Course Code : **ME 752**

Course Title : **Robotics and Applications**

Credit Hours : **3**

Course Description

Robot types and their applications, kinematics of robots, robots modeling and simulations, Control of robot motion.

Course Objectives

- This course provides the students with the knowledge about robtics types, components, design and control.
- It gives the students the skills to model and simulate a robot. It introduces different types of control stratigies.
- the course demonstrates different applications of robots.

Course Topics

Week no. 1:	Introduction to robotics
Week no. 2:	Rigid body kinematics
Week no. 3:	Inverse kinematics
Week no. 4:	D-H convention
Week no. 5:	Dynamics of robots
Week no. 6:	Trajectory planning of flexible robots
Week no. 7:	7th Week Assessment
Week no. 8:	Robotics sensors and actuators
Week no. 9:	Robotics end effectors
Week no. 10:	Modeling and simulation of robot motion control
Week no. 11:	Motion control by linear feedback method
Week no. 12:	12th Week Assessment
Week no. 13:	Modern control of robots
Week no. 14:	Robotics in manufacturing
Week no. 15:	Robotics in medical applications
Week no. 16:	Final Examination

References

- Joseph Distefano III, Allen R. Stubberud, Ivan J. Williams, "Schaum's Outline of Feedback and Control Systems ", McGraw-Hill; 2nd edition, 2013.

- Saeed B. Niku, " Introduction to Robotics: Analysis, Control, Applications", Wiley; 2nd edition, 2010.
- Bruno Siciliano, Lorenzo Sciavicco, Luigi Villani, Giuseppe Oriolo, "Robotics: Modelling, Planning and Control", Springer; 2010.