



Project Proposal for Ph.D.

Project Details (The research problem must clearly indicate the need for an interdisciplinary approach)	
Project Title	Sustainability-Driven Multifunctional Cellulosic Fibers
Project Summary (Minimum 500 and maximum 2000 characters)	This project proposes a sustainable strategy to upcycle waste into high-performance cellulosic fibers. Using green solvent-based extraction and solution spinning, cellulose will be regenerated into strong, multifunctional fibers. The approach supports waste valorization, reduces environmental burden, and enables scalable production of eco-friendly, high-value textiles and composites. The outcomes aim to advance circular economy principles while addressing critical sustainability challenges in the textile sector.

Ph.D. Supervisors* (Supervisor 1 and Supervisor 2 cannot be from the same department of IITD)			
Role	Name of Faculty	Academic Unit in IITD/Institute/University	Email ID (Official)
Supervisor 1*	Prof. Archana Samanta	Department of Textile and Fiber Engineering, IIT Delhi	archana@iitd.ac.in
Supervisor 2	Prof. S . Fatima	CART, IIT Delhi	fatima@cart.iitd.ac.in

*Supervisor 1 must be from IIT, Delhi.
+All cells in this table are mandatory fields that need to be filled by faculty for consideration of proposal.
\$The date of superannuation of supervisors should be at least three years from the date of registration of selected candidates.

Project requirements (Student qualifications, experience required, etc) *The candidate will be shortlisted based on common shortlisting criteria decided by ScRC (SIRe)
- Master’s degree in chemistry, Polymers, Textiles, and allied research areas - B.Tech/B.Sc in chemistry, Polymers, Textiles, and allied research areas

Source of fellowship/funding and project number (CSIR/UGC/DBT/ICMR/ICAR/NEET-PG/DST-INSPIRE/IRD/FITT Project details, if any)
Candidate with his/her own fellowship. OR Part Time.

Role of Faculty Members involved:	
Supervisor-1	

	Prof. Archana Samanta- with expertise in solution spinning of cellulosic fibers, will lead the research toward developing high-strength, functional cellulosic fibers.
Supervisor-2	Prof. S. Fatima, with expertise in channelizing cotton waste into functional materials, will contribute significantly to the valorization of various textile wastes.

Note :-

1. Approval from the respective DRC/CRC/ScRC of your Department/Centre/School will be required for using the "Full-time Institute Assistantship (Category-wise) (FIA)" for selecting the students in SIRe.
2. Declaration:- Faculty members, please ensure that you have at least 3 years of service left before superannuation along with adequate sitting space & lab facilities for the SIRe student.
3. PI/s are also encouraged to submit joint proposals with AIIMS, NII, JNU and institutes with which IITD has an existing MoU. If the Co-PI (Supervisor 2) is from outside IITD, kindly share his/her detailed CV.
4. If a research scholar is to be considered for selection under the project fellowship, then the project should have a minimum of two-year duration remaining.
5. A candidate applying with a valid JRF/INSPIRE/any national level fellowship should have at least two-year validity from the date of joining the Ph.D. program.
6. The third supervisor's name (if required) can be added only after the formation of Student Research Committee (SRC) subject to a strong recommendation of SRC and subsequent approval from the competent authority.
7. If Institute fellowship is being sought, then DRC approval of the parent department of Supervisor 1 is required at the time of selection.