3.3.1 Institution has created an eco system for innovations including Incubation centre and other initiatives for creation and transfer of knowledge

Response:

Innovation ecosystem

The institution instils, promotes and inculcates the spirit of innovation and unquenchable thirst for knowledge in the young minds through academic, research and extension activities. The main objective of the Eco-System for innovation is to promote creativity and innovation among students, Faculty members and facilitate development of innovative systems, processes, products, technologies and services for the benefit of the society. It serves to connect all the stakeholders of innovation including students, researchers, faculty members, entrepreneurs, business development and other technical service providers, providers of skills training and professional developmen and IPR support. The ecosystem enables stakeholders to interact effectively to maximize the economic impact and potential of their research and innovation. It is dynamic and flexible, allowing new entrants to become part of the ecosystem with minimal entry barriers.

The Innovation Eco System works through the following facilities.
- *Centre for Innovation* – promotes innovation policies and overall guidance.
- *Institution Innovation Council* approved by MHRD IC – promotional activities through various programmes.
- *Technology Business Incubator* approved by DST – Incubation of innovative ideas
- SPIHER – *MSME Business Incubator* approved by ministry of MSME - Incubation of innovation ideas for technology development for commercialization and promotion of startups.

Centre for Innovation

The Centre for Innovation was started in 2017 with the objective of motivating students and teachers on innovation and improvement of quality research and publications. Motivational lectures are arranged for this purpose. The following incentives are given every year.
- Incentive to faculty for best project with maximum grant.
- Incentive to faculty for high quality publication with maximum impact factor.
- Incentive for faculty filing patent by reimbursing cost of filing and publishing.

- Students' Project Exhibition and award of certificates and cash prizes for best projects.

Institution Innovation Council

The Institution Innovation Council was started in 2018 at the initiative of the Innovation Cell of the Ministry of Human Resource Development, Government of India. The Council includes members from students, teachers, industry and Patent expert. A number of activities are conducted through this Council to motivate and promote creativity and innovation among students and faculty members as given below.

- Webinars by Industry Leaders
- Workshops on IPR and entrepreneurship and innovation
- Hackathons for students
- Innovation challenge and business plan competition
- Field visit to incubation centre

The Council has been awarded *3 stars by MHRD IC* for performance during 2018-19. Four faculty members have been trained as ambassadors in product design, product development, IPR and entrepreneurship. All these have helped in promoting innovation and ideas for technology development for commercialization.

Technology Business Incubator

The Technology Business Incubator was started in 2009 with approval of the Department of Science and Technology, Government of India, with a grant of Rs. 2.00 crores. Besides incubation activities, the incubator conducts several technical pogrammes like awareness camps, technology based entrepreneurship development programmes and Faculty development programmes every year with funding by Entrepreneurship Development Institute of India.

SPIHER – MSME Business Incubator

SPIHER – MSME Business Incubator was started in 2009 with the approval of the Ministry of Micro, Small and medium Enterprises, Government of India. The incubator promotes emerging technological and knowledge-based innovative ventures. The scheme was enlarged with provision for seed capital for startups and our incubator was approved under the new scheme in 2019. The activities of the incubator include
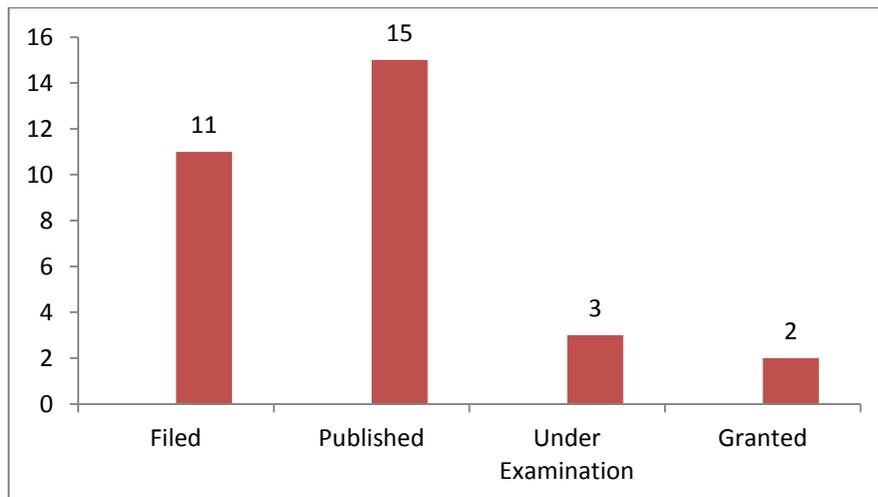
- Guidance for grant-in-aid for technology development and seed capital for startup.
- Mentoring support.
- Linking with other R&D labs, industry where required.
- Guidance for IPR and technology transfer.
- Training programmes and skill development.

The incubator promotes ideas in the technology domains such as Manufacturing industry, Electronics & Communication, IoT, Energy and Environment, Construction and Health care

Ten technologies have so far been developed for commercialization through SPIHER – MSME Business Incubator. Four patents have been filed. The non-invasive device for measuring sugar level has won the first prize at the International Exhibition organised by AIEMA on Machine Tools during June 2018 at Chennai Trade Centre.

The innovation eco system has contributed potentially for innovation performance of the institute. Totally 31 patents have been filed out of which two have been granted and the remaining are under various stages of process. Ten technologies have been successfully developed. Ten ideas have been applied for grant and seed capital under Ideas for New India 2020 of Ministry of MSME, Government of India.

Supporting Documents

Details of Patents

மின்சாரத்தில் இயங்கும் வாகனங்களை
ஊக்குவிக்க மத்திய அரசு திட்டம்

மத்திய அமைச்சர் ஆனந்த் கீதே

**Solar powered electric vehicle
displayed In ITECH 2015
Ehibition cum Conference at Chennai**

**Geopolymer concrete
brick**

**Solar powered electric vehicle
for in-campus transportation**

Fuel activator

**Device for active assist
rehabilitation
of elbow and wrist joint**

**Emergency notification system
for elderly protection S –
waistband**

Gluco L

TECHNOLOGIES DEVELOPED

TECHNOLOGIES DEVELOPED

Grid-Tie Solar PV System

Various components of ISG

Transmitter block of gloves based dumb assist device

LED lamp (Model 2) with test set up

Hand Gesture to Voice Translation Dumb Assist Device

Centre for Innovation

Students' project exhibition

Students' project exhibition at Trade Centre

Motivation lecture on Science, technology and innovation

Workshop on Nanoscience and technology

An Academia – Industry Interaction Meet was conducted on 21st July 2017

Institution Innovation Council (IIC)
Approved by MHRD

R&D Forum

Institute is having separate R&D Forum. The R&D Forum comprises of faculty members from various departments of the institute. This committee oversees the smooth and efficient coordination of research and development activities in the institute, thus fostering overall growth. A senior faculty heads this cell in the capacity of Dean (R&D), with the Vice Chancellor presiding over.

Aims and Objectives of R&D Forum

Following Aims and Objectives have been set by the institute for itself with regard to R&D activities.

Aims

•To inculcate the spirit and culture of research amongst faculty and students.

•To enhance interaction and cooperation between researchers for interdisciplinary and multidisciplinary work.

•To forge academic and research collaborations with national and international universities, government agencies and industries.

• To establish links with various R&D organizations and funding agencies for sponsored and contract research.

•To take up problems faced by local industry and provide solutions to them.

Objectives

• To organize research promotion events like conferences, seminars, workshops, invited lectures, webinars.

•To motivate faculty for doctoral and post doctoral research.

• To encourage faculty to undertake research projects in thrust areas in science and technology with funding from various national and international agencies.

•To promote research publications.

The Roles and Responsibilities of research monitoring committee are,

• To prepare annual research activity plan for all the departments.

•To establish liaison with near and far industry and identify the technological challenges being faced by them.

• Take up appropriate problems of the industry for finding solutions through R&D projects assigned to faculty and students.

• Explore technological developmental opportunities in common application areas such as transport, traffic regulation, security, healthcare etc. and assign them to faculty and students.

- To initiate and promote MoU with industries and R&D organizations for consultancy, collaborative research, sponsored projects, industry institute interactions etc.

- To arrange brainstorming sessions through talks by eminent personalities from industry, R&D organizations and institutions of repute for the better understanding of research methodology and practices currently followed.

- To support faculty for delivering talks at different events and conducting workshops, training programs, seminars, conferences, symposia, faculty development programs.

- To keep everyone informed about announcements by various funding agencies like DST, DAE, DRDO, ISRO, CSIR, AICTE, UGC, University etc.

- To monitor progress of the research and development activity.

Initiatives taken to inculcate the spirit of research amongst faculty and students are as follows:

Following research policy was framed.

- Financial assistance is provided for publications.

- Facilities such as flexibility in timings, use of laboratories etc are extended to faculty as per requirement.

- Implementing a policy for distribution of Testing and Consultancy charges to motivate faculty for providing consultancy.

- Faculty with an aptitude for research are identified. Seed money is provided to young faculty to implement their research project. More experienced faculty are encouraged to apply and obtain research grants from various Government and non- Government,

- Generating awareness amongst the researchers and providing support related to various proposal formats of different funding agencies, budget, purchases of equipment and material under research schemes, account and audit of project expenditure, any additional infrastructure requirements of the researcher etc.

- Increasing faculty and student publications by providing financial assistance.

- Collaborative research partnerships with academic institutes and industry are encouraged and fostered. Collaborating/partnering with research institutes/ laboratories.

- Assistance is provided for filing patents.

- An Industry Institute Interaction Cell works in close coordination with the industries and the institute for encouraging both students and faculty to work on live projects. (To obtain industry sponsored projects).

- An initiative is taken by Library to help researchers in understanding recent updates of their publications in terms of citation index, h-index, etc.

- In-house development of both lab equipment and software.

Entrepreneurship Development Cell:

To promoting An Entrepreneurial Mindset, institution has an entrepreneurship development cell, that encourage forging a relationship between the industry and the institution. Individual department interacts with industry to ascertain its needs to fill the gap in curriculum. The gap is filled by arranging workshops addressed by industry personals.

Industry institution relationship works in the following areas:

- Industrial visits for students and faculties.
- Field and site visits of students.
- Consultancy and sponsored projects.
- Faculty members regularly interact with the industry to understand functional challenges through applied research or student projects. Project conceived by the students are used as case study in few industry.
- Expert lectures by industry personals for students.
- Conducting joint technical programs & events with industry.