DEPARTMENT OF MECHANICAL ENGINEERING

RESEARCH LABORATORIES

The Department of Mechanical Engineering, Sreyas Institute of Engineering and Technology has been developed facilities for study and work in different research areas such as Robotics, Computer aided design and manufacturing, Refrigeration and air-conditioning, manufacturing etc. for finding out to collaborate on research that moves the world forward.

1. Manufacturing Research Facility Lab
2. Robotics Research Facility Lab
3. CAD and CAM Research Facility Lab
4. Refrigeration and Air Conditioning Research Facility Lab

Manufacturing Research Lab

The faculty and students doing research in manufacturing areas uses the facilities available in Metrology and material science lab, Mechanics of solids lab and production engineering lab, CNC machine lab and workshop for their research work

The main facility available in this research lab are

a. CNC machining
b. Deep Drawing Test Rig
c. Plasma welding and cutting
d. Hydraulic press
e. Melting furnace
f. Measurement facility
g. Ansys software
h. Latex software

Projects performed

1. Warm Deep drawing on copper blanks
2. Deep drawing study on steel blanks
3. Fabrication and experimental study on square cup deep drawing
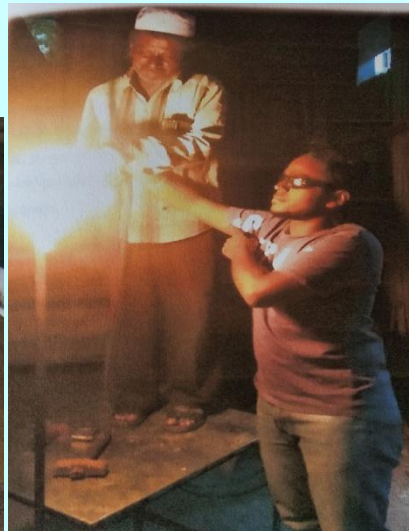4. Study of weldability characteristics in stir welding.

Harness testing in MOS lab as
part of research /project study
A Y: 2018-19
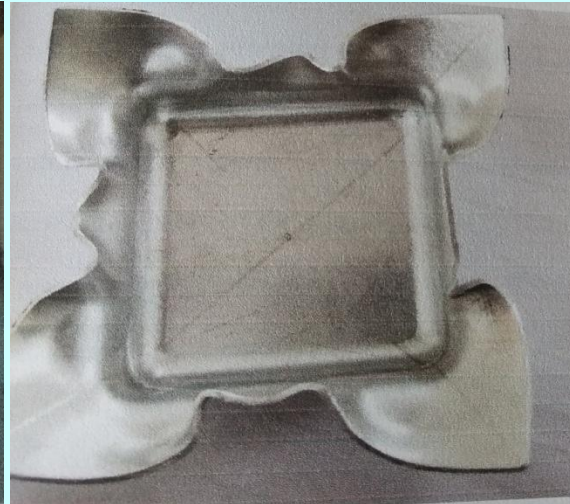
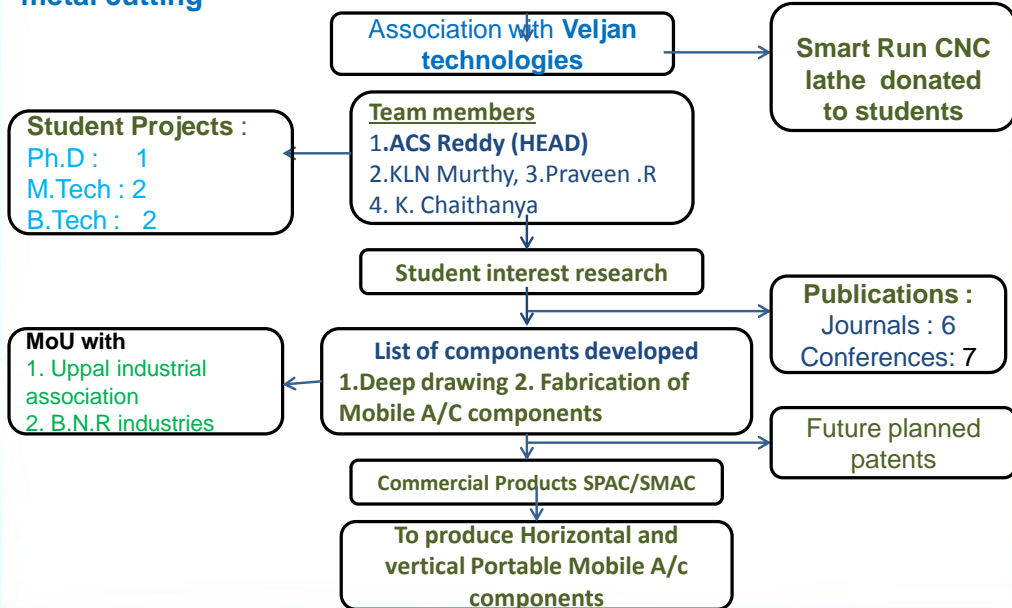Deep drawn square cups
 A Y: 2018-19
Harsha and Team

SWB for strength test in MOS Lab
A Y: 2018-19

Air Flow Duct welding as part of
research/project study

Manufacturing & CNC Incubation Center

3. Manufacturing and CNC incubation center

Objective : Research in feasible manufacturing of press components and metal cutting

Association with **Veljan technologies**

Smart Run CNC lathe donated to students

Student Projects :
Ph.D : 1
M.Tech : 2
B.Tech : 2

Team members
1.**ACS Reddy (HEAD)**
2.KLN Murthy, 3.Praveen .R
4. K. Chaithanya

Student interest research

Publications :
Journals : 6
Conferences: 7

MoU with
1. Uppal industrial association
2. B.N.R industries

List of components developed
1.**Deep drawing 2. Fabrication of Mobile A/C components**

Future planned patents

Commercial Products SPAC/SMAC

To produce Horizontal and vertical Portable Mobile A/c components

6/28/2019   16

Components Made in CNC Lab

Determination of LDR in deep drawing using reduced number of blanks

A.C. Sekhara Reddy, S Rajesham

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Abstract

Indeed, deep drawing is one of the important sheet metal forming process, widely used in production of cup shaped articles having applications in different engineering and domestic fields such as aerospace, automobile, beverage, kitchenware etc. It is essential to determine the quality characteristics of the process for minimization of rejections as well as cost involved in it. LDR is one such quality characteristic essential to evaluate thoroughly with reduced number of steps in deep drawing. Here, the LDR is determined by means of experimental and simulation method by using the concept of " punch force is proportional to blank diameter up to limiting drawing ratio" and remains constant over the LDR for all oversized blanks resulting in failure. In this research paper, an attempt has been made to establish a standard and quick method for "determination of LDR". The LDR tests have been conducted with the use of only three blanks of different sizes; i.e., two of undersize and one blank of oversize. The LDR found through experiments and simulation are in good agreement with only 5.4% variation and this variation may be due to variation in lubrication conditions among the experimental and simulation method.

Paper published

Link : https://www.youtube.com/watch?v=Axiv9NREon8

Robotics Lab (Robotics Innovatio Hub)

Every one knows robotics is on of the future **21ˢᵗ Century: 4.0 industrial revolution** technology. By keeping this in mind, Department of mechanical engineering has established **Robotics Research Center** (Innovatio Hub) on **04/02/2019** with the startup company **Innovatio Drop** which works in the field of robotics. A MoU is signed between SREYAS and Innovatio Drop to establish and train students, faculty in the field of robotics and related technologies.

Initially, Total **135** students from MECH, CSE and ECE streams were registered to become members of the center. One to one interaction sessions was held to generate awareness about robotics technologies. A series of interviews was held by the company to shortlist best talents across the all branches of all years. Currently we have **36** young and talented students who are undergoing training and also working on various innovative projects such as humanoid robots and IoT (Internet of Things)

We at SREYAS always strive to make our students professionally skilled engineers so as to cope with highly competitive working environments in industry. We also provide short term to long term internships to students, who can get the required skill which is essential for current job markets. In Future, we would like to work on technologies such as artificial intelligence (AI) with association and collaboration with many such companies in the related area.
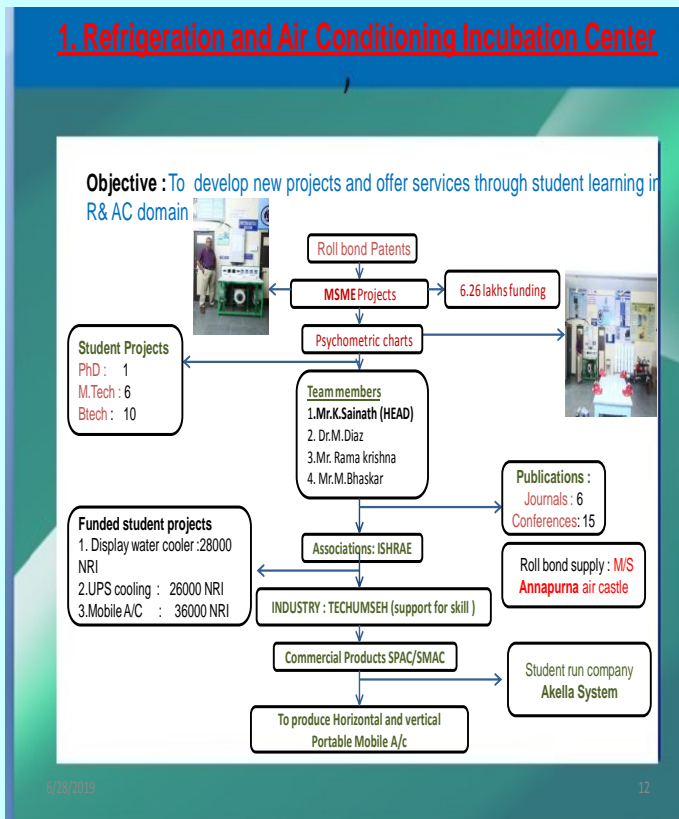
CAD and CAM Research Facility Lab

Facilities available

1. **AUTOCAD**
2. **ANSYS**
3. **LATEX**
4. **MATLAB/SCILAB**
5. **HIGH CONFIGURED PCS (30)**

R & AC Incubation Center

In addition to the JNTU curriculum, students can verify theoretical concepts in a practical environment. It is helpful for the analysis of problems in Refrigeration and psychometric problems. Students learn perfectness in through the subject. Learns the cooling and heating effect of room

Student's project models are guided by our faculty members. These models which is based on

Welding

Refrigeration and air conditioning systems

Real time application

To create innovative ideas

To build the creative skills

Motivate student to come up with projects /products.