B.Tech. VIII SEMESTER MECHANICAL ENGINEERING							
COURSE CONTENTS (AICTE FLEXIBLE CURRICULA)							
ME-8339	**Robotics**	**L**	**T**	**P**	**C**	**Max. Marks**	**Min. Marks**
Duration	3 Hours	3	-	-	3	70	22

Unit I

Introduction: Need and importance, basic concepts, structure and classification of industrial robots, terminology of robot motion, motion characteristics, resolution, accuracy, repeatability, robot applications.

Unit II

End Effectors and Drive systems: Drive systems for robots, salient features and comparison, different types of end effectors, design and applications.

Unit III

Sensors: Sensor evaluation and selection, piezoelectric sensors, linear position and displacement sensing, revolvers, encoders, velocity measurement, proximity, tactile, compliance and range sensing. Image Processing and object recognition.

Unit IV

Robot Programming: Teaching of robots, manual, walk through, teach pendant, off line programming concepts and languages, applications.

Unit V

Safety and Economy of Robots: Work cycle time analysis, economics and effectiveness of robots, safety systems and devices, concepts of testing methods and acceptance rule for industrial robots.

References:

1. Mittal RK, Nagrath IJ; Robotics and Control; TMH
2. Groover M.P,Weiss M, Nagel,OdreyNG; Industrial Robotics-The Appl; TMH
3. Groover M.P; CAM and Automation; PHI Learning
4. Spong Mark and Vidyasagar; Robot Modeling and control; Wiley India
5. Yoshikava ; Foundations of Robotics- analysis and Control; PHI Learning;
6. Murphy ; Introduction to AI Robotics; PHI Learning
7. FU KS, Gonzalez RC, Lee CSG; Robotics Control, sensing; TMH
8. Shimon, K; Handbook of Industrial Robots; John Wiley & Sons,
9. Ghosal Ashitava; Robotics Fundamental concepts and analysis; Oxford
10. Saha S; Introduction to Robotics; TMH
11. Yu Kozyhev; Industrial Robots Handbook; MIR Pub.