Ref: GTU/GIC/DIC/Event Report/2022/1928 **Date: 28/03/2022**

Report On
Online 56th Faculty Development Program
Organized by
Centre for Industrial Design (Open Design School) in Association with Design Innovation Centre
(DIC)

Date: 14th – 18th Feb 2022
Mode: Online Mode, Cisco Webex Meeting
Total registrations:
Time: 11:00 AM to 4:00 PM (5 Hrs.)
Subject Expert(s): 1. Mr. Karamjitsinh Bihola – Founder Innodesk
2. Ms. Vidhi Bhavsar, Design Thinker for Academics and Research
3. Mr. Chandramouli Pachouri – IP Professional IPR Cell GTU
4. Ms. Shailja Jhala – Research Assistant, IPR Cell GTU
5. Mr. Prabhuling Zunja, Expert speaker

Today, India stands at the threshold of dynamic economic growth. India is the seventh-largest economy in the world with steady growth in its GDP. India has a rich social, cultural and environmental diversity. But it missed the industrial revolution, and its growth rates from 1947 to 1990 were insufficient to satisfy its needs. By opening up the controls on economic activity, the growth rate picked up after the nineties. Everyone agrees that if growth is to be sustainable, it requires innovation in all areas of the innovation ecosystem by providing skill sets to NextGen: innovation in products, production systems, service systems, businesses, and policy. In the year 2015-16, the Government of India has designed programs such as “Make in India”, “Start-up India, Stand-up India” and “Skill India”, which can become platforms for supporting innovations.

Gujarat Technological University (GTU) has started the process of bringing the excitement of learning into the laboratories, classrooms, and workshops from its foundation in 2007 focusing on Practical Based Learning (PBL). Besides other initiatives, one strand in the process is to imbue the whole of the learning process, during the undergraduate studies, with design orientation.

Objective: The objective of this faculty development program was to inculcate Design Thinking for all affiliated colleges of GTU and to penetrate this skill to the students. By inculcating design thinking and engineering we can promote design or project-based learning. To become an Innovator by making ideation canvases and making things happen.

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Workshop Content

Day 1 14/02/22	**Design Thinking (Ideation, Strategic Approach towards Innovation)**
Day 2 15/02/22	**Design Thinking Roadmap**
Day 3 16/02/22	**Basic of IPR (Patent and Patent Search Tools)**
Day 4 17/02/22	**Ideation, Ideation Canvas and Design Thinking (Empathy and Observation)**
Day 5 18/02/22	**Reverse Engineering**

Day 1: Design Thinking (Ideation, Strategic Approach towards Innovation)

Orientation: Introduction to Design Engineering Course
Design Thinking: Why, What, How (Characteristics, Process, Tools)
Experts: 1. Mr. Karamjitsinh Bihola
2. Ms. Vidhi Bhavsar

Innovation is about creating new value people are willing to use and pay for, whereas strategy is the plan for harnessing for example marketing, operations, finance, and R&D to support achieving the competitive goal. To clarify, innovation strategy isn't about innovation tactics, such as setting up an idea challenge, but more about mapping an organization's mission, vision, and value proposition for defined customer markets. It sets boundaries to your innovation performance expectations by simplifying and structuring your innovation work to achieve the best possible outcome.

1. Determine objectives and strategic approach to innovation

The first step in the strategy choice cascade is to define your winning aspiration. In other words, your innovation objectives and the *why* behind your innovation strategy.

2. Know Your Market: Customers and Competitors

The second step in the strategy choice cascade is defining the right playing field, as in, the market you're operating in and the customer segment you're offering value for. To be able to innovate and respond to your customers' needs, you should listen and understand what your customers really want and remove the rest. To be able to do that, knowing what happens in the market is essential.

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3. Define Your Value Proposition

Next, and probably the most important step is to define that unique value proposition. How will you win? What type of innovations allows the company to capture that value and achieve a competitive advantage? Because the purpose of innovation is to create a competitive advantage, you should focus on creating value that either saves your customers money and time or makes them willing to pay more for your offering, provides larger societal benefit, makes your product perform better or more convenient to use, or becomes more durable and affordable compared to the previous product and the ones in the market.

4. Assess and Develop Your Core Capabilities

The first three steps in the strategy choice cascade really come down to one thing; **your fundamental capabilities** required for winning.

5. Establish Your Innovation Techniques and Systems

Last but not least, to be able to execute your innovation strategy in a scalable and integrated manner, you should find out what systems need to be in place. Identify and define the needs of your particular innovation.

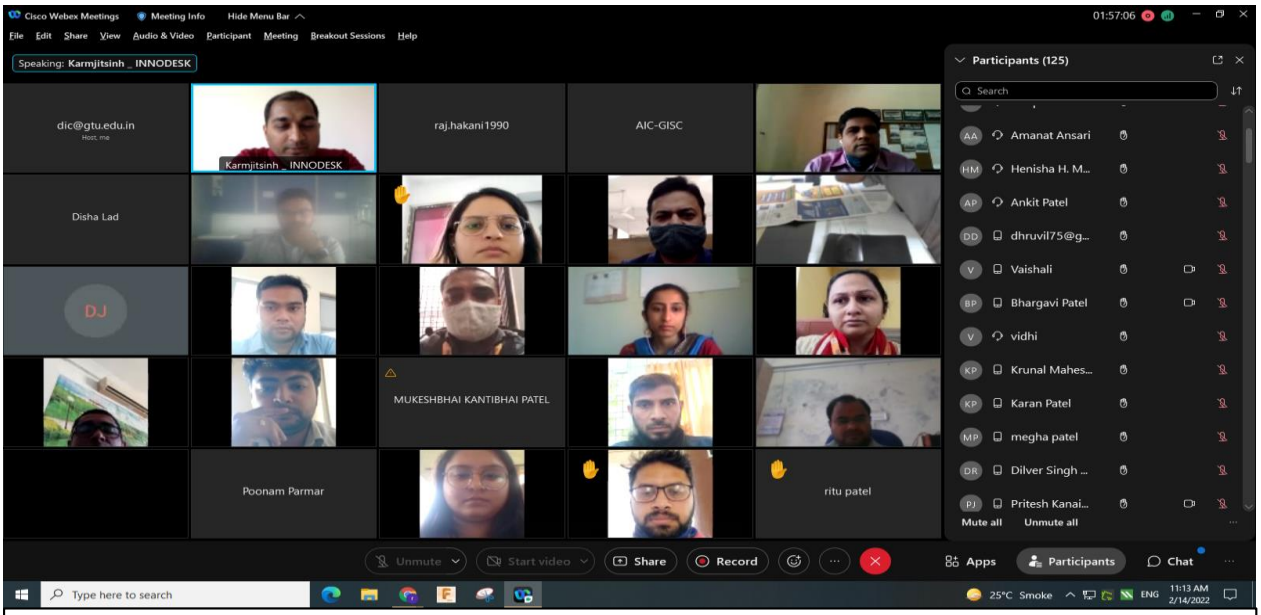

Fig 1: Inaugural of Faculty Develop Program

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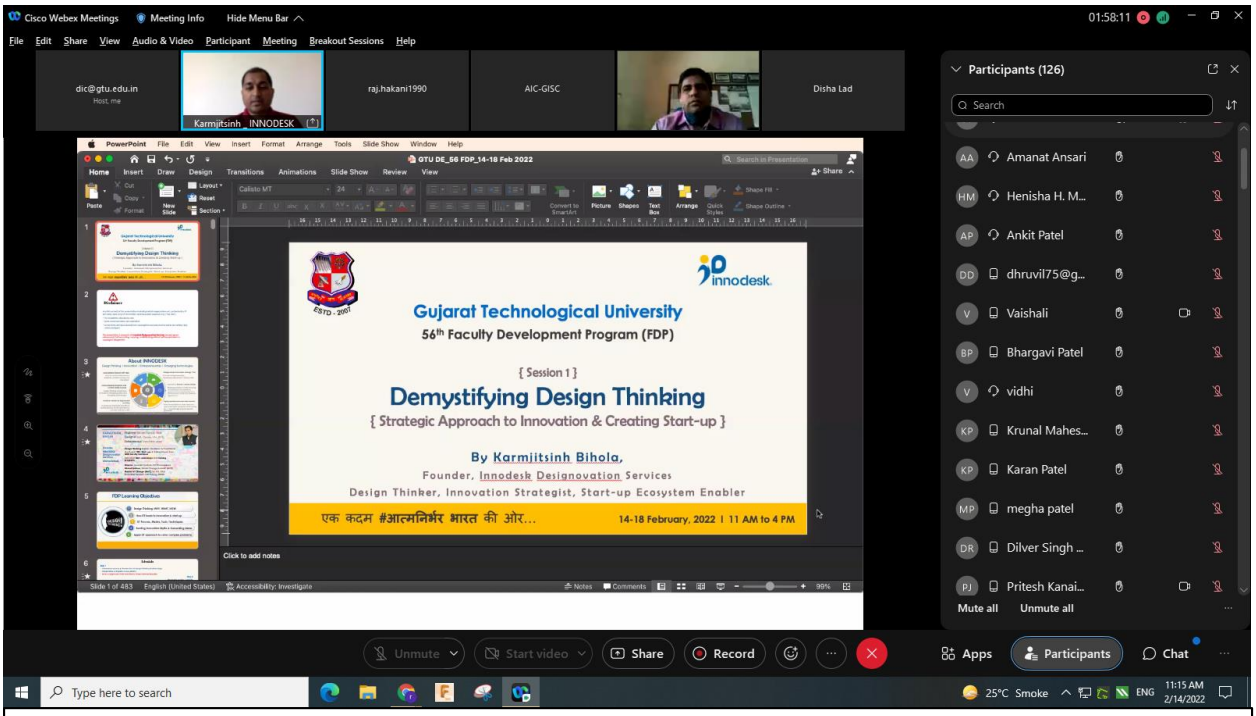

Fig 2: Introduction to Design Thinking

Day 2: Design Thinking (Ideation, Strategic Approach towards Innovation)

Design Thinking: Ideation Canvas, Identifying a problem, bridging the gap, and finding solutions considering all possibilities.
Experts: Mr. Karamjitsinh Bihola

On the 2nd day, a discussion about the experience of the first day was begun and queries of the Faculty Members were solved by the Design Team. After discussion, all the teams were sent for observation in the vicinity of LD Engineering College. They were informed on how to and what to observe- with lots of notes, photographs, videos, interviews, and so on.

After returning from field observation, all teams were guided for Mind Mapping – A graphical visualization technique by Mentor, Karmjitsinh Bihola. Mind Mapping is the visual representation technique that includes a central idea surrounded by connected branches of associated topics to better organize the messy and unorganized data. It helps to better organize, understand, communicate and recall the topics.

Then Empathy Mapping Canvas was explained by the mentor; Empathy Map helps to understand and identify the emotional and unmet needs of the user. The observation and Empathy process is the foundation of any Design Thinking project and one must spend enough amount of time for this phase by doing observation and interaction again and again.

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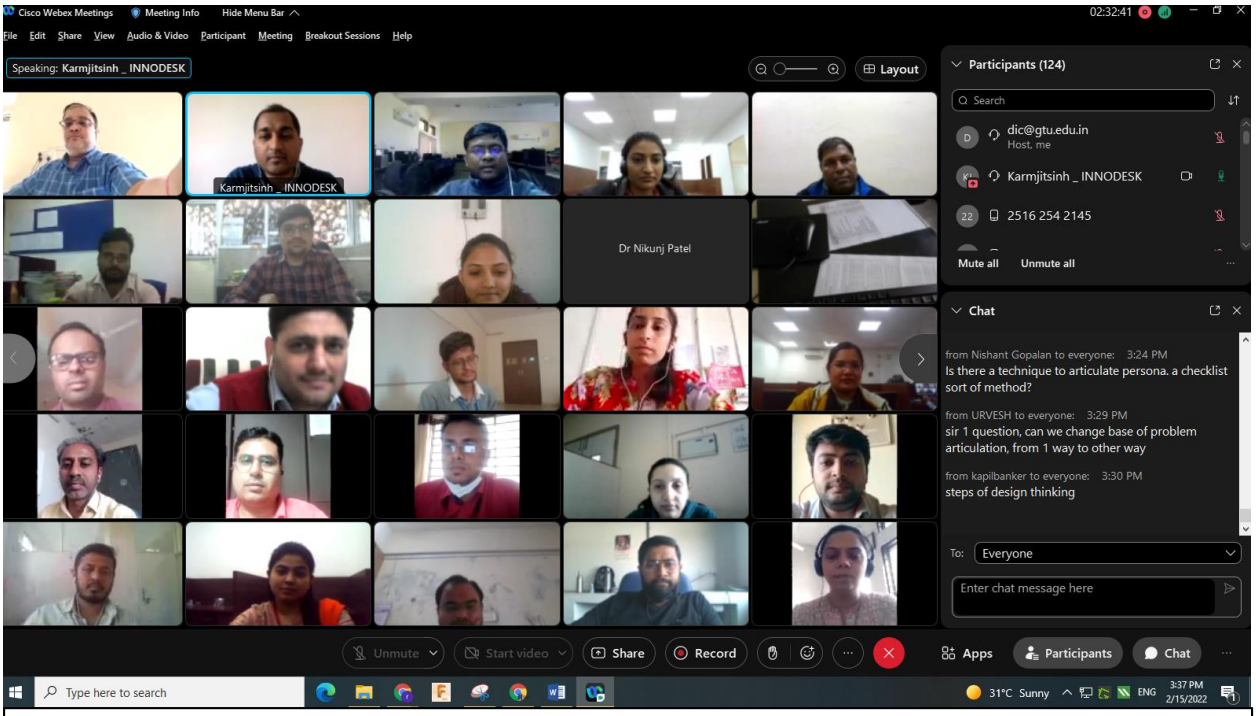

Fig 3: Participants of Day 2

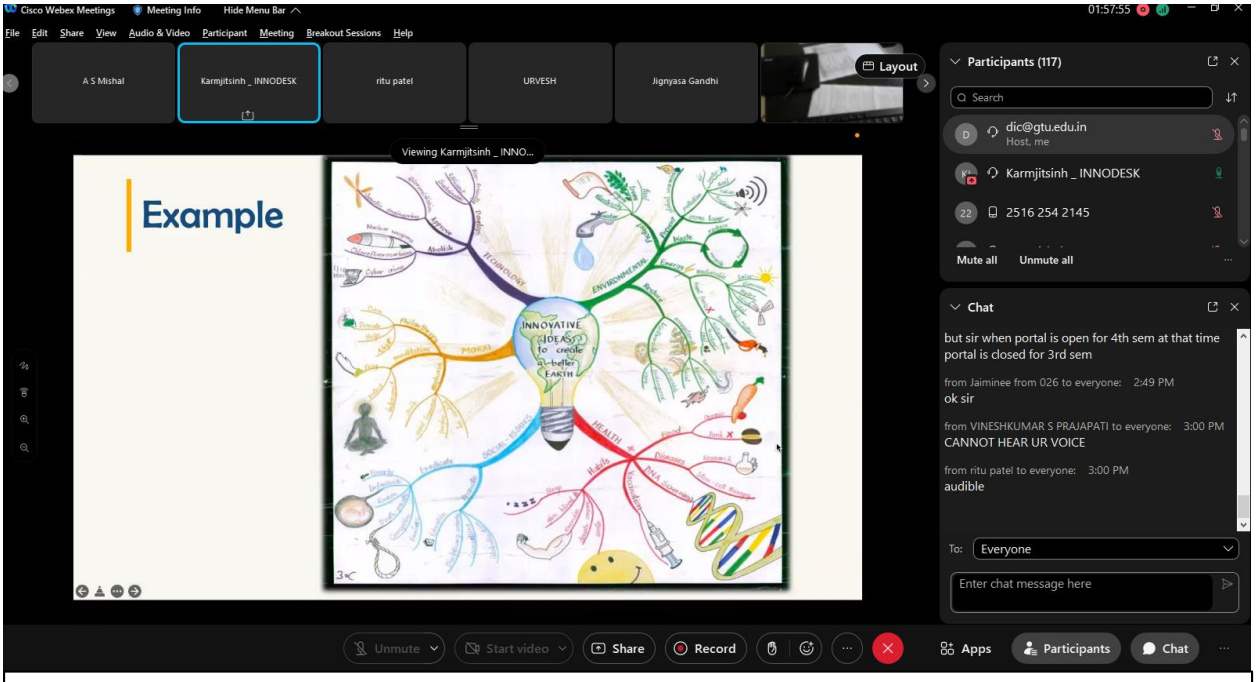

Fig 4: Use Innovation to eradicate problems

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Day 3: Basics of Intellectual Property Rights

IPR: Introduction to IPR, Patents, Guidelines, Patent Filing, Patent searches using different tools and websites.

Experts: 1. Mr. Chandramouli Pachouri
2. Ms. Shailja Jhala

Innovation is doing something new that adds value to existing products, processes, or services. And innovations can be protected through Intellectual Property Rights. An invention relating to a product or a process that is new, involving inventive steps, and capable of industrial application can be patented in India. This is the first step for an investor who wants to go ahead with his or her invention. It is important to collect as much information as possible. Some of the pertinent questions that the inventor must think through are: what is the field of the invention, what are the advantages, how will it help in improving already existing solutions? Not all inventions are patentable subject matter. After getting clarity over the invention, the inventor must do a patentability search. This is important since it will help in understanding whether the invention is novel or not. All inventions must meet the novelty criteria under the Patents Act. The patentability opinion can be examined upon conducting an extensive search and forming a patentability report. The patentability search identifies the closest possible prior arts (known to the public) relating to the invention and based on the results obtained, an opinion about the patentability of that invention may be provided which can be positive, negative, or neutral.

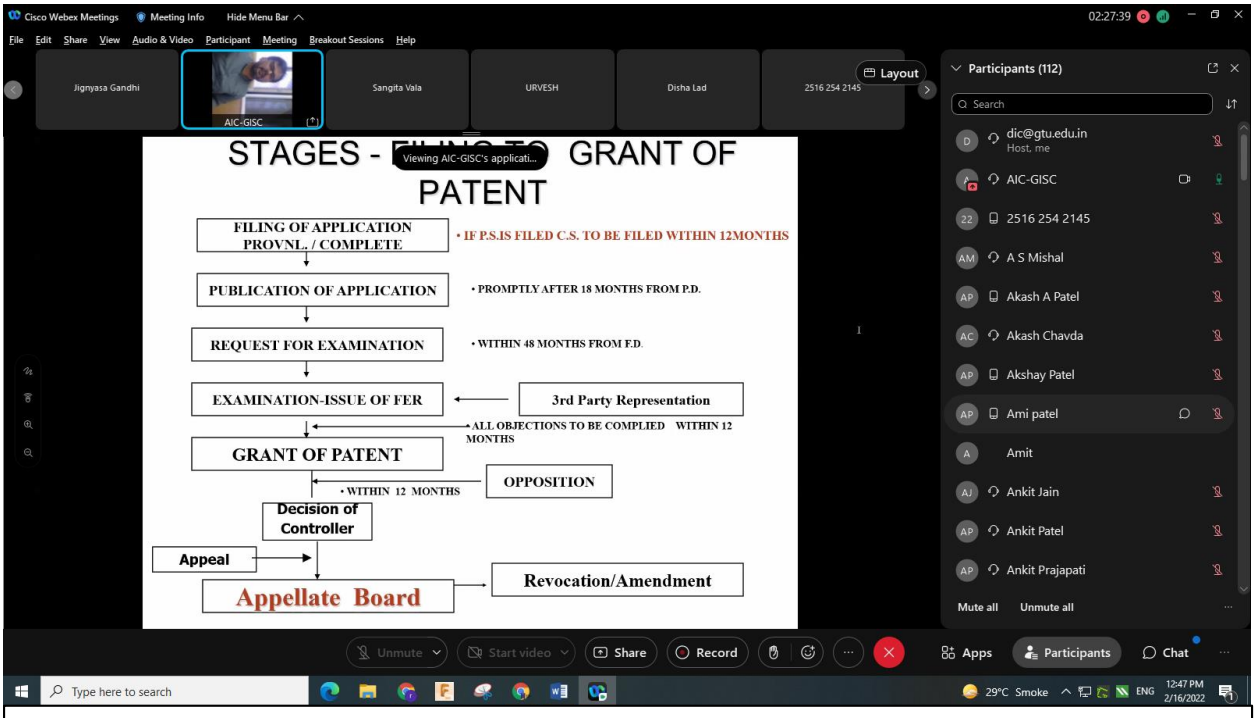

Fig 5: How to file a patent and its stages

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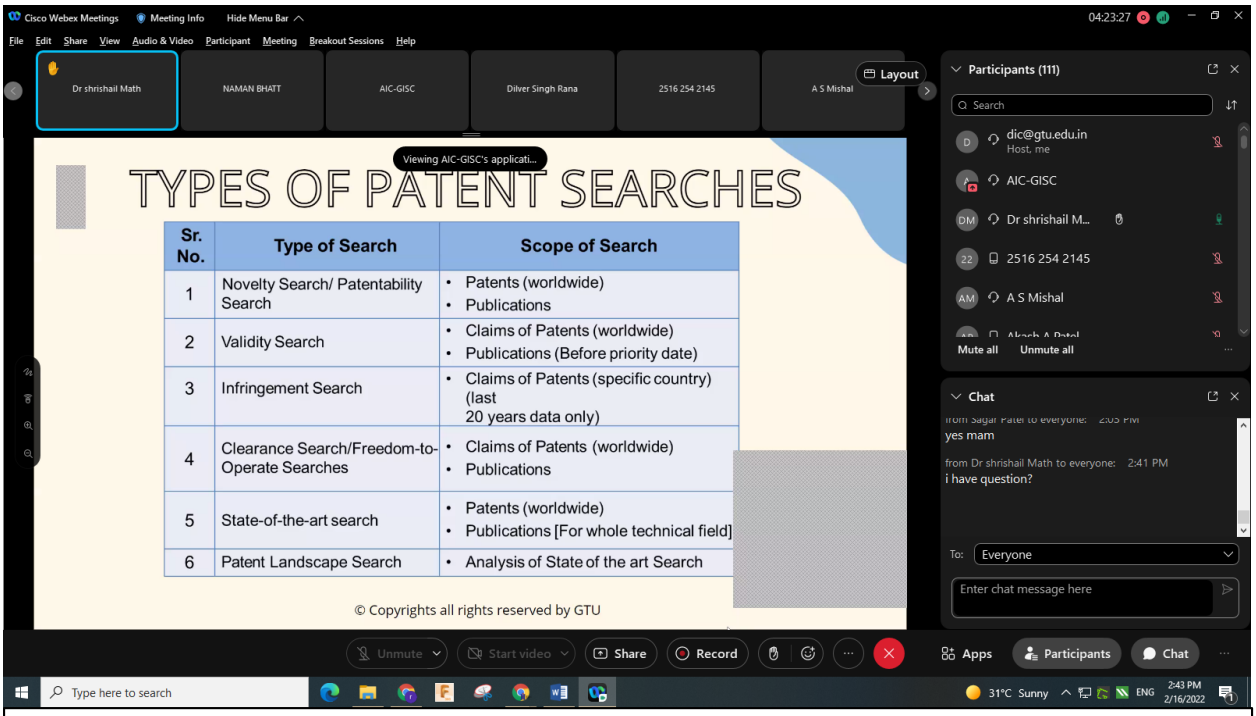

Fig 6: Tools and methods to search patents

Day 4: Ideation, Ideation Canvas and Design Thinking (Empathy and Observation)

Design Thinking: Ideation Canvas, Empathize, observe, identify, define and replicate it on your canvas.

Experts: 1. Mr. Karamjitsinh Bihola
2. Mr. Prabuling Zunja

The Design Thinking Canvas is a structured approach to planning a design led strategy and process. It provides an overview of the different elements in a design process and is a systematic technique to collect inputs from a project. This is helpful for the internal communication within a project team as well as externally.

The first part of the preparation is the Emphasize mode, which is all about researching and observing in the field studies and watching. Empathy is the centerpiece of a human-centered design process. It helps you understand people, within the context of your design challenge. It is an effort to understand the way they do things and why their physical and emotional needs.

The next stage, which you should take into account when preparing an ideation session, is to Define, which is all about making sense of the widespread information we gathered in the empathy step. The defined model of the design process is all about bringing clarity and focus to the design space. It is your chance, and responsibility, as a design thinker to define the challenge

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you are taking on, based on what you have learned about your user and about the context.

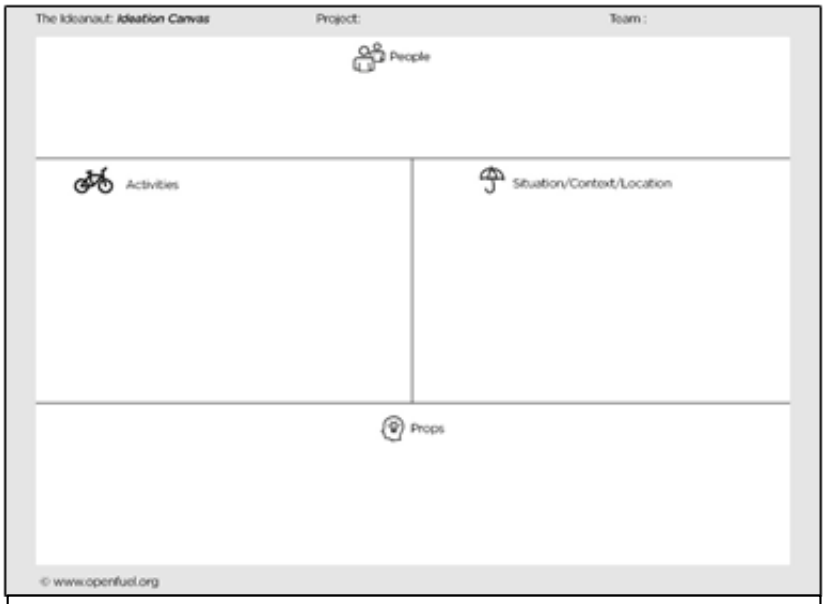

Fig 7: Ideation Canvas

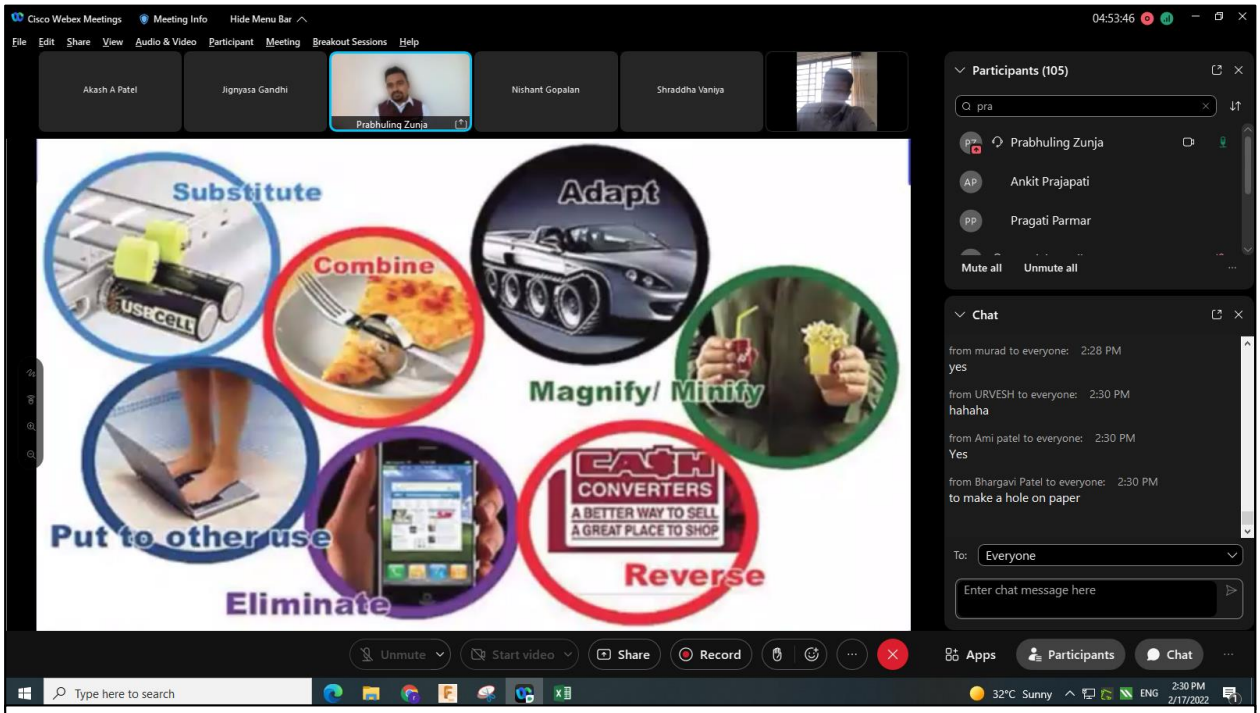

Fig 8: Key points that leads to Innovation

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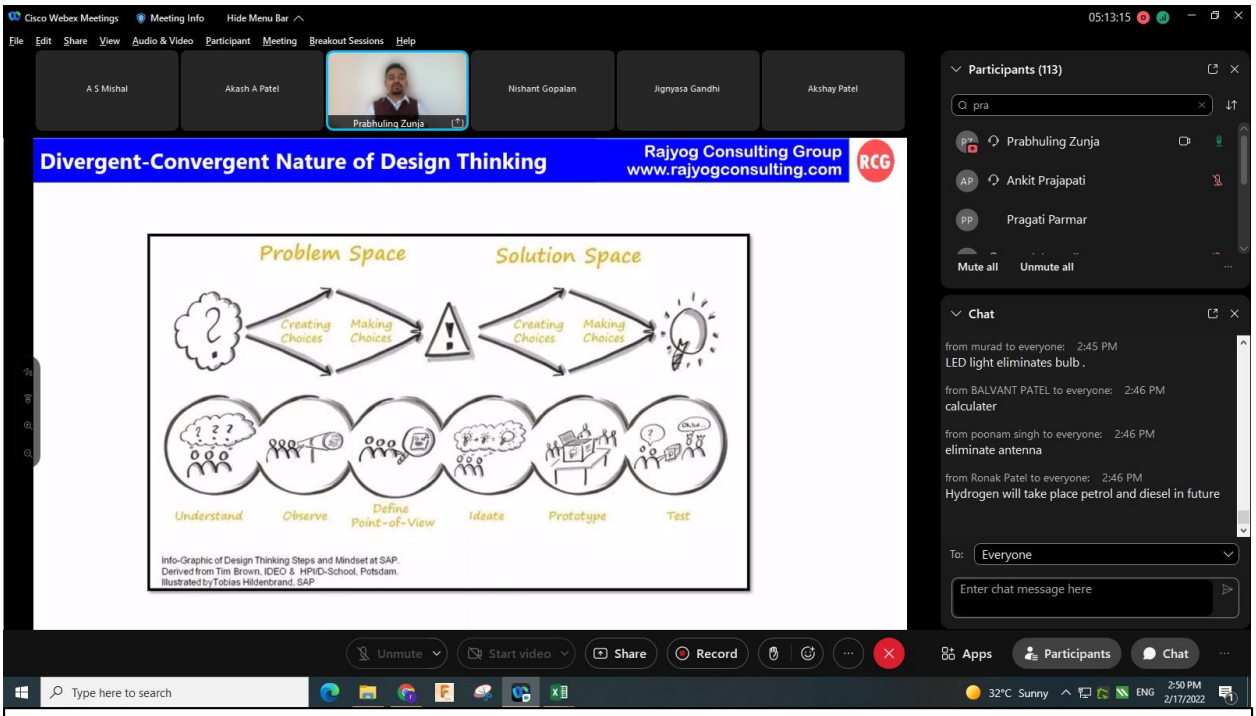

Fig 9: Divergent – Convergent Nature of Design Thinking

Day 5: Reverse Engineering

Reverse engineering: Align Innovation strategy, Integrate, communicate, take measured steps, work systematically and adapt.
Expert: Mr. Karamjitsinh Bihola

Reverse engineering is a technique a part of the strategy canvas that can be used to ensure your strategic choice is sound. Instead of relying on opinions, reverse engineering allows you to design and conduct valid tests in order to make informed choices. It helps you to involve all of the decision-makers (VP's included) to critically assess the viable options and make them committed to the process and strategy.

Reverse engineering helps identify the "nice to have conditions" vs. must have conditions and to find an answer to *what would have to be true* instead of *what is true.* This question helps you to focus on analyzing things that really matter. Since testing is often the most time-consuming and expensive part of developing a strategy, the fewer tests you need to make, the better. Use reverse engineering to pinpoint only what you really need to know.

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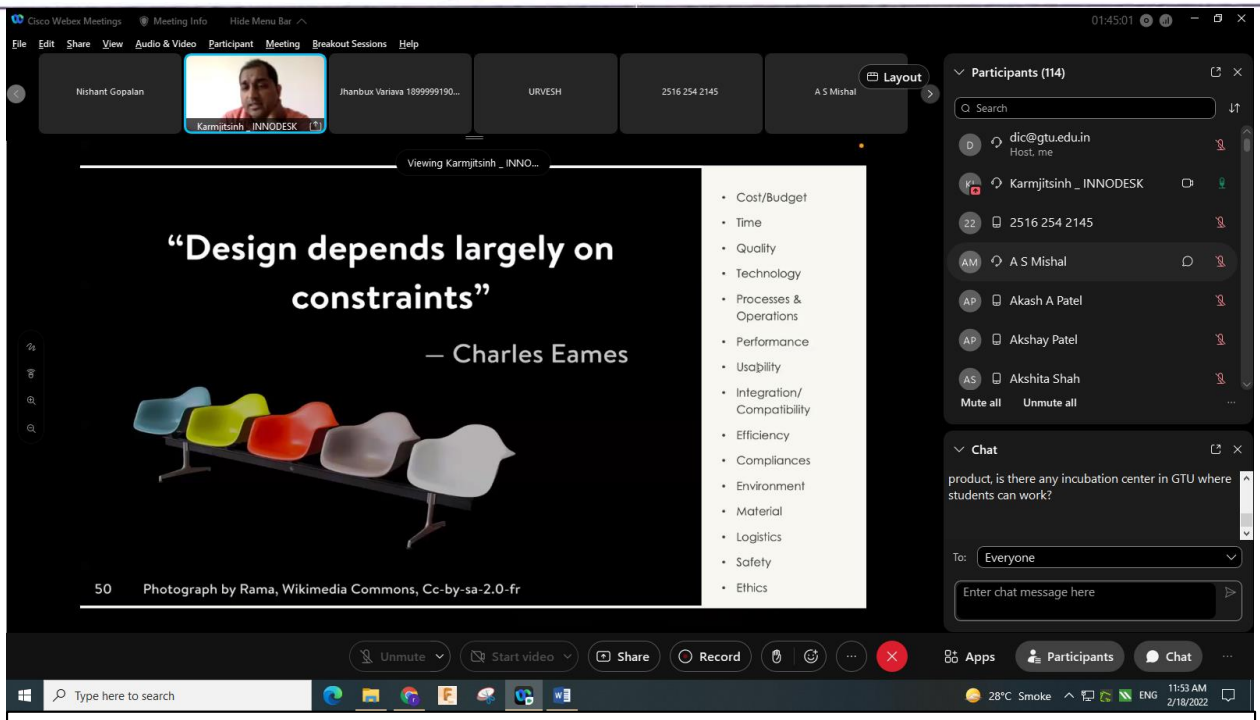

Fig 10: Factors that leads to Innovation

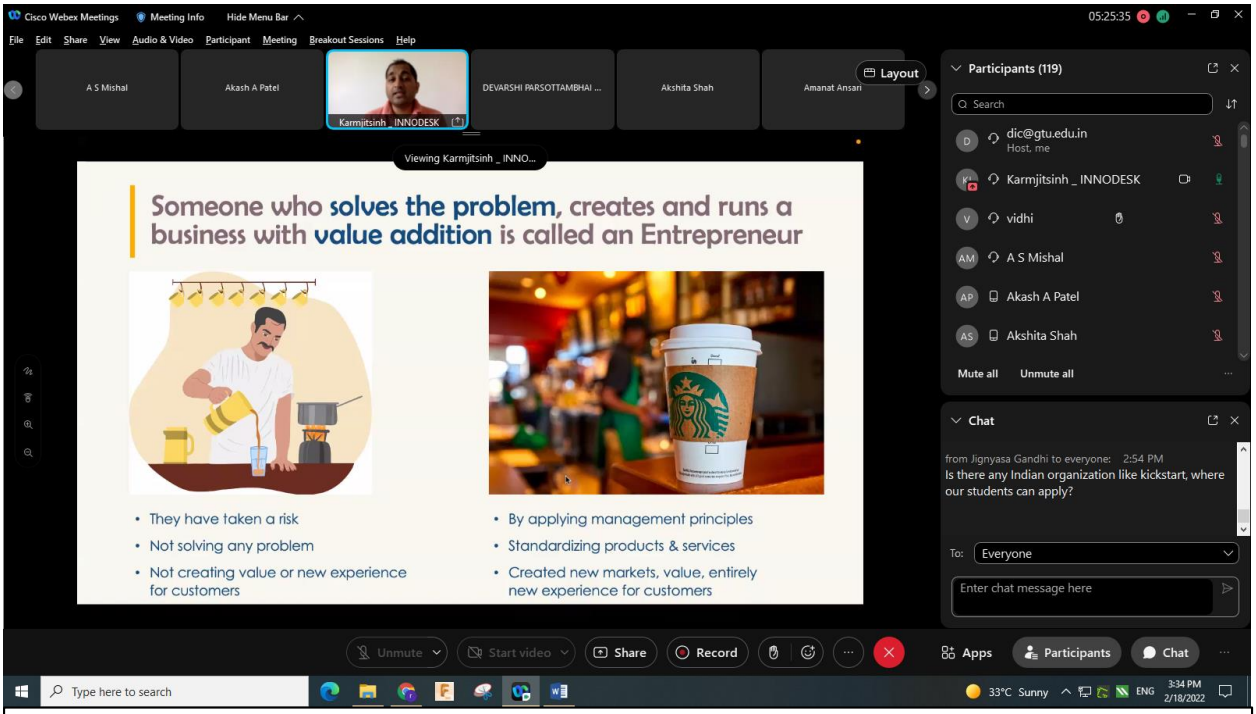

Fig 11: Thinking approach to solve a problem

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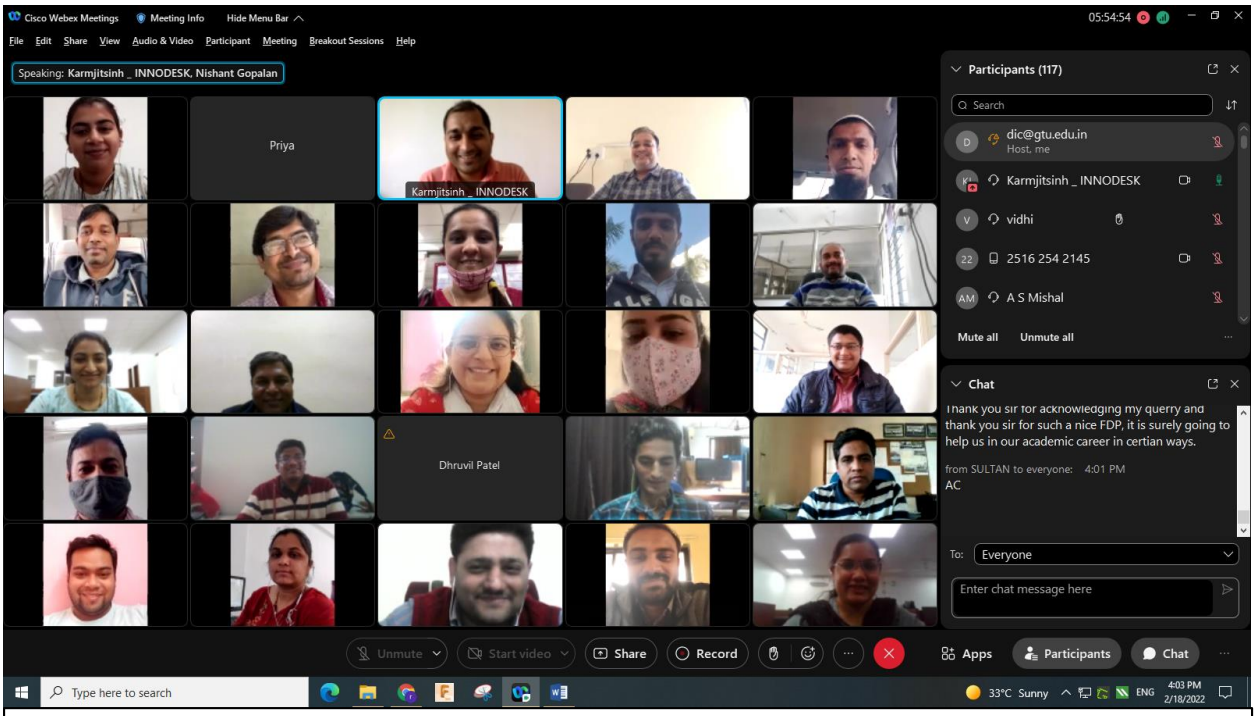

Fig 12: Day 5, Faculty Development Program concluded

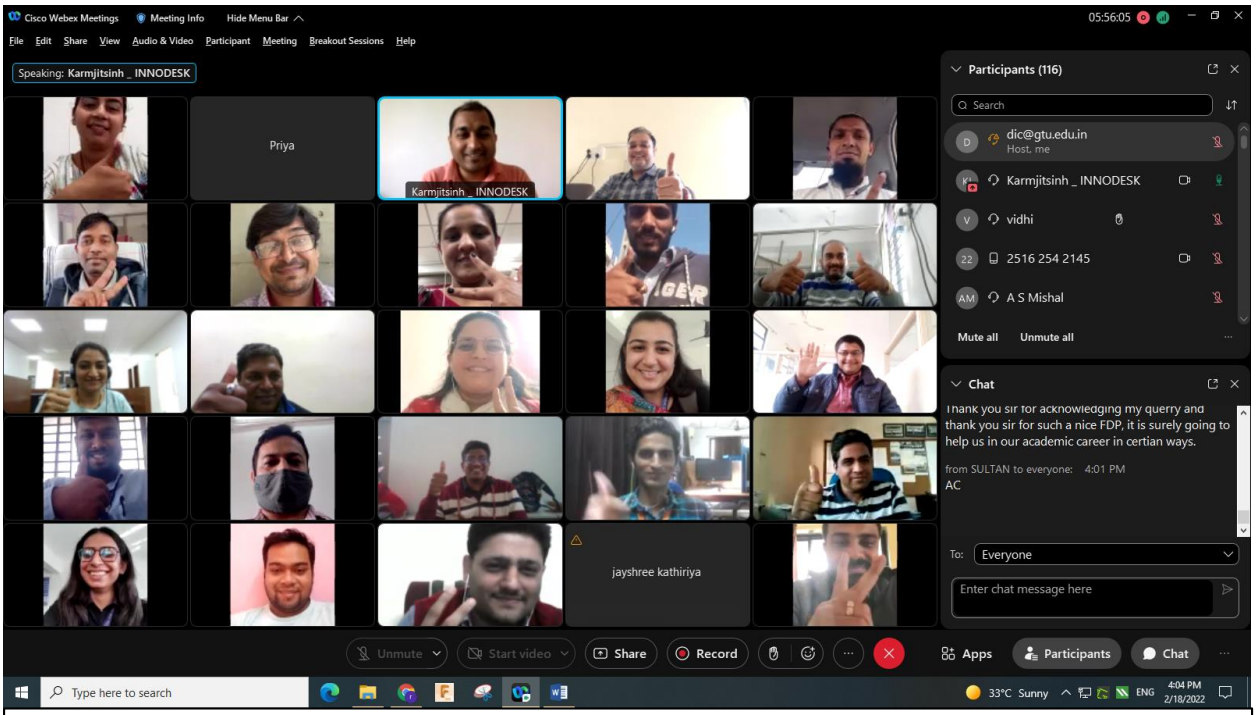

Fig 13: Interaction and Feedback with the faculty members

Profile of Experts

1. Mr. Karmjitsinh Bihola

Mr. Karmjitsinh Bihola is a Design Thinker at the mindset and an Entrepreneur at heart, having a master's degree in Mechanical Engineering with a specialization in Product Design from Stevens Institute of Technology, New Jersey, and the USA. He is an expert in curriculum and workshop modules development based on the contextual needs of the stakeholders. Supporting institutes/universities in setting up an Incubation Centre, Design Innovation Centre, Innovation or E cell, FabLab or Tinkering Lab, etc. by empowering them through creating a roadmap in the Design, Innovation, and Entrepreneurship domain through our unique programs and approach. He mentored 100+ aspiring entrepreneurs and Innovators, trained 4500+ faculty members, and conducted 400+ training programs and workshops in areas of Design Thinking, Innovation, and Entrepreneurship.

2. Mr. Chandramouli Pachouri

Mr. Chandramouli S. Pachouri, an engineer turned lawyer and registered Patent Agent of India, presently serving in GTU as an IP Professional. Since 2018, He is practicing in the IPR field with a major focus on Patents wherein he has drafted Patents for different technologies, prosecuted Patents before Indian Patent Office, and enforced them. Along with Patents, he has prosecuted Trademarks and Designs before the Indian Authority. In GTU his primary role is to manage the patent portfolios, conducting different activities to sensitize the students and faculties about IPR, its promotion, and awareness.

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3. Ms. Shailja Jhala

Ms. Shailja Jhala has a passion to work in the field of IP additionally having seven years of strong academic background in Pharmacy, it all has benefited her in every possible way it can in her work. Furthermore, she has explored each and every aspect of the patents also has specifically helped the researchers and startups to protect their valuable IP assets. She is a Research Assistant at IPR – GTU and a Visiting Faculty who eagerly wants to spread awareness of IP to researchers and young entrepreneurs as an expert of the same.

4. Mr. Prabhuling Zunja

Mr. Prabhuling Zunja is an Internationally Certified Trainer & facilitator with 20 years of experience in Automotive OEMs like Bajaj Auto, Tata Motors, GM, and M&M in operations and E&T. He has done PG in Business Management from Symbiosis, Pune and Advance Diploma in Learning & Development. He holds a Diploma in Mechanical Engineering and he is a Certified Design Thinking Practitioner. He is Mentor and COE for Automotive Technology skill development and Jury for Automotive skill competitions.

5. Ms. Vidhi Bhavsar

Ms. Vidhi Bhavsar has completed her Master's in Civil Engineering, with a specialization in Water Resources Management. She has expertise in Design Thinking, creativity, and innovation, curriculum design research, system thinking, and community upliftment through innovation. She is working as a Design Thinker for academics and research at Innodesk Designovation Services.

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Innodesk is an education consulting and 'design-driven' innovation strategy firm. We offer courses, custom-made capacity-building programs, and hands-on training in areas of Design Thinking, Innovation, Entrepreneurship, and Emerging Technologies. Inspired by the vision of empowering Self-Reliant India, innodesk aims to nurture and enhance creativity, problem-solving, and innovation skills among young budding minds, entrepreneurs, and professionals through their various flagship programs and custom-made courses. They empower teams and individuals to be inspired and nurtured through a structured process of innovation, 'learning-by-doing' approach and strengthen their ability for creative problem solving and help organizations build the necessary environment and mindset for fundamental shifts.

Registrar, GTU