Title: Robotics Programming and Maintenance

Class:M.Sc. - I

DURATION: Six Months

Name of Coordinator: Mr. S. S. Barkade

Department of Electronics

1. Title: **Robotics Programming and Maintenance**

2. Year of implementation:2020

3. Structure of Skill Development Course:

Eligibility	Duration	Theory Hours	Practical Hours	Total Hours	Credits	No. of students in batch	NSQF Level
H.S.C Pass	6 Month	20	30	50	03	20	L4

4. Evaluation Structure:

Theory Marks			Practical Assessment			Project/Field Visit	Total
ISE	ESE	Total	Exam	Journal	Total	Submission+Viva Voice	100
10	30	40	30	10	40	20	

Syllabus

Learning Objectives:

1. Familiarization to industrial robot and its application.
2. Skill to programme an Industrial robot.

Theory Syllabus

Unit I: Robotics System [10]

Types of Robot, Selection of Robot- Payload, speed, Reach, Major parts of Industrial robot. Robot Sensors, Function & use of sensors in robotics. Definition & Concept-Robotic vision system, Aspects of vision systems. Robot welding with vision system

Unit II: Robot Software and Programming and applications [10]

Introduction, Robot software features, Concept of programmability and related languages, Robot programming languages and Robotic Functions, Control functions of a Teach box, Jogging of a Robot , Adapting robots to industrial workstation- necessity, General Conditions for usage of industrial Robot , Robot capabilities , Non- Industrial applications,

Learning Outcomes:

At the end of this course, the students should be able to

1. Understanding about Robots ,and to get basic training an industrial Robot (operation, maintenance, safety)
2. Programming of an Industrial Robot

Practical Syllabus

Objectives:

1. To study manipulating the robot.
2. To Write Robot programming

List of Experiments: Artificial intelligence (24) hr

1. Robot component recognition.
2. Manipulating the robot.
3. Recording the position
4. Writing and running robot programs
5. Joint & XYZ co-ordinate system.
6. Point-to-Point control
7. Linear and Circular Interpolation
8. Development of line follower, Object pick and place Robot.

Project/ Field Visits/ Industrial Visit (06 hr)

Every student should give visit to field or industry & submit the report. The work will be assessed independently at the time of practical examination

Learning Outcomes:

After completion of the practical, Student are able to:

1. development Programming of an Industrial Robot
2. Operating of an Industrial robot.

Reference books:

1. Robotic Engineering By Dr. Surender Kumar,Dr.S K Mukherjee,3rd edition ,2001
2. Robotics and Control – RK Mittal, I.J.Nagrath. 6th Edition 2007 Mc-Graw hill
3. Industrial Robotics By Michel P Groover, 2nd Edition Paperback – 1 July 2017

BOS Sub Committee:

Mr. S.S. Barkade	Chairman
Mr. P.S. Kadam	Member

Expert

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