



St. Martin's Engineering College

(An Autonomous Institute)

Dhulapally, Secunderabad-500 100

NBA & NAAC A+ Accredited

www.smec.ac.in



POST EVENT REPORT

Date: 01-08-2020

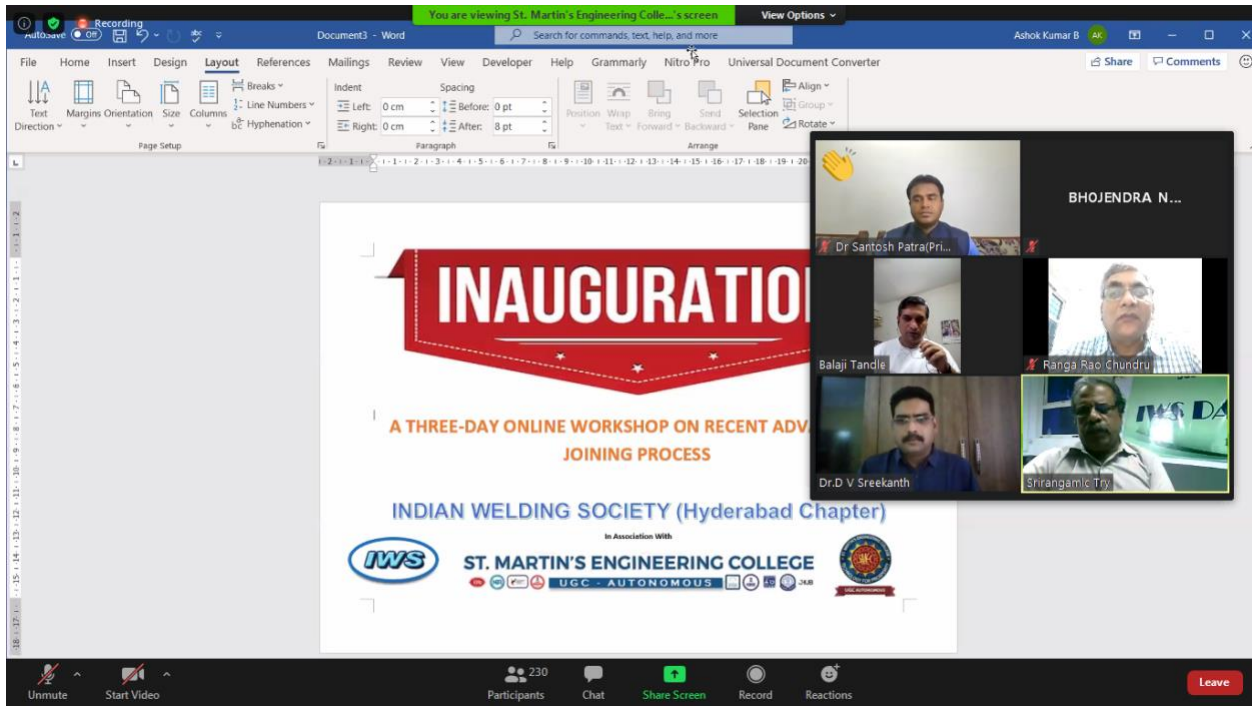
1. **Department:** Mechanical Engineering
2. **Name of the event:** 3 Days International online workshop supported by Indian Welding Society “Recent advances in Joining Process”
3. **Event Date:** 29/07/2020, 30/07/2020. 31/07/20220
4. **Report submitted date:** 01-08-2020
5. **Brief description about the event:** Department of Mechanical Engineering have Organized 3 days Online International workshop in collaboration with Indian Welding Society on Recent advances in joining process. The event was started on 29th July 2020 and Concluded on 31st July 2020. The event was well received by faculty and students across India. Some of the registrations coming from Research Organizations and Industry which are involved in welding as core research area. We are happy to inform that 330 registered the event and 220 participants attended the event. The following are the details of the event.

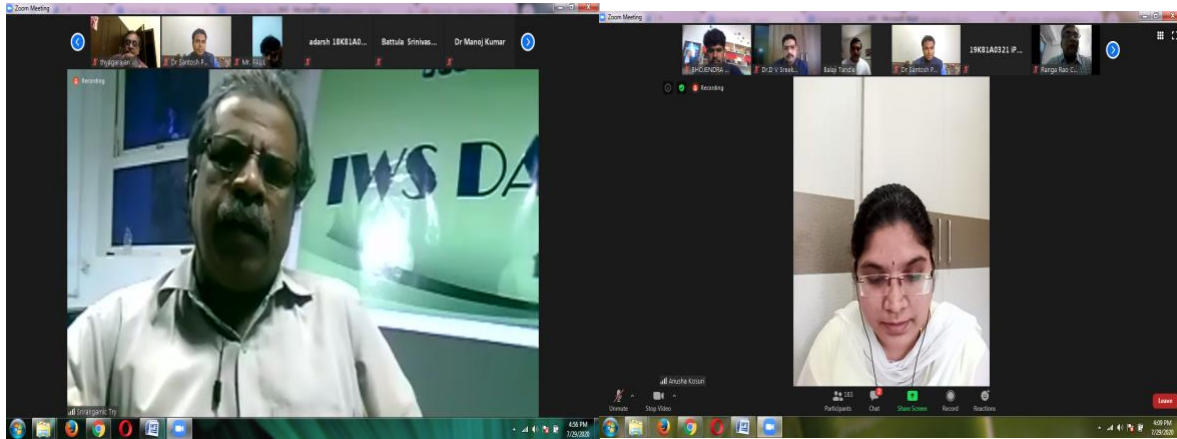
Day 1. 29/07/2020.

The event was Started at 4 PM Inaugurated by Principal Sir and HOD Sir addressed the event regarding the importance of joining process in mechanical engineering and explained about recent development in joining process and importance of automation in welding. The event was stared with SMEC-IWS Student forum inaugurated by Sri K Thaygarajan Sir, Chairman, IWS-Hyderabad chapter, Then Dr A Rajasekar, Secretary, IWS Hyderabad chapter explained about benefits of IWS Student forum and participation of five number of students in international evets with the membership. This is the second forum in Telangana region of IWS student forum for the coming future and IWS will support national and international workshops. Then the workshop was inaugurated by Sri N Rajasekeran sir, Secretary, IWS India and the first session was continued by him and has covered the following technical aspects.

1. Introduction to Joining process
2. Importance of GMAW, TIG, MIG, Submerged arc welding, Orbital welding
3. Salient Features of welding of Boilers shell and tubes by BHEL, Trichy
4. Automation of the welding process by using Robots.
5. Emerging Technologies Cold transfer welding, Friction Stir welding, Laser Welding has explained

Then the questions and answers session interaction with the participants and concluded the first day session at 7.00 pm





INDIAN WELDING SOCIETY

JOINING OF MATERIALS

- Welding – A joining process of two materials, metals/non-metals, by the application of press and/or temperature.
- Welding – Local coalescence of two similar or dissimilar metallic parts at their faying surfaces
- Weldment – The assemblage of two or more elements
- Sometime a filler material is needed to facilitate coalescence in Arc/Fusion welding process.
- Autogenous welding – without filler materials

Classification of welding processes

Welding

- Solid State Welding Process
 - High Heat Input
 - +friction
 - +Explosion
 - +Forge
 - +friction Stir
 - +Cold Pressure
 - +Thermo Compression
 - Low Heat Input
 - +Ultrasonic
 - +Submerged Arc
 - +Gas Tungsten Arc
 - +Plasma Arc
 - +Plasma MIG
 - +Electro gas Welding
 - +Dry Acetylene
 - +Electron Beam
 - +Laser Welding
- FUSION WELDING PROCESS
 - Seam
 - +Carbon Arc
 - +Shielded Metal Arc
 - +Submerged Arc
 - +Gas Tungsten Arc
 - +Plasma Arc
 - +Plasma MIG
 - +Electro gas Welding
 - +Dry Acetylene
 - +Electron Beam
 - +Laser Welding
 - Spot
 - +GTAW
 - +Electric Resistance Welding
 - +Welding
 - Seam
 - +Spot
 - +Projection Resistance Welding
 - +MIG
 - +TIG
 - +Induction Welding
 - Zone
 - Electron Beam
- Resistance Welding Process
 - +Resistance Butt
 - +Flash Butt
 - +Projection Resistance Welding
 - +MIG
 - +TIG
 - +Induction Welding
- Cast Welding
 - +Thermite Welding
 - +Electroslag Casting

INDIAN WELDING SOCIETY

WELDING OF HRSG DRUM NOZZLE.

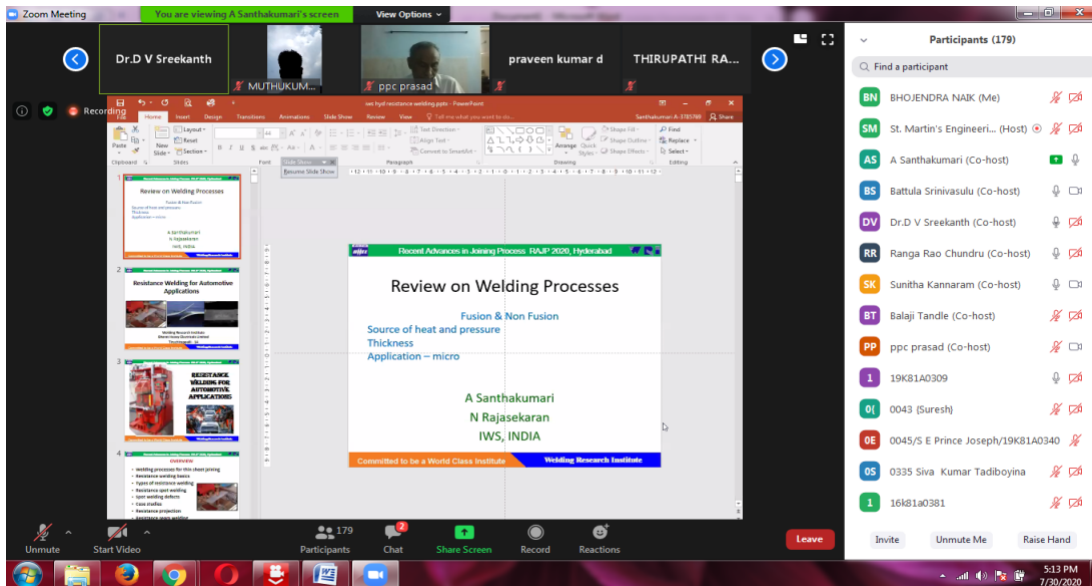
DRUM MATERIAL SA 299, CARBON STEEL

DRUM I.D. (MM) 1981

5:27 PM 7/29/2020

Day 2. 30/07/2020

The Program was started at 4 pm on the subject “**Resistance Welding in automotive application**” “presented by Mrs. A Shanta Kumari, AGM,WRI,BHEL,Trichy explained about various aspects of Resistance Welding, process parameters, various variants of resistance welding and how to make defect free welding, WRI involvement for training of the industry and institutes, robotic welding in automotive application were covered. The next session was given by Dr Adepu Kumar, NIT, Warangal on “**Wire Transfer Technology in additive manufacturing**”. The salient features of this emerging technology in aerospace and medical application has explained. Then the next session was presented by Prof, PPC Prasad, CITD, Hyderabad on “**Industrial applications on TIG Welding**” and the session was concluded at 7.00 PM after question and answer session from the participants.



Recent Advances in Joining Process RAJIP 2020, Hyderabad

CMT – GMAW

Welding Research
Bharat Heavy Electricals

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Welding Research Institute

Recent Advances in Joining Process RAJIP 2020, Hyderabad

Resistance welding - Introduction

The **current** is generated by a transformer, and is fired through electrodes, which hold the metal pieces in place.

Electrodes **apply force** to the metal pieces, usually before, during, and after the first of the electric current.

Called **resistance** welding because it is the resistance between the contact surfaces of the metals being welded that generates the heat to fuse them together.

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WIRE ARC ADDITIVE MANUFACTURING

Dr. Adepu Kumar
Professor
Mechanical Engineering Department
NIT, Warangal
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Contact no. 9492783067

Participants (28)

- BHOJENDRA NAB (Host)
- St. Martin's Engin...
- Adepu Kumar (Co-host)
- Battala Srinivasulu (Co-host)
- Dr.D.V Sreerathm (Co-host)
- Ranga Rao Chandra (Co-host)
- Santhika Karaman (Co-host)
- A Santhakumari (Co-host)
- Balaji Tandfe (Co-host)
- ppp@gmail (Co-host)
- SDGS (Guest)
- SDGS & Prince Insaps (SME)140340
- SSS Siva Kumar Tadiboyina
- SHARADK055

OVERVIEW

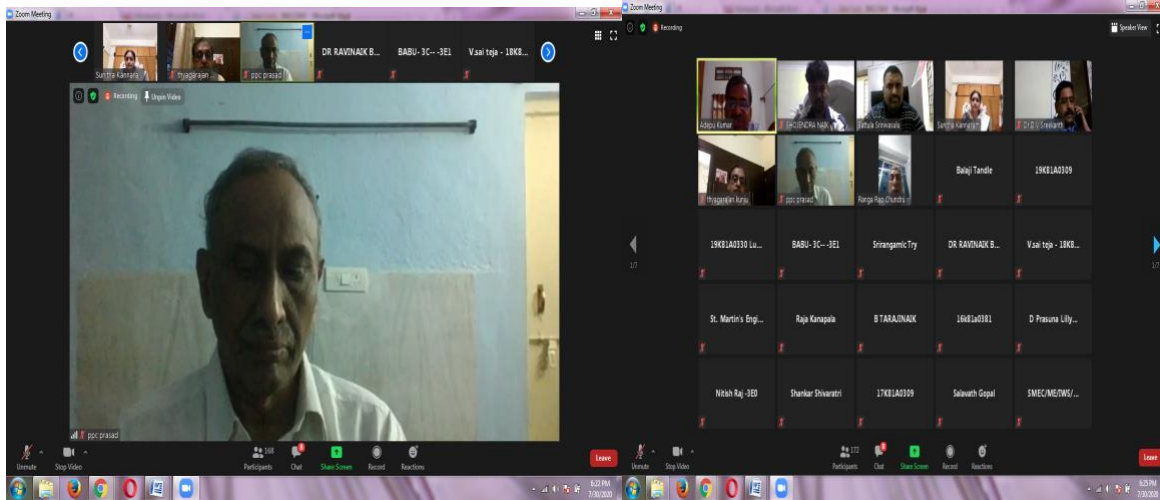
- Introduction to Additive Manufacturing (AM)
- Wire Arc Additive Manufacturing (WAAM)
- MX3d Metal XL
- Digital Twin used in WAAM Technology

STEPS IN AM

- 1 CAD
- 2 STL convert
- 3 File transfer to machine
- 4 Machine setup
- 5 Build
- 6 Removal
- 7 Post process
- 8 Application

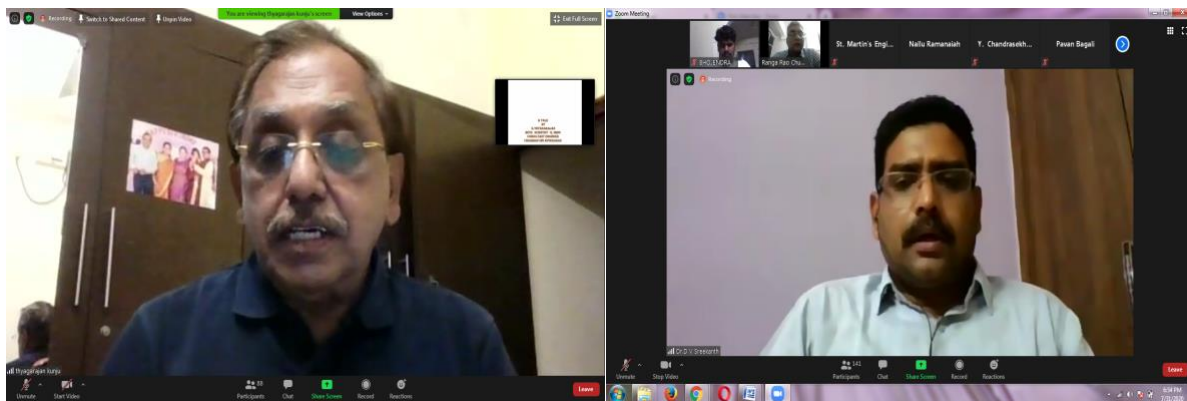
Source: We Group, 2012

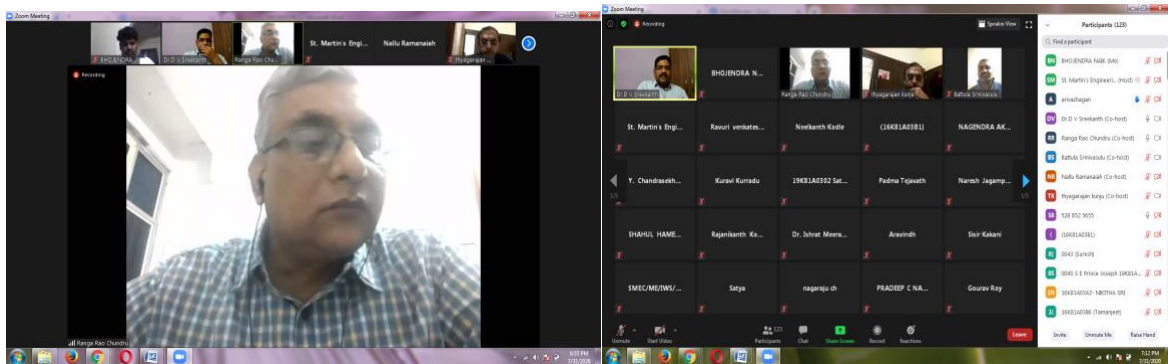
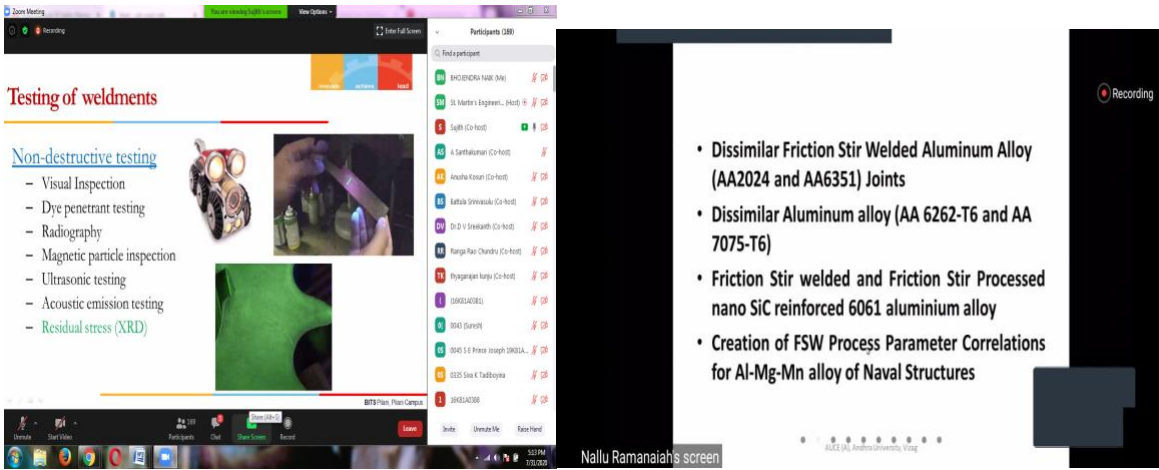
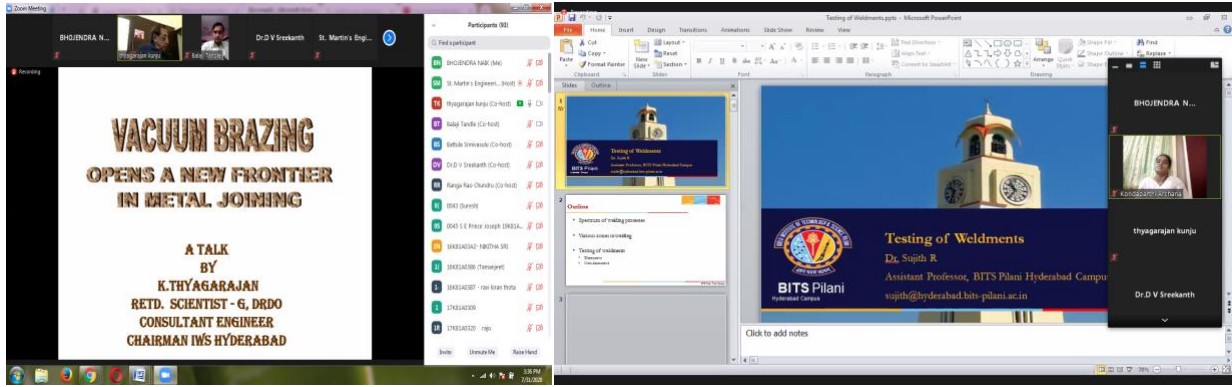
COLD METAL TRANSFER (CMT) MACHINE



Day 3. 31/07/2020

The Program was started at 3.30 PM by Sri K Thaygaran sir, Chairman, IWS, Hyderabad chapter on the subject “**Vacuum Brazing**” and explained about the salient features of vacuum and industrial application of this technology in space and defense sector. Then the next session was presented by Dr. R Sujeet, BITS, Hyderabad on the topic “**Testing of the weldments** “ and explained about the importance of testing of the weldments, types of tested can be conducted on welds, salient features of Destructive and Nondestructive materials are covered. Then the next session was given by Dr N Ramanaiah, Andhra University, Visakhapatnam on the topic “**FSW Resent advances in joining of AL alloys**” has explained importance of joining of aluminum alloys which is difficult in weld by other process, how FSW overcome and what are the benefits of this technology for joining of similar and dissimilar joining of AL alloys are presented. Then the workshop was concluded and vote of thanks presented by Prof Ch Ranga Rao .Finally to improve ourselves feedback taken from the participants and all are acknowledged the St. Martin’s Engineering College contribution and Indian Welding Society and all the participant institutes shown interest sharing of knowledge mutual cooperation in welding technology in near future.





Report prepared by Ch. Ranga Rao

Content verified by English Staff Name & Signature:

Softcopy along with photos forwarded for website: YES

Any remark / suggestion:

Sign of Organizing Faculty

Sign of HOD

Approved by Principal