Department of Computer Science and Engineering (Artificial Intelligence and Data Science)

B. Tech- Computer Science and Engineering (Artificial Intelligence and Data Science)

Department Vision:

To attain excellence in Artificial Intelligence and Data Science education, research, and innovation by fostering academic excellence, ethical values, and intelligent solutions for societal and global technological advancement.

Department Mission:

Mission 1: To provide a dynamic learning environment with industry-oriented curriculum, modern laboratories, and innovative teaching practices in Artificial Intelligence and Data Science.

Mission 2: To promote research, interdisciplinary collaboration, entrepreneurship, and industry interaction in intelligent systems and data-driven technologies for solving real-world challenges.

Mission 3: To nurture critical thinking, professional ethics, leadership qualities, lifelong learning, and social responsibility among students to contribute effectively to society and the global community.

Programme Educational Objectives (PEOs):

PEO1: Apply the principles of Artificial Intelligence, Data Science, and emerging technologies to develop intelligent solutions for real-world problems.

PEO2: Demonstrate innovation, analytical thinking, and interdisciplinary skills with professional ethics and social responsibility in developing AI-driven applications.

PEO3: Adapt to evolving technologies through lifelong learning, teamwork, leadership, entrepreneurship, and effective communication in global professional environments.

Programme Outcomes (POs):

PO	Statement
PO1:	Apply knowledge of Mathematics, Natural Science, Computing, Engineering fundamentals and an Engineering Specialization as specified in **WK1 to WK4** respectively to develop to the solution of **complex engineering problems.**
PO2:	Identify, Formulate, Review research literature and analyze ***complex engineering problems*** reaching substantiated conclusions with consideration for ***sustainable development***. (**WK1 to WK4**)
PO3:	Design creative solutions for ***complex engineering problems*** and design/develop systems/components/processes to meet identified needs with consideration for the **public health and safety, whole-life cost, net zero carbon, culture, society and environment** as required. **(WK5)**
PO4:	Conduct investigations of ***complex engineering problems*** using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. **(WK8).**
PO5:	Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve ***complex engineering problems***. **(WK2 and WK6)**
PO6:	Analyze and evaluate societal and environmental aspects while solving ***complex engineering problems*** for its **impact on Sustainability** with reference to economy, health, safety, legal framework, culture and environment. **(WK1, WK5, and WK7)**.
PO7:	Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to National & International laws. **(WK9)**
PO8:	Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
PO9:	Communicate effectively and inclusively within the Engineering Community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences
PO10:	Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
PO11:	Recognize the need for, and have the preparation and ability for i) Independent and life-long learning ii) Adaptability to new and emerging technologies and iii) Critical thinking in the broadest context of technological change. **(WK8)**

Knowledge and Attitude Profile (WK)

A Washington Accord program provides:

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WK1: A systematic, theory-based understanding of the **natural sciences** applicable to the discipline and awareness of relevant **social sciences**
WK2: Conceptually-based **mathematics**, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline
WK3: A systematic, theory-based formulation of **engineering fundamentals** required in the engineering discipline
WK4: Engineering **specialist knowledge** that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.
WK5: Knowledge, including efficient resource use, environmental impacts, whole-life cost, re-use of resources, net zero carbon, and similar concepts, that supports **engineering design and operations** in a practice area
WK6: Knowledge of **engineering practice** (technology) in the practice areas in the engineering discipline
WK7: Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and **sustainable development***
WK8: Engagement with selected knowledge in the current **research literature** of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues
WK9: Ethics, inclusive behavior and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes

* *Represented by the 17 UN Sustainable Development Goals (UN-SDG) : https://sdgs.un.org/goals*

Sustainable Development Goals:



Programme Specific Outcomes (PSOs):

PSO1: Apply Artificial Intelligence, Machine Learning, and Data Science techniques to analyze data and develop intelligent systems for solving complex problems.

PSO2: Design and implement AI-driven applications using modern tools and technologies in domains such as healthcare, agriculture, business, education, and smart systems.

PSO3: Utilize emerging technologies including Deep Learning, Big Data Analytics, Cloud Computing, and Intelligent Automation for data-driven decision-making and real-world applications.

Head of Department
(Signature & Seal)

Dr. S. KUSUMA
HEAD
Department of CSE - Data Science
Madanapalle Institute of Technology & Science
MADANAPALLE - 517 325