



The Science of Making...



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VOLUME 1

ISSUE 2

● JULY 2024

ACHIEVEMENTS

AS9100 REV D ACCREDITATION AUDIT

The Aerospace Laboratory, of Center for Aerospace and Additive Manufacturing Processes (C-ASMP), has successfully completed its first surveillance audit for AS9100 Rev D accreditation. The group, with expertise in the design, development, and qualification testing of Line Replaceable Units (LRUs) and testing of other hydraulic accessories for various aerospace platforms and general engineering applications, underwent the audit conducted by NVT Quality, an ANAB-accredited body.



NVT QUALITY CERTIFICATION INTERNATIONAL

CERTIFICATE

Certificate Number: 189223

This is to certify that
**CENTRAL MANUFACTURING TECHNOLOGY INSTITUTE,
 (AEROSPACE LABORATORY)**
 Tumkur Road, Gorguntepalya,
 Bengaluru - 560 022, Karnataka, India.
 has implemented and maintains a Quality Management System for its

SCOPE:

- DESIGN, DEVELOPMENT & MANUFACTURING OF HYDRAULIC LINE REPLACEABLE UNITS (LRUs) & TEST SYSTEMS FOR AEROSPACE, DEFENCE & GENERAL ENGINEERING APPLICATIONS.
- TESTING OF HYDRAULIC ACCESSORIES FOR AEROSPACE & GENERAL ENGINEERING APPLICATIONS.

Certification structure: Single

Through an audit, performed in accordance with the requirements of AS 9104/1 issued 2012-01, and including the implementation, meets the requirements of the standard:

AS 9100D
 (Based on and including ISO 9001:2015)

Quality Management Systems – Requirements for Aviation, Space and Defence Organisation.

The file that forms the basis of this certificate: 189223

Date of Initial Certification : August 09, 2023
 Date of Current Revision : August 09, 2023
 Certification Expiry Date : August 08, 2026

K.G. Garg
 K.G. Garg
 Chairman & Chief Executive

  

Accredited Office : NVT Quality Certification International LLP, Bangalore, India
 Marketing Office : NVT Quality Certification International, Milpitas, CA, USA

NVT Quality Certification International LLP is accredited by ANAB under ICOP scheme and recognized by IAQG.
 Note: Please verify current validity of certificate from NVT Quality Certification International LLP at nvt@nvtquality.com

NVTFORM4014-3 Issue 5 08 Nov 2022

▶▶▶ PATENT GRANTED ON 'TESTING OF WRITING INSTRUMENTS'

The patent for "Testing of Writing Instruments" was granted to CMTI on July 10, 2024. This patent is based on a method and system for quantitatively characterizing writing instruments to determine the minimum force required for smooth writing. CMTI congratulates the inventors - Ms. Sarmistha Dhan, Dr. Balashanmugham, and Mr. Prakash Vinod - for their commendable achievement.



NEW INITIATIVES

▶▶▶ CMTI SIGNED MOU FOR 'ESTABLISHING SMART MANUFACTURING WORKSHOP AT NATIONAL INSTITUTE OF ADVANCED MANUFACTURING TECHNOLOGY (NIAMT), RANCHI'

On July 13, 2024, CMTI signed a MoU with NIAMT Ranchi. The MoU pertains to the establishment of a state-of-the-art Smart Manufacturing Workshop at the National Institute of Advanced Manufacturing Technology, Ranchi. Under this collaboration, CMTI will set up a smart manufacturing workshop at NIAMT Ranchi to provide students with hands-on learning experiences in smart manufacturing, create a platform for student-led research in smart manufacturing, help NIAMT in developing a laboratory curriculum for smart manufacturing and Industry 4.0 practices, and build expertise in implementing smart manufacturing and Industry 4.0 solutions for industries (Best practices).



»» COLLABORATION BETWEEN CMTI AND NIAMT RANCHI FOR “EXPERIMENTAL WORK AND IMPLEMENTATION OF SMART HEAT TREATMENT TECHNOLOGIES, FOR OIL/GAS FIRED FURNACES”

CMTI and NIAMT Ranchi have collaborated and signed a work agreement on July 13, 2024. The agreement is for the experimental work and implementation of Smart heat treatment technologies for an oil/gas fired furnace at NIAMT Ranchi. CMTI scientists are in the process of developing a project aiming to develop Smart and Intelligent furnaces along with the digital twins. NIAMT would extend their Oil-fired furnace facility for customization and modification to upgrade it into an IOT-enabled smart furnace. NIAMT and CMTI jointly will conduct the experimental study to create the database as required to develop digital twin based IIoT enabled furnaces. This initiative taken up by CMTI along with the Industry partners M/s QuantumPoint LLC, Bangalore as a part of ongoing Industry Accelerator program @CMTI, supported by Ministry of Heavy Industries under its Capital Goods (CG) scheme.

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»» INTRODUCTION MEETING WITH HONOURABLE UNION MINISTER OF MINISTRY OF HEAVY INDUSTRIES HELD ON JULY 15, 2024

Shri H.D. Kumaraswamy, our Honourable Union Minister of Heavy Industries, was briefed on CMTI's R&D focus and the key technologies developed in recent years, as well as their impact on the Indian manufacturing sector. The Honourable Minister expressed his appreciation for our efforts and advised us on the potential future requirements in heavy industries. He also suggested exploring collaborations with HMT, IISc, and others to identify the requirements and set directions for future progress.



EVENTS/ CONFERENCE ATTENDED

»» TWO-DAY INTERNATIONAL STANDARDS SUMMIT

Mr. Tom Thampy (Sct. E and GH, ASL, C-ASMP) and Mr. Manjunath K (Sct. B, C-MNTM) attended a two-day International Standards Summit on July 4-5, 2024, in Bengaluru organized by CII and BIS. Dr. Nagahanumaiah, Director of CMTI, actively participated in the inaugural session. The summit was dedicated to brainstorming the creation of standards for EV batteries and green hydrogen. The event underscored India's commitment to achieving Net-Zero emissions.



»» INTERNATIONAL CONFERENCE ON MICRO, NANO AND SMART SYSTEMS (IC-MNSS)-2024 AT IISC, BANGALORE

CMTI partnered with the Institute of Smart Structures and Systems (ISSS), IISc and ARTPARK for organizing ISSS Triennial International Conference on Micro, Nano, and Smart Systems (IC-MNSS) 2024 organized by the Institute of Smart Structures and Systems (ISSS) at IISc, Bangalore, during July 10-12, 2024. IC-MNSS, 2024 scope included nanotechnologies and devices in the micro, nano, and smart domains. While, the Director CMTI and Mr. Harsha S, Sct. D who are also part of Governing Council of ISSS were actively involved in organizing this conference, a group of 10 scientists from CMTI have participated and also presented their work. Additionally, the significant achievements of CMTI in the domain of MEMS-based sensor development were showcased in a dedicated stall.



CMTI team with Dr. V. K. Atre (Second from left), Dr. Stephen Senturia MIT, USA (third from left), and Prof. Ananthasuresh (in center)



CMTI team with Prof. Muralidhar Ghantasala Western Michigan University, USA (third from left) at CMTI Stall

PAPER PRESENTATION/CONTRIBUTORY TALKS

CONTRIBUTORY TALK ON “EXPERIMENTAL RESEARCH ON SILVER ALLOY WIRE BONDING AS AN ALTERNATE FOR BARE COPPER OR GOLD MATERIAL IN CONVENTIONAL WIRE BONDING”

Mr. Harsha S, Scientist-D & Group Head (STDC), delivered a contributory talk on “Experimental Research on Silver Alloy Wire Bonding as an Alternate for Bare Copper or Gold Material in Conventional Wire Bonding” in the International Conference on Micro, Nano and Smart systems (IC-MNSS)-2024 organized by ISSS at IISc, Bangalore during July 10-12, 2024.



RESEARCH PAPER PRESENTATION ON “ELECTROPLATED COPPER MASK BASED GLASS WET ETCHING FOR THE DEVELOPMENT OF MICROFLUIDIC DEVICES”



Mrs. Megha Agrawal, Scientist-D, presented a paper on “Electroplated Copper Mask Based Glass Wet Etching for the Development of Microfluidic Devices” in the International Conference on Micro, Nano and smart systems (IC-MNSS)-2024 organized by ISSS at IISc, Bangalore during July 10-12, 2024.

BEST PAPER AWARD FOR RESEARCH PAPER TITLED “DESIGN AND FABRICATION OF HOLLOW MICRONEEDLES FOR DRUG DELIVERY APPLICATION”

A research paper titled “Design and Fabrication of hollow microneedles for Drug Delivery Application”, authored by Thushar Shetty D K, Pradyumna J, Dr. Anil Kumar T, Sanjana S Kanguri, was presented at the “8th International Conference on Sustainable Materials and Recent Trends in Mechanical Engineering (SMARTME-2024)” organized at REVA University Bengaluru on July 12-13, 2024. The presenter was also honoured with the “Best Paper Award” during this event.



➤➤➤ BEST PAPER AWARD FOR RESEARCH PAPER TITLED “DEPOSITION OF SS316L ON IN625 USING DED PROCESS”

A research paper titled “Deposition of SS316L on In625 using DED Process”, authored by Likitha S N, Manjunath B.N, Dr. Jyothilakshmi R, was presented at the “8th International Conference on Sustainable Materials and Recent Trends in Mechanical Engineering (SMARTME-2024)” organized at REVA University Bengaluru on July 12-13, 2024. The presenter was also honoured with the “Best Paper Award” during this event.



➤➤➤ GUEST LECTURE ON "INTRODUCTION TO SMART MANUFACTURING AND INDUSTRY 4.0" TO TATA IIS STUDENTS FOR THE ORIENTATION PROGRAMME

Mr. T Narendra Reddy, Scientist-D, delivered a technical talk on "Introduction to Smart Manufacturing and Industry 4.0" to engineering and ITI/diploma students during the Tata IIS Ahmedabad orientation program held on July 2, 2024 at the Pride Plaza Hotel – Ahmedabad. The lecture covered the fundamentals of smart manufacturing, CMTI initiatives on Industry 4.0, and included interactive videos demonstrating smart manufacturing applications in various industries. The discussion also focused on emerging technologies and the skill set required by industries in line with Industry 4.0 practices, which greatly benefited the participants.



DEMONSTRATION/ VISITS AT CMTI



SMDDC DEMO TO ZS ASSOCIATES <<<

Delegates from ZS Associates visited the Smart Manufacturing Demo and Development Cell (SMDDC) of CMTI on July 2, 2024. Mr. Prakash Vinod, Joint Director & Centre Head-SMPM, briefed about the activities of SMDDC cell by demonstrating the use cases developed at the Smart Manufacturing Cell (SMC).

SMDDC DEMO TO IIT MADRAS

Delegates from IIT Madras, visited the Smart Manufacturing Demo and Development Cell (SMDDC) of CMTI on July 10, 2024. SMC Teammembers briefed about the activities of SMDDC cell by demonstrating the use cases developed at Smart Manufacturing Cell.



SMDDC DEMO TO CSIR-NAL



Dr. Abhay Anant Pashilkar, Director, CSIR-NAL & Dr. Ravishankar, Chief Scientist from CSIR-NAL visited the Smart Manufacturing Demo and Development Cell (SMDDC) of CMTI on July 10, 2024. Centre Head-SMPM & JD, Shri. Prakash Vinod & Shri. Setti Suresh, Scientist-B, briefed about the activities of SMDDC cell by demonstrating the use cases developed at Smart Manufacturing Cell.

Smart Manufacturing Cell (SMC) group has shown capabilities built on various smart manufacturing technologies developed at CMTI. The team visited SMDDC and HAL-CMTI experimental learning labs to see how smart factory technologies and facilities are created at CMTI and how MSMEs benefit from implementing Industry 4.0.

BUSINESS INITIATIVES/ MOU

- CMTI and M/s. SaRc Instruments have executed an MoU on July 2, 2024 to collaborate on preferential services in Metrology and Manufacturing Engineering, as well as other advanced Manufacturing Technology areas.
- CMTI and M/s. Mapana Metrology have executed an MoU on July 5, 2024 to further their mutual intentions to jointly work on preferential Services in metrology and Manufacturing Engineering and also in other advanced Manufacturing Technology areas.
- CMTI and M/s. Infinite Uptime India Private Limited have signed an NDA on June 23, 2024 in connection with the development of a Flexible Strain System.
- JD (BRM) has attended IESW 2024 from 1st to 3rd July 2024 and interacted with various industries regarding our new initiatives towards engineering of battery manufacturing machineries
- CMTI and the National Institute of Advanced Manufacturing Technology have signed a work execution agreement on July 13, 2024 to collaborate on Smart heat treatment technologies.
- CMTI and the National Institute of Advanced Manufacturing Technology have signed MoU on July 13, 2024 for the establishment of Smart Manufacturing Workshop at NIAMT, Ranchi.
- CMTI and M/s. Log9 have signed NDA on 15th July 2024 to work towards battery manufacturing equipment's related technologies

TRAINING INITIATIVES

▶▶▶ LEVEL 2 LABORATORY TRAINING ON SEMICONDUCTOR PACKAGING (L2LSP)

The team of Sensor Technology Development Centre (STDC) of C-SVT, CMTI organized the “Level 2 Laboratory Training on Semiconductor Packaging (L2LSP)” from July 6-9, 2024. This 4-day workshop, conducted in association with Institute of Smart Structures and Systems (ISSS) and Semiconductor Technology and Applied Research Centre (STARC), was graced by the presence of the chief guest, Prof. Mohan S, Emeritus Professor IISc, Prof. Navakantha Bhat, President ISSS, Prof. Ananthasuresh G.K. Dean, Mechanical Sciences and Chairman, Research Advisory Board CMTI, and Dr. Ravi Meduri, CEO, STARC.



The event featured eight expert talks and hands-on training at CMTI and STARC. The training included advanced processes such as wafer dicing, wire bonding, bond testing, electroplating, flip-chip bonding, wafer bonding, microscopy, e-beam welding, and more. Dr. Nagahanumaiah, Director of CMTI, concluded the workshop with an interactive discussion with the participants, following Dr. Ravi Meduri, CEO of STARC.



TRAINING PROGRAMME ON “MACHINERY CONDITION MONITORING FOR PREDICTIVE & PROACTIVE MAINTENANCE”

Between July 8-12, 2024, a training program on "Machinery Condition Monitoring for Predictive & Proactive Maintenance" was conducted for professionals from High Energy Projectile Factory, Thiruchirappalli, and Engine Factory, Avadi. The training focused on maintenance strategies and condition monitoring, covering practices such as vibration and noise measurement, analysis and diagnostics associated with vibration monitoring, oil analysis and proactive maintenance. Participants also had the opportunity to simulate various machinery faults using fault simulators, and were introduced to condition monitoring case studies. Furthermore, hands-on training was provided on vibration measurement instruments, vibration data analysis and interpretation techniques, as well as in-situ balancing of motors.



UPCOMING TRAINING PROGRAMMES

- "Chemical, Mechanical & Metallographic Testing of Metallic Materials", on August 1-2, 2024.
- "Industry 4.0 & Smart Manufacturing Systems", on August 5-7, 2024.
- "Part Programming of CNC Machines", on August 19-23, 2024.
- "Practical Training on Micro Device/Sensor Development", on August 26-30, 2024.
- "Uncertainty of Measurements for Dimensional Measurements," on August 28-30, 2024.

[Click here](#)

for more details 

Exciting updates are on the way—stay tuned for our next issue!...

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