MANIPAL UNIVERSITY JAIPUR
SCHOOL OF INFORMATION, SECURITY AND DATA SCIENCE
DEPARTMENT OF DATA SCIENCE & ENGINEERING

PROGRAMME OUTCOMES, PROGRAM EDUCATIONAL OBJECTIVES AND PROGRAM SPECIFIC OUTCOMES

ACADEMIC YEAR 2023-2024

PROGRAM OUTCOMES

[PO.1]. **Engineering knowledge**: Apply the knowledge of basic science and fundamental computing in solving complex engineering problems.

[PO.2]. **Problem analysis**: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

[PO.3]. **Design/development of Computing solutions**: Design solutions for complex IT engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the Information oriented public health and safety, and the cultural, societal, and environmental considerations.

[PO.4]. **Conduct investigations of complex problems**: Use IT domain 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]. **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.

[PO.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.

[PO.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.

[PO.8]. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practices.

[PO.9]. **Individual and teamwork**: Function effectively as an individual, and as a member or leader in diverse IT teams, and in multidisciplinary settings.

[PO.10]. **Communication:** Communicate effectively on complex computing 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]. **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.

[PO.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 OUTCOMES

[PSO.1]. Understand the role of mathematics, statistics, and AI techniques in the field of data science & engineering.

[PSO.2]. Apply the acquired knowledge and expertise to perform data analytics tasks for multidimensional data sets.

[PSO.3]. Develop effective and scalable industrial solutions for real-world socio-economic problems using data analytics tools and techniques.

PROGRAM EDUCATIONAL OBJECTIVES

[PEO.1]. Acquire and improve data science abilities to compete in a potential job as a data scientist and analyst.

[PEO.2]. Establish entrepreneurial skills to provide new and scalable solutions for tackling real-life complex data processing methodologies, paving the way for startups and self-employment.

[PEO.3]. Pursue higher studies to carry out research and development in the fields of advanced data science and artificial intelligence.

[PEO.4]. Integrate sensitivity towards all facets of ethical, environmental, and social concerns with holistic development.