

REQUIREMENT OF STUDENT INTERNS SPRING 2018-19

Date of announcement: 10 January 2019
Last date for submission of applicaiton: 25 January 2019

S. No	Topic Code	Topic	Required Qualifications	Study Duration	Vacancy
1	HSC04	Development of Automated Web based Horizon Scanning System (1) Grab information based on a pre-defined list of keywords with reference to SDG from 10 news papers and 10 magazines. (2) Store the information in DB.	Pursuing M.Tech. (CSE/I.T.) Desirable : O.S. : Linux (Ubuntu16.04 onwards) Serverside Technologies: PHP 7 / Python 3/ R Javascript Frameworks : React / Angular Database : MySQL / MariaDB	6-12 months	4
2	MAT02	Securing Critical Resources Commensurate with the size of the country	Completed B.E. / B.Tech or equivalent in Material Science / Metallurgy and related disciplines and pursuing Master's degree in the same. Desirable : <ul style="list-style-type: none"> • Good knowledge about Indian economy, export-import of minerals / materials, etc. • Good at data mining, information extraction, compilation, etc. 	6-12 months	2
3	TFR17	Modeling energy demand and delivery system for the transport sector	Pursuing BE/ B.Tech/ M.Tech in Mechanical/ Electrical/ Energy/ Transportation Engg or Environmental Science	4-12 months	1

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4	BBP03	Assessment of biomass energy potential in India	Pursuing M Tech in Chemical, Mechanical or Energy Engineering, M. Sc. in Environmental Science	4-6 months	2
5	FPT03	Traditional Food	Pursuing M. Tech. in Dairy Technology/ Food Technology	12 months	1

HSC04: Development of Automated Web based Horizon Scanning System

- (a) Grab information based on a pre-defined list of keywords with reference to SDG from 10 news papers and 10 magazines.**
- (b) Store the information in DB.**

Background/ Significance in brief	<p>Horizon Scanning is becoming increasingly important part of decision making in all sectors. It involves systematic search, requiring continuous acquisition of up-to-date information to anticipate issues, collect data with the availability of web based information.</p> <p>This project aims to present designing & implementing web based automated process of Horizon Scanning System through scripting/ coding based on key word search on web search engines/servers.</p> <p>By leveraging the existing infrastructure of proven search engines, this study aims to automate the human intensive process of seeking information and emerging trends, which has been so far manual.</p> <p>To eliminate the repetitiveness, errors, obsolescence the whole process needs to be automated for dynamic/up-to-date information.</p> <p>A prototype application to be developed in modular way will be attempted. The following two specific areas: electronic waste management and solid waste management will be considered.</p>
Objectives	<ol style="list-style-type: none"> 1. Grab information based on a pre-defined dynamic list of keywords with reference to SDG from RSS feeds of 10 newspapers and 10 magazines to start with. 2. Store the information in DB (Preferably MySQL Community Edition 5.6 onwards or MariaDB 10 onwards) hosted on server. 3. Pull data from (a) scholars.google.com based on keywords stored in the DB in step 2 and identify technologies 4. Search for (a) any patents on patents.google.com , and (b) products on e-commerce websites (preferably Amazon/Flipkart) 5. Display the information based upon highest number of articles per SDG in terms of (I) Weak Signals (2) Wild Cards (3) Emerging Issues And (4) Discourse and Decision Making
Scope of the study	<p>TIFAC will automate the process of Web based Horizon Scanning in accordance to Sustainable Development Goals with the objectives of presenting the end user with a dashboard of news articles on raising issues, scholarly published papers, patent info, emerging/trending technologies, products available online, business intelligence and latest happenings in issues.</p>

	<p>In this session issues of 17 sectors and sub sectors of Sustainable Development Goals will be attempted to start with.</p> <p><i>Scope for the present session</i></p> <ol style="list-style-type: none"> 1. Grab information based on a pre-defined dynamic list of keywords with reference to SDG from RSS feeds of 10 newspapers and 10 magazines. 2. Store the information in DB (Preferably MySQL Community Edition 5.6 onwards or MariaDB 10 onwards) hosted on server.
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MAT02: Securing Critical Resources Commensurate with the size of the country

Background/ significance in brief	"Securing Critical Resources Commensurate with the Size of the Country" has been identified as Grand Challenge 3 out of ten Grand Challenges flagged in the Technology Vision 2035 document. In the TV 2035 document, only concept of the grand challenge has been introduced briefly. A detailed study is required to understand the issue at depth and also to carve out action plan for various stake holders towards securing our critical mineral resources. The study will have two parts : Critical metals and Advanced Materials.
Objectives	A detailed study is planned involving thorough analysis of different materials in terms of their criticality with respect to the growth of the country and future technology delivery and also to carve out action plan for various stake holders towards securing our critical mineral resources.
Scope of the study	To understand and define parameters for criticality of materials and to identify the materials critical for Indian economy. Each metal / material will primarily be studied for availability of the resource, technologies for processing / extraction / manufacturing, applications / derivatives (including alternatives available), volumes / value addition, action plan / recommendations, etc.

TFR17: Modeling energy demand and delivery system for the transport sector

Background/ significance in brief	The TIFAC Governing Council has advised that a model for transport sector should be developed with focus on estimating how various options of transportation technologies compare in terms of meeting national commitments and targets. Apart from estimating the impacts, it should also consider "nexus" or interdependence among various related
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	<p>sectors. This will help to describe implications of selecting a specific technology pathway.</p> <p>Energy sector and transport sector are very closely related. Although currently these two sectors are developed, operated and managed independent of one another, link between these two sectors are becoming increasingly apparent. These links could be in terms of infrastructure (e.g. electric power and electric vehicles) or mutual influences among the emerging technology alternatives to shape the future scenarios.</p> <p>Under this study it is proposed to examine this interdependence between transportation and energy sectors. This is expected to lead to development of a modeling framework by interfacing available open source models, as well as by development of suitable models as required.</p>
Objectives	<ol style="list-style-type: none"> 1. To develop a modeling framework for analyzing interdependence between transport and energy sectors. 2. The study would also cover standards for battery swapping.
Scope of the study	<ol style="list-style-type: none"> 1. Role of transportation in various energy technologies 2. Energy requirement in various transportation technologies 3. Identification of emerging energy and transportation technologies 4. Study of the interdependence between transport sector and energy sector 5. Identification of available open-source models 6. Interfacing of the models and development of model as required 7. The study would also cover standards for battery swapping.

BBP03: Assessment of biomass energy potential in India

Background/ significance in brief	TIFAC has carried out a country-wide survey of availability of agricultural residues as surplus biomass. This includes district wise data of various types of agricultural biomass. In the present study, it is intended to collate secondary data related to characteristic of various types of biomass and based on that, estimation of biomass energy potential in various districts in the country.
Objectives	District-wise assessment of biomass energy potential based on the availability of agricultural residues and characteristics of biomass
Scope of the study	<ol style="list-style-type: none"> 1. Collation of data on biomass characteristics 2. Collation of data on available technologies for conversion of biomass to energy 3. Assessment of district-wise biomass energy potential

FPT03: Traditional Food

Background/ significance in brief	The study would identify the existing traditional technologies being practiced for manufacturing the aforesaid traditional foods vis-à-vis the scientific validation of the technologies. The study would also identify the latest existing technologies being practiced for commercial manufacturing of the aforesaid products. The scope of implementation of automation for processing of above products would also be examined.
Objectives	Understanding the science and developing process technologies to make large scale production possible.
Scope of the study	The specific traditional food to be focused are jilebi, gajak, idli, gaja (jibe gaja), dhokla, sohan papri, seasoned roasted dhal mix. etc. Having increased shelf life.
