

Vacancy: ICT Mumbai

INSTITUTE OF CHEMICAL TECHNOLOGY, MUMBAI

Category I Deemed to be University (MHRD/UGC) Elite Status and
Centre Excellence, Govt. of Maharashtra Public Funded University
NAAC A++ CGPA 3.77/4.00 NBA Accredited Programmes

Website: www.ictmumbai.edu.in

Advertisement

Applications are invited for the post of **Project Associate-I, Project Associate-II (Previously Termed as JRF/SRF; Annexure-I for Job Details)**

Project Title /Sponsor : DST-PURSE (DST)
No. of Positions :15 (10 Project Associate-II; 5 Project Associate-1)
Job Location : ICT Mumbai Duration: 4 Years
Remuneration/Fellowship : Project Associate-I (Rs. 31,000+ 24% HRA)
Project Associate-II (Rs. 35,000+ 24%HRA) for the candidates qualified in
GATE/GPAT or CSIR-UGC-NET or similar examination conducted by Central
Government Departments or Agencies.

If you are not qualified as per the above conditions, you are entitled for following
fellowship: Project Associate-I (Rs. 25,000+ 24% HRA) Project Associate-II (Rs.
28,000+ 24%HRA)

Reference: DST-OM SR/S9/Z-05/2019 Dated 10/07/2020 Link: [OM -
Scientific Technical Manpower-Revised Guidelines.pdf](#)

Interested candidates should apply by filling this form AFTER READING ANNEXURE-
I OF THIS ADVERTISEMENT: <https://forms.gle/bBh3cfS8QzCXuPdf8>

The applications should reach on or before May 25, 2021 5.00 PM. Late application will not be accepted.

The selection of the candidate will be carried out through interview for selected candidates. A Link to attend interview would be sent to the selected candidates. The candidates can be admitted to PhD program of ICT based on the institutional rules and regulations. The recommendation of the committee will be final.


Registrar

08-05-2021

Annexure-I

| Vacancy No | P01 |
|---|--|
| Short Description of the Project | Synthesis of Ciprofloxacin, developing optimized method for synthesis, conversion to continuous operation, exploring the crystallization along with wastewater treatment |
| Essential Qualification | M. Chem. Eng. or Equivalent |
| Subject | Chemical Engineering |
| Desirable Qualification | M. Chem. Engg. |
| Experience | Desirable experience in synthesis of drugs/pharmaceuticals/chemicals and purification |
| Experience Duration | 1 Year |
| Short Job Description | Candidate has to develop methods for synthesis of ciprofloxacin, perform experiments first to optimize the conditions at batch level followed by developing a continuous process. Candidate will then work on the purification aspects including the crystallization as well as process intensification based on the use of ultrasound. Finally the project will involve using advanced oxidation processes for treating the effluent generated in the process |

| Vacancy No | P02 |
|---|--|
| Short Description of the Project | The project deals with the development of cost-effective and environment-friendly processes for the identified Active Pharmaceutical Ingredients (Ambroxol HCL, APIs) and Key Starting Materials (KSMs) along with scale-up activities for further leverage by the Indian API companies for indigenous production to reduce and eventually nullify external dependence. |
| Essential Qualification | Masters in Pharmaceutical Chemistry or Equivalent |
| Subject | Chemistry |
| Desirable Qualification | M. Tech. (Pharm. Chem. Tech.)/M. Tech. (Green Tech.)/M. Pharm. (Pharmaceutical Chemistry)/M. Sc. (Organic Chemistry) or equivalent |
| Experience | Candidates with relevant experience in the API and API Intermediate Process Development will be given preference. Ideally, candidates with experience on multistep, multikilo-scale process development of APIs with technology transfer to bulk-scale are welcome to apply. |
| Experience Duration | 0-1 Year |
| Short Job Description | The Project Fellow is expected to carry out literature survey, design synthetic routes, perform various reactions on small- and larger-scales, purify the intermediates and the final products, analyze them using suitable structural characterization and chromatographic tools and document all the project activities in timely manner. The scale-up activities from lab- to pilot-plant scale form major part of the project activities. The technology transfer to the industrial scale is the desirable outcome. The project fellow is also expected to supervise the project related activities conducted by B. Tech. and/or M. Tech./M. Pharm. students. Report preparation, presentation of project activities form an integral part of the job. |

| Vacancy No | P03 |
|---|--|
| Short Description of the Project | The project deals with the development of cost-effective and environment-friendly processes for the identified Active Pharmaceutical Ingredients (Carbamazepine, APIs) and Key Starting Materials (KSMs) along with scale-up activities for further leverage by the Indian API companies for indigenous production to reduce and eventually nullify external dependence. |
| Essential Qualification | Masters in Pharmaceutical Chemistry or Equivalent |
| Subject | Chemistry |
| Desirable Qualification | M. Tech. (Pharm. Chem. Tech.)/M. Tech. (Green Tech.)/M. Pharm. (Pharmaceutical Chemistry)/M. Sc. (Organic Chemistry) or equivalent |
| Experience | Candidates with relevant experience in the API and API Intermediate Process Development will be given preference. Ideally, candidates with experience on multistep, multikilo-scale process development of APIs with technology transfer to bulk-scale are welcome to apply. |
| Experience Duration | 0-1 Year |
| Short Job Description | The Project Fellow is expected to carry out literature survey, design synthetic routes, perform various reactions on small- and larger-scales, purify the intermediates and the final products, analyze them using suitable structural characterization and chromatographic tools and document all the project activities in timely manner. The scale-up activities from lab- to pilot-plant scale form major part of the project activities. The technology transfer to the industrial scale is the desirable outcome. The project fellow is also expected to supervise the project related activities conducted by B. Tech. and/or M. Tech./M. Pharm. students. Report preparation, presentation of project activities form an integral part of the job. |

| Vacancy No | P04/14 |
|----------------------------------|--|
| Short Description of the Project | <p>P04: The project involves production of a key intermediate in vitamin C synthesis, 2-keto-L-gulonic acid by biotransformation and its subsequent conversion to the final product.</p> <p>P14: Expression of collagen proteins in Yeast for textile applications</p> |
| Essential Qualification | Master's degree in Biological Sciences |
| Subject | Microbiology/Applied Microbiology/Biotechnology |
| Desirable Qualification | M. Sc. Or Equivalent |
| Experience | <p>Microbial Fermentation</p> <p>If candidate has experience in yeast or fungal biology it would be an advantage</p> |
| Experience Duration | 1 Year |
| Short Job Description | <p>Screening and isolation of microorganisms for catalyzing biotransformations; metabolic engineering to enhance yield of product; chemical catalysis; product analysis and purification</p> <p>Codon optimize, synthesize and clone collagen genes in Yeast systems</p> |

| Vacancy No | P05 |
|---|--|
| Short Description of the Project | P05: This project involves laboratory scale synthesis of OTBN (2 cyano4-methyl biphenyl) by multiple methods and optimisation of reaction parameters for all of them in order to arrive at a method for further batch as well as flow reactor scale up. After this, the design of a flow reactor followed by optimisation of reaction at large scale is envisaged. Further work would involve optimisation various unit processes, effluent treatment etc to obtain an industrially feasible technology. |
| Essential Qualification | Master's degree in Chemistry |
| Subject | Chemistry |
| Desirable Qualification | Knowledge of flow chemistry |
| Experience | 2-3 years industrial experience in process chemistry |
| Experience Duration | 2-3 Year |
| Short Job Description | The work involves laboratory as well as large scale synthesis, obtaining and interpretation of analytical data, optimisation of purification methods, and requires excellent knowledge of relevant theoretical concepts as well as practical techniques. In addition, the candidate is required to transfer the batch process to flow reactor, and carry out engineering aspects of the work. |

| Vacancy No | P06 |
|---|--|
| Short Description of the Project | P06: The project is focused on perfusion process development for the manufacturing of monoclonal antibody. the project aims to develop bioreactor process parameters, membrane separation parameters, downstream bioprocessing and analytical characterisation of purified antibody. |
| Essential Qualification | Masters in Bioprocessing Technology or Biochemical Engineering (Equivalent) |
| Subject | Bioprocessing and biochemical engineering |
| Desirable Qualification | Biochemical Engineering |
| Experience | The candidate should have experience with cell culture and managing cell culture in bioreactors. cell culture process development experience and industrial experience would be a plus. |
| Experience Duration | 1 Year |
| Short Job Description | The candidate is expected to work in collaborative and interdisciplinary environment. The candidate is expected to setup mammalian cell culture facility, bioreactor facility, process flow for purification of mAb and analytical characterisation. the candidate must understand process calculation and engineering calculations and should be well versed with the same. |

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| Vacancy No | P07 |
|---|--|
| Short Description of the Project | P07: This project is about the conversion of sugars to 5-hydroxymethyl furfural (HMF) and the further oxidation of HMF to 2,5-furan dicarboxylic acid (FDCA). |
| Essential Qualification | Masters in Chemical Engineering |
| Subject | Bioprocessing and chemical and biochemical engineering |
| Desirable Qualification | Chemical Engineering |
| Experience | Not mandatory |
| Experience Duration | Not mandatory |
| Short Job Description | This project comprises both experimental and theoretical work. Proof-of-concept should be demonstrated by experiments in batch and continuous mode. Additionally, theoretical work on process modelling is also required. The scope of work comprises sugars-to-HMF conversion, HMF oxidation to FDCA, batch-to-continuous process conversion, process intensification and wastewater treatment. |

| Vacancy No | P08 |
|---|---|
| Short Description of the Project | P08: The project is aimed at the process development and sustainable synthesis of 1-Amino anthraquinone and its derivatives to support the Indian speciality chemicals industry. |
| Essential Qualification | M.Sc (Chemistry) |
| Subject | Chemistry (Organic chemistry) |
| Desirable Qualification | 2 year's experience in process research development in industrial and academic institutions or science and technology organizations and scientific activities and services. |
| Experience | Minimum 2 years experience in synthetic organic chemistry with expertise in process development, analysis and product purification, sustainability analysis and scale up from industrial or academic institutions or science and technology organizations. |
| Experience Duration | 2 Years |
| Short Job Description | The aim of this project is to develop and demonstrate sustainable, high yielding processes for manufacturing of 1-amino anthraquinone and its derivatives. The candidate should have sufficient expertise in synthetic organic chemistry with extensive knowledge in process development, product characterization, purification and scale -up. |

| Vacancy No | P09 |
|---|---|
| Short Description of the Project | P09: The project will deal with the sustainable synthesis of N-heterocycles based speciality chemicals to support the Indian speciality chemical industry. |
| Essential Qualification | M.Sc (Chemistry) |
| Subject | Chemistry |
| Desirable Qualification | Masters degree in science or technology with minimum 2 years experience in research and development in industrial and academic institutions or science and technology organizations and scientific activities and services. |
| Experience | Minimum 2 years relevant experience in organic synthesis or process development from any industrial or academic organization. |
| Experience Duration | 2 Years |
| Short Job Description | The project will involve the process development towards the sustainable synthesis of few N-heterocycles based speciality chemicals and possible scale-up of the products which are anticipated to benefit the industry in terms of safety, efficiency, reliability, economy, lowered regulatory risk and green credentials. The job will require candidates with expertise in organic synthesis, process optimization, analysis and characterization, sustainability analysis as well as product scale-up. |

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| Vacancy No | P10 |
|----------------------------------|--|
| Short Description of the Project | P010: Bioprinting and polymer/hydrogel based scaffolds are used for encapsulating cells from various origins, for printing into desired shapes. While developments in 3D bioprinting are advancing at a fast pace on global scale, research in this area is also catching up in India due to the immense benefits offered by tissue engineering for regeneration of damaged tissues and provision of artificial organs for preclinical research of drugs and delivery systems. |
| Essential Qualification | M. Tech (Biotechnology or Bioprocess Technology or Biochemical Engineering or equivalent) |
| Subject | Biotechnology |
| Desirable Qualification | M. Tech. (Bioprocess Technology) |
| Experience | The candidate should have experience of working independently on a research project related to material science and biology. mammalian cell culture experience would be highly desirable. |
| Experience Duration | 1 Years |
| Short Job Description | The candidate is expected to work on a interdisciplinary project where polymer science, material science and cell biology is primary work domain. The candidate is expected to think independently and should work with translational mindset. The candidate will do detailed literature, reading, writing and experimentation in the said area. |

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| Vacancy No | P11 |
|----------------------------------|--|
| Short Description of the Project | P11: The project is based on the microbial fermentation to make bio-based product. It will involve process development and process intensification using ultrasound. The extraction and purification will be integral part of the project to get the desired product matching the industrial standards quality . |
| Essential Qualification | M.Tech/M.Sc (Biochemical Engineering/Bioprocess Technology/Biotechnology) |
| Subject | Biotechnology/Biochemical Engineering/Bioprocess Technology |
| Desirable Qualification | NET/GATE preferable; Previous knowledge or experience will be desirable |
| Experience | Not mandatory |
| Experience Duration | Desirable |
| Short Job Description | Microbial fermentation, process optimization, process calculations, extraction and purification |

| Vacancy No | P12 |
|---|--|
| Short Description of the Project | P12: The project aims to extract soluble dietary fibres (oligosaccharides) from agricultural wastes. Further, a restructured & ready-to-eat fortified instant meal will be formulated utilizing the dietary fibres and the micro- and macro-nutrients from the byproducts of cereal and legume industries. |
| Essential Qualification | M. Tech in Food Technology / Food Engineering and Technology / Bioprocess Technology along with GATE or NET qualification. |
| Subject | Food Technology / Food Engineering and Technology / Bioprocess Technology |
| Desirable Qualification | Previous experience in multidisciplinary work including fermentation and food process optimization. |
| Experience | Not Applicable |
| Experience Duration | 0-1 Years |
| Short Job Description | <p>The project focuses on fermentation, extrusion, food process optimization, and shelf-life study. Any previous experience related to these fields is desirable.</p> <p>The fellow should be familiar with the multidisciplinary work in food and bioprocess technology and acquire new skills when required</p> <p>The fellow should take initiative in identifying and resolving problems related to project</p> <p>It is a full-time job and the fellow should be committed to working efficiently while meeting the deadline. He/she should produce a technical progress report as per requirement.</p> |

| Vacancy No | P13 |
|---|--|
| Short Description of the Project | P13: Functionalised Cellulosic & protein Textiles - Ayurvastra is a new concept which can showcase traditional Indian handlooms to the modern sustainable garment fashion. This involves use of • Natural fibres – cotton, jute, silk, banana, pine apple • Green chemicals – bio surfactants, natural clays • White biotechnology – enzymatic processing, microbial colouration • Natural colourants – plant dyes & mineral pigments • Herbal finishing – rejuvenating effect, skin nourishment |
| Essential Qualification | M Tech (Textiles) |
| Subject | Fibers & Textile Processing Technology |
| Desirable Qualification | M Tech |
| Experience | 1-2 yr industrial experience |
| Experience Duration | 1 Years |
| Short Job Description | The candidate will gather project related information, conduct a relevant literature survey, coordinate with the organic textile fibre, yarn fabric suppliers, natural and microbial colourant providers, essential oils & herbal chemicals suppliers for comparative evaluation against the indigenously developed natural colourant and functional finishing chemicals. The characterisation of the product performance evaluation and the essential end-use fastness properties would be carried out. |

| Vacancy No | P15/P16 |
|---|---|
| Short Description of the Project | <p>P15: Phthalate-free applications such as soft toys, food cling wraps, and carpet backing. Objectives will involve, Preparation of the bio-based plasticizer using base bio-sources, Characterization of prepared bio-based plasticizers, Evaluation of prepared bio-based plasticizer with different polymers, Stability and reproducibility analysis of the product, Designing the parameters for pilot plant trials.</p> <p>P16: Development of Biopolymer based packaging for Food and Pharma Application</p> |
| Essential Qualification | M. Tech (Polymer Science and Technology, Polymer Technology), M. Tech. (Surface Coating Technology), M. Tech. (Materials Technology), M. Sc. (Polymer related work), |
| Subject | Polymer/Surface Engg & Tech |
| Desirable Qualification | M. Tech (Polymer Science and Technology, Polymer Technology), M. Tech. (Surface Coating Technology), M. Tech. (Materials Technology), M. Sc. (Polymer related work), |
| Experience | Not Applicable |
| Experience Duration | NA |
| Short Job Description | <p>Candidate should perform Materials and polymer synthesis reactions, their processing and characterization. Polymer synthesis techniques may include emulsion, dispersion, bulk, solution polymerization also should be able to perform various unit processes including sulfonation, alkylations, esterifications, halogenations and etherification including on-time analysis using TLC. Polymer processing experience- Batch-mixer, handling of extrusion machine, compression moulding, injection moulding, blow moulding and two-roll mill. Characterizations experience- TGA, DSC, FTIR, MFI, Rheometer and Weatherometer. Further, candidate should be able to perform mechanical tests using UTM, impact testing, flexural hardness testing. Candidate must have hands-on experience in above-mentioned areas during coursework or in industry. Expertise in Handel Polymer Synthesis Reactions.</p> <p>Objectives will include Isolation and extraction of biopolymer from various sources and its yield optimization, Modification of biopolymer and its confirmatory characterization, Preparation of food packaging product from the modified material, Stability and reproducibility analysis of the product, Characterization of the product, Designing the parameters for pilot plant trials</p> |

| Vacancy No | P17 |
|---|--|
| Short Description of the Project | P017: Medium chain triglycerides (MCT) are defined as those containing medium chain, saturated fatty acids (MCFA) Primarily Caprylic acid and capric acid. MCT are synthetic triglycerides in which every position of the glycerol molecule is esterified with Medium chain fatty acids. MCT are synthesized by using glycerol and caprylic acid as a substrate using chemical catalysts or enzymes. |
| Essential Qualification | M.Tech or M.Chem engg. Or Equivalent |
| Subject | Chemistry, chemical engineering, Oil Technology |
| Desirable Qualification | GATE qualified, NET qualified |
| Experience | 1 year industrial experience |
| Experience Duration | 1 Year |
| Short Job Description | Research involves the synthesis of structured lipid mainly medium chain triglyceride by using chemical and enzymatic way. Various chemical catalyst and enzymes as well as ultra-sonication will be use for synthesis. Optimization of parameters for improved yield will be done. High purity product is expected so various purification method will be use. Development of prototype based on the efficient application of both the intensification approaches. Product will be analyzed by GC and GCMS method. Scale up study will be done for this product. |