Program Outcomes (POs)

Program Specific Outcomes (PSOs)

Program Educational Objectives (PEOs)

VIGNAN's INSTITUTE OF INFORMATION TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE- New Delhi & Affiliated to JNTUK, Kakinada)
Beside VSEZ, Duvvada, Vadlapudi Post, Gajuwaka, Visakhapatnam - 530 049.

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

Program Outcomes (Common to All B. Tech Programs)

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

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

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

PO4: 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.

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

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

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

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

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

PO10: 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, and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-Long Learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

B. Tech - Civil Engineering

Program Educational Objectives (PEOs)

The Graduates of B. Tech in Civil Engineering will be able:

PEO1: To work in core/allied industries of Civil Engineering, educational institutions, research organizations or to be entrepreneurs.

PEO2: To pursue higher education and/or research in the field of Civil Engineering.

PEO3: To demonstrate communication skills, team spirit, leadership qualities, integrity, social andenvironmental responsibility, life-long learning ability, ethical and human values in profession/career.

Program Specific Outcomes (PSOs)

PSO1: Analyze, design and execute the Civil Engineering Structures along with good foundation in Mathematics, Basic sciences and Technical communications.

PSO2: Survey, Map and Plan layouts for buildings, structures, alignments for canals, roads and analyse & understand the environmental and Geotechnical engineering systems.

PSO3: Acquire knowledge of various techniques, skills and modern engineering tools required for Civil Engineering Structures including all types of buildings, irrigation structures, highways, railways, docks & harbours.

B. Tech - Electrical & Electronics Engineering

Program Educational Objectives (PEOs):

The Graduates of B. Tech in Electrical & Electronics Engineering will be able:

PEO-1: To work in core/allied industries of Electrical & Electronics Engineering, educational institutions, research organizations or be entrepreneurs.

PEO-2: To pursue higher education and/or research in the field of Electrical & Electronics Engineering.

PEO-3: To demonstrate communication skills, team spirit, leadership qualities, integrity, social and environmental responsibility, life-long learning ability, ethical and human values in profession / career.

Program Specific Outcomes (PSOs):

PSO-1: Design, analyze, operate and test various Electrical Machines.

PSO-2: Describe and analyze the operation and control of power systems and also along with simulation, conduct load flow studies on given power systems.

PSO-3: Explain and operate various electronics/power electronic devices/systems along with conducting simulation studies on them.

B. Tech - Mechanical Engineering

Program Educational Objectives (PEOS):

The Graduates of B.Tech in Mechanical Engineering will be able:

PEO-1: To provide commendable preparation for a career in mechanical engineering and prepare students for a career at the core/allied industries.

PEO-2: To provide students with a sound foundation in the mathematical, scientific and engineering fundamentals necessary to formulate, solve and analyze engineering problems in mechanical engineering and to prepare them for higher studies.

PEO-3: To exhibit communication skills, team spirit, leadership qualities, life-long managerial skills, integrity and social and environmental responsibility, life-long learning ability, professional ethics and human values.

Program Specific Outcomes (PSOs):

PSO-1: Analyze and design the machine components with the knowledge of stress analysis, theories of failures and material science.

PSO-2: Apply the principles of thermal engineering in analysing, designing and validating various thermal energy systems.

PSO-3: Develop and organize the manufacturing process effectively and efficiently for the production of various products with the required functionality to high quality standards.

B. Tech - Electronics and Communications Engineering

Program Educational Objectives (PEOS):

The Graduates of B.Tech in Electronics and Communications Engineering will be able:

PEO-1: To work in core companies in the field of Electronics and communication/allied industries, educational institutions, research organization and engineering consultancy companies or to be entrepreneurs.

PEO-2: To pursue higher education and research in Electronics and communication engineering

PEO-3: To have communication skills, team spirit, leadership capabilities, integrity, social and environmental responsibility, lifelong learning spirit, professional ethics and human values in profession or career.

Program Specific Outcomes (PSOs):

PSO-1: Design and prepare fabrication charts for integrated circuits in analog & digital domains based on simulation tools including these for MOSFET technology.

PSO-2: Analyze various communication systems applicable for real time cases in domestic and industrial fields& Control Systems and design & implementation of different types of filters to improve quality of the signals.

PSO-3: Explain and analyze the applications of EM & simulation techniques of antenna theory in the suitable frequency ranges required for signal transmission.

B. Tech - Computer Science and Engineering

Program Educational Objectives (PEOs):

The Graduates of B.Tech in Computer Science and Engineering will be able:

PEO-1: To purse career in core software/hardware companies/allied industries of Computer Science and Engineering, educational institutions, and research organizations.

PEO-2: To pursue Higher Education & Research in the field of Computer Science and Engineering.

PEO-3: To demonstrate team spirit, leadership qualities, managerial skills, integrity, social & environmental responsibility, lifelong learning ability with professional ethics and human values in profession/career with good communication skills.

Program Specific Outcomes (PSOs):

PSO-1: Design and develop efficient software-based systems using core computer science and engineering principles, algorithms and problem-solving techniques.

PSO-2: Apply advanced technology concepts including mobile computing, cloud computing, network security and big data to provide innovative software solutions.

B.Tech - Information Technology

Program Educational Objectives (PEOs):

The Graduates of B.Tech in Information Technology will be able:

PEO-1: To work in core IT companies/allied industries, educational institutions, research organizations and/or be entrepreneurs.

PEO-2: To pursue higher education/research in the field of Information Technology.

PEO-3: To demonstrate communication skills, team spirit, leadership qualities, managerial skills, integrity, social & environmental responsibility and lifelong learning ability, professional ethics and human values in profession/career.

Program Specific Outcomes (PSOs):

PSO-1: Analyze and design the solutions for data storage & computing systems.

PSO-2: Implement the solutions for network and communication problems of Information Technology.

B. Tech - Electronics and Computer Engineering

Program Educational Objectives (PEOs):

The Graduates of B.Tech in Information Technology will be able:

PEO-1: To work in core IT companies/allied industries, educational institutions, research organizations and/or be entrepreneurs.

PEO-2: To pursue higher education/ research in the field of Electronics and Computer Engineering.

PEO-3: To demonstrate communication skills, team spirit, leadership qualities, managerial skills, integrity, social & environmental responsibility and lifelong learning ability, professional ethics and human values in profession/career.

Program Specific Outcomes (PSOs):

PSO-1: Analyze and design the solutions for data storage & computing systems.

PSO-2: Implement the solutions for network and communication problems of Electronics and Computer Engineering.

B. Tech –Artificial Intelligence and Data Science

Program Educational Objectives (PEOs):

PEO-1: To enable the students as globally competent professionals with strong basics in the field of Artificial Intelligence and Data Science to solve multidisciplinary problems.

PEO-2: To emphasize the students to take up higher studies, research & development by acquiring in-depth knowledge in Artificial Intelligence & Data Science.

Program Specific Outcomes (PSOs):

PSO-1: Design and develop efficient AI based systems using core AI and DS principles, algorithms and problem solving techniques.

PSO-2: Apply Advanced technology concepts including Deep Learning Models, Pattern Recognition, Cloud System Services and Big Data Analytics to solve complex intelligent problems.

POST GRADUATE PROGRAM

Program Outcomes (POs) and Program Educational Objectives (PEOs)

Program Outcomes (Common to All M. Tech Programs)

PO1: Problem Investigations and Development of Solutions: An ability to independently carry out research / investigation and development work to solve practical problems.

PO2: Academic Writing: An ability to write and present a substantial technical report / document.

PO3: Model Tool Usage: To apply Modern Engineering tools to solve the problems pertaining to meet global and national needs.

PO4: Engineering & Society: Work on multi disciplinary projects on Emerging areas to solve the societal problems.

PO5: Ethics: Develop professional and ethical attitude and become socially responsible citizen.

PO6: Life Long Learning: Engage in lifelong learning to enhance knowledge and competence.

M. Tech – Transportation Engineering – (C.E.)

Program Educational Objectives (PEOs):

PEO-1: To acquire knowledge of the advanced concepts of transport engineering techniques in order to evaluate, design, develop and implement complex Transportation engineering problems.

PEO-2: To prepare the students for successful carrier in industry, academia and research with proficiency in Civil Engineering system, in particular transportation engineering by communicating effectively either leading a team or as a team member.

PEO-3: To attain professional leadership qualities which including effective communication, teamwork, multidisciplinary approach and ability to relate engineering issues to broader social challenges

Program Specific Outcomes (PSOs):

PSO-1: Design a transpiration system and analyze a system, component, or process in the knowledge areas of transportation engineering in real time problems.

PSO-2 : Solve the real world problems in the emerging fields of Transportation engineering to develop innovative technologies relevant to social, ethical, economic and environmental issues.

M. Tech – Power & Industrial Drives

Program Educational Objectives (PEOs):

PEO-1: To acquire knowledge of the advanced concepts of power electronics and industrial drive techniques in order to evaluate, design, develop and implement power electronic converter systems.

PEO-2: To prepare the students for successful carrier in industry, academia and research with proficiency in control of electric drives

PEO-3: To attain professional leadership qualities which including effective communication, teamwork, multidisciplinary approach and ability to relate engineering issues to broader social challenges.

Program Specific Outcomes (PSOs):

PSO-1: Apply technical knowledge, skills and analytical ability to design, develop and test power electronic converters and drives using modern tools and technologies.

PSO-2: Solve the real world problems in the emerging fields like smart grid, renewable energy interfaces, and electric vehicles and to develop innovative technologies relevant to social, ethical, economic and environmental issues.

M. Tech – Machine Design

Program Educational Objectives (PEOs):

PEO-1: To acquire knowledge of the advanced concepts of machine components and systems in order to evaluate, design, develop and implement complex Machine Design problems.

PEO-2: To prepare the students for successful carrier in industry, academia and research with proficiency in Machine Design by communicating effectively either leading a team or as a team member.

PEO-3: To attain professional leadership qualities which including effective communication, teamwork, multidisciplinary approach and ability to relate engineering issues to broader social challenges.

Program Specific Outcomes (PSOs):

PSO-1: Analyze and design the machine components with the knowledge of stress analysis, theories of failures and vibrations

PSO-2: Develop advanced analysis tools for evaluating performance of mechanical systems to enhance the capability of designer.

M. Tech – Digital Electronics and Communication Systems

Program Educational Objectives (PEOs):

PEO-1: To acquire knowledge of the fundamental and advanced concepts of electronics and communication to analyze, design, develop and implement electronic systems or equipment.

PEO-2: To prepare the students for successful carrier in industry, academia and research with proficiency in Electronics and Communication Systems.

PEO-3: To attain professional leadership qualities which including effective communication, teamwork, multidisciplinary approach and ability to relate engineering issues to broader social challenges.

Program Specific Outcomes (PSOs):

PSO1: Apply appropriate methodology and modern engineering/IT tools to meet the international standards in the area of Communication Engineering.

PSO2:. Apply appropriate methodology and modern engineering/IT tools to meet the international standards in the area of Communication Engineering.

M. Tech – Electronics & Communication Engineering

Program Educational Objectives (PEOs):

PEO-1: To acquire knowledge of the fundamental and advanced concepts of electronics and communication to analyze, design, develop and implement electronic systems or equipment.

PEO-2: To prepare the students for successful carrier in industry, academia and research with proficiency in Electronics and Communication Systems.

PEO-3: To attain professional leadership qualities which including effective communication, teamwork, multidisciplinary approach and ability to relate engineering issues to broader social challenges.

Program Specific Outcomes (PSOs):

PSO1: Apply appropriate methodology and modern engineering/IT tools to meet the international standards in the area of Communication Engineering.

PSO2:. Apply appropriate methodology and modern engineering/IT tools to meet the international standards in the area of Communication Engineering.

M. Tech – Computer Science and Engineering

Program Educational Objectives (PEOs):

PEO 1: To acquire knowledge of the fundamental and advanced concepts of analysis, predictions, optimization, decision making and develop skills in order to formulate and solve complex problems using intelligent computing.

PEO2: To prepare the students for successful carrier in industry, academia and research with proficiency in complex problem-solving analytical, design and implementation skills.

PEO3: To attain professional leadership qualities which including effective communication, teamwork, multidisciplinary approach and ability to relate engineering issues to broader social challenges.

Program Specific Outcomes (PSOs):

PSO1: Apply optimized solutions for various computing problems using cutting-edge technologies and to solve complex problems.

PSO2: Design and develop economically feasible and environmentally sustainable solutions using various algorithms and applications of Machine Learning, Artificial Intelligence and IoT.

Program Educational Objectives (PEOs):

PEO-1: To acquire knowledge of the fundamental and advanced concepts of analysis, predictions, optimization, decision making and develop skills in order to formulate and solve complex problems using intelligent computing.

PEO-2: To prepare the students for successful carrier in industry, academia and research with proficiency in

Artificial Intelligence & Machine Learning (AI & ML)

PEO-3: To attain professional leadership qualities which including effective communication, teamwork, multidisciplinary approach and ability to relate engineering issues to broader social challenges.

Program Specific Outcomes (PSOs):

PSO1: Apply machine learning techniques, software tools to conduct experiments, interpret data and to solve complex problems.

PSO2: Design and develop intelligent automated systems for the benefit of society by the use of AI and ML.

M. Tech – Information Technology

Program Educational Objectives (PEOs):

PEO -1: To acquire knowledge of the fundamental and advanced concepts of analysis, predictions, optimization, decision making and develop skills in order to formulate and solve complex problems using intelligent computing.

PEO-2: To prepare the students for successful carrier in industry, academia and research with proficiency in complex problem-solving analytical, design and implementation skills.

PEO-3: To attain professional leadership qualities which including effective communication, teamwork, multidisciplinary approach and ability to relate engineering issues to broader social challenges.

Program Specific Outcomes (PSOs):

PSO- 1: Apply optimized solutions for various computing problems using cutting-edge technologies and to solve complex problems

PSO- 2: Design and develop economically feasible and environmentally sustainable solutions using various algorithms and applications of Machine Learning, Artificial Intelligence and IT.

Master of Business Administration

Program Outcomes   :

PO1: Knowledge: Apply knowledge of management theories and practices to solve business problems.

PO2: Problem Analysis: Foster analytical and critical thinking abilities of data-based decision making.

PO3: Value: Ability to develop Value based Leadership.

PO4: Communication: Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.

PO5: Individual & Team work: Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.

PO6: Usage of Modern Tools: Use of appropriate qualitative & quantitative techniques to solve business problems.

PO7: Social & Environmental Responsiveness: Understand the relevance of proper management practices with social and environmental concerns and foster the need of sustainability in development.

PO8: Life-long learning: Enhanced employability attributes by being adoptive to continuous learning.

Program Educational Objectives (PEOs):

To produce graduates with the following capabilities:

PEO 1: Developing business and management competencies among the future managers.

PEO 2: Developing the ability to examine and analyze the impact of changing environment and to respond appropriately at strategic level.

PEO 3: Facilitating deeper insights, stimulation towards creative thinking, and honing of management skills.

PEO 4: Motivating the students to acquire decision-making, leadership and entrepreneurial capabilities.

PEO 5: Producing aspiring and dynamic managers to meet the requirements of business and industry.

Program Specific Outcomes (PSOs):

PSO 1: To guide and channelize the transformation process of every management graduate by providing in-depth knowledge of business management and entrepreneurship embedded with ethics and a sense of social commitment and to make them to strive towards personal victory and value creation to society.

PSO 2: To ignite a passion for multidisciplinary approach for problem solving, critical analysis and decision making by giving due importance for lateral thanking so that management graduates see things from a perspective which are not just simple but effective.

Master of Computer Applications

Program Outcomes   :

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

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

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

PO4: 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.

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

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

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

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

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

PO10: 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, and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-Long Learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Educational Objectives (PEOs):

PEO1: Successful professional in industry, government sector, academia, research, entrepreneurial pursuit and consulting firms.

PEO2: Contribute to society as broadly educated, expressive, ethical and responsible citizens with proven expertise.

PEO3: Thrive to pursue life-long learning to fulfil their goals.

Program Specific Outcomes (PSOs):

MCA Program has been designed to prepare graduates for attaining the following program specific outcomes:

PSO1: They can identify, critically analyze, formulate and develop computer applications.

PSO2: Function competently as an individual and as a leader in multidisciplinary projects.