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SASURIE COLLEGE OF ENGINEERING

Approved by AICTE, NewDelhi. Affiliated to Anna University, Chennai

Near NH544, Coimbatore Bypass, Near Vijayamangalam Tollgate,Tirupur638056

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION-1

CURRICULAR ASPECTS

SUBMITTEDBY

IQAC

INTERNAL QUALITY ASSURANCE CELL

SASURIE COLLEGE OF ENGINEERING

SASURIE COLLEGE OF ENGINEERING
Vijayamangalam, Tiruppur.

Academic Flexibility(30)

Number of Certificate/Value added courses offered and online courses of MOOCs, SWAYAM, NPTEL etc. (where the students of the institution have enrolled and successfully completed during the last five years)

AND

Percentage of students enrolled in Certificate/ Value added courses and also completed online courses of MOOCs, SWAYAM, NPTEL etc. as against the total number of students during the last five years

VAC Title:	**Robotics and Automation in Manufacturing**				
Resource Person:	Mr.Sakthivel, HR, Aquasub Engineering Unit 4*, Coimbatore – 641017.		Mr.T.Narendran, CEO, Aquasub Engineering Unit 4*, Coimbatore – 641017.		
Date of conduct from:	**30.11.2020**	**To:**	**05.12.2020**	**Duration:**	**36 Hours**
Organized Department:	**MECHANICAL ENGINEERING**				
Participant Year:	**2/4**	**Semester:**	**ODD**	**No.of Students Registered:**	**55**
Venue:	**Online Gmeet link - "https://meet.google.com/sej-edbv-kro"**				

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SASURIE
COLLEGE OF ENGINEERING
Approved by AICTE, New Delhi
Affiliated to Anna University, Chennai

SASURIE INSTITUTIONS

DEPARTMENT OF MECHANICAL ENGINEERING

Ref: SCE / MECH /Students / VAC / 2020 – 2021 / ODD 23.11.2020

CIRCULAR

In order to bridge the curricular gap between the Academic Syllabus and Industry requirements, Department of Mechanical Engineering and IQAC of our Institution in association with Aquasub Engineering Unit 4*, is organizing a **Value Added Course (VAC)** for the students of II, III and IV year of MECH on the title **"Robotics and Automation in Manufacturing"** from **30.11.2020** to **05.12.2020**. At the end of the VAC, course completion certificates will be issued to the eligible participants as per the following norms.

- Students, who are securing **more than 70% on total score in the VAC test** and secured more than 75% in VAC attendance is eligible to receive the course completion certificate for the VAC attended.

Resource Person Details	Mr.Sakthivel, HR, Aquasub Engineering Unit 4*, Coimbatore – 641017.	Mr.T.Narendran, CEO, Aquasub Engineering Unit 4*, Coimbatore – 641017.
Venue	**Online Gmeet link - "https://meet.google.com/sej-edbv-kro"**	

V.P.

HoD/MECH

PRINCIPAL

Copy to:

1. Chairman & Secretary for information
2. Principal office
3. IQAC Co-Ordinator
4. Class In charges - II, III & IV-Year MECH
5. II, III & IV-Year MECH Students
6. MECH Notice Board
7. Department File

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).

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SASURIE INSTITUTIONS

DEPARTMENT OF MECHANICAL ENGINEERING

Ref: SCE / MECH /Students / VAC / 2020 – 2021 / ODD 23.11.2020

SYLLABUS - VALUE ADDED COURSE

"Robotics and Automation in Manufacturing"

From 30.11.2020 to 05.12.2020 (6 days)

Duration : 36 Hours **Academic Year : 2020 -2021 / ODD**

S.No.	Topics Covered	Duration (In Hours)	Date
1	Introduction to Robotics in Manufacturing	3	30.11.2020
2	Automation Technologies in Manufacturing	3	30.11.2020
3	Robotic Sensors and Actuators	3	01.12.2020
4	Industrial Robot Programming	3	01.12.2020
5	Robotics Applications in Assembly	3	02.12.2020
6	Automated Material Handling Systems	3	02.12.2020
7	Quality Control and Inspection with Robotics	3	03.12.2020
8	Flexible Manufacturing Systems	3	03.12.2020
9	Robotics in Welding and Metal Fabrication	3	04.12.2020
10	Robotic Simulation and Digital Twinning	3	04.12.2020
11	Energy Efficiency in Automated Manufacturing	3	05.12.2020
12	Case Studies and Industry Trends	3	05.12.2020
	Total Hours	36	-

After successful completion of 36 Hours VAC, the assessment test for the VAC titled "Robotics and Automation in Manufacturing" will be conducted on 05.12.2020.

VAC Coordinator

V. P.

HoD/MECH

Dr.M.VIJAYAKUMAR ME., Ph.D.,
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SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).

SASURIE INSTITUTIONS

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DEPARTMENT OF MECHANICAL ENGINEERING

STUDENTS PARTICIPATION LIST - VALUE ADDED COURSE

"Robotics and Automation in Manufacturing"

From 30.11.2020 to 05.12.2020 (6 days)

Duration : 36 Hours **Academic Year : 2020 -2021 / ODD**

S.No.	Reg No.	Name of the Student	Year / Branch
1.	732419114001	AMULRAJ P	II/MECH
2.	732419114002	ARUNKUMAR B	II/MECH
3.	732419114003	KAVIKRISHNAN P	II/MECH
4.	732419114004	KISHORE B	II/MECH
5.	732419114006	PAVENDHAR S	II/MECH
6.	732419114007	PRIYADHARSHAN G	II/MECH
7.	732419114008	SELVENTHIRAN S	II/MECH
8.	732419114010	THIRUNAVUKKARASU S	II/MECH
9.	732417114001	ALBERT STEEPHEN S	IV/MECH
10.	732417114003	ANITH KUMAR V	IV/MECH
11.	732417114004	ARAVINDAKUMAR G	IV/MECH
12.	732417114006	BALAJI C S	IV/MECH
13.	732417114007	BALAJI G	IV/MECH
14.	732417114010	DHAYANIDHI R	IV/MECH
15.	732417114011	DHINESH KUMAR K	IV/MECH
16.	732417114012	GANESHKUMAR P	IV/MECH
17.	732417114013	GOWTHAM M	IV/MECH
18.	732417114014	HARIHARAN M	IV/MECH
19.	732417114016	HARI KRISHNA M	IV/MECH
20.	732417114017	JAGADEESHKUMAR M	IV/MECH
21.	732417114019	KALIRAJ R	IV/MECH
22.	732417114020	KAMALESH P	IV/MECH
23.	732417114023	KAVINKUMAR V	IV/MECH
24.	732417114025	KRISHNAMOORTHY P	IV/MECH
25.	732417114026	LOGAPRIYAN E	IV/MECH
26.	732417114028	MURUGANANDAM K	IV/MECH
27.	732417114029	MUTHUPANDI M	IV/MECH
28.	732417114031	MYTHERAYAN K	IV/MECH

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SASURIE INSTITUTIONS

STUDENTS PARTICIPATION LIST - VALUE ADDED COURSE

S.No.	Reg No.	Name of the Student	Year / Branch
29.	732417114032	NITHISH KUMAR R	IV/MECH
30.	732417114033	POORAGAVAN P	IV/MECH
31.	732417114036	RAVIKUMAR R	IV/MECH
32.	732417114037	SANJAY P	IV/MECH
33.	732417114038	SANTHANAM P	IV/MECH
34.	732417114039	SATHYANARAYANAN S	IV/MECH
35.	732417114040	SHEIK BARIDH A	IV/MECH
36.	732417114041	SRIDHAR S	IV/MECH
37.	732417114042	SUGANRAJ P	IV/MECH
38.	732417114043	SURIYAPRAKASH P	IV/MECH
39.	732417114045	VASANTHA KUMAR S	IV/MECH
40.	732417114047	VELMURUGAN S	IV/MECH
41.	732417114048	VENGATESAN M	IV/MECH
42.	732417114049	VETRIVEL S	IV/MECH
43.	732417114050	VIGNESHWARAN R	IV/MECH
44.	732417114052	VIJIPRIYADHARSAN P	IV/MECH
45.	732417114053	VISHNUKUMAR S	IV/MECH
46.	732417114301	HEYSON K J	IV/MECH
47.	732417114501	VIGNESH K S	IV/MECH
48.	732417114503	DHANANJAYAN K	IV/MECH
49.	732417114701	ARUN KUMAR K	IV/MECH
50.	732417114702	MYTHILI G	IV/MECH
51.	732417114703	JAMES JAYA PRAKASH G	IV/MECH
52.	732417114704	VIJAY ANAND S	IV/MECH
53.	732417114705	PRAVEEN KUMAR R	IV/MECH
54.	732417114706	AJITHA A	IV/MECH
55.	732417114707	THIRUMOORTHINANDHA R	IV/MECH

VAC Coordinator

HoD/MECH

Dr.M.VIJAYAKUMAR ME., Ph.D.,
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DEPARTMENT OF MECHANICAL ENGINEERING

STUDENTS ATTENDANCE LIST - VALUE ADDED COURSE

"Robotics and Automation in Manufacturing"

From 30.11.2020 to 05.12.2020 (6 days)

Duration: 36 Hours **Academic Year: 2020 -2021/ ODD**

S.No	Reg No.	Name of the Student	Year/ Branch	30.11.2020		01.12.2020		02.12.2020		03.12.2020		04.12.2020		05.12.2020		No. of Hours Attended
				FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	
1	732419114001	AMULRAJ P	II/MECH	/	/	/	/	/	/	/	/	/	/	/	/	36
2	732419114002	ARUNKUMAR B	II/MECH	/	/	/	/	/	/	/	A	/	/	/	/	33
3	732419114003	KAVIKRISHNAN P	II/MECH	/	/	/	/	/	/	/	/	/	/	/	/	36
4	732419114004	KISHORE B	II/MECH	/	/	/	/	/	A	/	/	/	/	/	/	33
5	732419114006	PAVENDHAR S	II/MECH	/	/	/	/	/	/	A	A	/	/	/	/	30
6	732419114007	PRIYADHARSHAN G	II/MECH	/	/	/	/	/	/	/	/	/	/	/	/	36
7	732419114008	SELVENTHIRAN S	II/MECH	/	/	/	/	/	/	/	/	/	/	/	/	36
8	732419114010	THIRUNAVUKKARASU S	II/MECH	/	/	A	A	/	/	/	/	/	/	/	/	30
9	732417114001	ALBERT STEEPHEN S	IV/MECH	/	/	/	/	/	/	/	A	/	/	/	/	33
10	732417114003	ANITH KUMAR V	IV/MECH	/	/	/	/	/	A	/	/	/	/	/	/	33
11	732417114004	ARAVINDAKUMAR G	IV/MECH	/	/	/	/	/	/	/	/	/	/	/	/	36
12	732417114006	BALAJI C S	IV/MECH	/	/	/	/	/	/	A	A	/	/	/	/	30
13	732417114007	BALAJI G	IV/MECH	/	/	/	/	/	/	/	/	/	A	/	/	33

Dr.M.VIJAYAKUMAR ME., Ph.D.,
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Vijayamangalam

SASURIE
COLLEGE OF ENGINEERING

STUDENTS ATTENDANCE LIST - VALUE ADDED COURSE

S.No	Reg No.	Name of the Student	Year/ Branch	30.11.2020		01.12.2020		02.12.2020		03.12.2020		04.12.2020		05.12.2020		No. of Hours Attended
				FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	
14	732417114019	DHAYANIDHI R	IV/MECH	1	1	1	1	1	1	1	A	1	1	1	1	33
15	732417114011	DHINESH KUMAR K	IV/MECH	1	1	1	1	1	1	1	1	1	1	1	1	36
16	732417114012	GANESHKUMAR P	IV/MECH	1	1	1	A	1	1	1	1	1	1	1	1	33
17	732417114013	GOWTHAM M	IV/MECH	1	1	1	1	1	1	A	A	1	1	1	1	30
18	732417114014	HARIHARAN M	IV/MECH	1	1	1	1	1	1	1	1	1	1	1	1	36
19	732417114016	HARI KRISHNA M	IV/MECH	1	1	1	1	1	1	1	1	1	A	1	1	33
20	732417114017	JAGADEESHKUMAR M	IV/MECH	1	1	1	1	1	1	1	1	1	1	1	1	36
21	732417114019	KALIRAJ R	IV/MECH	1	1	1	1	1	1	1	1	1	1	1	1	36
22	732417114020	KAMALESH P	IV/MECH	1	1	1	1	1	1	1	1	1	1	1	1	36
23.	732417114023	KAVINKUMAR V	IV/MECH	1	1	1	1	1	1	1	A	1	1	1	1	33
24.	732417114025	KRISHNAMOORTHY P	IV/MECH	1	1	1	A	1	1	1	1	1	1	1	1	33
25.	732417114026	LOGAPRIYAN E	IV/MECH	1	1	1	1	1	1	1	1	A	A	1	1	30
26.	732417114028	MURUGANANDAM K	IV/MECH	1	1	1	1	1	A	1	1	1	1	1	1	33
27.	732417114029	MUTHUPANDI M	IV/MECH	1	1	1	1	1	1	1	1	1	1	1	1	36
28.	732417114031	MYTHERAYAN K	IV/MECH	1	1	1	1	1	1	1	1	1	A	1	1	33
29.	732417114032	NITHISH KUMAR R	IV/MECH	1	1	1	1	1	1	1	1	1	1	1	1	36
30.	732417114033	POORAGAVAN P	IV/MECH	1	1	1	1	1	A	1	1	1	1	1	1	33
31.	732417114036	RAVIKUMAR R	IV/MECH	1	1	A	A	1	1	1	1	1	1	1	1	30
32.	732417114037	SANJAY P	IV/MECH	1	1	1	1	1	1	1	A	1	1	1	1	33

Dr.M.VIJAYAKUMAR ME., Ph.D.,
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SASURIE INSTITUTIONS

SASURIE
COLLEGE OF ENGINEERING

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STUDENTS ATTENDANCE LIST - VALUE ADDED COURSE

S.No	Reg No.	Name of the Student	Year/ Branch	30.11.2020		01.12.2020		02.12.2020		03.12.2020		04.12.2020		05.12.2020		No. of Hours Attended
				FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	
33	732417114038	SANTHANAM P	IV/MECH	/	/	/	/	/	/	/	A	/	/	/	/	33
34	732417114039	SATHYANARAYANAN S	IV/MECH	/	/	/	/	/	/	/	/	/	A	/	/	33
35	732417114040	SHEIK BARIDH A	IV/MECH	/	/	/	/	/	/	/	/	/	/	/	/	36
36	732417114041	SRIDHAR S	IV/MECH	/	/	/	A	/	/	/	/	/	/	/	/	33
37	732417114042	SUGANRAJ P	IV/MECH	/	/	/	/	/	/	A	A	/	/	/	/	30
38	732417114043	SURIYAPRAKASH P	IV/MECH	/	/	/	/	/	/	/	/	/	A	/	/	33
39	732417114045	VASANTHA KUMAR S	IV/MECH	/	/	A	A	/	/	/	/	/	/	/	/	30
40	732417114047	VEL MURUGAN S	IV/MECH	/	/	/	/	/	/	/	/	/	/	/	/	36
41	732417114048	VENGATESAN M	IV/MECH	/	/	/	/	/	/	/	/	/	/	/	/	36
42	732417114049	VETRIVEL S	IV/MECH	/	/	/	/	/	/	A	A	/	/	/	/	30
43	732417114050	VIGNESHWARAN R	IV/MECH	/	/	/	/	/	A	/	/	/	/	/	/	33
44	732417114052	VIJIPRIYADHARSAN P	IV/MECH	/	/	/	/	/	/	/	/	A	A	/	/	30
45	732417114053	VISHNUKUMAR S	IV/MECH	/	A	/	/	/	/	/	/	/	/	/	/	33
46	732417114301	HEYSON K J	IV/MECH	/	/	/	/	/	/	/	/	/	/	/	/	36
47	732417114501	VIGNESH K S	IV/MECH	/	/	/	/	A	A	/	/	/	/	/	/	30
48	732417114503	DHANANJAYAN K	IV/MECH	/	/	/	/	/	/	/	/	/	/	/	/	36
49	732417114701	ARUN KUMAR K	IV/MECH	/	/	/	/	/	/	/	/	/	/	/	/	36
50	732417114702	MYTHILI G	IV/MECH	/	/	/	/	/	/	/	/	/	/	/	/	36
51	732417114703	JAMES JAYA PRAKASH G	IV/MECH	/	/	/	/	/	/	/	A	/	/	/	/	33

Dr.M.VIJAYAKUMAR ME., Ph.D.,
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Vijayamangalam - 638 056, Tirupur (Dt).

ASSESMENT SHEET - VALUE ADDED COURSE

S.No	Reg No.	Name of the Student	Year/ Branch	30.11.2020		01.12.2020		02.12.2020		03.12.2020		04.12.2020		05.12.2020		No. of Hours Attended
				FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	
52	732417114704	VIJAY ANAND S	IV/MECH	1	1	1	A	1	1	1	1	1	1	1	1	33
53	732417114705	PRAVEEN KUMAR R	IV/MECH	1	1	1	1	1	1	1	A	1	1	1	1	33
54	732417114706	AJITHA A	IV/MECH	1	1	1	1	1	1	1	1	1	1	1	1	36
55	732417114707	THIRUMOORTHINANDHA	IV/MECH	1	1	1	A	1	1	1	1	1	1	1	1	33

VAC Coordinator

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
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Vijayamangalam - 638 056, Tirupur (Dt)

HoD/MECH

SASURIE INSTITUTIONS

SASURIE COLLEGE OF ENGINEERING

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Report on Value Added Course

Title:	**Robotics and Automation in Manufacturing**				
Resource Person:	**Mr.Sakthivel, HR, Aquasub Engineering Unit 4*, Coimbatore – 641017.**		**Mr.T.Narendran, CEO, Aquasub Engineering Unit 4*, Coimbatore – 641017.**		
Date of conduct from :	**30.11.2020**	To:	**05.12.2020**	Duration:	**36 Hours**
Organized by :	**MECHANICAL ENGINEERING and IQAC in association with Aquasub Engineering Unit 4***				
Academic Year:	**2020 – 2021**		Semester:		**ODD**
Participant Year:	**II, III, IV Year MECH**		No. of Students Participated :		55
Venue:	**Online Gmeet link - "https://meet.google.com/sej-edbv-kro"**				

Outcome of Value Added Course (VAC)

At the end of the Course, Students can be able to

- Explain the basic principles of robotics, identify different types of robots used in manufacturing.
- Demonstrate proficiency in the selection and use of sensors in robotic systems and understand various actuation methods.
- Apply robotics in assembly lines, understanding the benefits and challenges associated with such implementations.
- Understand the concept of Flexible Manufacturing Systems (FMS) and be able to analyze and implement these systems in manufacturing settings.
- Use simulation tools for virtual testing and validation of robotic systems.

Assessment Process

- Students, who are securing **more than 70% on total score in the VAC test** and secured more than 75% in VAC attendance is eligible to receive the course completion certificate for the VAC attended
- Total Score = (0.5 *Attendance in VAC out of 100 percentage + 0.5 *Test mark in VAC out of 100 marks)

No. of students successfully completed the VAC course is **55 Students** based on the above assessment process.

VAC Co-ordinator | **HoD/ MECH** | **Principal**

Dr.M.VIJAYAKUMAR M.E., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
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SASURIE INSTITUTIONS

SASURIE COLLEGE OF ENGINEERING

Vijayamangalam, Tiruppur

DEPARTMENT OF MECHANICAL ENGINEERING

Certificate of Participation

This is to certify that **Mr./Ms** VIJAY ANAND S, IV MECH ..... has successfully completed the **Value Added Course** titled "**Robotics and Automation in Manufacturing**" Organized by the ***Department of Mechanical Engineering*** **in association with IQAC of Sasurie College of Engineering and Aquasub Engineering Unit 4*** from **30.11.2020** to **05.12.2020** (6 Days).

Co-ordinator

Head of the Department

Principal

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam

SASURIE
COLLEGE OF ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING

Certificate of Participation

This is to certify that **Mr./Ms** RAVIKUMAR R, IV MECH has successfully completed the **Value Added Course** titled "**Robotics and Automation in Manufacturing**" Organized by the ***Department of Mechanical Engineering*** **in association with IQAC of Sasurie College of Engineering and Aquasub Engineering Unit 4*** from **30.11.2020** to **05.12.2020** (6 Days).

Co-ordinator **Head of the Department** **Principal**

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,

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SASURIE INSTITUTIONS

SASURIE
COLLEGE OF ENGINEERING

Vijayamangalam, Tiruppur

DEPARTMENT OF MECHANICAL ENGINEERING

Certificate of Participation

This is to certify that **Mr./Ms** KISHORE B, II MECH ..... has successfully completed the **Value Added Course** titled "**Robotics and Automation in Manufacturing**" Organized by the ***Department of Mechanical Engineering*** **in association with IQAC of Sasurie College of Engineering and Aquasub Engineering Unit 4*** from **30.11.2020** to **05.12.2020** (6 Days).

Co-ordinator

Head of the Department

Principal

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
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Vijayamangalam - 638 056, Tirupur (Dt).

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SASURIE

SASURIE INSTITUTIONS

COLLEGE OF ENGINEERING

Vijayamangalam, Tirupur

DEPARTMENT OF MECHANICAL ENGINEERING

Certificate of Participation

This is to certify that **Mr./Ms** ARUNKUMAR B. II MECH has successfully completed the **Value Added Course** titled "**Robotics and Automation in Manufacturing**" Organized by the ***Department of Mechanical Engineering*** **in association with IQAC of Sasurie College of Engineering and Aquasub Engineering Unit 4* from 30.11.2020 to 05.12.2020** (6 Days).

Co-ordinator

Head of the Department

Principal

Dr.M.VIJAYAKUMAR ME., Ph.D.,
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DEPARTMENT OF MECHANICAL ENGINEERING

TEST QUESTION PAPER - VALUE ADDED COURSE

"Robotics and Automation in Manufacturing"

From 30.11.2020 to 05.12.2020 (6 days)

Duration : 36 Hours **Academic Year : 2020 -2021 / ODD**

Date of Test : 05.12.2020

MULTIPLE CHOICE QUESTIONS (25 X 1 = 25 Marks)

Name of the Student: **Year/Sem:**

AU Register Number:

Answer all the questions:

1. What is the primary function of a programmable logic controller (PLC) in manufacturing automation?
   a. Data storage
   b. Motion control
   c. Communication
   d. Image processing

2. Which type of robot is commonly used for material handling in manufacturing?
   a. SCARA robot
   b. Cartesian robot
   c. Delta robot
   d. Articulated robot

3. What is the purpose of using sensors in a robotic system?
   a. Data storage
   b. Feedback and detection
   c. Communication
   d. Power supply

4. Which programming language is commonly used for industrial robot programming?
   a. Python
   b. Java
   c. C++
   d. Robot Language

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5. What is the role of a digital twin in manufacturing?
   a. Real-time monitoring
   b. Virtual testing and validation
   c. Physical robot control
   d. Quality inspection

6. In the context of robotics, what does the term "end effector" refer to?
   a. Robot's control unit
   b. Robot's power supply
   c. Tool or gripper at the robot's end
   d. Robot's communication module

7. What is the primary advantage of using collaborative robots (cobots) in manufacturing?
   a. High speed
   b. Low cost
   c. Human interaction
   d. Long reach

8. Which type of automation system is designed for handling variable production tasks with minimal setup time?
   a. Fixed Automation
   b. Programmable Automation
   c. Flexible Automation
   d. Batch Production

9. What is the primary purpose of vision systems in manufacturing automation?
   a. Motion control
   b. Quality control and inspection
   c. Communication
   d. Material handling

10. What is the primary function of automated material handling systems?
   a. Quality control
   b. Tool programming
   c. Efficient movement of materials
   d. Data analysis

11. Which automation technology is commonly used for supervisory control and data acquisition in manufacturing?
   a. PLC
   b. DCS
   c. SCARA
   d. AGV

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12. In robotic welding, what does the term "end-of-arm tooling" refer to?
   a. Welding torch or gun
   b. Robot's control panel
   c. Sensor module
   d. Gripper mechanism

13. What is the primary purpose of a flexible manufacturing system (FMS) in manufacturing?
   a. Mass production
   b. Batch production
   c. Variable production tasks
   d. Quality inspection

14. Which type of automation system is suitable for high-volume, standardized production?
   a. Fixed Automation
   b. Programmable Automation
   c. Flexible Automation
   d. Batch Production

15. What is the significance of simulation tools in robotics?
   a. Real-time monitoring
   b. Virtual testing and validation
   c. Quality control
   d. Communication

16. Which term refers to the ability of a robot to perform a variety of tasks in different environments without reprogramming?
   a. Flexibility
   b. Precision
   c. Speed
   d. Payload capacity

17. What role do actuators play in a robotic system?
   a. Detecting obstacles
   b. Generating power
   c. Processing data
   d. Communicating with other robots

18. What are AGVs commonly used for in manufacturing?
   a. Material handling
   b. Quality control
   c. Welding
   d. Assembly

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19. What type of robot has a rotary joint resembling a human arm?
    a. Cartesian robot
    b. Delta robot
    c. SCARA robot
    d. Articulated robot

20. Which technology is essential for implementing Industry 4.0 in manufacturing?
    a. Internet of Things (IoT)
    b. Artificial Intelligence (AI)
    c. Machine Learning (ML)
    d. All of the above

21. What is the primary concern in human-robot collaboration?
    a. Speed
    b. Precision
    c. Safety
    d. Payload capacity

22. Which of the following is a key consideration in the ethical use of robotics in manufacturing?
    a. Speed of production
    b. Environmental impact
    c. Cost reduction
    d. Human redundancy

23. What is the primary purpose of using machine learning in manufacturing automation?
    a. Predictive maintenance
    b. Communication
    c. Motion control
    d. Data storage

24. In the context of automation, what does DCS stand for?
    a. Digital Control System
    b. Distributed Control System
    c. Data Communication System
    d. Direct Current System

25. What are the potential advantages of using digital twins in manufacturing?
    a. Real-time monitoring
    b. Virtual testing and validation
    c. Quality control
    d. All of the above

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DEPARTMENT OF MECHANICAL ENGINEERING

TEST QUESTION ANSWER KEY - VALUE ADDED COURSE

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1	b	6	c	11	b	16	a	21	c
2	c	7	c	12	a	17	b	22	b
3	b	8	c	13	c	18	a	23	a
4	d	9	b	14	a	19	c	24	b
5	b	10	c	15	b	20	d	25	d

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DEPARTMENT OF MECHANICAL ENGINEERING

19/25

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MULTIPLE CHOICE QUESTIONS (25 X 1 = 25 Marks)

Name of the Student: S. Vijayanand **Year/Sem:** IV / VII

AU Register Number: 732417114704

Answer all the questions:

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S.No	Reg No.	Name of the Student	Year/ Branch	Attendance Details		VAC-MCQ TEST		OVER ALL Score (100) (50%ofA +50%ofB)
				No. of Hours Attended	Attendance Score(100) (A)	No. of Correct Answers	MCQ Score (100) (B)	
1.	732419114001	AMULRAJP	II/MECH	36	100	21	84	92
2.	732419114002	ARUNKUMARB	II/MECH	33	90	19	76	83
3.	732419114003	KAVIKRISHNANP	II/MECH	36	100	19	76	88
4.	732419114004	KISHOREB	II/MECH	33	90	21	84	87
5.	732419114006	PAVENDHARS	II/MECH	30	80	20	80	80
6.	732419114007	PRIYADHARSHANG	II/MECH	36	100	18	72	86
7.	732419114008	SELVENTHIRAN S	II/MECH	36	100	19	76	88
8.	732419114010	THIRUNAVUKKARASUS	II/MECH	30	80	20	80	80
9.	732417114001	ALBERTSTEEPHENS	IV/MECH	33	90	21	84	87
10.	732417114003	ANITHKUMARV	IV/MECH	33	90	19	76	83
11.	732417114004	ARAVINDAKUMARG	IV/MECH	36	100	19	76	88
12.	732417114006	BALAJICS	IV/MECH	30	80	20	80	80
13.	732417114007	BALAJIG	IV/MECH	33	90	18	72	81

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14.	732417114010	DHAYANIDHIR	IV/MECH	33	90	19	76	83
15.	732417114011	DHINESHKUMARK	IV/MECH	36	100	20	80	90
16.	732417114012	GANESHKUMARP	IV/MECH	33	90	19	76	83
17.	732417114013	GOWTHAMM	IV/MECH	30	80	21	84	82
18.	732417114014	HARIHARANM	IV/MECH	36	100	21	84	92
19.	732417114016	HARIKRISHNAM	IV/MECH	33	90	19	76	83
20.	732417114017	JAGADEESHKUMARM	IV/MECH	36	100	19	76	88
21	732417114019	KALIRAJR	IV/MECH	36	100	19	76	88
22.	732417114020	KAMALESHP	IV/MECH	36	100	21	84	92
23.	732417114023	KAVINKUMARV	IV/MECH	33	90	21	84	87
24.	732417114025	KRISHNAMOORTHYP	IV/MECH	33	90	21	84	87
25.	732417114026	LOGAPRIYANE	IV/MECH	30	80	20	80	80
26.	732417114028	MURUGANANDAMK	IV/MECH	33	90	21	84	87
27.	732417114029	MUTHUPANDIM	IV/MECH	36	100	20	80	90
28.	732417114031	MYTHERAYANK	IV/MECH	33	90	19	76	83
29.	732417114032	NITHISHKUMARR	IV/MECH	36	100	19	76	88
30.	732417114033	POORAGAVANP	IV/MECH	33	90	18	72	81
31.	732417114036	RAVIKUMARR	IV/MECH	30	80	20	80	80
32.	732417114037	SANJAYP	IV/MECH	33	90	18	72	81

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33.	732417114038	SANTHANAMP	IV/MECH	33	90	19	76	83
34.	732417114039	SATHYANARAYANANS	IV/MECH	33	90	19	76	83
35.	732417114040	SHEIKBARIDHA	IV/MECH	36	100	19	76	88
36.	732417114041	SRIDHARS	IV/MECH	33	90	19	76	83
37.	732417114042	SUGANRAJP	IV/MECH	30	80	21	84	82
38.	732417114043	SURIYAPRAKASHP	IV/MECH	33	90	20	80	85
39.	732417114045	VASANTHAKUMARS	IV/MECH	30	80	20	80	80
40.	732417114047	VELMURUGANS	IV/MECH	36	100	19	76	88
41.	732417114048	VENGATESANM	IV/MECH	36	100	19	76	88
42	732417114049	VETRIVEL S	IV/MECH	30	80	20	80	80
43.	732417114050	VIGNESHWARANR	IV/MECH	33	90	19	76	83
44.	732417114052	VIJIPRIYADHARSANP	IV/MECH	30	80	20	80	80
45.	732417114053	VISHNUKUMARS	IV/MECH	33	90	19	76	83
46.	732417114301	HEYSONKJ	IV/MECH	36	100	19	76	88
47.	732417114501	VIGNESHKS	IV/MECH	30	80	20	80	80
48.	732417114503	DHANANJAYANK	IV/MECH	36	100	18	72	86
49.	732417114701	ARUNKUMARK	IV/MECH	36	100	18	72	86
50.	732417114702	MYTHILIG	IV/MECH	36	100	18	72	86
51.	732417114703	JAMESJAYAPRAKASHG	IV/MECH	33	90	18	72	81

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52.	732417114704	VIJAYANANDS	IV/MECH	33	90	19	76	83
53.	732417114705	PRAVEENKUMARR	IV/MECH	33	90	19	76	83
54.	732417114706	AJITHAA	IV/MECH	36	100	19	76	88
55.	732417114707	THIRUMOORTHINANDHA R	IV/MECH	33	90	19	76	83

VAC Coordinator

HOD/MECH

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