MSCS3008 : Introduction to Robotics

This course explores the computational processes and artificial intelligence basis of robotics. The integration of software and hardware systems will be emphasized through proper computational paradigms such as algorithms, automata, search structures, and data manipulation in real-time reactive systems. Coverage of electronics and electronic interfaces will provide a solid foundation on which to base artificial intelligence structures. The use of sensors and motors, as controlled by software is covered, in addition to the use of embedded and mechanical software-driven systems. A special emphasis is placed on robot autonomy and learning through the precise use of computer algorithms and data structures. Robot sensing, analyzing, vision, and locomotion through computational structures will also be covered. The course integrates robotics theory and application into problem solving in myriad STEM domains and industries with the goal of sound, ethical solutions that are cost-effective and highly adaptive to the organization and its human elements.
Credits 3