Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K – 574225
Phone: 08258-262725, Fax: 08258-262726

Department of Electronics and Communication Engineering

A Report on

INTRODUCTION TO ROBOTICS

Certification Course

2017 -18

Ref|AIET|ECE|CC|2017-18|003

From,   **Date: 14-02-2018**

Dr. D V Manjunatha
HOD, ECE
Alva's Institute of Engineering and Technology
Moodbidri.

To,

The Principal
Alva's Institute of Engineering and Technology
Moodbidri.

Respected Sir,

Sub: Requisition for Conducting Certification Course.
reg:-

With reference to the above subject, we are planning to conduct a certification course for Pre-final year students on the topic **"Introduction to Robotics"** from 26th February 2018 to 2nd March 2018.

So I kindly request you to grant the permission for conducting the certification course.

Thanking you

Your's faithfully

Dr. D V Manjunatha
Head of the Department
H. O. D.
Dept. Of Electronics & Communication
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

Dr. Peter Fernandes
Principal
AIET Moodbidri.

PRINCIPAL
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225, D.K

From,

> Dr. D V Manjunatha
> HOD, ECE
> Alva's Institute of Engineering and Technology
> Moodbidri.

To,

> Mr. Santhosh S
> Assistant Professor
> Department of ECE, AIET

Respected Sir,

Sub: Invitation for Conducting Certification Course reg:-

With reference to the above subject, we are planning to conduct a certification course for pre-final year students on the topic **"Introduction to Robotics"** from 26/02/2018 to 02/03/2018.

So I kindly request you to accept the invitation and enhance the knowledge of our students in the field of Robotics.

Thanking you

Your's faithfully

15-02-2016
Moodbidri

Dr. D V Manjunatha
Head of the Department
H. O. D.
Dept. Of Electronics & Communication
Alva's institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

Dept. of Electronics and Communication Engineering

Certification Course

On

"Introduction to Robotics"

To,

....

....

Dept. of Electronics and Communication Engineering

We cordially invite you to the

Certification Course
On

"Introduction to Robotics"

By
Mr.Santhosh S
Asst.Professor
Dept. of ECE, AIET

Venue: Internet Lab
Date: 26/02/2018 to 02/03/2018

Mr. Santhosh S
Staff Coordinators

Dr. D V Manjunatha
HOD

About the Institution

Alva's Institute of Engineering & Technology (AIET) is a premier Engineering Institute of Alva's Education Foundation established in the year 2008.

AIET is recognized by All India Council for Technical Education (AICTE), New Delhi and affiliated to Visvesvaraya Technological University (VTU), Belgaum, approved by Govt. of Karnataka. Ranked as one of the best Technical Institute in Dakshina Kannada region. AIET has established Multi-Disciplinary Research Centers viz Center for Robotics, EMS, CAD Center, Linux Lab.

About the Department

Department of Electronics & Communication was started in the year 2008-09. ECE branch is concerned with the design, development, manufacture and application of electronic devices, circuits and systems. It plays great emphasis on deep understanding of fundamental principles and state of the art knowledge about Electronic Devices and Circuits, Computer Architecture and Microprocessors, VLSI and Embedded systems, Electromagnetic Field Theory, Analog and Digital Communication, Digital Signal Processing, Microwave and Broadband Communications, MEMS Research and Development Lab.

Scope of the Course

The Introduction to Robotics Specialization introduces you to the concepts of robot flight and movement, how robots perceive their environment, and how they adjust their movements to avoid obstacles, navigate difficult terrains and accomplish complex tasks such as construction and disaster recovery. .This course will involve students in the development, building and programming of line follower robot.

Course Content

1. Introduction to Embedded system and Fire Bird V robot.
2. Introduction to AVR Microcontroller and Programming Environment.
3. IO Buzzer Programming.
4. Motion Control using I/O ports.
5. Robot velocity control using PWM.
6. Sensor switching in the robot and its Programming.

RESOURSE PERSON

Mr.Santhosh S

Asst.Professor

Dept. of ECE, AIET.

PROGRAM SCHEDULE

26 February , 2018	
Introduction:	09:00 am to 10:30 am
Tea Break:	10:30 am to 10:45 am
Session 1:	10:45 am to 01:00 pm
Lunch Break:	01:00 pm to 02:00 pm
Session 2:	02:00 pm to 05:00 pm
27 February	
Session 3:	09.30 am to 11:00 am
Tea Break:	11:00 am to 11:15 am
Session 3:	11:15 am to 01:00 pm
Lunch Break:	01:00 pm to 02:00 pm
Session 4:	02:00 pm to 05:00 pm
28 February	
Session 5:	09.30 am to 11:00 am
Tea Break:	11:00 am to 11:15 am
Session 5:	11:15 am to 01:00 pm
Lunch Break:	01:00 pm to 02:00 pm
Session 6:	02:00 pm to 05:00 pm
1 March, 2018	
Session 7:	09.30 am to 11:00 am
Tea Break:	11:00 am to 11:15 am
Session 7:	11:15 am to 01:00 pm
Lunch Break:	01:00 pm to 02:00 pm
Session 8:	02:00 pm to 05:00 pm
2 March	
Session 9:	09.30 am to 11:00 am
Tea Break:	11:00 am to 11:15 am
Session 9:	11:15 am to 01:00 pm
Lunch Break:	01:00 pm to 02:00 pm
Session 10:	02:00 pm to 04:00 pm
Valedictory:	04:00 pm to 05:00 pm

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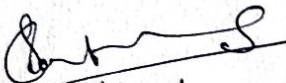
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Date: 16-02-2018

Circular

The Department of Electronics and Communication is conducting certification course for pre-final year students on the topic "Introduction to Robotics" from 26-02-2018 to 02-03-2018. All the students are informed to register for the same.

Coordinator
Mr. Santhosh S

HOD
H. O. D.
Dept. Of Electronics & Communication
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

VI Semester – Student list
Certification Course on Introduction to Robotics

#	USN. No.	Name of the Student
1.	4AL14EC019	Bindu M D
2.	4AL14EC039	Harshitha M S
3.	4AL15EC001	A Shreya
4.	4AL15EC002	Akash Ashok Neelnayak
5.	4AL15EC003	Akshata Kashinath Shinde
6.	4AL15EC004	Akshata Patil
7.	4AL15EC005	Alfiya Kouser
8.	4AL15EC007	Amitkumar Konnur
9.	4AL15EC008	Ananya M
10.	4AL15EC009	Anjali H R
11.	4AL15EC010	Anusha K
12.	4AL15EC011	Arpana
13.	4AL15EC012	Ashritha
14.	4AL15EC014	Bindu P
15.	4AL15EC015	Chaithanya S P
16.	4AL15EC016	Challa Meghana
17.	4AL15EC017	Charan Raj S
18.	4AL15EC018	Deepika N Karanth
19.	4AL15EC019	Devika H S
20.	4AL15EC020	Dheeraj S Shetty
21.	4AL15EC021	Dinesh Nagappa Ambig
22.	4AL15EC022	Divyashree A K
23.	4AL15EC027	Gouthami K
24.	4AL15EC028	Haripriya R
25.	4AL15EC029	Harshitha D
26.	4AL15EC030	Harshitha N P
27.	4AL15EC033	Jeevitha K
28.	4AL15EC034	Joel Crasta B
29.	4AL15EC035	Karotiya Rishabh Radhekrishna
30.	4AL15EC037	Keerthana I K
31.	4AL15EC039	Lakshmi Narsimha Kulkarni
32.	4AL15EC040	Likhitha P
33.	4AL15EC044	Maha Lakshmi

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

34.	4AL15EC046	Mangarshi Aishwarya Nagaraj
35.	4AL15EC047	Manjula Puranikmath
36.	4AL15EC048	Mayur Shikhare
37.	4AL15EC049	Megha A Kadadavar
38.	4AL15EC051	Monisha P
39.	4AL15EC052	Namratha
40.	4AL15EC053	Nithin Krishnan K
41.	4AL15EC054	Pavan K Rao
42.	4AL15EC055	Pavan Kumar T J
43.	4AL15EC056	Pavithra G K
44.	4AL15EC057	Pooja M
45.	4AL15EC058	Pooja Parameshwar Hulswar
46.	4AL15EC059	Poojary Manish Shekhar
47.	4AL15EC060	Poonam Madan Gunagi
48.	4AL15EC061	Pradeep Kumar R
49.	4AL15EC063	Priya Suresh Naik
50.	4AL15EC064	Priyanka
51.	4AL15EC065	Priyanka Bangari
52.	4AL15EC066	Priyanka H G
53.	4AL15EC067	Rahul Itnal
54.	4AL15EC068	Rakshitha Rao U
55.	4AL15EC069	Ranjitha
56.	4AL15EC070	Rashmi Rao
57.	4AL15EC071	Rohan R
58.	4AL15EC073	Rupesh N
59.	4AL15EC074	Sakkubai Salapur
60.	4AL15EC075	Sandhya B J
61.	4AL15EC078	Sharanamma R P
62.	4AL15EC080	Shefali S Shetty
63.	4AL15EC081	Shivaraj Suresh Navade
64.	4AL15EC082	Shraddha
65.	4AL15EC083	Shruthi I T
66.	4AL15EC084	Sneha G N
67.	4AL15EC085	Sree Charan B R
68.	4AL15EC086	Srilaxmi Upadhyaya
69.	4AL15EC088	Sumanth M S
70.	4AL15EC090	Suresh Mallikarjun Naragund
71.	4AL15EC091	Sushmitha S
72.	4AL15EC092	Teena Lobo
73.	4AL15EC093	Thirtha A L
74.	4AL15EC095	Vanashree

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75.	4AL15EC096	Varsha P
76.	4AL15EC098	Varshitha P J
77.	4AL15EC099	Vasasnth Kumar M
78.	4AL15EC101	Vinay B
79.	4AL15EC102	Vinaya Nagesh Naik
80.	4AL15EC103	Yashwanth M
81.	4AL15EC104	Abhishek
82.	4AL15EC105	Sambram
83.	4AL16EC401	Bhagya
84.	4AL16EC402	Ganesh
85.	4AL16EC403	Gowda Rachita B .V
86.	4AL16EC405	Mahesh B
87.	4AL16EC407	Prakash
88.	4AL16EC408	Preethika J
89.	4AL16EC413	Veerendrakumar

Note: All registered students should compulsorily attend the certification course from 9.00am to 5.00 pm without fail.

Coordinator

Dr. D V Manjunatha
Head of the Department
H. O. D.
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VI – Sem A & B Section

Certification Course on Introduction to Robotics

#	USN. No.	Name of the Student	26/2	26/2	27/2	27/2	28/2	28/2	1/3	1/3	2/3	2/3			
			1	2	3	4	5	6	7	8	9	10			
1.	4AL14EC019	Bindu M D	1	2	3	4	5	6	7	8	9	10			
2.	4AL14EC039	Harshitha M S	1	2	3	4	5	6	7	8	9				Harshu
3.	4AL15EC001	A Shreya	1	2	3	4	A	5	6	7	8	9			Shh
4.	4AL15EC002	Akash Ashok Neelnayak	1	2	3	4	5	6	7	8	9	10			Akash
5.	4AL15EC003	Akshata Kashinath Shinde	1	2	3	4	5	6	7	8	9	10			
6.	4AL15EC004	Akshata Patil	1	2	3	4	5	6	7	8	9	10			Alfeya
7.	4AL15EC005	Alfiya Kouser	1	2	3	4	5	6	7	8	9	10			Kamb
8.	4AL15EC007	Amitkumar Konnur	1	2	A	3	4	5	6	7	8	9			Ananya
9.	4AL15EC008	Ananya M	1	2	3	4	5	6	7	8	9	10			Anjali
10.	4AL15EC009	Anjali H R	1	2	3	4	5	6	7	8	9	10			Anusha
11.	4AL15EC010	Anusha K	1	2	3	4	5	6	7	8	9	10			Arpana
12.	4AL15EC011	Arpana	1	2	3	4	5	6	7	A	8	9			Astruth
13.	4AL15EC012	Ashritha	1	2	3	4	5	6	7	8	9	10			Bindu
14.	4AL15EC014	Bindu P	1	2	3	4	5	6	7	8	9	10			
15.	4AL15EC015	Chaithanya S P	1	2	3	4	5	6	7	8	9	10			C Meg
16.	4AL15EC016	Challa Meghana	1	2	3	4	5	6	7	8	9	10			Charan
17.	4AL15EC017	Charan Raj S	1	2	3	4	5	6	7	8	9	10			
18.	4AL15EC018	Deepika N Karanth	1	2	3	6	5	6	7	8	9	10			Devika
19.	4AL15EC019	Devika H S	1	2	3	4	5	6	7	8	9	10			
20.	4AL15EC020	Dheeraj S Shetty	1	2	3	A	4	5	6	7	8	9			
	4AL15EC021	Dinesh Naganna Ambig	1	2	3	4	5	6	7	8	9	10			

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22.	4AL15EC022	Divyashree A K	1	2	3	4	5	6	7	8	9	10			Divya
23.	4AL15EC027	Gouthami K	1	2	3	4	5	6	7	8	9	10			Goutham
24.	4AL15EC028	Haripriya R	1	2	3	4	5	6	7	8	9	10			Hari
25.	4AL15EC029	Harshitha D	1	2	3	4	5	A	6	7	8	9			Hari
26.	4AL15EC030	Harshitha N P	1	2	3	4	5	6	7	8	9	10			
27.	4AL15EC033	Jeevitha K	1	2	3	4	5	6	7	8	9	10			Jeevith
28.	4AL15EC034	Joel Crasta B	1	2	3	4	5	6	7	8	9	10			Joel
29.	4AL15EC035	Karotiya Rishabh Radhekrishna	1	2	3	4	5	6	7	8	9	10			Kisoth
30.	4AL15EC037	Keerthana I K	1	2	3	4	5	6	7	8	9	10			
31.	4AL15EC039	Lakshmi Narsimha Kulkarni	1	2	3	4	5	6	7	8	9	10			Laxmi
32.	4AL15EC040	Likhitha P	1	2	A	3	4	5	6	7	8	9			
33.	4AL15EC044	Maha Lakshmi	1	2	3	4	5	6	7	8	9	10			
34.	4AL15EC046	Mangarshi Aishwarya Nagaraj	1	2	3	4	5	6	7	8	9	10			Manga
35.	4AL15EC047	Manjula Puranikmath	1	2	3	4	5	6	7	8	9	10			Manju
36.	4AL15EC048	Mayur Shikhare	1	2	3	4	5	6	7	8	9	10			Megha
37.	4AL15EC049	Megha A Kadadavar	1	2	3	4	5	6	7	8	A	9			
38.	4AL15EC051	Monisha P	1	2	3	4	5	6	7	8	9	10			Monish
39.	4AL15EC052	Namratha	1	2	3	4	5	6	7	8	9	10			Namrut
40.	4AL15EC053	Nithin Krishnan K	1	2	3	4	5	6	7	8	9	10			Kin
41.	4AL15EC054	Pavan K Rao	1	2	3	4	5	6	7	8	9	10			Pav
42.	4AL15EC055	Pavan Kumar T J	A	1	2	3	4	5	6	7	8	9			
43.	4AL15EC056	Pavithra G K	1	2	3	4	5	6	7	8	9	10			G.K.Pavi
44.	4AL15EC057	Pooja M	1	2	3	4	5	6	7	8	9	10			M.Pooja
45.	4AL15EC058	Pooja Parameshwar Hulswar	1	2	3	4	5	6	7	A	8	9			Pooja

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

No.	USN	Name														Sign
46.	4AL15EC059	Poojary Manish Shekhar	1	2	3	4	5	6	7	8	9	10				Shekar
47.	4AL15EC060	Poonam Madan Gunagi	1	2	3	4	5	6	7	8	9	10				Poonam
48.	4AL15EC061	Pradeep Kumar R	1	2	3	4	5	6	7	8	9	10				Pra
49.	4AL15EC063	Priya Suresh Naik	1	2	3	4	5	6	7	8	9	10				Priya
50.	4AL15EC064	Priyanka	1	2	3	4	5	6	7	8	9	10				Peq
51.	4AL15EC065	Priyanka Bangari	1	2	3	A	4	5	6	7	8	9				Priya
52.	4AL15EC066	Priyanka H G	1	2	3	4	5	6	7	8	9	10				Geo
53.	4AL15EC067	Rahul Itnal	1	2	3	4	5	6	7	8	9	10				Rahul
54.	4AL15EC068	Rakshitha Rao U	1	2	3	4	5	6	7	8	9	10				Rhs
55.	4AL15EC069	Ranjitha	1	2	3	A	4	5	6	7	8	9				Ranjith
56.	4AL15EC070	Rashmi Rao	1	2	3	4	5	6	7	8	9	10				Rashmi
57.	4AL15EC071	Rohan R	1	2	3	4	5	6	7	8	9	10				Roh
58.	4AL15EC073	Rupesh N	1	2	3	4	5	6	7	8	9	10				Rupesh
59.	4AL15EC074	Sakkubai Salapur	1	2	3	4	5	6	7	8	9	10				Sa
60.	4AL15EC075	Sandhya B J	1	2	3	4	5	6	7	8	9	10				Sandh
61.	4AL15EC078	Sharanamma R P	1	2	3	4	5	6	A	7	8	9				SAR
62.	4AL15EC080	Shefali S Shetty	1	2	3	4	5	6	7	8	9	10				S.Shet
63.	4AL15EC081	Shivaraj Suresh Navade	1	2	3	4	5	6	7	8	9	10				Shell
64.	4AL15EC082	Shraddha	1	2	3	4	5	6	7	8	9	10				Shradd
65.	4AL15EC083	Shruthi I T	1	A	2	3	4	5	6	7	8	9				Shruthi
66.	4AL15EC084	Sneha G N	1	2	3	4	5	6	7	8	9	10				Sne G.N
67.	4AL15EC085	Sree Charan B R	1	2	3	4	5	6	7	8	9	10				Charan
68.	4AL15EC086	Srilaxmi Upadhyaya	1	2	3	4	5	6	7	8	9	10				Srilaxmi
69.	4AL15EC088	Sumanth M S	1	2	3	4	5	6	7	8	A	9				Sumant

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

70.	4AL15EC090	Suresh Mallikarjun Naragund	1	2	3	4	5	6	7	8	9	10			Suresh
71.	4AL15EC091	Sushmitha S	1	2	3	4	5	6	7	8	9	10			
72.	4AL15EC092	Teena Lobo	1	2	3	4	A	5	6	7	8	9			Teena
73.	4AL15EC093	Thirtha A L	1	2	3	4	5	6	7	8	9	10			
74.	4AL15EC095	Vanashree	1	2	3	4	5	6	7	8	9	10			
75.	4AL15EC096	Varsha P	1	2	3	4	5	6	7	8	9	10			
76.	4AL15EC098	Varshitha P J	1	2	3	4	5	6	7	8	9	10			
77.	4AL15EC099	Vasasnth Kumar M	1	2	3	4	5	6	7	8	9	10			
78.	4AL15EC101	Vinay B	1	2	3	4	5	6	7	8	9	10			B.Vinay
79.	4AL15EC102	Vinaya Nagesh Naik	1	2	3	4	5	6	7	8	9	10			
80.	4AL15EC103	Yashwanth M	1	2	A	3	4	5	6	7	8	9			
81.	4AL15EC104	Abhishek	1	2	3	4	5	6	7	8	9	10			
82.	4AL15EC105	Sambram	1	2	3	4	5	6	7	8	9	10			
83.	4AL16EC401	Bhagya	1	2	3	4	5	6	A	7	8	9			Bhagya
84.	4AL16EC402	Ganesh	1	2	3	4	5	6	7	8	9	10			Ganesh
85.	4AL16EC403	Gowda Rachita B .V	1	2	3	4	5	6	7	8	9	10			Rachita
86.	4AL16EC405	Mahesh B	1	2	3	4	5	6	7	8	9	10			Mahesh
87.	4AL16EC407	Prakash	1	2	3	4	5	6	7	8	9	10			
88.	4AL16EC408	Preethika J	1	2	3	A	4	5	6	7	8	9			
89.	4AL16EC413	Veerendrakumar	1	2	3	4	5	6	7	8	9	10			veeru

Coordinator

D.V.

Dr. D V Manjunatha
Head of the Department
H. O. D.
Dept. Of Electronics & Communication
Alva' Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Report on Certificate Course

Department of Electronics and Comminication Engineering organized Five days **"Certificate course on Introduction to Robotics"** for VI semester Electronics and communication Engineering students was conducted by Mr.Santhosh S, Asst.Professor, Dept. of ECE, AIET from 26/02/2018 to 02/03/2018.
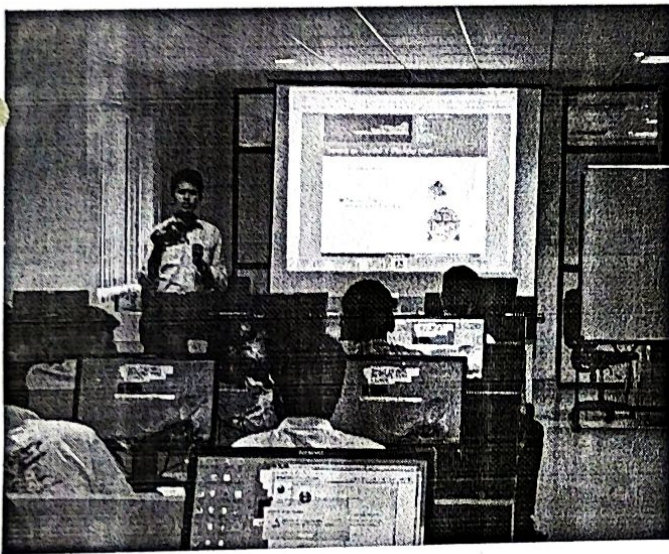
Topics covered include Embedded system and Fire Bird V robot basics and introduction to Programming Environment. Controlling using I/O ports and Velocity control using Pulse width modulation etc.

H.O.D.
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Alva's Institute of Engg. & Technology
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Department of Electronics & Communication Engineering

Summary Report of Add-on/Certificate program with its Outcomes

Academic Year : 2017-18	Duration: 26-02-2018 to 2-03-2018
Title of the Course: Introduction to Robotics.	
Resource Person: Mr. Santosh S. Assistant Professor, Dept of ECE, AIET, Mijar.	

The department conducted Certification Course on "Introduction to Robotics" for pre-final year students of Electronics and Communication Engineering from 26-02-2018 to 2-03-2018 from Mr. Santosh S, Assistant Professor, Dept of ECE, AIET, Mijar.

89 students of pre-final year, Electronics and Communication Engineering are benefitted from this course and were able to

- Understand the basics of Embedded System and Fire Bird V robot.
- Acquire the knowledge on AVR Microcontroller and Programming Environment.
- Control Robot velocity using PWM.
- Learn the concepts of sensor switching in robots and its programming.

Dr. D V Manjunatha
H. O. D.
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ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

(A unit of Alva's Education Foundation, Moodbidri)

Shobhavana Campus, Mijar, Moodbidri DK Karnataka-574225

(Affiliated to VTU, Belgaum, Approved by AICTE, New Delhi)

Department of Electronics and Communication Engineering

Certificate

This is to certify that Mr./Ms……………………………………… of …………………………

Semester, Electronics & Communication Department, has attended the Certification Course

on *"Introduction to Robotics"* from 26th February to 2nd March, 2018 organized by Department

of ECE, Alva's Institute of Engineering and Technology, Moodbidri.

Mr.Santhosh S
Asst. professor
Dept. of ECE, AIET

Dr. D V Manjunatha
Head of the Department
ECE, AIET

Dr. Peter Fernandes
Principal
AIET Moodbidri

Alva's Institute of Engineering & Technology
Shobhavana Campus, Mijar, Moodbidri, D.K – 574225
Phone: 08258-262725, Fax: 08258-262726

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Certification Course Test on "Introduction to Robotics"

Duration:1.5hrs

1. Robot is derived from Czech word

(A) Rabota

(B) Robota

(C) Rebota

(D) Ribota

2-A Robot is a

(A) Programmable

(B) Multi-functional manipulator

(C) Both (A) and (B)

(D) None of the above

3-The main objective(s) of Industrial robot is to

(A) To minimise the labour requirement

(B) To increase productivity

(C) To enhance the life of production machines

(D) All of the above

4-The following is true for a Robot and NC Machine

(A) Similar power drive technology is used in both

(B) Different feedback systems are used in both

(C) Programming is same for both

(D) All of the above

5-Match the following

Robot part	Function
a. Manipulator arm	1. For holding a piece or tool
b. Controllers	2. Move the manipulator arm and end effector
c. Drives	3. Number of degrees of freedom of movement

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d. Gripper   4. Delivers commands to the actuators

(A) a-1, b-4, c-2, d-3

(B) a-3, b-4, c-2, d-1

(C) a-3, b-2, c-4, d-1

(D) a-4, b-3, c-2, d-1

6-Drives are also known as

(A) Actuators

(B) Controller

(C) Sensors

(D) Manipulator

7-Clockwise of Anti clockwise rotation about the vertical axis to the perpendicular arm is provided through

(A) Shoulder swivel

(B) Elbow extension

(C) Arm sweep

(D) Wrist bend

8-Radial movement (in & out) to the manipulator arm is provided by

(A) Elbow extension

(B) Wrist bend

(C) Wrist swivel

(D) Wrist yaw

9-Industrial Robots are generally designed to carry which of the following coordinate system(s).

(A) Cartesian coordinate systems

(B) Polar coordinate systems

(C) Cylindrical coordinate system

(D) All of the above

10-The Robot designed with Cartesian coordinate systems has

(A) Three linear movements

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(B) Three rotational movements

(C) Two linear and one rotational movement

(D) Two rotational and one linear movement

11-The Robot designed with Polar coordinate systems has

(A) Three linear movements

(B) Three rotational movements

(C) Two linear and one rotational movement

(D) Two rotational and one linear movement

12-The Robot designed with cylindrical coordinate systems has

(A) Three linear movements

(B) Three rotational movements

(C) Two linear and one rotational movement

(D) Two rotational and one linear movement

13-Which of the following work is done by General purpose robot?

(A) Part picking

(B) Welding

(C) Spray painting

(D) All of the above

14-The following drive is used for lighter class of Robot.

(A) Pneumatic drive

(B) Hydraulic drive

(C) Electric drive

(D) All of the above

15-Internal state sensors are used for measuring _____ of the end effector.

(A) Position

(B) Position & Velocity

(C) Velocity & Acceleration

(D) Position, Velocity & Acceleration

16-Which of the following sensors determines the relationship of the robot and its environment and the objects handled by it

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(A) Internal State sensors

(B) External State sensors

(C) Both (A) and (B)

(D) None of the above

17-Which of the following is not a programming language for computer controlled robot?

(A) AMU

(B) VAL

(C) RAIL

(D) HELP

18-In which of the following operations Continuous Path System is used

(A) Pick and Place

(B) Loading and Unloading

(C) Continuous welding

(D) All of the above

19. What is the name for information sent from robot sensors to robot controllers?
a) Temperature
b) pressure
c) feedback
d) signal

20. Which of the following terms refers to the rotational motion of a robot arm?
a) Swivel
b) axle
c) retrograde
d) roll

21. What is the name for space inside which a robot unit operates?
a) Environment
b) spatial base
c) work envelope
d) exclusion zone

22. Which of the following terms IS NOT one of the five basic parts of a robot?
a) Peripheral tools
b) end effectors
c) controller
d) drive

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23. Decision support programs are designed to help managers make _____
a) budget projections
b) visual presentations
c) business decisions
d) vacation schedules

24.. The number of moveable joints in the base, the arm, and the end effectors of the robot determines_____
a) degrees of freedom
b) payload capacity
c) operational limits
d) flexibility

25. Which of the following places would be LEAST likely to include operational robots?
a) Warehouse
b) factory
c) hospitals
d) private homes

26. For a robot unit to be considered a functional industrial robot, typically, how many degrees of freedom would the robot have?
a) Three
b) four
c) six
d) eight

27. Which of the basic parts of a robot unit would include the computer circuitry that could be programmed to determine what the robot would do?
a) Sensor
b) controller
c) arm
d) end effector

28. What are the Laws of the robotics?

29. List the name of the areas where the robotics can be applied?

30. What are the basic aspects of the robotics?

31. What is AI? Why do we implement AI in the robots?

32. What are various types of sensors used in the robotics?

33. What do you understand by numerical control?

34. What is Servo controlled robot?

35. What types of motors used in industrial robots?

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FEEDBACK FORM

Five days Certification Course
On
"Introduction to Robotics"

For the following areas, please indicate your rating from 1 to 5:
1=strongly Disagree 2=Disagree 3=neither agree nor disagree 4=Agree 5=strongly Agree

SN	Topics	1	2	3	4	5
A.	Content				✓	
1	Understood the basics of Robotics.				✓	
2	Understood the basics of AVR Microcontroller.				✓	
3	Able to apply the knowledge gained to control the fire bird V Robot.				✓	
4	Understood Programming environment for interfacing and Controlling.				✓	
5	Able to develop simple Projects using Fire bird V Robot.				✓	
B	Presentation					✓
6	Instructor's knowledge					✓
7	Instructor's presentation style				✓	✓
8	Instructor covered material clearly				✓	
9	Instructor responded well to questions					✓
10	Instructor facilitated interactions among participants well					✓

C. How could this workshop be improved?

Came across new technology. It was good.

D. Any other comments or suggestions?

E. Overall, how would you rate this workshop?

Poor	Good
Neither Good Nor Poor	Excellent ✓

Please return this form to the instructor or organizer at the end of the workshop. Thank you