

DMX7303 Control of Robotics Manipulators

| | |
|--|---|
| Level | 7 |
| Course Code | DMX7303 |
| Course Title | Control of Robotics Manipulators |
| Credit value | 3 |
| Core/Optional | Core |
| Course Aim | Aim of this course is to provide an overview into robotic manipulation, dynamics and control and be able to design manipulators in-line with design requirements. |
| Course Learning Outcomes (CLO): | <p>At the completion of this course student will be able to:</p> <p>CLO1: Explain the importance of robotics applications in industry CLO2: Formulate and develop kinematic models for robotic manipulators. CLO3: Formulate differential motion with regard to robotic manipulators. CLO4: Examine and assess dynamics and static forces in robotic manipulators. CLO5: Generate trajectories based on various tasks. CLO6: Design appropriate controllers for different control scenarios of robotic manipulators. CLO7: Propose suitable designs of robotic manipulators in-line with design requirements.</p> |
| Content | <p>Outline Syllabus:</p> <p>Unit 01: Introduction to robotics Unit 02: Kinematic modeling of manipulators Unit 03: Differential motion Unit 04: Dynamic analysis Unit 05: Trajectory planning Unit 06: Linear control of robotic manipulators Unit 07: Manipulator mechanism design</p> <p>Case study:</p> <ol style="list-style-type: none"> 1. Kinematic Modelling 2. Dynamic Modelling 3. Mini project 4. Mathematical simulation of a robotic manipulator <p>Mini Project : Mini project based on robotic modelling and design</p> |