

Curriculum Vitae

Dr. Amrut S. Mulay

Assistant Professor,
Department of Mechanical Engineering,
Sardar Vallabhbhai National Institute of Technology Surat,
Gujarat- 395 007, India

Contact Info:

Mobile No.: +91-88-300-91-723

E-mail: amrutmulay8@gmail.com and mas@med.svnit.ac.in



Educational Qualifications:

Doctor of Philosophy (Ph.D.) in Mechanical Engineering from National Institute of Technology (NIT), Warangal (The institute of National Importance), Warangal, India- 506004 in collaboration with **Warsaw University of Technology, Poland.**

Master of Technology (M.Tech.) in Mechanical-CAD/CAM from Shri Guru-Gobind Singhji Institute of Engineering and Technology, Nanded [An Autonomous Institute, Govt. of Maharashtra], Maharashtra, India.

Bachelor of Engineering (B.E.) in Mechanical from Sanjivani College of Engineering, Tal. Kopargaon, Dist. Ahmednagar affiliated to University of Pune, India.

Career Objective

I aspire to work in an organization that provides exposure and opportunities to grow in my skills and carrier, seeking to work under challenging and growing environment that offers professional growth while being resourceful, innovative and flexible.

Academic records

Course	Year	Board/University	Percentage of Marks
Post Doctorate Fellow	July-18- July 19	IIT-Bombay, India	Completed
Ph. D (Mech. Engg.)	June-18	NIT-Warangal, India	<u>Degree Awarded</u>
M. Tech.	2013-2014	SGGS IE & T, Nanded	7.67/10
B. E.	2007-2011	University of Pune	66.86 (Distinction)

Areas of Interest

- Machine Design, CAE and Optimization
- Digital Image co-relation and Image Processing
- Sheet Metal Forming and CNC Technology.
- Material modeling and characterization

Computer Proficiency

- MS Office Suite
- Matlab programming, Digital Image Correlation, Image Processing tool using APEER Platform
- Languages: C,C++
- Operating systems: Windows XP, 7(Home Premium), Linux.
- Well comfortable with VIC 2D, 3D, VIC snap 8,9 in Digital Image Corelation.
- **CAD/CAM Software:** Design software Creo Parametric, Catia and UG-NX, FE software Abaqus and Ansys, Deform 3D, CNC Programming and Machining, GD &T
- **Meshing**-Hypermesh-12, well comfortable with solvers like Ansys, Optistruct, Hyperform, Radioss Nastran etc.

B.E./M.Tech. Dissertations

1. **Project Title:** [Friction and Wear Analysis of Composite Materials.](#)

Project Location: University of Pune, Maharashtra

Project Duration: 1 year (B.E.)

Team Size: 4

Brief Overview of Project:

The main goal of the project was designing, manufacturing and testing of composite materials. This project results are used to find friction & wear characteristics in various types of manufactured composite materials.

2. **Project Title:** [Computer Aided Design & Analysis of Compound Press Tool for Automotive Gasket](#)

Project Location: 1. Shri Guru-Gobind Singhji Institute of Engineering & Technology, Nanded, MH.

2. Indo-German Tool Room, Aurangabad [Government of India undertaking]

Project Duration: 1 Year (M.Tech.)

Team Size: 1

Brief Overview of Project:

Design the press tool for automobile gasket and to make structural analysis using FE approach. The main aim is to compare analytical & numerical results to evaluate safety under specified loading condition.

3. **Seminar Title:** [Air Bag Deployment Simulation using Finite Element Methods.](#)

Project Location: Shri Guru-Gobind Singhji Institute of Engineering & Technology, Nanded, MH.

Project Duration: 6 months

Team Size: 1

Brief Overview of Seminar:

It includes air bag selection, location, and effect on occupant by air bag size, finally finding out Health Injury Index.

4. **Seminar Title:** [Design & Analysis of Road Safety Barrier located at Indian Highways.](#)

Project Location: Shri Guru-Gobind Singhji Institute of Engineering & Technology, Nanded, MH.

Project Duration: 6 months

Team Size: 1

Brief Overview of Seminar:

To provide appropriate safety levels for impacting vehicle occupants, the safety barriers should be designed so as to absorb as much impact energy as possible through their deformation.

Workshops/STTPs/Training Programs

- Workshop on [CFD & FEA](#) for Engineers at SGGGS IE & T during 05-11th January 2014.
- Workshop on Product Lifecycle management (PLM) Team Center Customization by PLM Logix.
- Workshop on [Recent Advancement in CAD/CAM](#) at IIT, Bombay on 25th July, 2014 to 28th July, 2014.
- TEQIP Sponsored Faculty Development Programme on “[Modern Manufacturing Technologies](#)” during 05-09th March 2014 at SGGGS IE & T, Nanded.
- Paper Presented at National Tribology Conference (NTC) 2014, PES University Bangalore on 15-17th December, 2014. It was conducted in collaboration with *Tribology Society of India*.
- Attended an international conference organized by the Institute of International Relations University of Warsaw (UW), and the Centre for Europe UW in cooperation with [University of Oxford](#) on 11-12 May, 2016.
- TEQIP-II Sponsored 17th One Week Short Term Training Program on [Advanced Engineering Optimization Through Intelligent Techniques](#) at SVNIT, Surat during 6th - 10th February, 2017.
- One Week Skill Development Programme for Faculty on [Modeling, Simulation and Product Design Practices in Engineering](#) (MSPDPE 2017) during 3rd- 8th July, 2017 at NIT-Warangal.
- Participated in the [ISSS Researchers Forum](#) held during 27th to 28th of March 2018 at the Indian Institute of Science, Bangalore, India.
- Participated in the [workshop entitled Automation of Image Processing and Analysis using Cloud Infrastructure](#) in partnership with Zeiss held during 10th to 11th of April 2019 at the Indian Institute of Technology, Bombay, India.
- Delivered lecture on **Indispensable Research Tools** to fresh Research Scholars and Post Graduate students in 2015-2018 at NIT Warangal, India.
- Acted as co-ordinator of 1st International conference on Recent Advancement in Manufacturing (RAM)-2020 during 3rd to 5th July, 2020.

- **Short Term Training Programs conducted**

A short term training program was organized on the topic entitled “ Modern Materials and Manufacturing” at SVNIT Surat during 12th October 2020 to 18th October 2020.

Extra-Curricular Activities

- Paper presentation awards
- Organizer and representative of Mechanical department for “**Innofest 2010**” technical event.
- Member of Mechanical Engineering student association at Undergraduate Level.
- Worked as a Mechanical Department Representative in the Ph.D. Scholars Association cell of NIT-W 2016-2017.
- Conference volunteer, Indian Society of Mechanical Engineering, 2017.
- Life Member, NIT Warangal Alumni Association

Special Achievements

- Winner of Counter-Strike game competition at event “**Mechanza2010**”
- Qualified Graduate Aptitude Test in Engineering (GATE) Examination conducted by **IIT-D (2012) & IIT- K (2014)**.
- MHRD Scholarship for master (M. Tech) through graduate aptitude test in engineering (GATE)
- Selected in 22 candidates all over the Asia for the prestigious **Erasmus-Mundus Interweave scholarship program between Europe-Asia** during PhD studies and through this worked as Visiting Researcher at Warsaw University of Technology, Poland from **8 Oct.-2015 to 30 October-2016**. The details are available in the following link (Page 9). <http://www.interweave-ema2.eu/>
- **Work appreciation letter by Dr. Dawid Myszk**a, Associate Dean for Students Affairs, Faculty of Production Engineering, Warsaw University of Technology, Poland.
- The Department of Mechanical Engineering, NIT-W nominated for Indian National Science Academy (INSA) Medal for Young Scientist- 2018 on 21st Sept.2017
- Research carried out at WUT, Poland **absorbed** in the syllabi to the undergraduate study in the Faculty of Production Engineering.
- **Technical program committee member** for International Conference on Sustainable Energy, Environment and Green Technologies (ICSEEGT 2020) Organized by Poornima College of Engineering, Jaipur, India, 28-29 August, 2020

Registered Reviewer of following journals

- Journal of Brazilian Society of Mechanical Sciences and Engineering. (Springer)
- International Journal of Advanced Manufacturing Technology. (Springer)
- Journal of Mechanical Sciences and Engineering. (Springer)
- Materials and Manufacturing Processes (Taylor and Francis)
- Achieves of Civil and Mechanical Engineering (Elsevier)
- Institution of Engineers Part C: Journal of Mechanical Engineering Science (SAGE)

National and International Collaborations

- **Dr. B. Satish Ben**, Assistant Professor, Mechanical Engineering Department, NIT, Warangal, India
- **Dr. Syed Ismail**, Assistant Professor, Mechanical Engineering Department, NIT, Warangal, India
- **Dr. Sushil K Mishra**, Associate Professor, Department of Mechanical Engineering, IIT Bombay
- **Dr. Shirish Sonawane**, Associate Professor, Chemical Engineering Department, NIT Warangal, India
- **Dr. Vijay S. Gadakh**, Associate Professor, AVCOE, Sangamner, Maharashtra, India
- **Dr. Cezary Jasinski**, Assistant Professor, Faculty of Aerospace Engineering, WUT, Poland
- **Dr. Robert Cacko**, Deputy Director, Faculty of Production Engineering, WUT, Poland.
- **Dr. Andrzej Kocanda**, Professor and Head, Department of Metal Forming and Foundry Engineering, WUT, Poland.
- **Dr. Skylab Paulas Bhore**, Motilal Nehru National Institute of Technology, Allahabad, India
- **Dr. Łukasz Morawiński**, Assistant Professor, Faculty of Aerospace Engineering, WUT, Poland

Personal Details

Sex : Male
Born : 5th January, 1990
Marital Status : Married
Nationality/Cast : Indian
Passport No. : N0833812
Google Scholar ID : EhXP7rQAAAAJ
ORCID iD : <https://orcid.org/0000-0001-9625-4133>
Researchers ID : <http://www.researcherid.com/rid/N-2460-2017>
Researcher Gate : https://www.researchgate.net/profile/Amrut_Mulay2
Google Scholar ID : <https://scholar.google.co.in/citations?user=EhXP7rQAAAAJ&hl=en>
Languages known: English, Hindi, Polish and Marathi
Institution of Engineers, Kolkata: AM1975679
Permanent Address: “Yajurveda”, Shriramnagar, Dhamangaon Road Tal. Akole, Dist. Ahmednagar, Maharashtra, Republic of India, Pin Code: 422601

A) Publications in Reputed International Journals

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1. **Amrut Mulay**, B. Satish Ben, Syed Ismail, A. kocanda, “Experimental investigations into the effects of SPIF forming conditions on surface roughness and formability by Design of Experiments”, *Springer Publications: J Braz. Soc. Mech. Sci. Eng.* Volume 39, Issue 10, pp. 3997–4010 (**SCI-indexed, Impact factor 1.743**)
 2. **Amrut Mulay**, B. Satish Ben, Syed Ismail, A. kocanda, “Experimental investigation and modeling of Single Point Incremental Forming for AA5052-H32 Aluminium alloy”, *Springer Publications: Arab. J Sci. Eng.* Volume 42, Issue 11, pp. 4929–4940 (**SCI-indexed, Impact factor 1.518**)
 3. **Amrut Mulay**, B. Satish Ben, Syed Ismail, A. kocanda, C. Jasinski, “Performance evaluation of high speed incremental sheet forming technology for AA5754 H22 aluminum alloy and DC04 steel”, *Elsevier Publications: Archives of Civil and Mechanical Engineering*, Volume 18, pp. 1275-1287 (**SCI - indexed, Impact factor 2.846**)
 4. **Amrut Mulay**, B. Satish Ben, Syed Ismail, A. kocanda, “Prediction of average surface roughness and formability in single point incremental forming using artificial neural network”, *Elsevier Publications: Archives of Civil and Mechanical Engineering*, Volume 19, PP. 1135-1149 (**SCI -indexed, Impact factor 2.846**)
 5. **Amrut Mulay**, B. Satish Ben, Syed Ismail, A. kocanda, “Experimental Investigations on Average Surface Roughness in Negative Incremental Sheet Metal Forming Process”, *J Manuf. Techno.* Volume 42, pp. 31-36 **ISSN 2449-5409**
 6. **Amrut Mulay**, Vrushabh Bagul, “Design optimization of cruciform specimen in biaxial test using MADM methods” Taylor and Francis: Australian Journal of Mechanical Engineering, Article DOI: 10.1080/14484846.2020.1752883 (**Published**)

7. **Amrut Mulay**, B. Satish Ben, Syed Ismail, A. kocanda, "Multi-response optimization of SPIF parameters using hybrid multi attribute decision making methods in forming of AA5052 H32 alloy" *Elsevier Publications: Archives of Civil and Mechanical Engineering* (**Under Review**)
8. Vijay Gadakh, Vishvesh Badheka, **Amrut Mulay**, "Solid-state Joining of Aluminum to Titanium: A Review" *Journal of Materials: Design and Applications* (**Accepted for Publication**)

B) Publications in National/International Conferences

1. B S Ben, G Raghavendra, Syed Ismail, **Amrut Mulay**, (2014), "Synthesis of the natural resource reinforced metal matrix composite by powder metallurgy route", *National Tribology Conference (NTC-2014)*, PES University, Bengaluru, 15th - 17th Dec 2014, India, pp.158-167.
2. **Amrut Mulay**, Satish Ben, Syed Ismail, A. Kocanda and C. Jasinski. (2016), "Numerical and experimental study of single point incremental forming of AA5052-H32 Aluminum alloy", *Proceedings of 6th International & 27th All India Manufacturing Technology, Design and Research Conference (AIMTDR-2016)*, College of Engineering, Pune, ISBN: 978-93-86256-27-0, 16-18 Dec, 2016, pp. 1874-1878.
3. **Amrut Mulay**, B S Ben, and Syed Ismail (2016), "Surface roughness prediction of incrementally formed AA5052 H32 alloy by response surface methodology", *International Conference on Recent Trends in Engineering and Materials Science (ICEMS-2016)*, Mar 17 - 19, 2016, Jaipur National University.
4. Manoj Ghadmode, Arpit patil, Bhagwan Sonawane and **Amrut Mulay**, (2020), "Analysis of TIG Welded Aluminum Alloys during Single Point Incremental Forming at Different Wall Angles" *International Conference on Recent Advancement of Manufacturing (RAM 2020)*, June 03-05, 2020, SVNIT Surat.
5. **Amrut Mulay**, B. Satish Ben, Syed Ismail, "Lubrication and post forming material characterization in incremental sheet forming process: Experimental investigations", **presented at 39th international IDDRG 2020 Conference, Busan, South Korea from 26th Oct. to 30th Oct. 2020.**
6. **Amrut Mulay**, Satish Ben, Syed Ismail and Avinash Ben (2017), "Artificial Neural Network Modelling of Quality Prediction of a Single Point Incremental Sheet Forming Process", *Advanced Science and Technology Letters*, Vol.147, pp. 244-250. *International Conference on Smart Technologies in Data Science and Communication* funded by DST-SERB 30 Nov. 2017
<http://dx.doi.org/10.14257/astl.2017.147.34>

C) Book Publications by international publisher

1. Amrut Mulay, "Advances in Single Point Incremental Sheet Forming" **Lambert Academic Publishing**, Latvia, European Union, Pages 121, ISBN No. 978-620-0-09226-7, June 2019

Post Doctorate Fellow (PDF) research work in IIT-Bombay

- **Name of lab working in IIT:** Microstructural Mechanics and Micro forming Lab (MMMF lab), Department of Mechanical Engineering, IIT Bombay.
- **Name of mentor:** Prof. Sushil Kumar Mishra, Associate Professor, IIT Bombay.
 - Identification of Post-necking Tensile Stress-Strain Behaviour of epoxy-glass composite: An Experimental Investigation Using Digital Image Correlation Technique. (Fig. DIC set up and strain localisation contour)
 - **Set up:** Correlated Solutions Inc U.S.A
 - **Software Proficiency:** VIC snap 8,9 and VIC-2D, 3D
 - Analysis of differential work hardening and development of yield locus in steel sheet subjected to biaxial tension.
 - Investigations of size effect on formability, deformation behaviour and microstructure evolution in SS304 thin foils subjected to incremental sheet forming.

PhD research work in NIT-Warangal

PhD Topic: Experimental and Numerical Studies of Single Point Incremental Sheet Forming Process

PhD Guide: Prof. B. Satish Ben and Prof. Syed Ismail, NIT Warangal, India

References

1. Dr. B Satish Ben

Associate Professor and PhD Supervisor,
Department of Mechanical Engineering
National Institute of Technology, Warangal - 506004,
Telangana state, India
Email: satishben@nitw.ac.in
Office: +91-9848065254

2. Dr. Syed Ismail

Assistant Professor and PhD Co- Supervisor,
Department of Mechanical Engineering
National Institute of Technology, Warangal - 506004,
Telangana state, India
Email: syedismail7@nitw.ac.in
Office: +91-8332969367

3. Dr. Andrzej Kocanda

Professor and host Guide in Erasmus Mundus exchange program,
Kielce University of Technology,
Faculty of Management and Computer Modeling
Address: Al. Tysiąclecia Państwa Polskiego 7,
25-314 Kielce, Poland.
Email: andrzej.kocanda@gmail.com
Office: +48-602 663 229

4. Prof. S.R. Gandhi

Director,
Sardar Vallabhbhai National Institute of
Technology, Surat, Gujarat-395 007
Email: director@svnit.ac.in
Office: +91-7046404444

Declaration:

I hereby declare that the information furnished above is true to the best of my knowledge.

Place: Surat, India

Sincerely yours,

(Dr. Amrut S. Mulay)

Brief Introduction:

Dr. Amrut Shrikant Mulay is an Assistant Professor, Department of Mechanical Engineering, Sardar Vallabhbhai National Institute of Technology Surat (The Institute has National Importance, Under Ministry of Human Resource and Development, Government of India). Before joining the institute, he has completed his undergraduate studies in Mechanical Engineering from University of Pune, India in 2011, Master degree in Mechanical Engineering - CAD/CAM from Shri Guru Gobind Singhji Institute of Engineering and Technology, Nanded, India (State Government Institute) in 2014 and PhD from National Institute of Technology, Warangal, India. He is one of the few PhD students from NIT Warangal who got selected for prestigious Interweave program under Erasmus-Mundus fellowship (EMA2 strand1) project fully funded by the European Union. He has carried out part of research work at Warsaw University of Technology, Poland. He has completed Post-Doctoral research from Prestigious Indian Institute of Technology, Bombay. He has published good number of papers in the reputed journals and conferences.

His major research interests are incremental forming, Uniaxial and Biaxial cruciform stress-strain field, Digital Image Co-relation, optimization of manufacturing processes, and finite element studies in manufacturing etc.