3	1	1	1	2	-	-	-	1	1	-	1	2	1
CO3	2	3	1	1	2	-	-	-	1	1	1	1	2	1
CO4	3	1	1	1	2	1	1	-	1	1	1	1	2	1
CO5	2	3	1	1	2	-	-	-	1	-	-	1	2	1
CO6	3	2	2	1	2	1	-	-	1	1	2	1	2	1
CO	**2.5**	**2.0**	**1.2**	**1.0**	**2.0**	**1.0**	**1.0**	**0.0**	**1.0**	**1.0**	**1.3**	**1.0**	**2.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	EC8702/Ad Hoc and Wireless Sensor Networks
Semester	VII
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Analyze the Ad hoc networks and routing protocols Wireless Sensor Networks.	K4
CO2	Design the sensor network architecture and illustrate the wireless sensor network applications	K5
CO3	Apply the knowledge to identify appropriate routing protocols and transport layer in Ad hoc	K3
CO4	Elaborate the Sensor Network Security issues in Ad hoc and sensor networks.	K4
CO5	Determine the OS used in Wireless Sensor Networks and build basic modules.	K3
CO6	Formulate the function and application of ad hoc and sensor networks.	K5

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	2	2	1	1	1	2	-	1	1	2	1	1	1	2
CO2	2	2	1	2	1	1	-	1	1	1	1	1	1	2
CO3	2	2	-	1	-	1	1	-	1	2	1	1	1	2
CO4	2	2	-	2	1	1	1	1	-	1	1	1	1	2
CO5	2	2	1	2	-	1	1	1	1	2	-	1	1	2
CO6	2	2	1	2	1	2	1	1	1	2	1	1	1	2
CO	**2.0**	**2.0**	**1.0**	**1.7**	**1.0**	**1.3**	**1.0**	**1.0**	**1.0**	**1.7**	**1.0**	**1.0**	**1.0**	**2.0**

1	slight	2	Moderate	3	Substantial

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Department of Electronics and Communication Engineering

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Course Code / Title	EC8071/Cognitive Radio
Semester	VII
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Improve the knowledge on the design principles on software defined radio and cognitive radio.	K4
CO2	Analyze the basic architecture and standard for cognitive radio.	K4
CO3	Develop the ability to design and implement algorithms for cognitive radio spectrum sensing and dynamic spectrum access	K5
CO4	Evaluate the MAC and network layer design for cognitive radio	K5
CO5	Elaborate the knowledge of advanced features of cognitive radio for real world applications	K2
CO6	Build experiments and projects with real time wireless applications.	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	2	2	-	-	1	-	1	-	-	1	-	1	1	1
CO2	2	2	-	-	1	-	1	-	-	1	-	1	1	1
CO3	2	2	-	-	1	-	1	-	-	1	-	1	1	1
CO4	2	-	-	-	1	-	1	-	-	1	-	1	1	1
CO5	2	2	-	-	1	-	1	-	-	1	-	1	1	1
CO6	2	2	-	-	1	-	1	-	-	1	-	1	1	1
CO	**2.0**	**2.0**	**0.0**	**0.0**	**1.0**	**0.0**	**1.0**	**0.0**	**0.0**	**1.0**	**0.0**	**1.0**	**1.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	OG1752/Fundamentals of Planetary Remote Sensing
Semester	VII
Regulation	2017

COs	Course Outcome	Bloom's Level
Students will be able to		
CO1	Evaluate the fundamentals of planetary science	K5
CO2	Analyse the satellite orbital mechanics	K4
CO3	Estimate the properties of EMR the principles of observing the planets	K4
CO4	Discuss the principles of observing the planets	K6
CO5	Explain about various planetary remote sensing application	K5
CO6	Adapt the knowledge of Remote Sensing methods for determining surface elevation and mapping of planets.	K4

CO-PO- PSO Mapping

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	2	2	-	-	-	-	1	-	-	1	-	1	1	1
CO2	2	2	-	-	-	-	1	-	-	1	-	1	1	1
CO3	2	2	-	-	-	-	1	-	-	1	-	1	1	1
CO4	2	2	-	-	-	-	1	-	-	1	-	1	1	1
CO5	2	2	-	-	1	-	1	-	-	1	-	1	1	1
CO6	2	2	-	-	1	-	1	-	-	1	-	1	1	1
CO	**2.0**	**2.0**	**0.0**	**0.0**	**1.0**	**0.0**	**1.0**	**0.0**	**0.0**	**1.0**	**0.0**	**1.0**	**1.0**	**1.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

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Course Code / Title	EC8711/Embedded Laboratory
Semester	VII
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Develop programs in ARM for a specific Application	K6
CO2	Classify the memory and Write programs related to memory operations	K5
CO3	Inspect A/D and D/A convertors, keyboard, display, motor and sensor with ARM system	K4
CO4	Formulate a mini project using embedded system	K6

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	2	2	2	2	2	2	1	2	2	2	2	2	1	3
CO2	2	1	2	2	2	2	1	1	2	2	2	2	-	3
CO3	2	2	2	2	2	2	1	1	2	2	2	2	-	3
CO4	2	2	2	2	2	2	1	2	2	2	2	2	2	2
CO	**2.0**	**1.8**	**2.0**	**2.0**	**2.0**	**2.0**	**1.0**	**1.5**	**2.0**	**2.0**	**2.0**	**2.0**	**1.5**	**2.8**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

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Course Code / Title	EC8761 / Advanced Communication Laboratory
Semester	VII
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Analyze the performance of simple optical link by measurement of losses and Analyzing the mode characteristics of fiber	K4
CO2	Discuss the Eye Pattern, Pulse broadening of optical fiber and the impact on BER	K2
CO3	Estimate the wireless channel characteristics and analyze the performance of wireless communication system	K5
CO4	Examine the intricacies in microwave system design	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	3	3	2	2	1	-	2	2	1	3	1	3
CO2	3	3	1	3	2	2	1	-	2	2	1	3	-	3
CO3	3	3	3	3	2	2	-	1	2	2	3	3	-	3
CO4	3	3	2	2	2	2	-	-	2	2	1	3	1	3
CO	**3.0**	**3.0**	**2.3**	**2.8**	**2.0**	**2.0**	**1.0**	**1.0**	**2.0**	**2.0**	**1.5**	**3.0**	**1.0**	**3.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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TIRUCHIRAPPALLI

Department of Electronics and Communication Engineering

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Course Code / Title	EC8094 / Satellite Communication
Semester	VIII
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Develop knowledge to analyze the satellite orbital parameters, orbital parameters and perturbations with launching procedures.	K4
CO2	Elaborate about the primary structure, power utilization, telemetry, tracking and command of satellite with link budget design.	K2
CO3	Create the earth segment design with the given attributes and test equipment incorporating various losses and margin.	K5
CO4	Formulate various analog and digital modulations, multiplexing and multiple access techniques.	K5
CO5	Discuss the various satellite applications and specialized services with social networking	K2
CO6	Assess the principle of various propulsion systems, launching vehicles, angle of visibility and alternate power source.	K5

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	2	2	-	1	1	1	1	1	1	2	-	2
CO2	3	3	2	2	-	1	1	1	1	1	-	2	-	3
CO3	3	3	2	2	-	2	2	-	1	1	-	1	1	3
CO4	3	2	1	2	-	1	2	-	2	2	1	1	-	3
CO5	2	2	3	2	-	2	2	-	2	2	1	1	1	3
CO6	3	3	3	3	-	2	2	-	2	2	1	2	1	3
CO	**2.8**	**2.7**	**2.2**	**2.2**	**0.0**	**1.5**	**1.7**	**1.0**	**1.5**	**1.5**	**1.0**	**1.5**	**1.0**	**2.8**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

(Accredited by NBA)

Course Code / Title	GE8076/Professional Ethics in Engineering
Semester	VIII
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Describe the human values with regard to the individual lifestyle for the society	K2
CO2	Explain the role of ethics to the engineering field	K2
CO3	Describe how engineering is applied in association with ethics based on engineering experimentation	K2
CO4	Explain the engineering ethics-based safety, responsibilities and rights	K2
CO5	Discuss the global issues of professional ethics in engineering	K4
CO6	Experiment the professional ethics in engineering-based product development	K3

CO-PO- PSO Mapping

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	2	2	-	-	-	2	2	3	-	1	1	1	-	2
CO2	3	3	-	-	-	2	2	3	-	1	1	1	-	2
CO3	3	3	-	-	-	2	2	3	-	1	1	1	-	2
CO4	2	2	-	-	-	2	2	3	-	1	1	1	-	2
CO5	2	2	-	-	-	2	2	3	-	1	1	1	-	2
CO6	3	3	-	-	-	2	2	3	-	1	1	1	-	2
CO	**2.3**	**2.3**	**0.0**	**0.0**	**0.0**	**2.0**	**2.0**	**3.0**	**0.0**	**1.0**	**1.0**	**1.0**	**0.0**	**2.0**

1	slight	2	Moderate	3	Substantial

SRM TRP ENGINEERING COLLEGE
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Department of Electronics and Communication Engineering

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Course Code / Title	EC8811/Project Work
Semester	VIII
Regulation	2017

COs	**Course Outcome**	**Bloom's Level**
Students will be able to		
CO1	Develop projects and create innovative solutions for electronics and communication engineering problems	K6

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	3	3	3	3	3	3	3	2	3	3	2	2	3.0	3.0
CO	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**2.0**	**3.0**	**3.0**	**2.0**	**2.0**	**3.0**	**3.0**

1	slight	2	Moderate	3	Substantial