GMR Institute of Technology
An Autonomous Institute Affiliated to JNTU-GV

GMRIT Training Tomorrow's Engineers Today

1.1.1 PEOs, POs & PSOs for all programs

Index

Department of Civil Engineering

Program Educational Objectives (PEOs), Program Outcomes (POs) and Program Specific Outcomes (PSOs)

Program Educational Objectives (PEOs)

PEO 1: Employ logical and analytical skills in solving complex real-world engineering problems in the areas of civil engineering.

PEO 2: Adaptable to emerging technologies with enhanced professional skills and ability towards continuous learning, facilitating higher studies and research.

PEO 3: Demonstrate professional ethics, leadership qualities and promote inclusive and collaborative growth with human values towards societal interest.

Program Outcomes (POs):

Engineering graduate will be able to:

PO 1: Apply the knowledge of basic sciences and fundamental engineering concepts in solving civil engineering problems (**Engineering knowledge**)

PO 2: Identify and define civil engineering problems and investigate to analyze and interpret data to arrive at substantial conclusions. (**Problem analysis**)

PO 3: Propose appropriate solutions for engineering problems complying with functional constraints such as economic, environmental, societal, ethical, safety and sustainability in accordance with Indian standard codes of practices. (**Design/development of solutions**)

PO 4: Perform investigations, design and conduct experiments, analyze and interpret the results to provide valid conclusions. (**Conduct investigations of complex problems**)

PO 5: Select/develop and apply appropriate techniques and IT tools to analyze, design and scheduling of activities with an understanding of the limitations and successfully implement and adopt to technological changes in civil engineering with intervention of IT industries (**Modern tool usage**)

PO 6: Give reasoning and assess societal, health, legal and cultural issues with competency in professional engineering practice. (**The engineer and society**)

PO 7: Demonstrate professional skills and contextual reasoning to assess environmental/societal issues for sustainable development. (**Environment and sustainability**)

PO 8: Demonstrate knowledge of professional and ethical practices. (**Ethics**)

PO 9: Function effectively as an individual, and as a member or leader in diverse teams, and in multi- disciplinary situations. (**Individual and team work**)

PO 10: Communicate effectively with respect to oral, written and graphical communication (**Communication**)

PO 11: Demonstrate and apply engineering & management principles in their own / team projects in multidisciplinary environment. (**Project management and finance**)

PO 12: Recognize the need for, and have the ability to engage in independent and lifelong learning. (**Life-long learning**)

Program Specific Outcomes (PSOs):

Engineering graduate will be able to:

PSO 1: Demonstrate the quality and suitability of construction materials (**Program Specific**)

PSO 2: Ability to apply the practical aspect of analysis, design and safe construction practices (**Program Specific**)

Local relevance:

The need for proper MSW collection & transportation as well as processing & disposal has been realized by all the residents, service providers and the hospitality industry of Rajam. Courses like Environmental Engineering, Environmental Impact Assessment, Environmental Pollution and Solid Waste Management are aligned with MSW issues. Moreover, there are around 80 industries like fertilizer, rice mills, Sugar Industries around Rajam, to address the ground water contamination caused by these industries courses like Water resources Engineering, Hydrology, Environmental Studies are framed to address these issues. Courses like Communicative skills and language electives will help the students to develop the communicative skills of students as major part of students are from rural background

Regional relevance:

The meet out the regional requirements of Srikakulam district like ground water recharge, earthquake resistant structures (Seismic zone III) rehabilitation of distressed RC structures, courses like Repair and Rehabilitation of structures, Earthquake resistant design of structures, Prefabricated structures are designed to meet out the needs

National relevance:

Considering the initiatives taken by Government of India like National River Conservation scheme, swatch Bharath mission, smart cities, National Disaster management plan courses like Transportation Engineering, Geometric design & Highway Materials, Highway Project formulation and economics, Disaster management courses are designed

Global Relevance:

For implementation of new technologies and Integrated technology in live hood for global needs courses like Design of Industrial structures, Geospatial Techniques, Bridge Engineering, Prestressed Concrete Structure, Green Buildings

HOD-CE

Department of Civil Engineering
GMR Institute of Technology
Rajam-532 127., Srikakulam Dist.

Department of Electrical and Electronics Engineering

Program Outcomes (POs) and Program Specific Outcomes (PSOs)

PEOs

1. Graduates with ability to solve core engineering problems through continuous self-paced learning in tune with changing technologies
2. Reinforce engineering skills, critical thinking and problem-solving skills in professional engineering practices and deal with socio-economical, technical and business challenges
3. Nurture professionalism with soft skills, managerial & leadership skills and ethical values.

POs

1. Apply the knowledge of basic sciences and fundamental engineering concepts in solving Electrical and Electronics engineering problems (Engineering knowledge)
2. Identify and define Electrical and Electronics engineering problems and investigate to analyze and interpret data to arrive at substantial conclusions. (Problem analysis)
3. Propose appropriate solutions for engineering problems complying with functional constraints such as economic, environmental, societal, ethical, safety and sustainability in accordance with Indian standard codes of practices. (Design/ development of solutions)
4. Perform investigations, design and conduct experiments, analyze and interpret the results to provide valid conclusions. (Conduct investigations of complex problems)
5. Select/develop and apply appropriate techniques and IT tools to analyze, design and scheduling of activities with an understanding of the limitations and successfully implement and adopt to technological changes in Electrical and Electronics engineering with intervention of IT industries (Modern tool usage)
6. Give reasoning and assess societal, health, legal and cultural issues with competency in professional engineering practice. (The engineer and society)

HEAD
Dept. of Elect & Electronics Engg
GMR Institute of Technology
GMR Nagar, RAJAM-532 127

7. Demonstrate professional skills and contextual reasoning to assess environmental/societal issues for sustainable development. (Environment and sustainability)
8. Demonstrate knowledge of professional and ethical practices. (Ethics)
9. Function effectively as an individual, and as a member or leader in diverse teams, and in multi-disciplinary situations. (Individual and team work)
10. Communicate effectively with respect to oral, written and graphical communication (Communication)
11. Demonstrate and apply engineering & management principles in their own / team projects in multidisciplinary environment. (Project management and finance)
12. Recognize the need for, and have the ability to engage in independent and lifelong learning. (Life-long learning)

PSOs

1. Utilize statistics, transformation methods, discrete mathematics and application of differential equations in analysing and design of electrical/electronic systems. (Program Specific)
2. Analyse, design and implement control of electrical systems in any problem/application of electrical/electronic (s) engineering. (Program Specific)

HEAD
Dept. of Elect & Electronics Engg
GMR Institute of Technology
GMR Nagar, RAJAM-532 127

Local relevance:

Electricity is vital for economic development, technology growth and day to day activities in domestic, commercial and industrial applications. Courses like Power Generation, Transmission and Distribution, Power System Analysis and Control, Utilization of Electrical Energy, Electrical Distribution Systems are aligned in the curriculum to address the above specified issues. Moreover there are many industries like fertilizer, rice mills, Sugar Industries, oil mills around Rajam followed by agriculture pump sets, and domestic applications which needs various electrical machine drives. To address these issues courses like DC Machines and Transformers, AC Machines, Electrical Drives, Special Electrical Machines are aligned in the curriculum. Courses like Communicative skills and language electives will help the students to develop the communicative skills of students as major part of students are from rural background.

Regional relevance:

The meet out the regional requirements of Srikakulam district like power system fault identification and fault clearance, course like Power System Protection is designed to meet out the needs.

National relevance:

Considering the initiatives taken by Government of India towards the generation of renewable energy sources, courses like Renewable Energy Sources, Green Energy Technologies, Micro and Smart Grid Technologies, Energy Audit, Conservation and Management, courses are designed.

Global Relevance:

For implementation of new technologies and integrated technology in live hood for global needs courses like Electrical Vehicle Technologies, Electric Vehicle Drive Train Systems, and Battery Management Systems are designed.

HEAD
Dept. of Elect & Electronics Engg
GMR Institute of Technology
GMR Nagar, RAJAM-532 127

Department of Mechanical Engineering

Program Outcomes (POs) and Program Specific Outcomes (PSOs)

PEOs

1. Employ logical and analytical skills in solving complex real-world engineering problems in the areas of Mechanical Engineering and allied fields.
2. Adaptable to emerging technologies with enhanced professional skills and ability towards continuous learning, facilitating higher studies and research.
3. Demonstrate professional ethics, leadership qualities and promote inclusive and collaborative growth with human values towards societal interest.

POs

1. Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. (Engineering knowledge)
2. Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. (Problem analysis)
3. 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. (Design/development of solutions)
4. 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. (Conduct investigations of complex problems)
5. 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. (Modern tool usage)
6. 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. (The engineer and society)
7. Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. (Environment and sustainability)
8. Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. (Ethics)
9. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. (Individual and team work)

10. 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. (Communication)
11. 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. (Project management and finance)
12. 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. (Life-long learning)

PSOs

1. Demonstrate the knowledge and application of geometric modeling, design, analysis and simulation of mechanical engineering systems. (Program Specific)
2. Ability to apply the advanced concepts of thermal and manufacturing engineering in solving Industry problems. (Program Specific)

Local relevance:

Since Rajam is an agricultural area, courses like kinematics of machinery, dynamics of machinery, design of machine elements can help to fabricate agriculture equipment which improves local agricultural productivity. With a sugar factory and a paper mill nearby, students can benefit from courses on industrial processes, thermodynamics, and manufacturing technologies that apply directly to these industries. Courses like Communicative skills and language electives will help the students to develop the communicative skills of students as major part of students are from rural background.

Regional relevance:

Andhra Pradesh has several industries, including thermal power plants, shipbuilding, and automobile manufacturing, making subjects like power plant engineering, fluid mechanics, and material sciences highly relevant. With automobile hubs in Chennai and Hyderabad, mechanical engineering students can benefit from automobile engineering, robotics, and automation courses. Given Andhra Pradesh's focus on irrigation projects, knowledge of fluid mechanics, hydraulics, and structural analysis is crucial for local engineers. To improve the student's skills in the field of e-vehicles courses like Automotive informatics, sensors and actuators for automotive electronics and vehicle diagnostics, intelligent safety and security system are introduced.

National relevance:

Considering the challenges of Fourth Industrial Revolution courses like Internet of Things (IoT), 3D/4D manufacturing technology, Automation in manufacturing and Smart supply chain analytics are introduced. With the national focus on biofuels, electric vehicles, and hydrogen fuel, courses on IC engines, thermodynamics, and sustainable energy align with India's energy goals. With DRDO, ISRO, and HAL working on indigenous fighter jets and rockets, mechanical engineers specializing in aerospace materials, thermal systems, and fluid dynamics will have significant career opportunities.

Global Relevance:

Courses on robotics, AI in manufacturing, and mechatronics align with global smart manufacturing trends. With globalization, mechanical engineers need knowledge of computational fluid dynamics, advanced materials, and nanotechnology to work on cutting-edge global projects. Mechanical engineers play a key role in renewable energy systems, carbon capture technologies, and energy-efficient building design, aligning with global sustainability goals. Modern concepts of engineering design, Vehicle aero dynamics, Additive manufacturing are introduced.

HOD-MECH

Head
Dept. of Mechanical Engineering
GMR Institute of Technology
RAJAM - 532 127, A.P.

Department of Electronics and Communication Engineering

Program Educational Objectives (PEOs), Program Outcomes (POs) and Program Specific Outcomes (PSOs)

Program Educational Objectives (PEOs)

PEO 1: Employ logical and analytical skills in solving complex real-world engineering problems in the areas of Electronics and communication Engineering and allied fields.

PEO 2: Adaptable to emerging technologies with enhanced professional skills and ability towards continuous learning, facilitating higher studies and research.

PEO 3: Demonstrate professional ethics, leadership qualities and promote inclusive and collaborative growth with human values towards societal interest.

Program Outcomes (POs):

Engineering graduate will be able to:

PO 1: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **(Engineering knowledge)**

PO 2: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **(Problem analysis)**

PO 3: 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. **(Design/development of solutions)**

PO 4: 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. **(Conduct investigations of complex problems)**

PO 5: 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. **(Modern tool usage)**

PO 6: 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. **(The engineer and society)**

PO 7: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **(Environment and sustainability)**

PO 8: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. **(Ethics)**

PO 9: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **(Individual and team work)**

PO 10: 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. **(Communication)**

PO 11: 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. **(Project management and finance)**

PO 12: 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. **(Life-long learning)**

Program Specific Outcomes (PSOs):

Engineering graduate will be able to:

PSO 1: Apply the knowledge of technological evolutions, model / characterize devices and design the integrated circuits to build analog and digital systems. **(Program Specific)**

PSO 2: Understand and apply the fundamentals of communication and signal processing to develop systems wrapped with industry standard protocols and standards. **(Program Specific)**

Local relevance:

There are around 80 industries like fertilizer, rice mills, jute mills, sugar industries around Rajam. The need for proper transportation & control, food processing and technology intervention in industries has been realized by all the residents, service providers and the hospitality industry of Rajam. Courses like Embedded systems, Microprocessor & Microcontrollers, Data Acquisition System, Sensors for Engineering applications are aligned to provide solution for the above issues. Courses like Communicative skills and language electives will help the students to develop the communicative skills of students as major part of students are from rural background.

Regional relevance:

To meet out the regional requirements of industries such as Agro and Food processing Chemicals and Petrochemicals, Mineral based Industries and Life Sciences in Srikakulam district, courses like Electronics for Agriculture, Renewable Energy Sources, Air Pollution and Environmental Impact Assessment, Industrial Safety and Hazard Management, Embedded System Design and IoT has been included in the curriculum.

National relevance:

Considering the initiatives taken by Government of India like Digital India, Swatch Bharath mission, smart cities, National Disaster management plan, courses like Industrial Automation, Advanced Controllers, Electronic Measurements and Disaster Management designed.

Global Relevance:

For implementation of new technologies and Integrated technology in live hood for global needs courses like Cryptography and Network Security, ASIC Verification using system Verilog, Real Time Operating Systems, Biomedical Signal Processing. UHF and EHS communication systems has been included in the curriculum.

HOD-ECE

HEAD
DEPARTMENT OF E.C.E.,
G.M.R. INSTITUTE OF TECHNOLOGY
G.M.R. NAGAR RAJAM - 532 127

Department of Computer Science and Engineering

Program Educational Objectives (PEOs), Program Outcomes (POs) and Program Specific Outcomes (PSOs)

Program Educational Objectives (PEOs)

PEO 1: Employ logical and analytical skills in solving complex real-world engineering problems in the areas of computer Science and allied fields.

PEO 2: Adaptable to emerging technologies with enhanced professional skills and ability towards continuous learning, facilitating higher studies and research.

PEO 3: Demonstrate professional ethics, leadership qualities and promote inclusive and collaborative growth with human values towards societal interest.

Program Outcomes (POs):

Engineering graduate will be able to:

PO 1: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **(Engineering knowledge)**

PO 2: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **(Problem analysis)**

PO 3: 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. **(Design/development of solutions)**

PO 4: 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. **(Conduct investigations of complex problems)**

PO 5: 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. **(Modern tool usage)**

PO 6: 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. **(The engineer and society)**

PO 7: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **(Environment and sustainability)**

PO 8: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. **(Ethics)**

PO 9: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **(Individual and team work)**

PO 10: 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. **(Communication)**

PO 11: 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. **(Project management and finance)**

PO 12: 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. **(Life-long learning)**

Program Specific Outcomes (PSOs):

Engineering graduate will be able to:

PSO 1: Ability to apply the software engineering principles to meet automation of the process and service industries apart from the community utilities. (**Program Specific**)

PSO 2: Ability to design, develop and implement management systems, E-Commerce tools and Web Apps for product development. (**Program Specific**)

Local relevance:

Since the world is going for digitalization, there is a need for proper computer awareness is required to all the residents, service providers and the hospitality industry of Rajam. The peoples should know the utilization of the different Apps used in the Mobile Devices, websites, and the Cyber Security threats when they are using such types of Apps. Courses like Internet of Things, Software Engineering, Software Project Management, Computer Networks, Web Technologies and Application Developments, Object Oriented Programming, Engineering Economics and Project Management and Cyber Security will help the students to develop applications for the different organizations and industries around Rajam. It will help the students for self-

employment through the MSME to begin the startup companies. Courses like Communicative skills and language electives will help the students to develop the communicative skills of students as major part of students are from rural background

Regional relevance:

The meet out the regional requirements of Srikakulam district, there are many chances to develop applications for the proper administration and to the common people for the proper utilization of resources like Transport Management, Smart Devices for the physically disables persons, Managing the Tourist Sectors for the better development of the district, for which the courses like IoT, Natural Language Processing, Web Application Frameworks and Databases, Green Computing are more useful.

National relevance:

Considering the initiatives taken by Government of India as "Atma Nirbhar Bharat", where the importance is given for the Digitalization, Smart Cities, Swatch Bharath Mission, National Disaster Management, Smart Healthcare, Planning etc., the courses like Artificial Intelligence, IoT, Cyber Security, Biometric Security, Cloud Security, Computer Forensics, Cloud Computing, Machine Learning, Natural Language Processing, Web Application Frameworks and Databases, Green Computing, User Experience Design, E-commerce are designed to help the students to develop applications and to develop innovative ideas.

Global Relevance:

For implementation of new technologies and Integrated can be used to solve ecological problems which can be translated into interesting decision optimization and statistical learning problems involving combinatorial decisions, dynamic modeling, and uncertainty. These types of problems can be solved using Automata Theory, Artificial Intelligence, Data Science, Machine Learning and IoT courses.

HOD-CSE

HEAD OF THE DEPARTMENT
DEPT. OF COMPUTER SCIENCE & ENGINEERING
GMR INSTITUTE OF TECHNOLOGY, RAJAM - 532127

DEPARTMENT OF INFORMATION TECHNOLOGY

Program Educational Objectives (PEOs), Program Outcomes (POs) and Program Specific Outcomes (PSOs)

Program Educational Objectives:

1. **PEO1:** Employ logical and analytical skills in solving complex real-world engineering problems in the area of Information Technology and allied fields

2. **PEO2:** Adaptable to emerging technologies with enhanced professional skills and ability towards continuous learning, facilitating higher studies and research

3. **PEO3:** Demonstrate professional ethics, leadership qualities and promote inclusive and collaborative growth with human values towards societal interest

Program Outcomes:

1. Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. (Engineering knowledge)
2. Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. (Problem analysis)
3. 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. (Design/development of solutions)
4. 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. (Conduct investigations of complex problems)
5. 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 .(Modern tool usage)
6. 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. (The engineer and society)
7. Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. (Environment and sustainability)
8. Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. (Ethics)
9. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. (Individual and team work)
10. 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. (Communication)
11. 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. (Project management and finance)
12. 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. (Life-long learning)

Program Specific Outcomes:

1. Implementation of Scientific Computing applications for secure environment to support contemporary services. (Program Specific)
2. Construct software solutions to deliver quality products for Future Enterprise mobility. (Program Specific)

Local relevance:

Since the world is going for digitalization, there is a need for proper computer awareness is required to all the residents, service providers and the hospitality industry of Rajam. The peoples should know the utilization of the different Apps used in the Mobile Devices, websites, and the Cyber Security threats when they are using such types of Apps. Courses like Internet of Things, Software Engineering, Software Project Management, Computer Networks, Web Technologies and Application Developments, Object Oriented Programming, Engineering Economics and Project Management and Cyber Security will help the students to develop applications for the different organizations and industries around Rajam. It will help the students for self-employment through the MSME to begin the startup companies. Courses like Communicative skills and language electives will help the students to develop the communicative skills of students as major part of students are from rural background.

Regional relevance:

In order to meet out the regional requirements of Srikakulam district, there are many chances to develop applications for the proper administration and to the common people for the proper utilization of resources like Transport Management, Smart Devices for the physically disables persons, Managing the Tourist Sectors for the better development of the district, for which the courses like IOT, Natural Language Processing, Web Application Frameworks and Databases, Green Computing are more useful.

National relevance:

Considering the initiatives taken by Government of India as "Atma Nirbhar Bharat", where the importance is given for the Digitalization, Smart Cities, Swatch Bharath Mission, National Disaster Management, Smart Healthcare, Planning etc., the courses like Artificial Intelligence, IOT, Cyber Security, Biometric Security, Cloud Security, Computer Forensics, Cloud Computing, Machine Learning, Natural Language Processing, Multimedia, Web Application Frameworks and Databases, Green Computing, User Experience Design, E-commerce are designed to help the students to develop applications and to develop innovative ideas.

Global Relevance:

Implementation of new technologies and Integrated can be used to solve ecological problems which can be translated into interesting decision optimization and statistical learning problems involving combinatorial decisions, dynamic modeling, and uncertainty. These types of problems can be solved using Automata Theory, Artificial Intelligence, Data Science, Machine Learning and IOT courses.

HOD IT
GMR INSTITUTE OF TECHNOLOGY
RAJAM 532 127 A.P

Department of CSE (Artificial Intelligence and Data Science)

Program Educational Objectives (PEOs), Program Outcomes (POs) and Program Specific Outcomes (PSOs)

Program Educational Objectives (PEOs)

PEO 1: Employ logical and analytical skills in solving complex real-world engineering problems in the areas of computer Science and allied fields.
PEO 2: Adaptable to emerging technologies with enhanced professional skills and ability towards continuous learning, facilitating higher studies and research.
PEO 3: Demonstrate professional ethics, leadership qualities and promote inclusive and collaborative growth with human values towards societal interest.

Program Outcomes (POs)

Engineering graduate will be able to

PO 1: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. (Engineering knowledge).

PO 2: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. (Problem analysis)

PO3: 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. (Design/development of solutions)

PO4: 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. (Conduct investigations of complex problems)

PO5: 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. (Modern tool usage)

PO6: 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. (The engineer and society)

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

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

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

PO10: 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. (Communication)

PO11: 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. (Project management and finance)

PO12: 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. (Life-long learning)

Program Specific Outcomes (PSOs)

Engineering graduate will be able to

PSO1: Implement principles of computer science focusing on the concepts of artificial intelligence, data science and machine learning in developing solutions to the real world problems.

PSO2: Facilitate data driven decision making using intelligent systems for process analyzing and visualization in various domains.

Local relevance:

Since the world is going for digitalization, there is a need for proper computer awareness is required to all the residents, service providers and the hospitality industry of Rajam. The peoples should know the utilization of the different Apps used in the Mobile Devices, websites, and the Cyber Security threats when they are using such types of Apps. Courses like Internet of Things, Software Engineering, Software Project Management, Computer Networks, Web Technologies and Application Developments, Object Oriented Programming, Engineering Economics and Project Management and Cyber Security will help the students to develop applications for the different organizations and industries around Rajam. It will help the students for self-employment through the MSME to begin the startup companies. Courses like Communicative skills and language electives will help the students to develop the communicative skills of students as major part of students are from rural background

Regional relevance:

The meet out the regional requirements of Srikakulam district, there are many chances to develop applications for the proper administration and to the common people for the proper utilization of

resources like Transport Management, Smart Devices for the physically disables persons, Managing the Tourist Sectors for the better development of the district, for which the courses like IoT, Natural Language Processing, Web Application Frameworks and Databases, Green Computing are more useful.

National relevance:

Considering the initiatives taken by Government of India as "Atma Nirbhar Bharat", where the importance is given for the Digitalization, Smart Cities, Swatch Bharath Mission, National Disaster Management, Smart Healthcare, Planning etc., the courses like Artificial Intelligence, IoT, Cyber Security, Biometric Security, Cloud Security, Computer Forensics, Cloud Computing, Machine Learning, Natural Language Processing, Web Application Frameworks and Databases, Green Computing, User Experience Design, E-commerce are designed to help the students to develop applications and to develop innovative ideas.

Global Relevance:

For implementation of new technologies and Integrated can be used to solve ecological problems which can be translated into interesting decision optimization and statistical learning problems involving combinatorial decisions, dynamic modeling, and uncertainty. These types of problems can be solved using Automata Theory, Artificial Intelligence, Data Science, Machine Learning and IoT courses.

HOD-CSE- AI&DS
Dept. of Computer Science & Engineering -AI & ML
GMR Institute of Technology
RAJAM - 532 127, A.P.

Department of CSE-Artificial Intelligence &Machine Learning

Program Educational Objectives (PEOs)

PEO1 : Employ logical and analytical skills in solving complex real-world engineering problems in the areas of computer Science and allied fields

PEO2 : Adaptable to emerging technologies with enhanced professional skills and ability towards continuous learning, facilitating higher studies and research

PEO3 : Demonstrate professional ethics, leadership qualities and promote inclusive and collaborative growth with human values towards societal interest

Program outcomes

Engineering graduate will be able to

PO 1: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences

PO 3: 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.

PO 4: 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.

PO 5: 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.

PO 6: 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

PO 7: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development

PO 8: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10: 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.

PO 11: 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.

PO 12: 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.

PSO1: Implement principles of computer science focusing on the concepts of artificial intelligence and machine learning in developing solutions to the real world problems.

PSO2: Facilitate data driven decision making using machine learning algorithms for process analyzing and visualization in various domains.

Local relevance:

Since the world is going for digitalization, there is a need for proper computer awareness is required to all the residents, service providers and the hospitality industry of Rajam. The peoples should know the utilization of the different Apps used in the Mobile Devices, websites, and the Cyber Security threats when they are using such types of Apps. Courses like Internet of Things, Software Engineering, Software Project Management, Computer Networks, Web Technologies and Application Developments, Object Oriented Programming, Engineering Economics and Project Management and Cyber Security will help the students to develop applications for the different organizations and industries around Rajam. It will help the students for self-employment through the MSME to begin the startup companies. Courses like Communicative skills and language electives will help the students to develop the communicative skills of students as major part of students are from rural background

Regional relevance:

The meet out the regional requirements of Srikakulam district, there are many chances to develop applications for the proper administration and to the common people for the proper utilization of resources like Transport Management, Smart Devices for the physically disables persons, Managing the Tourist Sectors for the better development of the district, for which the courses like IoT, Natural Language Processing, Web Application Frameworks and Databases, Green Computing are more useful.

National relevance:

Considering the initiatives taken by Government of India as "Atma Nirbhar Bharat", where the importance is given for the Digitalization, Smart Cities, Swatch Bharath Mission, National Disaster Management, Smart Healthcare, Planning etc., the courses like Artificial Intelligence, IoT, Cyber Security, Biometric Security, Cloud Security, Computer Forensics, Cloud Computing, Machine Learning, Natural Language Processing, Web Application Frameworks and Databases, Green Computing, User Experience Design, E-commerce are designed to help the students to develop applications and to develop innovative ideas.

Global Relevance:

For implementation of new technologies and Integrated can be used to solve ecological problems which can be translated into interesting decision optimization and statistical learning problems involving combinatorial decisions, dynamic modeling, and uncertainty. These types of problems can be solved using Automata Theory, Artificial Intelligence, Data Science, Machine Learning and IoT courses.

HOD-CSE-AI&ML
Dept. of Computer Science & Engineering -AI & ML
GMR Institute of Technology
RAJAM - 532 127, A.P.