DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

HEARTY WELCOME

to

MME

THE DEPARTMENT – A GLANCE

- Department started in **1967**
- Department offers
  - **B. Tech** in Metallurgical and Materials Engineering (MME)(**1967**)
  - **M. Tech** in Welding Engineering (1978), Materials Science and Engineering (MSE) (**1989**), Industrial Metallurgy (IM) (2011)
  - **M.S** (By Research) and **Ph.D.**
- **B. Tech MME** got accreditation for 5 years in 2007 and 6 years from July 2014 and **6 years from 2022.**
- **All M. Tech Programmes are accredited**
- First Ph.D. Produced – **1986**
- **QIP Center** for **PG and Ph.D** programmes
- **Three Professors** of our Department served as **the Directors of NITs**
- Got **Best Department Award** for the year **2009 and 2021**
- Leads the Institute with respect to "**sponsored projects**"

Best Department awards

Institute Vision and Mission

VISION

To be a university globally trusted for technical excellence where learning and research integrate to sustain society and industry.

MISSION

- To offer undergraduate, postgraduate, doctoral and modular programmes in multi-disciplinary / inter-disciplinary and emerging areas.
- To create a converging learning environment to serve a dynamically evolving society.
- To promote innovation for sustainable solutions by forging global collaborations with academia and industry in cutting-edge research.
- To be an intellectual ecosystem where human capabilities can develop holistically.

Department of MME - Vision and Mission

VISION

To evolve into a globally recognised department in the frontier areas of Metallurgical and Materials Engineering

MISSION

- To produce Metallurgical and Materials Engineering graduates having professional excellence
- To carry out quality research having social and industrial relevance
- To provide technical support to budding entrepreneurs and existing industries

DEPARTMENT FACULTY MEMBERS (REGULAR)

Faculty	Designation	PhD from	Expertise
Dr. S. Raman Sankaranarayanan	Professor	Drexel, USA	Process Metallurgy, Quality Mgmt.
Dr. B. Ravisankar	Professor	Bharathiar University, Coimbatore	Metal Forming, Mechanical Behaviour
Dr. S.P.Kumaresh Babu	Professor	NIT Trichy	Foundry Metallurgy, Process Metallurgy
Dr. S. Kumaran	Professor	NIT Trichy	Powder Metallurgy, Nano Materials
Dr. S. Muthukumaran	Professor and Head	BIT Mesra	Welding, NDT
Dr. N. Ramesh Babu	Professor	IIT Madras	Biomaterials, Ceramics

DEPARTMENT FACULTY MEMBERS (REGULAR) *Contd.,*

Faculty	Designation	PhD from	Expertise
Dr. K. Siva Prasad	Professor	IIT Madras	Mechanical Behaviour, Characterization
Dr. S. Jerome	Associate Professor	NIT Trichy	Welding, Composites
Dr. Nagarajan.D	Assistant Professor	The University of Queensland, Australia	Metal Forming Processes (Sheet and Bulk), Functionally Gradient Materials , Light Alloys Development
Dr. Karthik. V	Assistant Professor	IIT Kharagpur	Computational Materials Engineering, Surface Engineering, Nano Fluids
Dr.A.Muthuchamy	Assistant Professor	IIT Madras	Composite materials, Welding
Dr.-Ing. Prince Gideon Kubendran Amos	Assistant Professor	KIT, Germany	Computational Materials Science

DEPARTMENT FACULTY MEMBERS (REGULAR) *Contd.,*

Faculty	Designation	PhD from	Expertise
Dr.Nimu Chand Reger	Assistant Professor	MNIT Jaipur	Heat Treatment, Materials Science
Dr. Illa Mani Pujitha	Assistant Professor	IIT, Hyderabad	Energy storage batteries, carbon materials, Biopolymers, solid-state electrolytes
Dr. S.Anand	Assistant Professor	McMaster University, Canada	Modeling of Extractive Metallurgical Processes
Dr.G.Vinothkumar	Assistant Professor	Deakin University Australia	Alloy design, solid state reactions, grain boundary engineering
Dr. P. Anbarasi	Assistant Professor	A.C. College of Technology, Anna University, Chennai	Physical Metallurgy, Ceramic Processing, Powder Metallurgy, Nanotechnology, Battery Materials
Dr. Puppala Laxman Mani Kanta	Assistant Professor	Indian Institute of Technology Madras (IITM)	Electrochemical Energy Storage Materials – Beyond Li such as Na, K, Al, Mg – ion Batteries

FACULTY PROFILES

NAME	CONTRIBUTION
 **Dr. S Raman Sankaranarayanan (Professor)**	**Expertise:** Process Metallurgy, Process Modelling, Quality Mgt. **Experience:** 34 yrs **Publications (Journals and Conferences) :** 50 **Projects ongoing / Completed:**05 **Total Worth of Projects :** 41 lakhs **PhD Completed / Ongoing :** 05 / 05 **M.S Completed / Ongoing :** 02 **M. Tech Completed / Ongoing** : 35 / 01 **Lab Established :** Process Modelling Lab & Process Metallurgy Lab **Addl. Responsibilities :** Head-MME (2012-14), Asso. Dean (2006-07), Dean ID (2018-21) **Notable Achievement :** Active Interface with Steel Industry **Worth of Facilities Established :** 100 Lakhs during HoD tenure

FACULTY PROFILES

Name	Contribution
 **Dr. B. Ravisankar (Professor)**	**Expertise:** Metal Forming, Super Plastic Deformation **Experience:** 37 years **Publications (Journals and Conferences) :** 120 **Projects ongoing / Completed:** 01 / 12 **Total Worth of Projects :** Rs. 400 lakhs **PhD Completed / Ongoing :** 10 / 04 **M.S Completed / Ongoing :** 03/ 03 **M.Tech Completed / Ongoing :** 40 / 06 **Lab Established :** Metal forming Lab, ECAP and Diffusion Bonding **Addl. Responsibilities :** Head-MME, Programme Co-ordinator M.Tech (MSE) **Notable Achievement :** Recipient of Young Scientist Award **Worth of Facilities Established:** Rs.150 lakhs
 **Dr.S.P.Kumaresh Babu (Professor)**	**Expertise:** Foundry, Corrosion Engg, Surface Engg. **Experience:** 13 (Industry) + 14 (Teaching) **Publications (Journals and Conferences) :** 90 **Projects ongoing / Completed:** 01 / 03 **Total Worth of Projects :** Rs. 370 lakhs **PhD Completed / Ongoing :** 09 / 13 **M.S Completed / Ongoing :** 03 / 08 **M.Tech Completed / Ongoing :** 95 / 08 **Lab Established :** Foundry, Corrosion and Surface Engineering Lab **Addl. Responsibilities :** Head-MME, Head-CECASE **Notable Achievement :** Got High value Project from CMPDI **Worth of Facilities Established:** Rs.400 lakhs

FACULTY PROFILES

NAME	CONTRIBUTION
 **Dr. S. Kumaran (Professor)**	**Expertise:** Powder Metallurgy and Alloy Development **Experience:** 25 yrs + 1 yr (Industry) **Publications (Journals and Conferences) :** 161 **Projects ongoing / Completed:** 03 / 20 **Total Worth of Projects :** 11.43 Cr **PhD Completed / Ongoing :** 21 / 15 **M.S Completed / Ongoing :** 2/0 **M.Tech Completed / Ongoing :** 75 / 00 **Lab Established :** Powder processing, Energy materials **Addl. Responsibilities :** Warden, NITFEST, METTLE- staff advisor, Head-MME **Notable Achievement :** BOYSCAST fellowship **Worth of Facilities Established:** 600 lakhs
 **Dr. S. Muthukumaran (Professor and Head)**	**Expertise:** Welding, NDT **Experience:** 21 yrs **Publications (Journals and Conferences) :** 72 **Projects ongoing / Completed:** 02 / 05 **Total Worth of Projects :** 150 lakhs **PhD Completed / Ongoing :** 07 / 07 **M.S Completed / Ongoing :** 02 / 04 **M.Tech Completed / Ongoing :** 65 / 09 **Lab Established :** Advanced Welding Lab & NDT Lab **Addl. Responsibilities :** **Head-MME (present)**, Department Co-Ordinator B.Tech NBA, Head –IPR, **Notable Achievement :** PI of Indo – UK Newton -Bhabha Project **Worth of Facilities Established :** 150 Lakhs

FACULTY PROFILES

NAME	CONTRIBUTION
 **Dr. N. Ramesh Babu (Professor)**	**Expertise:** Biomaterials, Ceramic Materials **Experience:** 19 yrs **Publications (Journals and Conferences) :** 100+ **Projects ongoing / Completed:** 11/01 **Total Worth of Projects :** Rs 350 lakhs (As PI) **PhD Completed / Ongoing :** 10 / 05 **M.S Completed / Ongoing :** 01/ - **M.Tech Completed / Ongoing :** 40 / 03 **Lab Established :** Biomaterials, Ceramic Materials and Advanced Characterization Lab (XRD & ESEM) **Addl. Responsibilities :** Assoc. Dean (R & C) (2015 - 2017), Dy. Registrar(R & C) (2017-2020) **Currently Chairman, Ph.D Admissions, NITT** **Notable Achievement :** Best PhD Award, Best Paper Awards, Indo-Russia Joint Projects **Worth of Facilities Established:** 600 lakhs

FACULTY PROFILES

NAME	CONTRIBUTION
 **Dr. K. Siva Prasad (Professor)**	**Expertise:** Mechanical Behaviour, Materials Characterization, Metal additive manufacturing. **Experience:** 17 yrs **Publications (Journals and Conferences) :** 170 **Projects ongoing / Completed:** 03 / 05 **Total Worth of Projects :** 2.0 Cr **PhD Completed / Ongoing :** 11 / 06 **M.S Completed / Ongoing :** 02 / NIL **M.Tech Completed / Ongoing :** 40 / 04 **Lab Established :** Advanced Materials Processing Lab **Addl. Responsibilities :** Ex - Asso. Dean (R & C) (2012 – 15), Ex-member Hospital committee **Notable Achievement :** Recipient of SDT – TRA Faculty Fellowship, ASEM-DUO faculty fellowship **Worth of Facilities Established:** 100 lakhs
 **Dr. S. Jerome (Associate Professor)**	**Expertise:** Welding Engineering, Wire Arc Additive Manufacturing **Experience:** 18 yrs **Publications (Journals and Conferences) : 40** **Projects ongoing / Completed:** --/ 04 **Total Worth of Projects :** Rs 80 lakhs **PhD Completed / Ongoing : - 04**/ 06 **M.S Completed / Ongoing :** - 01/ 02 **M.Tech Completed / Ongoing : 7**0 / 08 **Lab Established :** Welding Lab **Addl. Responsibilities : Conve**ner of Hostels (2012-15) & Assoc. Dean (2012-15 & 18-20) BoG Member (2020-22), **Currently Treasurer RECAL & Associate Dean (ID)** **Notable Achievement :** Subject Expert – Additive Manufacturing Group –Indian Air force **Worth of Facilities Established :** Rs.60 Lakhs

FACULTY PROFILES

NAME	CONTRIBUTION
 **Dr. Nagarajan D** **(Assistant Professor)**	**Expertise:** Metal Forming Processes (Sheet and Bulk), Functionally Gradient Materials, Light Alloys Development **Experience:** 13 yrs **Publications (Journals and Conferences) :** 19 / 17 **Projects ongoing / Completed:** 03 / 01 **Total Worth of Projects :** 169.27 Lakhs **PhD Completed / Ongoing :** -- / 05 **M.S Completed / Ongoing :** --/ 01 **M.Tech Completed / Ongoing :** 16 / 05 **Lab Established : -** MTLR35 - Metal Forming and Particulate Processing Laboratory **Addl. Responsibilities :** **Currently Faculty Advisor – MMEA, Associate Dean (P&D)** **Notable Achievement : -** Developed rocket nozzle for ISRO project & Best Performer Award for AY2022-2023 from NITT. **Worth of Facilities Established: -** Lab MTLR35 – INR 75 Lakhs; Research – INR 105 Lakhs
 **Dr. Karthik V** **(Assistant Professor)**	**Expertise:** Computational Materials Engineering, Surface Engineering, Nanomaterials **Experience:** 12 yrs **Publications (Journals and Conference Proceedings) :** 14 / 12 **Projects ongoing / Completed:** - 00/02 **Total Worth of Projects : -** 26.0 lakhs **PhD Completed / Ongoing :** - -/05 **M.S Completed / Ongoing :** - Nil **M.Tech Completed / Ongoing :** - 25/01 **Lab Established : -** Polymer and Composite Laboratory **Addl. Responsibilities : -** Class committee Chairman (Btech), Faculty Advisor (Task Force Club), **Currently Faculty In-charge for Dept. Time table, Dept Library and MIS** **Notable Achievement : -** Best Performer Award 2022 from NITT **Worth of Facilities Established: -** 60.0 lakhs (Capital Fund)

FACULTY PROFILES

NAME	CONTRIBUTION
 **Dr. A. Muthuchamy (Assistant Professor)**	**Expertise:** Physical Metallurgy**,** Powder Metallurgy, Welding Process and Metallurgy, Direct-energy deposition **Experience:** 10 Years **Publications (Journals and Conferences) :** 28 + 2 **Projects ongoing / Completed:** 01 **Total Worth of Projects :** Rs. 15 lakhs **PhD Completed / Ongoing :** 00/01 **M.Tech Completed / Ongoing :** 03/01 **Lab Established :** Welding Simulation Laboratory **Addl. Responsibilities :** **Currently Ph.D. & MS Admission Coordinator** **Notable Achievement :** - **Worth of Facilities Established:** 4.3 Lakhs
 **Dr. -Ing Prince Gideon Kubendran Amos (Assistant Professor)**	**Expertise (Research Interest):** AI-based microstructure analysis, spatio-temporal evolution of microstructure, factor analysis of alloying elements. **Experience:** 04 yrs **Publications (Journals and Conferences) :** 21 / 3 **Projects ongoing / Completed:** 01 / 00 **Total Worth of Projects :** 35 Lakhs **PhD Completed / Ongoing :** -- / 01 **M.Tech Completed / Ongoing :** 02 / 06 **Lab Established :** Theoretical Metallurgy Lab (Research) **Addl. Responsibilities :** Department Data Coordinator, IIC member, Innovative Ambassador , **currently Associate Dean (R&C)** **Notable Achievement :** Working Collaboration with Data Science Department of St. Joseph **Worth of Facilities Established:** 20 Lakhs (HPC)

FACULTY PROFILES

NAME	CONTRIBUTION
 **Dr. Nimu Chand Reger** **(Assistant Professor)**	**Expertise:** Heat Treatment, Polymers, Ceramics and composites **Experience:** (07 Years Teaching +03 Years Industrial Experience) **Publications (Journals and Conferences) :** 05/03 **M.Tech Completed / Ongoing:** 04 **Lab Established:** Ceramic lab
 **Dr. Illa Mani Pujitha** **(Assistant Professor)**	**Expertise:** Energy storage Batteries, Solid-State Electrolytes, Bacterial Cellulose, Carbon Materials **Experience:** 03 years **Publications (Journals and Conferences) :** 08/ 00 **Notable Achievement : - Recipient of Gandhian Young Technological Innovation Award 2015**

FACULTY PROFILES

Name	Contribution
 **Dr. Anand S** **(Assistant Professor)**	**Expertise**: Mathematical and Physical modelling in Extractive Metallurgy **Experience: 7** years **Publications (Journals and Conferences) :** 10
 **Dr. G. Vinothkumar** **(Assistant Professor)**	**Expertise:** Solid-state phase transformation, Grain boundary engineering, alloy development **Experience:** 2.5 years **Publications (Journals and Conferences) :** 03/ 00

FACULTY PROFILES

Name	Contribution
 **Dr. P. Anbarasi** **(Assistant Professor)**	**Expertise**: Physical Metallurgy, Ceramic Processing, Powder Metallurgy, Nanotechnology, Battery Materials **Experience:** 4 years **Publications (Journals and Conferences) : 0**4
 **Dr. Puppala Laxman Mani Kanta** **(Assistant Professor)**	**Expertise:** Electrochemical Energy Storage Materials – Beyond Li such as Na, K, Al, Mg – ion Batteries, Thermal and Safety Evaluation of Batteries, Forensic analysis of Batteries - exploring degradation mechanisms and their remedies, Corrosion Science and Engineering, Urban mining/Recovery of precious metals/materials **Experience:** 04 years **Publications (Journals and Conferences) :** 05/ 07

NON-TEACHING STAFF

S.No	Name	Designation
1	Mr. Abhiraj R.I	Technical Assistant
2	Mr. Karthikeyan G	Technical Assistant
3	Mr.V Mariesan	Senior Assistant
4	Mr. Azhagappan KR	Senior Technician
5	Mr. R Dhinakaran	Technician
6	Mr. Manoj Kumar L	Technician
7	Mr. C Santhanaraj	Office Attendant
8	Ms. Dhanush Priya	Apprentice

ACADEMIC ACHIEVEMENTS

Year	No. of Publications	Citation
2018	96	1448
2019	171	1887
2020	89	1946
2021	74	2201
2022	56	2294
2023	86	1805

ACADEMIC ACHIEVEMENTS (Contd…)

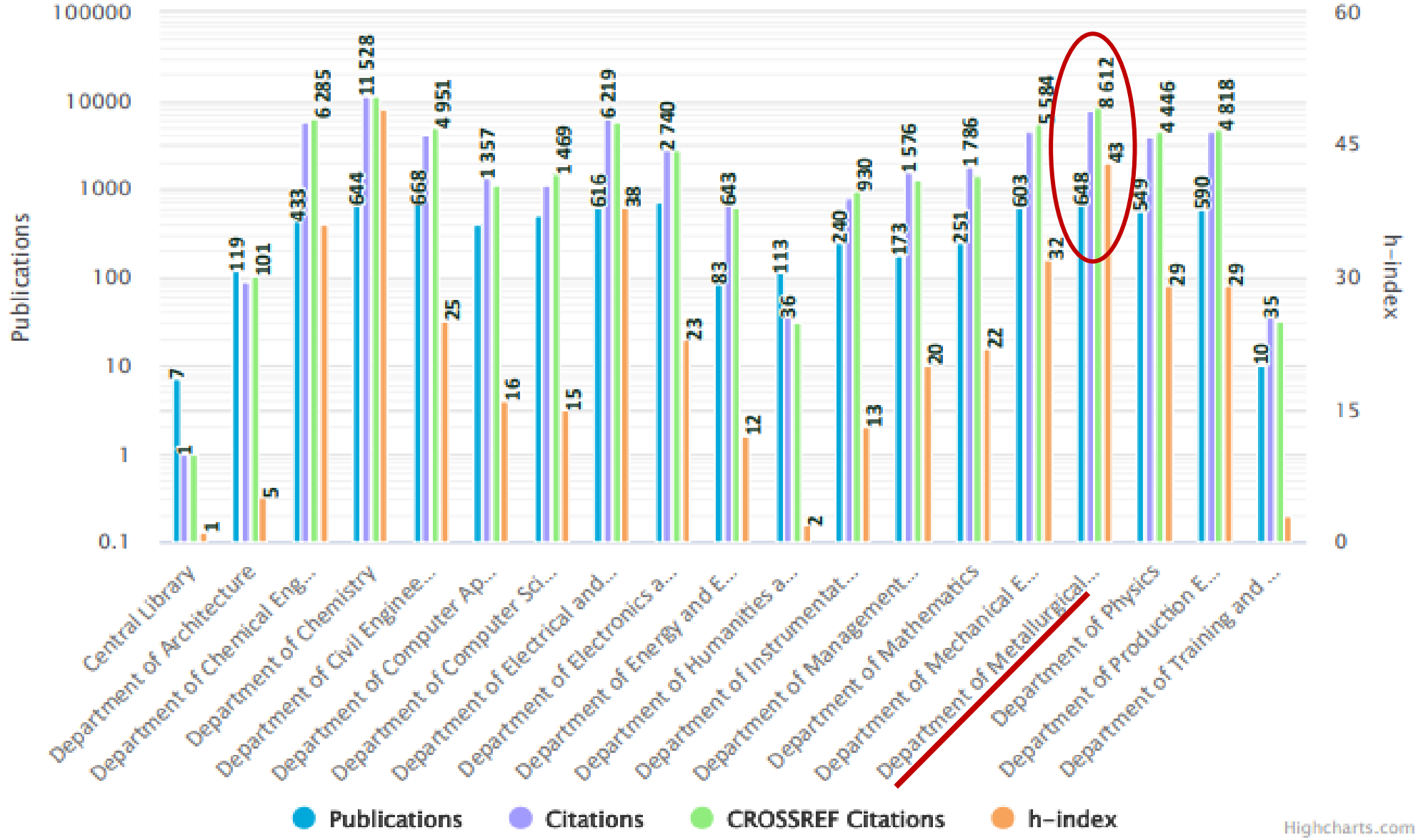
- Only Engineering department in NITT published in **Nature-Scientific report**s based on the work done at NITT.

- Nucleation and growth of $TiAl_3$ intermetallic phase in diffusion bonded Ti/Al Metal Intermetallic Laminate. **Nature – scientific reports (2018)** 8:16797, DOI:10.1038/s41598-018-35247-0

- Excellent Combination of Tensile ductility and strength due to nanotwinning and a biamodal structure in cryorolled austenitic stainless steel", G. Venkata Sarath Kumar, K. R. Mangipudi, G. V. S. Sastry, Lalit Kumar Singh, S. Dhanasekaran & K. Sivaprasad, SCIENTIFIC REPORTS (NATURE PUBLISHING GROUP), 10, 2020, 354. HTTPS://DOI.ORG/10.1038/S41598-019-57208-X

- Nucleation and growth of TiAl3 intermetallic phase in diffusion bonded Ti/Al Metal Intermetallic Laminate", N. Thiyaneshwaran, K.Sivaprasad, B.Ravisankar, SCIENTIFIC REPORTS (NATURE PUBLISHING GROUP) 8, Article Number: 16797 (2018), (DOI:10.1038/s41598-018-35247-0) ISSN 2045-2322

ACADEMIC ACHIEVEMENTS *Contd.,*



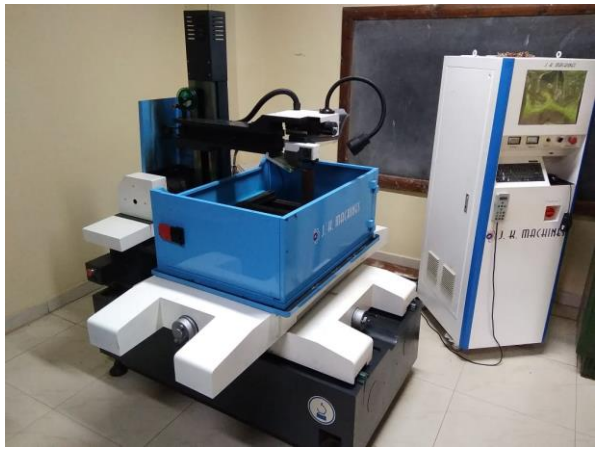
Sponsored Research

Year	No. of Projects	Value in Rs Lakhs
2018 - 19	01	12.10
2019 - 20	02	62.26
2020 - 21	05	54.75
2021 - 22	04	153.05
2022 - 23	01	188.27
2023 - 24	02	92.24

List of International collaborative projects

Sl. No	External Funding Support Organization	Title of Project	Amount of Grant and Duration	PI
1	DST Indo-Czech Project	Development of high strength and low young's modulus, bioactive and antibacterial porous titanium structures for orthopaedic implants	INR 36.50 Lakhs & Oct' 20 – Oct' 23	Dr. N. Ramesh Babu
2	DST Indo-Russia Project	Development of Nanostructured Titanium Implants with Bioactive and Antibacterial Composite Coatings for Dental and Maxillofacial Applications	INR 94.30 Lakhs & July'19 – Sept'22	Dr. N. Ramesh Babu

NEW FACILITIES ADDED



WIRE CUT EDM

OPTICAL EMISSION SPECTROMETER

PIN ON DISC – WEAR

WELDING ROBOT

MUTHER'S MAGIC BAG: A revolutionary step towards a garbage-free world

Before cleaning After cleaning with Magic Bag

Broader Impacts and Complementary Innovations

Trash removal using Fureboat and Magic Bag *Distribution of Magic Bag by Collector*

The Magic Bag is designed by **Prof. S. Muthukumaran** for efficiently collecting floating trash from water bodies without relying on external energy sources.

Cost-effective FUREBOAT to safeguard life and valuable during floods and boat capsize

Honorable Minister of State in the Ministry of Education, GoI
Dr. Subhas Sarkar eagerly watching the performance of Fureboat invented by **Prof. S. Muthukumaran**

NIT-T's 'fureboat' earns kudos from Minister of State for Education

It is a cost-effective product to safeguard lives and valuables during times of floods; bamboo along with steel has been used as reinforcements to provide both strength and rigidity to the product

The Hindu Bureau
TIRUCHI

A furniture-cum-boat, 'Fureboat' designed by a senior faculty as a cost-effective product to safeguard lives and valuables at times of floods, was appreciated by Minister of State for Education Subhas Sarkar on Monday at the National Institute of Technology - Tiruchi.

The effectiveness of the product for which a patent has been filed by the inventor S. Muthukumaran, Professor and Dean, Research and Consultancy, was demonstrated at the swimming pool in the campus.

In flood situations, boats need to be brought to the affected areas from the fishing harbours. Hence, cost-effective multipurpose device was developed to safeguard life and valuables during flood. Cot-boat and float-almirah are examples of multipurpose devices (furniture), Prof. Muthukumaran said.

Union Minister of State for Education Subhas Sarkar speaks to students at National Institute of Technology - Tiruchi on Monday.
M. SRINATH

The patent for the Fureboat filed on April 15, 2021, is titled 'Multipurpose rescue furniture and method thereof. For the Fureboat, bamboo along with steel has been used as reinforcements/frames to provide both strength and rigidity.

A pair of oars have been fixed at the bottom of the furniture and can be readily used for rowing at times of flood. This type of furniture can be used in offices, industry, public places and houses, Prof. Muthukumaran explained to the Central Minister. He gave away the first Fureboat to the Government Middle School on the campus. Speaking on the book 'Modi@20: Dreams meet Delivery', the Minister said the book depicted 20 years of political journey of the Prime Minister Narendra Modi- thrice as Chief Minister of Gujarat and twice as Prime Minister.

Honorable Minister of State in the Ministry of Education, GoI - Dr. Subhas Sarkar presenting the first Fureboat to a School

Patents, Books Published

Dr. S. Muthukumaran

- “Membrane for drinking water harvesting from atmospheric air”, S. Muthukumaran and G. Arthanareeswaran, Application No. 201741039055, dated 02-11-2017.

- “Self-Sealing type friction brazing / soldering of tube to tube plate using an external tool”, S. Muthukumaran and C. Maxwell Rejil, Application No. 201741038449, dated 30-10-2017.

- “Friction Welding of Tube To Tube Using a Guide Tool”, S. Muthukumaran, Application No. 201741041008 dated 16-11-2017.

- “Double Shoulder Friction Stir Processing Tool for Coating Applications”, S. Muthukumaran, 201741041009 dated 16-11-2017.

Dr. B. Ravisankar

- Patent (No: 201741040346 dated: 24.11.2017. CBR NO 34881) on “INVESTIGATIONS 0N MECHANICAL AND DRY SLIDING WEAR BEHAVIOUR OF ALUMINIUM HYBRID COMPOSITES” – Application Published

- Patent (No: 201941004659 A dated: 15.02.2019.) on “WEAR BEHAVIOR OF B4C REINFORCED HYBRID ALUMINUM MATRIX COMPOSITES AT ELEVATED TEMPERATURE” – Application Published in OFFICIAL JOURNAL OF THE PATENT OFFICE, ISSUE NO. 07/2019 FRIDAY DATE: 15/02/2019

Dr. S.P. Kumaresh Babu

- Patent Name: High Longevity Coatings and Alternate Material for Erosion and Corrosion Resistance in Mining Pumps, Register / Ref. No: 5145/CHE/2014, Organization: NITT, Date: 2014-10-01, Role: Inventor, # of Co-I: 3, Status: Filed.

- Patent Name: Corrosion Resistant Coating For Dewatering Pipes In Mining Industry Register/Ref. No.: TEMP/E-1/36139 /2017-CHE, Organization: NITT, Date: 2017-10-06, Role: Inventor, # of Co-I: 4, Status: Filed.

As a part of IPR - Books Published

- P.C.Angelo and **B.Ravisankar** book on "Non Ferrous Alloys: Structures, Properties and Engineering Applications", Cengage publishers, 2018, ISBN: 9789387994041
-
- P.C.Angelo and **B.Ravisankar** book on "Periodic Table of Elements", Mahi Publishers, Ahmedabad, 2019, ISBN: 978-81-940137-1-6
-
- P.C.Angelo and **B.Ravisankar** book on "Introduction to Steel- Processing, Properties and Applications", CRC Press, Taylor & Francis Group, Florida, U.S.A. 2019, ISBN 9781138389991
-
- T. Thirumalai, S. Nagakalyan, **B. Ravisankar** book on "Production and characterisation of aluminium with quartz in composites", Lambert Academic Publishing, Mauritius, 2020, ISBN: 978-620-2-68457-6.
-
- P.C.Angelo, R.Subramanian and **B.Ravisankar** book on "Powder Metallurgy; Science, Technology and Applications – 2nd edition", PHI Learning Private Limited, 2022, ISBN: 978-93-91818-48-7.

- Nivedhitha K. S., **Kumaran S.**, Nithya Chandrasekaran, "Synthesis and Electrochemical study on Nano structured Mg Based Alloy," Lambert Academic Publishing, Germany, 2020. (ISBN: 978-620-0-22387-6)

As a part of IPR – Book chapters Published

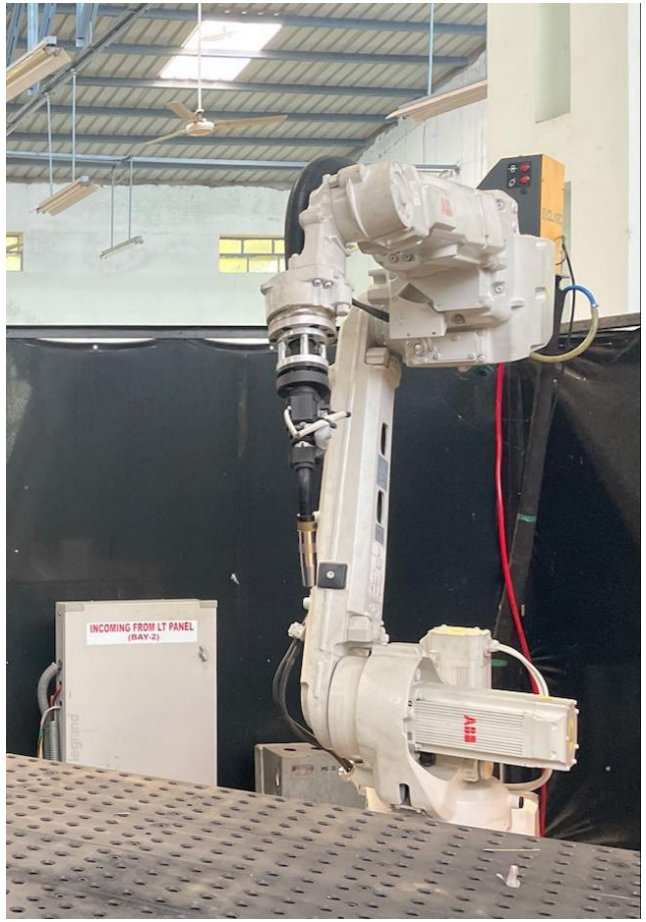
- Yedla, N., Salman, S.A., **Karthik, V.** Molecular Dynamics Simulations for Nanoscale Insight into the Phase Transformation and Deformation Behavior of Shape-Memory Materials. In: Maurya, M.R., Sadasivuni, K.K., Cabibihan, JJ., Ahmad, S., Kazim, S. (eds) Shape Memory Composites Based on Polymers and Metals for 4D Printing. Springer, Cham. 2022, https://doi.org/10.1007/978-3-030-94114-7_4

- G. Rajaram, **S. Kumaran, T. Srinivasa Rao** and M. Kamaraj, "High Temperature Dry Sliding Wear Behaviour of Al-Si/Graphite Composites Processed by Stir Casting, Materials Fabrication, Properties, Characterization, and Modeling", Volume 2, 2011, 191-198, The Minerals, Metals & Materials Society (TMS), Wiley Publications. Print ISBN:9781118029466 |Online ISBN:9781118062142 |DOI:10.1002/9781118062142

- Vivekanandhan P, Murugasami.R and **Kumaran S**. "Spark plasma-assisted combustion synthesis and characterisation of nanostructured Magnesium silicide for mid-temperature energy conversion energy harvesting application", in the book, Computational Intelligence in Materials Science, CRC Press, Tayler and Francis. UK (2021). ISBN 9780367640576 , Ist Edition.

- Book Chapter "Welding of High Entropy Alloys—Techniques, Advantages, and Applications: A Review" by R Sokkalingam, K Sivaprasad and V Muthupandi in "High Entropy Alloys: Innovations, Advances, and Applications" by T.S. Srivatsan and Manoj Gupta, 1st Edition, CRC Press (Taylor & Francis Group), 2020.

Department Laboratory Facilities



Welding Robot

Optical Emission Spectrometer

Department Laboratory Facilities

SEM with EDS

X-ray Diffractometer

Department Laboratory Facilities

Spark plasma sintering Machine

Seebeck coefficient and electrical resistance system

Department Laboratory Facilities

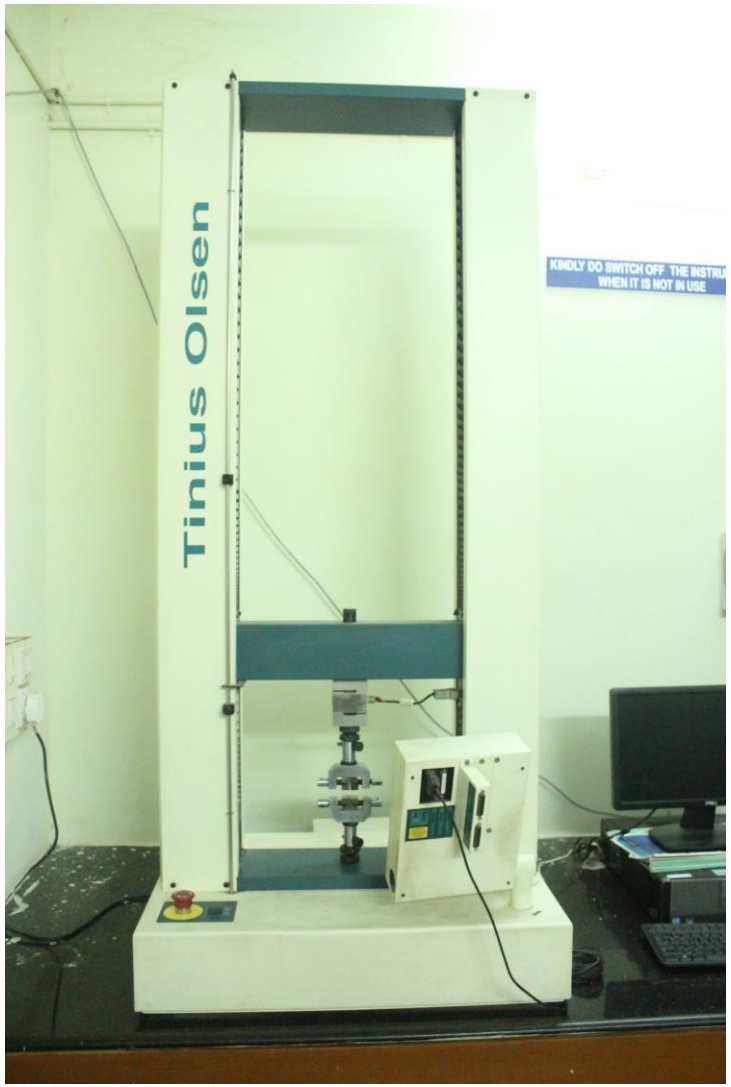
Vacuum Induction Melting Furnace

laboratory trials to develop exotic species (materials)

Department Laboratory Facilities

High energy planetary Ball Mills

Department Laboratory Facilities



Micro Tensile / compression Instrument
(Cold/ hot / Cryo atmosphere)

Department Laboratory Facilities

Hydraulic Press

Department Laboratory Facilities

Polymer and Composite Laboratory

Department Laboratory Facilities

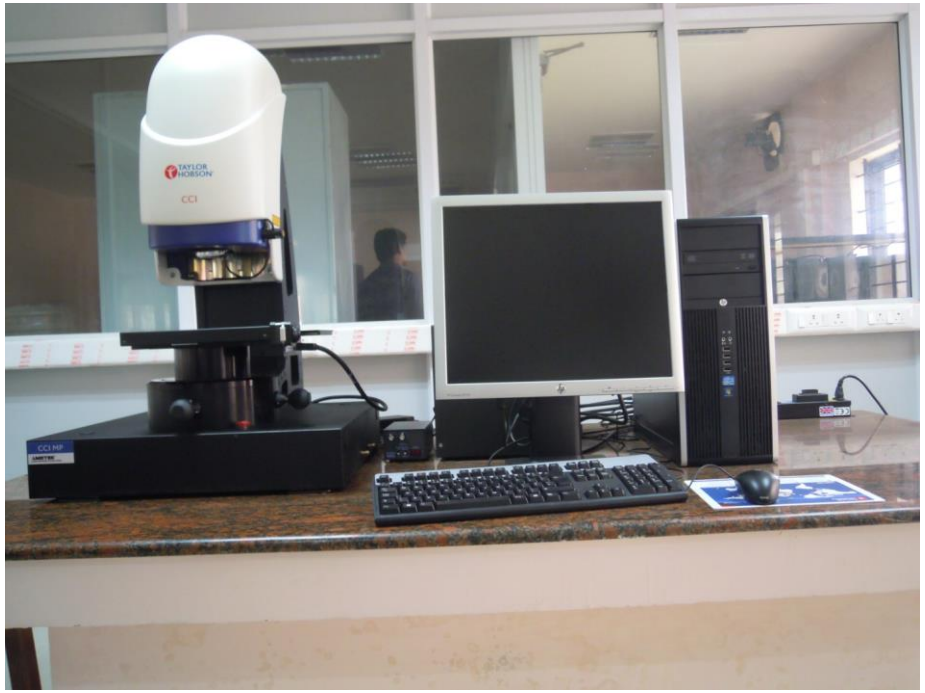
Cyclic Corrosion Chamber

Micro Hardness Tester

Department Laboratory Facilities

Friction Stir Welding – metallurgists working to bring together different materials!

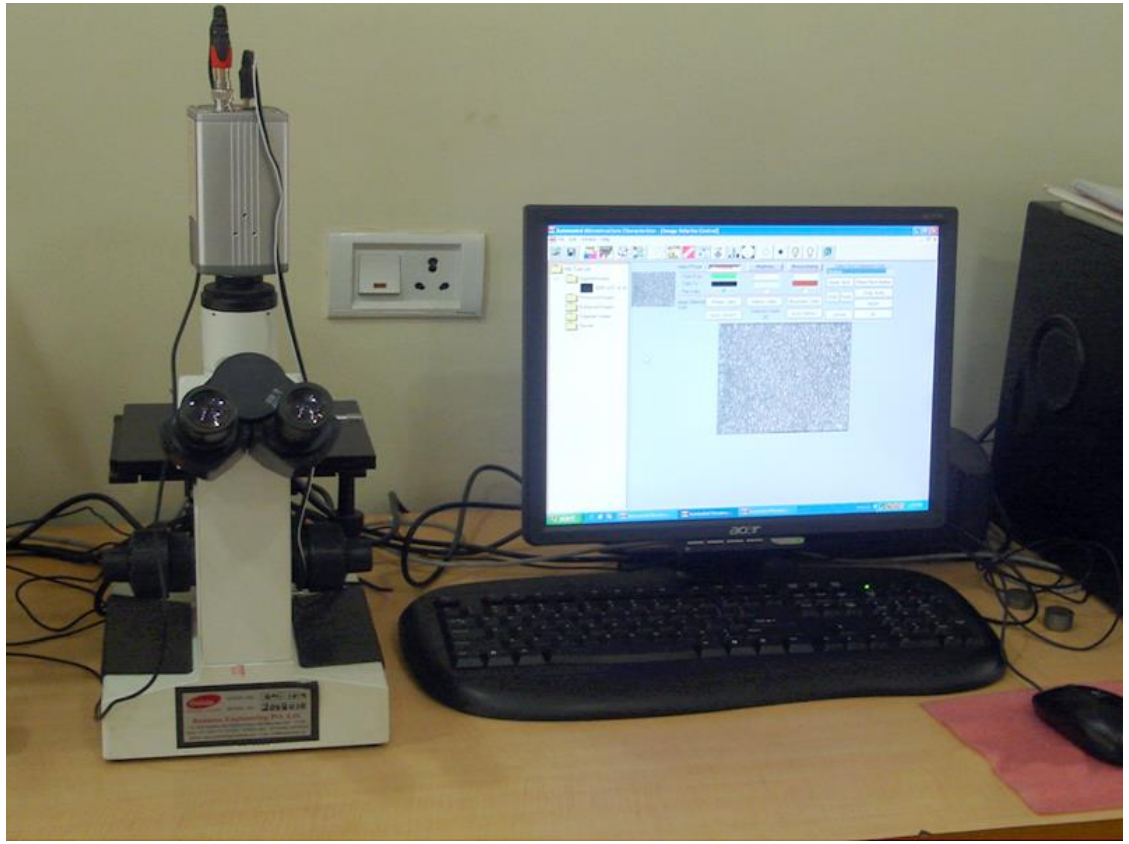
Department Laboratory Facilities



Optical Profilometer

Scratch Tester

Department Laboratory Facilities



Metallography / Microscopy

Department Laboratory Facilities

Mechanical Testing LAB

Department Laboratory Facilities

Thermal Analyzer

FTIR Spectroscope

Department Laboratory Facilities

CMT & Micro Plasma Welding unit

Department Laboratory Facilities

Advanced Materials Processing Lab

Department Laboratory Facilities

Process Metallurgy LAB – the “youngest!” And the “oldest”

Department Laboratory Facilities

Melting Furnaces

Department Laboratory Facilities

Diffusion Bonding Instrument

Summer Internship

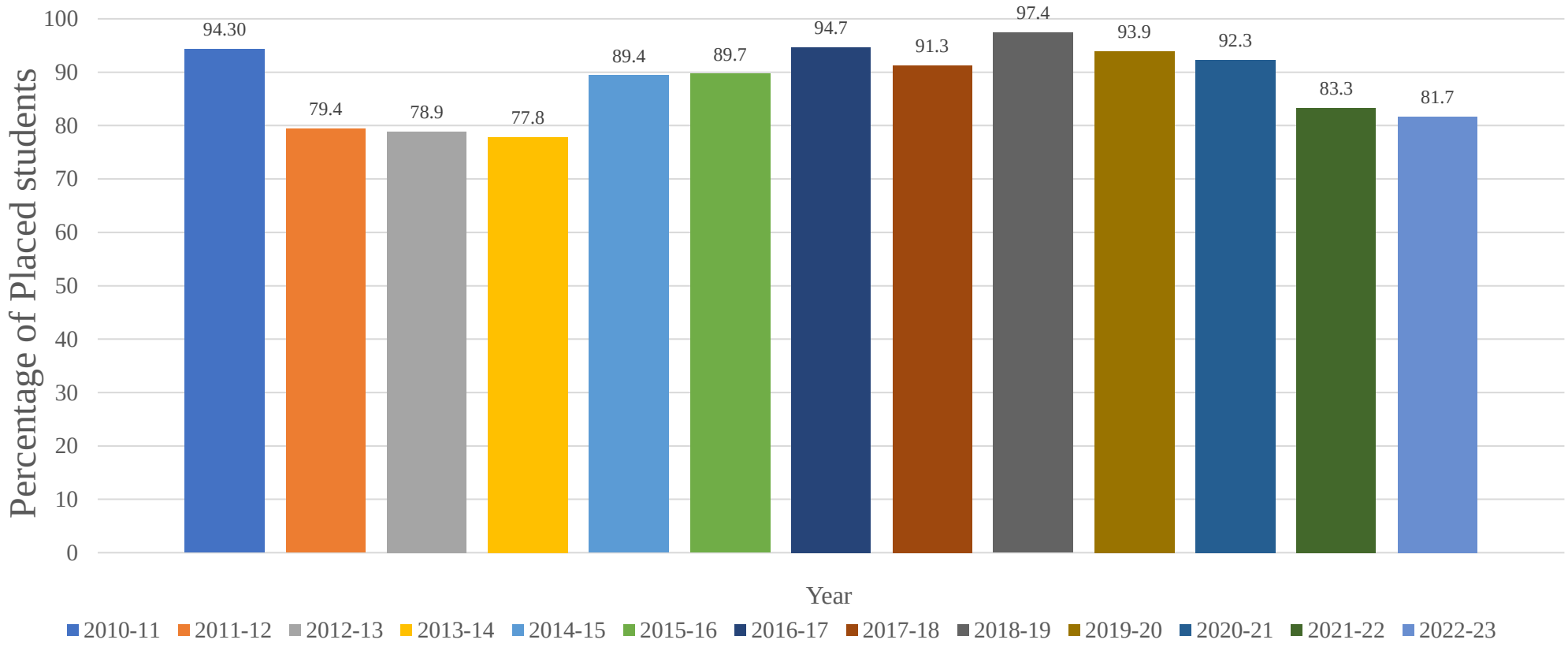
Our students in every year secure prestigious summer internships in abroad

MITACS , Canada
DAAD, Germany
Charpak, France
NUS, Singapore

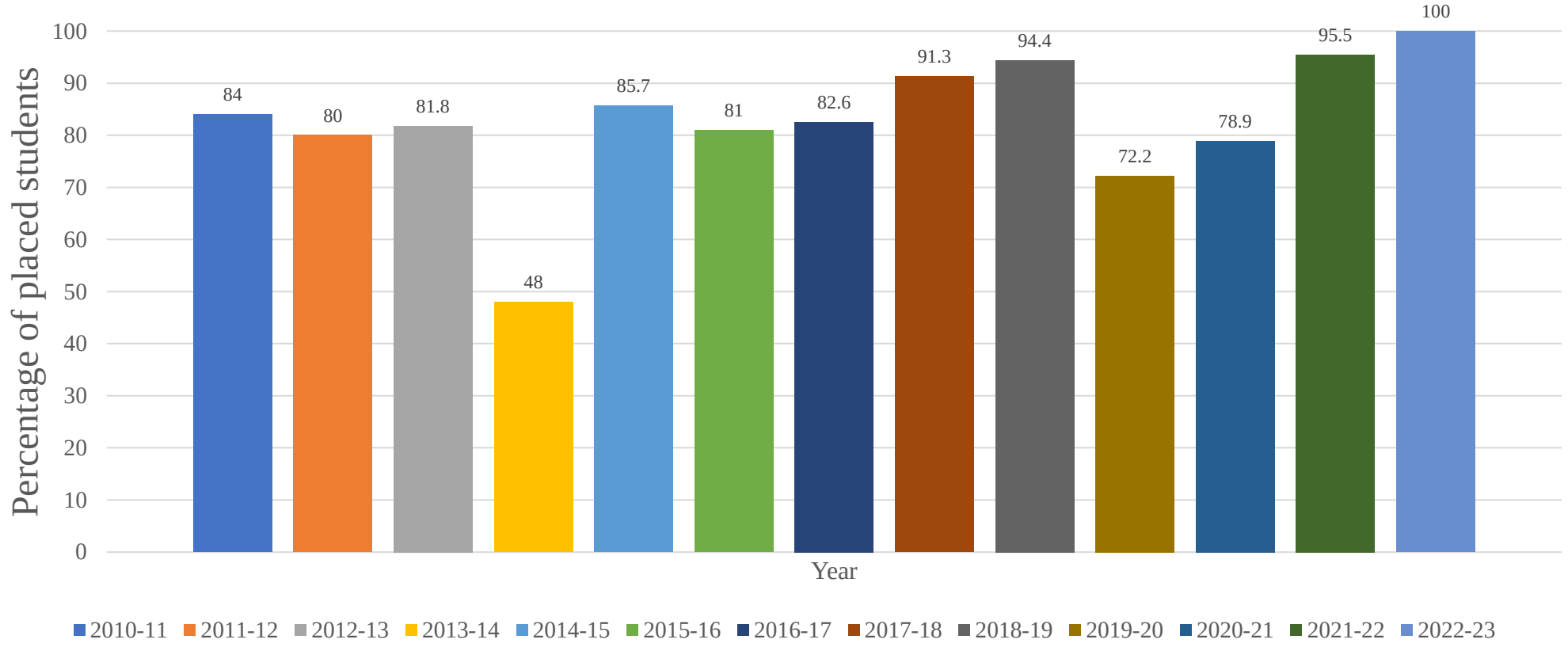
Placement percentage of registered students (2010-2023)

Branch/ Specialisation	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
B.Tech (M.M.E)	94.3	79.4	78.9	77.8	89.4	89.7	94.7	91.3	97.4	93.9	92.3	83.3	81.7
M.Tech (Welding Engineering)	84	80	81.8	48	85.7	81	82.6	91.3	94.4	72.2	78.9	95.5	100
M.Tech (Materials Science and Engineering)	84.6	71.4	30	33.3	41.7	40	77.8	86.7	100	76.9	85.7	95.2	93.3
M.Tech (Industrial Metallurgy)	--	--	46.2	46.7	54.5	42.9	44.4	100	90	66.7	66.7	92.3	90.9

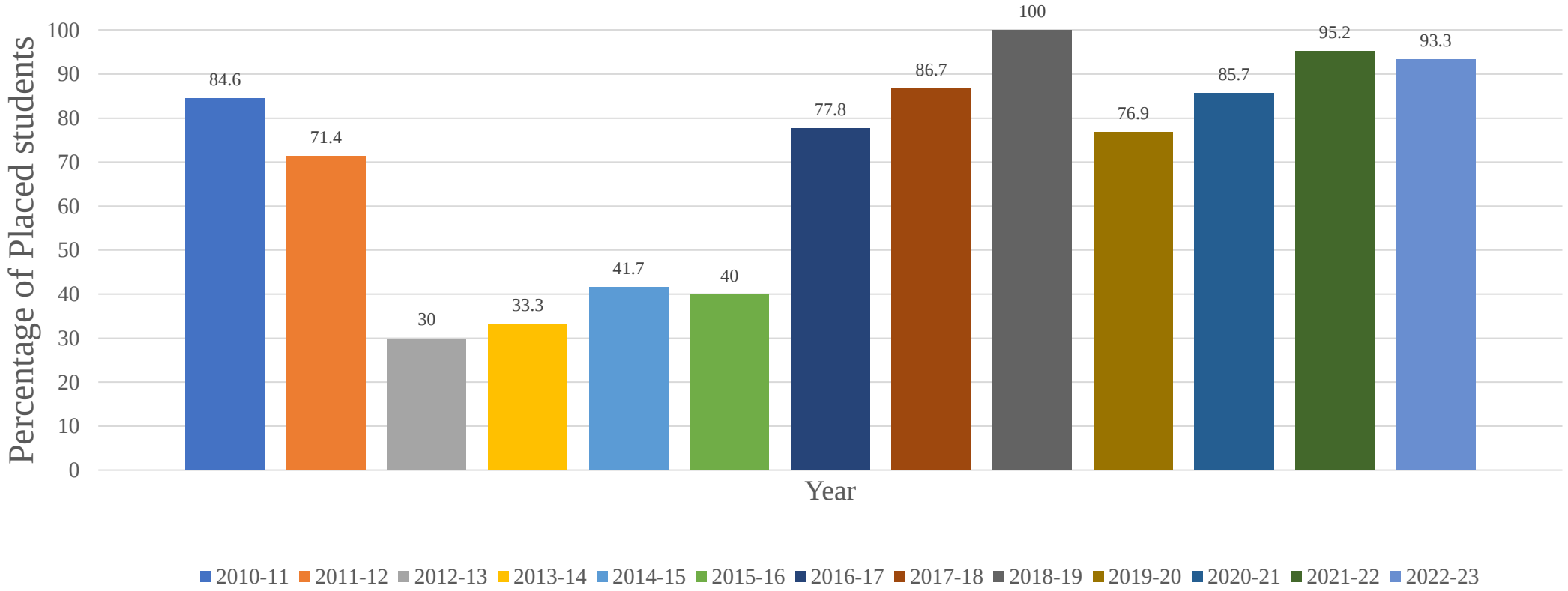
Placement percentage of registered students - B.Tech MME 2010-2023



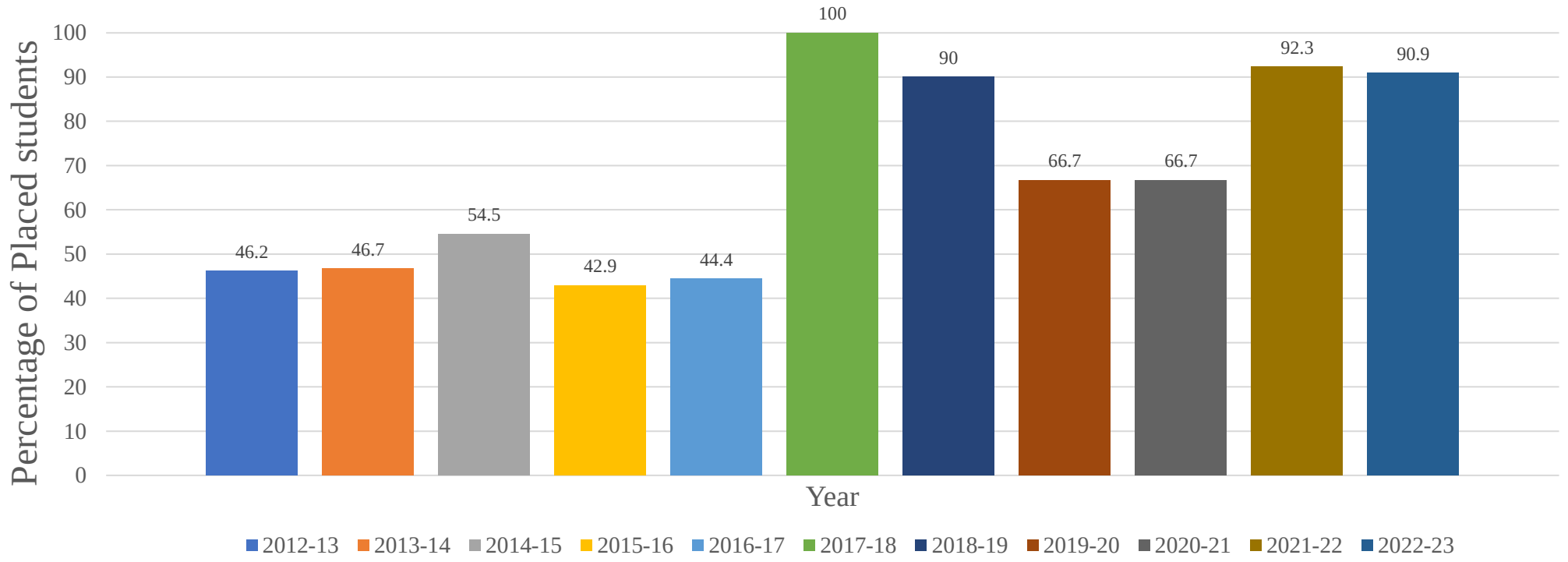
Placement percentage of registered students - M.Tech (Welding Engineering) 2010-2023



Placement percentage of registered students - M.Tech (Materials Science and Engineering) 2010-2023



Placement percentage of registered students - M.Tech (Industrial Metallurgy) 2010-2023



New building

- The foundation stone was laid on 25/09/2021 for new building for MME worth of approximately Rs. 30 crores


NATIONAL INSTITUTE OF TECHNOLOGY
TIRUCHIRAPPALLI

INVITATION

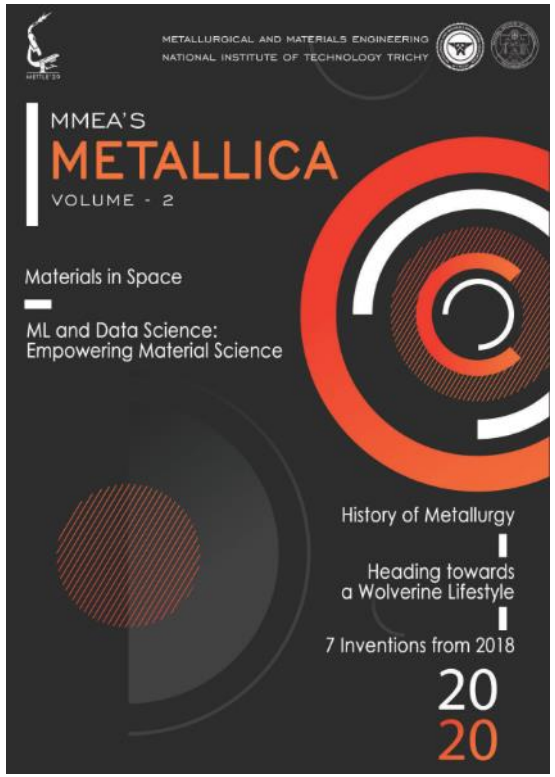
FOUNDATION STONE LAYING CEREMONY
THE DEPARTMENTS OF
MECHANICAL ENGINEERING &
METALLURGICAL AND MATERIALS ENGINEERING
ANNEXE BUILDING

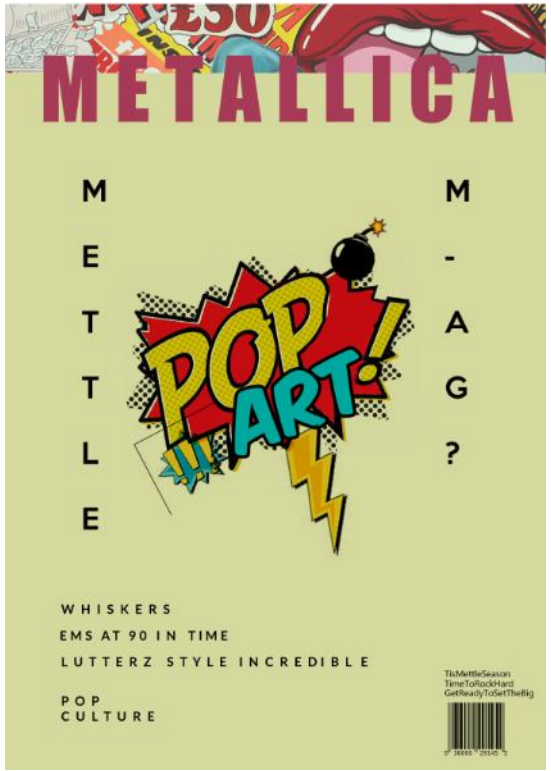
SATURDAY, SEPTEMBER 25, 2021 AT 11.30 AM
AT EEE AUDITORIUM

Shri. T. V. NARENDRAN
CEO & MD, Tata Steel Limited.
President, Confederation of Indian Industry (CII)
Has consented to be the Chief Guest
&
Dr. MINI SHAJI THOMAS
Director
National Institute of Technology, Tiruchirappalli
Will Preside Over the Function

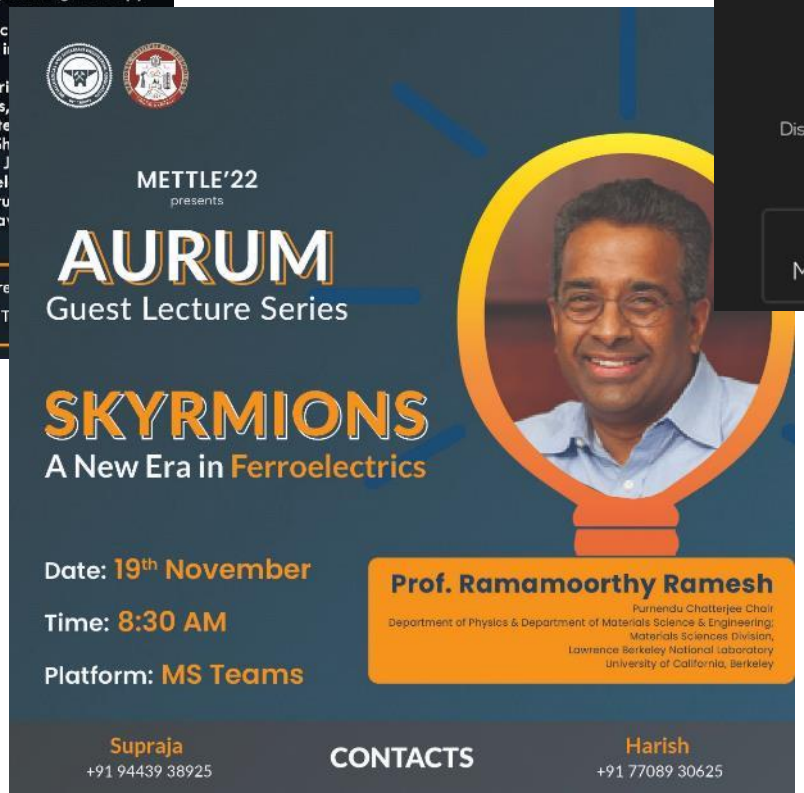
Elevation of Proposed new building

Students Publications – Newsletter (MMEA)

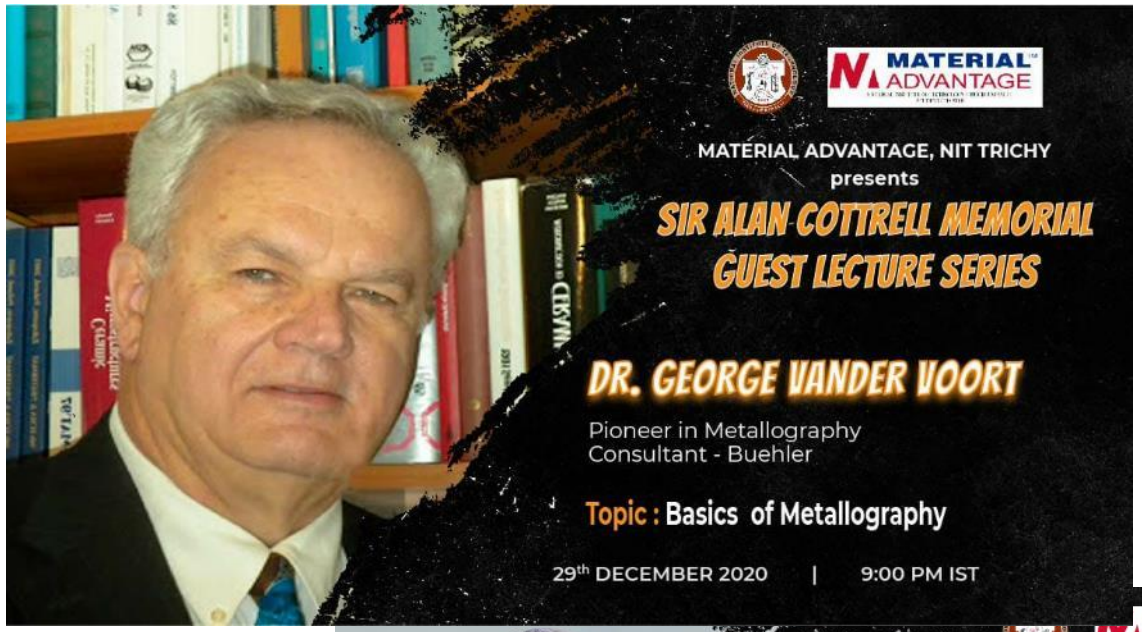




Professional Activities (MMEA)



Professional Activities (Material Advantage)



Students' Achievements

Mr. K. Akshay (112116026)

Manager –Operations, Tata Steel

SURYARAO KIMAYA (112118058)

MIT DMSE SM

Material Advantage Student Chapter

MATERIAL™ ADVANTAGE

The Student Program for Materials Science and Engineering

This is to certify that the Board of Directors of ACerS, the Board of Directors of AIST, the Board of Trustees of ASM International, and the Board of Directors of TMS have granted a

CHARTER

for the establishment and conduct of a Material Advantage Student Chapter at the

National Institute of Technology, Tiruchirappalli

It shall be the duty of the properly elected officers of this chapter to conduct business of the chapter in accordance with the Constitution and Rules of Government of the parent organizations.

Witness our hand and seal

February 4, 2020

Ohji Tatsuki
President
ACerS

Ronald O'Malley
President
AIST

Zi-Kui Liu
President
ASM International

James Foley
President
TMS

Thank You