School of Artificial Intelligence and Machine Learning

Department Of Computer Science and Engineering

(Artificial Intelligence and Robotics)

Department Vision:

To nurture globally competent, ethical, skilled, and innovative professionals in Artificial Intelligence and Robotics through excellence in education, impactful research, industry collaboration, and a commitment to sustainable societal development.

Department Mission:

M1: To provide strong knowledge in Computing, Mathematics, Statistics, Artificial Intelligence and Robotics through an outcome-based curriculum, experienced faculty, and modern learning resources.

M2: To foster innovation, research excellence and industry collaboration by encouraging interdisciplinary projects, internships, consultancy and emerging technologies for solving real-world problems.

M3: To develop ethical, responsible, competent, and entrepreneurial professionals with strong leadership qualities and a commitment to lifelong learning, enabling them to address societal needs and contribute to sustainable national and global development.

Programme Educational Objectives (PEOs):

PEO1 – Technical Competence

Graduates will establish successful careers in Artificial Intelligence, Robotics, Automation, and allied multidisciplinary domains by applying strong foundation in computing, mathematics, artificial intelligence, machine learning, deep learning, computer vision, robotics, automation, and data-driven techniques to design innovative solutions for complex real-world problems.

PEO2 – Professional Excellence

Graduates will pursue higher education, research, innovation, and entrepreneurship by continuously upgrading their knowledge in emerging Artificial Intelligence and Robotics technologies.

PEO3 – Ethics and Leadership

Graduates will demonstrate ethical values, professionalism, leadership, effective communication, teamwork, and social responsibility while contributing to sustainable development and addressing societal and global challenges.

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: Artificial Intelligence and Intelligent Computing

Apply the principles of Computer Science, Mathematics, Artificial Intelligence and Machine Learning to analyse, design, develop and deploy intelligent systems for solving complex engineering problems across diverse domains.

PSO2: Robotics, Automation and Intelligent Systems

Design, develop and integrate robotic, autonomous systems, embedded platforms, computer vision, Internet of Things (IoT), and intelligent control techniques to develop reliable and efficient automation solutions for real-world challenges.

PSO3:AI- and Robotics-Based Applications

Utilize modern AI framework, cloud platforms, robotic tools and software engineering practices to demonstrate innovation, ethical responsibility, entrepreneurship, and lifelong learning while developing sustainable AI and Robotics solutions through research and industry collaboration for societal benefit.

Head of Department

(Signature & Seal)

HEAD
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