Prof. Amit Rai Dixit

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I. Professional Experience [23 Years]

- **Indian Institute of Technology (Indian School of Mines), Dhanbad: Dhanbad, Jharkhand, IN**
  2023-08-17, to present | **Professor** (Mechanical Engineering)
  2012-04-06, to 2023-08-17 | **Associate Professor** (Mechanical Engineering)
  2009-05-10 to 2012-04-5 | **Assistant Professor** (Mechanical Engineering and Mining Machinery Engg) 2007-05-10 to 2009-04-5 | **Senior Lecturer**(Mechanical Engineering and Mining Machinery Engg)

- **Engineering and Rural Technology (IERT), Allahabad, India**
  2002-03-01 to 2007-05-09 | **Assistant Professor** (Engineering Degree Division; Industrial and Production Engg.)

II. Administrative Experience [16 years]

S.No.	Position	Period	Duration
1	Warden/ Amber Hostel	August 2009 – May 2013	3 years 9 months
2	Faculty-in-charge (Training & Placement) (renamed as Vice Chairman Career Development Center)	July, 2013 to July, 2018	5 years
3	Associate Dean (Infrastructure)	May, 2018 to June, 2021	3 years 1 months
4	Head, Mechanical Engineering Department	July 2020 - sept, 2023	3 years 2 months
5	Dean (Infrastructure)	Sept, 2023 - till date	1 year 5 months

III. Externally Sponsored Projects

- **Investigation on The Application of Abrasive Water Jet Machining for Milling Operations Like Pocketing and Slotting on Advanced Aerospace Materials**
  Funding Agency: DRDL, DRDO (CRG)
  2024-05 to present | Grant : 9.9 Lakhs

- **Biomechanical analysis on the use of Pulsating Liquid Jet in cement removal from the femoral canal in Revision Total Hip Arthroplasty: A novel approach for biomedical application**
  Funding Agency: DST-SERB (CRG) New Delhi 2023-03 to present | Grant : 55.85 Lakhs

- **Design, development, and supply of special purpose equipment for the cutting of composite hardware**
  Funding Agency: Advance Naval Research Programme, DRDL (Hyderabad) 2020-05 to 2022-05 | Grant 39.5 Lakhs

- **Study, Investigation and Development of Machining Parameters of FRP Composites using Laser to Maintain Better Surface Integrity**
  Funding Agency: Defence Research and Development Organisation (Hyderabad) 2016-01 to 2018-07 | Grant :9.9 Lakhs

- **Formality Study of Ti6AL4V alloy and its surface characteristics**
  Funding Agency: Defence Research and Development Organisation (Hyderabad) 2020-08 to 2022-01 | Grant :9.83 Lakhs

- **Current status, enablers and barriers of implementation of the cellular manufacturing system in Indian industries**
  Funding Agency: Department of Science and Technology, Ministry of Science and Technology (New Delhi)
  2009-03 to 2012-03 | Grant- 7.2 lakhs

- **Modernisation of Manufacturing Facilities vis-a-vis Improvement in Quality Teaching and Research**
  Funding Agency: Department of Science and Technology, Ministry of Science and Technology (New Delhi)
  2005-03 to 2010-03 | Grant- 44.5 Lakh

IV. Consultancy

a. "**Performance Evaluation of Tech Patch Repair Solution in Indian Mining/ Petrochemical Application**" Consultancy no. **CONS 7390** C dt 12.12.2024, Clint Tech Patch, USA, **Total Value $31100**. (Approx Rs 27 Lakhs)

V. International Mobility Grants

- Awarded an International grant for "Teaching Mobility" under the European Union-sponsored Erasmus+ Programme and Visited Institute of Advanced Technologies, Faculty of Manufacturing Technologies, Technical University of Košice, Slovakia, in 2018

- Awarded an International grant for "Research Mobility" under the European Union-sponsored Erasmus+ Programme and Visited Poznan University, Poland, in 2023.

VI. Patents

Patent. Title: Method and Device for Optimizing Cutting Fluid In Metal Cutting Operations
Application Number: 202111033458
Date of filing: 26/07/2021
Patent Status: Granted
Inventors Name: Mahip Singh (PhD Student), Dr Amit Rai Dixit (Principle Guide), Dr.

Anuj Kumar Sharma (PhD Student)

Patent Title: An Isothermal Propulsion System For Metal Cutting Operation By Minimum Quantity Lubrication Process Maintaining Fluid Temperature Above Freezing Point
Number: 202331079637
Date of filing: 23.11.2023
Patent Status: Published
Inventors Name: Mahip Singh, Dr. Amit Rai Dixit (Principle Guide), Dr Anuj Kumar Sharma

Patent title: Cavity Cleaner To Remove Support Structures From 3D Printed Internal Cylindrical Cavity
Application Number: 202331032454
Date of filing:
Patent Status: Published
Inventors Name: Dr Vivek Bajpai, Dr Amit Rai Dixit, Ratnesh Raj.

Patent title: System And Method Of Automatic Fibre Placement During Vat- Photopolymerization Additive Manufacturing For Composite Material Fabrication
Application Number: 202431071798
Date of filing:
Patent Status: Published
Inventors Name: Amit Rai Dixit, Annada Prasad Moharana, Ratnesh Raj

Patent title: Dynamic Cutting Fluid Supply System And Method To Maintain A Constant Cutting Zone Temperature During A Workpiece Operation
Application Number: 202431071798
Date of filing:
Patent Status: Published
Inventors Name: Mahip Singh, Dr. Amit Rai Dixit (Principle Guide), Dr Anuj Kumar Sharma

Patent title: Robotic Based Health Care System
Application Number: 202111030805
Date of filing:
Patent Status: Filed
Inventors Name: Mahip Singh, Dr. Amit Rai Dixit (Principle Guide), Dr Anuj Kumar Sharma

IV. Thesis Supervision:

Number of Ph.D. supervised as (sole/principal supervisor):
14 Number of PhD supervised (Co-guide) 4
Number of PhD under supervision 6
Number of M.Tech. supervised as (sole/principal supervisor):
40 Number of M.Tech. under supervision. 4

V. International Collaborative Research Work

- Visited Institute of Geonics, Ostrava, Czech Republic in May-June 2015 and 2016 for joint research in the Abrasive and Pulsating water jet machining field.
- Expert invitation to attend International WORTH meeting in Presov, Slovakia, to give an expert opinion on the EU-financed project 7-9th June 2015
- Joint Ph.D. Guidance of Mr Akash Nag with Prof. Sergej Hoch, Director, Institute of Advanced Technologies, Faculty of Manufacturing Technologies, Technical University of Košice, Slovakia.
- Joint Ph.D. Guidance of Mr Mohammed Shariq with Dr Rebeka Rudolf, University of Maribor, Slovenia, under Erasmus+ mobility program.
- Joint Research work with (i) University of Maribor, Slovenia(ii) Technical University of Kosice, (iii) Institute of Geonics, Czech Republic (iv) Curtin University, Australia (v) University of Opole, Poland (vi) University of Akron, USA
- Visited Institute of Material Technology, Faculty of Mechanical Engg, University of Maribor, Slovenia from 11th June – 12th June, 2016 – for future collaborations in Nano-structure materials and application.
- Joint Ph.D. Guidance of Mr Pratik Kumar Shaw with Dr Alokesh Pramanik, Curtin UniversityAustralia, under MoU.

VIII. New Laboratory Development

- Developed "Non-traditional manufacturing lab" consisting of a Wire EDM machine, Die Sinking machine, ECM, Laser machining setup, Abrasive waterjet machine, Micro-EDM and Micro-ECDM setup for UG and PG students.
- Developed "Flexible Manufacturing Lab" consisting of a CNC lathe, ASRS, conveyor system, gantry robot and controller for undergraduate and postgraduate students.
- Developed "Additive Manufacturing Lab" consisting of the 3D scanner, Powder Bed Fusion based 3D printer for metal, extrusion-based 3D printer, Fused Filament Fabrication and DLP 3D printers for undergraduate and postgraduate students.

XII. Details of Outreach Programs (Professional Development Program (PDP)/Conference/ Seminars) Organized:

Sl. No.	Title	Outreach Prog	Duration
1.	Power Hydraulics In HEMM (CONS/ 2947/2015-16)	PDP	24.8.2015 to 28.8.2015
2.	Power Hydraulics In Heavy Earth Moving Machineries(HEMM) (CONS/2609/2014-15)	PDP	4.8.2015 to 8.8.2015
3.	Power Hydraulics in HEMM (CONS/2346/13-14)	PDP	11.11.2013 to 15.11.2013
4.	**International Training Program** Elements of Mining Equipment(CONS/ 2245/2013-14) (For official of Ministry of Mines, Afghanistan)	International PDP	24.7.2013 To 9.8.2013

5.	Hydraulics in Heavy Earth moving machineries(CONS/1983/12-13)	PDP	17.12.2012 to 21.12.2012
6.	Trackless Mining Equipment-Loaders and Transportersused in Underground Mines (CONS/1873/2012-13)	PDP	10.5.2012 to 12.5.2012
7.	Power hydraulics in HEMM(CONS/ 1552/11-12)	PDP	12.9.2011 to 16.9.2011
8.	Advances in Mine Workshop Practice(CONS/ 1324/2010-11)	PDP	21.2.2011 to 25.2.2011
9.	Hydraulics in Mining Equipment(CONS/ 1243/10-11)	PDP	22.11.2010 to 26.11.2010
10.	Power hydraulics in HEMM(CONS/ 1063/10-11)	PDP	26.4.2010 to 30.4.2010
11	International workshop on precision engineering	workshop	2017
11.	National Seminar on Mining Equipment: NewTechnologies, Challenges & Applications	Seminar	2012
12	2nd International and 14th National Conference on Industrial Problems on Machines and Mechanisms (IPRoMM-2022)	Conference	2022
13	24 week AICTE QIP PG certificate course on "Robotics and 3D printing"	FDP	2024

IX. MEMBERSHIP OF PROFESSIONAL BODIES

- Member of the American Society of Mechanical Engineers (ASME)
- Member of the International Association of Engineers (IAENG)
- Fellow Institute of Engineers (IE India) (F-1313424).
- Senior Member- INAE IIndian National Academy of Engineering (INAE)

XIV. Publications **[Scopus Citation 7041, H Index 46] [Detailed List:**

https://orcid.org/0000-0001-6135-8098]

Book Published:

1. Research Progress of Metals and Alloys by Thermal Layering and Deposition" Publisher MDPI Switzerland , Editors Amit Rai Dixit & Ashish Kumar Srivastava ISBN 978-3-0365-7844-6 (Hbk) ISBN 978-3-0365-7845-3 (PDF) , doi.org/10.3390/books978-3-0365-7845-3