Kammavari Sangham ® 1952

K. S. INSTITUTE OF TECHNOLOGY

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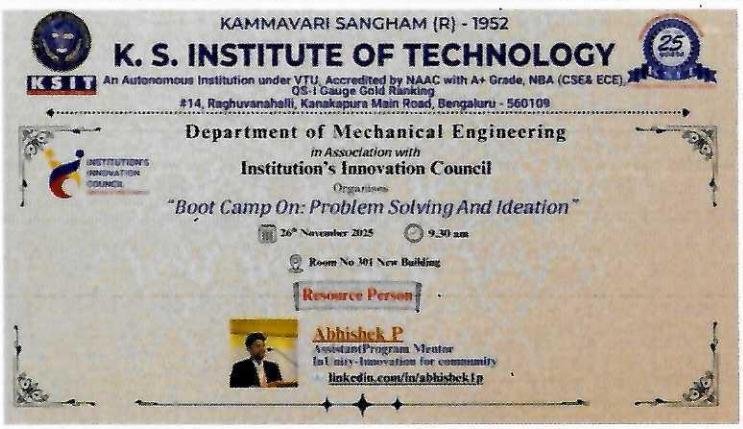
INSTITUTION'S INNOVATION COUNCIL

Department of Mechanical Engineering

A Report on - "Boot Camp On: Problem Solving And Ideation"



Activity Details

Title of the Activity	: Boot Camp On: Problem Solving and Ideation
Program Driven By	: Calendar Activity
Quarter	: I
Date & Time	: 26/11/2025 & 9:30 AM
Venue	: R. No. NB301
Duration	: One Day
Activity Category	: Bootcamp
Theme	: Innovation/Ideation
Session Mode	: Offline
Targeted Audience	: 1st Year UG Students of ME
No of Participants	: 21

Objectives:

- Participants will be able to apply structured problem-solving frameworks to the analysis of complex challenges and identification of core issues.
- Attendees will be able to generate new and feasible solutions to a given problem by using collaborative ideation techniques.
- This boot camp will provide the skills to rapidly prototype and test proposed solutions, moving from concept to execution.

Resource Person Details:

Mr. Abhishek P. is currently working as a Facilitator at InUnity, where he is engaged with the emerging technologies and drive innovation in the fields of education, entrepreneurship, and technology-driven solutions. Also, founder of Infomin Technology, founder of Prakashena Foundation (NGO) and Director of KALA.

Summary:

Boot Camp On: Problem Solving and Ideation was organized by Department of Mechanical Engineering with Institution Innovation Council of K.S. Institute of Technology, Bengaluru at NB301, on 26th Nov. 2025. Mr. Ajith G. Joshi, Asst. Prof. was the coordinator for the event. The event provided the platform to the 1st year UG students of Mechanical Engineering. This boot camp was an intensive one, replete with skills and competencies to change how one approaches and solves a problem. Core was to move participants beyond reactive thinking and into structured frameworks where solutions can be analyzed, innovated, and executed. During the event, participants learnt how to use practical problem-solving techniques to precisely define a core issue and team up to create a rich portfolio of new, feasible ideas. Also, they learnt about how to prototype, test, and clearly communicate ideas in record time.

The program started at 9.30 AM in offline mode in the NB301 of KSIT. Ajith G. Joshi, has initiated the program through welcoming Dr. Dilip Kumar, Principal, Dr. Anil Kumar A., Associate Professor & HOD, Dept. of ME, Dr. Devika B., Associate Professor & Convener, IIC, and participants. Introduced guests to the participants. Dr. Anil Kumar A., Associate Professor & HOD, Dept. of ME has delivered welcome address. Welcomed dignitaries, resource person and participants to the event. Motivated the participants to consider these kinds of activities as a platform to learn contemporary knowledge and showcase their innovative talents. Dr. Dilip Kumar, Principal addressed the participants and informed the students to utilize the facilities of KSIT to develop their critical thinking and problem ability.

The event was initiated by resource person, Mr. Abhishek through introducing design thinking fundamentals. The boot camp was taken forward by introducing fishbone analysis, mindgap analysis and business solutions. About 8 groups were made among the participants and assigned a problem. The assigned problems were considered as case studies. Resource person, helped the participants to implement the gained knowledge to analyze through the systematic design thinking approach and proposing business solution.

Participants have praised the hands-on nature of the workshops and the immediate applicability of the frameworks to their current work challenges. Through collaborative sessions, all working groups generated and documented a novel and viable solutions for their assigned challenge, demonstrating effective use of ideation techniques.

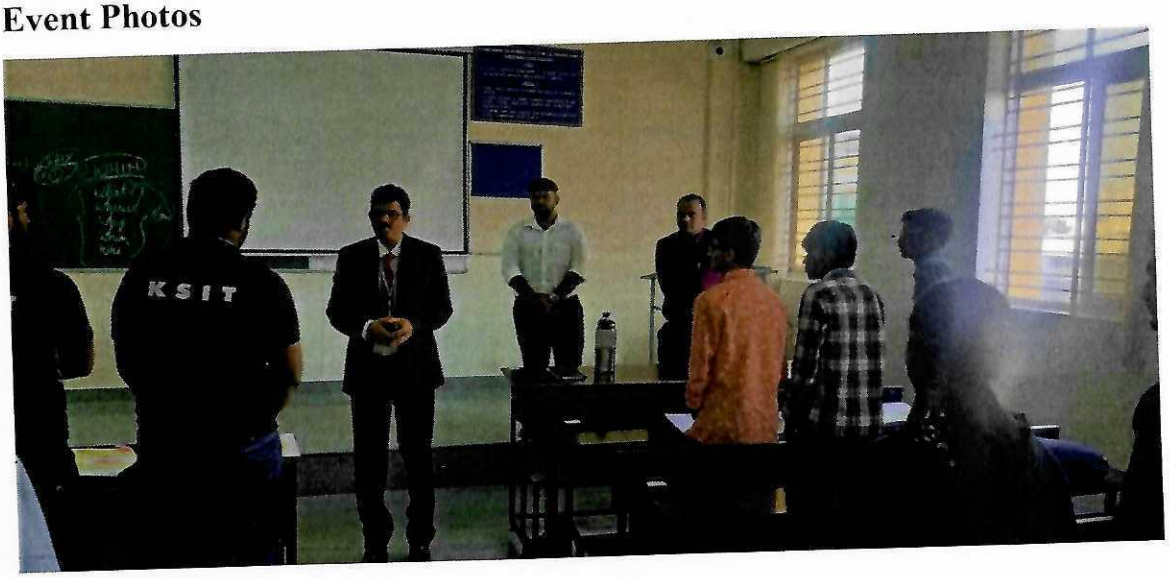
Mr. Ajith G Joshi, has conveyed vote of thanks to management, Principal, HOD, resource person, students and others who have helped for the successful conduction of the event.

The faculty members and students of ME have supported for the smooth conduction of the event. Department of Mechanical Engineering thanks the management for supporting to conduct the event successfully.

Key Outcome of the Activity

- Participants gain a thorough understanding of how to successfully map and define a current challenge, resulting in a clear and accurate problem statement.
- Participants were able to develop and prioritize, high-potential solution ideas ready for development.
- Participants were have learnt to clearly articulate the problem, solution, and impact using concise pitches to gain organizational buy-in.

Event Photos

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Bengaluru
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EO	Event Outcomes
EO1	Learners mastered effective problem-solving techniques and frameworks.
EO2	Participants successfully generated novel, viable solutions through ideation.
EO3	Teams developed actionable prototypes derived directly from user needs

EO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO12
EO1	✓	✓		✓								✓	
EO2	✓		✓		✓	✓	✓	✓		✓		✓	
EO3		✓	✓	✓	✓		✓		✓	✓		✓	

	PO1				PO2				PO3	PO4	PO5		PO6			PO7	PO8	PO9	PO10	PO11
	WK1	WK2	WK3	WK4	WK1	WK2	WK3	WK4	WK5	WK8	WK2	WK6	WK1	WK5	WK7	WK9	-	-	-	WK8
EO1	✓	✓		✓				✓				✓								
EO2	✓							✓	✓											
EO3	✓					✓	✓					✓								

Sl. No.	Sustainable Goals Addressed with Justification *Select (√) the Relevant SDG*					
	SDG3	SDG4	SDG7	SDG9	SDG11	SDG12
1			✓	✓	✓	✓

Program Outcomes (POs)

PO1: Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

PO3: Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

PO4: Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

PO5: Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

PO6: The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).

PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8: Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9: Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences.

PO10: Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: Life-Long Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

PSO1: Ability to apply concept of mechanical engineering to design a system, a component or a process/system to address a real world challenges

PSO2: Ability to develop effective communication, team work, entrepreneurial and computational skills

KNOWLEDGE ATTITUDE PROFILES (WKS)

WK1: A systematic, theory-based **understanding** of the **natural sciences** applicable to the discipline and awareness of relevant social sciences.

WK2: Conceptually-based **mathematics, numerical analysis, data analysis, statistics** and

formal aspects of computer and information science **to support detailed analysis and modelling applicable to the discipline.**

WK3: A systematic, **theory-based formulation of engineering fundamentals** required in the engineering discipline.

WK4: Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.

WK5: Knowledge, including **efficient resource use, environmental impacts, whole-life cost, re-use of resources, net zero carbon, and similar concepts**, that supports engineering design and operations in a practice area.

WK6: Knowledge of **engineering practice (technology)** in the practice areas in the engineering discipline.

WK7: Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the **professional responsibility** of an engineer to **public safety** and **sustainable development.**

WK8: Engagement with selected knowledge in the current **research literature** of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues

WK9: Ethics, inclusive behavior and conduct. Knowledge of **professional ethics, responsibilities, and norms of engineering practice.** Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes.

Justification:

EO1: PO1, PO2, PO4, PSO1

- PO1 – Participants have applied the gained engineering knowledge to interpret problems and choose appropriate analytical tools.
- PO2 – Participants have demonstrated the ability to identify, analyse, and decompose complex problems using structured techniques.
- PO4 – Participants have investigated through systematic inquiry, data gathering, and evaluation of alternatives.
- PSO1 – Participants have applied problem-solving frameworks within the mechanical and interdisciplinary domain and demonstrated the ability to use specialized tools and

methods.

EO2: PO1, PO3, PO5, PO6, PO7, PO8, PO10, PSO1

- PO1 – Participants successfully developed ideas, which requires grounding creative ideas in technical feasibility, drawing on engineering fundamentals.
- PO3 – Participants have successfully generated novel solutions that meet specified needs.
- PO5 – Participants have shown the ability to refine and evaluate concepts in the process of ideation.
- PO6 – Participants have successfully developed Viable solutions, considering societal needs, constraints, and impacts.
- PO7 – Participants have successfully evaluated solution viability through includes environmental considerations, sustainability trade-offs, and responsible design.
- PO8 – Participants have demonstrated Ethical responsibility by selecting and proposing solutions that avoid harm and respect user rights.
- PO10 – Participants have demonstrated communication skills,. by explaining their developed ideas and solution.
- PSO1 – Participants have successfully generated innovative solutions demonstrates higher-order, domain-specific creativity and contextual problem-solving.

EO3: PO2, PO3, PO4, PO5, PO7, PO9, PO10, PSO1, PSO12

- PO2 – Participants have successfully analysed the given problem to propose the solution.
- PO3 – Participants have successfully demonstrated design capability for developing solutions.
- PO4 – Participants have successfully demonstrated skill of investigation through iterative process of testing, validation and refinement.
- PO5 – Participants have successfully demonstrated the use of modern tools such as fish bone analysis, mind gap analysis to develop solutions
- PO7 – Participants have successfully demonstrated the environment and sustainable concerns in developing solutions and design choices
- PO9 – Participants have successfully demonstrated the ability as an individual and as collaborative team member in developing problem identification to solution
- PO10 – Participants in the teams have shown the ability to communicate through documentation, presentation, and justifing their solution.

- PSO1 – Discipline-specific Application: Prototypes reflect the application of domain-specific engineering knowledge and tools.
- PSO1 – Participant have built the potential actionable solutions, demonstrating practical skills and contextual understanding of real-world needs.

EO1:WKS1, WKS2, WK4,

Participants shown the structured analytical thinking, supporting the application of **Engineering Knowledge**, **Problem Analysis**, and **Investigations** skills.

EO2: WKS2, WKS5, WKS5, WKS7, WKS9

Participants demonstrated the creative ideation grounded in feasibility and responsibility, mapping to **Design**, **Modern Tools**, **Societal and Ethical Responsibility**, **Sustainability**, and Communication.

EO3: WKS2, WKS4, WKS5, WKS9

Participants demonstrated applied engineering practice through user-centered prototyping, aligning with **Design**, **Investigations**, **Modern Tools**, **Teamwork**, Communication, and **Project Management**, while reinforcing sustainable and iterative learning practices.

EO to SDG Mapping

- Participants proposed creative solution addressing energy efficiency and sustainability, supporting **SDG7**.
- Participants proposed novel, feasible ideas directly contribute to innovation ecosystems, mapping to **SDG9**.
- Participants demonstrated ideation involve urban, mobility, or community-focused problems, linking to **SDG11**.
- Participant applied disciplined frameworks encouraging efficient, optimized use of resources and waste reduction, supporting **SDG12**.

Coordinator

HOD

Head of the Department
Dept. of Mechanical Engg.
K.S. Institute of Technology
Bengaluru - 560 109.

Principal

PRINCIPAL
K.S. INSTITUTE OF TECHNOLOGY
BENGALURU - 560 109

K.S.INSTITUTE OF TECHNOLOGY, BENGALURU - 560109

DEPARTMENT OF MECHANICAL ENGINEERING

& Institution's Innovation Council

Participants Details I Semester Students & Staff

"Boot Camp On: Problem Solving And Ideation". On 26th November 2025

Date: 26.11.2025

SL.NO	USN	NAME OF THE STUDENT	SIGNATURE
1		ANITA	
2		AYUSH RAJ	
3		BHUVAN K	
4		BINITA SAI C	
5		CHINMAY S	
6		D JYOTHISWAR	
7		DARSH KRISHNA U	
8		DHARANESH KUMAR D S	
9		GOUTHAM PRASAD B G	
10		K R RAHUL	
11		K T ADITHYA NAMBIDAR	
12		MAHALING PARAMANNA SHIVOOR	
13		MARNI MURAHARI KALYAN	
14		MOHAMMED MOHTASHIM	
15		NAVEEN VASISTA K M	
16		PRATHIK KUNDAR	
17		PUNITH C M	
18		RAGHAVENDRA PUNDARIKAPPA B	
19		RAMANA GOWDA	
20		RANJITH KUMAR B R	
21		SAI RAM V	
22		SANCHIT B A	
23		SANNABENNI KARTHIK MANJAPPA	
24		C HEMANTH KUMAR	
25			

Co ordinator Signature

(Ajith G. Joshi)

HOD

"Bootcamp on Problem Solving and Ideation" Organized by Department of Mechanical Engineering in Association Institution's Innovation Council

16 responses

Publish analytics

Full Name

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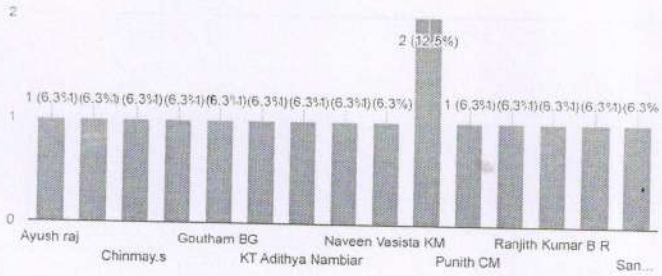
16 responses



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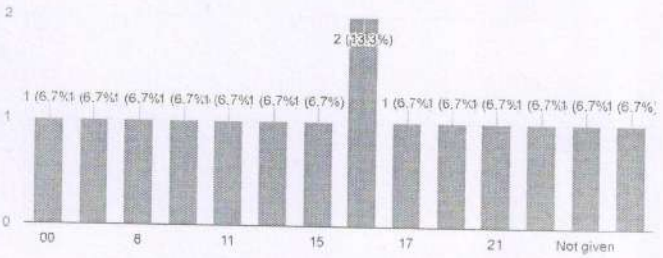

How relevant and useful were the problem-solving frameworks (e.g., Root Cause Analysis, 5 Whys, etc.) presented in this bootcamp to your current professional challenges?

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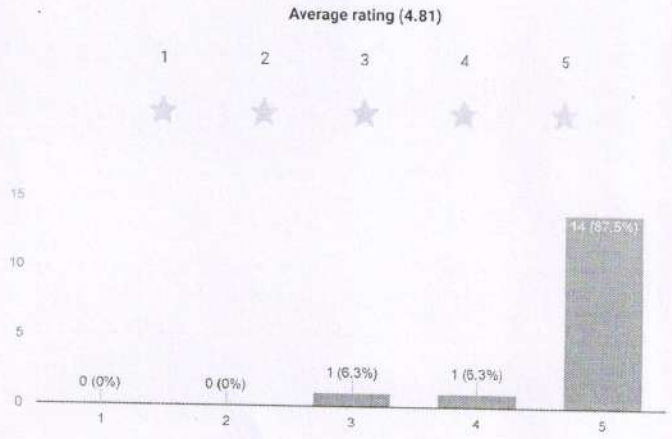
16 responses



Were the topics covered at the right level of detail? Would you have preferred a deeper dive into one specific area (e.g., **Design Thinking**) or broader coverage of more techniques?

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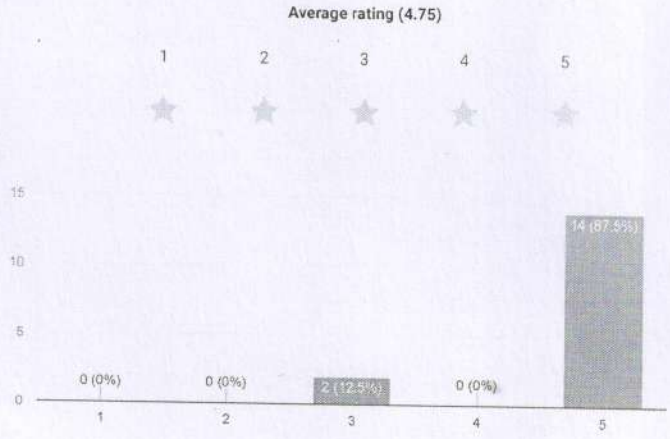
16 responses



Do you feel more confident in your ability to define a problem, generate a diverse range of solutions, and select the most promising ideas after attending this bootcamp? *(Please rate on a scale of 1-5, where 5 is 'Significantly more confident').*

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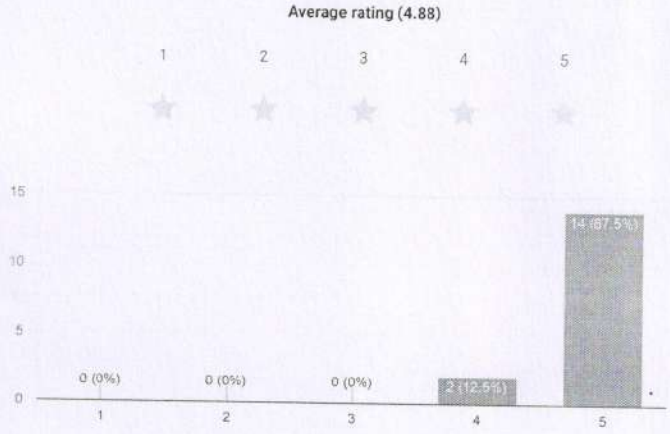
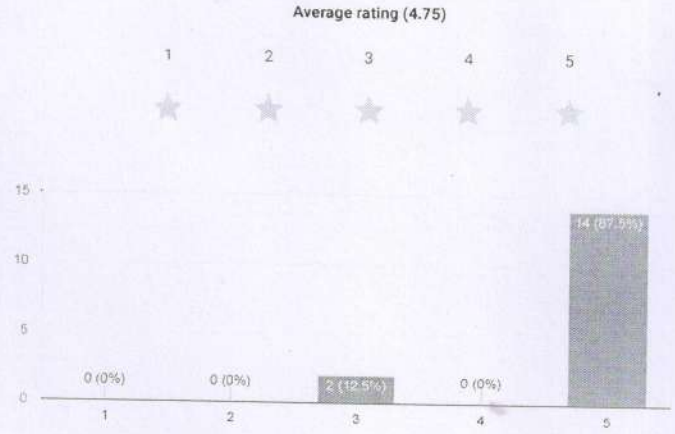


How would you rate the pacing of the content? Was there enough time dedicated to practical exercises and group ideation sessions? Copy

16 responses



How effective was the instructor/facilitator in guiding the group through the ideation exercises and managing discussions? Copy

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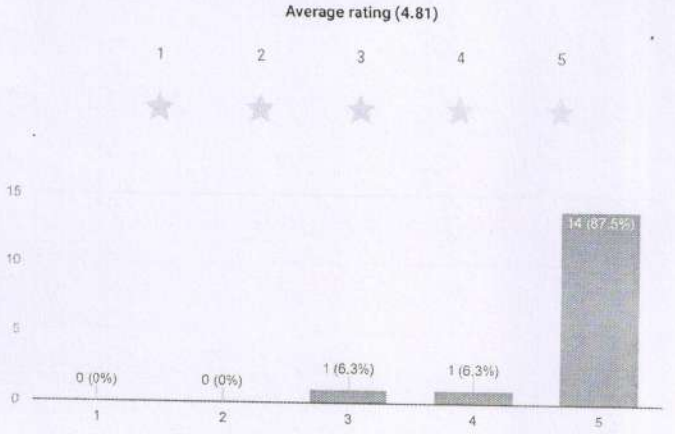

Were the provided resources (slides, worksheets, templates) clear, well-organized, and helpful for reference after the bootcamp? Copy

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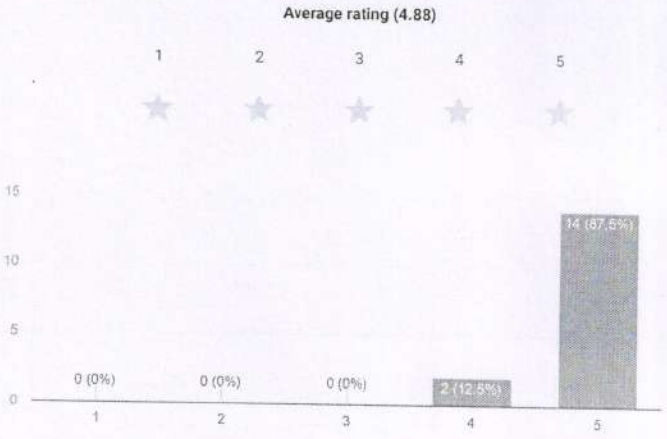

What was the single most valuable concept, tool, or exercise you learned during the bootcamp that you plan to implement immediately in your work?

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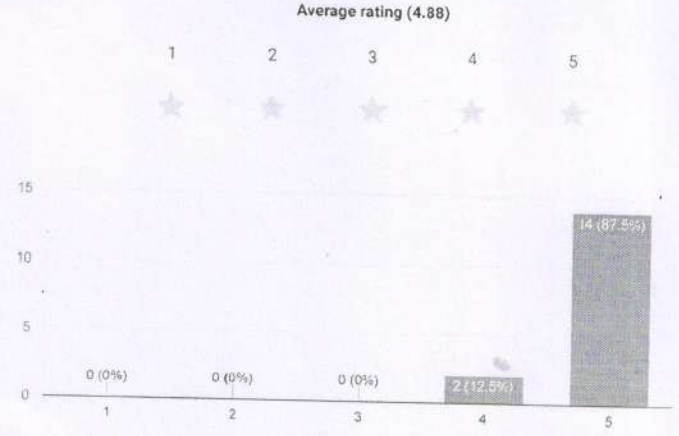

Which session or activity was the least valuable or helpful for you, and why?

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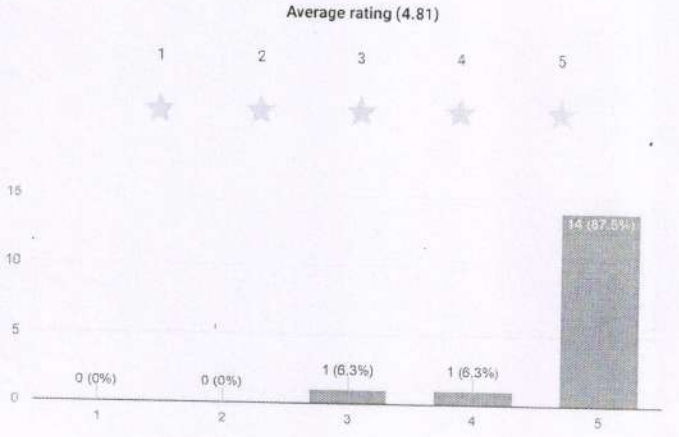

Given the choice, would you prefer a shorter, more intense version of this bootcamp, or a longer, more spread-out format (e.g., one session per week for a month)?

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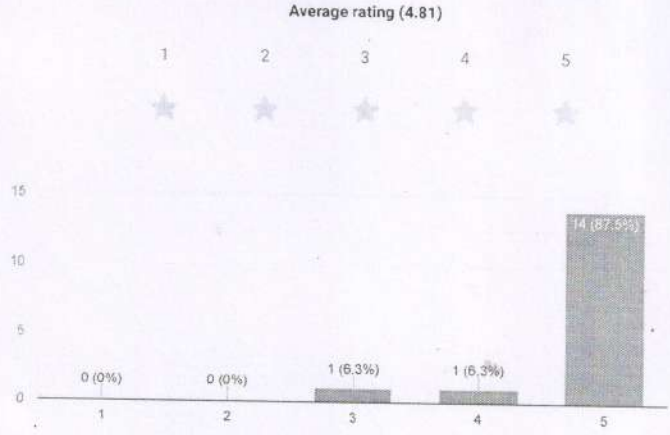

On a scale of 0 to 10, how likely are you to recommend this "Problem Solving and Ideation" bootcamp to a colleague? *(This is the classic Net Promoter Score question)*

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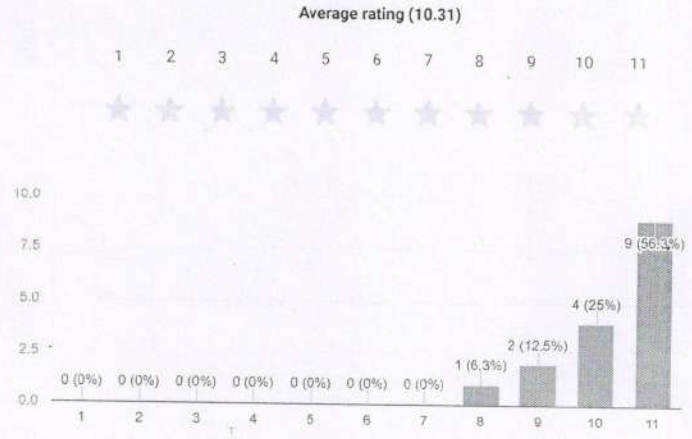

(Ajith G. Joshi)