



SAL INSTITUTE OF TECHNOLOGY & ENGINEERING RESEARCH

Civil Engineering Department

SEMINAR

FOR

**“CRITICAL THINKING FOR DESIGN
ENGINEERING”**

On

14th Feb, 2022

Director & Principal: Dr. Rupesh Vasani

Head of Department- Prof. V. G. Patel

Session Conducted by - Dr. Sejal Desai

Department of Civil Engineering

SAL Education, Ahmedabad

- Date: 14/2/2022

- Venue: SAL Institute of Technology and Engineering Research
- Mode of Workshop: Online-Zoom
- Title of Workshop: Critical Thinking for Design Engineering
- Name of Speaker: Dr. Sejal Desai
- Number of Students Participated: 67
- Number of Students Participated: 11
- Number of External Participated (if any): Nil

Name of the Discipline & the Programme:

Civil Engineering Department, SALITER.

Department had organized a Presentation Session on "**CRITICAL THINKING FOR DESIGN ENGINEERING**". The same was organized with the view of introducing the students to this knowledge.

Relevance:

This is a mid-level course designed for those who have undergone the fundamentals of design thinking. So now a day's product design designer uses innovative thinking to design a product.

Objective: To make the students aware about critical thinking and carrying out proper solutions of the problems

The workshop aims to validate the learning's from the understanding design thinking by translating the concepts into exercises.

In this module, students will work upon community based projects to validate their learning of Design Thinking process and try to solve real issues

Benefits in Terms of Learning, Skills & Knowledge:

Apart from teaching is necessary for the students to be interacting with various life problems for the technological knowledge. Students can learn how the industry runs. How the different departments and process can have collaboration to do smooth work in the Industry they can observe. Students have chance to make good interaction with Industry . So they can have good skill development for the various problem solutions.

About the Event:

The Department of Civil Engineering of SAL Institute of Technology & Engineering Research has organized an Awareness Program on “**CRITICAL THINKING FOR DESIGN ENGINEERING**” for third year students. This workshop was organized so that students can understand how the actual solution is worked out with critical thinking for preparing the various products and services as per the need.

Course Contents:

Here in pre-final year, emphasis will be on Observation, Empathy and Ideation.

Few general points needs to be covered are as mentioned below

- Design Thinking Skills
- The psychological principles of problem solving and creativity
- The relationship between creativity, problem solving, and product performance
- How to generate and identify creative ideas
- Seeing different perspectives
- Identifying Customer Needs
- Designing and defining product Specifications
- Applied Creativity
- Prototyping
- Design for Services
- Design for Environment etc.

Designing something new involves several iterations on different stages, components, aspects before investing further resources in terms of time, money, manpower.

It is important to strengthen these five principles to advance for novelty. It will include several rigorous iterative efforts to make final product/process.

Highlights of the workshop:-

The medium for this session was the Online due to the COVID-19 circumstances. **69 Students** joined for this session on Zoom over the link <https://us02web.zoom.us/j/4977661549?pwd=ekhTdXBRTW95bHd5QjBESWsxQURrZz09>. The presentation was conducted by **Dr. Sejal Desai** at 11:30 Video Link. This one hour workshop was held in the **Civil Department (SALITER)** on **14th Feb, 2022**. There were in all **78**

participants of which **67 students and 11 faculties** who attended the workshop and got benefited by it.

The image shows a Zoom meeting window with a presentation slide. The slide features logos for MoE's INNOVATION CELL (GOVERNMENT OF INDIA), INSTITUTION'S INNOVATION COUNCIL, and ANITE. The main title is 'SAL EDUCATION' followed by 'CRITICAL THINKING FOR DESIGN ENGINEERING'. Below this, it reads 'SAL INSTITUTE OF TECHNOLOGY AND ENGINEERING RESEARCH', 'CIVIL ENGINEERING DEPARTMENT', 'Date: 14 February 2022', and 'Dr. Sejal Desai'. The Zoom interface includes a 'Recording' indicator, a participant list on the right with names like Sejal Desai, Kunj Patel, and Mittal Shah, and a Windows taskbar at the bottom with various application icons and system tray information.

Zoom Meeting

Recording Original Sound: Off

MoE's INNOVATION CELL (GOVERNMENT OF INDIA)

INSTITUTION'S INNOVATION COUNCIL

ANITE

SAL
EDUCATION

**CRITICAL THINKING FOR DESIGN
ENGINEERING**

SAL INSTITUTE OF TECHNOLOGY AND ENGINEERING RESEARCH

CIVIL ENGINEERING DEPARTMENT

Date: 14 February 2022

Dr. Sejal Desai

Sejal Desai

Kunj Patel

200670106009_...

200670106009_Yash ...

Mittal Shah

Mittal Shah

B_200670106530_Tan...

EN AM 11:35 14-02-2022


Close		Participants (78)	
Search			
A	A_05_190670106001_Saurabh (me)		
S	Sejal Desai (Host)		
D	1_200670106001_Daksh B Patel		
1M	11_200670106504_Jainee More		
1R	14_200670106507_mitul paghdal		
1P	16_200670106509_Bhavik Rami		
1P	19_200670106019_Nishit Patel		
M	20_200670106513_Meetpatel		
2P	200670106007_Vedant Patel		
2B	200670106009_Yash bhatol		
2M	200670106014_Dhwani Maheta		
2B	200670106532_yagnik boghara		
2P	200670106567_Bhatt Pinkesh		
2	20067016552		
21	21_200670106514_Butani Meet		
	210670106501_Bhargav Rawal		
2J	210670106503_Jaydip		
2P	210670106507_Dev Pandya		
	210670106510_Krishna Patel		
2D	210670106529 dev Patel		
2K	210670106533_Akshata Kondi		
2S	210670106538_Sneha Solanki		
2H	210670106541_Goswami Hetvi		
2	210670106542_Vansh		
2	210670106543_sunilauthar		
	210670106547_rashmi khetariya		
	210670106551_Shrivastav Shweta		
P	210670106563_Padhariya harsh		
2S	22_200670106515_Mehrin Shaikh		
	36_200670106529_Mansal Joshi		
B	45_200670106545 Bilal Qureshi		
BR	50_200670106543_Rohan Prajapati		
BC	8_200670106008_Dhyey Chotaliya		
A	A_07_190670106006_Dhaval		
	A_08_190670106007_Harshvardhan		
P	A_1_170670106030_Fragnesh Makwana		
	A_15_190670106015_Jayesh_hirani		
A	A_17_190670106017_OMKUMAR		
AV	A_24_190670106024_patani vipul		
A	A_42_190670106045_Manan		
M	A_47_190670106050_Mahesh Tamma		
BS	B_07_180670106080_Shubh Shah		
BB	B_12_200670106505_Pratik Bhavsar		
BA	B_200670106501_Aman Adeshara		
BA	B_200670106510_Alay S Gupta		
	B_200670106530_Tanmay Gadhiya		
A	B_26_200670106519_Ashish Makhanhar		
	B_31_200670106524_Piyush Makwana		
N	B_48_200670106541_NAIMESH RANA		
	B_49_200670106542_Vasava Maulik		
	Bibhabasu Mohanty		
CS	C_05_180670106086_Ajay suva		
CL	C_06_200670106544_Neel limbani		
CP	C_14_200670106549_Patel Sanjiv		
	C_22_200670106558_Mirza Abdulhannan		
	C_28_200670106566_Raju Maurya		
	C_37_200670106573_AJAY PATEL		
DP	Deep Patel		
DJ	Divyesh Jaisar		
DR	Dr. Roshni Rawal		
JD	Jagdish Desai		
J	Jay M. Patel		
JP	Jay Panchal		
JS	Jhanvli Sakaria		
	Kunj Patel		
MS	Mittal Shah		
PK	Patel Keval		
P	Patel nirav		
	Rinki Mishra		
S	Smita		
	Supriya Sinha		
R	210670106508 Raj Roat		
	A_33_190670106033_Naman patel		
A	A_20_190670106020_Neerav Rajesh kumar		
AS	A_45_190670106048_MRITYUNJAY SINGH		
EQ	Farman Qureshi		
MS	Manish Sachdeva		
MP	Mitul Patel		

Invite

Zoom Meeting | You are viewing Sejal Desai's screen | View Options

Recording | Original Sound: Off

WHAT IS DESIGN



❖ Design Is Not Just What It Looks Like And Feels Like. Design Is How It Works.

Participants: 64 | Chat | Share Screen | Record | Reactions | Apps | Leave

EN | AM 11:36 | 14-02-2022

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Objective: Applying Design Thinking

The course aims to validate the learnings from the understanding design thinking course by translating the concepts into exercises. Here branch specific topics need to be selected by students, apply reverse engineering, modify existing solutions and refine their learning for Design Thinking phases.

Participants (65)

Find a participant

- Kunj Patel (Me)
- Sejal Desai (Host)
- 09_200670106502_Prapti Dave
- 1M 11_200670106504_Jainee More
- 14_200670106507_mitul paghdal
- 1R 16_200670106509_Bhavik Rami
- 1P 19_200670106019_Nishit Patel
- M 20_200670106513_Meetpatel
- 2B 200670106009_Yash bhatol
- 2M 200670106014_Dhwani Maheta
- 2B 200670106532_yagnik boghara
- 2J 210670106503-jaydip
- 2P 210670106507_Dev Pandya
- R 210670106508_Raj Roat

Unmute | Start Video | Participants: 65 | Chat | Share Screen | Record | Reactions | Apps | Leave

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Zoom Meeting

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TOOLS AND TECHNIQUES OF DESIGN

Design Thinking Process – with Tools & Techniques

Module 2 (DE-1B): Applying Design Thinking

Broad segment	Week	Description	Operational need
Domain/Topic Selection	1	<ul style="list-style-type: none"> Branch Specific existing topic selection for Reverse Engineering (This topic must be different from 3rd sem topic) Team Selection (you may change your team member here in 4th sem) 	<ul style="list-style-type: none"> Brief lecture/exercise In this semester, student will use Design Thinking process learnt in 3rd semester to modify the selected RE topic
Reverse Engineering (RE)	2, 3	<ul style="list-style-type: none"> Reverse Engineering – Detailed study for Branch Specific topic Dissemble the existing selected artefact/product/component/process/system to study technical aspects and design detail involved Identify issues related to existing solutions 	<ul style="list-style-type: none"> Brief lecture/exercise Hands-on practice sessions with cases /examples Reverse engineering document link is given in General Guidelines document
Empathization Phase	4, 5	<ul style="list-style-type: none"> Observation: Through AEIOU framework and other Ethnography tools available Immerse via Role Playing Interview: <ul style="list-style-type: none"> Formal and informal interview Students may use Stanford 	<ul style="list-style-type: none"> Students need to visit their domain/place where they can interact with user for getting insights. Here, observation can be of direct user of the selected solutions, manufacturer and dealer or from point of view

Participants (69)

Find a participant

- Kunj Patel (Me)
- Sejal Desai (Host)
- 11_200670106504_Jainee More
- 14_200670106507_mitul paghdal
- 16_200670106509_Bhavik Rami
- 19_200670106019_Nishit Patel
- 20_200670106513_Meetpatel
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- 200670106014_Dhwani Maheta
- 200670106532_yagnik boghara
- 210670106501_Bhargav Rawal
- 210670106503-jaydip
- 210670106505_Shivam Makhan...

Windows Taskbar: AM 11:39 14-02-2022

Zoom Meeting

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Design Engineering Process

Design Engineering is based on methodology that is globally accepted and practiced by designers and engineers called "Design Thinking". Design thinking process may be divided into six simple yet iterative phases as shown below. At every semester students need to follow this whole process for their projects.

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Figure 1: Design Thinking Process

Participants (76)

Find a participant

- Kunj Patel (Me)
- Sejal Desai (Host)
- A_1_170670106030 Pragnesh...
- 1_200670106001_Daksh B Patel
- 11_200670106504_Jainee More
- 14_200670106507_mitul paghdal
- 16_200670106509_Bhavik Rami
- 19_200670106019_Nishit Patel
- 20_200670106513_Meetpatel
- 200670106007_Vedant Patel
- 200670106009_Yash bhatol
- 200670106014_Dhwani Maheta
- 200670106532_yagnik boghara
- 20067016552

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FEEL THE PAIN

GOOD DESIGN COMES FROM THE HEART
NOT FROM THE BRAIN

Participants (72)

Find a participant

- Kunj Patel (Me)
- Sejal Desai (Host)
- 1_200670106001_Daksh B Patel
- 1M_11_200670106504_Jainee More
- 14_200670106507_mitul paghdal
- 1R_16_200670106509_Bhavik Rami
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- 2M_200670106014_Dhwani Maheta
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to build Empathy-

75,000 Civil Engineers produced by India per year... a challenge still remain to link affordable drinking water supply to masses in urban areas.

Strengthen the appeal of socializing technologies

Participants (74)

Find a participant

- Kunj Patel (Me)
- Sejal Desai (Host)
- D_1_200670106001_DAKSH PATEL
- 1P_10_200670106010_DAKSH PATEL
- 1M_11_200670106504_Jainee More
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- 2B_200670106532_yagnik boghara
- 2P_200670106567_Bhatt Pinkesh

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● REC

to build Empathy-



Looking is just not enough !!!

- start gazing - start internalizing the pain
- start socializing engineering principles




Sejal Desai's screen

Zoom Meeting
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✔ Recording
 Original Sound: Off

View


I: PIANO STARS.mp4 - VLC media player
Media Playback Audio Video Tools View Help



00:10
00:21



Sejal Desai



Kunj Patel

P

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200670106009 ...

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200670106009_Yash ...

Participants (71)

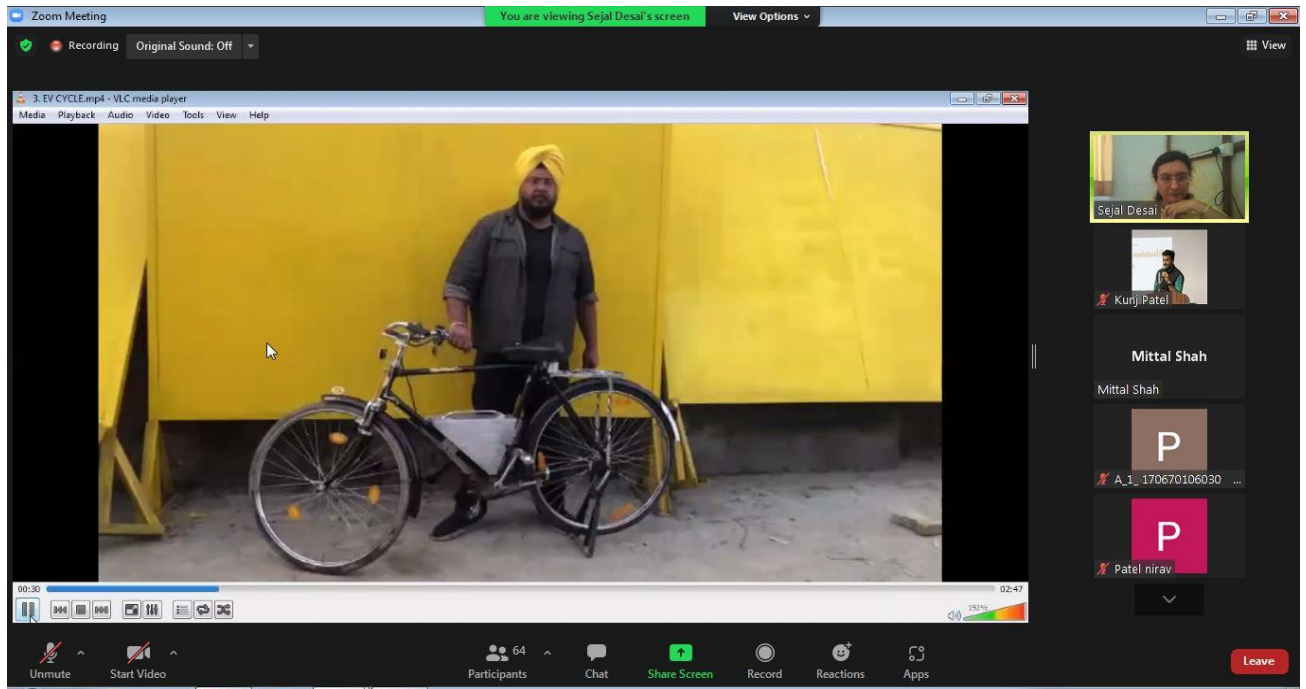
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	DP Deep Patel	🔇	🗑️
	DJ Divyesh jaisar	🔇	🗑️
	DR Dr. Roshni Rawal	🔇	🗑️
	JD Jagdish Desai	🔇	🗑️
	J Jay M. Patel	🔇	🗑️
	JP Jay Panchal	🔇	🗑️
	MS Mittal Shah	🔇	🗑️
	PK Patel Keval	🔇	🗑️
	P Patel nirav	🔇	🗑️
	Supriya Sinha	🔇	🗑️
	R 210670106508 Raj Roat	🔇	🗑️
	A_33_190670106033_Naman patel	🔇	🗑️
	MS Manish Sachdeva	🔇	🗑️

Invite
Unmute Me

Unmute
Start Video
Participants 71
Chat
➡ Share Screen
 🛑 Record
 😊 Reactions
 📱 Apps
 Leave

EN
AM 11:57

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📶
🔊
🕒 14-02-2022



Report Prepared by

Dr. Sejal Desai
Asst. Professor,
SALITER,
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