

A REPORT ON

**“Contemporary Practices in 3D Printing Technology”**

A one week FDP From 16<sup>th</sup> to 22<sup>nd</sup> September 2022

At SVEC-AICTE IDEA Lab

Sree Vidyanikethan Engineering College

Sree Sainath Nagar, Tirupati, Andhra Pradesh - 517 102

In Association with

Department of Mechanical Engineering

**AICTE – IDEA Lab @ SreeVidyanikethan Engineering College**

Sree Vidyanikethan Engineering College (Autonomous) has been selected for establishing AICTE- IDEA (Idea Development, Evaluation & Application) Lab on the campus with a funding of Rs 1.13 Crores from AICTE, Host institute and Industry on 12<sup>th</sup> June, 2021. AICTE selected only 49 institutions after scrutinizing eligibility criterion by evaluating several key performance indices of the institutions across the country to establish AICTE- IDEA lab on the Campus. As a common facility on the campus, IDEA lab is to encourage students for application of Science and Technology and Engineering towards enhanced hands-on experience, learning by doing and product visualization. The main objective of the IDEA lab is to make students more imaginative and creative besides getting basic training in 21<sup>st</sup> century skills like critical thinking, problems solving, design thinking, collaboration, communication, lifelong learning etc.,

The lab shall ideally remain open 24X7, shall equip all the required facilities, tools and consumables to support translation of idea into prototype development or development of a solution for a problem. As a part of activities envisaged, Sree Vidyanikethan Engineering College will hold FDPs, workshops, training and ideation sessions, boot-camps, competitions, Internships with industry, Professional skilling programs, awareness workshops for industry etc. and shall participate in similar activities at national and international level.

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The detailed schedule of the FDP is as follows:

### Day 1: 16-09-2022 (Friday)

The FDP started with inauguration of the SVEC AICTE IDEA Lab, At 9.30 A.M. in the presence of **Prof. Nagaraj Ramrao**, Vice-Chancellor, Mohan Babu University., **Dr. M Ravi Sankar**, Associate professor, Dept of Mech, IIT Tirupati., **Dr. B.M. Satish** Principal & Chief Mentor AICTE IDEA LAB, SVEC., **Dr. P. Giridhar Reddy** Director R&A, SVEC., **Dr. Padmaja N** Professor & Co-ordinator, AICTE IDEA LAB., **Dr. Sachuthanathan B** Professor & Program Co-ordinator, AICTE IDEA LAB., and Tech Gurus.

The inauguration program completed by 10:00 am followed by high tea and faculty registration for FDP. The 1<sup>st</sup> session of the day started at 11:00 am by Dr. Padmaja N in seminar hall, Idea Lab, on "IDEA Lab for all", she explained about nature and scope of the idea lab, facilities available and utilization of lab by students and faculty, the session ended at 12:30 pm followed by lunch break.

Session 2 of the day started at 2:00 pm by Dr. M Ravi Sankar, Associate professor, Dept of Mech, IIT Tirupati., in seminar hall, Idea Lab, on "Advancements in the manufacturing". He explained about different types of manufacturing, demand for new products and services in the current situation, scope for research in new product development. The interaction session started at 3:45 pm after the tea break and the session ended at 4:30 pm.

### Day 2: 17-09-2022 (Saturday)

Session 1 of day 2 started at 10:00 am in Idea Lab by Dr. Padmaja N, she explained about the need for innovation and also discussed about the projects performed at IDEA Lab, the session ended at 11:30 am followed by tea break.

Session 2 of day 2 started at 11:45 am by Dr Sachidananda K B, Tech Guru, SVEC AICTE IDEA Lab., on "Product development", he explained the process product development, steps involved in it. Also he explained the tools available for part modeling, analysis and design optimization. The session ended at 1:00 pm followed by lunch break.

Session 3 of day 2 started at 2:00 pm by Dr. M Ravi Sankar, Associate professor, Dept of Mech, IIT Tirupati., in seminar hall, Idea Lab, on "3D Printing". He explained about different types of 3D printing techniques, limitations and applications, scope for research. The interaction session started at 3:45 pm after the tea break and the session ended at 4:30 pm.

### Day 3: 19-09-2022 (Monday)

Day 3 session 1 started with expert talk at 9.30 A.M. by Dr. Gowtham Prasad T V S, **Tech** Guru, SVEC AICTE IDEA Lab., in seminar hall, Idea Lab, on "Prototyping for Electronics". He explained about the design and development of electronic products,

role of prototyping in the product development, the session ended at 11:30 am followed by tea break.

Session 2 of day 3 started at 11:45 am by Dr Sachidananda K B, Tech Guru, SVEC AICTE IDEA Lab., on "Solid modeling using software", he explained the steps involved in conversion of solid model to product using 3D printing, different software available for part modeling, basic steps of solid modeling. The session ended at 1:00 pm followed by lunch break.

Session 3 of day 3 started at 2:00 pm by Dr Sachidananda K B, Tech Guru, SVEC AICTE IDEA Lab., hands on session on solid modeling using "onshape" software, the participants experienced the basic methods of solid models using modeling software and the session ended at 4:30 pm.

#### **Day 4: 20-09-2022 (Tuesday)**

Day 4 session 1 started with Hands on session at 9.30 A.M. by Mr. C Ravindra Murthy, Tech Guru, SVEC AICTE IDEA Lab., on "Snapmaker 3in1". He explained about the basic settings in the machine, specification, selection of parameters, use of application software and demonstrated the printing process. The session ended at 1:00 pm.

Day 4 session 2 started at 2:00 pm by Mr. Solomon I, Engineer, Make 3D.in., He explained about the use of Pratham 5.0 3D printer, demonstrated the use of application software, calibration, parameter selection, and printing of the part from 3D model. The session ended at 4:30 pm.

#### **Day 5: 21-09-2022 (Wednesday)**

Day 5 session 1, started at 9:30 am by Dr Sachidananda K B, Tech Guru, SVEC AICTE IDEA Lab., he explained about conversion of 3D CAD model to STL file and generation of G-Code for the model, the participants practiced the use of software and printing on 3D printer.

Day 5 session 2 started at 2:00 pm by Mr. Solomon I, Engineer, Make 3D.in., He explained about trouble shooting, support building for 3D printing, and he clarified the doubts of the participants, the session ended at 4:30 pm.

#### **Day 6: 22-09-2022 (Thursday)**

The final day of the FDP started with the 3D printing of the components by the participants, the participants are divided into four batches, all the batches started to execute the 3D printing of the components, and it went on till the 3.00 P.M. All the four batches demonstrated the projects done using the facilities and knowledge gained during the FDP. Finally, the FDP ended with a valedictory and feedback session.

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**Photo Exhibits:**



Inauguration of IDEA Lab By Prof. Nagaraj Ramrao, Vice-Chancellor, Mohan Babu University.



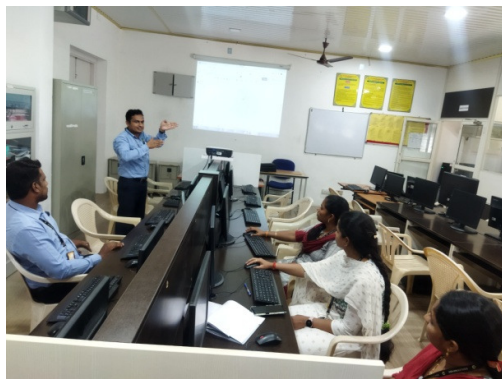
Dr. M Ravi Sankar, Associate professor, Dept of Mech, IIT Tirupati. Delivering the Expert talk



Talk by Dr. Gowtham Prasad T V S, on Prototyping for electronics



Dr. M Ravi Sankar, Associate professor, Dept of Mech, IIT Tirupati. Delivering the Expert talk



Dr. Sachidananda Explaining about CAD Modeling

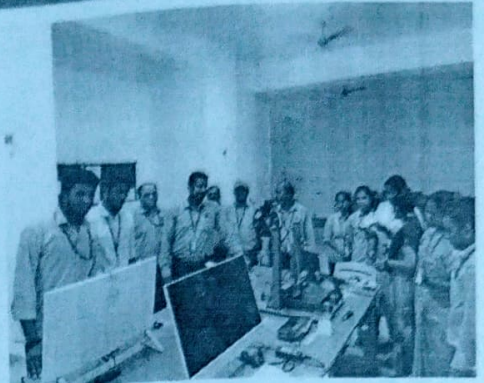


Mr. Solomon I, clarifying the doubts of the participants on Partham 5.0 machine





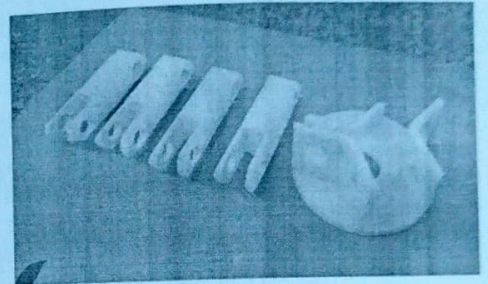
Dr. Sachidananda Explaining about Pratham 5.0 3D printer



Participants working on Snap Maker 3D printer



Participants working on their project



Some of the 3D printed parts during FDP



Some of the 3D printed parts during FDP



FDP organizers, coordinators, and participants

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*Sachidananda*  
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