

S.A. ENGINEERING COLLEGE

(An Autonomous Institution, Affiliated to Anna University)

CHENNAI – 600077



DEPARTMENT OF MECHANICAL ENGINEERING

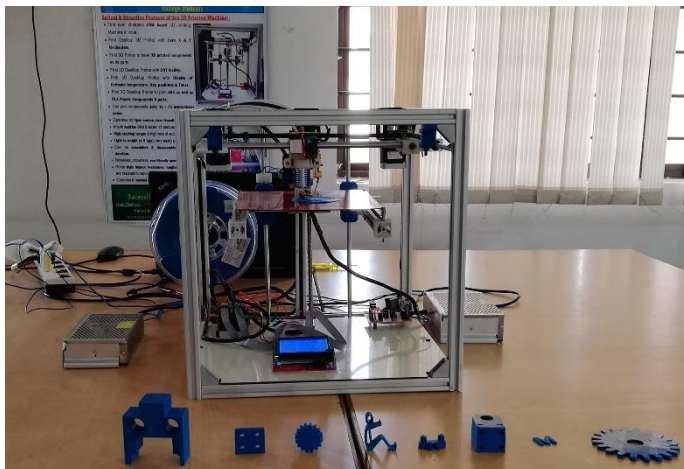
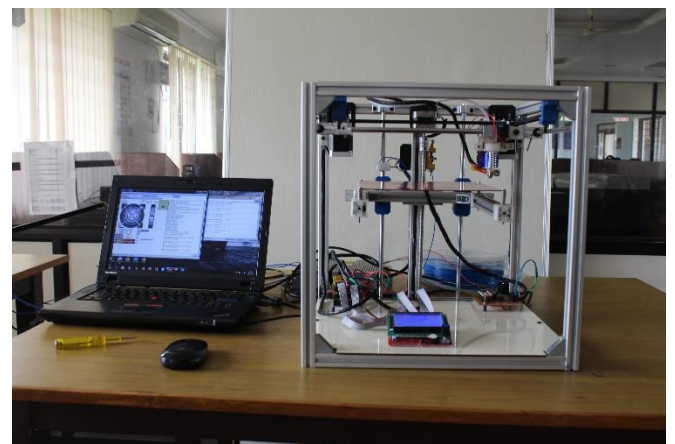
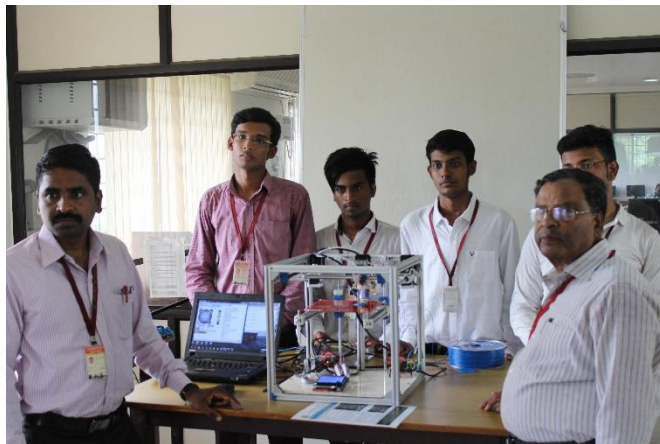
**Centre of Excellence for 3D
Printing**

**Details of
Equipment
Available**

Centre of Excellence for 3D Printing

Name of the available Machines: 3D Printing Machines

Photographs:



Description: 3D printing is a process where a digital model created using computer-aided design software (CAD) is turned into a physical three-dimensional object by adding material a layer at a time. There are many methods of melting or softening the material to produce the layers. 3D printers can

manufacture parts within hours, which speeds up the prototyping process. This allows for each stage to complete faster. When compared to machining prototypes, 3D printers are inexpensive and quicker at creating parts as the part can be finished in hours, allowing for each design modification to be completed at a much more efficient rate. Our 3D printer's unique features are listed below:

- Can be assembled & disassembled in short duration.
- Noiseless, odourless, eco-friendly operation.
- Prints high impact resistance, toughness parts & are resistant to aqueous acids, alkalis & alcohols.
- Operates in normal electrical power supply & at normal room temperatures
- Can print ABS as well as PLA Plastic Components & parts.
- Can print components using 12 – 15 instructional codes.
- Operates on Open source, user friendly softwares

**No of
Research
Papers
published
using this
CoE**

No of Research papers published using this CoE in SCOPUS

Journals (past 3 years alone):

- [1] Gunasekaran J, **Sevvel P**, John Solomon I & Tanushkumaar P: “A brief review on the manufacturing of metal components using selective laser melting”, Materials Today Proceedings, Vol. 64, Part 1, 2022, pp. 173–180. <https://doi.org/10.1016/j.matpr.2022.04.213> (**Scopus Indexed Journal**)
- [2] John Solomon I, **Sevvel P**, Gunasekaran J & Tanushkumaar P: ‘A review on additive manufacturing of alloys using laser metal deposition’, Materials Today Proceedings, Vol. 64, Part 1, 2022, pp. 44–50. <https://doi.org/10.1016/j.matpr.2022.03.510> (**Scopus Indexed Journal**)
- [3] John Solomon I, **Sevvel P** and Gunasekaran J: “A review on the various processing parameters in FDM”, Materials Today: Proceedings, Vol.37, Part 2, 2021, 509–514. <https://doi.org/10.1016/j.matpr.2020.05.484> (**SCOPUS Indexed Journal**)
- [4] Gunasekaran J, **Sevvel P** and John Solomon I: “Metallic materials fabrication by selective laser melting: A review”, Materials Today: Proceedings, Vol.37, Part 2, 2021, 252–256. <https://doi.org/10.1016/j.matpr.2020.05.162> (**SCOPUS Indexed Journal**)
- [5] **Sevvel P**, Srinivasan D, Balaji A J, Gowtham N, Kalyana Varadhan V G, Kumaresh P and Kishore Bajrang M: “Design & Fabrication of Innovative Desktop 3D Printing Machine”, Materials Today: Proceedings, Vol.22, 2019, pp.3240–3249. <https://doi.org/10.1016/j.matpr.2020.03.284> (**SCOPUS Indexed Journal**)

**Details of
Patents filed,
published &
Granted
using this
Centre of
Excellence**

Details of Patents filed & published using this CoE (past 3 years alone):

S.No.	Application No	Title of the Patent	Status
1.	322363-001	Laser Engraver	Filed on 09/10/2019 and GRANTED on 07/01/2022
2.	319553-001	Helmet with integrated camera	Filed on 11/07/2019 and GRANTED on 30/08/2019
3.	201841020396	IOT enabled portable type Multi Material Laser Engraving Machine	Filed on 31/05/2018 and Published on 06/12/2019
4.	201741042756	FDM based desktop 3d printing machine with core X - Y mechanism & axis position display	Filed on 29/11/2017 and Published on 31/05/2019

**No of
Workshops
organized as
a part of this
Centre of
Excellence**

Details of Workshops organized as a part of this CoE:

S.No	Title of Project	Duration	Sponsoring Agency	Other Details
1.	2 Days National Workshop & Hands on Training in “3D Printing Techniques applied to Automobile & Aerospace Applications”	21 st & 22 nd August 2019	S.A Engineering College	127 External participants
2.	2 Days Online Workshop on Additive manufacturing	15 th & 16 th May 2020	S.A Engineering College	2,107 External participants
3.	5 Days Online National Workshop on Research Scopes in Additive Manufacturing	20 th to 24 th September 2021	S.A Engineering College	155 External Participants
4.	2 Days Hands on Training and Workshop on “3D Printing: Basics”	24/08/2023 and 25/08/2023	S.A Engineering College in association with Nexgen 3D Pvt Ltd	65 Internal Participants