DAYANANDA SAGAR ACADEMY OF TECHNOLOGY &MANAGEMENT

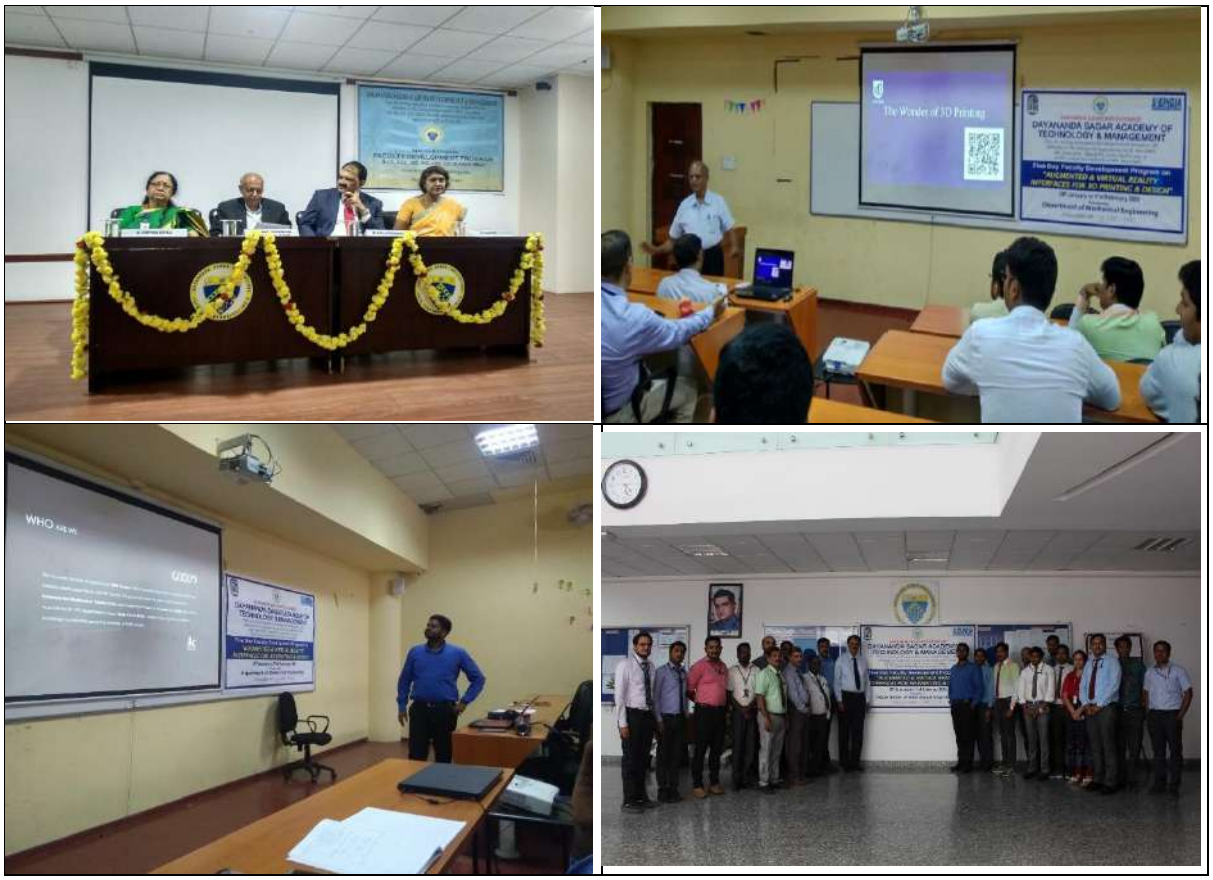
(Affiliated to Visvesvaraya Technological University, Belagavi and Approved by AICTE, New Delhi)
(6 Branches CSE, ISE, ECE, EEE, ME& CE Accredited 3 years by NBA, New Delhi)
Opp. Art of Living, Udayapura, Kanakapura Road, Bangalore- 560082

Department of Mechanical Engineering

Event Name	FACULTY DEVELOPMENT PROGRAM
Theme	Augmented & Virtual Reality Interfaces for 3D Printing and Design
Date	28.01.2020-01.02.2020
Venue	Department of Mechanical Engineering, Dayananda Sagar Academy of Technology & Management

Objectives of the Program/ Event

- Introduction to 3D printing technology & advanced manufacturing technology using Additive Manufacturing, Hands on session on conversion of CADD model to machine language
- Digitalizing Design through Transformation & Innovation, Real Time Case Studies of Additive Manufacturing
- Design and Development of Low Cost 3D Printers, Metal and Polymer Printing



Purpose: To enhance the knowledge of the faculty members with the current trends in the field of Augmented & Virtual Reality Interfaces.

About the Topic:

- Additive manufacturing techniques provide major competitive advantages due to the fact that they adapt to the geometrical complexity and customised design of the part to be manufactured.
- Greater capabilities, lower prices, and an expanded range of manufacturing materials have vastly expanded adoption of 3D printers over the last decade and a half. The economic and scientific potential of this technology, as well as certain regulatory concerns (such as 3D printing of firearms), have recently increased congressional interest.
- Nothing beats hands-on experience when you're learning a new skill — especially if it's in a highly-specialized field like augmented reality (AR) and virtual reality (VR) are technologies that enrich our surroundings with digital information, or, in the case of VR, replace it entirely with a realistic digital environment.
- In addition, current outstanding issues that prevent metal AM from entering mass production in the aerospace industry are discussed, including the development of standards and qualifications, sustainability, and supply chain development.
- Explained from discovery to design, development to deployment of metal AM solutions and strategy, technology, innovation, engineering, R&D manufacturing, quality, and supply chain functions to deliver Additive Manufacturing solutions and services that are focussed on business outcomes

Resource person/ participants:

1. **Dr. P. Sampathkumaran**
   Joint Director & Head
   Materials Technology Division,
   Central Power Research Institute (CPRI)
   Bangalore

2. **Mr. Shreyas**
   Co-founder and Director
   HyCubes India Private Ltd. Bengaluru

3. **Mr.Reethan DL**
   Co-founder and Director
   HyCubes India Private Ltd. Bengaluru

4. **Mr. Santhosh kumar K R**

   Manager, Business Support CADD Centre, Bangalore

5. **Dr. T Ram Prabhu**

   Scientist & Deputy Director, DRDO

6. **Mr. Manish Amin**

   CTO Global 3D Labs

7. **Prof. S K Paridhi**

   Founder & Chief Consultant “Additive Corp”

Participants: Staff members of the Mechanical Engineering Department (22) and Participants from Other Institutes (10).

Vision: It provides a platform for staff members and Research scholars to get benefitted with the current trends in the field of Augmented & Virtual Reality Interfaces for 3D Printing and Design

Identification and addressing the GAP: Adopting the current technologies and Utilization fo modern tools for designing and interfacing in the field of Virtual Reality.

Measurable outcomes:

- Understanding about Design and Development of Low Cost 3D Printers, Metal and Polymer Printing.
- Application and opportunities of augmented and virtual reality in Mechanical and aerospace industry

Event Name	**PROJECT SYMPOSIUM-2020-2021**
Theme	**Student Exhibiting their project ideas and objectives**
Date	**19-12-2020**
Venue	**Lecture Hall, Department of Mechanical Engg, DSATM, Bangalore.**

Objectives of the Program/ Event

- To encourage multidisciplinary research through the integration learned in a number of courses
- To allow students to develop problem solving, analysis, synthesis and evaluation skills
- To encourage teamwork
- To improve students' communication skills by asking them to produce both a professional report and to give an oral presentation

Purpose:

As part of their fourth year curriculum, students required to carry out a project work and submit a report. This project is a substantial piece of work that will require creative activity and original thinking. Students in groups are supervised while working on a project, extending over a full academic year. The project aims to provide students with a transitional experience from the academic world to the professional world. It is designed to serve as a platform in which students in teams engage in a meaningful design experience requiring the solution of engineering design projects.

As a part of their project work (Phase-I), a project symposium was organized where the students exhibit their ideas and objectives of their proposed work to the intellectual alumni.

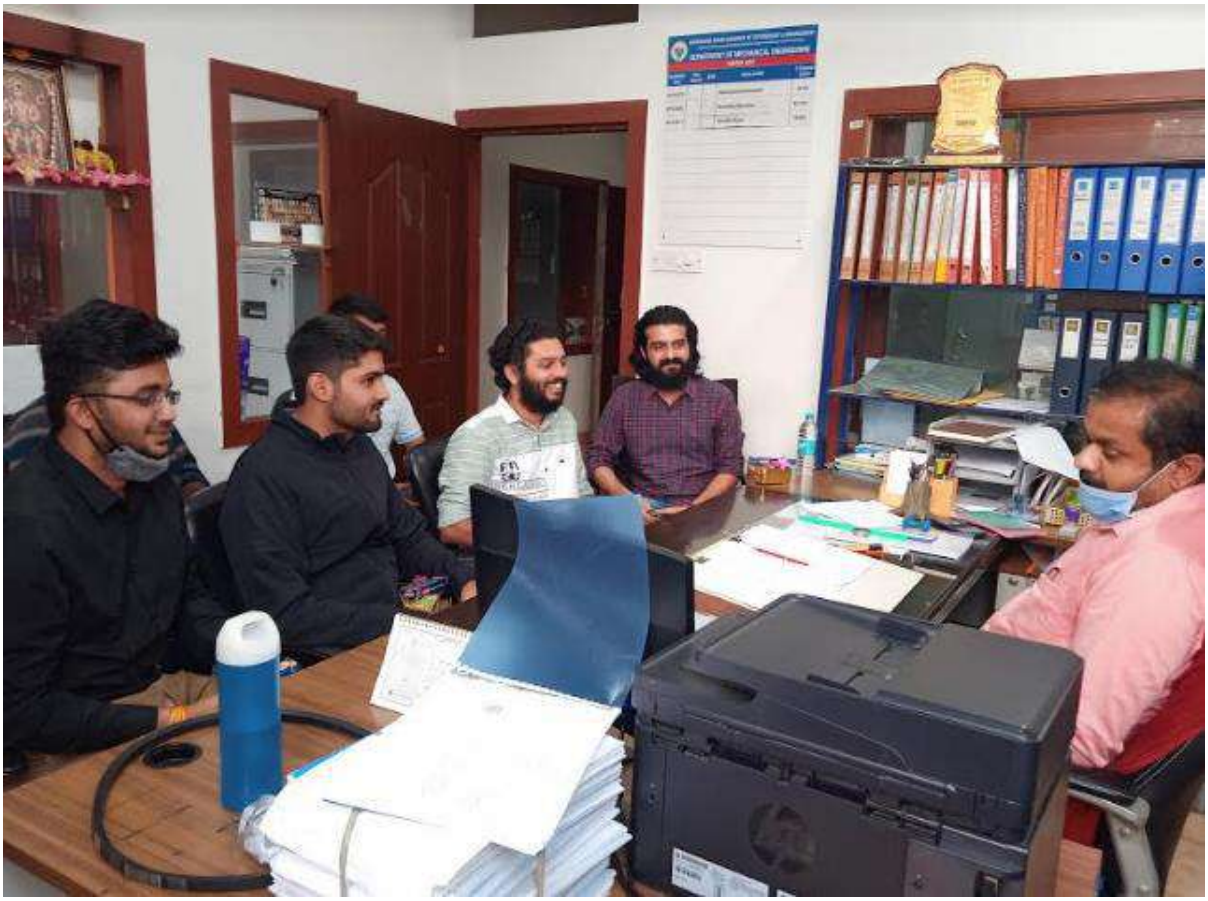
Project Symposium Reviewers/Intellectual Alumni:

SL NO	NAME	PHONE NO	EMAIL – ID	WORK
1	Ranjit Hebbar	8553111162	ranjithhebbar1996@gmail.com	Accenture Bangalore
2	Tejas Nagaraj	9686036626	tejas.nagaraj41@gmail.com	Accenture Bangalore
3	Sourabh Gehlot	7899466616	saurabhgehlot23@gmail.com	Xitadel CAE Technologies Bangalore
4	Pooja A Salanke	9019000872	poojasalanki@gmail.com	Amazon Bangalore
5	Shreeraksha U Bhat	9743055159	rakshabhat225@gmai.com	Accenture Bangalore
6	Sunil R	9740358516	reddysunil99j@gmail.com	Entrepreneur - Raptor Sports Arena E City
7	C R David	9448743535	crajandavid@gmail.com	Higher Studies
8	Vineeth R	9902971706	vineethrambhiya@gmail.com	Accenture Bangalore
9	Rahul Chakravarthy	8553630007	rhl.chkravarthy38@gmail.com	Business

Number of Student participants: 124

Presentation by Students on their Project Work (phase-I)

Visit of Honorable Principal, Dr. B.R.Lakshmikantha during the Project Symposium Review



Interaction of the Reviewers/ Intellectual Alumni with Dr. Manohar H S, HOD-Mechanical,

Vision: Encourage students to demonstrate a wide range of the skills learned during their course of study by presenting their ideas/objectives that has passed through the design, analysis, testing and evaluation.

Outcomes:

- It allows students to specialize in a topic that they enjoy.
- It allows students to show a wide range of the skills learned since the first year.
- Students shall demonstrate their skills by delivering a product that has passed through the design, analysis, manufacturing, testing and evaluation

Event Name	FACULTY DEVELOPMENT PROGRAM
Theme	Augmented & Virtual Reality Interfaces for 3D Printing and Design
Date	28.01.2020-01.02.2020
Venue	1st Floor, Seminar Hall, M-Block

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Measurable outcomes, w.r.t. realisation of Vision:

- Understanding about Design and Development of Low Cost 3D Printers, Metal and Polymer Printing

- Application and opportunities of augmented and virtual reality in Mechanical and aerospace industry

Event Name	TWO DAY WORKSHOP
Theme	3D PRINTING TECHNOLOGY
Date	06-11-2019 to 07-11-2019
Venue	**Department of Mechanical Engineering, DSATM, Bangalore**

Objectives of the Program/ Event

- To know the process of making three dimensional solid objects from a digital file.
- To understand the creation of a 3D printed object using additive processes.

Details about the event:

- The event started as per the schedule and Dr. Manohar H S, Head, Department of Mechanical Engineering, DSATM welcomed the speaker Mr. Shreyas S P Hycubes India private Ltd. Bangalore". After the welcome speech, Mr. Shreyas S P from "**Hycubes India private Ltd. Bangalore**. shared his knowledge on the topic "3D printing Technology".

Measurable outcomes, w.r.t. realisation of Vision:

- Understanding the Adoption of 3D printing has reached critical mass as those who have yet to integrate additive manufacturing somewhere in their supply chain are now part of an ever-shrinking minority.
- It's important to see it as a cluster of diverse industries with a myriad of different applications.

Event Name	**ONE DAY WORKSHOP**
Theme	NON-DESTRUCTIVE TESTING IN ADVANCED MANUFACTURING
Date	18/09/2019
Venue	**Ground floor seminar hall MBA-Block, DSATM**

Objectives of the Program/ Event

- To understand the manufacturing of parts using this technology with a single AM part by replacing several others.
- While some quality testing of these parts can be undertaken using existing methods.

Details about the event:

The event started as per the schedule and Dr. Manohar H S, Head, Department of Mechanical Engineering, DSATM welcomed the speaker Mr. Ravi Kumar T Chairman, The Indian Institute of Welding, **Bangalore**". After the welcome speech, Mr. Ravi Kumar T shared his knowledge on the topic "**NON-DESTRUCTIVE TESTING IN ADVANCED MANUFACTURING**". It is one of the most exciting developments in manufacturing: a set of technologies that can produce complex objects in a range of materials, from precious metals to glass, or even concrete.

Measurable outcomes, w.r.t. realisation of Vision:

- Understanding the concept of Non-destructive testing and its applications.
- Understanding the different types of Non –destructive testing methods.
- Ability to design a sophisticated part for aviation or space exploration.

Department of Mechanical Engineering

Event Name	FACULTY DEVELOPMENT PROGRAM
Theme	Recent Innovations in Manufacturing and Welding Technology
Date	28.06.2019 - 02.07.2019
Venue	1st Floor, Seminar Hall, M-Block

Objectives of the Program/ Event

- Latest advancement in manufacturing technology and welding
- Applications of different welding processes and their parameter study
- Scope of R & D in manufacturing and welding technology

Details about the event:

- Knowledge on welding technology and advanced manufacturing systems
- Advancement in fabrication process of aerospace industry
- Additive Manufacturing technology and standards

Measurable outcomes, w.r.t. realisation of Vision:

- Understanding about welding technology and new methods of testing welding parts
- Understanding about process parameters to be considered during welding operation
- Gained Knowledge in analysis of different material characterization with respect to additive manufacturing

Department of Mechanical Engineering

Event Name	FACULTY DEVELOPMENT PROGRAM
Theme	Research opportunities on materials and manufacturing
Date	16.01.2019 - 20.01.2019
Venue	4th Floor, Seminar Hall, M-Block

Objectives of the Program/ Event

- The role of Material and testing in an Aerospace domain
- Synthesis of nano materials and nano technologies Applications
- Scope of R & D in materials used for Additive manufacturing
- Testing and characterization of composite materials

Details about the event:

- Knowledge on engineering materials, research opportunities in materials and manufacturing
- Testing and characterisation techniques of composite materials
- Manufacturing Planning of Simulation – Machining and Industrial Robots

Measurable outcomes, w.r.t. realisation of Vision:

- Composite materials integrating various ceramics, fibers, metals, and polymer forms are being investigated for practically every conceivable application in aerospace, automotive, electronic packaging, orthopaedic implants, energy storage, permanent magnets, household/sports equipment, wind turbines, etc
- Understanding about materials characterisation and testing
- Gained Knowledge in analysis of different material characterization with respect to varying composition

Event Name	WORKSHOP
Theme	**I.C ENGINES** HANDS ON EXPERIENCE
Date	13-11-2018 to 15-11-2018
Venue	**Department of Mechanical Engineering, DSATM, Bangalore**

Objectives of the Program/ Event

- To know about the principle, assembly and working of IC Engines

Details about the event:

- The event started as per the schedule and Dr. A S Devaraja, Head, Department of Mechanical Engineering, DSATM welcomed the speaker Mr. Naveena M and team from "***AJ* Heuristic. – Bangalore-49**". After the welcome speech, Mr. Naveena M from "***AJ* Heuristic. – Bangalore-49**" shared his knowledge on the topic "IC Engines". Hands on experience about assembly and disassembly of the IC engine.

Measurable outcomes, w.r.t. realisation of Vision:

- A discussion on the outcomes of the event was carried out at the end of the session. This event enabled the students to explore hands on experience and service and maintenance of IC engines.

Department of Mechanical Engineering

Event Name	FACULTY DEVELOPMENT PROGRAM
Theme	Computer Aided Design, Modelling and Analysis of Mechanical Systems
Date	08.01.2018-11.01.2018
Venue	4th Floor, Seminar Hall, M-Block

Objectives of the Program/ Event

- Introduction to Cloud Computing in Computer Aided Engineering
- Finite Element Analysis with an emphasis on Crash Analysis & simulation carried out in automotive industry for various vehicles.
- Robust Design Mechanical Systems

Details about the event:

- Mechanical Design and Visualization –Detailed Design and Electronic Drafting, Parametric Modelling and Motion Simulation/Animation
- Engineering Analysis and Optimization – Pre & Post Graphical Processors for Finite Element Analysis (Mechanics, Dynamics, Thermo-flow, etc.), Identification of Optimal Design Parameters and Configurations, Motion Analysis (Location, Speed, Acceleration and Force)

- Manufacturing Planning of Simulation – Machining and Industrial Robots

Measurable outcomes, w.r.t. realisation of Vision:

- Understanding about Design and manufacturing of mechanical components
- Understanding of computer aided modelling, analysis and testing of automobile systems
- Understanding about process parameters of sheet metal and plastic injection moulding operations

Event Name	**A 3 DAY CERTIFIED PROGRAM**
Theme	**"3D PRINTING"**
Date	**07/11/2017 to 09/11/2017**
Venue	**Seminar hall 4th floor 'A' BLOCK**

Objectives of the Program/ Event

- Understand the technical principles and workflows for AM of polymers, metals, and composites.
- Design parts for AM by combining process knowledge, computational design tools, and application requirements.

Details about the event:

- In the 3-Day training program day 1 was focussed on enhancing the modelling skills of the participants by making them aware of possibilities and advantages of Autodesk Inventor Software
- Day 2 was completely focussed on giving a detailed insight into the basics of Additive Manufacturing, its advantages, over the conventional manufacturing practices. The day session was informative in terms of existing opportunities and future scope in the field of 3D Printing.
- Day three was focussed on teaching the participants about the programming skills in 3D printing, and demonstrating the 3D printing operations and features of the 3D printed objects.

Measurable outcomes, w.r.t. realisation of Vision:

- Understanding the concept of Additive manufacturing
- Understanding about the object created by laying successive layers of materials on one another.
- Complex shapes having great accuracy using lesser materials as compared to traditional process of manufacturing can be created with 3D printing.
- Applications and opportunities in 3D printing technology.