

Criterion 2

Teaching- Learning and Evaluation

Key Indicator - 2.6

Student Performance and Learning

Outcome

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

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

Sl.No	Description	Page No.
1	POs and COs for all Programmes offered by the institution	1-7
2	POs and COs Mapping - 2021 Regulation	8-60
3	POs and COs Mapping - 2017 Regulation	61-131

UG PROGRAMME

PROGRAM OUTCOMES (POs)

PO- Graduate Attribute

- 1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2. 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.
- 3. 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.
- 4. Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- 5. 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.
- 6. 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.
- 7. 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.
- 8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.


Dr. R. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** 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.
11. **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.
12. **Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs) (Civil Engineering)

On successful completion of the **Civil Engineering Degree programme**, the Graduates shall exhibit the following:

PSO1: Knowledge of Civil Engineering discipline Demonstrate in-depth knowledge of Civil Engineering discipline, with an ability to evaluate, analyze and synthesize existing and new knowledge.

PSO2: Critical analysis of Civil Engineering problems and innovation critically analyze complex Civil Engineering problems, apply independent judgment for synthesizing information and make innovative advances in a theoretical, practical and policy context.

PSO3: Conceptualization and evaluation of engineering solutions to Civil Engineering Issues Conceptualize and solve Civil Engineering problems, evaluate potential solutions and arrive at technically feasible, economically viable and environmentally sound solutions with due consideration of health, safety, and socio cultural factors

PROGRAM SPECIFIC OUTCOMES (PSOs) (Computer Science and Engineering)

The Students will be able to

Dr. R. Palson Kennedy
Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL

PSO1: Exhibit design and programming skills to build and automate business solutions using cutting edge technologies.

PSO2: Strong theoretical foundation leading to excellence and excitement towards research, to provide elegant solutions to complex problems.

PSO3: Ability to work effectively with various engineering fields as a team to design, build and develop system applications.

PROGRAM SPECIFIC OUTCOMES (PSOs) (Electronics and Communication Engineering)

PSO1: Design, develop and analyze electronic systems through application of relevant electronics, mathematics and engineering principles

PSO2: Design, develop and analyze communication systems through application of fundamentals from communication principles, signal processing, and RF System Design & Electromagnetic.

PSO3: Adapt to emerging electronics and communication technologies and develop innovative solutions for existing and newer problems.

PROGRAM SPECIFIC OUTCOMES (PSOs) (Electrical and Electronics Engineering)

On completion of Electrical and Electronics Engineering program, the student will have the following Program Specific Outcomes.

PSO1: Foundation of Electrical Engineering: Ability to understand the principles and working of electrical components, circuits, systems and control that are forming a part of power generation, transmission, distribution, utilization, conservation and energy saving. Students can assess the power management, auditing, crisis and energy saving aspects.

PSO2: Foundation of Mathematical Concepts: Ability to apply mathematical methodologies to solve problems related with electrical engineering using appropriate engineering tools and algorithms.

Dr. R. PALSON KENNEDY, M.E., Ph.D.

PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

PSO3: Computing and Research Ability: Ability to use knowledge in various domains to identify research gaps and hence to provide solution which leads to new ideas and innovations.

PROGRAM SPECIFIC OUTCOMES (PSOs) (Mechanical Engineering)

On successful completion of the Mechanical Engineering Degree programme, the Graduates shall exhibit the following:

PSO1: Apply the knowledge gained in Mechanical Engineering for design and development and manufacture of engineering systems.

PSO2: Apply the knowledge acquired to investigate research-oriented problems in mechanical engineering with due consideration for environmental and social impacts.

PSO3: Use the engineering analysis and data management tools for effective management of multidisciplinary projects.

PROGRAM SPECIFIC OUTCOMES (PSOs) (Artificial Intelligence and Data Science)

Graduates should be able to:

PSO1: Evolve AI based efficient domain specific processes for effective decision making in several domains such as business and governance domains. Arrive at actionable Foresight, Insight, and hindsight from data for solving business and engineering problems

PSO2: Create, select and apply the theoretical knowledge of AI and Data Analytics along with practical industrial tools and techniques to manage and solve wicked societal problems. Develop data analytics and data visualization skills, skills pertaining to knowledge acquisition, knowledge representation and knowledge engineering, and hence be capable of coordinating complex projects.

PSO3: Able to carry out fundamental research to cater the critical needs of the society through cutting edge technologies of AI.

Dr. R. PALSON KENNEDY, M.E., Ph.D.

PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY

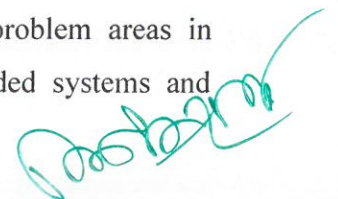
PG programme

PROGRAM OUTCOMES (POs) (Communication Systems)

1. An ability to independently carry out research/investigation and development work to solve practical problems
2. An ability to write and present a substantial technical report/document
3. Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program
4. Design and analyze RF, Signal processing, Networking, Adaptive and modern communication systems
5. Develop the knowledge in 5G communication techniques, mm wave communication, smart antennas, and Massive MIMO and Wireless sensor networks
6. Apply various software tools and cutting edge engineering hardware to provide solutions for complex communication engineering problems

PROGRAM OUTCOMES (POs) (Applied Electronics)

1. An ability to independently carry out research/investigation and development work to solve practical problems
2. An ability to write and present a substantial technical report/document
3. Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program
4. To critically evaluate the design and provide optimal solutions to problem areas in advanced signal processing, Consumer and automotive systems, embedded systems and VLSI design.



Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY

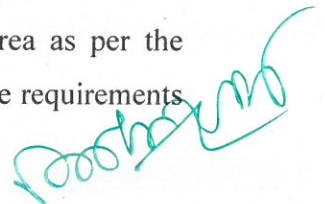
5. To enhance and develop electronic systems, protocols between circuits using modern engineering hardware and software tools.
6. To acquire knowledge of fundamentals of power electronics, power

PROGRAM OUTCOMES (POs): (Computer Science and Engineering)

1. An ability to independently carry out research / investigation and development work to solve practical problems.
2. An ability to write and present a substantial technical report/document.
3. Students should be able to demonstrate a degree of mastery over the area of Computer Science and Engineering.
4. Efficiently design, build and develop system application software for distributed and centralized computing environments in varying domains and platforms.
5. Understand the working of current Industry trends, the new hardware architectures, the software components and design solutions for real world problems by Communicating and effectively working with professionals in various engineering fields and pursue research orientation for a lifelong professional development in computer and automation arenas.
6. Model a computer based automation system and design algorithms that explore the understanding of the tradeoffs involved in digital transformation.

PROGRAM OUTCOMES (POs): (Power Electronics and Drives)

- 1 An ability to independently carry out research/investigation and development work to solve practical problems
- 2 An ability to write and present a substantial technical report/document.
- 3 Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.



- 4 Apply knowledge of basic science and engineering in design and testing of power electronic systems and drives.
- 5 Interact with Industry in a professional and ethical manner to meet the requirements of societal needs and to contribute sustainable development of the society.
- 6 Implement cost effective and cutting edge technologies in power electronics and drives system.



Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Department of Science and Humanities
 CO PO Mapping
 Regulation 2021

HS3152 PROFESSIONAL ENGLISH I (COMMON TO ALL BRANCHES)	
CO 1	To use appropriate words in a professional context
CO 2	To gain understanding of basic grammatic structures and use them in right context.
CO 3	To read and infer the denotative and connotative meanings of technical texts
CO 4	To write definitions, descriptions, narrations and essays on various topics
CO 5	To express their opinions effectively in both oral and written medium of communication.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	1	1	1	1	3	3	3	1	3	-	3	-	-	-
2	1	1	1	1	1	3	3	3	1	3	-	3	-	-	-
3	2	3	2	3	2	3	3	3	2	3	3	3	-	-	-
4	2	3	2	3	2	3	3	3	2	3	3	3	-	-	-
5	2	3	3	3	-	3	3	3	2	3	-	3	-	-	-

Low (1); Medium (2); High (3)

MA3151 MATRICES AND CALCULUS (COMMON TO ALL BRANCHES)	
CO 1	Use the matrix algebra methods for solving practical problems.
CO 2	Apply differential calculus tools in solving various application problems.
CO 3	Able to use differential calculus ideas on several variable functions.
CO 4	Apply different methods of integration in solving practical problems.
CO 5	Apply multiple integral ideas in solving areas, volumes and other practical problems.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
2	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
3	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
4	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-
5	3	3	1	1	0	0	0	0	2	0	2	3	-	-	-

Low (1); Medium (2); High (3)

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL

PH3151 ENGINEERING PHYSICS (COMMON TO ALL BRANCHES)	
CO 1	Understand the importance of mechanics.
CO 2	Express their knowledge in electromagnetic waves.
CO 3	Demonstrate a strong foundational knowledge in oscillations, optics and lasers.
CO 4	Understand the importance of quantum physics.
CO 5	Comprehend and apply quantum mechanical principles towards the formation of energy bands.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	2	1	1	1	-	-	-	-	-	-	-	-	-
2	3	3	2	1	2	1	-	-	-	-	-	-	-	-	-
3	3	3	2	2	2	1	-	-	-	-	-	1	-	-	-
4	3	3	1	1	2	1	-	-	-	-	-	-	-	-	-
5	3	3	1	1	2	1	-	-	-	-	-	-	-	-	-

Low (1); Medium (2); High (3)

CY3151 ENGINEERING CHEMISTRY (COMMON TO ALL BRANCHES)	
CO 1	To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water.
CO 2	To identify and apply basic concepts of nanoscience and nanotechnology in designing the synthesis of nanomaterials for engineering and technology applications.
CO 3	To apply the knowledge of phase rule and composites for material selection requirements.
CO 4	To recommend suitable fuels for engineering processes and applications.
CO 5	To recognize different forms of energy resources and apply them for suitable applications in energy sectors.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	2	1	-	1	1	-	-	-	-	1	-	-	-
2	2	-	-	1	-	2	2	-	-	-	-	-	-	-	-
3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-
4	3	1	1	-	-	1	2	-	-	-	-	-	-	-	-
5	3	1	2	1	-	2	2	-	-	-	-	2	-	-	-

Low (1); Medium (2); High (3)

GE3151 PROBLEM SOLVING AND PYTHON PROGRAMMING (COMMON TO ALL BRANCHES)	
CO 1	Develop algorithmic solutions to simple computational problems.
CO 2	Develop and execute simple Python programs.
CO 3	Write simple Python programs using conditionals and loops for solving problems.
CO 4	Decompose a Python program into functions.
CO 5	Represent compound data using Python lists, tuples, dictionaries etc.
CO 6	Read and write data from/to files in Python programs.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	2	-	-	-	-	-	2	2	3	3	-
2	3	3	3	3	2	-	-	-	-	-	2	2	3	-	-
3	3	3	3	3	2	-	-	-	-	-	2	-	3	-	-
4	2	2	-	2	2	-	-	-	-	-	1	-	3	-	-
5	1	2	-	-	1	-	-	-	-	-	1	-	2	-	-
6	2	2	-	-	2	-	-	-	-	-	1	-	2	-	-
Low (1); Medium (2); High (3)															

GE3171 PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY (COMMON TO ALL BRANCHES)	
CO 1	Develop algorithmic solutions to simple computational problems
CO 2	Develop and execute simple Python programs.
CO 3	Implement programs in Python using conditionals and loops for solving problems.
CO 4	Deploy functions to decompose a Python program.
CO 5	Process compound data using Python data structures.
CO 6	Utilize Python packages in developing software applications.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	3	-	-	-	-	-	3	2	3	3	-
2	3	3	3	3	3	-	-	-	-	-	3	2	3	-	-
3	3	3	3	3	2	-	-	-	-	-	2	-	3	-	-
4	3	2	-	2	2	-	-	-	-	-	1	-	3	-	-
5	1	2	-	-	1	-	-	-	-	-	1	-	2	-	-
6	2	-	-	-	2	-	-	-	-	-	1	-	2	-	-
Low (1); Medium (2); High (3)															

Handwritten signature in blue ink

BS3171 PHYSICS AND CHEMISTRY LABORATORY PHYSICS LABORATORY (COMMON TO ALL BRANCHES)	
CO 1	Understand the functioning of various physics laboratory equipment.
CO 2	Use graphical models to analyze laboratory data.
CO 3	Use mathematical models as a medium for quantitative reasoning and describing physical reality.
CO 4	Access, process and analyze scientific information.
CO 5	Solve problems individually and collaboratively.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	3	1	1	-	-	-	-	-	-	-	-	-	-
2	3	3	2	1	1	-	-	-	-	-	-	-	-	-	-
3	3	2	3	1	1	-	-	-	-	-	-	-	-	-	-
4	3	3	2	1	1	-	-	-	-	-	-	-	-	-	-
5	3	2	3	1	1	-	-	-	-	-	-	-	-	-	-

Low (1); Medium (2); High (3)

BS3171 PHYSICS AND CHEMISTRY LABORATORY CHEMISTRY LABORATORY (COMMON TO ALL BRANCHES)	
CO 1	To analyse the quality of water samples with respect to their acidity, alkalinity, hardness and DO.
CO 2	To determine the amount of metal ions through volumetric and spectroscopic techniques
CO 3	To analyse and determine the composition of alloys.
CO 4	To learn simple method of synthesis of nanoparticles
CO 5	To quantitatively analyse the impurities in solution by electroanalytical techniques'

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	-	1	-	-	2	2	-	-	-	-	2	-	-	-
2	3	1	2	-	-	1	2	-	-	-	-	1	-	-	-
3	3	2	1	1	-	-	1	-	-	-	-	-	-	-	-
4	2	1	2	-	-	2	2	-	-	-	-	-	-	-	-
5	2	1	2	-	1	2	2	-	-	-	-	1	-	-	-

Low (1); Medium (2); High (3)

GE3172 ENGLISH LABORATORY (COMMON TO ALL BRANCHES)	
CO 1	To listen to and comprehend general as well as complex academic information
CO 2	To listen to and understand different points of view in a discussion
CO 3	To speak fluently and accurately in formal and informal communicative contexts
CO 4	To describe products and processes and explain their uses and purposes clearly and accurately
CO 5	To express their opinions effectively in both formal and informal discussions

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
2	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
3	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
4	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
5	3	3	3	3	1	3	3	3	3	3	3	3	-	-	-
Low (1); Medium (2); High (3)															

HS3252 PROFESSIONAL ENGLISH II (COMMON TO ALL BRANCHES)	
CO 1	To compare and contrast products and ideas in technical texts.
CO 2	To identify and report cause and effects in events, industrial processes through technical texts
CO 3	To analyse problems in order to arrive at feasible solutions and communicate them in the written format.
CO 4	To present their ideas and opinions in a planned and logical manner
CO 5	To draft effective resumes in the context of job search.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	3	3	3	3	2	3	3	3	-	-	-
2	3	3	3	3	3	3	3	3	2	3	3	3	-	-	-
3	3	3	3	3	3	3	3	3	2	3	3	3	-	-	-
4	3	3	3	3	2	3	3	3	2	3	3	3	-	-	-
5	-	-	-	-	-	-	-	-	3	3	3	3	-	-	-
Low (1); Medium (2); High (3)															

Dr. R. PALSON KENNEDY, M.E., Ph.D.,

PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY

MA3251 STATISTICS AND NUMERICAL METHODS (COMMON TO ALL BRANCHES)	
CO 1	Apply the concept of testing of hypothesis for small and large samples in real life problems.
CO 2	Apply the basic concepts of classifications of design of experiments in the field of agriculture.
CO 3	Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.
CO 4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
CO 5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
2	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
3	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
4	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-
5	3	3	1	1	1	0	0	0	2	0	2	3	-	-	-

Low (1); Medium (2); High (3)

GE3251 ENGINEERING GRAPHICS (COMMON TO ALL BRANCHES)	
CO 1	Use BIS conventions and specifications for engineering drawing.
CO 2	Construct the conic curves, involutes and cycloid.
CO 3	Solve practical problems involving projection of lines.
CO 4	Draw the orthographic, isometric and perspective projections of simple solids.
CO 5	Draw the development of simple solids.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
2	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
3	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
4	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-
5	3	1	2	-	2	-	-	-	-	3	-	2	2	2	-

Low (1); Medium (2); High (3)

PH3256 PHYSICS FOR INFORMATION SCIENCE (CSE/IT/CSBS/AIDS)	
CO 1	Gain knowledge on classical and quantum electron theories, and energy band structures
CO 2	Acquire knowledge on basics of semiconductor physics and its applications in various devices
CO 3	Get knowledge on magnetic properties of materials and their applications in data storage,
CO 4	Have the necessary understanding on the functioning of optical materials for optoelectronics
CO 5	Understand the basics of quantum structures and their applications and basics of quantum computing

CO	PO												PSO			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
1	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	3	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-
3	3	-	-	1	2	1	1	-	-	-	-	-	-	-	-	-
4	3	-	2	1	3	-	1	-	-	-	-	2	-	-	-	-
5	3	2	2	2	2	1	2	-	-	-	-	2	-	-	-	-
Low (1); Medium (2); High (3)																

PH3202 PHYSICS FOR ELECTRICAL ENGINEERING (EEE)	
CO 1	Know basics of dielectric materials and insulation.
CO 2	Gain knowledge on the electrical and magnetic properties of materials and their applications
CO 3	Understand clearly of semiconductor physics and functioning of semiconductor devices
CO 4	Understand the optical properties of materials and working principles of various optical devices
CO 5	Appreciate the importance of nanotechnology and nanodevices.

Handwritten signature in green ink

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	1	-	-	1	-	-	-	-	-	-	-	-	-
2	3	2	1	-	-	1	-	-	-	-	-	-	-	-	-
3	3	2	1	-	-	1	-	-	-	-	-	-	-	-	-
4	3	2	1	-	-	1	-	-	-	-	-	-	-	-	-
5	3	2	1	-	-	1	-	-	-	-	-	-	-	-	-

Low (1); Medium (2); High (3)

PH3254 PHYSICS FOR ELECTRONICS ENGINEERING	
CO 1	Know basics of crystallography and its importance for varied materials properties
CO 2	Gain knowledge on the electrical and magnetic properties of materials and their applications
CO 3	Understand clearly of semiconductor physics and functioning of semiconductor devices
CO 4	Understand the optical properties of materials and working principles of various optical devices
CO 5	Appreciate the importance of nanotechnology and nanodevices.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-
2	3	2	1	2	-	2	-	-	-	-	-	-	-	-	-
3	3	2	2	-	2	-	-	-	-	-	-	-	-	-	-
4	3	-	1	-	3	2	3	-	-	-	-	1	-	-	-
5	3	-	2	1	-	2	-	-	-	-	-	1	-	-	-

Low (1); Medium (2); High (3)

PH3201 PHYSICS FOR CIVIL ENGINEERING (CIVIL)	
CO 1	Acquire knowledge about heat transfer through different materials, thermal performance of building and thermal insulation.
CO 2	Gain knowledge on the ventilation and air conditioning of buildings
CO 3	Understand the concepts of sound absorption, noise insulation and lighting designs
CO 4	Now about the processing and applications of composites, metallic glasses, shape memory alloys and ceramics
CO 5	Get an awareness on natural disasters such as earth quake, cyclone, fire and safety measures

Dr. R. PALSON KENNEDY, M.E., Ph.D.,

PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	2	-	1	1	-	-	-	-	-	-	-	-	-
2	3	2	2	-	1	1	-	-	-	-	-	-	-	-	-
3	3	2	2	-	1	1	-	-	-	-	-	-	-	-	-
4	3	-	2	2	2	1	-	-	-	-	-	-	-	-	-
5	3	1	-	-	1	3	-	-	-	-	-	-	-	-	-
Low (1); Medium (2); High (3)															

PH3251 MATERIALS SCIENCE (MECH)	
CO 1	Know basics of crystallography and its importance for varied materials properties
CO 2	Gain knowledge on the electrical and magnetic properties of materials and their applications
CO 3	Understand clearly of semiconductor physics and functioning of semiconductor devices
CO 4	Understand the optical properties of materials and working principles of various optical devices
CO 5	Appreciate the importance of functional nanoelectronic devices.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	1	2	1	1	-	-	-	-	-	-	-	-	-
2	3	2	1	1	2	1	1	-	-	-	-	-	-	-	-
3	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-
4	3	2	2	2	1	2	-	-	-	-	-	1	-	-	-
5	3	2	2	2	1	2	-	-	-	-	-	-	-	-	-
Low (1); Medium (2); High (3)															

BE3251 BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (CSE/IT/CSBS/AIDS/MECH)	
CO 1	Compute the electric circuit parameters for simple problems
CO 2	Explain the working principle and applications of electrical machines
CO 3	Analyze the characteristics of analog electronic devices
CO 4	Explain the basic concepts of digital electronics
CO 5	Explain the operating principles of measuring instruments

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	1	-	-	-	-	1	-	-	-	2	-	-	1
2	2	2	1	-	-	-	-	1	-	-	-	2	-	-	1
3	2	2	1	-	-	-	-	1	-	-	-	2	-	-	1
4	2	2	1	-	-	-	-	1	-	-	-	2	-	-	1
5	2	2	1	-	-	-	-	1	-	-	-	2	-	-	1

Low (1); Medium (2); High (3)

BE3255 BASIC CIVIL AND MECHANICAL ENGINEERING (EEE)	
CO 1	Understanding profession of Civil and Mechanical engineering.
CO 2	Summarise the planning of building, infrastructure and working of Machineries.
CO 3	Apply the knowledge gained in respective discipline
CO 4	Illustrate the ideas of Civil and Mechanical Engineering applications.
CO 5	Appraise the material, Structures, machines and energy.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	-	-	1	-	-	1	2	1	2	-	1	-	-	-
2	2	-	-	-	-	-	1	2	1	2	-	2	-	-	-
3	2	-	-	-	-	-	1	2	2	2	-	2	-	-	-
4	2	-	-	-	-	-	1	2	1	2	-	2	-	-	-
5	2	-	-	-	-	-	1	2	1	2	-	2	-	-	-

Low (1); Medium (2); High (3)

BE3254 ELECTRICAL AND INSTRUMENTATION ENGINEERING (ECE)	
CO 1	Explain the working principle of electrical machines
CO 2	Analyze the output characterizes of electrical machines
CO 3	Choose the appropriate electrical machines for various applications
CO 4	Explain the types and operating principles of measuring instruments
CO 5	Explain the basic power system structure and protection schemes

Dothamemo

D. K. FALSON KENNEDY, B.E., M.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
MANNIVAKKAM, Chennai - 600 048.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	1	-	-	-	-	1	-	-	-	-	-	-	-
2	2	1	1	-	-	-	-	1	-	-	-	-	-	-	-
3	2	1	1	-	-	-	-	1	-	-	-	-	-	-	-
4	3	1	1	-	-	-	-	1	-	-	-	-	-	-	-
5	3	1	1	-	-	-	-	1	-	-	-	-	-	-	-

Low (1); Medium (2); High (3)

BE3252 BASIC ELECTRICAL, ELECTRONICS AND INSTRUMENTATION ENGINEERING (CIVIL)	
CO 1	Compute the electric circuit parameters for simple problems
CO 2	Explain the concepts of domestic wiring and protective devices
CO 3	Explain the working principle and applications of electrical machines
CO 4	Analyze the characteristics of analog electronic devices
CO 5	Explain the types and operating principles of sensors and transducers

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	1	-	-	-	-	1	-	-	-	-	-	-	-
2	2	1	1	-	-	-	-	1	-	-	-	-	-	-	-
3	2	1	1	-	-	-	-	1	-	-	-	-	-	-	-
4	2	1	1	-	-	-	-	1	-	-	-	-	-	-	-
5	2	1	1	-	-	-	-	1	-	-	-	-	-	-	-

Low (1); Medium (2); High (3)

EE3251 ELECTRIC CIRCUIT ANALYSIS (EEE)	
CO 1	Explain circuit's behavior using circuit laws.
CO 2	Apply mesh analysis/ nodal analysis / network theorems to determine behavior of the given DC and AC circuit
CO 3	Compute the transient response of first order and second order systems to step and sinusoidal input
CO 4	Compute power, line/ phase voltage and currents of the given three phase circuit
CO 5	Explain the frequency response of series and parallel RLC circuits
CO 6	Explain the behavior of magnetically coupled circuits.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	2	2	-	2	1	-	-	-	3	3	3	3
2	3	3	3	3	2	-	2	1	-	-	-	3	3	3	3
3	3	3	3	3	2	-	2	1	-	-	-	3	3	3	3
4	3	3	3	3	2	-	2	1	-	-	-	3	3	3	3
5	3	3	3	3	2	-	2	1	-	-	-	3	3	3	3
6	3	3	3	3	2	-	2	1	-	-	-	3	3	3	3

Low (1); Medium (2); High (3)

EC3251 CIRCUIT ANALYSIS (ECE)	
CO 1	Apply the basic concepts of circuit analysis such as Kirchoff's laws, mesh current and node voltage method for analysis of DC and AC circuits.
CO 2	Apply suitable network theorems and analyze AC and DC circuits
CO 3	Analyze steady state response of any R, L and C circuits
CO 4	Analyze the transient response for any RC, RL and RLC circuits and frequency response of parallel and series resonance circuits.
CO 5	Analyze the coupled circuits and network topologies

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	1	1	-	-	-	1	-	1	-	-	-	-	-
2	3	3	2	2	-	-	-	1	-	1	-	-	-	-	-
3	3	3	3	3	-	-	-	1	-	1	-	-	-	-	-
4	3	3	3	3	-	-	-	1	-	1	-	-	-	-	-
5	3	3	3	2	-	-	-	1	-	1	-	-	-	-	-

Low (1); Medium (2); High (3)

CS3251 PROGRAMMING IN C (CSE/IT)	
CO 1	Demonstrate knowledge on C Programming constructs
CO 2	Develop simple applications in C using basic constructs
CO 3	Design and implement applications using arrays and strings
CO 4	Develop and implement modular applications in C using functions
CO 5	Develop applications in C using structures and pointers.
CO 6	Design applications using sequential and random access file processing.

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	2	2	1	2	1	1	1	2	-	3	2	1	2	-
2	2	2	2	1	2	1	1	1	2	-	3	3	2	2	-
3	2	3	2	1	2	1	1	1	2	-	3	2	2	2	-
4	3	2	2	1	3	1	1	1	2	-	3	3	2	2	-
5	2	3	3	1	2	1	2	1	2	1	3	2	2	3	-
6	2	2	3	2	1	2	-	-	2	-	2	2	2	2	-

Low (1); Medium (2); High (3)

AD3251 DATA STRUCTURES DESIGN (CSBS/AIDS)	
CO 1	explain abstract data types
CO 2	design, implement, and analyse linear data structures, such as lists, queues, and stacks, according to the needs of different applications
CO 3	design, implement, and analyse efficient tree structures to meet requirements such as searching, indexing, and sorting
CO 4	model problems as graph problems and implement efficient graph algorithms to solve them

GE3271 ENGINEERING PRACTICES LABORATORY (COMMON TO ALL BRANCHES)	
CO 1	Draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; Saw; plan; make joints in wood materials used in common household wood work.
CO 2	Wire various electrical joints in common household electrical wire work.
CO 3	Weld various joints in steel plates using arc welding work; Machine various simple processes like turning, drilling, tapping in parts; Assemble simple mechanical assembly of common household equipments; Make a tray out of metal sheet using sheet metal work.
CO 4	Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	-	-	1	1	1	-	-	-	-	2	2	1	1
2	3	2	-	-	1	1	1	-	-	-	-	2	2	1	1
3	3	2	-	-	1	1	1	-	-	-	-	2	2	1	1
4	3	2	2	1	3	1	1	1	2	-	3	3	2	2	-

Low (1); Medium (2); High (3)

CS3271 PROGRAMMING IN C LABORATORY (CSE/IT)	
CO 1	Demonstrate knowledge on C programming constructs.
CO 2	Develop programs in C using basic constructs.
CO 3	Develop programs in C using arrays.
CO 4	Develop applications in C using strings, pointers, functions.
CO 5	Develop applications in C using structures.
CO 6	Develop applications in C using file processing.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	3	3	1	1	1	-	-	2	1	2	2	2	2	-
2	2	3	3	2	1	1	-	-	2	1	2	2	2	3	-
3	2	2	2	1	1	2	-	-	2	-	2	2	2	2	-
4	2	2	2	2	1	2	-	-	3	-	3	3	3	2	-
5	2	3	3	2	3	2	-	-	3	-	3	3	3	3	-
6	2	2	3	2	1	2	-	-	2	1	2	2	2	2	-

Low (1); Medium (2); High (3)

AD3271 DATA STRUCTURES DESIGN LABORATORY (CSBS/AIDS)	
CO 1	Implement ADTs as Python classes
CO 2	Design, implement, and analyse linear data structures, such as lists, queues, and stacks, according to the needs of different applications
CO 3	Design, implement, and analyse efficient tree structures to meet requirements such as searching, indexing, and sorting
CO 4	Model problems as graph problems and implement efficient graph algorithms to solve them

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

EC3271 CIRCUIT ANALYSIS LABORATOR (ECE)	
CO 1	Design RL and RC circuits.
CO 2	Verify Thevinin & Norton theorem KVL & KCL, and Super Position Theorems.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	1	1	-	-	-	1	-	1	-	-	-	-	-
2	3	3	2	2	-	-	-	1	-	1	-	-	-	-	-
3	3	3	3	3	-	-	-	1	-	1	-	-	-	-	-
4	3	3	3	3	-	-	-	1	-	1	-	-	-	-	-
5	3	3	3	2	-	-	-	1	-	1	-	-	-	-	-

Low (1); Medium (2); High (3)

EE3271 ELECTRIC CIRCUITS LABORATORY (EEE)	
CO 1	Use simulation and experimental methods to verify the fundamental electrical laws for the given DC/AC circuit (Ex 1)
CO 2	Use simulation and experimental methods to verify the various electrical theorems (Superposition, Thevenin , Norton and maximum power transfer) for the given DC/AC circuit (Ex 2-5)
CO 3	Analyze transient behavior of the given RL/RC/RLC circuit using simulation and experimental methods (Ex 6)
CO 4	Analyze frequency response of the given series and parallel RLC circuit using simulation and experimentation methods (Ex 7-8)
CO 5	Analyze the performance of the given three-phase circuit using simulation and experimental methods (Ex 9)

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	3	-	2	1.5	3	-	-	3	3	3	2
2	3	3	3	3	3	-	2	1.5	3	-	-	3	3	3	2
3	3	3	3	3	3	-	2	1.5	3	-	-	3	3	3	2
4	3	3	3	3	3	-	2	1.5	3	-	-	3	3	3	2
5	3	3	3	3	3	-	2	1.5	3	-	-	3	3	3	2

Low (1); Medium (2); High (3)

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

BE3271 BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LABORATORY (MECH)	
CO 1	Use experimental methods to verify the Ohm's and Kirchhoff's Laws.
CO 2	Analyze experimentally the load characteristics of electrical machines
CO 3	Analyze the characteristics of basic electronic devices
CO 4	Use DSO to measure the various parameters

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	2	1	1	-	-	1.5	2	-	-	-	-	-	1
2	3	3	2	1	1	-	-	1.5	2	-	-	-	-	-	1
3	3	3	2	1	1	-	-	1.5	2	-	-	-	-	-	1
4	3	3	2	1	1	-	-	1.5	2	-	-	-	-	-	1
5	3	3	2	1	1	-	-	1.5	2	-	-	-	-	-	1
Low (1); Medium (2); High (3)															

BE3272 BASIC ELECTRICAL, ELECTRONICS AND INSTRUMENTATION ENGINEERING LABORATORY (CIVIL)	
CO 1	Use experimental methods to verify the Ohm's law and Kirchhoff's Law and to measure three phase power
CO 2	Analyze experimentally the load characteristics of electrical machines
CO 3	Analyze the characteristics of basic electronic devices
CO 4	Use LVDT to measure displacement

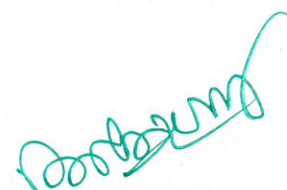
CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	3	1	2	-	-	-	1.5	2	-	-	-	-	-	-
2	2	3	1	2	-	-	-	1.5	2	-	-	-	-	-	-
3	2	3	1	2	-	-	-	1.5	2	-	-	-	-	-	-
4	2	3	1	2	-	-	-	1.5	2	-	-	-	-	-	-
Low (1); Medium (2); High (3)															

(Handwritten signature)

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

GE3272 COMMUNICATION LABORATORY (COMMON TO ALL BRANCHES)	
CO 1	Speak effectively in group discussions held in formal/semi formal contexts.
CO 2	Discuss, analyse and present concepts and problems from various perspectives to arrive at suitable solutions
CO 3	Write emails, letters and effective job applications.
CO 4	Write critical reports to convey data and information with clarity and precision
CO 5	Give appropriate instructions and recommendations for safe execution of tasks

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	3	3	3	1	3	3	3	3	3	3	3	-	-	-
2	2	3	3	3	1	3	3	3	3	3	3	3	-	-	-
3	2	2	3	3	1	3	3	3	3	3	3	3	-	-	-
4	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-
5	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-
Low (1); Medium (2); High (3)															



Dr. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048

Department of Civil Engineering
CO PO Mapping
Regulation 2021

MA3351 TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS	
CO 1	Able to understand how to solve the given standard partial differential equations.
CO 2	Able to solve differential equations using Fourier series analysis which plays a vital role in engineering applications
CO 3	Able to appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.
CO 4	Able to understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering
CO 5	Able to use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	1	1	0	0	0	0	2	0	0	3	-	-	-
2	3	3	1	1	0	0	0	0	2	0	0	3	-	-	-
3	3	3	1	1	0	0	0	0	2	0	0	3	-	-	-
4	3	3	1	1	0	0	0	0	2	0	0	3	-	-	-
5	3	3	1	1	0	0	0	0	2	0	0	3	-	-	-
Low (1); Medium (2); High (3)															

ME3351 ENGINEERING MECHANICS	
CO 1	Able to Illustrate the vectorial and scalar representation of forces and moments
CO 2	Able to analyse the rigid body in equilibrium
CO 3	Able to evaluate the properties of distributed forces
CO 4	Able to determine the friction and the effects by the laws of friction
CO 5	Able to calculate dynamic forces exerted in rigid body

R. Palson Kennedy
Dr. R. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	2	1	2	-	-	-	-	-	-	2	3	1	1
2	3	2	2	1	2	-	-	-	-	-	-	2	3	1	1
3	3	2	3	1	2	-	-	-	-	-	-	2	3	1	2
4	3	2	3	1	2	-	-	-	-	-	-	2	3	1	2
5	3	2	3	1	2	-	-	-	-	-	-	2	3	1	2
Low (1); Medium (2); High (3)															

CE3301 FLUID MECHANICS	
CO 1	Expected to demonstrate the difference between solid and fluid, its properties and behaviour in static conditions.
CO 2	Expected to apply the conservation laws applicable to fluids and its application through fluid kinematics and dynamics.
CO 3	Expected to formulate the relationship among the parameters involved in the given fluid phenomenon and to predict the performance of prototypes by model studies
CO 4	Expected to estimate the losses in pipelines for both laminar and turbulent conditions and analysis of pipes connected in series and parallel.
CO 5	Expected to explain the concept of boundary layer and its application to find the drag force exerted by the fluid on the flat solid surface.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	1	1	1	2	2	1	1	1	1	2	3	2	1
2	3	2	1	1	1	2	2	1	1	1	1	2	3	2	1
3	3	2	3	2	1	2	2	1	1	1	1	2	3	3	2
4	3	3	3	2	1	3	2	1	1	1	1	3	3	3	3
5	3	3	2	2	1	3	2	1	1	1	1	3	3	3	3
Low (1); Medium (2); High (3)															

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY

CE3302 CONSTRUCTION MATERIALS AND TECHNOLOGY	
CO 1	Able to identify the good quality brick, stone and blocks for construction.
CO 2	Able to recognize the market forms of timber, steel, aluminum and applications of various composite materials.
CO 3	Able to identify the best construction and service practices such as thermal insulations and air conditioning of the building
CO 4	Able to select various equipments for construction works conditioning of building
CO 5	Able to understand the construction planning and scheduling techniques

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	-	3	-	2	2	-	-	-	-	2	3	-	-
2	3	-	-	2	-	-	2	-	-	-	-	2	3	-	2
3	3	-	-	2	-	-	3	-	-	-	2	-	3	-	2
4	2	-	-	-	-	-	-	-	-	-	2	-	3	3	-
5	2	3	3	3	2	2	-	-	2	-	3	2	3	3	3

Low (1); Medium (2); High (3)

CE3303 WATER SUPPLY AND WASTE WATER ENGINEERING	
CO 1	Understand the various components of water supply scheme and design of intake structure and conveyance system for water transmission
CO 2	Understand on the characteristics and composition of sewage, ability to estimate sewage generation and design sewer system including sewage pumping stations
CO 3	Understand the process of conventional treatment and design of water and wastewater treatment system and gain knowledge of selection of treatment process and biological treatment process
CO 4	Ability to design and evaluate water distribution system and water supply in buildings and understand the self-purification of streams and sludge and seepage disposal methods.
CO 5	Able to understand and design the various advanced treatment system and knowledge about the recent advances in water and wastewater treatment process and reuse of sewage

Dr. R. PALSON KENNEDY, M.E., Ph.D
 PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	3	-	2	-	-	-	1	1	-	-	-	-	-	-
2	2	3	-	2	-	-	-	1	1	-	-	-	-	-	-
3	3	3	3	-	-	3	2	2	2	-	2	-	-	2	2
4	3	3	3	-	2	3	3	2	3	-	2	-	-	2	2
5	3	3	3	2	2	3	3	2	3	2	2	3	-	2	3
Low (1); Medium (2); High (3)															

CE3351 SURVEYING AND LEVELLING	
CO 1	Expected to introduce the rudiments of various surveying and its principles.
CO 2	Expected to imparts knowledge in computation of levels of terrain and ground features
CO 3	Expected to imparts concepts of theodolite surveying for complex surveying operations
CO 4	Expected to understand the procedure for establishing horizontal and vertical control
CO 5	Expected to imparts the knowledge on modern surveying instruments

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	3	2	2	3	-	2	2	2	2	-	3	3	3
2	3	3	2	2	2	3	-	2	2	2	2	-	3	3	3
3	3	3	3	2	3	3	-	2	2	2	2	-	3	3	3
4	3	3	3	3	3	3	2	2	3	2	2	2	3	3	3
5	3	3	3	3	3	3	2	3	2	2	2	2	3	3	3
Low (1); Medium (2); High (3)															

CE3361 SURVEYING AND LEVELLING LABORATORY	
CO 1	Impart knowledge on the usage of basic surveying instruments like chain/tape, compass and levelling instruments
CO 2	Able to use levelling instrument for surveying operations
CO 3	Able to use theodolite for various surveying operations
CO 4	Able to carry out necessary surveys for social infrastructures
CO 5	Able to prepare planimetric maps

Robson
Dr. R. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	3	3	2	3	2	3	3	3	3	1	3	3	3
2	3	2	3	-	3	3	3	3	3	3	3	1	3	3	3
3	3	1	2	-	3	2	-	-	3	-	-	2	3	3	3
4	3	3	2	3	2	3	3	2	3	3	3	1	3	3	3
5	3	3	3	2	2	3	3	2	3	3	3	1	3	3	3
Low (1); Medium (2); High (3)															

CE3311 WATER AND WASTEWATER ANALYSIS LABORATORY	
CO 1	Expected to calibrate and standardize the equipment
CO 2	Expected to collect proper sample for analysis
CO 3	Expected to know the sample preservation methods
CO 4	Expected to perform field oriented testing of water, wastewater
CO 5	Expected to perform coliform analysis

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	1	1	2	1	2	2	1	1	1	3	1	2	2
2	2	1	1	1	1	2	2	2	1	2	2	3	2	2	2
3	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
4	3	3	3	3	3	2	2	3	3	2	3	2	3	3	3
5	2	3	3	3	3	2	2	3	2	2	2	3	2	2	2
Low (1); Medium (2); High (3)															

GE3361 PROFESSIONAL DEVELOPMENT	
CO 1	Able to use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements
CO 2	Able to use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding
CO 3	Able to use MS PowerPoint to create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects.

CE3401 APPLIED HYDRAULICS ENGINEERING	
CO 1	Expected to describe the basics of open channel flow, its classification and analysis of uniform flow in steady state conditions with specific energy concept and its application
CO 2	Expected to analyse steady gradually varied flow, water surface profiles and its length calculation using direct and standard step methods with change in water surface profiles due to change in grades.
CO 3	Expected to derive the relationship among the sequent depths of steady rapidly varied flow and estimating energy loss in hydraulic jump with exposure to positive and negative surges.
CO 4	Expected to design turbines and explain the working principle
CO 5	Expected to differentiate pumps and explain the working principle with characteristic curves and design centrifugal and reciprocating pumps.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	2	3	1	2	2	1	2	1	1	3	3	2	2
2	3	3	2	3	2	2	2	1	2	1	1	3	3	2	2
3	3	3	2	3	1	2	2	1	2	1	1	3	3	2	3
4	3	3	3	3	1	2	2	1	2	1	1	3	3	2	3
5	3	3	3	3	1	2	2	1	2	1	1	3	3	2	3
Low (1); Medium (2); High (3)															

CE3402 STRENGTH OF MATERIALS	
CO 1	Able to understand the concepts of stress and strain, principal stresses and principal planes.
CO 2	Able to determine Shear force and bending moment in beams and understand concept of theory of simple bending
CO 3	Able to calculate the deflection of beams by different methods and selection of method for determining slope or deflection.
CO 4	Able to analyze propped cantilever, fixed beams and continuous beams for external loadings and support settlements.
CO 5	Able to determine the stresses due to Unsymmetrical bending of beams, locate the shear center, and study the various theories of failure

Dr. R. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	2	3	1	3	2	3	1	3	3	3	3
2	3	3	3	3	2	3	1	3	2	3	1	3	3	3	3
3	3	3	3	3	2	3	1	3	2	3	1	3	3	3	3
4	3	3	3	3	2	3	1	3	2	3	1	3	3	3	3
5	3	3	3	3	2	3	1	3	2	3	1	3	3	3	3
Low (1); Medium (2); High (3)															

CE3403 CONCRETE TECHNOLOGY	
CO 1	Able to understand the requirements of cement, aggregates and water for concrete
CO 2	Able to select suitable admixtures for enhancing the properties of concrete
CO 3	Able to design concrete mixes as per IS method of mix design
CO 4	Able to determine the properties of concrete at fresh and hardened state.
CO 5	Able to know the importance of special concretes for specific requirements.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	1	1	2	1	3	3	2	1	1	1	2	3	2	3
2	3	1	1	1	1	3	3	1	1	1	1	2	3	2	3
3	3	2	2	3	1	3	3	1	1	1	1	2	3	2	3
4	3	1	1	1	1	3	3	2	1	1	1	2	3	2	3
5	3	1	1	1	1	3	3	2	1	1	2	2	3	2	3
Low (1); Medium (2); High (3)															

CE3404 SOIL MECHANICS	
CO 1	Able to demonstrate an ability to identify various types of soils and its properties, formulate and solve engineering Problems
CO 2	Able to show the basic understanding of flow through soil medium and its impact of engineering solution
CO 3	Able to understand the basic concept of stress distribution in loaded soil medium and soil settlement due to consolidation
CO 4	Able to show the understanding of shear strength of soils and its impact of engineering solutions to the loaded soil medium and also will be aware of contemporary issues on shear strength of soils.
CO 5	Able to demonstrate an ability to design both finite and infinite slopes, component and process as per needs and specifications.

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	3	2	2	3	1	1	1	2	1	2	3	3	3	2
2	3	2	3	2	3	1	1	1	2	1	2	3	2	2	3
3	3	3	2	2	2	2	1	1	2	1	2	3	2	2	3
4	2	3	3	2	2	1	1	1	1	1	2	3	2	2	3
5	3	3	2	2	2	1	1	1	1	1	1	3	2	3	2
Low (1); Medium (2); High (3)															

CE3405 HIGHWAY AND RAILWAY ENGINEERING	
CO 1	Expected to plan a highway according to the principles and standards adopted in various institutions in India.
CO 2	Expected to design the geometric features of road network and components of pavement.
CO 3	Expected to test the highway materials and construction practice methods and know its properties and able to perform pavement evaluation and management.
CO 4	Expected to understand the methods of route alignment and design elements in railway planning and constructions.
CO 5	Expected to understand the construction techniques and maintenance of track laying and railway stations

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	-	-	2	-	3	1	3	-	-	-	-	3	2	-
2	2	3	3	2	2	-	2	3	2	-	2	3	3	3	-
3	2	3	2	2	2	3	3	3	-	-	3	3	3	3	-
4	3	-	-	-	-	3	-	3	-	1	-	-	3	2	2
5	-	-	3	-	2	-	-	-	2	-	-	2	3	3	3
Low (1); Medium (2); High (3)															

Dr. R. Palson Kennedy
Dr. R. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CE3411 HYDRAULIC ENGINEERING LABORATORY	
CO 1	Expected to apply Bernoulli equation for calibration of flow measuring devices.
CO 2	Expected to measure friction factor in pipes and compare with Moody diagram
CO 3	Expected to determine the performance characteristics of rotodynamic pumps.
CO 4	Expected to determine the performance characteristics of Positive displacement pumps.
CO 5	Expected to determine the performance characteristics of turbines.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	1	3	1	2	2	1	2	1	1	2	2	1	1
2	3	2	1	3	1	2	2	1	2	1	1	2	3	1	1
3	3	3	2	3	1	2	2	1	3	1	1	2	3	2	1
4	3	3	2	3	1	2	2	1	3	1	1	2	3	2	1
5	3	3	2	3	1	2	2	1	3	1	1	2	3	2	1
Low (1); Medium (2); High (3)															

CE3412 MATERIALS TESTING LABORATORY	
CO 1	Expected to determine the mechanical properties of steel.
CO 2	Expected to determine the physical properties of cement
CO 3	Expected to determine the physical properties of fine and coarse aggregate.
CO 4	Expected to determine the workability and compressive strength of concrete.
CO 5	Expected to determine the strength of brick and wood.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	1	3	1	2	2	1	3	1	1	2	2	2	2
2	3	2	1	3	1	2	2	1	3	1	1	2	3	2	2
3	3	3	2	3	1	2	2	1	3	1	1	2	3	2	2
4	3	3	2	3	1	2	2	1	3	1	1	2	3	2	2
5	3	3	2	3	2	2	2	1	3	1	1	2	3	2	2
Low (1); Medium (2); High (3)															

Dr. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Chennai - 600 048

CE3413 SOIL MECHANICS LABORATORY	
CO 1	Expected to conduct tests to determine the index properties of soils
CO 2	Expected to determine the insitu density and compaction characteristics.
CO 3	Expected to conduct tests to determine the compressibility, permeability and shear strength of soils.
CO 4	Expected to understand the various tests on Geosynthetics.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	3	3	1	1	1	1	3	1	1	3	3	3	3
2	1	2	3	3	1	1	1	1	3	2	1	3	2	3	2
3	3	3	3	3	1	1	1	1	3	1	1	3	2	3	3
4	1	2	2	3	2	1	1	1	3	1	1	3	2	2	3
Low (1); Medium (2); High (3)															

CE3501 DESIGN OF REINFORCED CONCRETE STRUCTURAL ELEMENTS	
CO 1	Able to know the various design concepts and design RC rectangular beams by working stress and limit state methods
CO 2	Able to understand the design of flanged beams, design for shear and torsion, and anchorage and development length.
CO 3	Able to design a RC slabs and staircase and draw the reinforcement detailing.
CO 4	Able to design short columns for axial, uni-axial and bi-axial eccentric loadings
CO 5	Able to design wall footings, isolated footings and combined rectangular footing.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	1	3	1	1	3	2	1	2	3	3	3
2	3	3	3	3	1	3	1	1	3	2	1	2	3	3	3
3	3	3	3	3	1	3	1	1	3	2	1	2	3	3	3
4	3	3	3	3	1	3	1	1	3	2	1	2	3	3	3
5	3	3	3	3	1	3	1	1	3	2	1	2	3	3	3
Low (1); Medium (2); High (3)															

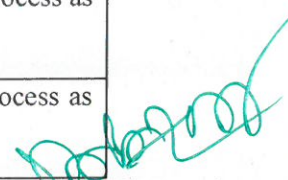
Dr. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY
 Chennai - 600 048, Tamilnadu.

CE3502 STRUCTURAL ANALYSIS I	
CO 1	Able to analyze the pin-jointed plane and space frames.
CO 2	Able to analyse the continuous beams and rigid frames by slope deflection method.
CO 3	Able to understand the concept of moment distribution and analysis of continuous beams and rigid frames with and without sway.
CO 4	Able to analyse the indeterminate pin jointed plane frames continuous beams and rigid frames using matrix flexibility method
CO 5	Able to understand the concept of matrix stiffness method and analysis of continuous beams, pin jointed trusses and rigid plane frames.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	1	3	1	1	3	2	2	2	3	3	3
2	3	3	3	3	1	3	1	1	3	2	1	2	3	3	3
3	3	3	3	3	1	3	1	1	3	2	1	2	3	3	3
4	3	3	3	3	1	3	1	1	3	2	1	2	3	3	3
5	3	3	3	3	1	3	1	1	3	2	1	2	3	3	3
Low (1); Medium (2); High (3)															

CE3503 FOUNDATION ENGINEERING	
CO 1	Graduate will demonstrate an ability to plan and execute a detailed site investigation to select geotechnical design parameters and type of foundation
CO 2	Graduate will demonstrate an ability to design shallow foundations, its component or process as per the needs and specifications.
CO 3	Graduate will demonstrate an ability to design combined footings and raft foundations, its component or process as per the needs and specifications.
CO 4	Graduate will demonstrate an ability to design deep foundations, its component or process as per the needs and specifications.
CO 5	Graduate will demonstrate an ability to design retaining walls, its component or process as per the needs and specifications.

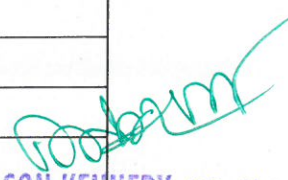

Dr. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	3	3	3	1	2	1	1	1	1	1	3	2	3	3
2	2	3	3	3	1	2	2	1	1	1	1	3	2	3	3
3	2	3	3	3	1	2	1	1	1	1	1	3	2	3	3
4	3	3	3	3	1	1	1	1	1	1	1	3	2	3	3
5	3	3	3	3	1	2	1	1	1	1	1	3	2	3	3
Low (1); Medium (2); High (3)															

CE3511 HIGHWAY ENGINEERING LABORATORY	
CO 1	Characterize Pavement Aggregate through relevant test.
CO 2	Ascertain the Quality of Bitumen.
CO 3	Determine the Optimum Binder Content Using Marshall Method.
CO 4	Evaluate the Consistency and Properties of Bitumen.
CO 5	Determine the Bitumen Content in the Bituminous Mixes

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	1	3	2	1	1	1	1	3	3	1	3	3	3	2
2	3	1	3	2	1	1	1	1	3	3	1	3	3	3	2
3	3	1	3	2	1	1	1	1	3	3	1	3	3	3	2
4	3	1	3	2	1	1	1	1	3	3	1	3	3	3	2
5	3	1	3	2	1	1	1	1	3	3	1	3	3	3	2
Low (1); Medium (2); High (3)															

CE3512 SURVEY CAMP	
CO 1	Able to handle the modern surveying instruments like Total station and GPS
CO 2	Able to apply modern surveying techniques in field to establish horizontal control.
CO 3	Able to understand the surveying techniques in field to establish vertical control.
CO 4	Able to apply different survey adjustment techniques.
CO 5	Able to carry out different setting out works in the field.


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3		3	3	2	2	3	2	2	2	3	3	3	3
2	3	3		3	3	2	2	3	2	2	2	3	3	3	3
3	3	3	2	3	3	2	2	2	2	2	2	3	3	3	3
4	3	3	2		3	2	2	2	2	2	2	3	3	3	3
5	3	3	2		3	2	2	2	2	2	2	3	3	3	3
Low (1); Medium (2); High (3)															

CE3601 DESIGN OF STEEL STRUCTURAL ELEMENTS	
CO 1	Able to recognize the design philosophy of steel structures and identify the different failure modes of bolted and welded connections, and determine their design strengths
CO 2	Able to select the most suitable section shape and size for tension and compression members and beams according to specific design criteria
CO 3	Able to apply the principles, procedures and current code requirements to the analysis and design of steel tension members, columns, column bases and beams
CO 4	Able to identify and compute the design loads on Industrial structures, and gantry girder
CO 5	Able to find out ultimate load of steel beams and portal frames using plastic analysis.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	3				2					2	2	2	
2	2	2	3		2						2	2	2	2	
3	2	2	3		2	2					2	2	2	2	
4	3	2	3		2		2	2	2		2	3	2	2	3
5	2	3	3	2						1		3	2	2	3
Low (1); Medium (2); High (3)															

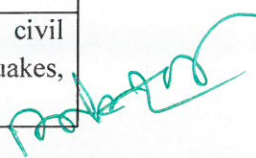
Dr. R. Palson Kennedy
Dr. R. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048

CE3602 STRUCTURAL ANALYSIS II	
CO 1	Able to draw influence lines for statically determinate structures and calculate critical stress resultants.
CO 2	Able to understand Muller Breslau principle and draw the influence lines for statically indeterminate beams.
CO 3	Able to analyse three hinged, two hinged and fixed arches.
CO 4	Able to analyse the suspension bridges with stiffening girders
CO 5	Able to analyse rigid frames by approximate methods for gravity and horizontal loads.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	3				2					2	2	2	
2	2	2	3		2						2	2	2	2	
3	2	2	3		2	2					2	2	2	2	
4	3	2	3		2		2	2	2		2	3	2	2	3
5	2	3	3	2						1		3	2	2	3

Low (1); Medium (2); High (3)

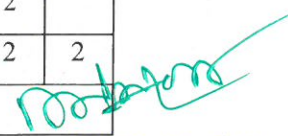
AG3601 ENGINEERING GEOLOGY	
CO 1	Able to knowing the internal structure of earth and its relation to earthquakes. Landforms created by various geological agents and their importance in civil engineering.
CO 2	Able to getting knowledge on various minerals and rocks that can be used as construction materials and road aggregates. In addition, testing the suitability of rocks for foundation purposes.
CO 3	Able to studying various geological structures and their impact in engineering constructions. Further, learning the geomechanical properties of rocks and their significance in engineering projects.
CO 4	Able to gaining knowledge on the role of geological mapping, remote sensing and geophysics for surface and subsurface investigations. In addition, students will also gain knowledge on borehole logging techniques and their applications in civil engineering.
CO 5	Able to applying geological knowledge for designing and constructing major civil engineering structures, and also mitigating various geological hazards such as earthquakes, landslides and tsunamis.


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2							2		2					
2	2			2	2	2							2		
3	2	2	3	3		2									2
4		2		3	2			2	2	2	2	2	2	2	
5		3	3	3			1	2	2	2	2	2	2	2	2
Low (1); Medium (2); High (3)															

AG3601 ENGINEERING GEOLOGY	
CO 1	Able to knowing the internal structure of earth and its relation to earthquakes. Landforms created by various geological agents and their importance in civil engineering.
CO 2	Able to getting knowledge on various minerals and rocks that can be used as construction materials and road aggregates. In addition, testing the suitability of rocks for foundation purposes.
CO 3	Able to studying various geological structures and their impact in engineering constructions. Further, learning the geomechanical properties of rocks and their significance in engineering projects.
CO 4	Able to gaining knowledge on the role of geological mapping, remote sensing and geophysics for surface and subsurface investigations. In addition, students will also gain knowledge on borehole logging techniques and their applications in civil engineering.
CO 5	Able to applying geological knowledge for designing and constructing major civil engineering structures, and also mitigating various geological hazards such as earthquakes, landslides and tsunamis.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2							2		2					
2	2			2	2	2							2		
3	2	2	3	3		2									2
4		2		3	2			2	2	2	2	2	2	2	
5		3	3	3			1	2	2	2	2	2	2	2	2
Low (1); Medium (2); High (3)															


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CE3611 BUILDING DRAWING AND DETAILING LABORATORY	
CO 1	Able to draft the plan, elevation and sectional view of the load bearing and framed buildings.
CO 2	Able to draw the structural detailing of RCC elements.
CO 3	Able to draw the structural detailing of RCC water tanks, footings and retaining walls.
CO 4	Able to draw the structural detailing of steel structures.
CO 5	Able to draft the structural detailing of Industrial structures.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3				2			1				1	3	2	
2	3				2	3		2	3	2		2	3	2	2
3	3	2			2	3		2	3	2		2	3	2	2
4	3	2		2	2	3		1	3	2		2	3	2	2
5	3	3		2	2	3		2	3	2		2	3	2	2
Low (1); Medium (2); High (3)															

CE3701 ESTIMATION, COSTING AND VALUATION ENGINEERING	
CO 1	Able to gain knowledge on types of contracts.
CO 2	Able to understand types of specifications, principles for report preparation, tender notices types.
CO 3	Able to rate Analysis for all Building works, canals, and Roads and Cost Estimate.
CO 4	Able to estimate the quantities for buildings.
CO 5	Able to evaluate valuation for building and land.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	3	3	3	2	3	2	3	3	3	3	3
2	3	2	3	3	3	3	3	2	3	2	3	3	3	3	3
3	3	1	2	3	1	3	2	2	3	2	2	3	3	3	3
4	3	1	1	3	1	3	2	2	3	2	2	3	3	3	3
5	3	2	2	3	3	3	2	2	3	2	2	3	3	3	3
Low (1); Medium (2); High (3)															

Dr. R. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL

AI3404 HYDROLOGY AND WATER RESOURCES ENGINEERING	
CO 1	Expected to define the hydrological processes and their integrated behaviour in catchments
CO 2	Expected to apply the knowledge of hydrological processes to address basin characteristics, runoff and hydrograph
CO 3	Expected to explain the concept of hydrological extremes and its management strategies
CO 4	Expected to describe the principles of storage reservoirs
CO 5	Expected to understand and apply the concepts of groundwater management

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	3		2	1	2	2		2	2		2	2	2	2
2	2	2	2	2	1	2	2		2	2		2	2	2	3
3	2	2	2	1		2	2		2	2	2	2	2	2	2
4	2	2	1	1	1	3	2	2	2	2		3	2	2	3
5	2	2	2	2	1	3	2	2	3	2	2	3	2	2	3

Low (1); Medium (2); High (3)

GE3791 HUMAN VALUES AND ETHICS	
CO 1	Able to Identify the importance of democratic, secular and scientific values in harmonious functioning of social life
CO 2	Able to Practice democratic and scientific values in both their personal and professional life.
CO 3	Able to find rational solutions to social problems.
CO 4	Able to behave in an ethical manner in society.
CO 5	Able to practice critical thinking and the pursuit of truth.

GE3752 TOTAL QUALITY MANAGEMENT	
CO 1	Ability to apply TQM concepts in a selected enterprise.
CO 2	Ability to apply TQM principles in a selected enterprise.
CO 3	Ability to understand Six Sigma and apply Traditional tools, New tools, Benchmarking and FMEA.
CO 4	Ability to understand Taguchi's Quality Loss Function, Performance Measures and applies QFD, TPM, COQ and BPR.
CO 5	Ability to apply QMS and EMS in any organization.

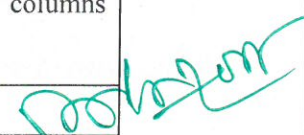
R. Palson Kennedy
Dr. R. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1		3										3	2		3
2						3						3		2	
3					3			2	3					2	3
4		2			3	2	3	2				3	3	2	
5			3			3	3	2							
Low (1); Medium (2); High (3)															

CE3811 PROJECT WORK/INTERNSHIP	
CO 1	Identify civil engineering problems reviewing available literature.
CO 2	Identify appropriate techniques to analyze complex civil engineering problems
CO 3	Apply engineering and management principles through efficient handling of Project have a clear idea of his/her area of work and they are in a position to carry out the work in a systematic way.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	1	1			3	2	2	2	1	1	3	3	3	3
2	3	3	1	3		3				1	1	3	3	3	3
3	2	2	2	3		2	2	2	2	1	1	3	1	1	1
Low (1); Medium (2); High (3)															

CE3003 PREFABRICATED STRUCTURES	
CO 1	Ability to understand concepts about principles of prefabrication, production, transportation, erection.
CO 2	Ability to acquire knowledge about panel systems, slabs, beams, shear walls and columns used in precast construction.
CO 3	Ability to acquire knowledge about design of cross section, joint flexibility.
CO 4	Ability to acquire knowledge about joints and connection in precast construction.
CO 5	Ability to acquire knowledge about structural stability.


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	3	3	1	3	3	2	1	2	3	3	2
2	3	1	2	1	1	3	1	3	1	2	1	2	3	3	2
3	3	2	3	3	3	3	1	3	2	2	1	2	3	3	2
4	3	2	2	1	1	3	1	3	1	2	1	2	3	3	2
5	3	2	3	1	1	3	1	3	1	2	1	2	3	3	2
Low (1); Medium (2); High (3)															

CE3004 PRESTRESSED CONCRETE STRUCTURES	
CO 1	Ability to design a prestressed concrete beam accounting for losses.
CO 2	Ability to design for flexure and shear.
CO 3	Ability to design the anchorage zone for post-tensioned members and estimate the deflection in beams
CO 4	Ability to design composite members and continuous beams.
CO 5	Ability to design water tanks, pipes, poles and sleepers.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	1	1	1	1	2	1	1	1	2	3	1	1
2	3	2	2	1	1	1	1	2	1	1	1	2	3	3	2
3	3	2	3	1	1	1	1	2	1	1	1	2	3	3	2
4	2	2	2	1	1	1	1	2	1	1	1	2	3	2	2
5	2	2	3	1	1	1	1	2	1	1	1	2	3	3	2
Low (1); Medium (2); High (3)															

CE3025 AIRPORTS AND HARBOURS	
CO 1	Ability to gain an insight on the planning and site selection of Airport Planning and design.
CO 2	Ability to knowledge on Design of various Airport components
CO 3	Ability to analyze and design the elements for orientation of runways and passenger facility systems.
CO 4	Ability to understand the various features in Harbours and Ports, their construction, coastal protection works
CO 5	Ability to knowledge on various Environmental Regulations and Acts

Dr. R. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1		3	3	1	1	1	1	2	1	1	1	2	3	1	1
2	3	3	2	1	1	1	1	2	1	1	1	2	3	3	2
3		3	3	1	1	1	1	2	1	1	1	2	3	3	2
4	3	3	2	1	1	1	1	2	1	1	1	2	3	2	2
5	3	2	3	1	1	1	1	2	1	1	1	2	3	3	2

Low (1); Medium (2); High (3)



Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

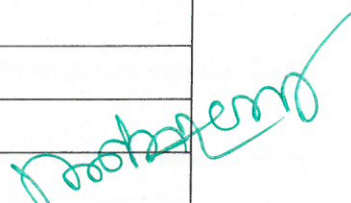
CO PO MAPPING
 REGULATION 2021

GE3151 – Problem Solving and Python Programming	
CO1	Develop algorithmic solutions to simple computational problems.
CO2	Develop and execute simple Python programs.
CO3	Write simple Python programs using conditionals and loops for solving problems.
CO4	Decompose a Python program into functions.
CO5	Represent compound data using Python lists, tuples, dictionaries etc.
CO6	Read and write data from/to files in Python programs.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	2	-	-	-	-	-	2	2	3	3	-
2	3	3	3	3	2	-	-	-	-	-	2	2	3	-	-
3	3	3	3	3	2	-	-	-	-	-	2	-	3	-	-
4	2	2	-	2	2	-	-	-	-	-	1	-	3	-	-
5	1	2	-	-	1	-	-	-	-	-	1	-	2	-	-
6	2	2	-	-	2	-	-	-	-	-	1	-	2	-	-

Low (1); Medium (2); High (3)

GE3171 – Problem Solving and Python Programming Laboratory	
CO1	Develop algorithmic solutions to simple computational problems
CO2	Develop and execute simple Python programs.
CO3	Implement programs in Python using conditionals and loops for solving problems.
CO4	Deploy functions to decompose a Python program.
CO5	Process compound data using Python data structures.
CO6	Utilize Python packages in developing software applications.


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	2	-	-	-	-	-	2	2	3	3	-
2	3	3	3	3	2	-	-	-	-	-	2	2	3	-	-
3	3	3	3	3	2	-	-	-	-	-	2	-	3	-	-
4	2	2	-	2	2	-	-	-	-	-	1	-	3	-	-
5	1	2	-	-	1	-	-	-	-	-	1	-	2	-	-
6	2	2	-	-	2	-	-	-	-	-	1	-	2	-	-
Low (1); Medium (2); High (3)															

CS3251 – Programming in C	
CO1	Demonstrate knowledge on C Programming constructs
CO2	Develop simple applications in C using basic constructs
CO3	Design and implement applications using arrays and strings
CO4	Develop and implement modular applications in C using functions.
CO5	Develop applications in C using structures and pointers.
CO6	Design applications using sequential and random access file processing.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	2	2	1	2	1	1	1	2	-	3	2	1	2	-
2	2	2	2	1	2	1	1	1	2	-	3	3	2	2	-
3	2	3	2	1	2	1	1	1	2	-	3	2	2	2	-
4	3	2	2	1	3	1	1	1	2	-	3	3	2	2	-
5	2	3	3	1	2	1	2	1	2	-	3	2	2	3	-
6	2	2	3	2	1	2	-	-	2	1	2	2	2	2	-
Low (1); Medium (2); High (3)															

R. Palson Kennedy
Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CS3271 – Programming in C Laboratory	
CO1	Demonstrate knowledge on C programming constructs.
CO2	Develop programs in C using basic constructs.
CO3	Develop programs in C using arrays.
CO4	Develop applications in C using strings, pointers, functions.
CO5	Develop applications in C using structures.
CO6	Develop applications in C using file processing.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	3	3	1	1	1	-	-	2	1	2	2	2	2	-
2	2	3	3	2	1	1	-	-	2	1	2	2	2	3	-
3	2	2	2	1	1	2	-	-	2	-	2	2	2	2	-
4	2	2	2	2	1	2	-	-	3	-	3	3	3	2	-
5	2	2	3	2	3	2	-	-	3	-	3	3	3	3	-
6	2	2	3	2	1	2	-	-	2	1	2	2	2	2	-
Low (1); Medium (2); High (3)															

MA3354 - Discrete Mathematics	
CO1	Have knowledge of the concepts needed to test the logic of a program.
CO2	Have an understanding in identifying structures on many levels.
CO3	Be aware of a class of functions which transform a finite set into another finite set which
CO4	Be aware of the counting principles
CO5	Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.

Noted

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	-	-	-	-	-	-	-	-	2	-	-	-	3
2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3
3	3	2	-	-	2	-	-	-	3	-	-	-	-	-	3
4	2	2	2	-	-	-	-	-	-	-	-	-	-	-	2
5	2	2	2	-	-	-	-	-	2	-	-	-	-	-	2
Low (1); Medium (2); High (3)															

CS3351 - Digital Principles and Computer Organization

CO1	Design various combinational digital circuits using logic gates
CO2	Design sequential circuits and analyze the design procedures
CO3	State the fundamentals of computer systems and analyze the execution of an instruction
CO4	Analyze different types of control design and identify hazards
CO5	Identify the characteristics of various memory systems and I/O communication

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	3	2	1	1	1	1	2	3	2	3	3
2	3	3	3	3	2	1	1	1	1	1	2	3	1	2	2
3	3	3	3	3	2	2	1	1	1	1	2	3	2	3	1
4	3	3	3	3	1	1	1	1	1	1	1	2	1	3	1
5	3	3	3	3	1	2	1	1	1	1	1	2	1	2	1
Low (1); Medium (2); High (3)															

Dr. R. Palson Kennedy

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CS3352 – Foundations of Data Science	
CO1	Define the data science process
CO2	Understand different types of data description for data science process
CO3	Gain knowledge on relationships between data
CO4	Use the Python Libraries for Data Wrangling
CO5	Apply visualization Libraries in Python to interpret and explore data

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	1	2	2	-	-	-	1	1	1	2	2	2	2
2	2	1	-	1	1	-	-	-	2	1	1	2	2	3	1
3	2	2	1	2	2	1	1	-	1	2	1	3	2	2	3
4	3	2	2	1	2	-	-	-	1	1	2	2	3	3	2
5	2	2	1	2	2	-	-	-	1	1	1	2	2	2	2
Low (1); Medium (2); High (3)															

CS3301 – Data Structures	
CO1	Define linear and non-linear data structures.
CO2	Implement linear and non-linear data structure operations.
CO3	Use appropriate linear/non-linear data structure operations for solving given problem.
CO4	Apply appropriate graph algorithms for graph applications.
CO5	Analyze the various searching and sorting algorithms.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	3	1	2	2	1	1	-	1	2	1	3	2	1	3
2	1	2	1	2	2	-	-	-	1	1	1	2	2	2	2
3	2	3	1	2	3	-	-	-	1	1	1	2	2	1	2
4	2	1	-	1	1	-	-	-	2	1	1	2	2	3	1
5	1	2	1	2	2	1	1	-	1	2	1	3	2	2	3
Low (1); Medium (2); High (3)															

CS3391 – Object Oriented Programming	
CO1	Apply the concepts of classes and objects to solve simple problems
CO2	Develop programs using inheritance, packages and interfaces
CO3	Make use of exception handling mechanisms and multithreaded model to solve real world problems
CO4	Build Java applications with I/O packages, string classes, Collections and generics concepts
CO5	Integrate the concepts of event handling and JavaFX components and controls for developing GUI based applications

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	1	3	1	3	-	-	-	3	2	2	2	3	1	2
2	2	1	3	2	1	-	-	-	2	1	1	3	3	3	2
3	3	3	1	2	2	-	-	-	3	2	1	2	3	1	3
4	3	1	2	2	2	-	-	-	1	2	1	3	3	1	1
5	1	1	2	3	2	-	-	-	3	2	1	2	3	3	3
Low (1); Medium (2); High (3)															

CS3311 - Data Structures Laboratory	
CO1	Implement Linear data structure algorithms.
CO2	Implement applications using Stacks and Linked lists
CO3	Implement Binary Search tree and AVL tree operations.
CO4	Implement graph algorithms.
CO5	Analyze the various searching and sorting algorithms.

R. Palson Kennedy

Dr. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	1	1	-	-	-	-	1	1	1	3	1	2	2
2	2	1	3	1	-	-	-	-	1	1	2	3	3	3	3
3	3	1	3	3	-	-	-	-	1	2	3	3	2	1	2
4	3	2	1	1	2	-	-	-	3	3	3	1	3	1	3
5	3	3	1	1	-	-	-	-	1	1	1	3	1	2	2
Low (1); Medium (2); High (3)															

CS3381 - Object Oriented Programming Laboratory	
CO1	Design and develop java programs using object-oriented programming concepts
CO2	Develop simple applications using object-oriented concepts such as package, exceptions
CO3	Implement multithreading, and generics concepts
CO4	Create GUIs and event driven programming applications for real world problems
CO5	Implement and deploy web applications using Java

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	2	1	-	-	-	-	1	2	2	2	1	2	3
2	2	1	3	1	-	-	-	-	2	3	3	2	1	3	1
3	2	2	1	2	1	-	-	-	1	2	1	3	2	3	2
4	2	2	1	3	-	-	-	-	3	1	1	1	2	1	2
5	1	3	3	1	3	-	-	-	1	1	1	1	2	1	2
Low (1); Medium (2); High (3)															

Handwritten signature in green ink.

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CS3361– Data Science Laboratory	
CO1	Make use of the python libraries for data science
CO2	Make use of the basic Statistical and Probability measures for data science.
CO3	Perform descriptive analytics on the benchmark datasets.
CO4	Perform correlation and regression analytics on standard datasets
CO5	Present and interpret data using visualization packages in Python.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	1	1	-	-	-	-	1	3	3	3	1	3	2
2	3	2	2	3	1	-	-	-	3	1	3	2	1	3	3
3	3	2	1	3	1	-	-	-	2	1	1	1	3	2	3
4	2	3	1	3	-	-	-	-	2	3	2	3	3	3	1
5	1	2	3	1	1	-	-	-	2	1	3	1	1	3	3
Low (1); Medium (2); High (3)															

CS3452 – Theory of Computation	
CO1	Construct automata theory using Finite Automata
CO2	Write regular expressions for any pattern
CO3	Design context free grammar and Pushdown Automata
CO4	Design Turing machine for computational functions
CO5	Differentiate between decidable and undecidable problems

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	3	2	3	-	-	-	-	1	1	2	3	1	3	2
2	2	2	3	2	1	-	-	-	3	3	2	3	3	1	2
3	2	2	3	2	1	-	-	-	1	3	1	2	1	2	2
4	2	2	2	1	-	-	-	-	1	3	3	2	1	3	2
5	2	2	2	1	1	-	-	-	1	1	3	2	3	1	3
Low (1); Medium (2); High (3)															

Proven

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL

CS3491–Artificial Intelligence and Machine Learning	
CO1	Use appropriate search algorithms for problem solving
CO2	Apply reasoning under uncertainty
CO3	Build supervised learning models
CO4	Build ensembling and unsupervised models
CO5	Build deep learning neural network models

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	3	3	-	-	-	-	1	3	3	3	1	2	2
2	1	1	1	3	1	-	-	-	1	2	1	3	2	3	2
3	2	1	2	1	1	-	-	-	2	1	1	3	1	1	1
4	3	1	3	1	-	-	-	-	2	1	2	1	2	2	2
5	3	1	1	2	2	-	-	-	3	1	2	3	2	1	2
Low (1); Medium (2); High (3)															

CS3492 – Database Management Systems	
CO1	Construct SQL Queries using relational algebra
CO2	Design data base using ER model and normalize the database
CO3	Construct queries to handle transaction processing and maintain consistency of the database
CO4	Compare and contrast various indexing strategies and apply the knowledge to tune the performance of the database
CO5	Appraise how advanced databases differ from Relational Databases and find a suitable database for the given requirement.

R. Palson Kennedy
Dr. R. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	3	2	1	-	-	-	2	1	1	1	2	1	3
2	3	1	1	1	1	-	-	-	2	3	3	3	3	1	2
3	3	2	3	2	1	-	-	-	2	1	1	2	2	3	3
4	1	2	3	2	-	-	-	-	3	2	3	3	1	2	3
5	1	1	3	3	2	-	-	-	1	3	3	1	2	2	2
Low (1); Medium (2); High (3)															

CS3401 - Algorithms	
CO1	Analyze the efficiency of algorithms using various frameworks
CO2	Apply graph algorithms to solve problems and analyze their efficiency.
CO3	Make use of algorithm design techniques like divide and conquer, dynamic programming and greedy techniques to solve problems
CO4	Use the state space tree method for solving problems.
CO5	Solve problems using approximation algorithms and randomized algorithms

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	-	-	-	-	1	-	-	-	-	1	-	1	-
2	2	3	-	-	-	-	1	-	-	-	-	1	-	1	-
3	1	2	3	1	-	-	2	-	-	-	-	-	-	1	1
4	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
5	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Low (1); Medium (2); High (3)															

R. Palson Kennedy
Dr. R. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CS3451 –Introduction to Operating Systems	
CO1	Analyze various scheduling algorithms and process synchronization.
CO2	Explain dead lock prevention and avoidance algorithms.
CO3	Compare and contrast various memory management schemes.
CO4	Explain the functionality of file systems, I/O systems, and Virtualization
CO5	Compare iOS and Android Operating Systems.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	1	2	2	-	-	-	-	3	2	3	1	1	2	2
2	2	2	3	1	1	-	-	-	2	1	1	2	2	1	2
3	1	3	2	2	1	-	-	-	2	2	1	1	1	2	2
4	1	3	3	3	-	-	-	-	1	2	1	2	1	3	2
5	3	1	2	1	1	-	-	-	3	2	3	2	2	2	1
Low (1); Medium (2); High (3)															

CS3461 - Operating Systems Laboratory	
CO1	Define and implement UNIX Commands.
CO2	Compare the performance of various CPU Scheduling Algorithms.
CO3	Compare and contrast various Memory Allocation Methods.
CO4	Define File Organization and File Allocation Strategies.
CO5	Implement various Disk Scheduling Algorithms.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	1	3	1	1	-	-	-	1	3	3	3	2	1	3
2	3	1	1	2	2	-	-	-	3	2	1	1	3	1	2
3	3	3	2	1	2	-	-	-	3	3	1	2	2	2	2
4	1	2	2	3	2	-	-	-	3	1	3	1	1	2	1
5	2	2	1	1	3	-	-	-	1	2	2	3	1	3	3
Low (1); Medium (2); High (3)															

CS3481–Database Management Systems Laboratory	
CO1	Create databases with different types of key constraints.
CO2	Construct simple and complex SQL queries using DML and DCL commands.
CO3	Use advanced features such as stored procedures and triggers and incorporate in GUI based application development.
CO4	Create an XML database and validate with meta-data (XML schema).
CO5	Create and manipulate data using NOSQL database.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	-	-	-	-	3	1	3	2	2	3	2
2	2	2	3	2	2	-	-	-	1	2	3	3	2	1	2
3	3	3	2	1	1	-	-	-	1	1	1	3	2	3	3
4	1	3	3	3	1	-	-	-	1	1	3	2	3	1	3
5	3	2	1	1	1	-	-	-	2	2	3	1	3	1	2
Low (1); Medium (2); High (3)															

CS3591 –Computer Networks	
CO1	Explain the basic layers and its functions in computer networks.
CO2	Understand the basics of how data flows from one node to another.
CO3	Analyze routing algorithms.
CO4	Describe protocols for various functions in the network.
CO5	Analyze the working of various application layer protocols.

R. Palson Kennedy

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	2	-	-	-	-	-	-	-	-	-	-	3	-	-
2	-	1	-	-	2	-	-	-	-	-	-	2	-	2	-
3	-	2	-	-	3	-	-	-	-	-	-	-	-	3	-
4	-	-	-	1	2	-	-	-	-	3	-	-	-	-	-
5	-	3	2	-	-	-	-	-	-	-	-	-	-	-	3

Low (1); Medium (2); High (3)

CS3501 –Compiler Design	
CO1	Understand the techniques in different phases of a compiler.
CO2	Design a lexical analyser for a sample language and learn to use the LEX tool.
CO3	Apply different parsing algorithms to develop a parser and learn to use YACC tool
CO4	Understand semantics rules (SDT), intermediate code generation and run-time environment.
CO5	Implement code generation and apply code optimization techniques.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	3	-	-	-	3	2	3	2	2	1	2
2	3	3	2	2	3	-	-	-	3	1	1	1	2	2	3
3	3	2	2	1	1	-	-	-	2	3	2	3	1	2	1
4	3	3	3	2	1	-	-	-	2	1	1	3	2	1	2
5	3	3	3	3	-	-	-	-	3	3	1	3	2	3	2

Low (1); Medium (2); High (3)

CB3491- Cryptography and Cyber Security	
CO1	Understand the fundamentals of networks security, security architecture, threats and vulnerabilities
CO2	Apply the different cryptographic operations of symmetric cryptographic algorithms
CO3	Apply the different cryptographic operations of public key cryptography
CO4	Display critical thinking in various professional contexts
CO5	Display critical thinking in various professional contexts

[Signature]
Dr. R. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	1	2	2	-	-	-	1	-	-	1	2	3	3
2	3	3	3	3	3	-	-	-	2	-	-	1	3	3	3
3	3	3	3	3	3	-	-	-	2	-	-	1	3	3	3
4	3	3	3	3	3	-	-	-	2	-	-	1	3	3	3
5	3	2	3	2	3	-	-	-	3	-	-	2	3	2	3
Low (1); Medium (2); High (3)															

CS3551 –Distributed Computing	
CO1	Explain the foundations of distributed systems(K2)
CO2	Solve synchronization and state consistency problems(K3)
CO3	Use resource sharing techniques in distributed systems(K3)
CO4	Apply working model of consensus and reliability of distributed systems(K3)
CO5	Explain the fundamentals of cloud computing(K2)

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	3	3	1	-	-	-	2	1	3	3	2	1	1
2	1	3	2	1	2	-	-	-	2	2	2	2	1	3	2
3	2	2	1	3	3	-	-	-	3	2	1	1	1	2	1
4	1	2	2	3	1	-	-	-	3	3	2	1	3	1	1
5	3	3	1	2	3	-	-	-	3	3	3	1	3	2	3
Low (1); Medium (2); High (3)															

R. Palson
Dr. R. PALSON KENNEDY, M.E., Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CCS366 – Software Testing and Automation	
CO1	Understand the basic concepts of software testing and the need for software testing
CO2	Design Test planning and different activities involved in test planning
CO3	Design effective test cases that can uncover critical defects in the application
CO4	Carry out advanced types of testing
CO5	Automate the software testing using Selenium and Testing

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	2	1	2	-	-	-	1	1	3	3	2	1	1
2	2	3	1	1	1	-	-	-	2	2	1	2	1	3	2
3	2	2	1	3	1	-	-	-	1	3	1	1	1	2	1
4	2	1	3	2	1	-	-	-	1	1	1	1	3	1	1
5	2	2	1	3	1	-	-	-	1	3	2	1	3	2	3
Low (1); Medium (2); High (3)															

CCS335 – Cloud Computing	
CO1	Understand the design challenges in the cloud.
CO2	Apply the concept of virtualization and its types.
CO3	Experiment with virtualization of hardware resources and Docker
CO4	Develop and deploy services on the cloud and set up a cloud environment
CO5	Explain security challenges in the cloud environment.

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	1	1	1	-	-	-	2	3	1	3	2	1	3
2	3	1	2	2	1	-	-	-	1	2	1	3	2	2	1
3	2	3	2	3	1	-	-	-	3	1	1	3	1	1	1
4	1	2	3	3	3	-	-	-	3	3	1	2	1	3	3
5	2	3	3	1	3	-	-	-	2	2	1	2	2	2	3
Low (1); Medium (2); High (3)															

CCS356–Object Oriented Software Engineering	
CO1	Compare various Software Development Lifecycle Models
CO2	Evaluate project management approaches as well as cost and schedule estimation strategies.
CO3	Perform formal analysis on specifications.
CO4	Use UML diagrams for analysis and design
CO5	Architect and design using architectural styles and design patterns, and test the system

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	1	2	2	-	-	-	-	1	1	2	2	2	1
2	2	3	2	3	2	-	-	-	2	2	3	2	3	2	1
3	2	3	2	1	1	-	-	-	2	2	3	2	2	3	1
4	2	3	2	2	3	-	-	-	2	2	3	2	2	3	1
5	2	3	1	2	2	-	-	-	-	-	-	1	3	2	2

Low (1); Medium (2); High (3)

CS3691 –Embedded Systems and IoT	
CO1	Explain the architecture of embedded processors
CO2	Write embedded C programs.
CO3	Design simple embedded applications
CO4	Compare the communication models in IOT
CO5	Design IoT applications using Arduino/Raspberry Pi /open platform

CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	-	-	-	-	1	2	3	3	2	1	3
2	2	1	3	2	2	-	-	-	1	2	2	3	3	1	3
3	3	1	3	3	1	-	-	-	1	2	1	1	1	3	3
4	3	2	3	2	1	-	-	-	1	2	2	3	2	2	1
5	2	3	1	2	2	-	-	-	-	-	-	1	3	2	2

Low (1); Medium (2); High (3)

Department of Civil Engineering

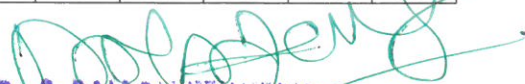
Regulation 2017

CE8392 ENGINEERING GEOLOGY	
C1	Will be able to understand the importance of geological knowledge such as earth, earthquake, volcanism and the action of various geological agencies.
C2	Will get basics knowledge on properties of minerals.
C3	Gain knowledge about types of rocks, their distribution and uses.
C4	Will understand the methods of study on geological structure.
C5	Will understand the application of geological investigation in projects such as dams, tunnels, bridges, roads, airport and harbor

CE8392 ENGINEERING GEOLOGY														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	2	1	2	1	1	3	1	1	3	1	2	-	2
C2	3	2	2	2	1	1	2	1	1	2	2	2	1	3
C3	3	2	2	2	2	2	2	1	1	3	1	3	3	-
C4	3	2	2	1	2	2	2	1	1	2	2	2	1	2
C5	2	2	2	2	1	3	2	1	2	2	1	1	1	2
Avg	2.8	2	1.8	1.8	1.4	1.8	2.2	1	1.2	2.4	1.4	2	1.5	2.2

CE8301 STRENGTH OF MATERIALS I	
C1	Understand the concepts of stress and strain, principal stresses and principal planes.
C2	Determine Shear force and bending moment in beams and understand concept of theory of simple bending.
C3	Calculate the deflection of beams by different methods and selection of method for determining slope or deflection.
C4	Apply basic equation of torsion in design of circular shafts and helical springs, .
C5	Analyze the pin jointed plane and space trusses

CE8301 STRENGTH OF MATERIALS I														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	2	2	1	1	1	2	-	1	2	1	2	3	2
C2	3	1	1	2	1	2	2	-	1	1	2	2	2	1
C3	2	1	1	2	1	2	2	-	2	1	2	3	2	1
C4	2	2	1	2	1	1	1	-	2	1	2	2	2	1
C5	1	1	1	-	-	1	2	-	1	2	1	2	2	1
Avg	2.2	1.4	1.2	1.7	1	1.4	1.8	-	1.4	1.4	1.6	2.2	2.2	1.2


Dr. R. FALSON KENNEDY, M.E., Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 043

CE8302 FLUID MECHANICS	
C1	Get a basic knowledge of fluids in static, kinematic and dynamic equilibrium.
C2	Understand and solve the problems related to equation of motion.
C3	Gain knowledge about dimensional and model analysis.
C4	Learn types of flow and losses of flow in pipes.
C5	Understand and solve the boundary layer problems.

CE8302 FLUID MECHANICS														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	2	2	2	2	1	2	1	1	2	1	2	2	2
C2	3	2	2	3	2	3	2	1	1	1	1	2	1	-
C3	3	2	2	2	2	2	2	1	1	2	1	3	2	2
C4	3	3	2	2	2	2	1	1	1	1	1	3	2	1
C5	3	3	2	3	2	2	2	1	1	3	1	2	-	-
Avg	3	2.4	2	2.4	2	1.8	1.8	1	1	1.8	1	2.4	1.7	1.6

CE8351 SURVEYING														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	3	1	2	3	3	1	1	1	1	2	1	2	2
C2	3	2	1	1	3	2	1	1	1	1	2	1	1	-
C3	3	3	2	2	2	3	1	1	2	2	2	1	2	2
C4	3	2	2	2	3	3	1	1	1	2	2	1	2	1
C5	2	3	2	2	3	3	2	1	1	2	2	3	-	-
Avg	2.8	2.6	1.6	1.8	2.8	2.8	1.2	1	1.2	1.6	2	1.4	1.7	1.6

CE8351 SURVEYING	
C1	Able to understand the use of various surveying instruments and mapping
C2	Able to understand measuring Horizontal angle and vertical angle using different instruments
C3	Able to understand Methods of Leveling and setting Levels with different instruments
C4	Able to understand Concepts of astronomical surveying and methods to determine time, longitude, latitude and azimuth
C5	Able to understand Concept and principle of modern surveying.

CE8391 Construction Materials	
C1	Able to compare the properties of most common and advanced building materials
C2	Able to understand the typical and potential applications of lime, cement and aggregates
C3	Able to know the production of concrete and also the method of placing and making of concrete elements.
C4	Able to understand the applications of timbers and other materials
C5	Able to understand the importance of modern material for construction.

Dr. R. PALSON KENNEDY, M.E., Ph.D.,

PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

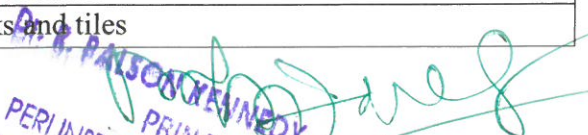
CE8391 Construction Materials														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	1	1	1	1	1	-	1	-	-	1	-	-	-	2
C2	1	1	1	1	1	-	1	-	-	1	-	-	1	3
C3	1	1	1	1	2	-	1	-	-	1	1	-	3	-
C4	1	1	2	1	3	1	1	-	-	1	1	-	1	2
C5	2	1	1	2	3	1	1	-	-	1	1	-	1	2
Avg	1.2	1	1.2	1.2	2	1	1	-	-	1	1	-	1.5	2.2

CE8361 SURVEYING LABORATORY	
C1	Able to apply the principles of surveying in field.
C2	Able to Identify data collection methods and prepare field notes
C3	Able to handling basic survey instruments including leveling
C4	Able to development of contour map of given area
C5	Able to posses knowledge about theodolite

CE8361 SURVEYING LABORATORY														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	3	2	2	3	2	2	-	-	3	2	1	2	1
C2	3	3	3	2	3	2	1	1	-	1	1	-	2	2
C3	3	3	2	2	2	1	1	-	-	1	1	2	-	-
C4	3	2	3	2	3	1	2	1	-	-	1	-	1	-
C5	3	3	3	2	3	2	1	1	-	-	1	-	1	-
Avg	3	2.8	2.6	2	2.8	1.6	1.4	1	0	1.67	1.2	1.5	1.5	1.5

CE8311 CONSTRUCTION MATERIALS LABORATORY														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	1	1	2	-	2	-	1	1	1	2	1	1	2	-
C2	1	1	2	-	2	-	1	1	1	2	1	1	1	2
C3	1	2	1	-	1	-	1	1	1	2	1	1	-	1
C4	1	1	1	-	2	-	1	2	1	1	1	1	1	-
C5	2	1	1	-	1	-	1	3	1	1	1	1	1	3
Avg	1.2	1.2	1.4	-	1.6	-	1	1.6	1	1.6	1	1	1.2	2

CE8311 Construction Materials Laboratory	
C1	Conduct Quality Control tests on Fine Aggregates
C2	Conduct Quality Control tests on Coarse Aggregates
C3	Conduct Quality Control tests on fresh concrete
C4	Determine the strength properties of hardened concrete
C5	Perform Quality Control tests on Bricks, blocks and tiles



P. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048

CE8401 Construction Techniques and Practices	
C1	Know the different construction techniques and structural systems
C2	Understand various techniques and practices on masonry construction, flooring, and roofing
C3	Plan the requirements for substructure construction.
C4	Know the methods and techniques involved in the construction of various types of super structures
C5	Select, maintain and operate hand and power tools and equipment used in the building construction sites.

CE8401 CONSTRUCTION TECHNIQUES AND PRACTICES														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	3	1	3	1	2	1	1	1	1	2	1	1	2
C2	3	3	1	2	1	2	1	1	1	1	1	1	1	-
C3	3	2	2	3	3	3	2	2	2	2	2	2	2	3
C4	3	2	2	3	3	3	2	1	1	2	2	2	2	2
C5	2	2	2	1	2	2	1	1	1	2	2	1	1	1
Avg	2.8	2.4	1.8	2.4	2	2.4	1.4	1.1	1.1	1.6	1.8	1.4	1.4	2

CE8402 Strength Of Materials II	
C1	Determine the strain energy and compute the deflection of determinate beams, frames and trusses using energy principles
C2	Analyze propped cantilever, fixed beams and continuous beams using theorem of three moment equation for external loadings and support settlements.
C3	Find the load carrying capacity of columns and stresses induced in columns and cylinders
C4	Determine principal stresses and planes for an element in three dimensional state of stress and study various theories of failure
C5	Determine the stresses due to Unsymmetrical bending of beams, locate the shear center, and find the stresses in curved beams.

CE8402 STRENGTH OF MATERIALS II														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	2	1	1	2	3	3	-	1	-	3	3	3	2	2
C2	3	2	2	3	2	3	-	1	-	2	2	3	1	1
C3	3	2	3	2	3	1	-	1	-	3	3	3	1	-
C4	3	1	2	2	2	3	-	1	-	2	2	3	2	-
C5	3	2	3	2	2	3	-	1	-	2	3	3	1	2
Avg	2.8	2	2.2	2.2	2.4	2.4	-	1	-	2.4	2.6	3	1.5	1.67


 Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048


CE8403 Applied Hydraulic Engineering														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	2	1	2	1	2	1	-	-	-	-	-	-	1
C2	3	2	2	2	1	1	1	-	-	-	-	-	-	1
C3	3	2	2	2	1	1	1	-	-	-	-	-	-	-
C4	3	2	2	2	2	1	1	-	-	-	-	-	3	2
C5	3	2	2	2	2	1	1	-	-	-	-	-	3	-
Avg	3	2	1.8	2	1.4	1.2	1	-	-	-	-	-	1.2	1.3

CE8403 Applied Hydraulic Engineering	
C1	Apply their knowledge of fluid mechanics in addressing problems in open channels
C2	Able to identify a effective section for flow in different cross sections.
C3	To solve problems in uniform, gradually and rapidly varied flows in steady state conditions.
C4	Understand the principles, working and application of turbines
C5	Understand the principles, working and application of pumps.

CE8491 Soil Mechanics	
C1	Able to Characterize and classify soils and also determine Index properties
C2	Able to understands the concepts of stress and permeability in soils
C3	Able to Compute and analyze the consolidation settlements
C4	Able to Identify shear strength parameters for field conditions
C5	Able to understands the concepts of stability analysis of slope

CE8491 Soil Mechanics														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	2	-	3	-	2	1	-	-	-	2	-	2	2	-
C2	1	-	-	-	2	-	2	-	-	1	-	2	-	2
C3	2	-	1	-	-	-	2	-	-	1	-	1	1	-
C4	3	-	-	3	2	-	2	-	-	1	-	2	1	3
C5	3	1	-	-	2	-	3	-	2	2	-	2	-	1
Avg	2.2	1	2	3	2	1	2.2	-	2	1.6	-	1.8	1.3	2

CE8404 CONCRETE TECHNOLOGY	
C1	The various requirements of cement, aggregates and water for making concrete
C2	The effect of admixtures on properties of concrete
C3	The concept and procedure of mix design as per IS method
C4	The properties of concrete at fresh and hardened state
C5	The importance and application of special concretes


DR. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL,
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 043.

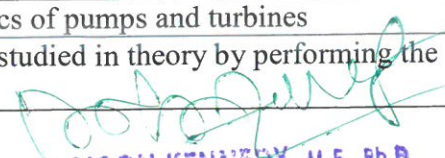
CE8404 CONCRETE TECHNOLOGY														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	3	2	2	3	2	2	-	-	3	2	1	2	-
C2	3	3	3	2	3	2	1	1	-	1	1	-	1	1
C3	3	3	2	2	2	1	1	-	-	1	1	2	1	-
C4	3	2	3	2	3	1	2	1	-	-	1	-	2	1
C5	3	3	3	2	3	2	1	1	-	-	1	-	1	1
Avg	3	2.8	2.6	2	2.8	1.6	1.4	1	-	1.6	1.2	1.5	1.4	1

CE8481 STRENGTH OF MATERIALS LABORATORY														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	2	1	1	2	3	3	-	-	3	3	-	2	1	3
C2	3	3	1	3	3	3	-	-	3	3	2	3	-	1
C3	3	3	2	3	2	2	-	-	3	2	2	3	2	-
C4	3	2	1	3	1	2	-	-	2	2	3	2	-	1
C5	2	1	3	2	3	2	-	-	2	3	2	3	2	-
Avg	2.6	2	1.6	2.6	2.4	2.4	-	-	2.6	2.6	2.2	2.6	1.6	1.6

CE8481 STRENGTH OF MATERIALS LABORATORY	
C1	Able to Understand the knowledge about properties of surfaces and solids.
C2	Able to calculate the impact tests on steel bar
C3	Able to perform flexural and torsion test to determine elastic constants
C4	Able to Conduct compression tests on spring, wood and concrete
C5	Able to calculate the deflection of springs

CE 8461 Hydraulic Engineering Laboratory														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	2	3	2	1	3	2	-	-	1	2	1	1	1	3
C2	3	2	1	2	3	2	-	-	1	2	2	1		1
C3	3	1	2	1	1	3	-	-	1	2	1	1	2	-
C4	3	2	3	2	1	1	-	-	1	1	1	1	1	1
C5	3	3	1	2	2	1	-	-	1	2	2	2	2	-
Avg	2.8	2.2	1.8	1.6	2	1.8	-	-	1	1.8	1.4	1.2	1.5	1.67

CE 8461 Hydraulic Engineering Laboratory	
C1	The students will be able to study the Characteristics of pumps
C2	The students will be able to study the Characteristics of turbine
C3	The students will be able to measure flow in pipes and determine frictional losses.
C4	The students will be able to develop characteristics of pumps and turbines
C5	The students will be able to verify the principles studied in theory by performing the experiments in lab.

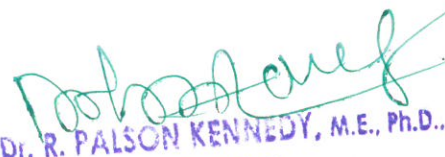

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CE8501 Design Of Reinforced Cement Concrete Elements	
C1	Able to understand the basics of concrete design
C2	Able to emphasize the design of structural elements by limit state design method
C3	Able to understand the concrete of shear, bond and torsion
C4	Able to design the vertical compression member
C5	Able to understand the phenomenon about footing design.

CE8501 Design Of Reinforced Cement Concrete Elements														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	1	2	1	3	1	2	1	2	2	1	3	2	1
C2	3	2	2	3	3	2	1	2	1	2	1	2	-	2
C3	3	2	1	2	3	1	2	1	1	2	1	2	2	-
C4	3	2	1	2	2	1	1	1	1	2	1	3	1	2
C5	3	2	1	3	3	1	1	1	1	1	1	3	-	-
Avg	3	1.8	1.4	2.2	2.8	1.2	1.4	1.2	1.2	1.8	1	2.6	1.67	1.67

CE8502 Structural Analysis I														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	3	3	3	3	2	1	1	2	2	1	2	2	2
C2	3	3	2	3	3	2	1	1	1	2	1	2	1	-
C3	3	3	3	3	3	2	1	1	1	2	1	2	3	2
C4	3	3	3	3	3	2	1	1	1	2	1	2	-	-
C5	3	3	3	3	3	2	1	1	1	2	1	2	-	-
Avg	3	3	2.8	3	3	2	1	1	1.2	2	1	2	2	2

CE8502 Structural Analysis I	
C1	Analyze continuous beams, pin-jointed indeterminate plane frames and rigid plane frames by strain energy method
C2	Analyse the continuous beams and rigid frames by slope deflection method.
C3	Understand the concept of moment distribution and analysis of continuous beams and rigid frames with and without sway.
C4	Analyse the indeterminate pin jointed plane frames continuous beams and rigid frames using matrix flexibility method.
C5	Understand the concept of matrix stiffness method and analysis of continuous beams, pin jointed trusses and rigid plane frames.


 Dr. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.


CE8591 FOUNDATIONENGINEERING														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	2	-	3	2	1	-	1	-	-	2	-	3	1	2
C2	3	1	-	1	2	-	2	-	-	-	-	-	2	-
C3	3	-	1	-	-	2	-	-	-	1	-	-	-	1
C4	2	2	-	3	3	2	-	1	2	-	-	-	-	-
C5	3	-	1	1	-	2	1	1	-	1	-	1	1	1
Avg	2.6	1.5	1.6	1.7	2	2	1	1	2	1.3	-	2	1.3	1.3

CE8591 Foundation Engineering	
C1	Understand the site investigation, methods and sampling
C2	Get knowledge on bearing capacity and testing methods.
C3	Design shallow footings.
C4	Determine the load carrying capacity, settlement of pile foundation.
C5	Determine the earth pressure on retaining walls and analysis for stability.

EN8491 WATER SUPPLY ENGINEERING														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	2	2	2	2	1	1	3	-	1	-	-	-	-	1
C2	2	2	2	1	1	1	2	-	1	-	-	-	-	1
C3	3	2	2	1	2	1	3	-	1	-	-	-	-	1
C4	3	2	2	2	2	1	3	-	1	-	-	-	-	1
C5	2	2	2	2	2	2	2	-	1	-	-	-	-	1
Avg	2.4	2	2	1.6	1.6	1.2	2.6	-	1	-	-	-	-	1

EN8491 WATER SUPPLY ENGINEERING	
C1	An insight into the structure of drinking water supply systems, including water transport, treatment and distribution
C2	The knowledge in various unit operations and processes in water treatment
C3	An ability to design the various functional units in water treatment
C4	An understanding of water quality criteria and standards, and their relation to public health
C5	The ability to design and evaluate water supply project alternatives on basis of chosen

CE8511 Soil Mechanics Laboratory	
C1	Classifying soil based on index properties of soils (course and fine).
C2	Classifying soil based on consistency limit of fine grained soils.
C3	Interpreting the shear strength of all types of soils by conducting lab tests
C4	Interpreting the shear strength of all types of soils by conducting lab tests
C5	Understanding the engineering properties of soils by conducting field tests


 Dr. R. FALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CE8511 SOIL MECHANICS LABORATORY														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	-	2	3	-	2	1	-	1	2	-	-	2	1	2
C2	2	1	2	2	1	1	2	-	-	-	-	-	-	2
C3	3	1	1	2	1	1	-	-	-	-	-	-	1	-
C4	1	2	2	1	3	2	-	3	-	-	3	-	3	-
C5	1	1	2	-	1	-	-	-	1	-	2	2	-	1
Avg	1.7	1.4	2	1.6	1.6	1.2	2	2	1.5	-	2.5	2	1.6	1.6

CE8512 Water And Waste Water Analysis Laboratory	
C1	Quantify the pollutant concentration in water and wastewater
C2	Suggest the type of treatment required and amount of dosage required for the treatment
C3	Examine the conditions for the growth of micro-organisms
C4	Suggest the type of treatment required to reduce e-coli in water
C5	Compare the analysis of treated water among different treatments

CE8512 WATER AND WASTE WATER ANALYSIS LABORATORY														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	-	-	2	-	1	1	-	-	-	-	2	-	3
C2	3	-	2	2	-	-	-	-	-	-	-	2	-	3
C3	3	-	2	2	-	-	-	-	-	-	-	2	1	-
C4	3	-	2	1	-	-	-	-	-	-	-	1	1	-
C5	3	-	2	1	-	-	-	-	-	-	-	1	2	1
Avg	3	-	2	1.6	-	1	1	-	-	-	-	1.6	1.3	2.3

CE8513 SURVEY CAMP														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	3	2	2	2	3	1	1	2	3	3	2	1	2
C2	3	2	2	3	1	2	1	1	2	3	3	2	2	-
C3	3	2	2	2	1	2	1	1	2	3	3	3	2	3
C4	3	3	2	3	1	2	1	1	2	3	3	2	-	1
C5	3	2	2	2	1	2	1	1	2	3	3	3	-	-
Avg	3	2.4	2	2.4	1.2	2.2	1	1	2	3	3	2.4	1.6	2

CE8513 SURVEY CAMP	
C1	To use all surveying equipment, prepare LS & CS
C2	To prepare contour maps by triangulation method
C3	To prepare maps and grids by Trilateration method
C4	To prepare contour maps by Rectangulation method
C5	To carryout surveying works related to land and civil engineering projects

Dr. R. PALSON KENNEDY, M.E., Ph.D.

PRINCIPAL


PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CE8601 DESIGN OF STEEL STRUCTURAL ELEMENTS														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	3	3	3	2	1	1	1	2	1	2	2	2	1
C2	3	3	3	3	2	1	2	1	1	1	1	2	1	-
C3	3	2	3	2	2	1	1	1	2	1	2	2	1	1
C4	3	2	2	3	2	1	1	1	1	1	1	2	2	-
C5	3	3	3	2	2	1	1	1	1	1	2	2	2	-
Avg	3	2.6	2.8	2.6	2	1	1.2	1	1.4	1	1.6	2	1.6	1

CE8601 DESIGN OF STEEL STRUCTURAL ELEMENTS	
C1	Able to understand the concepts of various design philosophies
C2	Able to design common bolted and welded connections for steel structures
C3	Able to design tension members and understand the effect of shear lag.
C4	Able to understand the design concept of axially loaded columns and column base connections.
C5	Able to understand specific problems related to the design of laterally restrained and unrestrained steel beams.

CE8602 STRUCTURAL ANALYSIS II														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	2	2	1	1	2	-	-	1	-	1	1	-	1	-
C2	2	2	2	1	2	-	-	1	-	1	1	-	1	-
C3	2	2	1	2	3	-	-	-	1	2	1	-	-	1
C4	2	2	1	1	2	1	-	-	1	-	1	3	2	1
C5	2	2	1	2	2	1	-	-	1	2	1	-	-	1
Avg	2	2	1.2	1.4	2.2	1	-	1	1	1.5	1	3	1.3	1

CE8602 Structural Analysis II	
C1	Able to draw influence lines for statically determinate structures and calculate critical stress resultants.
C2	Ability to understand Muller Breslau principle and draw the influence lines for statically indeterminate beams.
C3	Able to analyse of three hinged two hinged and fixed arches.
C4	Able to analyse the suspension bridges with stiffening girders
C5	Able to understand the concept of Plastic analysis and the method of analyzing beams and rigid frames.


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CE8604 HIGHWAY ENGINEERING	
C1	Able to get knowledge on planning and aligning of highway.
C2	Able to geometric design of highways
C3	Able to design flexible and rigid pavements.
C4	Able to gain knowledge on Highway construction materials, properties, testing methods
C5	Able to understand the concept of pavement management system, evaluation of distress and maintenance of pavements.

CE8604 HIGHWAY ENGINEERING														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	1	1	-	2	2	2	1	-	1	-	-	2	1
C2	1	2	3	1	1	1	1	-	-	1	-	-	-	-
C3	1	3	3	2	2	1	1	-	-	1	-	-	2	2
C4	1	1	3	-	-	-	1	-	-	1	-	-	1	1
C5	1	2	3	-	-	-	1	-	-	1	-	-	-	-
Avg	1.4	1.8	2.6	1.5	1.6	1.3	1.2	1	-	1	-	-	1.6	1.3

CE8603 IRRIGATION ENGINEERING														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	2	1	3	2	1	2	2	2	3	2	1	2	2	-
C2	3	2	1	3	1	1	3	1	2	1	2	3	-	1
C3	3	3	2	1	1	2	1	1	1	1	1	3	-	2
C4	1	3	3	2	1	1	1	1	2	1	1	2	1	3
C5	2	2	2	2	1	1	2	1	1	1	1	2	2	1
Avg	2.2	2.2	2.2	2	1	1.4	1.8	1.2	1.8	1.2	1.2	2.4	1.67	1.75

CE8603 IRRIGATION ENGINEERING	
C1	Able to have knowledge and skills on crop water requirements.
C2	Able to understand the methods and management of irrigation.
C3	Able to gain knowledge on types of Impounding structures
C4	Able to understand methods of irrigation including canal irrigation.
C5	Able to get knowledge on water management on optimization of water use.

EN8592 WASTEWATER ENGINEERING	
C1	An ability to estimate sewage generation and design sewer system including sewage pumping stations
C2	The required understanding on the characteristics and composition of sewage, self-purification of streams
C3	An ability to perform basic design of the unit operations and processes that are used in sewage treatment
C4	Understand the standard methods for disposal of sewage.
C5	Gain knowledge on sludge treatment and disposal.

Dr. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

EN8592 WASTEWATER ENGINEERING														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	2	3	3	2	3	1	1	1	-	-	-	1	1
C2	3	3	3	2	2	2	3	2	1	-	-	-	2	1
C3	2	2	2	1	1	1	2	2	1	-	-	-	2	1
C4	2	2	2	1	1	1	2	2	1	-	-	-	2	-
C5	2	2	2	1	1	1	2	2	1	-	-	-	2	-
Avg	2.4	2.2	2.4	1.6	1.4	1.6	2	1.8	1	-	-	-	1.8	1

CE8611 Highway Engineering Laboratory														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	2	-	1	1	1	-	1	-	3	1	-	1	-	3
C2	2	-	1	1	1	-	1	-	3	1	-	1	-	3
C3	-	-	1	1	1	-	1	-	3	1	-	1	1	-
C4	2	-	1	1	1	-	1	-	3	1	-	1	1	-
C5	2	-	1	1	1	-	1	-	3	1	-	1	2	1
Avg	2	-	1	1	1	-	1	-	3	1	-	1	1.3	2.3

CE6612 Highway Engineering Laboratory	
C1	To impart the knowledge of material testing for use in concrete
C2	To understand the mix design for concrete
C3	Able to determine the properties of fresh concrete
C4	Able to determine the properties of hardened concrete
C5	Able to know the techniques to characterize various pavement materials through relevant tests

CE8701 ESTIMATION, COSTING AND VALUATION ENGINEERING	
C1	Able to estimate the quantities of item of works involved in buildings
C2	Able to estimate the water supply and sanitary works, road works and irrigation works
C3	Able to prepare a bill of quantities, make specifications and prepare tender documents
C4	Able to get the knowledge for valuation of properties
C5	Able to prepare the reports for estimation of various items.


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048


CE8701 ESTIMATION, COSTING AND VALUATION ENGINEERING														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	-	-	-	-	-	-	-	2	-	-	2	-	2
C2	3	-	-	-	-	1	-	-	2	-	-	2	-	2
C3	3	-	-	-	-	-	-	2	2	2	1	2	2	2
C4	3	-	-	-	-	-	-	-	2	-	2	2	-	2
C5	2	-	-	-	-	-	-	2	-	3	-	2	2	-
Avg	2.8	-	-	-	-	1	-	2	2	2.5	1.5	2	2	2

CE8702 RAILWAYS, AIRPORTS, DOCKS AND HARBOUR ENGINEERING														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	3	2	3	3	2	3	-	-	2	-	3	-	3
C2	3	2	2	2	3	-	2	-	-	2	2	3	1	2
C3	2	1	2	1	3	-	2	-	3	3	-	2	-	2
C4	1	1	3	1	3	2	-	1	2	-	3	3	2	2
C5	3	2	3	2	3	-	2	-	2	-	-	2	3	-
Avg	2.4	1.8	2.4	1.8	3	2	2.2	1	2.3	2.3	2.5	2.6	2	2.2

CE8702 RAILWAYS, AIRPORTS, DOCKS AND HARBOUR ENGINEERING	
C1	Able to Plan and Design various civil Engineering aspects of Railways
C2	Able to have an idea about construction and maintenance systems in railway
C3	Ability to create the layouts and components of airport
C4	Able to evaluate the geometric design of airports.
C5	Understand the various terms in harbor engineering and its classification.

CE8703 STRUCTURAL DESIGN AND DRAWING	
C1	Able to design and draw reinforced concrete Cantilever and Counterfort Retaining Walls
C2	Able to design and draw flat slab as per code provisions
C3	Able to design and draw reinforced concrete and steel bridges
C4	Ability to design and draw reinforced concrete and steel water tanks
C5	Able to design and detail the various steel trusses and cantry girders

CE8703 STRUCTURAL DESIGN AND DRAWING														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	2	2	1	2	2	-	1	-	-	-	-	1	2	-
C2	2	2	-	1	1	-	-	-	-	-	-	1	1	-
C3	2	1	1	1	-	1	1	-	-	-	-	1	-	1
C4	1	1	3	2	-	-	1	-	-	-	-	1	-	-
C5	1	-	1	1	1	-	1	-	-	-	-	1	1	-
Avg	1.6	1.5	1.5	1.4	1.3	1	1	-	-	-	-	1	1.3	1


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 043.

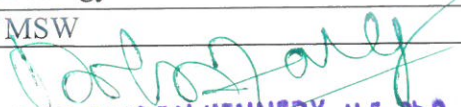
CE8711 CREATIVE AND INNOVATIVE PROJECT														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	3	3	3	3	3	3	3	1	3	3	3	3	2
C2	3	3	2	2	2	2	2	-	3	-	-	2	2	-
C3	3	3	2	2	2	2	2	1	-	2	1	1	3	1
C4	3	2	3	2	3	-	1	1	-	2	1	1	3	-
C5	3	2	2	2	3	2	1	1	-	2	1	1	3	1
Avg	3	2.6	2.4	2.2	2.6	1.8	1.8	1.5	2	2.2	1.5	1.6	2.8	1.3

CE8711 CREATIVE AND INNOVATIVE PROJECT	
C1	Will get experience in designing various design problems related to civil Engineering
C2	Able to understand the meaning of team work
C3	To impart and improve the design capability of the student
C4	Analysis and design of structure to meet desired needs within realistic constraints
C5	Able to improve the design of an RC structure

CE8016 Groundwater Engineering														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	2	-	1	2	1	1	2	-	-	-	-	-	1	-
C2	3	3	1	2	1	-	1	-	-	-	-	-	3	-
C3	1	2	1	1	3	-	2	-	-	-	-	-	-	2
C4	1	-	1	1	2	3	2	-	-	-	-	-	-	1
C5	1	2	1	2	2	1	3	-	-	-	-	-	-	2
Avg	1.6	2.3	1	1.6	1.8	1.6	2	-	-	-	-	-	2	1.6

CE8016 Groundwater Engineering	
C1	Able to know the aquifer properties and its dynamics
C2	Able to understand the principles of groundwater governing equations
C3	Able to understand the techniques of development and management of groundwater
C4	Able to understand concepts of groundwater quality.
C5	Able to understand the importance of artificial recharge

EN8591 Municipal Solid Waste Management	
C1	Able to know the sources and characteristics of solid waste
C2	Able to understand the merits of 3R's
C3	Able to gain knowledge on collection, segregation and transfer of MSW
C4	Able to understand the different processing methodology for MSW
C5	Able to gain knowledge on effective disposal of MSW


DR. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

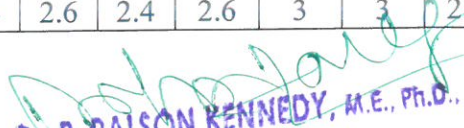
EN8591 Municipal Solid Waste Management														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	-	-	-	-	1	2	-	-	-	-	2	2	-
C2	2	-	-	-	-	-	3	-	-	-	-	2	-	-
C3	2	-	2	-	2	1	-	-	-	-	-	-	-	3
C4	-	-	1	-	-	1	2	-	-	-	-	-	1	-
C5	-	-	2	-	-	2	3	-	-	-	-	2	1	2
Avg	2.3	-	1.6	-	2	1.2	2.5	-	-	-	-	2	1	2.5

CE8020 MAINTENANCE, REPAIR AND REHABILITATION OF STRUCTURES														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	1	2	-	1	1	2	-	1	3	1	3	-	2
C2	3	2	1	3	3	-	-	-	1	2	1	3	3	1
C3	3	3	1	1	3	1	1	-	1	1	1	2	-	1
C4	3	1	1	1	1	1	2	-	1	1	1	3	2	-
C5	3	2	1	3	3	-	-	-	2	1	1	3	1	-
Avg	3	1.8	1.2	2	2.2	1	1.6	-	1.2	1.6	1	2.8	2	1.3

CE8020 MAINTENANCE, REPAIR AND REHABILITATION OF STRUCTURES	
C1	To gain the knowledge on quality of concrete, durability aspects, causes of deterioration
C2	To gain the knowledge on assessment of distressed structure
C3	To gain the knowledge on repairing methodology of structure
C4	To get to know about special concrete
C5	To obtain more knowledge about retrofitting

CE6811 Project Work	
C1	Able to understand work methodology adopted in industry
C2	Able to find solution for the difficulty during construction
C3	Able to understand the meaning of teamwork
C4	Able to give practical knowledge regarding projects
C5	Able to give the idea to finish work on time

CE8811 Project Work														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C1	3	3	3	3	2	2	2	2	2	3	3	3	2	2
C2	2	2	3	3	3	2	2	2	2	3	3	3	2	2
C3	3	2	3	2	3	2	2	3	3	2	3	3	3	3
C4	2	3	3	2	2	3	3	3	3	2	3	3	3	3
C5	2	3	3	3	2	2	3	3	2	3	3	3	3	2
Avg	2.4	2.6	3	2.6	2.4	2.2	2.4	2.6	2.4	2.6	3	3	2.6	2.4


DR. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Chennai

PERI INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING

Mapping of Course outcome with program outcome
Regulation -2017

CO	MA8352–Linearalgebraandpartialdifferentialequations
CO 1	To introduce the basic notions of groups, rings, fields which will then be used to solve related problems.
CO 2	Demonstrate accurate and efficient use of advanced algebraic techniques
CO 3	Demonstrate their mastery by solving non - trivial problems related to the concepts and by simple theorems about the statements proven by the text.
CO 4	Able to solve various types of partial differential equations.
CO 5	Able to solve engineering problems using Fourier series..

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	2	1	1						1	1	2	2	1
CO 2	2	2	2	1	1						1	1	2	2	1
CO 3	2	2	2	1	1						1	1	2	2	1
CO 4	3	3	3	2	2						2	2	3	3	2
CO 5	3	3	3	2	2						2	2	3	3	2

CO	EC8393–FUNDAMENTALSOFDATASTRUCTURESINC
CO 1	Implement linear and non-linear data structure operations using C
CO 2	Suggest appropriate linear / non-linear data structure for any given data set.
CO 3	Apply hashing concepts for a given problem
CO 4	Modify or suggest new data structure for an application
CO 5	Appropriately choose the sorting algorithm for an application

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	3	3	2	2	2					3	3	3	3	2
CO 2	2	2	2	2	2	2					2	2	2	2	1
CO 3	3	3	3	2	2	2					3	3	3	3	2
CO 4	2	2	2	2	2	2					2	2	2	2	1
CO 5	2	2	2	2	2	2					2	2	2	2	1

R. Palson Kennedy
Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.


CO	EC8351-ELECTRONIC CIRCUITS I
CO 1	Acquire knowledge of Working principles, characteristics and applications of BJT and FET
CO 2	Acquire knowledge of Frequency response characteristics of BJT and FET amplifiers
CO 3	Analyze the performance of small signal BJT and FET amplifiers-single stage and multistage amplifiers
CO 4	Analyze the of Frequency response of amplifiers
CO 5	Apply the knowledge gained in the design of Electronic circuits

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	2	1	1	1					1	2	2	1	2
CO 2	2	2	2	1	1	1					1	2	2	1	2
CO 3	3	3	3	2	2	2					2	3	3	2	3
CO 4	3	3	3	2	2	2					2	3	3	2	3
CO 5	3	3	3	2	2	2					2	3	3	2	3

CO	EC8352-SIGNALS AND SYSTEMS
CO 1	Determine if a given system is linear/causal/stable
CO 2	Capable of determining the frequency components present in a deterministic signal
CO 3	Capable of characterizing LTI systems in the time domain and frequency domain
CO 4	Compute the output of an LTI system in the time and frequency domains
CO 5	Analyze the Discrete time signals using Transforms

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	3	2	2	2	1					1	2	3	3	3
CO 2	3	3	2	2	2	1					1	2	3	3	3
CO 3	2	2	1	1	1	0					0	1	2	2	2
CO 4	3	3	2	2	2	1					1	2	3	3	3
CO 5	3	3	2	2	2	1					1	2	3	3	3

CO	EC8392-DIGITAL ELECTRONICS
CO 1	Use digital electronics in the present contemporary world
CO 2	Design various combinational digital circuits using logic gates
CO 3	Do the analysis and design procedures for synchronous and asynchronous sequential circuits
CO 4	Use the semiconductor memories and related technology
CO 5	Use electronic circuits involved in the design of logic gates


 Dr. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048


CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	3	2	2	2	1					1	2	3	2	2
CO 2	3	3	2	2	2	1					1	2	3	2	2
CO 3	3	3	2	2	2	1					1	2	3	2	2
CO 4	3	3	2	2	2	1					1	2	3	2	2
CO 5	3	3	2	2	2	1					1	2	3	2	2

CO	EC8391-CONTROLSYSTEMSENGINEERING
CO 1	Identify the various control system components and their representations.
CO 2	Analyze the various time domain parameters.
CO 3	Analyze the various frequency response plots and its system.
CO 4	Apply the concepts of various system stability criterions.
CO 5	Design various transfer functions of digital control system using state variable models.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1	1	1					1	1	2	2	1
CO 2	3	3	2	2	2	2					2	2	3	3	2
CO 3	3	3	2	2	2	2					2	2	3	3	2
CO 4	3	3	2	2	2	2					2	2	3	3	2
CO 5	3	3	2	2	2	2					2	2	3	3	2

CO	EC8381-Fundamentals of data structures in laboratory
CO 1	Write basic and advanced programs in C
CO 2	Implement functions and recursive functions in C
CO 3	Implement data structures using C
CO 4	Choose appropriate sorting algorithms for an application
CO 5	Choose appropriate sorting algorithm to implement in a modularized way

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1	1	1					2	2	1	1	1
CO 2	3	3	2	2	2	2					3	3	2	2	2
CO 3	3	3	2	2	2	2					3	3	2	2	2
CO 4	2	2	1	1	1	1					2	2	1	1	1
CO 5	2	2	1	1	1	1					2	2	1	1	1


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	EC8361–Analoganddigitalcircuitslaboratory
CO 1	Design and Test rectifiers, filters and regulated power supplies.
CO 2	Design and Test BJT/JFET amplifiers.
CO 3	Differentiate cascode and cascade amplifiers.
CO 4	Analyze the limitation in bandwidth of single stage and multi stage amplifier & Measure CMRR in differential amplifier
CO 5	Simulate and analyze amplifier circuits using P Spice.& Design and Test the digital logic circuits

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	3	3	3	3	2					3	3	3	2	2
CO 2	3	3	3	3	3	2					3	3	3	2	2
CO 3	3	3	2	2	2	2					2	2	2	1	1
CO 4	3	3	3	3	3	2					3	3	3	2	2
CO 5	3	3	3	3	3	2					3	3	3	2	2

CO	HS8381InterpersonalSkills/Listening & Speaking
CO 1	Learn the importance of interpersonal skills
CO 2	Recognize the importance of interpersonal skills
CO 3	Understand how good communication with other can influence our working relationships
CO 4	Describe how good communication with other can influence our working relationships
CO 5	outline the roles we play in our work groups and teams

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1						1		1	1	1	1	1	1	1	1
CO 2						2		2	2	2	2	2	2	2	2
CO 3						2		2	2	2	2	2	2	2	2
CO 4						2		2	2	2	2	2	2	2	2
CO 5						2		2	2	2	2	2	2	2	2

CO	MA8451–PROBABILITYANDRANDOMPROCESSES
CO 1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.
CO 2	Understandthebasicconceptsofoneandtwodimensionalrandomvariablesandapplyinengineeringapplications.
CO 3	Apply the concept random processes in engineering disciplines.
CO 4	Understand and apply the concept of correlation and spectral densities.
CO 5	The students will have an exposure of various distribution functions and help in acquiring skills in handling situations involving more than one variable. Able to analyze the response of random in puts to linear time in variant systems.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1	1						1	1	1	1	0
CO 2	2	2	1	1	1						1	1	1	1	0
CO 3	3	3	2	2	2						2	2	2	2	0
CO 4	2	2	1	1	1						1	1	1	1	0
CO 5	3	3	2	2	2						2	2	2	2	0

CO	EC8452-ELECTRONIC CIRCUITS II
CO 1	Design and analyze feedback amplifiers
CO 2	Design and analyze RC and LC Oscillators
CO 3	Design and analyze tuned amplifiers
CO 4	Design and analyze wave shaping circuits, multivibrators
CO 5	Design power amplifier and DC convertors.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	3	2	2	1	1					1	1	2	2	2
CO 2	3	3	3	3	0	0					0	0	1	1	1
CO 3	3	3	2	2	1	1					1	1	2	2	2
CO 4	3	3	3	3	0	0					0	0	1	1	1
CO 5	3	3	3	3	0	0					0	0	1	1	1

CO	EC8491-COMMUNICATION THEORY
CO 1	Design AM communication systems
CO 2	Design Angle modulated communication systems
CO 3	Apply the concepts of Random Process to the design of Communication systems
CO 4	Analyze the noise performance of AM and FM systems
CO 5	Gain knowledge in sampling and quantization

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	3	2	2	2	2					2	2	2	2	1
CO 2	3	3	2	2	2	2					2	2	2	2	1
CO 3	3	3	2	2	2	2					2	2	2	2	1
CO 4	3	3	3	3	3	3					3	3	3	3	2
CO 5	2	2	2	2	0	0					0	1	2	2	2

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	EC8451-ELECTROMAGNETIC FIELDS
CO 1	Display an understanding of fundamental electromagnetic laws and concepts
CO 2	Write Maxwell's equations in integral, differential and phasor forms and explain their physical meaning
CO 3	Explain electromagnetic wave propagation in lossy and in lossless media
CO 4	Solve simple problems requiring estimation of electric field quantities based on these concepts and laws
CO 5	Solve simple problems requiring estimation of magnetic field quantities based on these concepts and laws

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	1	1	1	1	1	1					1	1	1	1	1
CO 2	2	2	2	2	2	2					2	2	2	2	2
CO 3	1	1	1	1	1	1					1	1	1	1	1
CO 4	3	3	3	3	3	3					3	3	3	3	3
CO 5	3	3	3	3	3	3					3	3	3	3	3

CO	EC8453-LINEAR INTEGRATED CIRCUITS
CO 1	Design linear and non linear application of OP-AMP
CO 2	Design Application using analog multiplier and PLL
CO 3	Design ADC and DAC using OP-AMP
CO 4	Generate waveforms using OP – AMP Circuits
CO 5	Analyze special function Ics

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	3	2	2	1	1					1	1	2	2	1
CO 2	3	3	2	2	1	1					1	1	2	2	1
CO 3	3	3	2	2	1	1					1	1	2	2	1
CO 4	3	3	2	2	1	1					1	1	2	2	1
CO 5	3	3	3	3	2	2					2	2	3	3	2

CO	GE8291-Environmental science and engineering
CO 1	Environmental Pollution or problems cannot be solved by mere laws.
CO 2	Public participation is an important aspect which serves the environmental Protection. One will obtain knowledge on the following after completing the course.
CO 3	Public awareness of environmental is at infant stage.
CO 4	Ignorance and incomplete knowledge has lead to misconceptions
CO 5	Development and improvement in standard. of living has lead to serious environmental disasters

Dr. R. PALSON KENNEDY, M.E., Ph.D.

PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.


CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	1	1		1		1	1	1		1		1			
CO 2	2	2		2		2	2	2		2		2			
CO 3	2	2		2		2	2	2		2		2			
CO 4	2	2		2		2	2	2		2		2			
CO 5	2	2		2		2	2	2		2		2			

CO	EC8461–Circuitsdesignandsimulationlaboratory
CO 1	Analyze various types of feedback amplifiers
CO 2	Design oscillators, tuned amplifiers, wave-shaping circuits and multivibrators
CO 3	Design and simulate feedback amplifiers, oscillators using SPICE Tool
CO 4	Design and simulate tuned amplifiers, wave-shaping circuits using SPICE Tool
CO 5	Design and simulate multi vibrators using SPICE Tool

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	2	2	2	2	2					2	2	2	2	3
CO 2	3	2	1	1	1	1					1	1	1	1	2
CO 3	3	2	1	1	1	1					1	1	1	1	2
CO 4	3	2	1	1	1	1					1	1	1	1	2
CO 5	3	2	1	1	1	1					1	1	1	1	2

CO	EC8462–Linearintegratedcircuitslaboratory
CO 1	Design amplifiers, oscillators, D-A converters using operational amplifiers.
CO 2	Design filters using op-amp and performs an experiment on frequency response.
CO 3	Analyze the working of PLL and describe its application as a frequency multiplier.
CO 4	Design DC power supply using ICs.
CO 5	Analyze the performance of filters, multivibrators, A/D converter and analog multiplier using SPICE.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	3	3	3	3	2					3	3	3	3	2
CO 2	3	3	3	3	3	2					3	3	3	3	2
CO 3	3	3	2	2	2	1					2	2	2	2	1
CO 4	3	3	3	3	3	2					3	3	3	3	2
CO 5	3	3	2	2	2	1					2	2	2	2	1


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.


CO	EC8501-DIGITALCOMMUNICATION
CO 1	Describe the operating principles of information theory
CO 2	Design and implement base band transmission schemes
CO 3	Design and implement band pass signaling schemes
CO 4	Analyze the spectral characteristics of band pass signaling schemes and their noise performance
CO 5	Design error control coding schemes

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	2	0	0					1	1	2	1	1
CO 2	3	3	2	3	1	1					2	2	3	2	3
CO 3	3	3	2	3	1	1					2	2	3	2	3
CO 4	3	3	3	3	2	2					3	3	3	2	3
CO 5	3	3	2	3	1	1					2	2	3	2	3

CO	EC8553-DISCRETETIMESIGNALPROCESSING
CO 1	Apply DFT for the analysis of digital signals and systems
CO 2	Design IIR and FIR filters
CO 3	Characterize the effects of finite precision representation on digital filters
CO 4	Design multirate filters
CO 5	Apply adaptive filters appropriately in communication systems

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	3	2	2	2	1					1	2	3	3	2
CO 2	3	3	2	2	2	1					1	2	3	3	2
CO 3	3	3	2	2	2	1					1	2	3	3	2
CO 4	3	3	2	2	2	1					1	2	3	3	2
CO 5	3	3	2	2	2	1					1	2	3	3	2

CO	EC8552-Computerarchitecture and Organization
CO 1	Describe data representation, instruction formats and the operation of a digital computer
CO 2	Illustrate the fixed point and floating-point arithmetic for ALU operation
CO 3	Discuss about implementation schemes of control unit and pipeline performance
CO 4	Explain the concept of various memories, interfacing and organization of multiple processors
CO 5	Discuss parallel processing technique and unconventional architectures


 Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

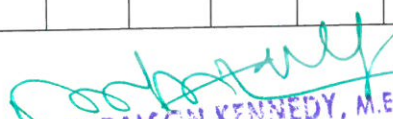
CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	2	1	1	1	0	0	0	0	0	1	2	2	2
CO 2	2	2	2	1	1	1	0	0	0	0	0	1	2	2	2
CO 3	3	3	3	2	2	2	0	0	0	0	0	2	3	3	3
CO 4	2	2	2	1	1	1	0	0	0	0	0	1	2	2	2
CO 5	2	2	2	1	1	1	0	0	0	0	0	1	2	2	2

CO	EC8551-COMMUNICATION NETWORKS
CO 1	Identify the components required to build different types of networks
CO 2	Choose the required functionality at each layer for given application
CO 3	Identify solution for each functionality at each layer
CO 4	Trace the flow of information from one node to another node in the network
CO 5	Summarize the various Application requirements

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1
CO 2	2	2	1	1	1	1	0	0	0	0	0	2	2	2	2
CO 3	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1
CO 4	2	2	1	1	1	1	0	0	0	0	0	2	2	2	2
CO 5	2	2	1	1	1	1	0	0	0	0	0	2	2	2	2

CO	ORO551- RENEWABLE ENERGY SOURCE
CO 1	Exposure on solar radiation and its environment impact of power
CO 2	Learn the various collectores used for storing solar energy
CO 3	Understand the various applications in solar energy
CO 4	Study about the wind energy and biomass and its economic aspects
CO 5	Learn about geothermal energy with other energy sources

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	1										1	1	1	1
CO 2	2	1										1	1	1	1
CO 3	2	1										1	1	1	1
CO 4	2	1										1	1	1	1
CO 5	2	1										1	1	1	1


DR. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

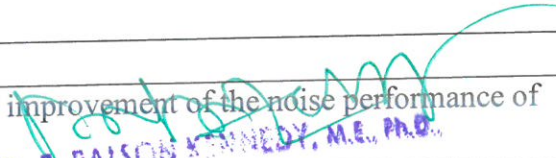
CO	GE8077-TOTALQUALITYMANAGEMENT
CO 1	Discuss various dimensions of product and service quality
CO 2	Apply the TQM principles for quality improvement in organization
CO 3	Apply the TQM principles for quality improvement in organization
CO 4	Use QFD tool to design and develop a new product as per customer requirements.
CO 5	Explain various ISO Standards and Quality systems practiced in various sector

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1						2	2	2	2	2	1	2	0	2	1
CO 2						3	3	3	3	3	2	2	1	3	2
CO 3						3	3	3	3	3	2	2	1	3	2
CO 4						3	3	3	3	3	2	2	1	3	2
CO 5						2	2	2	2	2	1	2	0	2	1

CO	EC8562-Digitalsignalprocessinglaboratory
CO 1	Carryout basic signal processing operations
CO 2	Demonstrate their abilities towards MATLAB based implementation of various DSP systems
CO 3	Analyze the architecture of a DSP Processor
CO 4	Design and Implement the FIR and IIR Filters in DSP Processor for performing filtering operation over real-time signals
CO 5	Design a DSP system for various applications of DSP

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1	1	1					1	1	2	2	1
CO 2	3	3	2	2	2	2					2	2	3	3	2
CO 3	3	3	3	3	3	3					3	3	3	3	3
CO 4	3	3	2	2	2	2					2	2	3	3	2
CO 5	3	3	2	2	2	2					2	2	3	3	2

CO	EC8561-COMMUNICATIONSYSTEMLABORATORY
CO 1	Simulate & validate the various functional modules of a communication system
CO 2	Demonstrate their knowledge in base band signaling schemes through implementation of digital modulation schemes
CO 3	Apply various channel coding schemes
CO 4	Demonstrate their capabilities towards the improvement of the noise performance of communication system
CO 5	Simulate end-to-end communication Link


DR. R. FALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.


CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	2	2	1	2	1					3	3	3	3	3
CO 2	3	2	2	1	2	1					0	0	2	2	2
CO 3	3	2	2	1	2	1					0	0	2	2	2
CO 4	3	2	2	1	2	1					0	0	2	2	2
CO 5	3	2	2	1	2	1					3	3	3	3	3

CO	EC8563-COMMUNICATION NETWORKS LABORATORY
CO 1	Communicate between two desktop computers
CO 2	Implement the different protocols
CO 3	Program using sockets.
CO 4	Implement and compare the various routing algorithms
CO 5	Use the simulation tool.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	2	1	1	2	2					2	2	3	2	2
CO 2	3	2	1	1	2	2					2	2	3	2	2
CO 3	3	2	1	1	2	2					2	2	3	2	2
CO 4	3	2	2	2	3	3					3	3	3	3	3
CO 5	3	2	1	1	2	2					2	2	3	2	2

CO	EC8691-MICROPROCESSOR AND MICROCONTROLLER
CO 1	Understand the Architecture of 8086 microprocessor.
CO 2	Learn the design aspects of I/O and Memory Interfacing circuits.
CO 3	Interface microprocessors with supporting chips.
CO 4	Study the Architecture of 8051 microcontroller.
CO 5	Design a microcontroller based system

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	2	2	1	1					1	1	2	2	1
CO 2	2	2	2	2	1	1					1	1	2	2	1
CO 3	3	3	3	3	3	3					2	2	3	3	2
CO 4	2	2	2	2	1	1					1	1	2	2	1
CO 5	3	3	3	3	2	2					1	1	2	2	1


 Dr. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	EC8095-VLSIDESIGN
CO 1	Realize the concepts of digital building blocks using MOS transistor.
CO 2	Design combinational MOS circuits and power strategies.
CO 3	Design of memory elements in sequential circuits.
CO 4	Design arithmetic building blocks and memory subsystems.
CO 5	Apply and implement FPGA design flow and testing.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1	1	1					1	2	2	2	2
CO 2	3	3	2	2	2	2					2	2	3	3	3
CO 3	3	3	2	2	2	2					2	2	3	3	3
CO 4	3	3	2	2	2	2					2	2	3	3	3
CO 5	3	3	2	2	2	2					2	2	3	3	3

CO	EC8652-WIRELESSCOMMUNICATION
CO 1	Study the characteristic of wireless channel
CO 2	Design a cellular system based on resource availability and traffic demands
CO 3	Study the various digital signaling techniques for fading channel
CO 4	Apply various multipath mitigation techniques
CO 5	Understand the concepts of multiple antenna techniques

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1	1	1					1	2	3	2	2
CO 2	3	3	2	2	2	2					2	3	3	3	3
CO 3	2	2	1	1	1	1					1	2	3	2	2
CO 4	3	3	2	2	2	2					2	3	3	3	3
CO 5	2	2	1	1	1	1					1	2	3	2	2

CO	MG8591-PRINCIPLESOFMANAGEMENT
CO 1	Summarize the evolution of management thoughts and various challenges of managerial activities in a global
CO 2	Explain the types of Planning and Decision making at various levels management in the Organizations
CO 3	Discuss various types of Organization structure.
CO 4	List out the steps in Staffing process and stages in Career development.
CO 5	Generalize various Controlling techniques to maintain standards in Organizations.

Dr. R. PALSON KENNEDY, M.E., Ph.D.

PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 043.

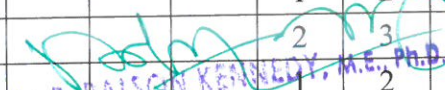
CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1						1	1	1		1	1	1	1	1	-
CO 2						2	2	2		2	2	2	2	2	-
CO 3						2	2	2		2	2	2	2	2	-
CO 4						2	2	2		2	2	2	2	2	-
CO 5						3	3	3		3	3	3	3	3	-

CO	EC8651-TRANSMISSION LINES AND RF SYSTEMS
CO 1	Explain the characteristics of transmission lines and its losses
CO 2	Write about the standing wave ratio and input impedance in high frequency transmission lines
CO 3	Analyze impedance matching by stubs using smith charts
CO 4	Analyze the characteristics of TE and TM waves
CO 5	Design a RF transceiver system for wireless communication

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1	1	1					1	2	2	2	2
CO 2	2	2	1	1	1	1					1	2	2	2	2
CO 3	3	3	2	2	2	2					2	3	3	3	3
CO 4	3	3	2	2	2	2					2	3	3	3	3
CO 5	3	3	3	3	2	2					2	3	3	3	3

CO	EC8004-WIRELESS NETWORKS
CO 1	Conversant with the latest 3G/4G networks and its architecture
CO 2	Design and implement wireless network environment for any application using latest wireless protocols and standards
CO 3	Ability to select the suitable network depending on the availability and requirement
CO 4	Implement different type of applications for smart phones and mobile devices with latest network strategies
CO 5	Learn the applications of beyond 4G wireless networks

CO	PO												PSO		
	1	2		1	2		1	2		1	2		1	2	
CO 1	2	2	1	1	1	1					1	2	2	2	1
CO 2	3	3	2	2	2	2					2	3	3	3	2
CO 3	2	2	1	1	1	1					1	2	2	2	1
CO 4	3	3	2	2	2	2					2	3	3	3	2
CO 5	2	2	1	1	1	1					1	2	2	2	1


 Dr. R. PALSAN KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

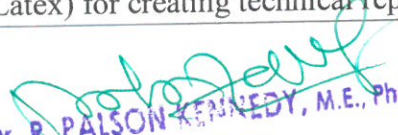
CO	EC8681–Microprocessor and Microcontroller laboratory
CO 1	Write ALP Programmes for fixed and Floating Point and Arithmetic operations
CO 2	Interface different I/Os with processor
CO 3	Generate waveforms using Microprocessors
CO 4	Execute Programs in 8051
CO 5	Explain the difference between simulator and Emulator

CO	PO												PSO		
	1	2		1	2		1	2		1	2		1	2	
CO 1	2	2	1	1	1	1					1	1	2		2
CO 2	3	2	1	0	0	0					0	0	0	1	3
CO 3	1	0	0	3	2	1					0	0	0	1	1
CO 4	1	1	3	3	0	0					1	0	0	1	1
CO 5	3	1	0	3	0	0					1	0	1	1	3

CO	EC8661–VLSIDESIGNLABORATORY
CO 1	Write HDL code for basic as well as advanced digital integrated circuit
CO 2	Import the logic modules into FPGA Boards
CO 3	Synthesize Place and Route the digital Ips
CO 4	Designt the layouts of Digital & Analog IC Blocks using EDA tools
CO 5	Simulate and Extract the layouts of Digital & Analog IC Blocks using EDA tools

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	2	1	0	0	0					0	0	0	1	2
CO 2	3	2	1	0	0	0					0	0	0	1	2
CO 3	1	0	0	3	2	1					0	0	0	1	2
CO 4	1	1	3	3	0	0					1	0	0	1	2
CO 5	3	1	0	3	0	0					1	0	1	1	2

CO	EC8611–TECHNICAL SEMINAR
CO 1	Establish motivation for any topic of interest and develop a thought process for technical presentation
CO 2	Organize a detailed literature survey and build a document with respect to technical publications
CO 3	Analysis and comprehension of proof-of-concept and related data.
CO 4	Effective presentation and improve soft skills.
CO 5	Make use of new and recent technology (e.g. Latex) for creating technical reports


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

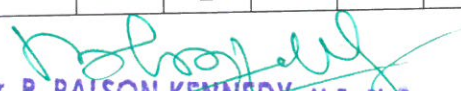
CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1		2		2	2	2		2	2		2	2	2	2	2
CO 2		2		2	2	2		2	2		2	2	2	2	2
CO 3		2		2	2	2		2	2		2	2	2	2	2
CO 4		2		2	2	2		2	2		2	2	2	2	2
CO 5		2		2	2	2		2	2		2	2	2	2	2

CO	HS8581-PROFESSIONAL COMMUNICATION
CO 1	Make effective presentations
CO 2	Participate confidently in Group Discussions.
CO 3	Attend job interviews and be successful in them
CO 4	Develop adequate Soft Skills required for the workplace
CO 5	Develop Team management skills

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1						3				3		3	1	1	2
CO 2						3				3		3	1	1	2
CO 3						3				3		3	1	1	2
CO 4						3				3		3	1	1	2
CO 5						3				3		3	1	1	2

CO	EC8701-ANTENNA AND MICROWAVE ENGINEERING
CO 1	Learn the basic principles of antenna
CO 2	Apply the basic principles of antenna and Evaluate antenna parameters and link power budgets
CO 3	Design and assess the performance of various antennas
CO 4	Learn the basics of microwave system
CO 5	Design a microwave system given the application specifications

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1	1	1					1	1	1	1	
CO 2	3	3	2	2	2	2					2	2	2	2	1
CO 3	3	3	2	2	2	2					2	2	2	2	1
CO 4	2	2	1	1	1	1					1	1	1	1	
CO 5	3	3	2	2	2	2					2	2	2	2	1


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 043.

CO	EC8751–OPTICAL COMMUNICATION AND NETWORKS
CO 1	Realize basic elements in optical fibers, different modes and configurations
CO 2	Analyze the transmission characteristics associated with dispersion and polarization techniques
CO 3	Design optical sources and detectors with their use in optical communication system
CO 4	Construct fibre optic receiver system, measurements and coupling techniques
CO 5	Design Optical Communication Systems and its networks

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1		1	-	-	-	-	1	2	2	2	1
CO 2	3	3	2	2		2	-	-	-	-	2	3	3	3	2
CO 3	3	3	2	2		2	-	-	-	-	2	3	3	3	2
CO 4	3	3	2	2		2	-	-	-	-	2	3	3	3	2
CO 5	3	3	2	2		2	-	-	-	-	2	3	3	3	2

CO	EC8791–EMBEDDED AND REAL TIME SYSTEM
CO 1	Describe the architecture and programming of ARM processor
CO 2	Outline the concepts of embedded systems
CO 3	Explain the basic concepts of real time operating system design
CO 4	Model real-time applications using embedded-system concepts
CO 5	Analyze the concepts of real time operating system design

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1	1	1					1	2	2	2	2
CO 2	2	2	1	1	1	1					1	2	2	2	2
CO 3	2	2	1	1	1	1					1	2	2	2	2
CO 4	3	3	2	2	2	2					2	2	3	3	2
CO 5	3	3	2	2	2	2					2	2	3	3	2

CO	EC8702-Adhoc and Wireless Sensor Networks
CO 1	Know the basics of Ad hoc networks and Wireless Sensor Networks
CO 2	Apply this knowledge to identify the suitable routing algorithm based on the network and user requirement
CO 3	Apply the knowledge to identify appropriate physical and MAC layer protocols.
CO 4	Understand the transport layer and security issues possible in Ad hoc and sensor networks.
CO 5	Be familiar with the OS used in Wireless Sensor Networks and build basic modules

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1	1	1					1	1	2	2	1
CO 2	3	3	2	2	2	2					2	2	3	3	2
CO 3	3	3	2	2	2	2					2	2	3	3	2
CO 4	2	2	1	1	1	1					1	1	2	2	1
CO 5	2	2	1	1	1	1					1	1	2	2	1

CO	GE8071-DISASTER MANAGEMENT
CO 1	Differentiate the types of disasters
CO 2	Differentiate the causes of disasters and their impact on environment and society
CO 3	Assess vulnerability and various methods of risk reduction measures as well as mitigation
CO 4	Draw the hazard and vulnerability profile of India
CO 5	Understand about disaster damage assessment and management

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1						2	2	2	2	2	1	1			1
CO 2						2	2	2	2	2	1	1			1
CO 3						3	3	3	3	3	2	2			2
CO 4						2	2	2	2	2	1	1			1
CO 5						2	2	2	2	2	1	1			1

CO	OCS752- INTRODUCTION TO C PROGRAMMING
CO 1	Describe the advantages of a high level language like C/C++, the programming process, and the compilation process
CO 2	Describe and use software tools in the programming process
CO 3	Apply good programming principles to the design and implementation of C/C++ programs
CO 4	Design, implement, debug and test programs using the fundamental elements of C/C++
CO 5	Design, implement, debug and test programs using the fundamental elements of C/C++

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1	1	0					1	1	1	1	1
CO 2	2	2	1	1	1	0					1	1	1	1	1
CO 3	3	3	2	2	2	1					2	2	2	2	2
CO 4	3	3	2	2	2	1					2	2	2	2	2
CO 5	3	3	2	2	2	1					2	2	2	2	2

Dr. R. PALSON KENNEDY, M.E., Ph.D.

PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

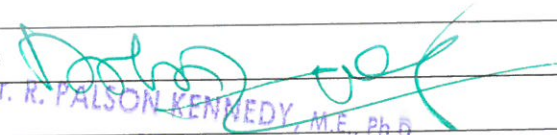
CO	EC8711-EMBEDDED LABORATORY
CO 1	Write programs in ARM for a specific Application
CO 2	Interface memory, A/D and D/A convertors with ARM system
CO 3	Analyze the performance of interrupt
CO 4	Write program for interfacing keyboard, display, motor and sensor.
CO 5	Formulate a mini project using embedded system

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1	1	1					1	1	2	2	2
CO 2	3	3	2	2	2	2					2	2	3	3	3
CO 3	3	3	2	2	3	2					2	3	3	3	3
CO 4	2	2	1	1	1	1					1	1	2	2	2
CO 5	3	3	2	2	3	2					2	3	3	3	3

CO	EC8761-ADVANCED COMMUNICATION LABORATORY
CO 1	Analyze the performance of simple optical link by measurement of losses and Analyzing the mode characteristics of fiber
CO 2	Analyze the Eye Pattern, Pulse broadening of optical fiber and the impact on BER
CO 3	Estimate the Wireless Channel Characteristics
CO 4	Analyze the performance of Wireless Communication System
CO 5	Understand the intricacies in Microwave System design

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	3	3	3	3	3					3	3	3	3	3
CO 2	3	3	3	3	3	3					3	3	3	3	3
CO 3	3	2	2	2	2	2					2	2	2	2	2
CO 4	3	3	3	3	3	3					3	3	3	3	3
CO 5	3	2	2	2	2	2					2	2	2	2	2

CO	EC8094-SATELLITE COMMUNICATION
CO 1	Analyze the satellite orbits
CO 2	Analyze the earth segment and space segment
CO 3	Analyze the satellite Link design
CO 4	Analyze the satellite access and coding methods
CO 5	Design various satellite applications


 DR. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	3	3	3	2	2					2	2	3	3	2
CO 2	3	3	3	3	2	2					2	2	3	3	2
CO 3	3	3	3	3	2	2					2	2	3	3	2
CO 4	3	3	3	3	2	2					2	2	3	3	2
CO 5	2	2	2	2	2	2					2	2	2	2	1

CO	GE8076–PROFESSIONALETHICSINENGINEERING
CO 1	Outline the core values that enrich the ethical behavior of an engineer.
CO 2	Explain the perception in ethics towards the profession, various moral issues, and theories on moral development
CO 3	Associate the code of ethics in real time application as responsible experimenters and understand the various
CO 4	Aware of responsibilities of an engineer for safety and risk benefit
CO 5	Have a clear idea about the global issues

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1						1	1	1	1	1	1	1			1
CO 2						2	2	2	2	2	2	2			2
CO 3						2	2	2	2	2	2	2			2
CO 4						2	2	2	2	2	2	2			2
CO 5						2	1	3	3	3	3	3			3

CO	EC8811–PROJECT WORK
CO 1	Analyze areal world problem, review literature and suggest its solution.
CO 2	Perform data analysis, interpret and provide valid conclusions
CO 3	Perform multi-disciplinary task as an individual and/or team member to manage the project/task.
CO 4	ComprehendtheEngineeringactivitieswiththeeffectivepresentationandreport.
CO 5	Interpretthefindingswithappropriatetechnological/researchcitation.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	3	3	3	3	3	3		3	3	3	3	3	3	3	3
CO 2	3	3	3	3	3	3		3	3	3	3	3	3	3	3
CO 3	3	3	3	3	3	3		3	3	3	3	3	3	3	3
CO 4	3	3	3	3	3	3		3	3	3	3	3	3	3	3
CO 5	3	3	3	3	3	3		3	3	3	3	3	3	3	3

Dr. R. RAISON KENNEDY, M.E., Ph.D.,
PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

Department of Electrical and Electronics Engineering

CO PO mapping
Regulation 2017

EE8351 DIGITAL LOGIC CIRCUITS	
CO 1	Ability to study various number systems and simplify the logical expressions using Boolean functions.
CO 2	Ability to design combinational and sequential Circuits.
CO 3	Ability to design various synchronous and asynchronous circuits.
CO 4	Ability to introduce asynchronous sequential circuits and PLDs.
CO 5	Ability to simulate using software package.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	1	1	-	-	-	-	-	2	-	3	3	1	3
2	3	3	3	2	-	-	-	-	-	2	-	3	3	1	3
3	3	3	3	2	-	-	-	-	-	2	-	3	3	1	3
4	3	3	3	1	-	-	-	-	-	2	-	3	3	1	3
5	3	2	1	1	3	-	-	-	-	2	-	3	3	1	3

Low (1); Medium (2); High (3)

EE8391 ELECTROMAGNETIC THEORY	
CO 1	Ability to understand the basic mathematical concepts related to electromagnetic vector fields.
CO 2	Ability to understand the basic concepts about electrostatic fields, electrical potential, energy density and their applications.
CO 3	Ability to acquire the knowledge in magneto static fields, magnetic flux density, vector potential and its applications.
CO 4	Ability to understand the different methods of emf generation and Maxwell's equations.
CO 5	Ability to understand the basic concepts electromagnetic waves and characterizing parameters.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	2	3	-	-	-	-	-	-	-	2	3	3	2
2	3	3	3	3	-	1	-	-	-	-	-	2	3	3	3
3	3	3	3	3	-	1	-	-	-	-	2	2	3	3	3
4	3	3	3	3	-	1	-	-	-	-	2	2	3	3	3
5	3	3	3	3	-	1	-	-	-	-	2	2	3	3	3

Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

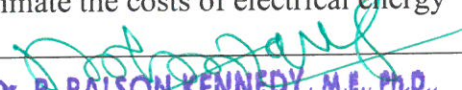
EE8301 ELECTRICAL MACHINES I	
CO 1	Ability to analyze the magnetic-circuits.
CO 2	Ability to acquire the knowledge in constructional details of transformers.
CO 3	Ability to understand the concepts of electromechanical energy conversion.
CO 4	Ability to acquire the knowledge in working principles of DC Generator and DC motor.
CO 5	Ability to acquire the knowledge in various losses taking place in D.C. Machines

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	2	3	2	-	-	-	-	-	-	2	2	3	-	2
2	3	2	3	2	-	-	-	-	-	-	1	-	3	-	1
3	3	2	3	2	-	-	-	-	-	-	-	2	3	1	2
4	3	2	3	2	-	-	-	-	-	-	1	-	3	2	2
5	3	2	3	2	-	-	-	-	-	-	2	-	3	2	2
Low (1); Medium (2); High (3)															

EC8351 – ELECTRON DEVICES & CIRCUITS	
CO 1	Able to explain the structure and working operation of basic electronic devices
CO 2	Able to identify and differentiate both active and passive elements.
CO 3	Analyze the characteristics of different electronic devices such as diodes and transistors.
CO 4	Able to choose and adapt the required components to construct an amplifier circuit.
CO 5	Able to employ the acquired knowledge in design and analysis of oscillators

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	3	2	-	3	3	-	-	-	-	3	2	2	1
2	3	2	3	3	-	2	2	-	-	-	-	3	2	2	2
3	3	3	3	3	2	2	2	-	-	-	-	3	2	2	1
4	3	3	3	3	3	2	2	-	-	-	-	3	2	2	1
5	3	3	3	3	3	3	2	-	-	-	-	3	2	2	1
Low (1); Medium (2); High (3)															

ME8792 POWER PLANT ENGINEERING	
CO 1	Able to explain the layout, construction and working of the components inside a thermal power plant.
CO 2	Able to explain the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants.
CO 3	Able to Explain the layout, construction and working of the components inside nuclear power plants.
CO 4	Able to explain the layout, construction and working of the components inside Renewable energy power plants.
CO 5	Able to explain the applications of power plants while extend their knowledge to power plant economics and environmental hazards and estimate the costs of electrical energy production.


DR. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 043.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	-	3	-	2	-	-	-	-	-	3	3	3	2
2	3	3	2	3	-	2	-	-	-	-	-	3	3	3	1
3	3	3	2	3	-	-	-	-	-	-	-	3	3	3	2
4	3	3	1	3	-	-	-	-	-	-	-	3	3	3	1
5	3	3	1	3	3	-	-	-	-	-	-	3	3	3	1

Low (1); Medium (2); High (3)

EE 8311 ELECTRICAL MACHINES LABORATORY – I	
CO 1	Ability to understand and analyze DC generator.
CO 2	Ability to understand and analyze DC motor.
CO 3	Ability to understand and analyse transformers.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3			3	3						3	3	3	3	3
2	3			3	3						3	3	3	3	3
3	3			3	3						3	3	3	3	3

Low (1); Medium (2); High (3)


EC 8311 ELECTRONICS LABORATORY	
CO 1	Ability to understand and analyse electronic circuits.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3			3	3						3	3	2	2	1

Low (1); Medium (2); High (3)

EE8401 ELECTRICAL MACHINES - II	
CO 1	Ability to understand the construction and working principle of synchronous generator.
CO 2	Ability to understand MMF curves and armature windings.
CO 3	Ability to acquire knowledge on Synchronous motor.
CO 4	Ability to understand the construction and working principle of three phase induction motor.
CO 5	Ability to predetermine the performance characteristics of synchronous machines.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	1	1									3	2	
2	2	1	1	1									3	2	
3	2	1	1	1									3	2	


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.


4	2	1	1	1									3	2	
5	2	1	1	1									3	2	
Low (1); Medium (2); High (3)															

EE8402 TRANSMISSION AND DISTRIBUTION	
CO 1	To understand the importance and the functioning of transmission line parameters.
CO 2	To acquire knowledge on the performance of Transmission lines.
CO 3	To understand the importance of distribution of the electric power in power system.
CO 4	To acquire knowledge on underground cables.
CO 5	To become familiar with the function of different components used in Transmission and Distribution levels of power system and modeling of these components.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1											3		
2	3	2	1										3		
3	2	2	1										3		
4	2	1	1										3		
5	2	1	1										3		
Low (1); Medium (2); High (3)															

EE8403 MEASUREMENT & INSTRUMENTATION	
CO 1	To acquire knowledge on Basic functional elements of instrumentation.
CO 2	To understand the concepts of Fundamentals of electrical and electronic instruments.
CO 3	Ability to compare between various measurements techniques.
CO 4	To acquire knowledge on Various storage and display devices.
CO 5	To understand the concepts Various transducers and the data acquisition systems.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1								2			3		
2	2	1								2			3		
3	2	1	1							2			3		
4	2									2			3		
5	2	1								2			3		
Low (1); Medium (2); High (3)															


 Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Manayakkam, Chennai - 600 048

EE8451 LINEAR INTEGRATED CIRCUITS AND APPLICATIONS	
CO 1	Ability to acquire knowledge in IC fabrication procedure.
CO 2	Ability to analyze the characteristics of Op-Amp.
CO 3	To understand and acquire knowledge on the Applications of Op-amp
CO 4	To understand the functional blocks and the applications of special ICs like Timers, PLL circuits, regulator Circuits.
CO 5	To understand the importance of signal analysis using Op-amp based circuits.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1											2		2
2	2	1											2		2
3	2	1	1										2		2
4	2	1	1										2		2
5	2	1	1										2		2

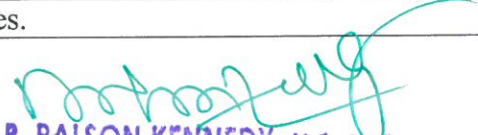
Low (1); Medium (2); High (3)

IC8451 CONTROL SYSTEMS	
CO 1	Ability to develop various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals.
CO 2	Ability to do time domain and frequency domain analysis of various models of linear system.
CO 3	Ability to interpret characteristics of the system to develop mathematical model.
CO 4	Ability to design appropriate compensator for the given specifications.
CO 5	Ability to come out with solution for complex control problem.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2				3	2			1	1	2	2	1	1
2	2	2	1			2	2	1		1	1	2	2	1	1
3	3	2	1			3	2	1		1	1	2	2	2	1
4	3	2	1			3	2	1		1	1	2	2	2	1
5	2	1	1	1		2	1	1	1	1	1	2	2	2	1

Low (1); Medium (2); High (3)

EE8411 ELECTRICAL MACHINES LABORATORY - II	
CO 1	Ability to understand and analyze EMF and MMF methods.
CO 2	Ability to analyze the characteristics of V and Inverted V curves.
CO 3	Ability to understand the importance of Synchronous machines.
CO 4	Ability to understand the importance of Induction Machines.
CO 5	Ability to acquire knowledge on separation of losses.


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	1										2	1	3
2	3	2	1										2	1	3
3	3	2	1										2	1	3
4	3	2	1										2	1	3
5	3	2	1										2	1	3

Low (1); Medium (2); High (3)

EE8461 LINEAR AND DIGITAL INTEGRATED CIRCUITS LABORATORY	
CO 1	Ability to understand and implement Boolean Functions.
CO 2	Ability to understand the importance of code conversion.
CO 3	Ability to Design and implement 4-bit shift registers.
CO 4	Ability to acquire knowledge on Application of Op-Amp.
CO 5	Ability to Design and implement counters using specific counter IC.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	1	1		1								1		
2	2	2	2		2								1		
3	1	1	1		2								1		
4	2	2	2		1								1		
5	2	1	2		2								1		


Low (1); Medium (2); High (3)

EE8412 TECHNICAL SEMINAR	
CO 1	Ability to review, prepare and present technological developments.
CO 2	Ability to face the placement interviews.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1									3	3	3		1	1	1
2									3	3	3		1	1	1

Low (1); Medium (2); High (3)

EE8501 Power System Analysis	
CO 1	Ability to model the power system under steady state operating condition.
CO 2	Ability to understand and apply iterative techniques for power flow analysis.
CO 3	Ability to model and carry out short circuit studies on power system.
CO 4	Ability to acquire knowledge on Fault analysis.
CO 5	Ability to model and analyze stability problems in power system.


 Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 043.


CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	3		3					3	3	2	1
2	3	2	2	2	2		2					3	3	3	2
3	3	2	2	2	2		2					3	3	3	2
4	3	2	2	2	2		2					3	3	3	2
5	3	3	3	2	3		2					3	3	3	3
Low (1); Medium (2); High (3)															

EE8551-MICROPROCESSORS AND MICROCONTROLLERS	
CO 1	Ability to acquire knowledge in Addressing modes & instruction set of 8085 & 8051.
CO 2	Ability to write the assembly language programme.
CO 3	Ability to need & use of Interrupt structure 8085 & 8051.
CO 4	Ability to understand the importance of Interfacing.
CO 5	Ability to develop the Microprocessor and Microcontroller based applications.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1								2			2	1	2
2	2	2								2			2	1	2
3	2	1								2			2	1	2
4	2	1								2			2	1	2
5	3	2	2							2			2	1	3
Low (1); Medium (2); High (3)															

EE8552 POWER ELECTRONICS	
CO 1	Ability to analyse AC-AC converters.
CO 2	Ability to analyse DC-DC converters.
CO 3	Ability to analyse DC-AC converters.
CO 4	Explain the different modulation techniques of pulse with modulated inverters and to understand harmonic reduction methods.
CO 5	Ability to choose the converters for real time applications..

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	1	1			2						3		2
2	2	2	2	2			2						3		2
3	2	2	2	2			2						3		2
4	2	2	2	2			2						3		2
5	2	1	1	1			2						3		2
Low (1); Medium (2); High (3)															


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

EE8591 Digital Signal Processing	
CO 1	Ability to acquire knowledge on Signals and systems & their mathematical representation.
CO 2	Ability to understand and analyze the discrete time systems.
CO 3	Ability to understand the importance of Fourier transform, digital filters and DS Processors.
CO 4	Ability to understand the types of filters and their design for digital implementation.
CO 5	Ability to acquire knowledge on programmability digital signal processor & quantization effects.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3		1		3								2		2
2	3		1		3								2	1	2
3	3		1		3								2		3
4	3		1		3								2	1	3
5	2		1		3								2		2


Low (1); Medium (2); High (3)

CS8392 BASICS OF BIO-MEDICAL INSTRUMENTATION	
CO 1	Ability to analyze the fundamentals of biomedical engineering.
CO 2	Ability to interpret the communication mechanics in biomedical systems
CO 3	Ability to measure and analyze non-electrical parameters and its diagnostic procedures.
CO 4	Ability to measure and analyze electrical parameters and also electrical safety.
CO 5	Ability to analyze and apply the life assisting, therapeutic and imaging techniques.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	1	1	-	-	2	2	-	1	-	-	2	3	1	1
2	3	1	3	-	-	2	2	-	1	-	-	2	3	1	3
3	1	1	-	-	-	1	-	-	1	-	-	2	1	1	-
4	3	2	2	-	2	3	2	-	1	-	-	2	3	2	2
5	3	2	3	1	2	2	2	-	1	-	-	2	3	2	3

Low (1); Medium (2); High (3)

EE8511 CONTROL AND INSTRUMENTATION LABORATORY	
CO 1	Ability to understand control theory and apply them to electrical engineering problems.
CO 2	Ability to analyze the various types of converters.
CO 3	Ability to design compensators.
CO 4	Ability to understand the basic concepts of bridge networks.
CO 5	Ability to the basics of signal conditioning circuits.


 Dr. R. PALSON KENEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.


CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	1										3		
2	2	1	1										3		
3	2	1	1										3		
4	2	1	1										3		
5	2	1	1										3		
Low (1); Medium (2); High (3)															

HS8581 PROFESSIONAL COMMUNICATION	
CO 1	Ability to make effective presentations
CO 2	Ability to Participate confidently in Group Discussions.
CO 3	Attend job interviews and be successful in them
CO 4	Develop adequate Soft Skills required for the workplace

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1									2	2	2		2		
2									2	2	2		2		
3									2	2	2		2		
4									2	2	2				
Low (1); Medium (2); High (3)															

CS8383 OBJECT ORIENTED PROGRAMMING LABORATORY	
CO 1	Develop and implement Java programs for simple applications that make use of classes, packages and interfaces.
CO 2	Develop and implement Java programs with array list, exception handling and multithreading.
CO 3	Design applications using file processing, generic programming and event handling

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1											2		
2	2	1											2		
3	2	1											2		
4								3							
5									3			3			
Low (1); Medium (2); High (3)															


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.


EE8601 SOLID STATE DRIVES	
CO 1	Ability to study about the steady state operation and transient dynamics of a motor load system.
CO 2	Ability to analyze the operation of the converter/chopper fed dc drive.
CO 3	Ability to analyze the operation and performance of AC motor drives.
CO 4	Ability to select suitability drive for the given application.
CO 5	Ability to analyze and design the current and speed controllers for a closed loop solid state DC motor drive.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	2	3	2		2						3		2
2	3	3	2	3	2		2						3		2
3	3	3	2	3	2		2						3		2
4	3	3	2	3	2		2						3		2
5	3	3	2	3	2		2						3		2
Low (1); Medium (2); High (3)															

EE8602-PROTECTION AND SWITCHGEAR	
CO 1	Ability to find the causes of abnormal operating conditions of the apparatus and system.
CO 2	Ability to analyze the characteristics and functions of relays and protection schemes.
CO 3	Ability to study about the apparatus protection, static and numerical relays.
CO 4	Ability to understand and analyze Electromagnetic and static relays.
CO 5	Ability to acquire knowledge on functioning of circuit breaker.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	1	3	1		3			2			3		2
2	2	1	1	3	1		3			2			3		2
3	2	1	1	3	1		3			2			3		2
4	2	1	1	3	1		3			2			3		2
5	2	2	1	3	1		3			2			3		2
Low (1); Medium (2); High (3)															

EE8691 EMBEDDED SYSTEMS	
CO 1	Ability to understand and analyze Embedded systems.
CO 2	Ability to study about the bus Communication in processors.
CO 3	Ability to operate various Embedded development strategies.
CO 4	Ability to acquire knowledge on various processor scheduling algorithms.
CO 5	Ability to understand basics of Real time operating system.


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2									2			2	1	
2	2	1		1						2			2	1	
3	2	1		1						2			2	1	
4	2	1								2			2	1	
5	2	1	1		1					2			2	1	

Low (1); Medium (2); High (3)

EE8002 DESIGN OF ELECTRICAL APPARATUS	
CO 1	Ability to understand basics of design considerations for rotating and static electrical machines.
CO 2	Ability to design of field system for its application.
CO 3	Ability to design single and three phase transformer.
CO 4	Ability to design stator and rotor of induction motor.
CO 5	Ability to design and analyze synchronous machines.

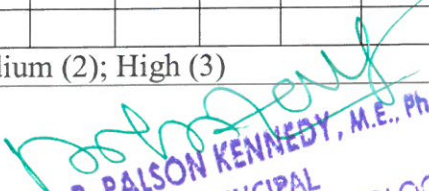
CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	2	3	1		3			2		2	3		
2	3	3	2	3	1		3			2		2	3	1	
3	3	3	2	3	1		3			2		2	3		
4	3	3	2	3	1		3			2		2	3	1	
5	3	3	2	3	1		3			2		2	3		

Low (1); Medium (2); High (3)

EE8006 POWER QUALITY	
CO 1	Ability to understand various sources, causes and effects of power quality issues, electrical systems and their measures and mitigation.
CO 2	Ability to understand the concepts about Voltage and current distortions, harmonics.
CO 3	Ability to analyze the causes & Mitigation techniques of various PQ events.
CO 4	Ability to acquire knowledge on compensation techniques.
CO 5	Ability to acquire knowledge on DVR.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	1	2			2						3		
2	2	1	1	2			2						3		
3	2	1	1	2			2						3		
4	3	2	2	2			2						3		
5	2	1	1	2			2						3		

Low (1); Medium (2); High (3)


DR. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 043.

EE8661 POWER ELECTRONICS AND DRIVES LABORATORY	
CO 1	Ability to practice and understand converter and inverter circuits and apply software for engineering problems.
CO 2	Ability to experiment about switching characteristics various switches.
CO 3	Ability to analyze about AC to DC converter circuits.
CO 4	Ability to analyze about DC to AC circuits.
CO 5	Ability to acquire knowledge on simulation software.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1		3	3						1	1	1	3		
2	1		3	3						1	1	1	3		
3	1		2	3						1	1	1	3		
4	1		3	3						1	1	1	3		
5	1		3	3						1	1	1	3		

Low (1); Medium (2); High (3)

EE8681 MICROPROCESSORS AND MICROCONTROLLERS LABORATORY	
CO 1	Ability to understand and apply computing platform and software for engineering problems.
CO 2	Ability to programming logics for code conversion.
CO 3	Ability to acquire knowledge on A/D and D/A.
CO 4	Ability to understand basics of serial communication.
CO 5	Ability to understand and impart knowledge in DC and AC motor interfacing.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1		3	3						1	1	1	3		
2	1		3	3						1	1	1	3		
3	1		2	3						1	1	1	3		
4	1		3	3						1	1	1	3		
5	1		3	3						1	1	1	3		

Low (1); Medium (2); High (3)

EE8611 MINI PROJECT	
CO 1	Evaluate the final year project work and find solution by formulating proper methodology.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1		3	3						1	1	1	3		

Low (1); Medium (2); High (3)


 Dr. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

EE8701 HIGH VOLTAGE ENGINEERING	
CO 1	Ability to understand various types of over voltages in power system.
CO 2	Ability to understand Generation and measurement of high voltage.
CO 3	Ability to understand Transients in power system.
CO 4	Ability to measure over voltages.
CO 5	Ability to test power apparatus and insulation coordination.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	2	2	2		1					1	2	-	1
2	2	2	2	2	2		1					1	2	2	-
3	2	2	2	2	2		1					1	2	-	-
4	2	2	2	2	2		1					1	2	-	1
5	2	2	2	2	2		1					1	2	-	1

Low (1); Medium (2); High (3)

GE8071 DISASTER MANAGEMENT	
CO 1	Ability to differentiate the types of disasters, causes and their impact on environment and society
CO 2	Ability to assess vulnerability and various methods of risk reduction measures as well as mitigation.
CO 3	Ability to Draw the hazard and vulnerability profile of India, Scenarios in the Indian context, Disaster damage assessment and management.


CO	PO												POS		
	1	3	-	1	-	1	1	1	2	1	-	2	1	3	-
1	1	3	1	1	-	1	1	2	2	1	-	2	1	3	1
2	1	2	1	2	-	1	1	2	1	-	-	2	1	2	1
3	1	2	-	1	-	1	1	1	1	2	-	2	1	2	-

Low (1); Medium (2); High (3)

GE8077 TOTAL QUALITY MANAGEMENT	
CO 1	Ability to know the importance of significance of quality and its frame work .
CO 2	Ability to apply various TQM principles and its importance.
CO 3	Ability to apply TQM traditional and new management tools and techniques.
CO 4	Ability to apply TQM Quality circles and quality function deployment.
CO 5	Ability to Identify requirements of quality improvement programs.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	3	1	1	-	1	1	2	2	1	-	2	1	3	1
2	1	2	1	2	-	1	1	2	1	-	-	2	1	2	1
3	1	2	-	1	-	1	1	1	1	2	-	2	1	2	-
4	1	3	1	1	-	1	1	2	2	1	-	2	1	3	1
5	1	2	1	2	-	1	1	2	1	2	-	2	1	2	1

Low (1); Medium (2); High (3)


DR. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 043.

EE8703 RENEWABLE ENERGY SYSTEMS

CO 1	Understand the various types of renewable energy sources and technologies.
CO 2	Understand the adequate inputs on a variety of issues in harnessing renewable Energy.
CO 3	Understand the requirements of solar energy and other thermal systems,
CO 4	Understand the basics of biomass energy.
CO 5	Interpret the current and possible future role of renewable energy sources.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	3	1	1	-	1	1	2	2	1	-	2	1	3	1
2	1	2	1	2	-	1	1	2	1	-	-	2	1	2	1
3	1	2	-	1	-	1	1	1	1	2	-	2	1	2	-
4	1	3	1	1	-	1	1	2	2	1	-	2	1	3	1
5	1	2	1	2	-	1	1	2	1	-	-	2	1	2	1
Low (1); Medium (2); High (3)															

EE8702 POWER SYSTEM OPERATION AND CONTROL

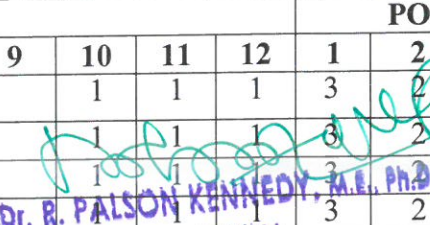
CO 1	Ability to understand the day-to-day operation of electric power system.
CO 2	Ability to analyze the control actions to be implemented on the system to meet the minute-to-minute variation of system demand.
CO 3	Ability to understand the significance of power system operation and control.
CO 4	Ability to acquire knowledge on real power-frequency interaction.
CO 5	Ability to understand the reactive power-voltage interaction.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	3	1	1	-	1	1	2	2	1	-	2	1	3	1
2	1	2	1	2	-	1	1	2	1	-	-	2	1	2	1
3	1	2	-	1	-	1	1	1	1	2	-	2	1	2	-
4	1	3	1	1	-	1	1	2	2	1	-	2	1	3	1
5	1	2	1	2	-	1	1	2	1	-	-	2	1	2	1
Low (1); Medium (2); High (3)															

EE8711 POWER SIMULATION LABORATORY

CO 1	Ability to understand power system planning and operational studies.
CO 2	Ability to acquire knowledge on Formation of Bus Admittance and Impedance Matrices and Solution of Networks.
CO 3	Ability to analyze the power flow using GS and NR method
CO 4	Ability to understand the economic dispatch.
CO 5	Analyze the electromagnetic transients.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2		1	3						1	1	1	3	2	1
2	2		1	3						1	1	1	3	2	1
3	2		1	3						1	1	1	3	2	1
4	2		1	3						1	1	1	3	2	1
5	2		1	3						1	1	1	3	2	1


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048

Low (1); Medium (2); High (3)

EE8712 RENEWABLE ENERGY SYSTEMS LABORATORY

CO 1	Ability to understand and analyze renewable energy systems.
CO 2	Ability to provide adequate inputs on a variety of issues in harnessing renewable energy.
CO 3	Ability to train the students in renewable energy sources and technologies.
CO 4	Ability to recognize current and possible future role of Renewable energy sources.
CO 5	Ability to understand basics of intelligent controllers.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2		1	3						1	1	1	3	2	1
2	2		1	3						1	1	1	3	2	1
3	2		1	3						1	1	1	3	2	1
4	2		1	3						1	1	1	3	2	1
5	2		1	3						1	1	1	3	2	1

Low (1); Medium (2); High (3)

EE8015 ELECTRIC ENERGY GENERATION UTILISATION AND CONSERVATION

CO 1	To understand the main aspects of generation, utilization and conservation.
CO 2	To identify an appropriate method of heating for any particular industrial application.
CO 3	To evaluate domestic wiring connection and debug any faults occurred.
CO 4	To construct an electric connection for any domestic appliance like refrigerator as well as to design a battery charging circuit for a specific household application.
CO 5	To realize the appropriate type of electric supply system as well as to evaluate the 125 performance of a traction unit.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	3	3	1	-	2	-	-	-	-	1	2	1	3
2	2	1	3	3	1	-	2	-	-	-	-	1	2	1	3
3	1	-	3	-	1	-	2	-	-	-	-	1	1	-	3
4	3	-	-	-	2	-	2	-	-	-	-	-	3	-	-
5	3	-	-	-	2	-	2	-	-	-	-	-	3	-	-

Low (1); Medium (2); High (3)

EE 8811 SMART GRID


CO 1	Ability to understand on the concepts of Smart Grid and its present developments
CO 2	Ability to understand different Smart Grid technologies.
CO 3	Ability to interpret the different smart meters and advanced metering infrastructure.
CO 4	Ability to infer power quality management in Smart Grids.
CO 5	Ability to understand on LAN, WAN and Cloud Computing for Smart Grid applications.

Dr. R. Palson Kennedy
Dr. R. PALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	3	3	1	-	2	-	-	-	-	1	2	1	3
2	2	1	3	3	1	-	2	-	-	-	-	1	2	1	3
3	1	-	3	-	1	-	2	-	-	-	-	1	1	-	3
4	3	-	-	-	2	-	2	-	-	-	-	-	3	-	-
5	3	-	-	-	2	-	2	-	-	-	-	-	3	-	-
Low (1); Medium (2); High (3)															

EE 8811 Project work	
CO 1	Infer any challenging practical problems and find solution by formulating proper methodology.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	3	3	1	-	2	-	-	-	-	1	2	1	3
Low (1); Medium (2); High (3)															


 Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

Department of Mechanical Engineering
CO PO mapping
Regulation 2017

MA8353 TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS	
CO 1	Understand how to solve the given standard partial differential equations.
CO 2	Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.
CO 3	Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations
CO 4	Understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.
CO 5	Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	2	2	1	-	3	3	-	-	-	-	-	-
2	2	3	2	1	1	-	-	3	3	-	-	-	-	-	-
3	3	2	3	-	1	2	1	3	2	-	-	-	-	-	-
4	3	3	3	1	1	-	-	3	3	-	-	-	-	-	-
5	3	3	3	1	-	1	-	3	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8391ENGINEERING THERMODYNAMICS	
CO 1	Apply the first law of thermodynamics for simple open and closed systems under steady and unsteady conditions.
CO 2	Apply second law of thermodynamics to open and closed systems and calculate entropy and availability.
CO 3	Apply Rankine cycle to steam power plant and compare few cycle improvement methods.
CO 4	Derive simple thermodynamic relations of ideal and real gases.
CO 5	Calculate the properties of gas mixtures and moist air and its use in psychometric processes

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	1	2	1	3	3	1	-	-	-	-	-	-
2	3	3	3	1	2	1	3	3	1	-	-	-	-	-	-
3	3	3	3	1	2	1	3	3	1	-	-	-	-	-	-
4	3	3	3	1	2	1	3	3	1	-	-	-	-	-	-
5	3	3	3	1	2	1	3	3	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)

R. P. Palsan Kennedy
DR. R. PALSON KENNEDY, M.A., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 748.

CE8394 FLUID MECHANICS AND MACHINERY

CO 1	Apply mathematical knowledge to predict the properties and characteristics of a fluid.
CO 2	Can analyse and calculate major and minor losses associated with pipe flow in piping networks.
CO 3	Can mathematically predict the nature of physical quantities.
CO 4	Can critically analyse the performance of pumps.
CO 5	Can critically analyse the performance of turbines

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	-	1	-	-	-	-	-	-	-	-	-	-
2	3	3	3	1	1	1	-	-	-	-	-	-	-	-	-
3	3	2	3	2	2	-	-	-	-	-	-	-	-	-	-
4	3	3	3	-	2	-	-	-	-	-	-	-	-	-	-
5	3	3	3	-	2	-	-	-	-	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8351 MANUFACTURING TECHNOLOGY – I

CO 1	Explain different metal casting processes, associated defects, merits and demerits.
CO 2	Compare different metal joining processes.
CO 3	Summarize various hot working and cold working methods of metals.
CO 4	Explain various sheet metal making processes.
CO 5	Distinguish various methods of manufacturing plastic components

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	-	3	3	3	3	-	3	3	-	-	-	-	-	-
2	-	-	3	3	3	3	1	2	3	-	-	-	-	-	-
3	-	1	3	2	3	2	-	3	3	-	-	-	-	-	-
4	1	-	3	3	3	3	1	2	2	-	-	-	-	-	-
5	-	-	3	3	3	3	-	3	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)

EE8353 ELECTRICAL DRIVES AND CONTROLS

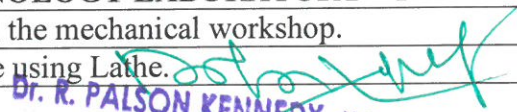
CO 1	Understand the basic concepts of different types of electrical machines and their performance.
CO 2	Knowledge about D.C motors and induction motors.
CO 3	Knowledge about the conventional and solid-state drives.
CO 4	Understanding the conventional and solid state speed control of D.C drives.
CO 5	Understanding the conventional and solid state speed control of A.C drives

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	1	-	1	1	-	-	1	-	-	-	-	-	-	-
2	1	1	-	1	1	-	-	1	1	-	-	-	-	-	-
3	1	1	-	1	1	-	-	1	-	-	-	-	-	-	-
4	1	1	-	1	1	-	-	1	1	-	-	-	-	-	-
5	1	1	-	1	1	-	-	1	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8361 MANUFACTURING TECHNOLOGY LABORATORY – I

CO 1	Demonstrate the safety precautions exercised in the mechanical workshop.
CO 2	Make the workpiece as per given shape and size using Lathe.
CO 3	Join two metals using arc welding.
CO 4	Use sheet metal fabrication tools and make simple tray and funnel.
CO 5	Use different moulding tools, patterns and prepare sand moulds.


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	-	3	3	3	3	-	3	3	-	-	-	-	-	-
2	-	-	3	3	3	3	1	2	3	-	-	-	-	-	-
3	-	1	3	2	3	2	-	3	3	-	-	-	-	-	-
4	1	-	3	3	3	3	1	2	2	-	-	-	-	-	-
5	-	-	3	3	3	3	-	3	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8381 COMPUTER AIDED MACHINE DRAWING LABORATORY	
CO 1	Ability to draw assembly drawings both manually and using standard CAD packages.
CO 2	Understand and interpret drawings of machine components.
CO 3	Follow the drawing standards, Fits and Tolerances.
CO 4	Re-create part drawings, sectional views and assembly drawings as per standards.
CO 5	Knowledge in handling 2D drafting, 3D modeling and Dimensioning.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	-	3	3	3	3	-	3	3	-	-	-	-	-	-
2	-	-	3	3	3	3	1	2	3	-	-	-	-	-	-
3	-	1	3	2	3	2	-	3	3	-	-	-	-	-	-
4	1	-	3	3	3	3	1	2	2	-	-	-	-	-	-
5	-	-	3	3	3	3	-	3	3	-	-	-	-	-	-

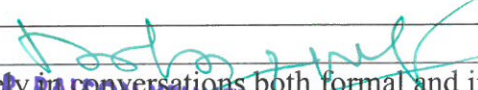
Low (1); Medium (2); High (3)

EE8361 ELECTRICAL ENGINEERING LABORATORY	
CO 1	Ability to perform speed characteristic of different electrical machine.
CO 2	EE8361.2 Ability to perform Load test on DC Shunt & DC Series motor.
CO 3	EE8361.3 Ability to perform Speed control of DC shunt motor.
CO 4	EE8361.4 Ability to perform O.C & S.C Test on a single phase transformer.
CO 5	EE8361.5 Ability to perform Load test on three phase squirrel cage Induction motor.
CO 6	EE8361.6 Ability to perform Speed control of three phase slip ring Induction Motor

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	1	3	-	2	-	1	1	1	-	-	-	-	-	-
2	1	1	3	-	2	1	1	1	1	-	-	-	-	-	-
3	1	1	3	-	2	1	1	1	1	-	-	-	-	-	-
4	1	1	3	-	2	1	1	1	1	-	-	-	-	-	-
5	1	1	3	-	2	-	1	1	1	-	-	-	-	-	-
6	1	1	3	-	2	2	1	1	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)

HS8381 INTERPERSONAL SKILLS/LISTENING & SPEAKING	
CO 1	Listen and respond appropriately.
CO 2	HS8381.2 Participate in group discussions
CO 3	HS8381.3 Make effective presentations
CO 4	HS8381.4 Participate confidently and appropriately in conversations both formal and informal.


DR. P. FALSON KENNEDY, M.E., Ph.D.,
PRINCIPAL
PFRI INSTITUTE OF TECHNOLOGY
Marinivakkam, Chennai - 600 043.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	1	3	-	-	1	1	-	-	-	-	-	-	-	-
2	-	-	3	1	-	1	1	-	-	-	-	-	-	-	-
3	1	-	3	1	-	-	1	-	-	-	-	-	-	-	-
4	1	-	3	1	-	1	1	-	-	-	-	-	-	-	-

Low (1); Medium (2); High (3)

MA8452 STATISTICS AND NUMERICAL METHODS

CO 1	Apply the concept of testing of hypothesis for small and large samples in real life problems.
CO 2	Apply the basic concepts of classifications of design of experiments in the field of agriculture.
CO 3	Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.
CO 4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
CO 5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	-	-	1	1	-	1	1	-	-	-	-	-	-
2	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
3	3	3	-	1	-	-	-	-	-	-	-	-	-	-	-
4	3	2	-	-	1	1	-	2	1	-	-	-	-	-	-
5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8492 KINEMATICS OF MACHINERY

CO 1	Discuss the basics of mechanism.
CO 2	Calculate velocity and acceleration in simple mechanisms.
CO 3	Develop CAM profiles.
CO 4	Solve problems on gears and gear trains.
CO 5	Examine friction in machine elements.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	-	3	1	-	-	-	-	-	-	-	-	-
2	3	3	3	-	3	-	-	-	1	-	-	-	-	-	-
3	3	3	3	1	3	-	1	-	-	-	-	-	-	-	-
4	3	2	3	-	2	-	-	-	1	-	-	-	-	-	-
5	2	3	3	-	3	-	1	-	-	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8451 MANUFACTURING TECHNOLOGY – II

CO 1	Explain the mechanism of material removal processes.
CO 2	Describe the constructional and operational features of centre lathe and other special purpose lathes.
CO 3	Describe the constructional and operational features of shaper, planner, milling, drilling, sawing and broaching machines.
CO 4	Explain the types of grinding and other super finishing processes apart from gear manufacturing processes.
CO 5	Summarize numerical control of machine tools and write a part program

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	1	3	3	3	-	1	3	3	-	-	-	-	-	-
2	3	-	3	3	3	1	-	3	3	-	-	-	-	-	-
3	3	1	3	3	3	-	1	3	3	-	-	-	-	-	-
4	3	-	2	3	3	1	-	2	3	-	-	-	-	-	-
5	3	1	3	3	3	-	1	3	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8491 ENGINEERING METALLURGY	
CO 1	Explain alloys and phase diagram, Iron-Iron carbon diagram and steel classification.
CO 2	Explain isothermal transformation, continuous cooling diagrams and different heat treatment processes.
CO 3	Clarify the effect of alloying elements on ferrous and non-ferrous metals.
CO 4	Summarize the properties and applications of non metallic materials.
CO 5	Explain the testing of mechanical properties.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	-	1	-	-	1	3	1	1	-	-	-	-	-	-
2	-	1	-	1	1	-	3	-	-	-	-	-	-	-	-
3	-	-	-	-	-	1	3	-	-	-	-	-	-	-	-
4	1	-	1	-	1	-	3	2	1	-	-	-	-	-	-
5	-	-	-	-	-	1	3	-	-	-	-	-	-	-	-

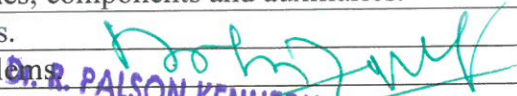
Low (1); Medium (2); High (3)

CE8395 STRENGTH OF MATERIALS FOR MECHANICAL ENGINEERS	
CO 1	Understand the concepts of stress and strain in simple and compound bars, the importance of principal stresses and principal planes.
CO 2	Understand the load transferring mechanism in beams and stress distribution due to shearing force and bending moment.
CO 3	Apply basic equation of simple torsion in designing of shafts and helical spring.
CO 4	Calculate the slope and deflection in beams using different methods.
CO 5	Analyze and design thin and thick shells for the applied internal and external pressures.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	-	-	-	1	-	-	-	-	-	-	-
2	3	3	3	3	1	-	1	-	1	-	-	-	-	-	-
3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-
4	2	3	3	3	-	1	-	1	-	-	-	-	-	-	-
5	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8493 THERMAL ENGINEERING – I	
CO 1	Apply thermodynamic concepts to different air standard cycles and solve problems.
CO 2	Solve problems in single stage and multistage air compressors.
CO 3	Explain the functioning and features of IC engines, components and auxiliaries.
CO 4	Calculate performance parameters of IC Engines.
CO 5	Explain the flow in Gas turbines and solve problems.


R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Marthandapuram, Tamil Nadu - 625 013

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	-	1	3	-	1	-	-	-	-	-	-	-	-
2	3	3	1	-	3	1	1	-	-	-	-	-	-	-	-
3	3	3	-	-	3	-	1	-	-	-	-	-	-	-	-
4	3	3	-	1	3	1	-	-	-	-	-	-	-	-	-
5	3	3	-	-	3	-	-	-	-	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8462 MANUFACTURING TECHNOLOGY LABORATORY – II	
CO 1	Use different machine tools to manufacturing gears.
CO 2	Ability to use different machine tools to manufacturing gears.
CO 3	Ability to use different machine tools for finishing operations.
CO 4	Ability to manufacture tools using cutter grinder.
CO 5	Develop CNC part programming

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	1	3	-	1	-	1	-	1	-	-	-	-	-	-
2	1	-	3	1	-	1	1	-	1	-	-	-	-	-	-
3	1	1	3	1	-	2	1	-	1	-	-	-	-	-	-
4	1	-	3	1	-	1	1	-	-	-	-	-	-	-	-
5	-	1	3	-	1	-	1	-	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)

CE 8381 STRENGTH OF MATERIALS AND FLUID MECHANICS AND MACHINERY LABORATORY	
CO 1	Understand the mechanical properties of materials when subjected to different types of loading.
CO 2	Ability to perform Tension & Torsion tests on Solid materials.
CO 3	Ability to perform Hardness & Compression test on Solid materials.
CO 4	Ability to perform Deformation test on Solid materials

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	-	3	1	-	1	1	-	1	-	-	-	-	-	-
2	1	1	3	1	-	-	1	-	1	-	-	-	-	-	-
3	1	-	3	1	-	1	1	-	-	-	-	-	-	-	-
4	-	1	3	-	1	-	1	-	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)

HS 8461 ADVANCED READING AND WRITING	
CO 1	Write different types of essays.
CO 2	Write winning job applications.
CO 3	Read and evaluate texts critically.
CO 4	Display critical thinking in various professional contexts

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	1	1	-	-	3	-	-	3	-	-	-	-	-	-
2	-	-	1	1	-	3	-	-	3	-	-	-	-	-	-
3	1	-	1	1	-	3	-	-	3	-	-	-	-	-	-
4	1	-	1	2	-	3	-	-	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)

DR. R. PALSON KENNEDY, M.E., PH.D.,
 PRINCIPAL
 PEST INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 043.

ME8595 THERMAL ENGINEERING – II

CO 1	Solve problems in Steam Nozzle.
CO 2	Explain the functioning and features of different types of Boilers and auxiliaries and calculate performance parameters.
CO 3	Explain the flow in steam turbines, draw velocity diagrams for steam turbines and solve problems.
CO 4	Summarize the concept of Cogeneration, Working features of Heat pumps and Heat exchangers.
CO 5	Solve problems using refrigerant table / charts and psychrometric charts.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	1	2	3	1	1	3	2	-	-	-	-	-	-
2	3	3	1	1	3	1	1	3	1	-	-	-	-	-	-
3	3	3	1	1	3	1	1	3	1	-	-	-	-	-	-
4	3	3	1	1	3	1	1	3	1	-	-	-	-	-	-
5	3	3	1	2	3	1	1	3	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8593 DESIGN OF MACHINE ELEMENTS

CO 1	Understand the influence of steady and variable stresses in machine component design.
CO 2	Apply the concepts of design to shafts, keys and couplings.
CO 3	Apply the concepts of design to temporary and permanent joints.
CO 4	Apply the concepts of design to energy absorbing members, connecting rod and crank shaft.
CO 5	Apply the concepts of design to bearings.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	3	2	3	1	1	3	3	3	-	-	-	-	-	-
2	1	3	1	3	1	1	3	3	3	-	-	-	-	-	-
3	2	3	1	3	1	1	3	3	3	-	-	-	-	-	-
4	1	3	1	3	1	2	3	3	3	-	-	-	-	-	-
5	1	3	1	3	1	1	3	3	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8501 METROLOGY AND MEASUREMENTS

CO 1	Describe the concepts of measurements to apply in various metrological instruments
CO 2	Outline the principles of linear and angular measurement tools used for industrial applications
CO 3	Explain the procedure for conducting computer aided inspection
CO 4	Demonstrate the techniques of form measurement used for industrial components
CO 5	Discuss various measuring techniques of mechanical properties in industrial applications

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	1	3	3	2	1	3	3	1	-	-	-	-	-	-
2	3	1	3	3	1	1	3	3	1	-	-	-	-	-	-
3	3	1	3	3	1	1	3	3	1	-	-	-	-	-	-
4	3	1	3	3	1	1	3	3	1	-	-	-	-	-	-
5	3	1	3	3	1	1	3	3	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8594 DYNAMICS OF MACHINES

CO 1	Calculate static and dynamic forces of mechanisms.
CO 2	Calculate the balancing masses and their locations of reciprocating and rotating masses.
CO 3	Compute the frequency of free vibration.
CO 4	Compute the frequency of forced vibration and damping coefficient.
CO 5	Calculate the speed and lift of the governor and estimate the gyroscopic effect on automobiles, ships and airplanes

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	-	3	-	3	-	3	-	-	-	-	-	-
2	3	3	3	1	3	1	3	1	3	-	-	-	-	-	-
3	3	3	3	1	3	-	3	1	3	-	-	-	-	-	-
4	3	3	3	-	3	-	3	-	3	-	-	-	-	-	-
5	3	3	3	1	3	1	3	1	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8511 KINEMATICS AND DYNAMICS LABORATORY

CO 1	Explain gear parameters, kinematics of mechanisms, gyroscopic effect and working of lab equipments.
CO 2	Determine mass moment of inertia of mechanical element, governor effort and range sensitivity, natural frequency and damping coefficient, torsional frequency, critical speeds of shafts, balancing mass of rotating and reciprocating masses, and transmissibility ratio.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	1	1	-	1	-	-	-	-	-	-	-
2	3	3	3	3	1	1	-	1	1	-	-	-	-	-	-

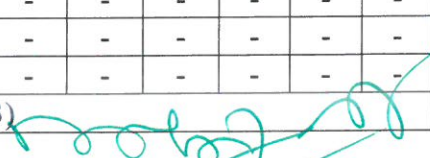
Low (1); Medium (2); High (3)

ME8512 THERMAL ENGINEERING LABORATORY

CO 1	Conduct tests on heat conduction apparatus and evaluate thermal conductivity of materials.
CO 2	Conduct tests on natural and forced convective heat transfer apparatus and evaluate heat transfer coefficient.
CO 3	Conduct tests on radiative heat transfer apparatus and evaluate Stefan Boltzmann constant and emissivity.
CO 4	Conduct tests to evaluate the performance of parallel/counter flow heat exchanger apparatus and reciprocating air compressor.
CO 5	Conduct tests to evaluate the performance of refrigeration and airconditioning test rigs.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	-	1	-	-	-	-	-	-	-	-	-	-
2	3	3	3	1	1	1	-	1	-	-	-	-	-	-	-
3	3	3	3	1	1	1	-	1	1	-	-	-	-	-	-
4	3	3	3	-	1	-	-	-	-	-	-	-	-	-	-
5	3	3	3	1	1	1	-	1	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannarkur, Chennai

ME8513 METROLOGY AND MEASUREMENTS LABORATORY

CO 1	Explain gear parameters, kinematics of mechanisms, gyroscopic effect and working of lab equipments.
CO 2	Determine mass moment of inertia of mechanical element, governor effort and range sensitivity, natural frequency and damping coefficient, torsional frequency, critical speeds of shafts, balancing mass of rotating and reciprocating masses, and transmissibility ratio.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	1	-	3	1	-	-	-	-	-	-	-
2	3	3	3	3	1	-	3	1	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8651 DESIGN OF TRANSMISSION SYSTEMS

CO 1	Apply the concepts of design to belts, chains and rope drives.
CO 2	Apply the concepts of design to spur, helical gears.
CO 3	Apply the concepts of design to worm and bevel gears.
CO 4	Apply the concepts of design to gear boxes.
CO 5	Apply the concepts of design to cams, brakes and clutches

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	3	1	3	1	-	3	1	3	-	-	-	-	-	-
2	1	3	-	3	-	-	3	1	3	-	-	-	-	-	-
3	1	3	2	3	1	1	3	1	3	-	-	-	-	-	-
4	1	3	1	3	-	-	3	1	3	-	-	-	-	-	-
5	1	3	1	3	1	-	3	1	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8691 COMPUTER AIDED DESIGN AND MANUFACTURING

CO 1	Explain the 2D and 3D transformations, clipping algorithm, Manufacturing models and Metrics
CO 2	Explain the fundamentals of parametric curves, surfaces and Solids
CO 3	Summarize the different types of Standard systems used in CAD
CO 4	Apply NC & CNC programming concepts to develop part programme for Lathe & Milling Machines
CO 5	Summarize the different types of techniques used in Cellular Manufacturing and FMS

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	3	3	1	3	1	1	1	1	-	-	-	-	-	-
2	1	3	3	1	3	1	2	1	1	-	-	-	-	-	-
3	1	3	3	2	3	1	1	1	2	-	-	-	-	-	-
4	1	3	3	1	3	1	1	2	1	-	-	-	-	-	-
5	1	3	3	1	3	2	1	1	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8693 HEAT AND MASS TRANSFER

CO 1	Apply heat conduction equations to different surface configurations under steady state and transient conditions and solve problems
CO 2	Apply free and forced convective heat transfer correlations to internal and external flows through/over various surface configurations and solve problems
CO 3	Explain the phenomena of boiling and condensation, apply LMTD and NTU methods of thermal analysis to different types of heat exchanger configurations and

	solve problems
CO 4	Explain basic laws for Radiation and apply these principles to radiative heat transfer between different types of surfaces to solve problems
CO 5	Apply diffusive and convective mass transfer equations and correlations to solve problems for different applications

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	2	1	1	3	3	-	-	-	-	-	-
2	3	3	3	3	1	1	1	3	3	-	-	-	-	-	-
3	3	3	3	3	1	1	1	3	3	-	-	-	-	-	-
4	3	3	3	3	1	1	1	3	3	-	-	-	-	-	-
5	3	3	3	3	2	1	1	3	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8692 FINITE ELEMENT ANALYSIS	
CO 1	Summarize the basics of finite element formulation.
CO 2	Apply finite element formulations to solve one dimensional Problems.
CO 3	Apply finite element formulations to solve two dimensional scalar Problems.
CO 4	Apply finite element method to solve two dimensional Vector problems.
CO 5	Apply finite element method to solve problems on iso parametric element and dynamic Problems.

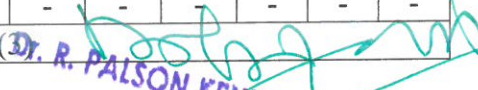
CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	1	3	1	1	1	1	3	-	-	-	-	-	-
2	3	3	1	3	1	1	2	1	3	-	-	-	-	-	-
3	3	3	2	3	1	2	1	1	3	-	-	-	-	-	-
4	3	3	1	3	1	1	1	2	3	-	-	-	-	-	-
5	3	3	1	3	1	1	1	1	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8694 HYDRAULICS AND PNEUMATICS	
CO 1	Explain the Fluid power and operation of different types of pumps.
CO 2	Summarize the features and functions of Hydraulic motors, actuators and Flow control valves
CO 3	Explain the different types of Hydraulic circuits and systems.
CO 4	Explain the working of different pneumatic circuits and systems.
CO 5	Summarize the various trouble shooting methods and applications of hydraulic and pneumatic systems.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	-	3	3	1	-	3	-	-	-	-	-	-	-
2	3	3	1	3	3	1	-	3	1	-	-	-	-	-	-
3	3	3	1	3	2	-	-	3	-	-	-	-	-	-	-
4	3	3	1	3	3	1	-	3	-	-	-	-	-	-	-
5	3	3	-	3	3	1	-	3	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)


DR. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

ME8681 CAD / CAM LABORATORY

CO 1	Draw 3D and Assembly drawing using CAD software
CO 2	Demonstrate manual part programming with G and M codes using CAM.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	1	3	3	1	-	3	1	-	2	-	-	-	-	-	-
2	-	3	3	1	-	3	1	-	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)

HS8581 PROFESSIONAL COMMUNICATION

CO 1	Make effective presentations
CO 2	Participate confidently in Group Discussions.
CO 3	Attend job interviews and be successful in them.
CO 4	Develop adequate Soft Skills required for the workplace.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	1	1	-	-	3	3	-	3	-	-	-	-	-	-
2	-	-	1	1	-	3	3	-	3	-	-	-	-	-	-
3	-	-	-	-	-	3	3	-	2	-	-	-	-	-	-
4	-	1	1	-	-	3	3	-	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8792 POWER PLANT ENGINEERING

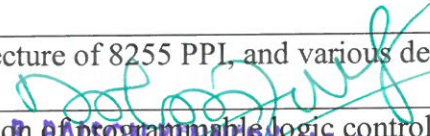
CO 1	Explain the layout, construction and working of the components inside a thermal power plant.
CO 2	Explain the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants.
CO 3	Explain the layout, construction and working of the components inside nuclear power plants.
CO 4	Explain the layout, construction and working of the components inside Renewable energy power plants.
CO 5	Explain the applications of power plants while extend their knowledge to power plant economics and environmental hazards and estimate the costs of electrical energy production

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	3	1	1	-	3	-	-	-	-	-	-	-
2	3	3	3	2	1	-	1	3	1	-	-	-	-	-	-
3	3	2	3	3	-	-	1	3	2	-	-	-	-	-	-
4	3	3	3	2	1	-	1	3	-	-	-	-	-	-	-
5	3	3	3	3	-	1	-	3	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8791 MECHATRONICS

CO 1	Computer Systems for the Control of Mechanical, Electronic Systems and sensor technology.
CO 2	Discuss the architecture of Microprocessor and Microcontroller, Pin Diagram, Addressing Modes of Microprocessor and Microcontroller.
CO 3	Discuss Programmable Peripheral Interface, Architecture of 8255 PPI, and various device interfacing.
CO 4	Explain the architecture, programming and application of Programmable logic controllers to problems and challenges in the areas of Mechatronic engineering.
CO 5	Discuss various Actuators and Mechatronics system using the knowledge and skills acquired through the course and also from the given case studies.


DR. PARSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	1	3	1	-	3	3	-	-	-	-	-	-
2	3	3	3	1	2	-	1	3	3	-	-	-	-	-	-
3	3	2	3	-	3	-	1	3	3	-	-	-	-	-	-
4	3	3	3	-	2	-	1	3	3	-	-	-	-	-	-
5	3	3	3	-	3	1	-	3	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8793 PROCESS PLANNING AND COST ESTIMATION	
CO 1	Select the process, equipment and tools for various industrial products.
CO 2	Prepare process planning activity chart.
CO 3	Explain the concept of cost estimation.
CO 4	Compute the job order cost for different type of shop floor.
CO 5	Calculate the machining time for various machining operations.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	3	-	3	1	-	1	-	1	-	-	-	-	-	-
2	1	3	1	3	-	1	-	1	1	-	-	-	-	-	-
3	-	3	1	3	-	-	-	1	2	-	-	-	-	-	-
4	1	3	1	3	-	1	-	1	1	-	-	-	-	-	-
5	-	3	-	3	1	-	1	-	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8711 SIMULATION AND ANALYSIS LABORATORY	
CO 1	Simulate the working principle of air conditioning system, hydraulic and pneumatic cylinder and cam follower mechanisms using MATLAB.
CO 2	Analyze the stresses and strains induced in plates, brackets and beams and heat transfer problems.
CO 3	Calculate the natural frequency and mode shape analysis of 2D components and beams.

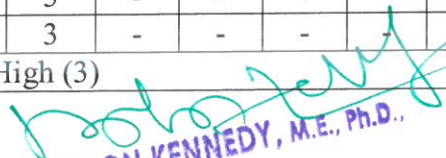
CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	1	1	1	3	1	3	1	1	-	-	-	-	-	-
2	3	1	1	1	3	1	3	2	1	-	-	-	-	-	-
3	3	1	1	1	3	1	3	1	1	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8781 MECHATRONICS LABORATORY	
CO 1	Demonstrate the functioning of mechatronics system with various pneumatic, hydraulic and electrical systems.
CO 2	Demonstrate the functioning of control systems with the help of PLC and microcontrollers.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	1	3	1	-	3	3	-	-	-	-	-	-
2	3	3	3	1	2	-	1	3	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)


DR. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannarkulam, Chennai - 600 030.

ME8793 PROCESS PLANNING AND COST ESTIMATION

C Upon completion of the course, students will be able to have clear understanding of managerial functions like planning, organizing, staffing, leading & controlling and have same basic knowledge on international aspect of management

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	-	2	2	1	3	3	2	3	-	-	-	-	-	-
2	1	1	1	1	-	3	2	1	3	-	-	-	-	-	-
3	1	-	1	2	-	3	2	-	3	-	-	-	-	-	-
4	1	-	1	1	2	3	2	1	3	-	-	-	-	-	-
5	-	-	2	1	1	3	2	-	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)

ME8811 PROJECT WORK

CO On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	3	3	2	1	3	3	1	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)


IE8693 PRODUCTION PLANNING AND CONTROL

CO 1 Upon completion of this course, the students can able to prepare production planning and control activities such as work study, product planning, production scheduling, Inventory Control.

CO 2 They can plan manufacturing requirements manufacturing requirement Planning (MRP II) and Enterprise Resource Planning (ERP).

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	2	-	1	3	-	1	3	3	-	-	-	-	-	-
2	3	1	1	1	3	1	1	3	3	-	-	-	-	-	-

Low (1); Medium (2); High (3)


DR. R. PALSON KENNEDY, M.E., Ph.D.
 PRINCIPAL
 AECI INSTITUTE OF TECHNOLOGY
 High Tech Park, Chennai - 600 096

Department of Science and Humanities

CO PO mapping

Regulation 2017

HS8151 TECHNICAL ENGLISH	
CO 1	Read technical texts and write area specific texts specifically
CO 2	Listen and comprehend lectures and talks in their areas of specialization successfully
CO 3	Describe a process through technical texts
CO 4	Speak appropriately and effectively in varied formal and informal contexts
CO 5	Write short essays of a general kind and personal letters and emails in English

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	-	-	-	-	-	-	1	2	2	-	2	-	-	-
2	-	-	-	-	-	-	-	2	2	2	-	2	-	-	-
3	-	-	-	-	-	-	-	2	3	3	-	2	-	-	-
4	-	-	-	-	-	-	-	2	3	3	-	3	-	-	-
5	-	-	-	-	-	-	-	2	3	3	-	2	-	-	-

Low (1); Medium (2); High (3)

HS8251 COMMUNICATIVE ENGLISH	
CO 1	Read articles of a general kind in magazines and newspapers
CO 2	Participate effectively in informal conversations; introduce themselves and their friends.
CO 3	Express opinions and talk about routine actions
CO 4	comprehend conversations and short talks delivered in English
CO 5	Write short essays of a general kind and personal letters and emails in English

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	-	-	-	-	-	-	1	2	2	-	2	-	-	-
2	-	-	-	-	-	-	-	1	2	2	-	2	-	-	-
3	-	-	-	-	-	-	-	1	3	3	-	3	-	-	-
4	-	-	-	-	-	-	-	2	3	3	-	2	-	-	-
5	-	-	-	-	-	-	-	2	3	3	-	2	-	-	-

Low (1); Medium (2); High (3)

Dr. R. Palson Kennedy, M.E., Ph.D.
PRINCIPAL
PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048.

CY8151 ENGINEERING CHEMISTRY	
CO 1	To understand the water related problems in boilers and their treatment techniques.
CO 2	To understand the concept and applications of adsorption in the field of water and air pollution abatement.
CO 3	To apply phase rule in the alloying and the behaviour of one component and two component systems using phase diagram
CO 4	To recommend suitable fuels for engineering processes and applications.
CO 5	To recognize different forms of energy resources and apply them for suitable applications in energy sectors.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	-	-	-	1	2	-	-	-	-	1	2	2	-
2	2	2	-	-	-	1	2	-	-	-	-	1	2	2	-
3	3	3	-	-	-	2	2	-	-	-	-	2	3	3	-
4	3	3	-	-	-	2	3	-	-	-	-	2	3	3	-
5	3	3	-	-	-	2	3	-	-	-	-	2	3	3	-

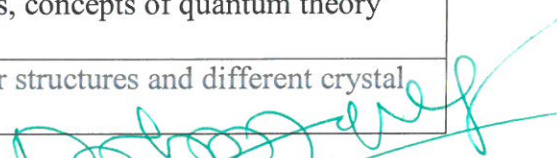
Low (1); Medium (2); High (3)

GE8291 ENVIRONMENTAL SCIENCE AND ENGINEERING	
CO 1	Explaining the concepts of different ecosystem and biodiversity present. Applying the basic concepts of science and engineering for pollution abatement
CO 2	Understanding the basic concepts of science and engineering for pollution abatement
CO 3	Explaining the different types of natural resources, usage and exploitation
CO 4	Implementing scientific, technological, and economic solutions to environmental problems
CO 5	Outline on the impact of population on environment

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1	1	-	-	2	3	2	1	-	-	1	2	1	1
2	2	1	1	-	-	2	3	2	1	-	-	2	2	1	1
3	2	1	1	-	-	2	3	2	1	-	-	1	2	1	1
4	2	1	1	-	-	2	3	2	1	-	-	1	2	1	1
5	2	1	1	-	-	2	3	2	1	-	-	1	2	1	1

Low (1); Medium (2); High (3)

PH3151 ENGINEERING PHYSICS	
CO 1	Students will gain knowledge on the basic properties of matter and its applications
CO 2	students will acquire knowledge on the concept of waves and optical devices and their applications in fibre optics
CO 3	students will have adequate knowledge on the concepts of thermal properties of material and their application in expansion of heat exchanges
CO 4	The student will get knowledge on advances physics, concepts of quantum theory and its application in tunneling microscope
CO 5	The student will understand the basic of crystal their structures and different crystal growth techniques


Dr. R. FALSON KENNEDY, M.A., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 043.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2										2			
2	2	1										2			
3	2	2	1									2			
4	2	1										1			
5	2	2		1								1			

Low (1); Medium (2); High (3)

MA8151 ENGINEERING MATHEMATICS I

CO 1	Use both the limit definition and rules of differentiate function in differential equations.
CO 2	Apply differentiation to solve maxima and minima problems.
CO 3	Apply integrals both by using Integration and Trigonometric methods.
CO 4	Evaluate multiple integrals using techniques of integration (Double and Triple Integral).
CO 5	Evaluate various techniques in solving differential equations.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	-	-	-	-	-	-	1	-	-	2	2	2	-
2	3	3	-	-	-	-	-	-	2	-	-	3	3	3	-
3	3	3	-	-	-	-	-	-	2	-	-	3	3	3	-
4	3	3	-	-	-	-	-	-	2	-	-	3	3	3	-
5	3	3	-	-	-	-	-	-	2	-	-	3	3	3	-

Low (1); Medium (2); High (3)

MA8251 ENGINEERING MATHEMATICS II

CO 1	Eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices.
CO 2	Gradient, divergence and curl of a vector point function and related identities.
CO 3	Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification.
CO 4	Analytic functions, conformal mapping and complex integration.
CO 5	Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	-	-	-	-	-	-	1	-	-	1	2	2	-
2	2	2	-	-	-	-	-	-	1	-	-	2	2	2	-
3	2	2	-	-	-	-	-	-	1	-	-	2	2	2	-
4	2	2	-	-	-	-	-	-	1	-	-	2	2	2	-
5	3	3	-	-	-	-	-	-	3	-	-	2	3	3	-

Low (1); Medium (2); High (3)

(Signature)
Dr. R. PALSON KENNEDY, M.E., Ph.D.,

PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY
Mannivakkam, Chennai - 600 048

Department of Science and Humanities

CO PO mapping

Regulation 2021

HS3151 TECHNICAL ENGLISH	
CO 1	Read technical texts and write area specific texts specifically
CO 2	Listen and comprehend lectures and talks in their areas of specialization successfully
CO 3	Describe a process through technical texts
CO 4	Speak appropriately and effectively in varied formal and informal contexts
CO 5	Write short essays of a general kind and personal letters and emails in English

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	-	-	-	-	-	-	1	2	2	-	2	-	-	-
2	-	-	-	-	-	-	-	2	2	2	-	2	-	-	-
3	-	-	-	-	-	-	-	2	3	3	-	2	-	-	-
4	-	-	-	-	-	-	-	2	3	3	-	3	-	-	-
5	-	-	-	-	-	-	-	2	3	3	-	2	-	-	-

Low (1); Medium (2); High (3)

HS3251 COMMUNICATIVE ENGLISH	
CO 1	Read articles of a general kind in magazines and newspapers
CO 2	Participate effectively in informal conversations; introduce themselves and their friends.
CO 3	Express opinions and talk about routine actions
CO 4	comprehend conversations and short talks delivered in English
CO 5	Write short essays of a general kind and personal letters and emails in English

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	-	-	-	-	-	-	-	1	2	2	-	2	-	-	-
2	-	-	-	-	-	-	-	1	2	2	-	2	-	-	-
3	-	-	-	-	-	-	-	1	3	3	-	3	-	-	-
4	-	-	-	-	-	-	-	2	3	3	-	2	-	-	-
5	-	-	-	-	-	-	-	2	3	3	-	2	-	-	-

Low (1); Medium (2); High (3)


Dr. R. PALSON KENNEDY, M.E., Ph.D.,

PRINCIPAL

PERI INSTITUTE OF TECHNOLOGY

K. J. Somaiya, Chennai - 600 072

CY3151 ENGINEERING CHEMISTRY	
CO 1	To understand the water related problems in boilers and their treatment techniques.
CO 2	To understand the concept and applications of adsorption in the field of water and air pollution abatement.
CO 3	To apply phase rule in the alloying and the behaviour of one component and two component systems using phase diagram
CO 4	To recommend suitable fuels for engineering processes and applications.
CO 5	To recognize different forms of energy resources and apply them for suitable applications in energy sectors.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	-	-	-	1	2	-	-	-	-	1	2	2	-
2	2	2	-	-	-	1	2	-	-	-	-	1	2	2	-
3	3	3	-	-	-	2	2	-	-	-	-	2	3	3	-
4	3	3	-	-	-	2	3	-	-	-	-	2	3	3	-
5	3	3	-	-	-	2	3	-	-	-	-	2	3	3	-

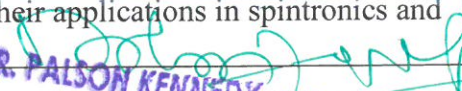
Low (1); Medium (2); High (3)

PH3151 ENGINEERING PHYSICS	
CO 1	Understand the importance of mechanics.
CO 2	Express their knowledge in electromagnetic waves.
CO 3	Demonstrate a strong foundational knowledge in oscillations, optics and lasers.
CO 4	Understand the importance of quantum physics.
CO 5	Comprehend and apply quantum mechanical principles towards the formation of energy

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	1									2	2	2	1
2	2	2	1									2	2	2	1
3	2	2	1									2	2	2	1
4	2	1										1	2	1	
5	3	3										2	3	3	

Low (1); Medium (2); High (3)

PH8253 Physics for Electronics Engineering	
CO 1	Gain knowledge on classical and quantum electron theories, and energy band structures.
CO 2	Acquire knowledge on basics of semiconductor physics and its applications in various devices.
CO 3	Get knowledge on magnetic and dielectric properties of materials.
CO 4	Have the necessary understanding on the functioning of optical materials for optoelectronics.
CO 5	Understand the basics of quantum structures and their applications in spintronics and carbon electronics.


DR. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	1										1	2	1	
2	2	2	1									1	2	2	1
3	2	1		1								2	2	1	
4	2	1	1									1	2	1	1
5	2	1	1									2	2	1	1

Low (1); Medium (2); High (3)

PH3256 Physics for Information science	
CO 1	Gain knowledge on classical and quantum electron theories, and energy band structures
CO 2	Acquire knowledge on basics of semiconductor physics and its applications in various devices
CO 3	Get knowledge on magnetic properties of materials and their applications in data storage
CO 4	Have the necessary understanding on the functioning of optical materials for optoelectronics
CO 5	Understand the basics of quantum structures and their applications and basics of quantum computing

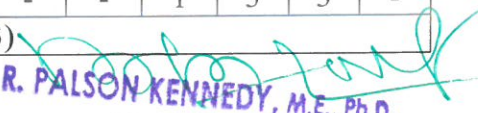
CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2		1								1	2	2	
2	2	2	1									1	2	2	1
3	2	2	1									2	2	2	1
4	2	2	2									2	2	2	2
5	2		2	1								2	2		2

Low (1); Medium (2); High (3)

MA3151 MATRICES AND CALCULAS	
CO 1	Use the matrix algebra methods for solving practical problems.
CO 2	Apply differential calculus tools in solving various application problems.
CO 3	Able to use differential calculus ideas on several variable functions.
CO 4	Apply different methods of integration in solving practical problems.
CO 5	Apply multiple integral ideas in solving areas, volumes and other practical problems.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	-	-	-	-	-	-	2	-	-	1	2	2	-
2	3	3	-	-	-	-	-	-	3	-	-	1	3	3	-
3	3	3	-	-	-	-	-	-	3	-	-	1	3	3	-
4	3	3	-	-	-	-	-	-	3	-	-	2	3	3	-
5	3	3	-	-	-	-	-	-	3	-	-	1	3	3	-

Low (1); Medium (2); High (3)


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannargudi, Tirupur, Tamil Nadu - 642 003.

MA3251 STATISTICS AND NUMERICAL METHOD

CO 1	Understand the concept of testing of hypothesis for small and large samples in real life problems.
CO 2	Apply the basic concepts of classifications of design of experiments in the field of agriculture.
CO 3	Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.
CO 4	Apply the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
CO 5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.

CO	PO												POS		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2	2	-	-	-	-	-	-	2	-	-	2	2	2	-
2	3	3	-	-	-	-	-	-	3	-	-	2	3	3	-
3	3	3	-	-	-	-	-	-	3	-	-	2	3	3	-
4	3	3	-	-	-	-	-	-	3	-	-	3	3	3	-
5	3	3	-	-	-	-	-	-	3	-	-	3	3	3	-
Low (1); Medium (2); High (3)															


Dr. R. PALSON KENNEDY, M.E., Ph.D.,
 PRINCIPAL
 PERI INSTITUTE OF TECHNOLOGY
 Mannivakkam, Chennai - 600 048.