



Advertisement for the Post of Junior Research Fellow

Advt. No.:IITDMK/PR/JRF/A11/2025

Date: 13th May 2025

Applications are invited for the following post. The post is purely on a contractual basis.

Name of Position	Junior Research Fellow (JRF)
Number of Positions	One
Nature of Work	Fabrication of composite manufacturing set-up and testing
Duration of the Position	The post is purely on a contractual basis and initially, the post is for 12 Months.
Stipend	Rs. 37,000/- pm
Title of the Sponsored Project	Development of a thermoplastic composite tape winding set-up with enhanced build capability
Funding Agency	SERB/ANRF under DST
P.I / Co-P.I	Dr. Venkata Timmaraju Mallina / Dr. Gowthaman Swaminathan
Department	Mechanical Engineering
Educational Qualification	UG - BE/B.Tech in Mechanical Engineering/Manufacturing Engineering/Aerospace Engineering/Automobile Engineering/Mechatronics/Instrumentation/Electrical Engineering or their equivalent AND PG - ME/M.Tech./M.S. in any specialization
Additional Qualification (Desirable, if any)	NIL
Age Limit	35 years as on Last date of receiving the application (Age relaxation is applicable as per GoI norms)
Last date of receiving the application	02.6.2025

How to Apply and Selection Procedure:

1. Interested candidates are requested to submit their applications in the enclosed prescribed format.
2. Take print of the application form, fill, sign, and scan the application form. Upload the scanned copy in google form link: <https://forms.gle/YTUKfUwYfj6LJWWH8>
3. No need to send the hard copy.
4. Candidates will be shortlisted based on their eligibility criteria, academic record, and relevant experience.
5. Only shortlisted candidates will be intimated through email for the written test and/or interview.
6. Candidates should be present physically at IIITDM Kancheepuram located at Chennai - 600127 for the written test and/or interview.
7. Candidates should produce all educational and experience certificates at the time of interview for verification.
8. No TA/DA will be paid if called for an interview.
9. The selection process consists of written test followed by Interview. The topic for written test along with syllabus is enclosed.

For any clarification regarding the application process, the candidate may contact the PI. email: vtmallina@iiitdm.ac.in

Sd/x

Dean (SR)

Syllabus for JRF Written Test

Mechanical or Manufacturing or Robotics Engineering Related Topics

Engineering Materials: Structure, physical and mechanical properties, and applications of common engineering materials (metals and alloys, semiconductors, ceramics, polymers, and composites – metal, polymer and ceramic based); Iron-carbon equilibrium phase diagram; Heat treatment of metals and alloys and its influence on mechanical properties; Stress-strain behaviour of metals and alloys.

Polymers and Composites: Polymer processing – injection, compression and blow moulding, extrusion, calendaring and thermoforming; Moulding of thermoplastic and thermoset composites.

Applied Mechanics: Engineering mechanics – equivalent force systems, free body concepts, equations of equilibrium; Trusses, Analysis of Planar Mechanisms; Strength of materials – stress, strain and their relationship; Failure theories; Plane stress state and thin cylinders, stress transformations, Mohr's circle (stress); Deflection of beams, bending and shear stresses; Euler's theory of columns; Torsion, Design of beams and shafts.

(OR)

Electrical or Instrumentation Engineering Related Topics

Electricity and Magnetism: Coulomb's Law, Electric Field Intensity, Electric Flux Density, Gauss's Law, Divergence, Electric field and potential due to point, line, plane and spherical charge distributions, Effect of dielectric medium, Capacitance of simple configurations, Biot-Savart's law, Ampere's law, Curl, Faraday's law, Lorentz force, Inductance, Magnetomotive force, Reluctance, Magnetic circuits, Self and Mutual inductance of simple configurations.

Control Systems: Feedback principles, signal flow graphs, transient response, steady-state-errors, Bode plot, phase and gain margins, Routh and Nyquist criteria, root loci, design of lead, lag and lead-lag compensators, state-space representation of systems; time-delay systems; mechanical, hydraulic and pneumatic system components, synchro pair, servo and stepper motors, servo valves; on-off, P, PI, PID, cascade, feed forward, and ratio controllers, tuning of PID controllers and sizing of control valves.

Sensors and Industrial Instrumentation: Resistive-, capacitive-, inductive-, piezoelectric-, Hall effect sensors and associated signal conditioning circuits; transducers for industrial

instrumentation: displacement (linear and angular), velocity, acceleration, force, torque, vibration, shock, pressure (including low pressure), flow (variable head, variable area, electromagnetic, ultrasonic, turbine and open channel flow meters) temperature (thermocouple, bolometer, RTD (3/4 wire), thermistor, pyrometer and semiconductor); liquid level, pH, conductivity and viscosity measurement. 4-20 mA two-wire transmitter.



Appl. No.:
(will be filled by Office)

APPLICATION FOR THE POSITION OF PROJECT STAFF

Candidates Photo
to be pasted here

1. Advertisement Number:
2. Name of the Post:
3. Candidate's Full Name (As per SSLC Mark sheet):
4. Father's Name of the Candidate:
5. Date of Birth of the Candidate:
6. Nationality:
7. Gender:
8. Category (Gen / OBC / SC / ST):
(For age relaxation only)
9. Address for Communication:
10. Permanent Address:
11. Contact Phone / Mobile Number(s):

12. Email Address:

13. Educational Qualifications Starting from Xth / SSLC:

Sl. No.	Degree & Branch	Institute / University	Year of Entry & leaving	Percentage / CGPA & Class	Mode (Regular / Part-time / etc.)

14. Academic Record: GATE/ CSIR - NET qualification details with percent marks / Rank, year of qualifying, etc.:

15. Names and addresses of two referees along with phone numbers and e-mail addresses:

a)

b)

16. Are you currently working in Central / State / Semi-Govt / PSU / Autonomous Bodies of the Govt.? (If yes, please submit NOC issued by your present employer):

17. Present Position / Designation:

18. Work Experience (in reverse chronological order including post held at present):

Sl. No.	Organization	Designation	Start Date & End Date	Pay Scale / Total Pay

19. If selected, time required to join:

20. Any other information you wish to mention:

UNDERTAKING

I hereby declare that I have carefully read and understood the instructions given in the Advertisement. All information furnished in this form as well as the attached documents are true and correct to the best of my knowledge and belief. I fully understand that if it is found at a later date that any information given in the application is incorrect / false or if I do not satisfy the eligibility criteria, my candidature / appointment is liable to be canceled / terminated.

Signature of the Applicant

Date: