



# SWARNANDHRA

College of Engineering and Technology  
(Autonomous)

Seetharampuram, Narsapur, Andhra Pradesh 534280



# MECHAZINE

BI - ANUAL MAGAZINE

DEPARTMENT OF  
MECHANICAL ENGINEERING

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*To educate and enrich effective and responsible Mechanical Engineers to fulfill the needs of industry and society.*

# ABOUT MECHANICAL DEPARTMENT

"EMPOWERING MINDS, BUILDING FUTURES"



The Department of Mechanical Engineering was established in the academic year 2004. The Department presently offers Under-graduate study program leading to the degree of Bachelor of Mechanical Engineering and Post Graduate program M.Tech CAD/CAM. The initial intake of the department is 60 in UG Programme. Then the Department got approval for additional intake of 30 in 2008 another 30 in 2009, latter 60 more seats were added in 2015 with approval from AICTE for UG Programme. PG Programme – M.Tech. (CAD/CAM) is started in 2009 with an intake of 18. The present intake is 120 in UG and 18 in PG Programmes.



The department was accredited by National Board of Accreditation (NBA) in 2013 and was recognized as research centre by Jawaharlal Nehru Technological University Kakinada (JNTUK) in 2016. The Department has 31 faculty members, 2 research scholars and 16 supporting staff. The department is having highly qualified and experienced faculty in all streams of Mechanical Engineering. 5 faculty members have doctoral degrees and 2 members are pursuing their Ph.D's. The faculty has been active in offering consultancy services to industries and conduct courses regularly to facilitate the continuing education of practicing engineers. About 80 research papers have been published in various International and National Journals/Conferences. The department is very well equipped with computational facilities and resources both in terms of hardware and software.

Department has more than 180 computing systems and workstations loaded with wide range of software products covering all areas of mechanical engineering. The department having DASSAULT System Lab associated with APSSDC. Experimental and computational facilities are being continuously upgraded. The Department has Association of Mechanical Engineering which is a forum for students to develop their professional skills. Students are also encouraged to take part in awareness campaigns that have social relevance. Alumni of the department have occupied very high positions at National and International level.

# VISION AND MISSION



## Vision

### Institution

"To produce global competent, ethical and dynamic professionals by creating Centre of Excellence in Technical Education for societal empowerment."

### Department

To educate and enrich effective and responsible Mechanical Engineers to fulfill the needs of industry and society.

## Mission

### Institution

- To provide quality education with knowledge and skills for rural and urban students.
- To collaborate the industries with academia for empowering the students to meet global standards
- To induce highly ethical entrepreneurship in young minds with good leadership quality for the society
- To enhance the institution in Research and Development by human intellectual capability.

### Department

- To lay a strong foundation of technical knowledge by concentrating on fundamental concepts of Mechanical engineering.
- To develop creative thinking and innovative methods for solving complex engineering problems.
- To develop team spirit, leadership and professional qualities.
- To strengthen research abilities in collaboration with industry.

# PRINCIPAL DESK

*Welcome to another exciting academic year! As your principal, I am thrilled to embark on this journey of learning and growth with each and every one of you.*



**Dr. S. Suresh Kumar**

**BE,MS, M.Tech, Ph.D**

**PRINCIPAL**

*This year, let's embrace the challenges ahead with enthusiasm and resilience. Let's support one another, celebrate our successes, and learn from our setbacks.*

*Together, we can create an environment where every student feels valued, empowered, and inspired to reach for the stars.*

*I encourage you to take advantage of all the resources available to you—from our dedicated teachers to our extensive library to our extracurricular programs. Seize every opportunity to grow academically, socially, and personally.*

**“AS YOUR PRINCIPAL, I AM HERE TO SUPPORT YOU EVERY STEP OF THE WAY. WHETHER YOU NEED GUIDANCE, ENCOURAGEMENT, OR SIMPLY SOMEONE TO LISTEN, MY DOOR IS ALWAYS OPEN..”**

*Let's work together to make this academic year one filled with achievement, joy, and unforgettable memories*

# HOD DESK

*"Welcome, esteemed students, to the beginning of your exciting journey here at Swarnandhra College of Engineering and Technology. As the Head of the Department, I extend my warmest greetings to each of you."*



**Dr. A Gopichand**

B.TECH, M.Tech, Ph.D

PROFESSOR, HOD-ME

*Remember that your education is not only about absorbing information but also about developing critical thinking skills, problem-solving abilities, and a deep understanding of your chosen field. Take advantage of the resources available to you, including our experienced faculty, state-of-the-art facilities, and opportunities for research and practical application.*

*Remember the importance of collaboration and teamwork. Your peers can be invaluable sources of support and inspiration, so don't hesitate to work together, share ideas, and learn from one another.*

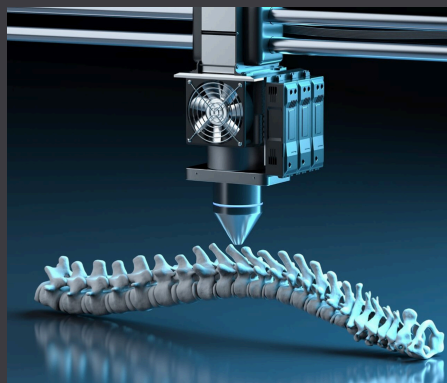
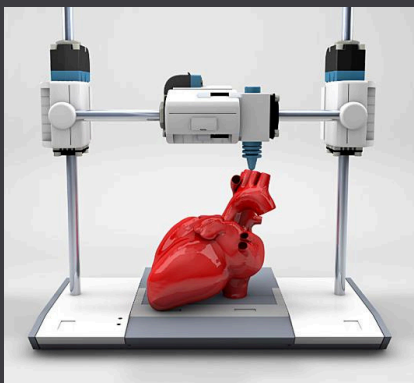
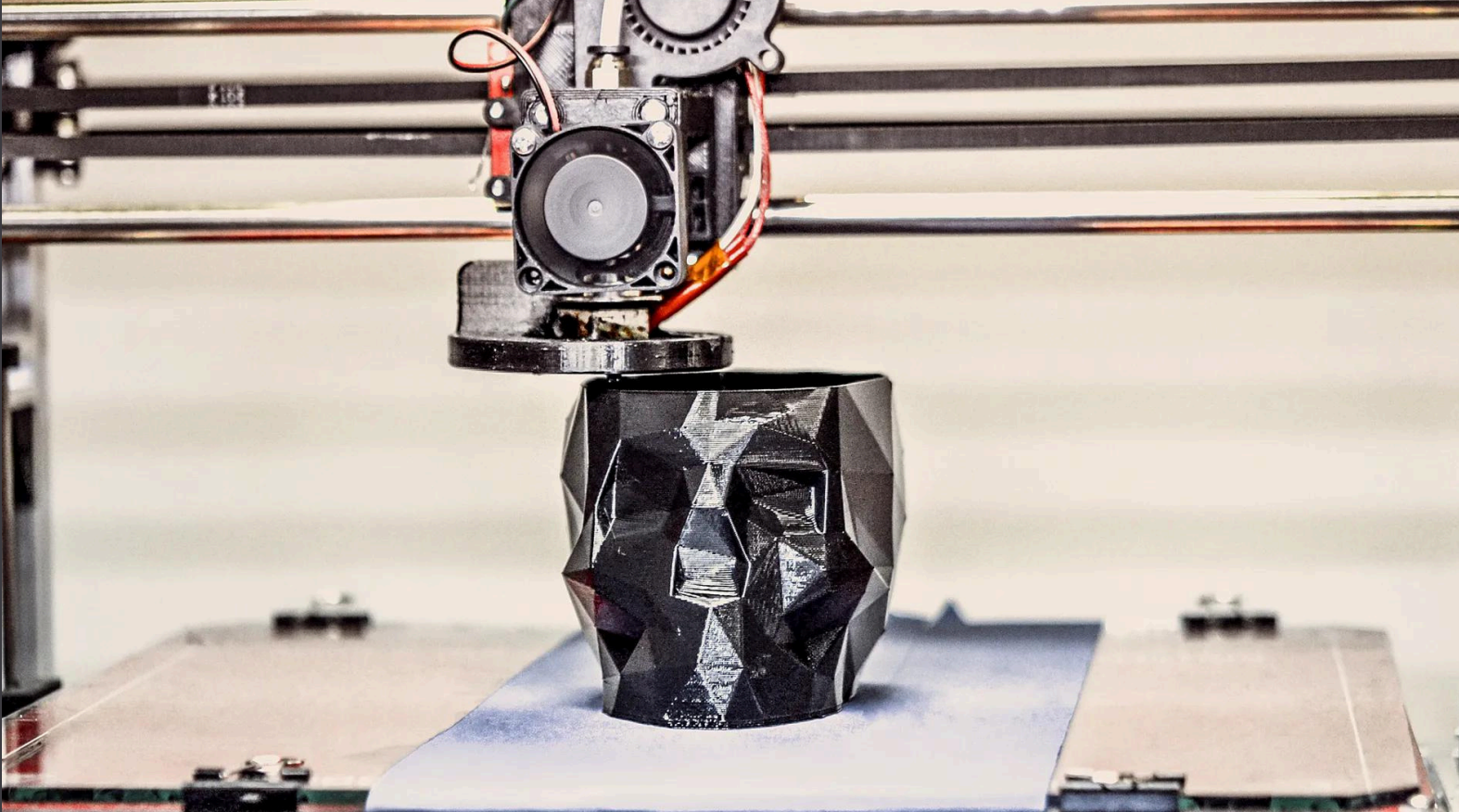
**AS YOUR HEAD OF DEPARTMENT, I AM COMMITTED TO PROVIDING YOU WITH THE SUPPORT AND GUIDANCE YOU NEED TO SUCCEED. I LOOK FORWARD TO WORKING WITH EACH OF YOU AND WITNESSING THE INCREDIBLE PROGRESS WE WILL MAKE TOGETHER.**

*Wishing you all the best for a successful and rewarding year ahead.*

# Trends in Technology

## 3D Printing

“ 3D printing, also known as additive manufacturing, is a transformative technology that enables the creation of three-dimensional objects layer by layer from digital designs. Unlike traditional manufacturing methods that involve subtracting material from a solid block or molding it into a desired shape, 3D printing builds objects by adding material, one layer at a time.



3D Printing Objects

The process begins with a digital 3D model of the object, which is created using computer-aided design (CAD) software or obtained through 3D scanning. This digital model is then sliced into thin horizontal layers by specialized software, which generates instructions, known as G-code, that guide the 3D printer during the printing process.

There are several different types of 3D printing technologies, each with its own unique approach and materials.

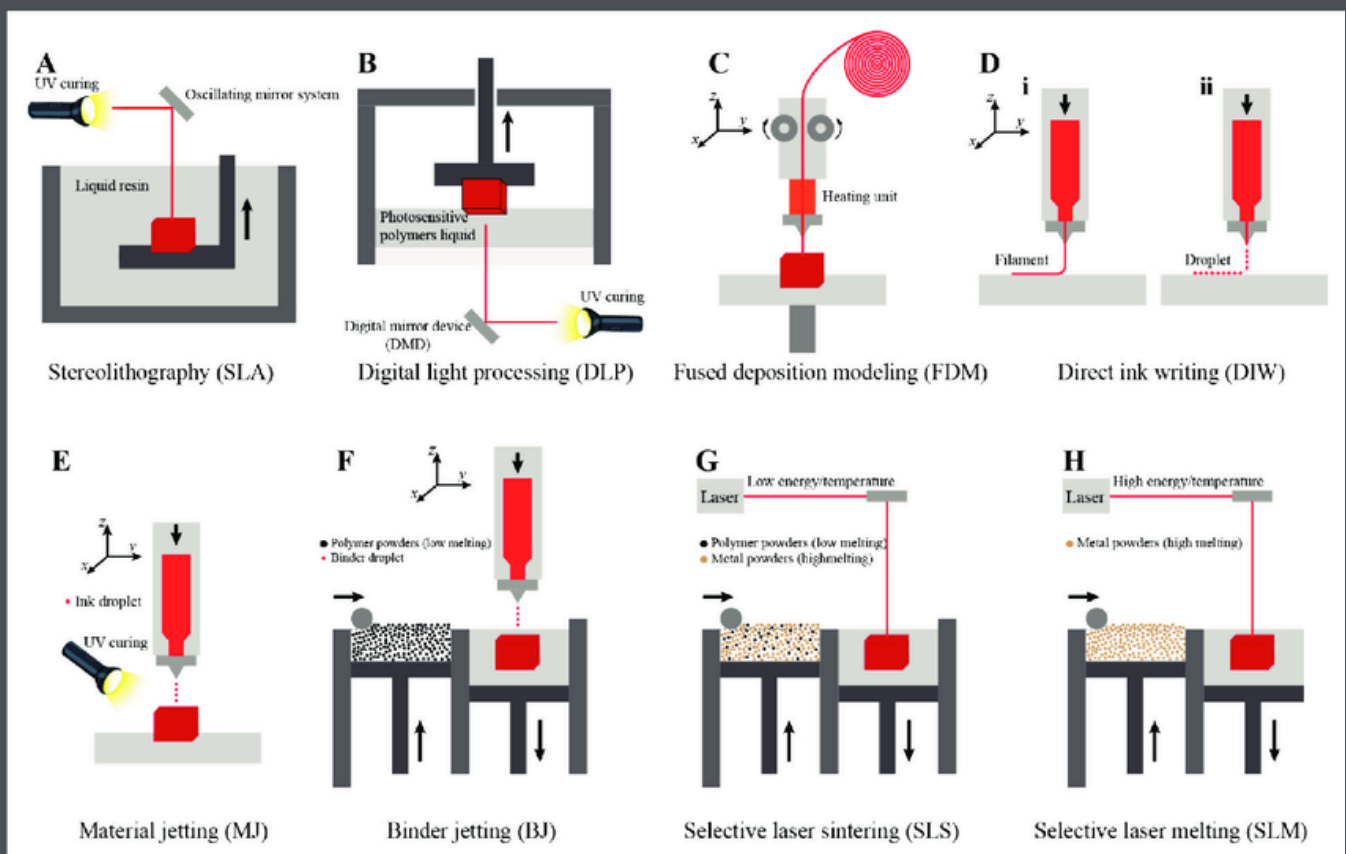
**1. Fused Deposition Modeling (FDM) or Fused Filament Fabrication (FFF):** This is one of the most widely used 3D printing technologies. It works by extruding thermoplastic filament through a heated nozzle, which melts the material and deposits it layer by layer to build up the object.

**2. Stereolithography (SLA):** SLA printers use a liquid photopolymer resin that is cured by a laser or other light source to form each layer of the object. SLA printing produces high-resolution, detailed parts and is often used in applications where surface finish and accuracy are critical.

**3. Selective Laser Sintering (SLS):** SLS printers use a laser to selectively fuse powdered material, such as plastic, metal, or ceramic, into solid layers. This technology is particularly well-suited for producing complex geometries and functional prototypes.

**4. Digital Light Processing (DLP):** Similar to SLA, DLP printers use a vat of liquid photopolymer resin that is cured layer by layer using a digital light projector. DLP printing is known for its speed and is often used for producing dental and jewelry prototypes.

**5. Binder Jetting:** In this process, a liquid binding agent is selectively deposited onto a powder bed, bonding the particles together to form each layer of the object. Binder jetting is used for printing metal, ceramic, and sand molds for casting applications.



**3D printing offers numerous benefits over traditional manufacturing methods, including:**

- **Design Freedom:** 3D printing enables the creation of complex geometries and intricate designs that would be difficult or impossible to produce using traditional methods.
- **Rapid Prototyping:** With 3D printing, designers and engineers can quickly iterate on designs and produce prototypes for testing and evaluation, reducing time-to-market and development costs.
- **Customization:** 3D printing allows for mass customization, where each object can be tailored to individual specifications or personalized according to customer preferences.
- **Reduced Waste:** Unlike subtractive manufacturing processes, which generate significant amounts of waste material, 3D printing only uses the material necessary to build the object, minimizing waste and environmental impact.

# GALLERY



**INDIA DESIGN WEEK-2021**



**Fusion 360  
(Competition)**



**Autodesk  
Design Now  
Training  
Program**

