

INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES) DHANBAD

Department Wise Area of Specialization and Additional Criteria required for shortlisting of Assistant Professor Position (Grade I/II)

Sl. No.	Departments	Area of Specialization	Additional Criteria
1	Applied Geology	1. Geological, Geophysical Prospecting and Well Logging 2. Mining Geology: Methods, Drilling, Blasting, and Surveying 3. Mineral Characterization and Beneficiation	(A) Academic Record: Ph.D in relevant area, with a consistently good academic record. (B) Master's degree must be in one of the following: MS/M.Sc/M.Sc. Tech./Integrated M. Tech. / Integrated M.Sc.Tech./M. Tech. in Geology/Applied Geology/ Engineering Geology/Geoexploration/Petroleum Exploration/Mineral Exploration/Exploration Geology/ Geoscience/Geological Sciences /Earth Sciences/Marine Geology with BS/BSc in Geology/Applied Geology/Earth Sciences / Geosciences or Integrated Master degree/BS-MS with Geology/Applied Geology/Earth Sciences/Geosciences/ Geotechnology at Undergraduate level. C. PhD in relevant area. Publication Record: For Grade II: Minimum TWO publications in Q1/Q2 journals (WoS) as a first/corresponding author in peer-reviewed reputed journals in the relevant subject domain/specialization ("Quartiles [(Q1/Q2 (WoS))]"). For Grade I: Minimum THREE publications in Q1/Q2 journals (WoS) as a first/corresponding author in peer-reviewed reputed journals in the relevant subject domain/specialization ("Quartiles [(Q1/Q2 (WoS))]"). The total no. of publications should be 5 or more in WoS journal. Post Ph.D minimum active THREE years Academic/Research/Industry experiences are required. * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.
2	Applied Geophysics	Gravity Method, Magnetic Method, Electrical and Electromagnetic Methods, Geospatial Techniques, Exploration Seismic and Well Logging	(A) Academic Record: Ph.D in relevant area, with a consistently good academic record. (B) Basic (Master's) degree must be in one of the following: M.Sc/M.Sc. Tech./Integrated M. Tech. / Integrated M.Sc.Tech./M. Tech. in Applied Geophysics/ Exploration Geophysics/ Geophysical Technology/Geophysics or M.Sc.Tech. in Marine Geophysics or MS in Applied Geophysics/Geophysics with PhD in relevant area of specialization. Publication Record: For Grade II: Minimum TWO publications in Q1/Q2 journals (WOS) as a first author of which ONE publication with maximum THREE authors and the other publication will be in a Q1 journal (WOS). Total publications should be THREE in Q1/Q2 (WOS) in peer-reviewed reputed journals in the relevant subject domain/specialization ("Quartiles [(Q1/Q2 (WOS))]"). For Grade I: Minimum THREE publications in Q1/Q2 journals (WOS) as a first author of which ONE publication with maximum THREE authors and the other publication will be in a Q1 journal (WOS). Total publications should be SIX in Q1/Q2 (WOS) in peer-reviewed reputed journals in the relevant subject domain/specialization ("Quartiles [(Q1/Q2 (WOS))]"). Post Ph.D minimum active THREE years Academic/Research/Industry experiences are required. * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered. #Candidates who were previously called/shortlisted for departmental interaction on Research & Teaching for the position of Assistant Professor at IIT (ISM) Dhanbad, should have at least 01 (ONE) additional Q1/Q2 publication as the first/corresponding author or at least 01 (ONE) patent granted between the date of previous application and date of current application. A minimum gap of 01 (ONE) year between the date of previous application and date of current application
3	Chemical Engineering	Molecular Simulations, Molecular Thermodynamics, Process Systems Engineering and control, Energy and environment, Process Safety and Hazard.	(A) Academic Record: Ph.D in relevant area, with a consistently good academic record. 1. B.Tech./B.E. degree in Chemical Engineering. 2. M.E./M.Tech degree in Chemical Engineering. 3. Ph.D. (or direct Ph.D. after B.E./B.Tech.) in relevant research areas of Chemical Engineering. 4. For Grade I: Minimum 4 publications in Q1/Q2 (WoS) (excluding review articles) journals with at least 3 as first/corresponding author. 5. For Grade II: Minimum 3 publications in Q1/Q2 (WoS) (excluding review articles) journals with at least 2 as first/corresponding author. * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.

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4	Chemistry & Chemical Biology	1. Organic Chemistry 2. Inorganic chemistry 3. Physical Chemistry 4. Computational Chemistry (Preferentially Computational Chemistry in Materials Domain) 5. Materials Chemistry and Devices 6. Chemical Biology	(A) Academic Record: Ph.D in relevant area, with a consistently good academic record. UG/PG: Master's degree in Chemistry / Chemical Sciences / Materials Science / Pharmaceutical Sciences / Biochemistry / Bachelor's degree (4-year) in Chemistry or Chemical Sciences / Integrated 5-year BS–MS in Chemistry or Chemical Sciences. PhD/Research: PhD/Research topic must align with the advertised specialization required for the Department Teaching Requirement: The applicant should be capable of teaching the Department's offered core and elective courses. Grade II: (i) Should have at least six (6) publications in Q1/Q2 (WoS) (excluding review articles) journals as a first or corresponding author. (ii) Should have at least one (1) publication Q1/Q2 (WoS) (excluding review articles) during the post-PhD period as first author or corresponding author. Grade I: (i) Should have at least seven (7) publications Q1/Q2 (WoS) (excluding review articles) journals as a first or corresponding author. (ii) Should have at least one (1) publications Q1/Q2 (WoS) (excluding review articles) during the post-PhD period as first author or corresponding author. * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.
5	Computer Science & Engineering	Software Architecture and Engineering, Architecture and Design Automation, Theoretical Computer Science, Artificial Intelligence, Machine Learning, Operating Systems, Natural Language Processing, Information Retrieval, Formal Methods and Static Analysis, Compiler Design and Optimization, Embedded and Cyber-physical Systems, Computer Vision, Parallel and Distributed Computing and Systems, Networks, Databases and Data Analytics, Human Computer Interaction, Collaborative Computing, Quantum Computing, Security and Cryptography, Autonomous Intelligent Systems, and Scientific Computing.	(1) Academic Record: Ph.D in relevant area, with a consistently good academic record. (2) The candidate must have (i) A 4-Year B.Tech. or equivalent degree in Computer Science and Engineering or allied fields, AND/OR (ii) An M.Tech. or equivalent degree in Computer Science and Engineering or allied fields. Grade I (i) Minimum no. of publications: 04 in Q1/Q2 journals (Web of Science). (ii) A minimum of three years of post-Ph.D. teaching / research / professional experience in reputed organization. Grade II (i) Minimum no. of publications: 02 in Q1/Q2 journals (Web of Science). (3) Candidates having more than 03 years of post – Ph.D experience should have at least 01 (ONE) additional publication in Q1/Q2 journals (Web of Science) OR at least 01 (ONE) patent (granted) for every additional year-of-experience beyond 03 years. * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.
6	Civil Engineering	1. Structural Engineering Specialization: Structural Health Monitoring, Digitalization and Automation in Construction & Structural Engineering, Construction Management & Planning 2. Water Resources Engineering Specialization: Urban Hydrology, Water Resources Systems & Management, Irrigation Engineering 3. Transportation Engineering Specialization: Pavement Performance Evaluation, Airport Operation Planning, Maritime & Railway Logistics 4. Geospatial Application in Civil Engineering	1. Academic Record: Ph.D in relevant area, with a consistently good academic record. 2. At least 3 published articles (for Grade-2) and 6 published articles (for Grade-1) as first or corresponding author in journals with Q1/Q2 as per Web of Science (WoS), of which at least 1 article must be in Q1 (WoS). * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.

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7	Electrical Engineering	A. Control system B. Instrumentation C. Robotics and automation D. Power electronics for upcoming applications like electric traction, more electric aircraft, energy harvesting. E. AI applications in Power Engineering	1. Academic Record: Ph.D in relevant area, with a consistently good academic record. 2. B.Tech/B.E. or equivalent degree should be relevant to Electrical Engineering or Electrical and Electronics Engineering or Electrical and Instrumentation Engineering or Electrical and Computer Engineering. 3. M.Tech/M.E. (if applicable) should be relevant to the requirement of specializations or focus areas. 4. For Grade-II: Minimum no. of publications: 02 in Q1/Q2 journals (Web of Science) excluding review papers but 01 publication must be in Q1 journal (Web of Science) as a first author or corresponding author. 5. For Grade-I: Minimum no. of publications: 04 in Q1/Q2 journals (Web of Science) excluding review papers but 02 publications must be in Q1 journal (Web of Science) as a first author or corresponding author. 6. For Assistant Professor Grade-I position, the gap between the most recent Q1/Q2 publication (as per Web of Science) or a granted Patent and the date of application to the Assistant Professor Grade-I position should not exceed three years. 7. Candidates who have previously applied for the post of Assistant Professor in the department of electrical engineering at IIT (ISM) Dhanbad should have at least one new publication in Q1 journal [as per Web of Science] as a first author/main supervisor, or one patent granted between the date of previous application and date of recent application. Additionally, a minimum gap of one year is required between the date of previous application and date of recent application to the post. * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.
8	Electronics Engineering	- Quantum Technologies, - Reliability, security, and performance-power efficient memory systems, - Analog and Mixed signal integrated circuits and systems design, - Electronics System Design, - VLSI Packaging, - Electronics/ Photonics Materials Engineering, - RF integrated circuits, - On chip Antennas, Phase antenna array - EMI/EMC, - RADAR Engineering, - Microwave system design, - RF/Optical Signal Processing, - THz technologies, - Meta-material and Meta-surfaces, - High Power Microwave Devices, - Integrated Circuit Design with emphasis on high-speed data communication and signal processing applications, 6G Communication Systems Design, - IoT and Embedded Systems design, - Statistical/Biomedical Signal Processing, - Integrated Photonics, - Optical Communication.	(A) Academic Record: Ph.D in relevant area, with a consistently good academic record. - B.Tech./B.E in Electronics Engineering/Electronics and Communications Engineering/ Electrical & Electronics Engineering or in related specializations. - Integrated M.Tech./M.E. or Equivalent Degree in specializations related to the above. - The basic degree can be in Electrical Engineering discipline, provided the Master's/Ph.D. Degree must be in Electronics Engineering/ Electronics and Communication Engineering/Electrical & Electronics Engineering . Publications: 1. For Grade-II (Level 10 and 11): At least 02 (TWO) publications in Q1/Q2 journals (Web of Science) as 1st/Corresponding author, out of which at least 01 (ONE) paper must be published/accepted within last two years from the date of application. 2. For Grade-I (Level 12): At least 04 (FOUR) publications in Q1/Q2 journals (Web of Science) as 1st/Corresponding author, out of which at least 01 (ONE) paper must be published/accepted within last two years from the date of application. 3. Candidates having more than 03 years of post – Ph.D experience should have at least 01 (ONE) additional publication in Q1/Q2 journals (Web of Science) OR at least 01 (ONE) patent (granted) for every additional year-of-experience beyond 03 years. Furthermore: [A] Candidates who were previously called/shortlisted for departmental interaction on Research & Teaching for the position of Assistant Professor at IIT (ISM) Dhanbad, should have: (i) At least 01 (ONE) additional Q1/Q2 publication as the first/corresponding author or at least 01 (ONE) patent granted between the date of previous application and date of current application. & (ii) A minimum gap of 01 (ONE) year between the date of previous application and date of current application. [B] Candidates applying for Assistant Professor (Grade - I), should have three years of post-Ph.D. experience in the position of Assistant Professor (Grade - II) / DST-Inspire Faculty / Ramanujan Fellow or in an equivalent Research Position/Post (like Post Doctoral Fellow, Research Associate, etc.) at reputed organization or in an equivalent position in Industry. * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.

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9	Environmental Science & Engineering	Air Pollution Control, Environmental Geotechnology, Noise & Vibration, Remote Sensing & GIS, Environmental Geology, Biodiversity Conservation and Management, Environmental Policy & Legislation, Environmental Economics, Environmental Informatics, Carbon Capture Utilisation and Storage (CCUS).	1) Academic Record: Ph.D in relevant area, with a consistently good academic record. 2) UG/PG degree must be in one of the following (or in equivalent specialization): - Environmental Engineering - Environmental Science - Environmental Science and Engineering - Environmental Management - Environmental Technology 3) The candidate must have achieved Ph. D. in relevant field. For Grade II: (i) Minimum no. of publications: 02 in Q1/Q2 Journals (WoS) as first author or corresponding author, out of which at least one paper in Q1 Journal (WoS). For Grade I: (i) Minimum no. of publications: 04 in Q1/Q2 Journals (WoS) as first author or corresponding author, out of which at least two papers in Q1 Journal (WoS). * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.
10	Fuel Minerals & Metallurgical Engineering	1. Mineral Engineering 2. Metallurgical Engineering 3. Fuel & Energy Engineering	(A) Academic Record: Ph.D in relevant area, with a consistently good academic record. 1. Mineral Engineering B.Tech in Mineral/Mining/Metallurgical/ Chemical Engineering. M.Tech in Mineral/Mining/Metallurgical/ Chemical Engineering Ph.D. work & Preferred Academic/ Industry Experience - Process equipment selection and design/Plant engineering; Advanced mineralogical characterization & Geometallurgy; Predictive modelling and data-driven technologies; Material Accounting; Decarburization and Sustainable Technology; Critical minerals beneficiation; Coal preparation; Advanced Mineral Processing. 2. Metallurgical Engineering B. Tech in Metallurgical Engineering. M.Tech in Metallurgy and Materials Engineering Ph.D. work & Preferred Academic/ Industry Experience - Ferrous & Non-Ferrous Extractive Metallurgy; Industrial Waste Utilization; Advanced Modelling and Simulation: Molten Salt Extraction, Electrochemistry. 3. Fuel & Energy Engineering B.Tech in Fuel/Energy/ Mineral/Mechanical/Chemical Engineering. M.Tech in Fuel/Energy/Chemical Mechanical/ Mineral Engineering Ph.D. work & Preferred Academic/ Industry Experience - Coal and Biomass Gasification, Combustion & Carbonisation; Coke and Bio-coke Making; Modelling & Simulation of Energy Systems; Hydrogen Production, Storage & Utilisation; Syngas and Biofuel Utilisation for Energy, Chemical and Metallurgical Applications; Solar Thermal Energy Technology & Storage; Carbon Capture Utilization and Storage (CCUS), Decarbonisation & Sustainability; Carbon Credit, Energy Policy. Academic background: Applicants should have a good academic track record with First class from 10th onwards. Publications: Grade-I: At least 4 original research articles publication in Q1/Q2 (WoS) journals as first author. Grade-II: At least 2 original research articles publication in Q1/Q2 (WoS) journals as first author. * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.
11	Humanities & Social Sciences	Philosophy: Logic/Continental Philosophy/Philosophy of Education Digital Humanities: All areas Sociology: Sociology of Education Sanskrit: All areas	1. Academic Record: Ph.D in relevant area, with a consistently good academic record. 2. Number of publications required For Grade II: Atleast 1paper in Q1 or 2 papers as First/Corresponding author in Q2 Journals based on SJR/WOS/WOS Extended Grade I: 3 papers as First/Corresponding author in Q1 Journals based on SJR/WOS/WOS Extended * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.

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12	Management Studies & Industrial Engineering	1. Organizational Behaviour& Human Resource Management: HR Analytics, Organizational Development & Change Management, Industrial Relations and Labour Laws, Human Resource Development. 2. Business Analytics: Information Systems, Data Mining, Big Data, Machine Learning. 3. Finance and Accounting: Financial Accounting; Financial Analytics, Financial Markets and Institutions, Quantitative Finance, Behavioural Finance. 4. Operations Management and Industrial Engineering: Systems Engineering, Technology Management, Quality Management, Supply Chain Management.	1. Academic Record: Ph.D in relevant area, with a consistently good academic record. 2. Publication Requirements: For Assistant Professor (Grade II), a minimum of 2 research publications in Q1/Q2 journals indexed in JCR (Web of Science) or journals ranked A/A* in the ABDC list as 1st/Corresponding author. For Assistant Professor (Grade I), a minimum of 3 research publications in Q1/Q2 journals indexed in JCR (Web of Science) or journals ranked A/A* in ABDC list as 1st/Corresponding author. * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.
13	Mathematics & Computing	Stochastic Processes Statistical Multivariate Analysis Algorithms Complexity Theory Natural Language Processing	(A) Academic Record: Ph.D in relevant area, with a consistently good academic record. 1. Applicants should have a PhD in Mathematics /Statistics / Computer Science / Computer Science & Engineering. 2. Applicants with a PhD in Computer Science / Computer Science & Engineering should have their UG/PG degree in Mathematics / Mathematics & Computing / Statistics / Computer Science / Computer Science & Engineering. 3. Publication Record: • Grade-I: At least FOUR publications in Q1/Q2 journals (WoS-indexed) are required, with at least one paper published/accepted within the two years before the application deadline. • Grade-II: At least TWO publications in Q1/Q2 journals (WoS-indexed) are required, with at least one paper published/accepted within the two years before the application deadline. • In case a candidate has post-Ph.D experience beyond 3 years, the candidate should have ONE additional publication in Q1/Q2 journals (WoS-indexed) per year of additional experience beyond 3 years. * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.
14	Mining Engineering	• Metal Mining Methods • Mine Planning and Design • Mine Safety • Mine Health and Ergonomics	(A) Academic Record: Ph.D in relevant area, with a consistently good academic record. • 4 Years Bachelor's degree (B.E./B.Tech. /B.Sc.(Engg.)) in Mining Engineering is mandatory. Minimum publication requirements in Q1/Q2 (WoS) indexed journals (as First/Corresponding Author) are as follows: • Assistant Professor (Grade II): At least one (01) publication. • Assistant Professor (Grade I): At least three (03) publications. * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.
15	Mechanical Engineering	Design Domain: Robotics, Mechatronics, Flight mechanics and control. Manufacturing Domain: Maintenance and quality control, Nano-and-atomic scale manufacturing, Metal forming, and Metal casting. Heavy Machinery Domain: Machine development, and Materials handling.	1. Academic Record: Ph.D in relevant area, with a consistently good academic record. 2. B.Tech in Mechanical Engg, Manufacturing Engg, Production Engg, Automobile Engg, Aerospace Engg. 3. Grade I- At least 5 Q1/Q2(WoS) publications with the candidate as the first/corresponding author. 4. Grade II- At least 3 Q1/Q2(WoS) publications with the candidate as the first/corresponding author. * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.

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16	Physics	a. Experimental high energy physics b. Physics of soft and active matter c. Experimental energy storage and renewal energy d. Experimental condensed matter physics	(A) Academic Record: Ph.D in relevant area, with a consistently good academic record. 1. M.Sc (Physics/Applied Physics)/4-year B.Tech (Engineering Physics)/5-year BS-MS (Physical Sciences/Physics) with Ph.D in relevant field. 2. Specific requirements for Grade-I: (2.1) At least 10 publications in Q1/Q2 journals (Web of Science; excluding review articles) (2.2) At least 4 publication in Q1 Journals. (2.3) At least 4 publication as first/corresponding author. (for candidates of area other than Experimental High Energy Physics*) (2.4) At least one publication (excluding review articles) within the two years before the date of application. 3. Specific requirements for Grade-II: (3.1) At least 05 publications in Q1/Q2 journals (Web of Science; excluding review articles) (3.2) At least 2 publication in Q1 Journals. (3.3) At least 2 publication as first/corresponding author. (for candidates of area other than Experimental High Energy Physics**) (3.4) At least one publication (excluding review articles) within the two years before the date of application. 4. In case a candidate has post-Ph.D. experience beyond 3 years, the candidate should have on an average one additional publication in Q1/Q2 journals (Web of Science; excluding review articles) per year of additional experience beyond 3 years. ***5. Criteria (2.3) and (3.3) for candidates in Experimental High Energy Physics: Candidates must provide evidence of primary responsibility for at least (four for Grade-I and two for Grade-II) distinct scientific or technical results. For work within large-scale collaborations, 'primary responsibility' is objectively defined as meeting at least any one of the following: (5.1). Designation as the Analysis Contact or Primary/Lead Analyzer in the collaboration's internal database. (5.2). Authorship of a Collaboration-Approved Internal Note (e.g., ATLAS/CMS Analysis Note) that served as the basis for a journal publication. (5.3). Primary authorship of a Technical Design Report (TDR) or a Sub-detector Commissioning Paper. (5.4). (For non large-scale collaborative work only) follow criteria 2.3(for Grade-I) and 3.3 for Grade-II. (5.5) A mere testimonial of supervisor/Mentor will not be considered as substitute of documents (5.1)-(5.3). * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.
17	Petroleum Engineering	Drilling Engineering, Petroleum Production Engineering,	(A) Academic Record: Ph.D in relevant area, with a consistently good academic record. (B) Atleast two degrees (B.Tech/MTech/Ph.D) in Petroleum Engineering are mandatory. (C) Minimum three (3) publications in Q1/Q2 journals (WoS) for Grade-II, except review articles, atleast one Q1 Publication and one Publication as first/corresponding author. (D) Minimum five (5) publications in Q1/Q2 journals (WoS) for Grade-I, except review articles, atleast one Q1 Publication and one Publication as first/corresponding author. (E) Candidates who were previously called/shortlisted for departmental interaction on Research & Teaching for the position of Assistant Professor at IIT (ISM) Dhanbad, should have: At least 01 (ONE) additional Q1/Q2 publication as the first/corresponding author or at least 01 (ONE) patent granted between the date of previous application and date of current application. & A minimum gap of 01 (ONE) year between the date of previous application and date of current application. * Paid publication [except (open access Q1/Q2 journal in WoS)] are to be specified and will not be considered.