

# **A.V.C. COLLEGE OF ENGINEERING**

**MANNAMPANDAL, MAYILADUTHURAI**  
**PO & PEO for All Programmes**

## **1.DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

### **The Program Educational Objectives (PEOs) are as follows:**

1. To provide fundamental knowledge in mathematics & basic sciences to enable to solve problems in Electronics and Communication Engineering.
2. To motivate students to come up with innovative ideas, design, simulation, develop and test software and hardware components to offer solution in modern engineering applications.
3. To build students with effective communication and productive managerial skills.
4. To produce graduates who have work effectively in a multi-disciplinary environment and individually, within a global, societal, and environmental context.
5. To inculcate students in professional ethics and codes of professional practice for succeeding in Professional career.

### **PROGRAMME OUTCOMES:**

Upon successful completion of the programme, the students would have the following attributes.

- a) An ability to apply knowledge of mathematics, science, and engineering as appropriate to the field of Electronics and Communication Engineering practice.
- b) An ability to utilize essential techniques and tools for modern engineering applications.
- c) An ability to work in multidisciplinary tasks.
- d) An ability to lead in their professional disciplines, organizations and communities around the world.
- e) An ability to communicate effectively.
- f) An ability to strictly adhere professional and ethical responsibilities.
- g) An ability to engage in lifelong learning to follow developments in Electronics and Communication Engineering.
- h) An ability to have knowledge of contemporary issues.

### **PROGRAM SPECIFIC OBJECTIVE'S (PSO)**

1. To analyze, design and develop solutions by applying basic concepts of Electronics and Communication Engineering.
2. To apply design principles and best practices for developing quality products for scientific and business applications.
3. To adapt to emerging Information and Communication technologies (ICT) to innovate ideas and solutions to existing /novel problems.

## **2.DEPARTMENT OF MECHANICAL ENGINEERING**

### **Programme Educational Objectives (PEOs)**

**PEO 1:** To create an ambient academic environment for students to learn engineering, Mathematics, Science And English essential for solving Mechanical Engineering problems

**PEO 2:** To prepare the students with technical knowledge and computing skills necessary to design, Analyze and create novel products and solutions for Mechanical Engineering problems.

**PEO 3:** Program educational objectives are broad statements that describe the career and professional accomplishments that the program is preparing the graduates to achieve.

**PEO 4:** To encourage students for lifelong learning, research and development with strong professional moral and ethical values.

### **Programme Out comes(Pos)**

The graduates have,

- (a) An ability to apply knowledge of mathematics, science and Mechanical Engineering.
- (b) An ability to design and conduct experiments, as well as Analyze and interpret data.
- (c) An ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, sociopolitical, ethical, health and safety, manufacturability and sustainability.
- (d) An ability to function on multidisciplinary teams.
- (e) An ability to identify, formulate and solve Mechanical engineering problems.
- (f) An understanding of professional and ethical responsibility.
- (g) An ability to communicate effectively.
- (h) The board of education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.
- (i) A recognition for the need and an ability to engage in life long learning.
- (j) A knowledge of contemporary issues and
- (k) An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

### **Programme Specific Out Comes (PSOs)**

Mechanical Engineering programme students will be able to:

**PSO 1:** Apply their Knowledge in the domain of Engineering Mechanics, thermal and fluid sciences to solve the engineering problems utilizing advanced technology with professional ethics.

**PSO 2:** Successfully apply the principles of design, analysis and implementation of mechanical systems/processes which have been learned as a part of the curriculum.

**PSO 3:** Develop and Implement new ideas on product design and development with the help of modern CAD/CAM tools, while ensuring best manufacturing practices.

### **3.DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

#### **Programme Educational Objectives (PEOs)**

**Graduates of this B.E Computer Science and Engineering will be able to**

**PEO 1:** Acquire sufficient depth of understanding of the fundamental areas of computer science to enable them for success in today's workplace

**PEO 2:** Apply tools in core technologies for improving knowledge in the field of computer science and its applications.

**PEO 3:** Exhibit their technical skills to analyze and design appropriate solutions with social consciousness and ethical values.

**PEO 4:** Acquire sufficient breadth of understanding to enable continued professional development and lifelong learning throughout their careers.

**PEO 5:** Acquire sufficient teamwork, communication and interpersonal skills to enable them to work with others effectively.

#### **Programme Outcomes (POs)**

**By the time of graduation, graduates will attain the following programme outcomes:**

- An ability to apply knowledge of computing and mathematics appropriate to the discipline
- An ability to analyze and identify a problem and define the computing requirements appropriate to its solution.
- Ability to design and build a system, component, process or a program for complex engineering problems.
- An ability to apply mathematical foundations, algorithmic principles and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices
- An ability to use current techniques, skills, and tools necessary for computing practice
- An understanding of professional, ethical, legal, security and social issues and responsibilities
- An ability to analyze the local and global impact of computing on individuals, organizations and society
- An ability to apply professional ethics and pledge to the norms/responsibilities in the engineering practice of Computer Science

- An ability to function individually and effectively on teams to accomplish a common goal.
- Ability to communicate effectively with peer community and society on complex software/system engineering activities through unambiguous spoken language, written reports, presentations.
- Ability to apply the knowledge of Engineering and Management principles to manage projects as a team member or leader in multidisciplinary teams.
- Ability to identify the need and engage in lifelong learning in the field of Computer Science and its related areas.

### **PROGRAM SPECIFIC OBJECTIVES (PSOs)**

- To analyze, design and develop computing solutions by applying foundational concepts of Computer Science and Engineering.
- To apply software engineering principles and practices for developing quality software for scientific And business applications.
- To adapt to emerging Information and Communication Technologies (ICT) to innovate ideas and solutions to existing/novel problems.

#### **4.DEPARTMENT OF INFORMATION TECHNOLOGY**

##### **PROGRAM EDUCATIONAL OBJECTIVES (PEOs)**

1. To ensure graduates will be proficient in utilizing the fundamental knowledge of basic sciences, mathematics and Information Technology for the applications relevant to various streams of Engineering and Technology.
2. To enrich graduates with the core competencies necessary for applying knowledge of computers and telecommunications equipment to store, retrieve, transmit, manipulate and analyze data in the context of business enterprise.
3. To enable graduates to think logically, pursue lifelong learning and will have the capacity to understand technical issues related to computing systems and to design optimal solutions.
4. To enable graduates to develop hardware and software systems by understanding the importance of social, business and environmental needs in the human context.
5. To enable graduates to gain employment in organizations and establish themselves as professionals by applying their technical skills to solve real world problems and meet the diversified needs of industry, academia and research.

## **PROGRAM OUTCOMES (POs)**

### **ENGINEERING GRADUATES WILL BE ABLE TO:**

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.
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 OBJECTIVES (PSOs)**

1. To create, select, and apply appropriate techniques, resources, modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

2. To manage complex IT projects with consideration of the human, financial, ethical and environmental factors and an understanding of risk management processes, and operational and policy implications.

## **5.DEPARTMENT OF INSTRUMENTATION AND CONTROL ENGINEERING**

### **PROGRAM EDUCATIONAL OBJECTIVES (PEOs)**

1. Graduate will solve real world problems appropriate to the discipline using foundation of mathematics, science and Instrumentation & Control Engineering.
2. Have a profound confidence that this Engineering program has been a worthwhile exercise and will continue to develop their knowledge and expertise.
3. To provide good knowledge of process automation and Instrumentation systems and their applications
4. To train the students to acquire communication skills to have an effective interaction globally.
5. Inculcate professional and ethical attitude and ability to relate automation issues to society at large.
6. To provide an opportunity to work in inter disciplinary groups.
7. Pursue their higher studies at the institutes of repute in India and abroad and work in educational institutions, research organizations and engineering consultancy companies.
8. Have the highest integrity, social responsibility, teamwork skills and leadership capabilities in their profession or career.

### **Programme Outcome (PO):**

- a) Ability to understand and apply mathematical concepts for engineering problems.
- b) Exposure to industrial applications for a clear understanding of the real time problems.
- c) Be able to apply the principles and practices for Instrumentation system design adhering to safety and regulatory standards.
- d) Ability to be a successful entrepreneur in the fields of Instrumentation and Control engineering and Industrial Automation.
- e) Demonstrate an understanding of Sensors, Transducers and Control system which leads to complete Automation system.
- f) An ability to communicate effectively in oral and written form while formulating project proposals and reports.
- g) Understand the impact of Professional Engineering solutions in societal and environmental contexts.
- h) Ability to function on multi-disciplinary teams.
- i) Ability to form groups and solve engineering hardware problems.
- j) Competent enough to succeed in national level competitive examinations in the field of Electronics, Instrumentation and Control Engineering.
- k) Understanding the social impact of automation, safety aspects of automation, hazards associated with various processes, environmental issues and professional ethics.
- l) Ability to select and apply latest hardware and software tools for various processes.

### **Program Specific Objectives (PSO):**

Bachelor of Instrumentation and Control Engineering Curriculum is designed to prepare the graduates having attitude and knowledge to

1. Have successful technical and Professional careers in their chosen fields such as Process Control, Electronics and Information Technology.
2. Engross in life long process of learning to keep themselves abreast of new developments in the field of Electronics and Instrumentation.

## **6.DEPARTMENT OF CIVIL ENGINEERING**

### **Programme Educational Objectives (PEOs)**

PEO 1: Become fully qualified Civil Engineers to meet the demand driven-needs in the field of Civil Engineering and allied professions.

PEO 2: Become competent to pursue higher study or research in any institute of repute across nations

PEO 3: Have ability to undertake challenging jobs and offer consultancy and testing services.

### **Programme Outcomes (POs)**

- The ability to apply knowledge of mathematics, science, and engineering.
- The ability to identify, formulate, and solve civil engineering problems.
- The understanding of the importance of teamwork, professional and ethical responsibilities
- The broad education necessary to comprehend the impact of engineering solutions in global, economic, environmental and societal contexts
- The ability to exploit modern techniques, skills and tools necessary for engineering practice.
- The passion to engage themselves in life-long learning.

### **PROGRAM SPECIFIC OBJECTIVES (PSOs)**

- The Graduated apply the concepts of mathematics through the application of differential calculus, properties of matter and thermal physics and phase rule and alloys in chemistry.
- The graduated apply the concepts of basic geometrical construction, preparation of plan, design of structural elements, specification, and prepare the estimates.
- The graduated will apply the tools for quality in construction, cost effective construction materials and methods.

## **7.DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

### **PROGRAM EDUCATIONAL OBJECTIVES**

1. To prepare the students have successful career in industry and motivate for higher education.
2. To provide strong foundation in basic science and mathematics necessary to formulate, solve and analyze electrical and electronics problems
3. To provide strong foundation in circuit theory, field theory, control theory and signal processing concepts.
4. To provide good knowledge of Electrical power apparatus and their applications in power systems
5. To provide knowledge on basic electronics to power electronics and their applications in power engineering
6. To provide an opportunity to work in inter disciplinary groups
7. To promote student awareness for life long learning and inculcate professional ethics
8. To provide necessary foundation on computational platforms and software applications related to the respective field of engineering.

### **PROGRAM OUTCOMES :**

A) Ability to understand and apply differential equations, integrals, matrix theory, probability theory and Laplace, Fourier and Z transformations for engineering problems

B) Ability to understand and apply basic science, circuit theory, Electro-magnetic field theory control theory and apply them to electrical engineering problems.

C) Ability to model and analyze electrical apparatus and their application to power system

D) Ability to understand and analyze power system operation, stability, control and protection.

E) Ability to handle the engineering aspects of electrical energy generation and utilization.

F) Ability to understand and analyse, linear and digital electronic circuits.

G) Ability to review, prepare and present technological developments

H) Ability to form a group and develop or solve engineering hardware and problems

I) To understand and apply computing platform and software for engineering problems.

J) To understand ethical issues, environmental impact and acquire management skills.

### **Programme Specific Outcomes (PSOs)**

Electrical & Electronics Engineering programme students will be able to:

**PSO1:-** Apply the knowledge of Mathematics, Science and Electrical Engineering fundamentals to solve complex problems in circuit and field theory, electrical machines, control systems, power systems and power electronics.

**PSO2:-** Apply appropriate techniques and modern engineering hardware and software tools in power systems and power electronics to engage in life-long learning and to get an employment in the field of Electrical and Electronics Engineering.

## 8.DEPARTMENT OF COMPUTER APPLICATIONS

### **Programme outcomes (Pos)**

- a. Pertains to grasp problem solving attitude and computing knowledge for delivering solutions to the system of complex nature.
- b. Tends to have software development skills in proprietary and open source softwares with the adequate knowledge of problem solving exposure in the respective domain.
- c. Tends to develop application software solutions by adopting standard development methodologies and appropriate software architecture.
- d. To gather, analyze and classify the functional and non-functional requirements of a software intensive system with the help of automated tools and techniques.
- e. Able to apply domain knowledge for solving complex problem with the aid of modern tools and techniques.
- f. Able to excel in descriptive oral, written communication and presentation skills which are required for documenting and delivering the project artifacts effectively.
- g. Strong understanding of managerial concepts and principles which are the required key skills for the both operational and strategic levels of software industry towards the successful execution of projects.
- h. Tends to sensitize and familiarize with managerial policies and procedures that suits for information technology managerial needs for the effective functioning of IT initiatives and other services such as staffing, training and development.
- i. To understand and familiarize with various information technology ethics for the effective delivery of code of conduct of computing profession.
- j. To expertise in software project development phases by attaining in-depth literature review of problem domain, comprehensive analysis of solution concerned, and implementing the same for transforming the project outcome in a successful manner.

## **Programme Educational Objectives PEO**

**PEO 1** : To excel in problem solving and programming skills in the various computing fields of IT Industries

**PEO 2** : To develop the ability to plan, analyze, design, code, test, implement and maintain a software product for real time system

**PEO -3** : To promote students capability to set up their own enterprise in various sectors of Computer applications

**PEO- 4** : To experience the students in finding solutions and developing system based applications for real time problems in various domains involving technical, managerial, economical & social constraints

**PEO- 5** : To prepare the students to pursue higher studies in computing or related disciplines and to work in the fields of teaching and research.

## **PROGRAM SPECIFIC OBJECTIVES (PSOs):**

1.Enable the students to select the suitable data model, appropriate architecture and platform to implement a system with good performance.

2. Enable the students to design and integrate various system based components to provide user interactive solutions for various challenges.



## 9.DEPARTMENT OF MANAGEMENT STUDIES

### **PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):**

1. MBA programme curriculum is designed to prepare the post graduate students
2. To have a thorough understanding of the core aspects of the business.
3. To provide the learners with the management tools to identify, analyze and create business opportunities as well as solve business problems.
4. To prepare them to have a holistic approach towards management functions.
5. To inspire and make them practice ethical standards in business.

### **PROGRAMME OUTCOMES (POs):**

On successful completion of the programme,

1. Ability to apply the business acumen gained in practice.
2. Ability to understand and solve managerial issues.
3. Ability to communicate and negotiate effectively, to achieve organizational and individual goals.
4. Ability to upgrade their professional and managerial skills in their workplace.
5. Ability to explore and reflect about managerial challenges, develop informed managerial decisions in a dynamically unstable environment.
6. Ability to take up challenging assignments.
7. Ability to understand one's own ability to set achievable targets and complete them.
8. Ability to pursue lifelong learning.
9. To have a fulfilling business career.

### **PROGRAMME SPECIFIC OBJECTIVES [PSOs]:**

**PSO1:** Students should demonstrate their critical thinking and Problem solving skills for their career progression.

**PSO2:** Students should exhibit their knowledge with integrative experience and experiential learning.

**PSO3:** Students should evince their ability to recognize when change is needed, adapt to change.