



**SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY**

(Approved by AICTE, New Delhi / Affiliated to Anna University / Accredited by NAAC)

Dindigul – Palani Highway, Dindigul – 624 002

**INSTITUTION'S INNOVATION COUNCIL**



**WORKSHOP  
ON  
PROTOTYPE  
DESIGN &  
DEVELOPMENT  
(3D PRINTING)**



**SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY**

(Approved by AICTE, New Delhi / Affiliated to Anna University / Accredited by NAAC)

(Accredited by NBA – ECE, EEE & MECH UG Programs)

Dindigul – Palani Highway, Dindigul – 624 002

**DEPARTMENT OF MECHANICAL ENGINEERING**

# **TECHNOLOGY TRAINING ON 3D PRINTING**



## **REPORT CONTENTS:**

- About the Training Program.
- Objectives and Outcomes of the Program.
- Event brochure.
- Introduction to 3D Printing.
- Event Schedule.
- Glimpses of the Training.
- Students Attendance.
- Assessment Sheet.
- Student's Feedback.

### **About the Event:**

SSM Institute of Engineering and Technology is keen on giving the latest technologies to students. The aim of this training is to make students design their own prototype model with the latest 3D printing Technology. A total of 38 students from the department of Mechanical Engineering have actively participated in the training program. Mr. P. Dheenathayalan (AP/Mechanical) and Mr. M. Selwin (AP/Mechanical) have coordinated the event. The event was conducted in Mechanical CAD Lab from 28.03.2023 to 03.04.2023. Students have learnt to design their own model from Tinker CAD and fabricated their model using Fused Deposition Modelling machine.

### **Objectives of the event:**

- Apprise the students of emerging trends in 3D printing technology and its applications in various fields.
- Impart the students with the fundamentals of various 3D printing techniques, such as liquid based, powder based, and solid based.
- Enable the students to use software tools for 3D printing, such as CAD modeling, G code generation, and data conversion.
- Help the students to optimize their design files for 3D printing, such as reducing material usage, ensuring print quality, and dealing with common issues.
- Enhance the student's creativity, design thinking, critical thinking, and collaboration skills by working on 3D printing projects.

### **Outcomes of the 3D printing Technology Training:**

- Students have learnt about the materials, designing of CAD models, working of a 3D printer, and how to build and calibrate a 3D printer.
- Students have understood the basics of G code generation, which is a language used to control the movement and operation of a 3D printer.
- Students have got their own 3D printed models that were designed and fabricated by themselves which helped them to develop their creativity and design thinking skills.
- Enhanced the critical thinking and collaboration skills of the students by working on the 3D printer with other students.
- Students have explored the applications and benefits of 3D printing in various industries such as aerospace, automobile, biomedical, electronics, fashion, and education.



SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY  
DEPARTMENT OF MECHANICAL ENGINEERING



# **TECHNOLOGY TRAINING ON 3D PRINTING**



**Resource Persons**

**Mr. P. Dheenathayalan (AP/MECH)**

**Mr. M. Selwin (AP/Mech)**

**28.03.2023**

**TO**

**03.04.2023**

**CONVENORS**

**Dr. G. Sankaranarayanan**  
**HOD/Mechanical**

**Dr. D. Senthil Kumaran**  
**Principal**

## Event Schedule:

S.NO	DATE	SESSION	MODE OF TRAINING	CONTENT TO BE DELIVERED
1	28.03.2023	FN	Lecture	<b>Introduction:</b> Subtractive vs Additive Manufacturing- History of Additive Manufacturing- Evolution of Additive Manufacturing- Advantages- Applications
2			Video Demonstration	<b>Additive Manufacturing Techniques:</b> Vat photopolymerization, Material Extrusion, Material Jetting, Binder Jetting, Powder bed fusion, Direct energy deposition and Sheet lamination, Selective Laser Sintering, Direct Metal Selective Laser Sintering.
3		AN	Hands on Training	<b>AUTODESK TINKER CAD:</b> Object Modeling using Basic Shapes Library
4	29.03.2023	FN	Lecture	<b>Types of FDM printer:</b> Cartesian, Polar, delta, Robotic (SCARA) Main Parts and Construction of FDM printer: Frame, Linear rods, Linear motion bearings, Slider/Carriage, V slot extrusion, Pulley, belt, Lead screw Arduino processor, Controller board, Limit Switch, Hot end, Extrusion system: Direct Drive, Bowden type, Power Supply, Heat Beds etc
5			Lecture	Principle of FDM/FFF printing, Basic steps to perform FDM printing, Significant process parameters of FDM printing, layer height, raster angle, raster width, build temperature, Nozzle temperature, orientation, printing speed etc.
6		AN	Hands on Training	<b>Ultimaker CURA:</b> Add Printer, Manage Printer, Machine Settings, Modifying G Codes, Customizing Material & Nozzle Size, Importing STL file, Aligning object to Printing Position, Quality Settings, Infill Settings, Printing Temperature, Support Settings, Build Plate Adhesion, Fan Cooling Settings, Slicing: Generating G Code Files. <b>FDM Machine Operations:</b> Filament Loading and Unloading, Menu Control System.
7	31.03.2023	FN	Lecture	<b>FDM Materials:</b> PLA, ABS, PETG, Nylon, PVA, PC, TPU, Carbon reinforced nylon, ceramics, metals, Dual and multi material etc. <b>Introduction to 3D Scanning</b>
8			Lecture	Applications of FDM printer in AM, Applications of AM: Aerospace, Biomedical, Automotive, Bio-printing, Tissue & Organ Engineering, Architectural Engineering, Surgical simulation, Art, Health care
		AN	Hands on Training	Make a cube of any dimension using FDM 3D Printer.
9	03.04.2023	FN	Hands on Training	Download a .stl file of simple object from internet, convert into Gcode and print with FDM 3D Printer at 30% infill density.
				Download a .stl file of simple object which require support material from internet, convert into G-code and print with FDM 3D Printer.
		AN	Hands on Training	Design and print objects containing moving parts without assembly.
				Design the Coupling in 3D modeling software and print it using PLA material.
10				Design the Key ring of your own name in 3D modeling software and print it using PLA material.
				Emboss / Engrave your name on a 3D object and print it with PLA material.
				Print your photo with the help of LITHOPLANE.
11	03.04.2023	AN		<b>ASSESSMENT</b>



## Glimpses of the Training:



Anaipatti, Tamil Nadu, India

9WWC+M5X, Dindigul - Palani Rd, Anaipatti, Tamil Nadu 624705,  
India

Lat 10.396919°

Long 77.919732°

28/03/23 10:09 AM GMT +05:30

GPS Map Camera



Introduction to Additive manufacturing by Mr. P. Dheenathayalan (AP/Mech)




## Anaipatti, Tamil Nadu, India

9WWC+M5X, Dindigul - Palani Rd, Anaipatti, Tamil Nadu 624705,  
India

Lat 10.396806°

Long 77.919792°

28/03/23 11:25 AM GMT +05:30

 GPS Map Camera



**Video Demonstration on Additive Manufacturing Techniques**






Anaipatti, Tamil Nadu, India

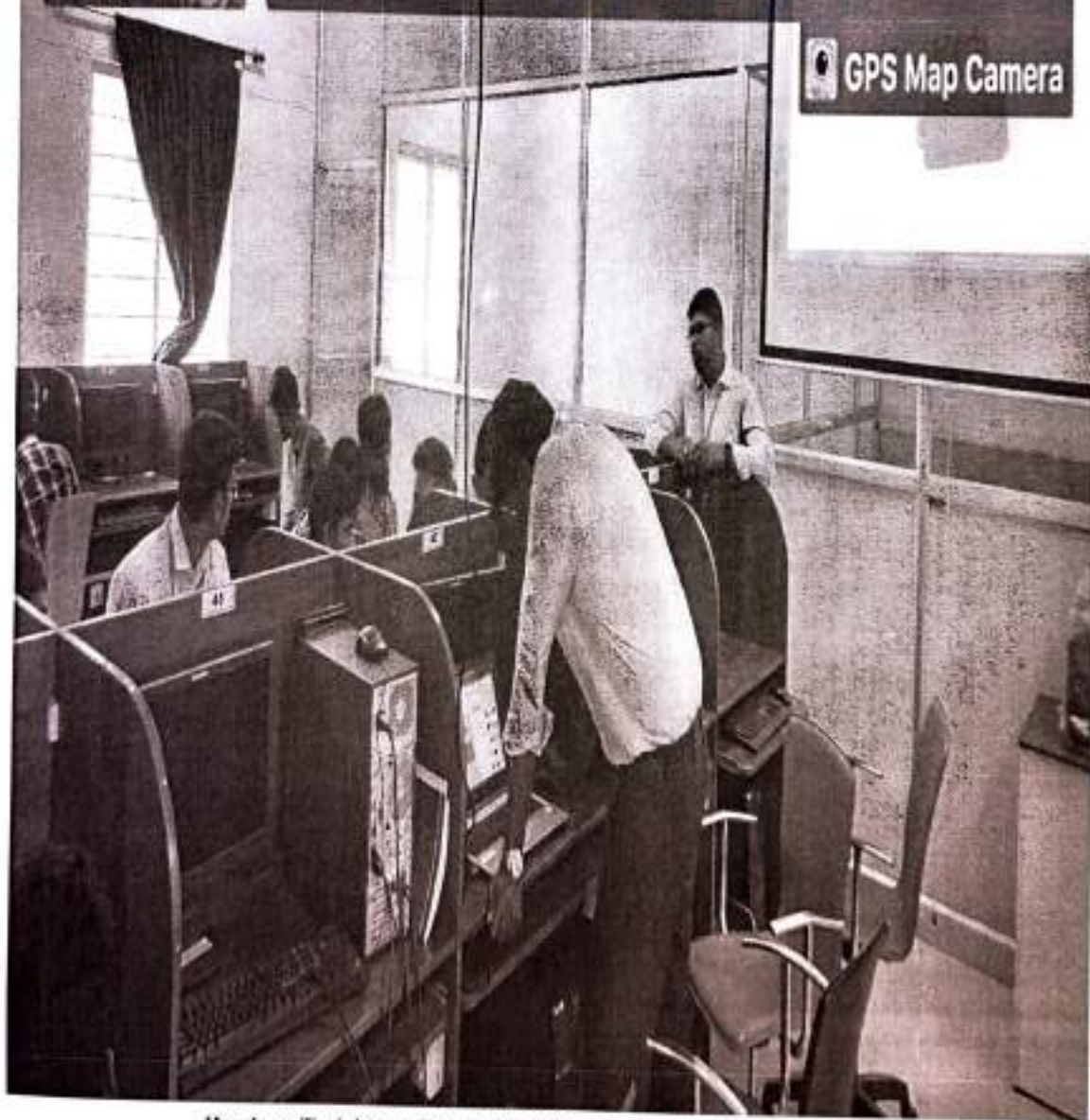
9WWC+M5X, Dindigul - Palani Rd, Anaipatti, Tamil Nadu 624705,  
India

Lat 10.396804°

Long 77.919806°

28/03/23 01:14 PM GMT +05:30

 GPS Map Camera



Hands on Training on TINKER CAD by Mr. M. Selwin (AP/Mech)



### Analpatti, Tamil Nadu, India

9WWC+M5X, Dindigul - Palani Rd, Analpatti, Tamil Nadu 624705, India

Lat 10.397019°

Long 77.91962°

29/03/23 10:29 AM GMT +05:30

GPS Map Camera



### Anaipatti, Tamil Nadu, India

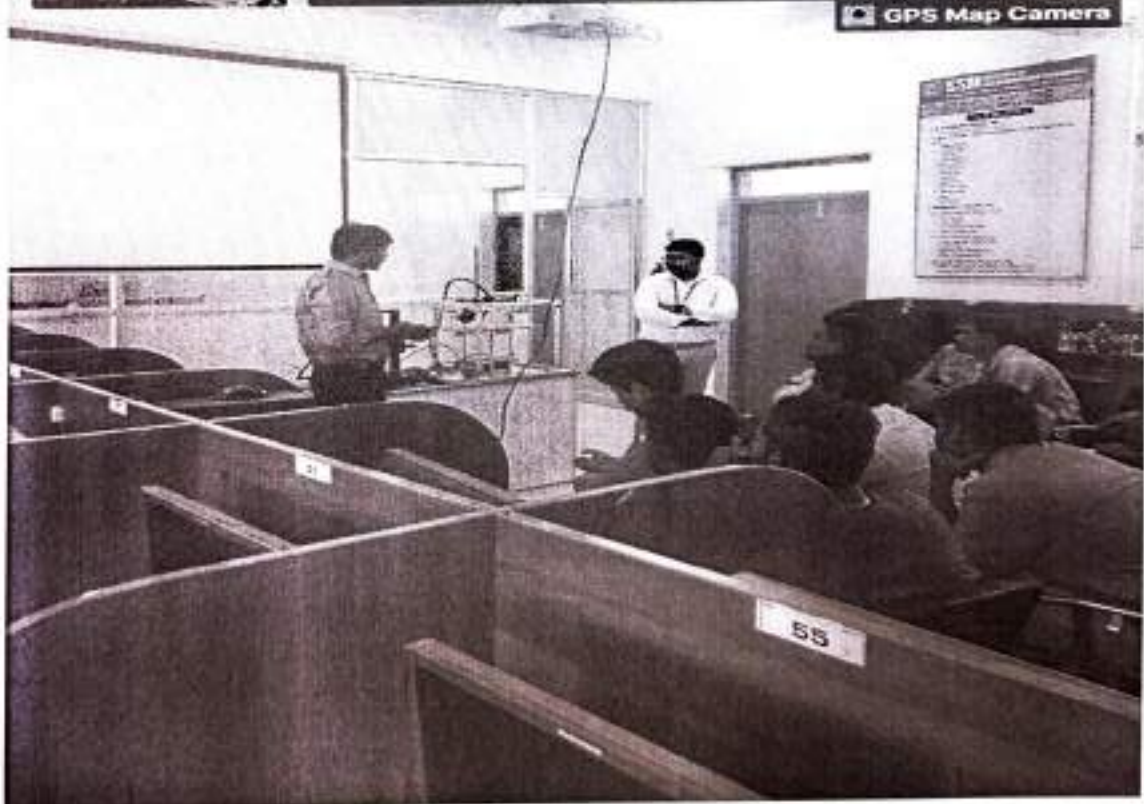
9WWC+M5X, Dindigul - Palani Rd, Anaipatti, Tamil Nadu 624705, India

Lat 10.396992°

Long 77.919662°

29/03/23 10:29 AM GMT +05:30

GPS Map Camera



Demonstration of FDM Machine Specifications





## Anaipatti, Tamil Nadu, India

9WWC+M5X, Dindigul - Palani Rd, Anaipatti, Tamil

Nadu 624705, India

Lat 10.396807°

Long 77.919793°

29/03/23 10:52 AM GMT +05:30

GPS Map Camera



Demonstration of Material Feeding





### Anaipatti, Tamil Nadu, India

9WWC+M5X, Dindigul - Palani Rd, Anaipatti, Tamil Nadu 624705, India

Lat 10.396808°

Long 77.919792°

29/03/23 12:05 PM GMT +05:30

GPS Map Camera



### Anaipatti, Tamil Nadu, India

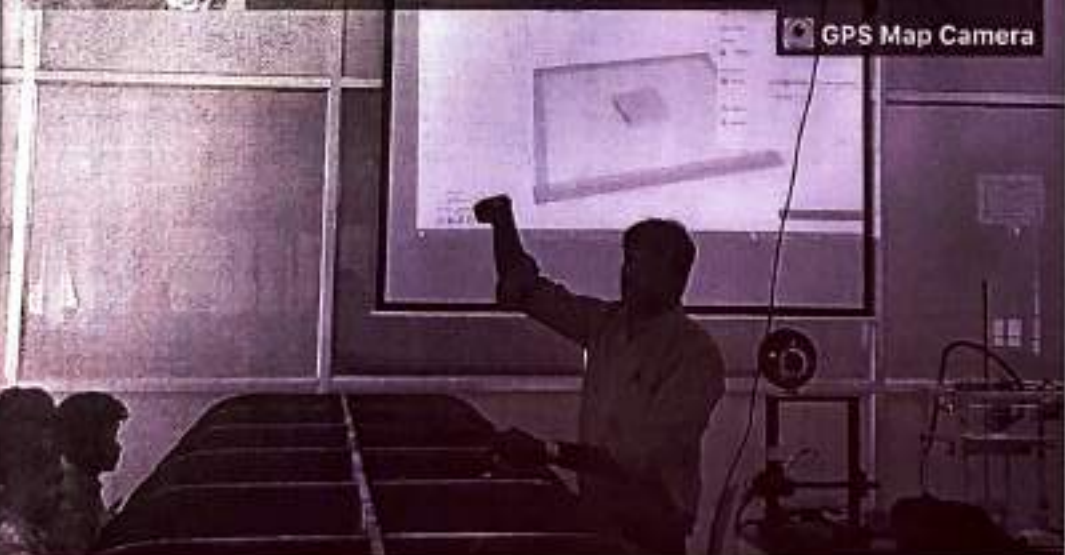
9WWC+M5X, Dindigul - Palani Rd, Anaipatti, Tamil Nadu 624705, India

Lat 10.396807°

Long 77.919793°

29/03/23 02:04 PM GMT +05:30

GPS Map Camera



Demonstration on slicing using Ultimaker Cura



**Anaipatti, Tamil Nadu, India**

9WWC+M5X, Dindigul - Palani Rd, Anaipatti, Tamil Nadu 624705, India

Lat 10.396967°

Long 77.919728°

29/03/23 12:06 PM GMT +05:30

GPS Map Camera



**Machine Parameter setting on creality ender 3 machine**



**Anaipatti, Tamil Nadu, India**

9WWC+M5X, Dindigul - Palani Rd, Anaipatti, Tamil Nadu 624705, India

Lat 10.396809°

Long 77.919792°

29/03/23 02:05 PM GMT +05:30

GPS Map Camera



**Students creating their own model using tinkercad**





Anaipatti, Tamil Nadu, India

9WWC+M5X, Dindigul - Palani Rd, Anaipatti, Tamil Nadu 624705,  
India

Lat 10.396905°

Long 77.91971°

31/03/23 01:22 PM GMT +05:30

GPS Map Camera



Fig 8. Demonstration of 3D Model fabrication





**Analpatti, Tamil Nadu, India**

9WWC+M5X, Dindigul - Palani Rd, Analpatti, Tamil Nadu 624705, India

Lat 10.396989°

Long 77.91961°

31/03/23 01:23 PM GMT +05:30

GPS Map Camera



**Demonstration of 3D Model fabrication**



**Analpatti, Tamil Nadu, India**

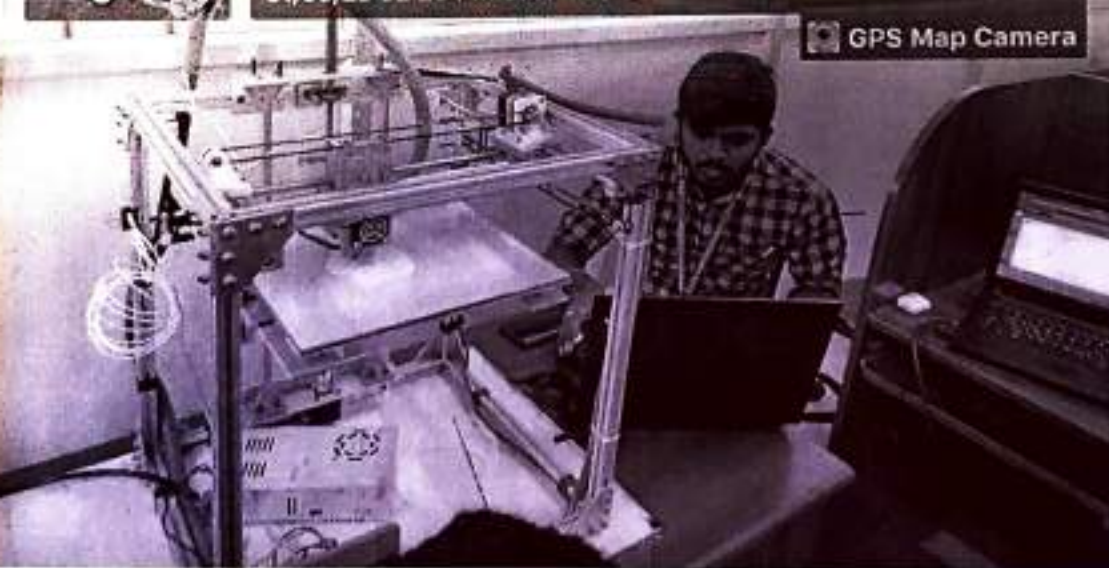
9WWC+M5X, Dindigul - Palani Rd, Analpatti, Tamil Nadu 624705, India

Lat 10.396824°

Long 77.919774°

31/03/23 02:29 PM GMT +05:30

GPS Map Camera



**3D Model preparation by a student**



### Anaipatti, Tamil Nadu, India

9WWC+M5X, Dindigul - Palani Rd, Anaipatti, Tamil Nadu 624705, India

Lat 10.396873°

Long 77.919788°

31/03/23 03:31 PM GMT +05:30

GPS Map Camera



### Anaipatti, Tamil Nadu, India

9WWC+M5X, Dindigul - Palani Rd, Anaipatti, Tamil Nadu 624705, India

Lat 10.396812°

Long 77.919761°

31/03/23 03:31 PM GMT +05:30

GPS Map Camera



3D Model Fabrication by students

  
FACULTY INCHARGES

Mr. P. Dheenathayalan

Mr. M. Selwin

  
HOD/MECHANICAL

Dr. G. Sankaranarayanan



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Dindigul - Palani Highway, Dindigul - 624 002

## DEPARTMENT OF MECHANICAL ENGINEERING TECHNOLOGY TRAINING ON 3D PRINTING

Date: 28.03.2023

Year/ Section: II Year/ A Section

S.No	Register No	Name of the Student	Attendance	
			28.03.2023 (FN)	28.03.2023 (AN)
1	922121114001	AJITH KUMAR S	S. Ajith kumar	S. Ajith kumar
2	922121114002	AKASH MARTIN C	C. Akash Martin	C. Akash Martin
3	922121114003	AMRESH T	T. Amresh	T. Amresh
4	922121114004	ANBUSELVAN	M. Anbuselvan	M. Anbuselvan
5	922121114005	BALACHANDRAN	M. Balachandran	M. Balachandran
6	922121114006	CHANTHRU B	B. Chanthru	B. Chanthru
7	922121114007	DHANUSH-N	N. Dhaneesh	N. Dhaneesh
8	922121114008	DINESH A	A. Dinesh	A. Dinesh
9	922121114009	DIWAKAR R B	R. B. Diwakar	R. B. Diwakar
10	922121114010	HARIHARAN.B	B. Hariharan	B. Hariharan
11	922121114011	HARSAN MS	S. Harsan	S. Harsan
12	922121114012	INBA TAMILAN T	T. Inba Tamilan	T. Inba Tamilan
13	922121114014	KAVIYARASU A M	M. Kaviyarasu	M. Kaviyarasu
14	922121114015	KISHORE KUMAR.S	S. Kishore Kumar	S. Kishore Kumar
15	922121114016	LALITHKUMAR. B	B. Lalithkumar	B. Lalithkumar
16	922121114017	NAGARAJAN .M	M. Nagarajan	M. Nagarajan
17	922121114018	NAREN KUMAR S	S. Naren Kumar	S. Naren Kumar
18	922121114019	NITHISH KUMAR R	R. Nithish Kumar	R. Nithish Kumar
19	922121114020	RAHUL S	S. Rahul	S. Rahul
20	922121114021	RAKUL RAJ A	A. Rakul Raj	A. Rakul Raj
21	922121114022	SANTHOSH J	J. Santhosh	J. Santhosh
22	922121114023	SATHYA SURYA.G	G. Sathya Surya	G. Sathya Surya
23	922121114024	SEBASTIN NAVEEN KUMAR G.E.	E. G. Sebastin Naveen Kumar	E. G. Sebastin Naveen Kumar
24	922121114025	SHEK MOHAMMED J	J. Shek Mohammed	J. Shek Mohammed
25	922121114026	SIVARAM.T.V	V. Sivaram	V. Sivaram
26	922121114027	SOUNDAR RAJAN S	S. Soundar Rajan	S. Soundar Rajan
27	922121114028	SUBASPANDIAN R	R. Subaspandian	R. Subaspandian
28	922121114029	SYED ABUDHAHIR S	S. Syed Abudhahir	S. Syed Abudhahir
29	922121114030	VAZEER AHAMED H	H. Vazeer Ahamed	H. Vazeer Ahamed
30	922121114031	VIGNESH N	N. Vignesh	N. Vignesh
31	922121114032	VIGNESH KUMAR K	K. Vignesh Kumar	K. Vignesh Kumar
32	922121114033	YASHWATHKUMAR	M. Yashwath Kumar	M. Yashwath Kumar
33	922121114301	ARUN KUMAR N	N. Arun Kumar	N. Arun Kumar
34	922121114302	DINESH KUMAR M	M. Dinesh Kumar	M. Dinesh Kumar
35	922121114303	INBARAJ P	P. Inbaraj	P. Inbaraj
36	922121114304	JEGATHES WARAN S	S. Jegatheswaran	S. Jegatheswaran
37	922121114305	KIRUTHICKARAN D	D. Kiruthickaran	D. Kiruthickaran
38	922121114306	SASIKIRAN B	B. Sasikiran	B. Sasikiran

FACULTY INCHARGES

HOD/MECHANICAL





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Dindigul - Palani Highway, Dindigul - 624 002

## DEPARTMENT OF MECHANICAL ENGINEERING TECHNOLOGY TRAINING ON 3D PRINTING

Year/ Section: II Year/ A Section

Date: 29.03.2023

S.No	Register No	Name of the Student	Attendance	
			29.03.2023 (FN)	29.03.2023 (AN)
1	922121114001	AJITH KUMAR S	S. Ajith Kumar	S. Ajith Kumar
2	922121114002	AKASH MARTIN C	C. Akash Martin	C. Akash Martin
3	922121114003	AMRESH T	T. Amresh	T. Amresh
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5	922121114005	BALACHANDRAN	M. B.	A.P.
6	922121114006	CHANTHRU B	B. Ch.	B. Ch.
7	922121114007	DHANUSH-N	N. Dh.	N. Dh.
8	922121114008	DINESH A	A. Dinesh	A. Dinesh
9	922121114009	DIWAKAR R B	R. B. Diwakar	R. B. Diwakar
10	922121114010	HARIHARAN.B	B. Hariharan	B. Hariharan
11	922121114011	HARSAN MS	HARSAN MS	HARSAN MS
12	922121114012	INBA TAMILAN T	T. Inba Tamilan	T. Inba Tamilan
13	922121114014	KAVIYARASU A M	A. M. Kaviyarasu	A. M. Kaviyarasu
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18	922121114019	NITHISH KUMAR R	R. Nithish Kumar	R. Nithish Kumar
19	922121114020	RAHUL S	S. Rahul	S. Rahul
20	922121114021	RAKUL RAJ A	A. Rakul Raj	A. Rakul Raj
21	922121114022	SANTHOSH J	J. Santhosh	J. Santhosh
22	922121114023	SATHYA SURYA.G	G. Sathya Surya	G. Sathya Surya
23	922121114024	SEBASTIN NAVEEN KUMAR G.E.	E. G. Sebastin Naveen Kumar	E. G. Sebastin Naveen Kumar
24	922121114025	SHEK MOHAMMED J	J. Shek Mohammed	J. Shek Mohammed
25	922121114026	SIVARAM.T.V	V. T. Sivaram	V. T. Sivaram
26	922121114027	SOUNDAR RAJAN S	S. Soundar Rajan	S. Soundar Rajan
27	922121114028	SUBASPANDIAN R	R. Subaspandian	R. Subaspandian
28	922121114029	SYED ABUDHAHIR S	S. Syed Abudhahir	S. Syed Abudhahir
29	922121114030	VAZEER AHAMED H	H. Vazeer Ahamed	H. Vazeer Ahamed
30	922121114031	VIGNESH N	N. Vignesh	N. Vignesh
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32	922121114033	YASHWATHKUMAR	K. Yashwath Kumar	K. Yashwath Kumar
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35	922121114303	INBARAJ P	P. Inbaraj	P. Inbaraj
36	922121114304	JEGATHES WARAN S	S. Jegathes Waran	S. Jegathes Waran
37	922121114305	KIRUTHICKARAN D	D. Kiruthickaran	D. Kiruthickaran
38	922121114306	SASIKIRAN B	B. Sasikiran	B. Sasikiran

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### TECHNOLOGY TRAINING ON 3D PRINTING

Year/ Section: II Year/ A Section

Date: 31.03.2023

S.No	Register No	Name of the Student	Attendance	
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1	922121114001	AJITH KUMAR S	S. Ajith kumar	S. Ajith kumar
2	922121114002	AKASH MARTIN C	C. Akash Martin	C. Akash Martin
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4	922121114004	ANBUSELVAN	M. Anbuselvan	M. Anbuselvan
5	922121114005	BALACHANDRAN	M.D	M.D
6	922121114006	CHANTHRU B	B. Ch	B. Ch
7	922121114007	DHANUSH-N	N. Dhannush	N. Dhannush
8	922121114008	DINESH A	A. Dinesh	A. Dinesh
9	922121114009	DIWAKAR R B	R. B. Diwakar	R. B. Diwakar
10	922121114010	HARIHARAN.B	B. Hariharan	B. Hariharan
11	922121114011	HARSAN MS	S. Harsan	S. Harsan
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23	922121114024	SEBASTIN NAVEEN KUMAR G.E.	E. Sebastin Naveen Kumar	E. Sebastin Naveen Kumar
24	922121114025	SHEK MOHAMMED J	J. Shek Mohammed	J. Shek Mohammed
25	922121114026	SIVARAM.T.V	V. Sivaram	V. Sivaram
26	922121114027	SOUNDAR RAJAN S	S. Soundar Rajan	S. Soundar Rajan
27	922121114028	SUBASPANDIAN R	R. Subaspandian	R. Subaspandian
28	922121114029	SYED ABUDHAHIR S	S. Syed Abudhahir	S. Syed Abudhahir
29	922121114030	VAZEER AHAMED H	H. Vazeer Ahamed	H. Vazeer Ahamed
30	922121114031	VIGNESH N	N. Vignesh	N. Vignesh
31	922121114032	VIGNESH KUMAR K	K. Vignesh Kumar	K. Vignesh Kumar
32	922121114033	YASHWATHKUMAR	M. Yashwath Kumar	M. Yashwath Kumar
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34	922121114302	DINESH KUMAR M	M. Dinesh Kumar	M. Dinesh Kumar
35	922121114303	INBARAJ P	P. Inbaraj	P. Inbaraj
36	922121114304	JEGATHES WARAN S	S. Jegathes Waran	S. Jegathes Waran
37	922121114305	KIRUTHICKARAN D	D. Kiruthickaran	D. Kiruthickaran
38	922121114306	SASIKIRAN B	B. Sasikiran	B. Sasikiran

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HOD/MECHANICAL



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Dindigul - Palani Highway, Dindigul - 624 002

## DEPARTMENT OF MECHANICAL ENGINEERING

### TECHNOLOGY TRAINING ON 3D PRINTING

Year/ Section: II Year/ A Section

Date: 03.04.2023

S.No	Register No	Name of the Student	Attendance	
			03.04.2023 (FN)	03.04.2023 (AN)
1	922121114001	AJITH KUMAR S	S. Ajith Kumar	S. Ajith Kumar
2	922121114002	AKASH MARTIN C	C. Akash Martin	C. Akash Martin
3	922121114003	AMRESH T	T. Amresh	T. Amresh
4	922121114004	ANBUSELVAN	M. Anbuselvan	M. Anbuselvan
5	922121114005	BALACHANDRAN	M. Balachandran	M. Balachandran
6	922121114006	CHANTHRU B	B. Chanthru	B. Chanthru
7	922121114007	DHANUSH-N	N. Dhannush	N. Dhannush
8	922121114008	DINESH A	A. Dinesh	A. Dinesh
9	922121114009	DIWAKAR R B	R. B. Diwakar	R. B. Diwakar
10	922121114010	HARIHARAN.B	B. Hariharan	B. Hariharan
11	922121114011	HARSAN MS	S. Harsan	S. Harsan
12	922121114012	INBA TAMILAN T	T. Inba Tamilan	T. Inba Tamilan
13	922121114014	KAVIYARASU A M	M. Kaviyarasu	M. Kaviyarasu
14	922121114015	KISHORE KUMAR.S	S. Kishore Kumar	S. Kishore Kumar
15	922121114016	LALITHKUMAR. B	B. Lalith Kumar	B. Lalith Kumar
16	922121114017	NAGARAJAN .M	M. Nagarajan	M. Nagarajan
17	922121114018	NAREN KUMAR S	S. Naren Kumar	S. Naren Kumar
18	922121114019	NITHISH KUMAR R	R. Nithish Kumar	R. Nithish Kumar
19	922121114020	RAHUL S	S. Rahul	S. Rahul
20	922121114021	RAKUL RAJ A	A. Rakul Raj	A. Rakul Raj
21	922121114022	SANTHOSH J	J. Santhosh	J. Santhosh
22	922121114023	SATHYA SURYA.G	G. Sathya Surya	G. Sathya Surya
23	922121114024	SEBASTIN NAVEEN KUMAR G.E.	E. Sebastin Naveen Kumar	E. Sebastin Naveen Kumar
24	922121114025	SHEK MOHAMMED J	J. Shek Mohammed	J. Shek Mohammed
25	922121114026	SIVARAM.T.V	V. Sivaram	V. Sivaram
26	922121114027	SOUNDAR RAJAN S	S. Soundar Rajan	S. Soundar Rajan
27	922121114028	SUBASPANDIAN R	R. Subaspandian	R. Subaspandian
28	922121114029	SYED ABUDHAHIR S	S. Syed Abudhahir	S. Syed Abudhahir
29	922121114030	VAZEER AHAMED H	H. Vazeer Ahamed	H. Vazeer Ahamed
30	922121114031	VIGNESH N	N. Vignesh	N. Vignesh
31	922121114032	VIGNESH KUMAR K	K. Vignesh Kumar	K. Vignesh Kumar
32	922121114033	YASHWATHKUMAR	M. Yashwath Kumar	M. Yashwath Kumar
33	922121114301	ARUN KUMAR N	N. Arun Kumar	N. Arun Kumar
34	922121114302	DINESH KUMAR M	M. Dinesh Kumar	M. Dinesh Kumar
35	922121114303	INBARAJ P	P. Inbaraj	P. Inbaraj
36	922121114304	JEGATHES WARAN S	S. Jegatheswaran	S. Jegatheswaran
37	922121114305	KIRUTHICKARAN D	D. Kiruthickaran	D. Kiruthickaran
38	922121114306	SASIKIRAN B	B. Sasikiran	B. Sasikiran

FACULTY INCHARGES

HOD/MECHANICAL





NAME: A. RAKUL RAJ

REGNO: 92212114021

(15)

**SSM INSTITUTE OF ENGINEERING & TECHNOLOGY**

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Dindigul - Palani Highway, Dindigul-624 002.

**DEPARTMENT OF MECHANICAL ENGINEERING****3D Printing Technology Training Assessment sheet**

1. Additive manufacturing uses much less material than other subtractive manufacturing processes.

☒ True

b) False

2. Which of the following is typically the cheapest type of 3D printer?

a) FDM

☒ b) SLA

c) Powder-based

d) SLM

3. What material is not used in 3D printing?

a) Nylon

b) ABS

c) PLA

☒ d) PVC

4. What does SLS stand for?

☒ a) Selective laser sintering

b) Selective lithographic solution

c) Separated light sintering

d) None of the above

5. Cura is a software which is primarily used for

a) Designing

☒ b) Slicing

c) Post Processing your 3D Printed Model

d) Changing the colour of your model.

6. In Cura, after loading an object, if the object is yellow in colour, it means

a) The object will get printed in yellow colour.

☒ b) The object is way too big to be 3D Printed.

c) There are design errors in the model.

d) The object can be 3D Printed as it is smaller than the build volume of the 3D Printer.

7. What is an STL?

☒ a) The initial pre-sliced file.

b) The final sliced file.

c) A type of filament.

d) The coding program.

8. What is infill?

☒ a) Extra material printed inside to avoid collapse. We usually print at 20%.

b) The designed object is turned into layers.

c) Extra material printed on the outside of the object to support overhangs.

d) The filament is cut.

9. What happens during slicing?

a) The filament is cut.

☒ b) The designed object is turned into layers.

c) Extra material is printed inside the object.

d) Extra material is printed outside to support overhangs.

10. Name this part of the 3D printer...

☒ a) Extruder

☒ b) Nozzle

☒ c) Print Bed

d) Axis

11. What are the basic characteristics of 3D Printing?  
a) 3D objects are made in layers, it is an additive process.  
b) 3D objects are created using a subtractive process.  
c) 3D objects print from the computer.  
d) 3D objects are downloaded and printed from the internet.
12. What is a G-Code?  
a) The initial pre-sliced file.  
b) The final sliced file that the printer reads.  
c) A type of filament.  
d) The coding program.
13. What does layer resolution mean?  
a) A kind of filament.  
b) The shape of the object.  
c) How detailed the object prints.  
d) A file types.
14. What are supports?  
a) Extra material printed inside to avoid collapse. We usually print at 20%.  
b) The designed object is turned into layers.  
c) Extra material printed on the outside of the object to support overhangs.  
d) The filament is cut.
15. What is an extruder?  
a) It is the part of the printer that melts the filament.  
b) It is the part of the printer that pushes the filament down.  
c) It is the part of the printer that holds the 3D object as it prints.  
d) It is heated to a lower temperature.
16. What type of 3D Printer do we have?  
a) Cartesian    b) Polar    c) Delta    d) Robot arm
17. Software that enables users to create models in either two- or three-dimensional formats.  
(Tinker cad)  
a) Computer Aided Design / CAD  
b) Polylactic Acid (PLA)  
c) Fused Deposition Modelling (FDM)  
d) Additive Manufacturing
18. The interior structure of a 3D printed model.  
a) Nozzle    b) Infill    c) x-axis    d) y-axis
19. The base material that's used to 3D print objects via fused deposition modeling.  
a) Nozzle    b) Filament    c) Print bed    d) Slicer
20. Which file type is most exported from CAD software?  
a) SLDRT  
b) JPG  
c) STL  
d) X3G



## DEPARTMENT OF MECHANICAL ENGINEERING

FEED BACK FORM  
TECHNOLOGY TRAINING ON 3D PRINTINGName of the Student : SIVARAM.TV (Optional)Date of the Event: 28.03.2023 to 03.04.2023

Please respond to the following questions by ticking one box only for each question. If you have any criticism or suggestions for improvement. Your views are very important and will help us to improve our events, facilities, etc.

## Scoring Example

5	4	3	2	1
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1. The 3D Printing Training provided at this event is relevant to you.

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

2. You are likely to use this information in the future

High	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	-----

3. Presentations and Hands on Training were interesting and useful.

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

4. How would you rate the proficiency of the resource persons?

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

5. Overall, the event was worthwhile

High	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	-----

6. The venue and facilities was suitable

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

7. Are you confident of creating your own model, Slice it and print using a 3d printer.

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

8. Comments/ suggestions (If any)

The number of 3d printer's should be increased.

*Sivaram*  
Signature

## DEPARTMENT OF MECHANICAL ENGINEERING

FEED BACK FORM  
TECHNOLOGY TRAINING ON 3D PRINTINGName of the Student : N. VIGNESH (Optional)Date of the Event: 3D 28-03-23 to 03-04-23

Please respond to the following questions by ticking one box only for each question. If you have any criticism or suggestions for improvement. Your views are very important and will help us to improve our events, facilities, etc.

## Scoring Example

5	4	3	2	1
---	---	---	---	---

1. The 3D Printing Training provided at this event is relevant to you.

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

2. You are likely to use this information in the future

High	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	-----

3. Presentations and Hands on Training were interesting and useful.

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

4. How would you rate the proficiency of the resource persons?

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

5. Overall, the event was worthwhile

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

6. The venue and facilities was suitable

High	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	-----

7. Are you confident of creating your own model, Slice it and print using a 3d printer.

High	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	-----

8. Comments/ suggestions (If any)

Experienced a very worthful training. It makes me to plan for business in future, if it is possible by any chance

N. Vignesh  
Signature



## DEPARTMENT OF MECHANICAL ENGINEERING

## FEED BACK FORM

## TECHNOLOGY TRAINING ON 3D PRINTING

Name of the Student : S. SOUNDAK RAJAN (Optional)Date of the Event: 28.03.2023 to 03.04.2023

Please respond to the following questions by ticking one box only for each question. If you have any criticism or suggestions for improvement. Your views are very important and will help us to improve our events, facilities, etc.

## Scoring Example

5	4	3	2	1
---	---	---	---	---

1. The 3D Printing Training provided at this event is relevant to you.

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

2. You are likely to use this information in the future

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

3. Presentations and Hands on Training were interesting and useful.

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

4. How would you rate the proficiency of the resource persons?

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

5. Overall, the event was worthwhile

High	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	-----

6. The venue and facilities was suitable

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

7. Are you confident of creating your own model,
- 
- Slice it and print using a 3d printer.

High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low
------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-----

8. Comments/ suggestions
- 
- (If any)

It is worthful for me and friends  
To continue for upcoming junior  
students.

Soudan rajan.

Signature

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Dindigul- Palani Highway, Dindigul - 624 002.

## DEPARTMENT OF MECHANICAL ENGINEERING

FEED BACK FORM  
TECHNOLOGY TRAINING ON 3D PRINTINGName of the Student : J. Santhosh (Optional)Date of the Event: 28.3.23 to 3.4.23

Please respond to the following questions by ticking one box only for each question. If you have any criticism or suggestions for improvement. Your views are very important and will help us to improve our events, facilities, etc.

## Scoring Example

5	4	3	2	1
---	---	---	---	---

1. The 3D Printing Training provided at this event is relevant to you.

High		<input checked="" type="checkbox"/>				Low
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2. You are likely to use this information in the future

High	<input checked="" type="checkbox"/>					Low
------	-------------------------------------	--	--	--	--	-----

3. Presentations and Hands on Training were interesting and useful.

High	<input checked="" type="checkbox"/>					Low
------	-------------------------------------	--	--	--	--	-----

4. How would you rate the proficiency of the resource persons?

High	<input checked="" type="checkbox"/>					Low
------	-------------------------------------	--	--	--	--	-----

5. Overall, the event was worthwhile

High		<input checked="" type="checkbox"/>				Low
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6. The venue and facilities was suitable

High	<input checked="" type="checkbox"/>					Low
------	-------------------------------------	--	--	--	--	-----

7. Are you confident of creating your own model, Slice it and print using a 3d printer.

High		<input checked="" type="checkbox"/>				Low
------	--	-------------------------------------	--	--	--	-----

8. Comments/ suggestions (If any)

Its very useful, and prototype making was learned very much. overall better session.

*J. Santhosh*

Signature



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## DEPARTMENT OF MECHANICAL ENGINEERING

### ONE PAGE WRITE UP TECHNOLOGY TRAINING ON 3D PRINTING

Name of the Student : SIVARAM. TV (Optional)

Name of the Event: 3-D PRINTING

On the <sup>MARCH</sup> ~~August~~ of 2023, the SSM INSTITUTE OF ENGINEERING & TECHNOLOGY has conducted an workshop on 3-d printing. It is conducted by Mr. SELWIN and Mr. Dheeradhayalan, since both of them are doing their Phd work in 3d printers they have high knowledge in that field.

Our faculty have two creativity ender 3d printer and self made 3-d printer. So, all the students have designed and created a model on their own.

After this workshop most of our students acquired basic knowledge in 3-d printing technology.

  
Signature



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## DEPARTMENT OF MECHANICAL ENGINEERING

### ONE PAGE WRITE UP TECHNOLOGY TRAINING ON 3D PRINTING

Name of the Student : T. Amresh (Optional)

Name of the Event: 3D Printing

On march 2023 the institution conducted workshop on 3D printing. by Mr. Selwin and Mr. Dhayalan, During the workshop all students are active. we all learned a new skill and gain knowledge about 3D printer and slicing software, and designing software. (fusion 360, on shape). workshop was conducted for 4 day but it is not enough for us. So next time conduct work shop minimum 10 days. Nowadays 3D printing technology is growing well. So thank you for initiating the workshop on 3D printing.

T. Amresh  
Signature