Dr. Harshad Uday Gandhe

Adjunct Faculty
COEP Technological University Pune
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AREAS OF EXPERTISE

- Material Science
- Fundamentals of Ferrous & Non-ferrous materials
- Science of ceramic materials
- Modeling of Engineering Materials, Phase equilibria
- Application of AI and ML in alloy design, materials modelling
- High entropy materials,
- Powder metallurgy, Mechanical Behavior of Materials
- High-temperature Protective coatings
- Design, synthesis, characterization, properties, and performance of advanced structural ceramics and nanomaterials used in thermal barrier coatings temperature applications:
  - Yttria stabilized zirconia and rare earth zirconates materials
  - Multicomponent oxide ceramics and ceramic composites – a novel class of ceramic materials

EDUCATION

Doctor of Philosophy (Ph.D.) in Materials Science (2015 - 2024)

Specialization	Multicomponent High Entropy oxide ceramics
Department	Metallurgical Engineering and Materials Science
Institute	**Indian Institute of Technology, Bombay**
Joining date	30th December 2015

Master of Technology (M. Tech.) in Industrial Metallurgy (2012-2014)

Department	Metallurgical and Materials Engineering
Institute	**National Institute of Technology, Trichy**
Post-Graduation	June 2014

Bachelor of Technology (B. Tech.) in Industrial and Production Engineering (2008-2012)

Department	Industrial Engineering and Production Engineering
Institute	**Dr. B. R. Ambedkar National Institute of Technology, Jalandhar**
Graduation	June 2012

EEPERIENCE			
From	**To**	**Name and Address of Company / Organization**	**Position held**
January 2025	Till Date	COEP Technological University Pune	**Adjunct Faculty**
November 2022	December 2024	General Electric India Industrial Pvt. Ltd. Materials Processing & Development Laboratory Whitefield, Bangalore 560066	**Research Scientist, Ceramics & Coatings**
May 2022	November 2022	General Electric India Industrial Pvt. Ltd. Materials Processing & Development Laboratory Whitefield, Bangalore 560066	**Intern (PhD)**
December 2015	April 2022	Materials Processing and Performance Laboratory Dept. of Metallurgical Engineering and Materials Science IIT Bombay, Powai, Mumbai, Maharashtra 400 076	**Doctorate Fellow**
June 2014	July 2015	Dept. of Production Engineering, K K Wagh Institute of engineering education and Research, Nashik, Maharashtra 422003	**Assistant Professor**
June 2012	May 2014	Dept. of Metallurgical and Materials Science, NIT Trichy, Tamilnadu 620015	**M. Tech. Research Scholar**
August 2013	April 2014	CSIR- National Metallurgical Laboratory and Tata Steel Jamshedpur, Jharkhand 831007	**Project Trainee**
May 2013	July 2013	Dept. of C-Coating Bosch Ltd., Nashik Maharashtra 422007	**Project Trainee**

PROJECTS UNDERTAKEN

Ph.D. Topic

- Development of New Materials for Thermal Barrier Coatings Applications

Guide: Prof. A. S. Gandhi

M.Tech. Project

- Central Quality Assessment of Continuously Cast High Carbon Steel Billet using Ultrasonic C-scan Imaging
  Guide: Prof. R. Sankaranarayana (NIT Trichy), Dr. S. P. Sagar (CSIR- National Metallurgical Laboratory) and Mr. Zachariah Chacko (Tata Steel)

PROFICIENCY IN

- X-pert high score software
- Work on MATLAB (Image processing)
- Data Science, Python, Machine Learning
- Image J software
- Microsoft office windows
- Hands-on experience on
  - Scanning Electron Microscopy (Make: Hitachi)
  - X-ray diffraction (Make: Panalytical)
  - Differential scanning calorimetry (Make: Netzsch)
  - Thermogravimetric analysis (Make: Netzsch)
  - Dilatometry (Make: Netzsch)
  - DLS particle size measurement
  - Vickers hardness testing
  - Nano-indentation

AREAS OF EXPERIMENTAL EXPERTISE

- Ceramic powder synthesis via
  - Solution combustion synthesis
  - Reverse co-precipitation method
  - Solid state reaction
  - Sol-gel synthesis
- High-temperature heat treatment
- Measurement of thermal conductivity via
  - Laser flash technique
  - Hot disc technique
- Phase analysis, stress & strain analysis
- Optimization of sintering parameters for a novel class of ceramics
- Measurement of the coefficient of thermal expansion
- Mechanical property
  - Elastic modulus
  - Hardness
  - Flexural strength
  - Compressive strength
- Carbon and gold coating
- Diamond-like carbon cation on needle of fuel injector

CHARACTERIZATION TECHNIQUES KNOWN

- X-ray diffraction technique (XRD)
- Scanning electron microscope (SEM)
- Energy dispersive analysis of X-ray (EDAX)
- Thermogravimetric analysis (TGA)
- Differential scanning calorimetry (DSC)
- Dilatometry
- Transmission Electron Microscopy
- Thermal conductivity by LFA and hot disc
- Nanoindentation technique
- Vickers hardness testing
- Raman spectroscopy
- Ultrasonic nondestructive testing

RESEARCH GRANT

- MHRD scholarship from July 2012 to June 2014
- Ph.D. research grant from Dean, Industrial Research and Consultancy Centre, Indian Institute of Technology, Bombay from 30.12.2015 to 30.12.2021

PATENT

- One Indian patent granted, Inventors: Ashutosh Suresh Gandhi, **Harshad Uday Gandhe** and Imrongnaro Longkumer, Application number: 201921032434.

CONFERENCE AND SYMPOSIUM

- Hunny Garg, **Harshad U. Gandhe**, Ashutosh. S. Gandhi, 81st Annual Session of Indian Ceramic Society and International Conference on "Expanding Horizons of Technological Applications of Ceramics and Glasses (EH-TACAG'17)", College of Engineering Pune, Dec 2017.
- Participated as a speaker in Bi-Annual Symposium for Research Scholars organized by department of Metallurgical Engineering and Materials Science, IIT Bombay.

MANAGEMENT EXPERIENCE

- As a project trainee at C- coating Department at Bosch Ltd.

PROFESSIONAL OBJECTIVE

- Seeking excellence in the chosen professional field through self-motivation, hard work, and augmentation of core skills required to effectively deliver goods.
- Striving to achieve excellence through selective and focused pursuit of the short and long-term goals and trying to create an environment through my chosen organization and work field where knowledge and excellence are given their due**.**

FAVORABLE PERSONALITY TRAITS

- Commitment to work, adaptability, and goal-oriented person, problem-solving abilities, Comfortable with teamwork, good coordination and persuasion skills.

PERSONAL DETAILS

• Date of birth	15th Nov 1989
• Marital status	Married
• Category	General
• Nationality	Indian
• Current status	Adjunct Faculty
• Present address	Flat no.:406, wing A, Morwadi, near PCMC metro station, Pune Maharashtra, India :- 411019
• Permanent address	'Yajurved' Bungalow, Dhruv Nagar, Near Gulmohor Nagar, Canal road, Gangapur, Nashik, Maharashtra, India, 422222
• Language known	English, Hindi & Marathi
• Hobbies	Reading, singing, traveling & watching movies
• E-mail	harshadugandhe@gmail.com; hug.meta@coeptech.ac.in

REFERENCES

1. **Prof. Ashutosh S. Gandhi**
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   Department of Metallurgical Engineering and Materials Science
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   Maharashtra, India
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2. **Dr. Vaishnavi B J**
   Research Scientist, GE Aerospace
   Silver Domicile,
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