

Review Report on
One week Faculty Development Programme (FDP)

HOW TO DEVELOP A TECHNOLOGY

Date: 05th -11th April, 2022 | Venue: JC Bose Seminar Hall



ORGANIZED BY: TECHNOLOGY ENABLING CENTRE,
PANJAB UNIVERSITY IN COLLABORATION WITH
HUMAN RESOURCE DEVELOPMENT CENTRE,
PANJAB UNIVERSITY

COORDINATORS

Prof. Manu Sharma (Coordinator TEC)

Dr. Sahil Kapoor (Manager Technology-TEC)

Dr. Gurpreet Singh (Manager Technology-TEC)

One week FDP on “How to develop a technology?”

Title: How to develop a technology?

Category: Faculty Development Program

Date: 05th to 11th April, 2022

No. of Participants: 08

Mode: Offline

DAY 1: INTRODUCTORY SESSION

Resource Person : Prof. Manu Sharma (Coordinator, TEC-PU)

Topic : Contacting industry, assessing needs of industry and choosing something to innovate/work on.

Date : April 05, 2022

Time : 10:00 a.m. to 11:30 a.m.

Description of Session:

- Prof. Manu Sharma commenced the session with a question what is typical PhD? He briefed that typical PhD involves: scanning journal for 1.5 years, finding gap and trying to plug the gaps in next 3 years (total 4.5 to 5 years). He said that if we do research/PhD in that sense, we are not working for the problems of society/our nation (because we are studying international journals and bringing research problems).
- He convinced that PhD should be advanced in the following manner i) find local/national problems ii) market research iii) after read relevant literature and iii) and then work on these research problems. Also, he coated that “doing research of other country’s requirements (or without connectivity to our society) is also not ethics”.
- He highlighted that to solve the local problems, human mind is necessary not equipments. He advised participants to attend need assessment workshops that normally helps to identify "gaps"

between current performance and department/organizational objectives. Another best part of the lecture was description on our local ecosystem in which he explained the importance of knowing the companies/industries nearby, their data collection and R&D out-source. Apart from introducing conventional ways, the speaker also shared his own experience on interactions with local companies and his involvement in the development of super-silent refrigerators.

- To conclude, the appreciation of the speaker to explain this not so common topic in such an easy-to-understand language is must. Undoubtedly, the speaker was very knowledgeable on technology development by contact and needs of industries and interest in answering the queries of participants.

Photos of Session:



DAY 1: 2nd SESSION

Resource Person : Er. Ankush Gawri (TEC Team)

Topic : Discussing problems detailed at <http://tecpu.in/industrial-issues/> and active funding schemes (PRISM scheme)

Date : April 05, 2022

Time : 12:00 p.m. to 1:30 p.m.

Description of Session:

- The session can be divided into two sections: For the first session, the TEC team introduced more than hundred different types of real industrial problems, and participants were asked to pick any one of the given problems and to make efforts for finding the appropriate solutions.
- For the second section, the resource person was Dr. Narinder Singh Jassal from CSIO, who connected virtually with the participants and briefed about the scheme named 'Promoting Innovation in Individuals, Start-ups and MSMEs' (PRISM).
- The main highlight of the scheme was that innovator can be anyone like a kid, a housewife or any ordinary person without having any scientific degree as this scheme gives equal opportunity to everyone without any bar. At present, this scheme is open throughout the year till 31st March 2026. He further elaborated the process of applying, and other aspects of the scheme. The scheme has 2 phases:

PRISM-Phase I:

Category-I: Proof of Concept/ Prototypes/ Models: Maximum support may be limited to 2 lakh or 90% of the total project cost whichever is lower. Cat 1-Only for proof of concept prototype etc.

Category-II: Fabrication of working model/process know-how/ testing and trial/patenting/technology transfer etc. (Innovation Incubation): Maximum support may be limited to 20 lakh or 90% of the total project cost whichever is lower.

PRISM- Phase-II (Enterprise Incubation):

Maximum support may be up to 50 lakh limited to 50% of the total project cost. The support may be provided for scaling up technology based innovations, including patenting/design registration/trademark

registry/ technology transfer to develop a marketable product/process towards enterprise creation.

- Overall, participants found this session very informative and useful for the better understanding of the industrial problems. This session also enhanced knowledge about the government support to find the solution of such problems.

Photos of Session:



DAY 1: 3rd SESSION

Resource Person : Mr. H.S.Cheema (CMD, Cheema Boilers) and Mr. J.P. Kundra (Technical Advisor to Cheema Boilers)

Topic : Market Research

Date : April 05, 2022

Time : 2:30 p.m. to 4:00 p.m.

Description of Session:

- The resource person of first day's last session of Faculty Development Program course was Mr. Harjinder Singh Cheema from Cheema Boilers, Kurali and his technical adviser Mr. Jitender Kundra. The speakers were introduced by Prof. Manu Sharma.
- Mr. Cheema initially discussed the innovations that he did with his team at Cheema Boilers. Specifically, he discussed about the new method that he developed for production of hydrogen gas from steam using the boilers. This method has been recently patented and was observed to be more efficient as compared to conventional electrolysis method.
- Mr. Cheema also discussed about other innovations such as production of electricity from unused sugar mill. He discussed about many other societal innovations that he first envisaged and then solved with his team. Mr. Cheema focused on the importance of market research and inspired participants with his innovation skills and entrepreneurship.
- After that Mr. Jitender Kundra discussed about his role and ambitions in solving societal needs with new innovations.
- There were two major noteworthy observations in this session. Firstly, the focus of the speakers on solving societal issues as well as to generate money from it. Secondly, this session was not structured as it should have been though speakers inspired with their unique mind set and thinking process regarding innovative research for solving day to day issues of society.
- Overall, the participants gained a new experience especially understanding the thinking process of a successful entrepreneur.

Photos of Session:





DAY 2: 1st, 2nd and 3rd SESSION

Resource Person : Er. Ankush Gawri; Ms. Simerpreet Kaur (TEC Team)

Topic : Market research (Hands -on); Market research (Discussion)

Date : April 06, 2022

Time : 10:00 a.m. to 11:30 a.m.; 12:00 p.m. to 1:30 a.m.; 2:30 p.m. to 4:00 p.m.

Description of Session:

- The second day, 6th April, 2022 of faculty development programme at Human Resource Development Centre, Panjab University began with the reviews of previous day sessions. The reviews were presented by Dr Palani Natarajan, Dr Jyoti Aggarwal and Dr Rohit Sharma.
- The first two sessions of the second day were focused on market research (hands-on), where participants searched for industrial problems on the TEC website to select a problem.
- Prof. Manu Sharma advised the participants to select a problem with the focus that end user should be benefited. He also introduced the participants about Panjab University Science and Technology Cluster focusing on developing R&D Solutions for S&T problems of industries and

government ministries. The main objective of these clusters is to create an impact through solving regional and national science and technology problems for defined end users. He encouraged the participants to submit proposals in this programme to explore the available opportunity to set up a Science and Technology cluster in partnership with state Government and industries by bringing together appropriate stake holders.

- All the participants explored the literature concerning their problems in interest.
- TEC team also assisted the participants in market research. The main purpose of market research to collect, analyze and interpret information about a particular target market was successfully achieved by the participants.

Photo of Sessions:



DAY 3: 1st SESSION

Resource Person : Er. Ankush Gawri (TEC Team)

Topic : Preliminary Literature Survey (Hands-on)

Date : April 07, 2022

Time : 10:00 a.m. to 11:30 a.m.

DAY 3: 2nd SESSION

Resource Person : Prof. Indu Pal Kaur (Chairperson, UIPS – PU)

Topic : How to quote for consultancy?

Date : April 07, 2022

Time : 12:00 p.m. to 1:30 p.m.

Description of Session:

- Ms. Simerpreet Kaur welcomed and introduced the resource person to participants.
- Prof. Indu Pal Kaur began her session by discussing in general about the working of academia with industry which leads to advanced technical thinking, new research trends and experimental techniques.
- She explained in detail the scope of the alliances, key points, expectations, conflicting values, common interest and interplay of factors.
- Prof. Kaur very well discussed the lack of strong linkage, orientation and transaction barriers.
- She highlighted experience, scope, competitive advantage, work ethics, personality and time are the factors that determine the consultation fees.
- Further, she focused on four models implemented for consultation fees i.e. by hourly rate, project, and return on investment and initial fees plus monthly retainer. She emphasized on tactics such as knowing the market, varying rates, personal worth and client work to quote consultancy.
- Participants were made aware of Dos and Don'ts, reasons for undercharging and how to avoid it. Prof. Kaur depicted her brief journey of innovation to reality.
- She described two technology transferred from her own laboratory with the outcome. All the participants and TEC team interacted with the Prof. Indu Pal Kaur and it was appreciable to see her answering the queries of the participants regarding the consultancy.

Photos of Session:



DAY 3: 3rd SESSION

Resource Person : Er. Ankush Gawri; Ms. Simerpreet Kaur (TEC Team)

Topic : Preliminary Literature Survey based interaction with relevant industry physically or virtually.

Date : April 07, 2022

Time : 2:30 p.m. to 4:00 p.m.

DAY 4: 1st and 2nd SESSION

Resource Person : Dr. H. K. Sardana (Previously with CSIO)

Topic : Signing Non-Disclosure Agreement (NDA)

Date : April 08, 2022

Time : 10:00 a.m. to 11:30 a.m.; 12:00 p.m. to 1:30 p.m.

Photo of Session:



DAY 4: 3rd SESSION

Resource Person : Ms. Simerpreet Kaur (TEC Team)

Topic : Writing proposal for problem statement (Hands-on)

Date : April 08, 2022

Time : 2:30 p.m. to 4:00 p.m.

Description of Session:

- This session was taken by TEC team. Prof Manu Sharma started the session with specifically focusing of industry outreach. He emphasized the need and importance of technology in industry and in that context importance in the ongoing FDP. He discussed why and how to communicate and connect with industry or end user.
- He asked the participants to communicate at least five industries. He also made participants realize that the industry has many problems and academia is very much capable to solve those problems. The need of the hour is to bridge the gap by communicating the industry. He said that the opportunity is just one call away. He advised participant to ask for the problem faced by industry and the innovations they are looking for.
- Further Prof Manu Sharma asked Dr Rohit Sharma and Dr Aman Bhalla to share their experience about the industrial visit of previous day. Dr Rohit told few things about the industry and its working. He also shared his experience about the product of the company. He also discussed about the work they are doing in their research lab in context to the visited industry.
- Dr Aman Bhalla told about the working of Tynor and the R&D work of that industry. He also emphasized on how industry works with academia and how focused they are. He also shared that the industry is very specific in their objectives and its timeline.
- Further, all the participants called various industries and shared the outcomes of the communications.
- TEC team also called many industries. Few visits to the industry were fixed in this exercise.
- Overall, the session was interesting, informative & interactive. It was useful and the participant learnt new things.

DAY 5: 1st SESSION

Resource Person : Dr. P. J. Singh (CMD, Tynor Mohali)

Topic : Discussion regarding the market research done and proposals written

Date : April 09, 2022

Time : 10:00 a.m. to 11:30 a.m.

Photos of Session:



DAY 5: 2nd SESSION

Resource Person : Advocate Rohit Gupta

Topic : Framing a consultancy agreement that is win-win for all

Date : April 09, 2022

Time : 12:00 p.m. to 1:30 p.m.

Description of Session:

- Ms. Simerpreet Kaur welcomed and introduced the resource person to participants.
- Mr. Rohit Gupta begins his session by discussing general about the contract-a legally enforceable agreement between 2 or more parties. He explained in detail the essential elements of a valid contract mentioning clear and concise, well organized, readable, understandable, simple and without any ambiguity are the features of the well drafted contract.
- Participants were made aware of Dos and Don'ts while drafting a contract. Advocate Rohit very well discussed the typical clauses of patent technology licensing agreement such as identification of the parties, radical clause, definition clause, license clause, payment clause, indemnification clause, termination clause, representations & warranties, relationships of parties, assignment, dispute resolution clause and other common clauses.
- Further, he explained the components of the patent technology licensing agreement form. Advocate Rohit also conducted a legal quiz with the participants and TEC team. All the participants and TEC team interacted with the Advocate Rohit and he answered the queries of the participants regarding the patent technology licensing agreement. Overall, the session was interesting, informative & interactive.

Photo of Session:



DAY 5: 3rd SESSION

Resource Person : Ms. Simerpreet Kaur (TEC Team)

Topic : Preparation of Consultancy Agreement and discussion with relevant industry. (Hands-on)

Date : April 09, 2022

Time : 2:30 p.m. to 4:00 p.m.

DAY 6: 1st SESSION

Resource Person : Ms. Priyanka Raghav (CSIO, Chandigarh)

Topic : Floating EoI for Transfer of Technology (ToT): Challenges, concerns, opportunities and good practices.

Date : April 11, 2022

Time : 10:00 a.m. to 11:30 a.m.

Description of Session:

- Ms. Priyanka commenced the session with words like “lab to market or mind to market”. She said that Technology commercialization is the process of taking an idea to market and creating financial value with it.
- She highlighted that the technology transfer office will undertake market research and identify suitable firms with the knowledge, resources, and business networks to bring the idea to market with the help of the inventor. The inventor's active participation in the preparation of information to be given to firms can significantly improve the process' success.
- Afterwards, the innovation is licensed to a third party by a representative from the technology transfer Office. If the institute is successful in licensing the innovation to a third party, all revenue generated from the license will be divided according to the institute's patent or copyright policy.
- Most university/institutes ideas are still in the early stages of development and require significant

commercialization expenditure, making many licensees difficult to find. Negotiating precise terms for different materials will take varied lengths of time once a licensee has been chosen.

- Apart from introducing conventional ways, the speaker had also shared her own experience on commercialization of UV-Vis chamber developed by CSIO. To conclude, the appreciation of the speaker to explain this not so common topic in such an easy-to-understand language is must.
- Undoubtedly, the speaker was very knowledgeable on technology commercialization and interest in answering the queries of participants.

Photos of Session:



DAY 6: 2nd SESSION

Resource Person : Mr. Narinder Singh Jassal (CSIO, Chandigarh); Dr. Vandita Kakkar (UIPS, PU)

Topic : EOI presentation with Technology ready for transfer. (Hands-on)

Date : April 11, 2022

Time : 12:00 p.m. to 1:30 p.m.

Photos of Session:



DAY 6: VALEDICTORY SESSION

Resource Person : Ms. Simerpreet Kaur; Er. Ankush Gawri (TEC Team)

Topic : Final discussion regarding various aspects of FDP and Validation Session (Valedictory)

Date : April 11, 2022

Time : 2:30 p.m. to 4:00 p.m.

Description of Session:

- The FDP was concluded with valedictory function on April 11, 2022. In the Valedictory function, Dr. Jayanti Dutta congratulated the Coordinators and TEC team for successfully conducting FDP. All the participants were distributed with the participant certificates on successful completion of one-week faculty development program by Dr. Jayanti Dutta.
- She heartily thanked all the speakers and the participants who made this event a grand success by participating wholeheartedly.
- The valedictory session ended with the group photo, feedback from the participating faculty members and the organizers and final discussion regarding various aspects of FDP.

Photos of Session:





OUTCOMES OF FDP

- Dr. P.J. Singh, Managing Director of Tynor Orthotics Private Limited, announced to establish an industry-academia forum to boost industry-academia partnership and invest Rs. 10 lakhs as rewards to academia for successful completion of the projects based on issues and challenges faced by the industries.
- Dr. Rohit Kumar Sharma (Chemistry, Panjab University) visited Tynor for detailed understanding of the problem assessed by TEC Team and listed on TEC website and he will be taking up a consultancy project for Tynor to provide the solution to their problem relevant to properties of PU material.
- Dr. Jyoti Aggarwal (Chemistry, Panjab University) interacted with industry “Goyal Plywood LLP” to understand the problem faced by industry in “Process development for the soyabean based adhesive” which was already assessed by TEC Team. Now Dr. Jyoti is working on the same and collaboration between industry and Panjab University may be expected.
- Dr. Rajesh (Physics, Panjab University) gone through the project titled “Indigenous Biochemistry Analyzer” and become the part of the team of this project to be submitted under S&T cluster.
- Other faculty members have also chosen the problems related to their domains and have contacted the respective industries for further discussion on the problems in order to provide consultancy work as a solution to the problems faced by these industries.