ADDITIVE MANUFACTURING LABORATORY

Research Laboratory

Department of Mechanical Engineering,
Faculty of Engineering & Technology,
Jamia Millia Islamia, New Delhi, INDIA

(Supported by FIST in 2012-15)

Contents:

- Additive Manufacturing laboratory (previously Product Design) equipment
- Students who obtained PhD from this laboratory
- M Tech Students who did their dissertation from this laboratory
- Utility of the laboratory for B Tech students
- Research Profile of Prof Abid Haleem as In-charge of the laboratory
- Research Profile of Dr Mohd Javaid
- FDP conducted
- Books published
- Major Research Publications
- Future path

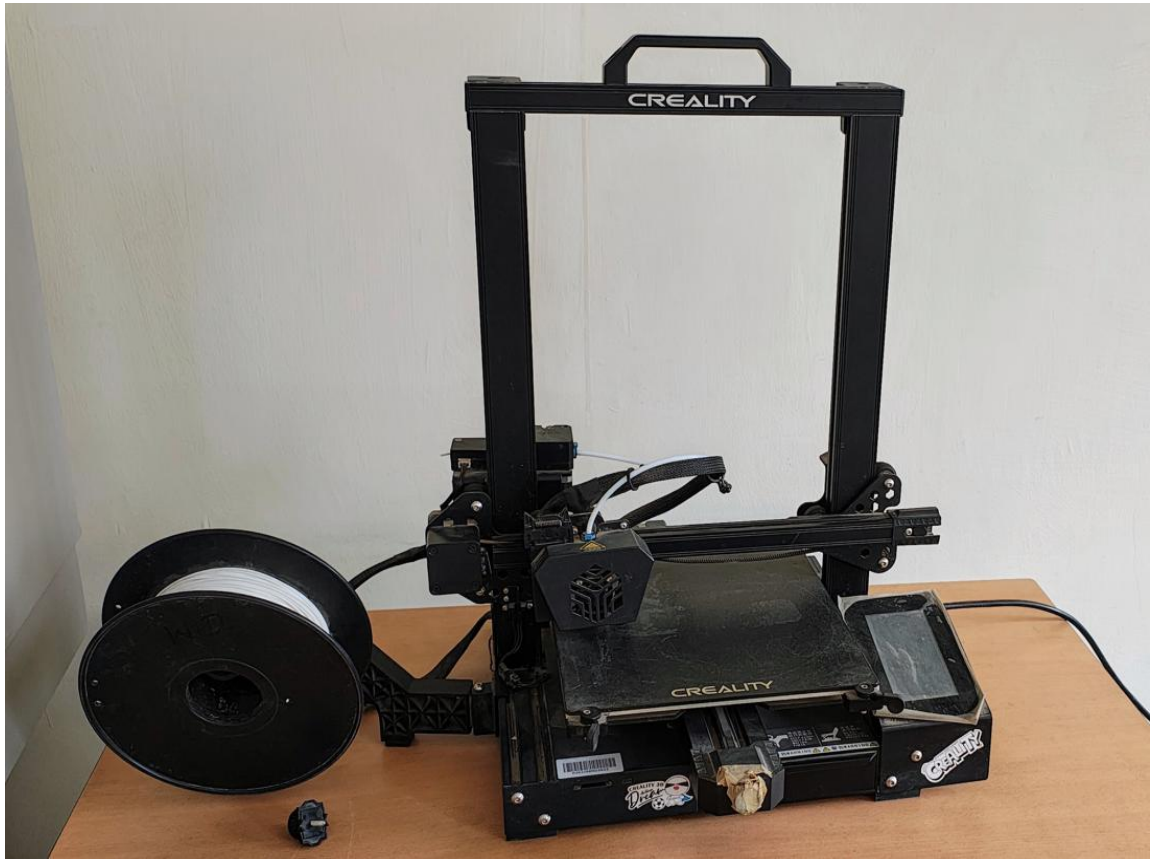
Steinbichler
Blue light
3D Scanner
5MP

Binding jet 3D Printer

Projet 3D Printer

Additive Manufacturing Laboratory: Professor Abid haleem

Fused Deposition Modelling 3D Printers



FDM 3D Printer No 2

FDM 3D Printer No 1

Students who have completed PhD from this laboratory

STUDENT	THESIS TOPIC	WHERE ARE THEY PLACED TODAY
Dr. Vineet Kumar	Computational and Experimental Analysis of Parts in 3D Printing	Associate Professor, Department of Mechanical Engineering, Sharda University
Dr. Lalit Kumar	Product Development/Design Using Rapid Prototype Technique	Assistant Professor, IEG, Ghaziabad, UP
Dr. Mohd Javaid	Role of Projet 3D Printing and 3D Scanner in Product Design and Development	Associate Professor, Department of Mechanical Engineering, Jamia Millia Islamia
Dr. Qamar Tanveer	Measurement and Modeling of Residual Stresses in Rapid Prototyping	Assistant Professor, Department of Mechanical Engineering, Indraprastha Engineering College
Dr. Shanay Rab	Design, Development and Analysis of Pressure Calibrator and Associated Components for High Pressure Metrology	Assistant Professor, Mechanical Engineering, University of Brighton, London, United Kingdon
Dr. Mohd Shoeb	A Feasibility study on Development and Characterization of 3D Printed Poly Lactic Acid Bio composite	Workshop Superintendent, Department of Mechanical Engineering, Jamia Millia Islamia

M Tech Students who did their dissertation from this laboratory

NAME OF THE STDUENT	AREA OF WORK	Course
Ms Nosheen Fatma	Product design and printing Jewelry design and printing	M Tech
Mr Pawan Kumar	Auto component design	M Tech
Ms Angveen Khan	Car design	M Tech
Ms Ayesha Ali	Jewelry design and printing	M Tech

B Tech Course covered through this laboratory

TEACHING PLAN OF PRODUCT DESIGN (ME-814)

NO. OF CONTACT HOURS/SEMESTER: 44 L-3 T-1

UNIT-I	**Pd**
Introduction to product design ***course*** Significance of product design and development process, sequential engineering design method, the challenges of product development.	**2**
Theory of inventive problem solving (TRIZ): Fundamentals, problem Solution, methods and techniques, General Theory of Innovation	**2**
Identifying Customer needs: Gather raw data from customers, interpret raw data in terms of customer needs, organise the needs into a hierarchy, establish the relative importance of the needs and reflect on the results and the process.	**2**
Product Specifications: What are specifications, when are specifications established, establishing target specifications, setting the final specifications	**2**
UNIT-II	**08**
Concept Generation: The activity of concept generation clarifies the problem, search externally, search internally, explore systematically, and reflect on the results and the process.	**2**
Concept Selection and overview of methodology	**2**
Concept screening, and concept scoring.	**2**
Concept Testing: Define the purpose of concept test, choose a survey population, choose a survey format, communicate the concept, measure customer response, interpret the result, and reflect on the results and the process.	**2**
UNIT-III	**08**
Product Architecture: implications of the architecture,	**2**
establishing the architecture, variety and supply chain considerations,	**2**
Platform planning, related system level design issues	**2**
Design of Modular System – abstract design. The process of conception and its documentation	**2**
UNIT-IV	**08**
Value engineering applications in Product development and design	**2**
Computer-aided design (CAD), needs CAD, components of CAD systems, advantages.	**1**
Various design tools in product development, product development process stages	**1**
QFD and Concurrent engineering.	**1**
Model-based technology for generating innovative ideas	**1**
3D scanner: its types with scanning principle, applications	**1**
Overview of Steinbichler blue light 3D scanner, different components function and working principle	**1**
Rhinoceros 3D software	**1**
UNIT-V (theory by Prof Abid Haleem & Lab by Dr Javaid)	**12**
Differentiate Additive manufacturing from subtractive manufacturing	
Stereolithography (SLA)	
Selective laser sintering (SLS),	
Fused deposit modelling (FDM)	
Selective Laser Melting (SLM)	
Laminated Object Manufacturing (LOM)	
Direct Metal Laser Sintering (DMLS)	
Inkjet Printing (IJP)	
Polyjet 3D printing	
Colour-Jet 3D Printing (CJP)	
3D Printing class in Product Design Lab	
3D Scanning class in Product Design Lab	

Text/Reference Books

Product Design, Pearson Engineering of creativity: An introduction to TRIZ Methodology of Inventive Problem Solving; By Semyon D. Savransky, CRC Press.
Inventive thinking through TRIZ: A practical guide, By Michael A. Orloff, Springer.
Systematic innovation: an introduction to TRIZ; (theory of inventive Problem.
Product Design for Manufacture and Assembly, Geoffrey Boothroyd, Peter Dewhurst and Winston Knight
Product Design: Fundamentals and Methods, Roozenburg and Eekels, Publisher: McGraw-Hill
Design Secrets: Products: 50 Real-Life Projects Uncovered - Industrial Designers, Goodrich, Kristina; Society of America, Publisher: Rockport Publishers
Creating Breakthrough Products: Innovation from Product Planning to Program Approval, Cagan, Jonathan; Vogel, Craig M, Publisher: Financial Times Prentice Hall;

Professor Abid Haleem

Google Scholar

Dr Abid Haleem

FOLLOW

Professor, Mechanical Engineering, Jamia Millia Islamia, New Delhi, INDIA
Verified email at jmi.ac.in - Homepage

Healthcare Management Innovation Management Supply Chain

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TITLE	CITED BY	YEAR
Understanding the role of digital technologies in education: A review A Haleem, M Javaid, MA Qadri, R Suman Sustainable operations and computers 3, 275-285	2943	2022
Artificial Intelligence (AI) applications for COVID-19 pandemic R Vaishya, M Javaid, IH Khan, A Haleem Diabetes & Metabolic Syndrome: Clinical Research & Reviews 14 (4), 337-339	1812	2020
Effects of COVID-19 pandemic in daily life A Haleem, M Javaid, R Vaishya Current medicine research and practice 10 (2), 78	1331	2020
Telemedicine for healthcare: Capabilities, features, barriers, and applications A Haleem, M Javaid, RP Singh, R Suman Sensors international 2, 100117	1242	2021
Industry 4.0 technologies and their applications in fighting COVID-19 pandemic M Javaid, A Haleem, R Vaishya, S Bahl, R Suman, A Vaish Diabetes & Metabolic Syndrome: Clinical Research & Reviews 14 (4), 419-422	1021	2020
Artificial intelligence (AI) applications for marketing: A literature-based study A Haleem, M Javaid, MA Qadri, RP Singh, R Suman International Journal of Intelligent Networks 3, 119-132	892	2022

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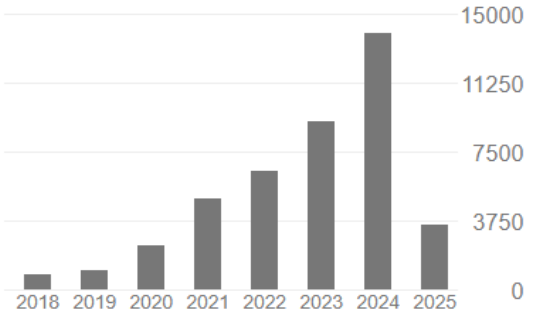

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Review

Encouraging Safety 4.0 to enhance industrial culture: An extensive study of its technologies, roles, and challenges

Haleem, A., Javaid, M., Singh, R.P.

Green Technologies and Sustainability, 2025, 3(3), 100158

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Review • *Open access*

Role of virtual reality in advancing education with sustainability and identification of Additive Manufacturing as its cost-effective enabler

Javaid, M., Haleem, A., Singh, R.P., Dhall, S.

Sustainable Futures, 2024, 8, 100324

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Article

Role of Digital Supply Chain in Industry 4.0: A Bibliometric Analysis

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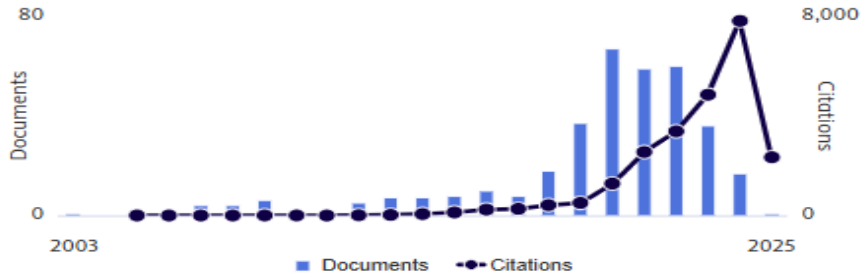

Citation overview | Analyze author output

Author Position for 2014 - 2023

First author 21%

64	100	8.636
Documents	Average citations	FWCI

Dr. Mohd Javaid

Google Scholar

Mohd Javaid

FOLLOW

Associate Professor, Department of Mechanical Engineering, Jamia Millia Islamia, New Delhi, 110025
Verified email at jmi.ac.in

Additive Manufacturing 4D Printing Industry 4.0 Sustainability Healthcare Technologies

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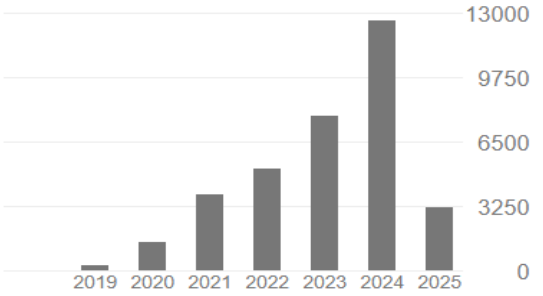

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Citation overview | Analyze author output

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First author 46%

66	120	8.428
Documents	Average citations	FWCI

TWO FACULTY DEVELOPMENT PROGRAMS CONDUCTED

One week Online
Faculty Development Programme
on
Additive manufacturing for
Sustainability and Industry 4.0

November 18-22, 2024

Organised by:
Department of Mechanical Engineering
Faculty of Engineering & Technology
Jamia Millia Islamia, New Delhi-110025
https://www.jmi.ac.in/

Jamia Millia Islamia

Jamia Millia Islamia made a modest beginning in 1920 at Aligarh, with the resolute determination of its founding members--Shaikhul Hind Maulana Mahmud Hasan, Maulana Muhammad Ali Jauhar, Jenab Hakim Ajmal Khan, Dr. Mukhtar Ahmad Ansari, Jenab Abdul Majeed Khwaja, and Dr. Zakir Hussain to create an institution that would manifest indigenous ethos and spirit of plurality. It was conceived as a national institution that would offer progressive education and nationalist ideals to students from all communities, particularly the Muslims. The emergence of Jamia was supported by Gandhiji and Tagore, who felt that Jamia could shape lives of hundreds and thousands of students based on a shared culture and worldview. Jamia's development is marked by sacrifices made by the staff and students and a host of individuals who contributed through myriad efforts. NAAC has accredited the University with A++' grade for five years. The institution has a scenic and serene campus that provides an environment which is conducive for personal and intellectual growth. Excellent facilities act as a facilitator for the effective delivery of the curriculum. Faculty of Engineering and Technology has state-of-the-art facilities for its students, and they are given encouragement in their areas of interest by the University. The institution places the highest priority on providing a diverse & innovative environment that includes both traditional classroom theory and professional skill training, and University CBCS gives them an academic advantage. The University is placed at 3rd position in the MHRD's National Institutional Ranking Framework (NIRF) since last 3 years.

Mechanical Engineering Department

Department of Mechanical Engineering provides students with sound mechanical engineering education, enhance their understandings and application of mechanical engineering principles for techno-socio-economic development of the country, and improve the quality of life of citizens through teaching, research and outreach programs.

Department offers eight-semester Bachelor of Technology program with an annual intake of 70, four-semester M. Tech. Program with a yearly intake of 30 in three broad areas of Mechanical Engineering, namely Production-Industrial Engineering, Machine Design and Thermal Engineering. Department offers a PhD program for disciplinary and multi-disciplinary research. Specialisations of academic staff provide a stimulating environment for research. A suitable number of academic staff enjoys international recognition and has received many prizes for excellent research, peer-reviewed articles and has delivered contributions by invitation to conferences etc. It excels in HVAC, SCM, FSW, Renewable energy, Additive Manufacturing and Tribology.

Department is PURSE, FIST & SAP supported and has also executed good projects from DST, MNRE, and AICTE.

About the Programme

Department of Mechanical Engineering is organising a week-long online Faculty Development Programme (FDP) on "**Additive manufacturing for Sustainability and Industry 4.0**" from 18.11.2024 to 22.11.2024. The program is open to faculty and PhD scholars from AICTE recognised engineering institutions.

Limited seats are available in this program. Merit and availability of seats will be taken into consideration while selecting candidates. The application on the enclosed form duly signed by the sponsoring authority should reach us by E-mail and also submit in the Google form link (scanned copy of duly filled form) latest by 12.11.2024.

Candidates are also required (must) to apply on the following Google link.

https://forms.gle/TJ98bgBtf5SrBKZp7

AICTE Training and Learning
(ATAL)

अखिल भारतीय तकनीकी शिक्षा परिषद्
All India Council for Technical Education

Academy Program

on
Additive Manufacturing (AM)
Applications

November 4 - 8, 2019

Organised by:
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Jamia Millia Islamia

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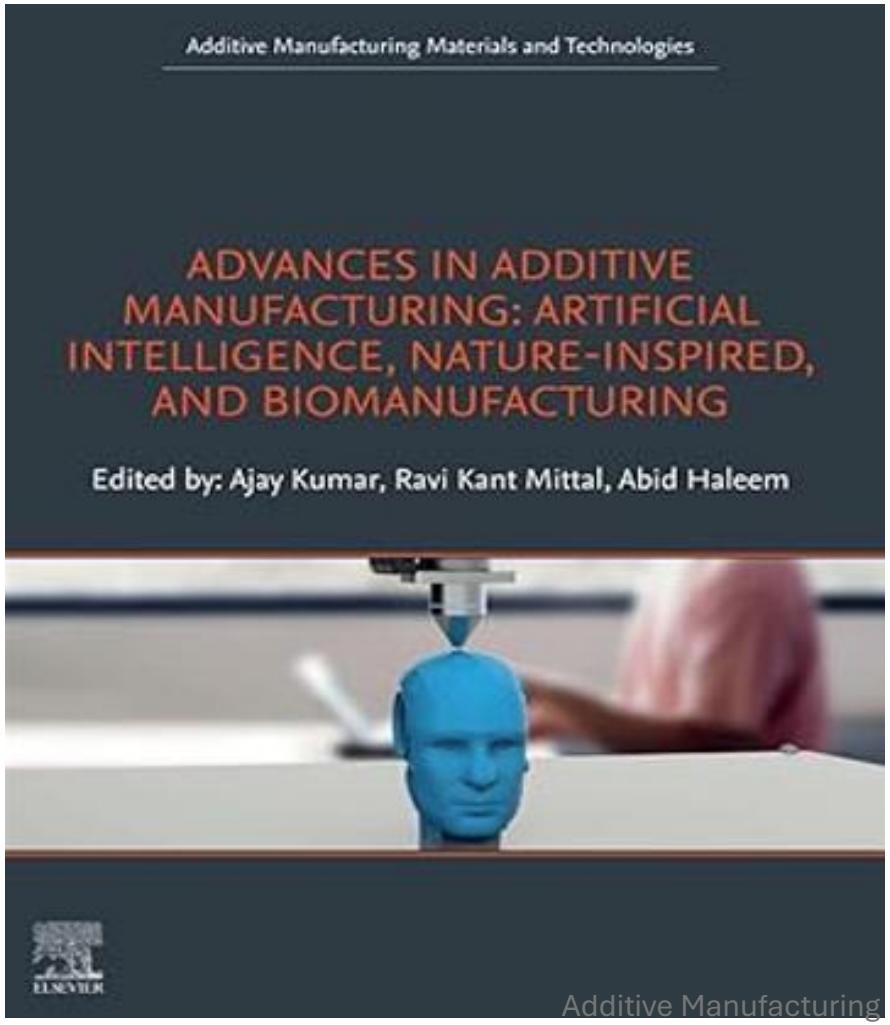
Department is PURSE, FIST & SAP supported and has also executed good projects from DST, MNRE, and AICTE. Presently it is executing a DST project under Mission Innovation of 2.68 crores.

About the Programme

Department of Mechanical Engineering is organising a week-long Faculty Development Program (FDP) on "**Additive Manufacturing Applications**" from 04.11.2019 to 08.11.2019. The program is open to teachers and PhD scholars from AICTE recognised engineering institutions.

Limited seats are available in this program. Merit and availability of seats will be taken into

BOOK: ADVANCES IN ADDITIVE MANUFACTURING: ARTIFICIAL INTELLIGENCE, NATURE-INSPIRED, AND BIOMANUFACTURING



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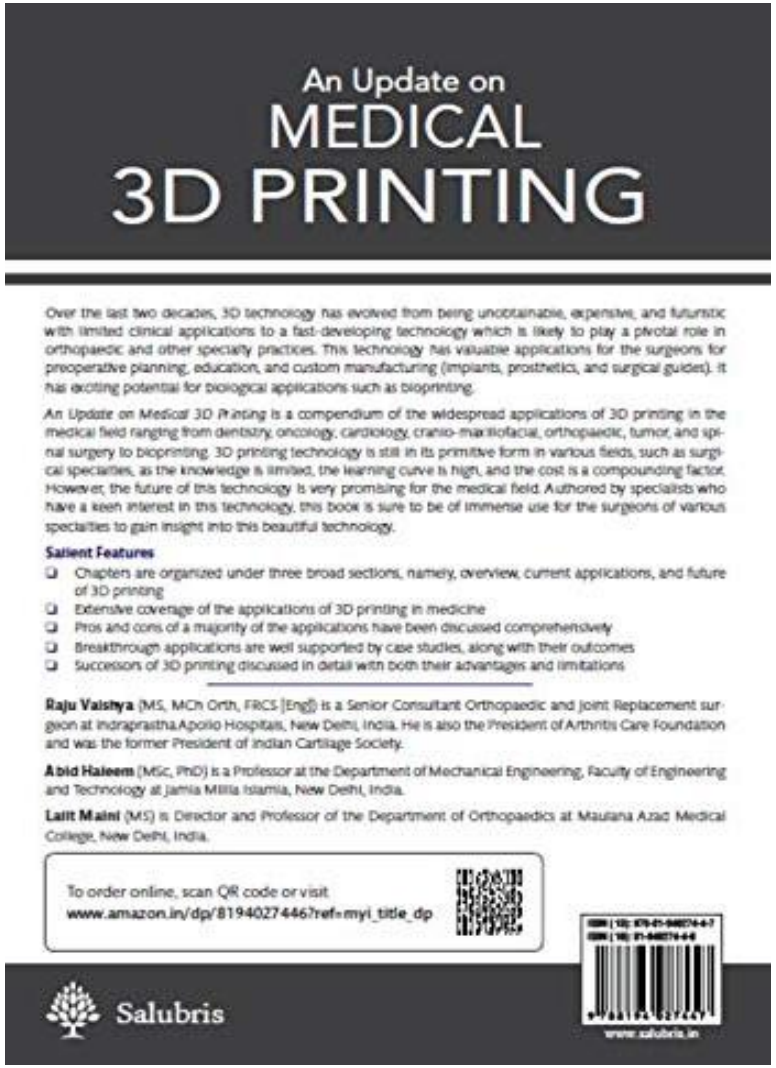

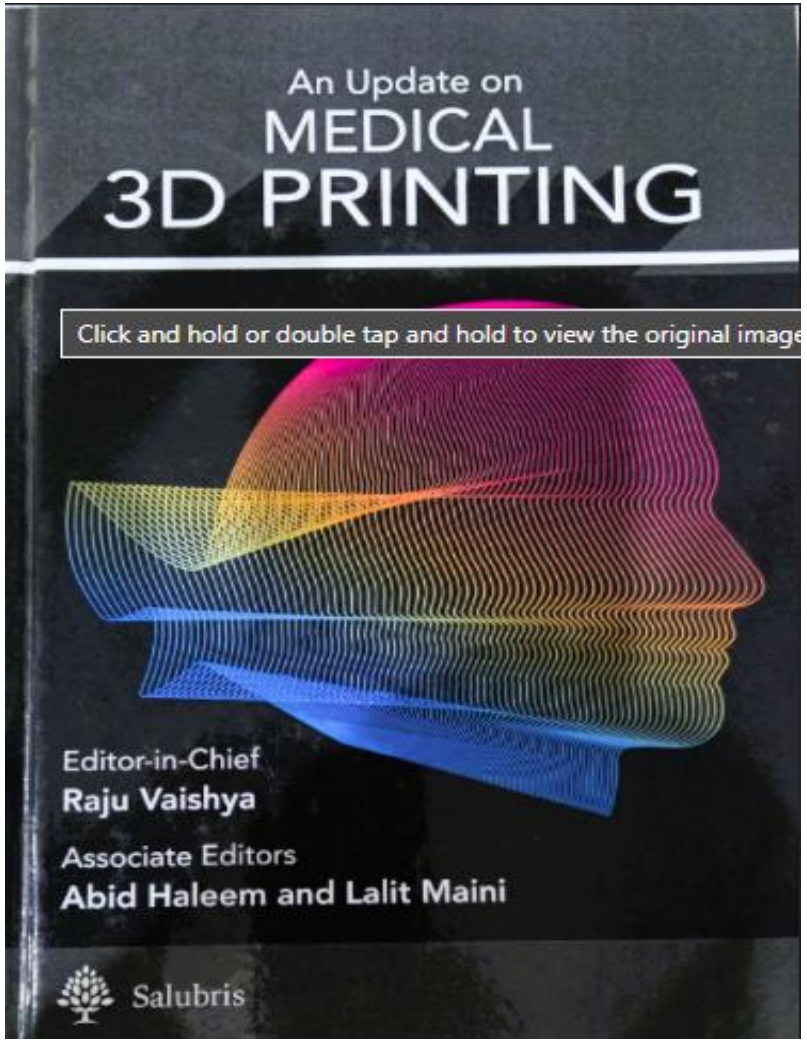

Some Publications on Additive Manufacturing from this laboratory

- Ahmad M, Javaid M, Haleem A. A study on fused deposition modeling (FDM) and laser-based additive manufacturing (LBAM) in the medical field. Intelligent Pharmacy. 2024;2(3):381-91.
- Shoeb M, Kumar L, Haleem A. 3D printed medical surgical cotton fabric-poly lactic acid biocomposite: A feasibility study. Sustainable Operations and Computers. 2023 Jan 1;4:130-46.
- Javaid M, Haleem A, Singh RP, Rab S, Suman R, Kumar R. Studies on the Metrological need and capabilities of 3D scanning technologies. Journal of Industrial Integration and Management. 2023 Sep 25;8(03):321-39.
- Tasneem I, Ariz A, Bharti D, Haleem A, Javaid M, Bahl S. 3D printing technology and its significant applications in the context of healthcare education. Journal of Industrial Integration and Management. 2023 Mar 25;8(01):113-30.
- Javaid M, Haleem A. 3D printed tissue and organ using additive manufacturing: an overview. Clinical Epidemiology and Global Health. 2020 Jun 1;8(2):586-94.
- Haleem A, Javaid M. 3D printed medical parts with different materials using additive manufacturing. Clinical Epidemiology and Global Health. 2020 Mar 1;8(1):215-23.
- Haleem A, Javaid M, Khan RH, Suman R. 3D printing applications in bone tissue engineering. Journal of clinical orthopaedics and trauma. 2020 Feb 1;11:S118-24.
- Javaid M, Haleem A, Khan S, Luthra S. Different flexibilities of 3D scanners and their impact on distinctive applications: An analysis. International Journal of Business Analytics (IJBAN). 2020 Jan 1;7(1):37-53.
- Fatima S, Haleem A, Bahl S, Javaid M, Mahla SK, Singh S. Exploring the significant applications of Internet of Things (IoT) with 3D printing using advanced materials in medical field. Materials Today: Proceedings. 2021 Jan 1;45:4844-51.
- Haleem A, Gupta P, Bahl S, Javaid M, Kumar L. 3D scanning of a carburetor body using COMET 3D scanner supported by COLIN 3D software: Issues and solutions. Materials Today: Proceedings. 2021 Jan 1;39:331-7.
- Haleem A, Javaid M, Vaishya R. 3D printing applications for the treatment of cancer. Clinical Epidemiology and Global Health. 2020 Dec 1;8(4):1072-6.
- Javaid M, Haleem A. 3D printing applications towards the required challenge of stem cells printing. Clinical Epidemiology and Global Health. 2020 Sep 1;8(3):862-7.
- Javaid M, Haleem A. 3D bioprinting applications for the printing of skin: A brief study. Sensors International. 2021 Jan 1;2:100123.
- Javaid M, Haleem A, Singh RP, Suman R. Industrial perspectives of 3D scanning: Features, roles and it's analytical applications. Sensors International. 2021 Jan 1;2:100114.
- Haleem A, Javaid M, Suman R, Singh RP. 3D printing applications for radiology: an overview. Indian Journal of Radiology and Imaging. 2021 Jan;31(01):010-7.
- Shuaib M, Haleem A, Kumar S, Javaid M. Impact of 3D Printing on the environment: A literature-based study. Sustainable Operations and Computers. 2021 Jan 1;2:57-63.

Some Publications on Additive Manufacturing from this laboratory

- Fatma N, Haleem A, Javaid M, Khan S. Comparison of fused deposition modeling and color jet 3D printing technologies for the printing of mathematical geometries. Journal of Industrial Integration and Management. 2021 Mar 9;6(01):93-105.
- Shoeb M, Kumar L, Haleem A. Biocomposites based 3D printing, processes and applications: a brief review. International Journal of Sustainable Materials and Structural Systems. 2021;5(4):326-41.
- Haq MI, Raina A, Ghazali MJ, Javaid M, Haleem A. Potential of 3D printing technologies in developing applications of polymeric nanocomposites. Tribology of Polymer and Polymer Composites for Industry 4.0. 2021:193-210.
- Javaid M, Haleem A, Singh RP, Suman R. 3D printing applications for healthcare research and development. Global Health Journal. 2022 Dec 1;6(4):217-26.
- Khan M, Haleem A, Javaid M, Bahl S, Prakash C, Singh R, Bagha AK. Screw-Based Extruder Design for 3D Printing of Food Using Food Layered Technology. InBiennial International Conference on Future Learning Aspects of Mechanical Engineering 2022 Aug 3 (pp. 479-492). Singapore: Springer Nature Singapore.
- Haleem A, Javaid M, Goyal A, Khanam T. Redesign of car body by reverse engineering technique using Steinbichler 3D scanner and projet 3D printer. Journal of Industrial Integration and Management. 2022 Jun 23;7(02):171-82.
- Haleem A, Javaid M, Singh RP, Rab S, Suman R, Kumar L, Khan IH. Exploring the potential of 3D scanning in Industry 4.0: An overview. International Journal of Cognitive Computing in Engineering. 2022 Jun 1;3:161-71.
- Kumar L, Haleem A, Javaid M. Systematic Development in Medical by Using 3D Printing Technology: A Brief Review. Journal of Industrial Integration and Management. 2022 Apr 22:2231001.
- Irfan Ul Haq M, Khuroo S, Raina A, Khajuria S, Javaid M, Farhan Ul Haq M, Haleem A. 3D printing for development of medical equipment amidst coronavirus (COVID-19) pandemic—review and advancements. Research on Biomedical Engineering. 2022:1-1.
- Tanveer MQ, Suhaib M, Haleem A. A New 3D Benchmarking Artifact to Evaluate Dimensional Accuracy and Geometric Tolerancing of Additive Manufacturing Technique. InRecent Advances in Mechanical Engineering: Select Proceedings of NCAME 2019 2020 (pp. 261-273). Springer Singapore.
- Tanveer MQ, Suhaib M, Haleem A. Geometrical Benchmarking evaluation of ProJet 3D printer using proposed simplified 3D Artifact. Engineering Research Express. 2019 Nov 25;1(2):025037.
- Polyether ether ketone (PEEK) and its 3D printed implants applications in the medical field: An overview. Clinical Epidemiology and Global Health. 2019; https://doi.org/10.1016/j.cegh.2019.01.003

Some Publications on Additive Manufacturing from this laboratory

- Artificial Intelligence (AI) applications in orthopaedics: An innovative technology to embrace. Journal of Clinical Orthopaedics and Trauma. 2019; https://doi.org/10.1016/j.jcot.2019.06.012
- Current status and applications of additive manufacturing in dentistry: A literature-based review. Journal of Oral Biology and Craniofacial Research. 2019; 9: 179–185.
- Expected applications of five-dimensional (5D) printing in the medical field. Current Medicine Research and Practice. 2019; https://doi.org/10.1016/j.cmrp.2019.07.011
- Industry 4.0 and its applications in dentistry. Indian J Dent Res 2019; DOI:10.4103/ijdr.IJDR_904_18
- Enablers, Barriers and Critical Success Factors for effective adoption of Colour-Jet 3D Printing Technology. Journal of Industrial Integration and Management. 2019; https://doi.org/10.1142/S242486221950009X.
- Industry 5.0 and its expected applications in medical field. Current Medicine Research and Practice. 2019; https://doi.org/10.1016/j.cmrp.2019.07.002
- Internet of things (IoT) applications in orthopaedics, Journal of Clinical Orthopaedics and Trauma. 2019; https://doi.org/10.1016/j.jcot.2019.07.003
- 3D printed medical parts with different materials using additive manufacturing. Clinical Epidemiology and Global Health. 2019; https://doi.org/10.1016/j.cegh.2019.08.002
- Industry 4.0 applications in medical field: A brief review. Current Medicine Research and Practice. 2019; https://doi.org/10.1016/j.cmrp.2019.04.001.
- Using additive manufacturing applications for design and development of food and agricultural equipments. Int. J. Materials and Product Technology. 2019; 58(2/3), pp.225–238.
- Additive Manufacturing applications in Industry 4.0: A review. Journal of Industrial Integration and Management. 2019; https://doi.org/10.1142/S2424862219300011
- Expected role of four-dimensional (4D) CT and four-dimensional (4D) MRI for the manufacturing of smart orthopaedics implants using 4D printing. Journal of Clinical Orthopaedics and Trauma. 2019;https://doi.org/10.1016/j.jcot.2019.01.020
- Four-dimensional printing applications in dentistry. Current Medicine Research and Practice. 2019; https://doi.org/10.1016/j.cmrp.2018.12.005
- Different flexibilities of 3D scanners and their impact on distinctive applications: An analysis. International Journal of Business Analytics. [Accepted on 3 March 2019]
- Polyether ether ketone (PEEK) and its manufacturing of customised 3D printed dentistry parts using additive manufacturing. Clinical Epidemiology and Global Health. 2019; https://doi.org/10.1016/j.cegh.2019.03.001
- Impact of additive manufacturing in different areas of Industry 4.0.Int. J. Logistics Systems and Management. 2019; Vol. X, No. Y, xxxx. Accepted on 10 Jan 2019.
- Future applications of 5D printing in dentistry. Current Medicine Research and Practice. 2019; https://doi.org/10.1016/j.cmrp.2019.03.002

Publications on Additive Manufacturing

- Three-Dimensional-Printed Polyether Ether Ketone Implants for Orthopedics. Indian Journal of Orthopaedics. 2019; 53 (2), 377-379.
- Additive manufacturing applications in orthopaedics: A review, Journal of Clinical Orthopaedics and Trauma. 2018; https://doi.org/10.1016/j.jcot.2018.04.008
- Additive manufacturing applications in medical cases: A literature based review. Alexandria Journal of Medicine. 2018; 54(4): 411-422.
- Current status and challenges of Additive manufacturing in orthopaedics: An overview, Journal of Clinical Orthopaedics and Trauma. 2018; https://doi.org/10.1016/j.jcot.2018.05.008
- Rapid Manufacturing: Classification and Recent Development. International Journal of Advanced Engineering Research and Science. 2017; 4(3): 29-40.
- Design and Development of Smart Landline Using 3D Printing Technique. International Journal of Advance Research and Innovation. 2016; 4(2): 438-447.
- Developing low cost 3 D printer. Int. Journal of Applied Sciences and Engineering Research. 2016; 5(6): 433-447.
- Product Design and Development using Polyjet Rapid Prototyping Technology. International journal of Control Theory and Informatics. 2015; 5(3): 12-19. Role of CT and MRI in the design and development of orthopaedics model using additive manufacturing. Journal of Clinical Orthopaedics and Trauma. 2018; 9(3): 213-217.
- 3D Scanning Applications in medical field: A Literature-based Review. Clinical Epidemiology and Global Health. 2018; https://doi.org/10.1016/j.cegh.2018.05.006.
- 4D printing applications in cardiology. Current Medicine Research and Practice. 2018; 8:245.
- Industry 5.0 and its applications in orthopaedics. Journal of Clinical Orthopaedics and Trauma. 2018; https://doi.org/10.1016/j.jcot.2018.12.010
- Industry 4.0 and its applications in orthopaedics. Journal of Clinical Orthopaedics and Trauma. 2018; https://doi.org/10.1016/j.jcot.2018.09.015.
- 4D printing and its applications in Orthopaedics. Journal of Clinical Orthopaedics and Trauma. 2018;https://doi.org/10.1016/j.jcot.2018.08.016.
- 4D printing applications in medical field: A brief review. Clinical Epidemiology and Global Health.2018; https://doi.org/10.1016/j.cegh.2018.09.007
- 5D printing and its expected applications in Orthopaedics, Journal of Clinical Orthopaedics and Trauma. 2018;https://doi.org/10.1016/j.jcot.2018.11.014
- Current status and applications of 3D scanning in dentistry. Clinical Epidemiology and Global Health. 2018 doi: 10.1016/j.cegh.2018.07.005.
- Additive manufacturing applications in cardiology: A review. The Egypt Heart Journal. 2018; 70 (4), 433-441.