

## REPORT ON 3 DAYS WORKSHOP

### “Industry 4.0 - Industrial Design, Visualisation & Conceptualisation”

Conducted by **Mrs .Vaishnavi Vignesh Raja and Team,**  
Director - Equad Engineering Services VP - Operations & Strategy - SECO Controls Pvt.  
Ltd.

11.04.2022

*April 6,7 & 8 , 2022, Time:9.00 PM to 4.00 PM*

School of Mechanical Sciences, BSACIST in Association

With

MSME (Govt of India) & Equad Engineering Services

Organized a workshop on

### “Industry 4.0 - Industrial Design, Visualization & Conceptualization”

#### Convenor

**Dr.S.Rasool Mohideen ,**  
**Dean (SMS) & Professor.**  
School of Mechanical Sciences,  
BSACIST  
**Dr. H. Siddhi Jailani**  
**Professor & Head**  
**School of Mechanical Sciences,**  
**BSACIST.**

#### Coordinator

**Dr.S.Ravikumar, Asst Professor**  
**Department of Mechanical Engineering**  
School of Mechanical Sciences,  
BSACIST

#### **Speaker:**

**Mrs .Vaishnavi Vignesh Raja,**  
**Director - EQUAD Engineering Services**  
**VP - Operations & Strategy - SECO**  
**Controls Pvt. Ltd.**  
**Chennai, Tamilnadu, India.**  
**&**  
**Equad Engineering service team**

## **PREAMBLE**

The Industry 4.0 - Industrial Design Visualisation & Conceptualisation” workshop was organized by Department of Mechanical Engineering along with MSME (Govt of India) and Equad Engg services Pvt ltd. The workshop was inaugurated by Dr.S.Rasool Mohideen , Dean SMS . The introduction was delivered by Mrs. Vaishnavi Vignesh Raja,, Director - Equad Engineering Services, VP - Operations & Strategy - SECO Controls Pvt. Ltd.

Around 37 students from Mechanical department participated in the workshop.

The workshop Outcome is to make:

1. Understand how to envision & translate an industrial engineering problem into a Design Solution
2. Emphasis on practical modelling for improved thinking in Dynamic Mechanical Design
3. Techniques to handle critical design parameters and processes for an industrial product
4. Enable Effective use of 2D Drafting & 3D Modelling and Analysis Platforms
5. Systematically design modules for Prototyping and Production

The three days’ workshop covered the following topics

- Approach to overall industrial mechanical design
- Observe how Industry 4.0 impacts and affects Industrial Mechanical De-sign
- Design sketching & modelling techniques
- How to modularize mechanical design
- Difference in design for standard parts and custom design
- How to arrive at schematics of design
- Distinguish in design approach between prototype design & product de-sign
- Understanding how to identify critical and noncritical dimensions
- Interpret how to predict efficiency and performance issues in design ( 4.0)
- Understand manufacturing sequence and machine tolerance impact in design (4.0)
- Impact of design on product endurance
- Detailed design and drafting in – CADD software
- Live industry examples; modules and exercises

- Diy – component / tool / equipment innovative design (4.0)

### **Session Wise Details**

#### **Approach to industrial design visualization and conceptualization**

##### SESSION-1

#### 1. INTRODUCTION TO METHODOLOGY

1.1 What is Engineering Design in today's Industry 4.0 world

1.2 Four Step Process

1.3 Familiarization

#### 2. APPROACH TO THE OVERALL DESIGN

2.1 Overview

2.2 Requirement / Specification

2.3 Four Aspects of Requirements

##### SESSION-2

#### 3. VISUALIZATION - FIRST STEP TOWARDS ENGINEERING DESIGN

3.1 Concept Sketch

3.2 Knowledge Gap Table

#### 4. DESIGN FROM VISUALIZATION TO ACTUALIZATION

##### 4.1 MODULARISATION

4.2 What is a Module

4.3 Rules of Modularization

4.4 Module Specifications

4.5 Interface Description

##### SESSION-3

#### 5. ENGINEERING DESIGN (Part -1)

5.1 Part Design – Use of Standard Parts / Custom Design

5.2 Drawing / Schematics

5.3 Design for Prototype Vs Design for Production - Prototype Stages

5.4 Review

5.5 Documentation of Anticipated Problems

#### 6. ENGINEERING DESIGN (Part-2)

6.1 Material Selection / Component selection

6.2 Dimension Logics

6.2.1 Arriving Dimensions for Each Part

6.2.2 Identifying Critical, Non critical and Matching Dimensions

- 6.3 Performance
- 6.4 Efficiency
- 6.5 Manufacturing / Dimensional
- 6.6 Process Window / Process Parameter
- 6.7 Manufacturing Sequence / Machine Tolerance
- 6.8 Failure Limit / Factor of Safety
- 6.9 Endurance / Life

#### SESSION-4

#### 7. MANUFACTURING SEQUENCE

#### SESSION-8

#### 8. DOCUMENTATION

- 8.1 Drafting
- 8.2 Bill of materials
- 8.3 Test case
  - 8.3.1 How to test a module
- 8.4 Review / review sheet

#### SESSIONS- 5 &6

- Exercises - practice sessions
- Live examples ( Real time with Industry 4.0 case studies)
- Do it yourself component / tool / equipment design

At the end of the workshop on 3<sup>rd</sup> day certificates were issued .

The certificates were issued by Dr.S.Rasool Mohideen , Dean SMS and Dr. H. Siddhi Jailani

HOD – Dept of Mechanical Engg

Finally Dr. S.Ravikumar - Coordinator concluded the workshop with Vote of thanks .



Coordinator



HOD (Mech)

## The participants list

### ATTENDANCE

S.no	Name	Day 1	Day 2	Day 3
1	AKASH P	AKA	AKA	AKA
2	MOHAMED AASIF .S	M.A.S	M.A.S	M.A.S
3	J MD FAZULUL RAHAMAN	J.F.R	J.F.R	J.F.R
4	Dinesh A	D.A	D.A	D.A
5	JOSEPH NOEL KIREN	J.N.K	J.N.K	J.N.K
6	PRAMOD M	P.M	P.M	P.M
7	SAI SRIKANTH VALLURI	S.S.V	S.S.V	S.S.V
8	DEEPAK KUMAR BAL. P	D.K.B.P	D.K.B.P	D.K.B.P
9	Mohan Bandla	M.B	M.B	M.B
10	RAADHA KRISHNAN	R.K	R.K	R.K
11	J. ABRAHAM KEVIN CLIFFORD	J.A.K.C	J.A.K.C	J.A.K.C
12	DHARSHANRAJ B	D.R.B	D.R.B	D.R.B
13	DOMINIC DEVASAGAYAM B	D.D.B	D.D.B	D.D.B
14	Dev Chaurasia	D.C	D.C	D.C
15	AKSHAY JAYKRISHNAN	A.J.K	A.J.K	A.J.K
16	Dhanush Muthu N	D.M.N	D.M.N	D.M.N
17	S E KUMARAN	S.E.K	S.E.K	S.E.K
18	M. ANISH	M.A	M.A	M.A
19	K.Samsu Bahath	K.S.B	K.S.B	K.S.B
20	Praveenkumar G	P.G	P.G	P.G
21	M. NAVEEN KUMAR	M.N.K	M.N.K	M.N.K
22	Srikanth M	S.M	S.M	S.M
23	FAHEEM ANWAR S M	F.A.S.M	F.A.S.M	F.A.S.M

Industrial Design (Industrial 4.0) Visualisation and Conceptualisation

msmetdcchennai@gmail.com

9342906171/8637683534

24	K . AHAMED FAYIS			
25	S.SHAHEER AHAMED			
26	BALASARAVANAN K			
27	SOORIA JA			
28	SHEIK MOHAMMED IBRAHIM .A			
29	Kunapareddy Eswar Kumar Swamy			
30	MOHAMMED SALMAN			
31	ABDUL RAHUMAN			
32	MUMMIDI SATYANARAYANA			
33	K. S. SRIRAM SURYA			
34	ABDUL BASHITH			
35	GODUGULURI LAKSHMI NARASIMHA LOKESH			
36	KISHORE.I			
37	Javith Akthar.J			

"In the Name of Allah, The Most Beneficent, The Most Merciful"



B.S. Abdur Rahman  
**Crescent**

Institute of Science & Technology  
Deemed to be University u/s 3 of the UGC Act, 1956  
GST Road, Vandalur, Chennai 600 048



Department of Mechanical Engineering



*in Association with*

MSME (Govt. of India) & Equad Engineering Services Pvt Ltd

3 days workshop on

## Industry 4.0 Industrial Design Visualization & Conceptualization

*(With hands on training)*

06.04.2022 to 08.04.2022

*Additional Features*

- ↔ Free Internship for Participants
- ↔ Placement Assistance



**UG | PG**



### Convenors

Dr. S. Rasool Mohideen, Dean SMS  
Dr. H. Siddhi Jailani, HoD Mech.

### Coordinator

Dr. S. Ravikumar, AP, Mech.

**B.S. Abdur Rahman**  
**Crescent**  
 Institute of Science & Technology  
 Deemed to be University u/s of the UGC Act, 1956  
 GST Road, Vandalur, Chennai 600 648

**Department of Mechanical Engineering**  
 in Association with  
 MSME (Govt. of India) & Equad Engineering Services Pvt Ltd

**INDUSTRY 4.0**

★ **3 days workshop on**  
**Industry 4.0** ★

**Industrial Design Visualization & Conceptualization**  
 (With hands on training)

**06.04.2022 to 08.04.2022**  
 Seminar Hall, 3<sup>rd</sup> floor, Mechanical Sciences Block  
 Department of Mechanical Engineering













## FEEDBACK

Particulars	Fair(v)	Good(v)	Very Good(v)	Excellent(v)
Presentation met stated objectives				✓
Presentation was interesting			✓	
Study Materials			✓	
Presentation was relevant				✓

Please Rate the following Faculty on the basis of knowledge and Lecture delivered on the Topic.

Faculty Name	Topic	Rate out of 10
Er. Prithviraj	Industrial Design (Industrial 4.0) Visualization and Conceptualization	10
Er. Srinivasan	Industrial Design (Industrial 4.0) Visualization and Conceptualization	10

Purpose of studying this course [mark ✓ ]	Employability [ ]	Organizational growth [ ]	Technical skill [ ✓ ] Management skill [ ✓ ]
---	-------------------	---------------------------	---

**FEE  
DB  
ACK**

Overall Rating of the Training program(v):

1 Low	2	3	4	5	6	7	8	9 ✓	10 High
----------	---	---	---	---	---	---	---	-----	------------

Excellent(v)
✓
✓
✓
✓

Participant Name: AKASH. P  
Signature: AKL  
Date: 26/03/2022

Presentation was relevant

Please Rate the following Faculty on the basis of knowledge and Lecture delivered on the Topic.

Faculty Name	Topic	Rate out of 10
Er. Prithviraj	Industrial Design (Industrial 4.0) Visualization and Conceptualization	10
Er. Srinivasan	Industrial Design (Industrial 4.0) Visualization and Conceptualization	10

Purpose of studying this course [mark ✓ ]	Employability [ ✓ ]	Organizational growth [ ]	Technical skill [ ✓ ] Management skill [ ]
---	---------------------	---------------------------	---

Overall Rating of the Training program(v):

1 Low	2	3	4	5	6	7	8	9	10 High ✓
----------	---	---	---	---	---	---	---	---	--------------

Participant Name: S. Mohamed Aasif  
Signature: S. Mohamed Aasif  
Date: 26/05/2022