



AN ACHIEVEMENT REPORT OF BEST INSTITUTE IN E CONTENT DEVELOPMENT

2023

Name of the Institute:

SMEF's Brick school of
Architecture, Pune

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1. Importance of E Content

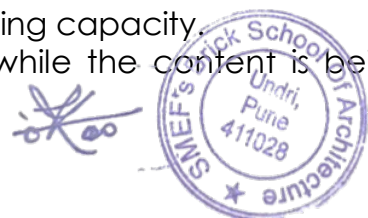
The world is transitioning toward digitization as a result of the development of the Internet and the world wide web (www). Students in the twenty-first century study outside of traditional classroom boundaries in a global setting. They are more likely to search for information online using computers and mobile devices, or by communicating with friends on social networking sites. The proliferation of strong and cutting-edge digital tools and gadgets, along with technological breakthroughs, have the potential to significantly enhance educational outcomes. The usage of digital information and gadgets will increase teaching and learning, expand educational opportunities, and benefit Millennials, which educators must recognize.

2. Realization and Objectives of the Institute towards E content

SMEF's Brick school of Architecture believes that the academic enrichment is a continuous process. At the pandemic times, the institute picked up the opportunity to prepare an effective e content for knowledge creation. The pandemic time was tough for students to grasp the learnings in online mode. The academic committee along with our faculty decided to take this challenge and prepared e content with following objectives.

E-content can be used in conjunction with any other teaching or learning strategy in a classroom setting. The following are the objectives of institute towards e-content development:

- To deliver the material through different media, such as computers, social portals etc.
- To strengthen student's focus on a certain topic for in-depth learning
- To experience emotional well-being through pleasant learning and student participation in active learning during the delivery of the information.
- To reuse the information repeatedly and unchanged across different groups in the same class.
- To be simple for the facilitators to handle while delivering the curriculum.
- Adapting the material to the demands of the present and future world.
- Including several senses to improve student's learning capacity.
- To manage the student's capacity for learning while the content is being delivered



- To develop self-reliance in terms of content supply under their own rules.
- To include all types of students in the classroom during the learning period, such as average, above average, and very clever ones.
- Using the abilities of learners who are auditory, visual, read-and-write, and kinesthetic
- To preserve the subject matter for a long time without causing damage, unlike traditional printed books.
- By having facilitators give the content, rote memorization is avoided
- to prepare the instructor in creating successful e-content and its knowledge and abilities.

After deciding the objectives out institute took a specific approach for e content development.

3. Approaches in E content development:

The e-content should adhere to the proper instructional design technique to ensure that the learning objectives and anticipated results are met. The time invested in creating the content should be reusable, cost-free, well-delivered, and rich in content across different learning management systems. All E content should be created from a cognitive perspective that emphasizes the stimulation of cognitive functions such as imagination, critical thinking, concept organization, recognition, analysis, attention, interpretation, retrieval, memorization, application in novel contexts to solve problems, concept augmentation, concept innovation, literary associations, and literary analysis.

Our institute designed a methodical framework for E content development and considered types of learners in the whole process.



4. Methodical framework of E content Development

E-content had a variety of advantages. Principally, the following advantages were thought by the institute to design the intent and framework.

- Encourage multiple types of collaboration
- Enhance your teamwork skills
- Encourage data sharing, adaptable resources, and anytime, everywhere access to information.
- Facilitate students' work evaluation and feedback by improving their communication skills and assisting them in exchanging design ideas, drawings, and information.
- Improve student's capacity to transfer their mental intentions into their designs and foster their creativity by having them come up with fresh ways to arrange things.
- Increase student understanding of relevant design concerns
- Boost the variety and richness of design and technology concepts.

INTENT BEFORE CREATING E CONTENT

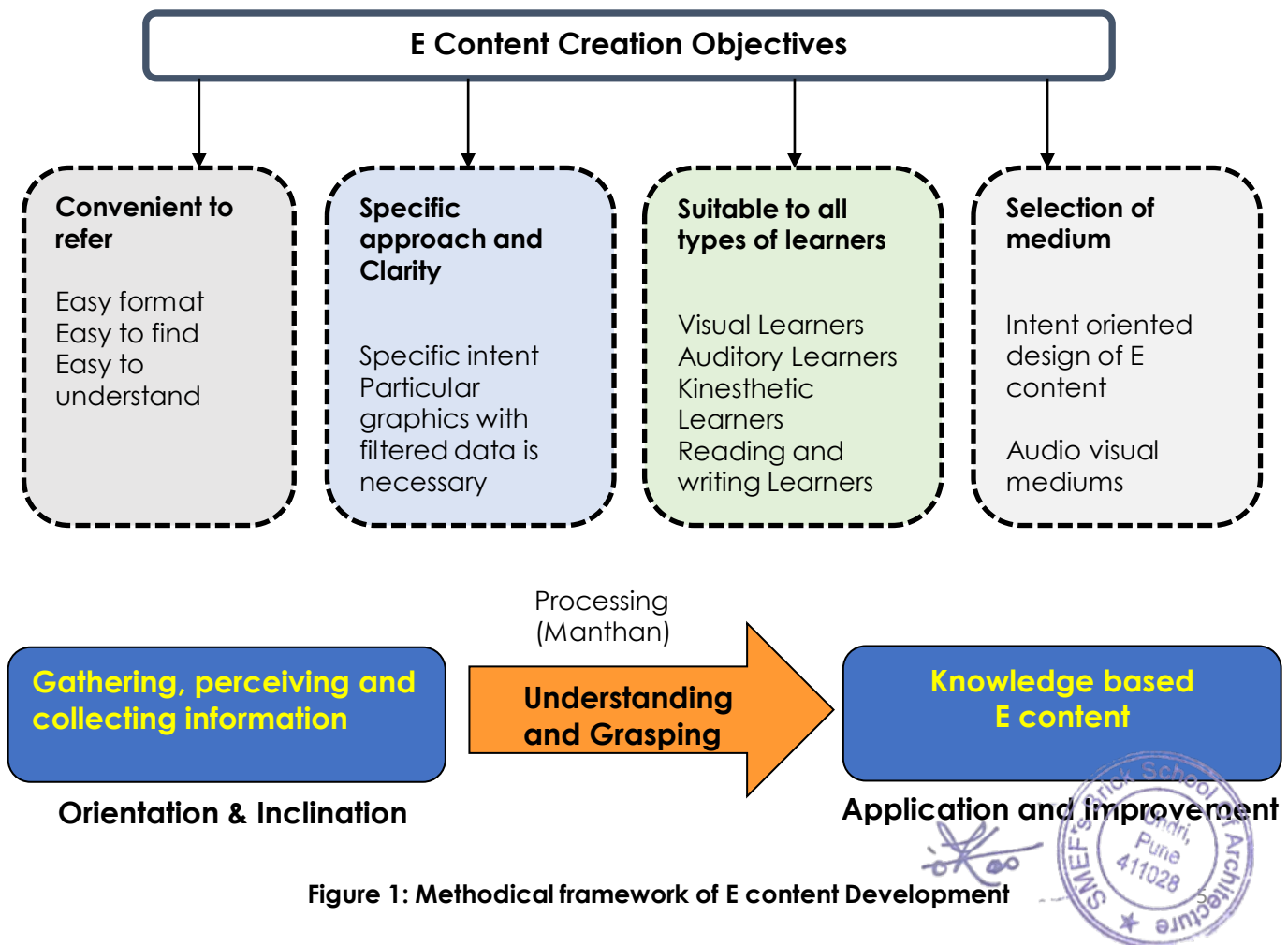


Figure 1: Methodical framework of E content Development

5. Methods and types of learning experience

Although there are benefits to classroom-based learning, there may be moments when you want to add new learning opportunities to your course. Our institute believes that these type of experiences will depend on the abilities and behavioral aspects of learners. The intent of E content development was designed as per types of learners. As per the learner's category, different forms of E content was developed as given in the figure 2.

DESIGN FRAMEWORK OF E CONTENT AS PER TYPES OF LEARNERS

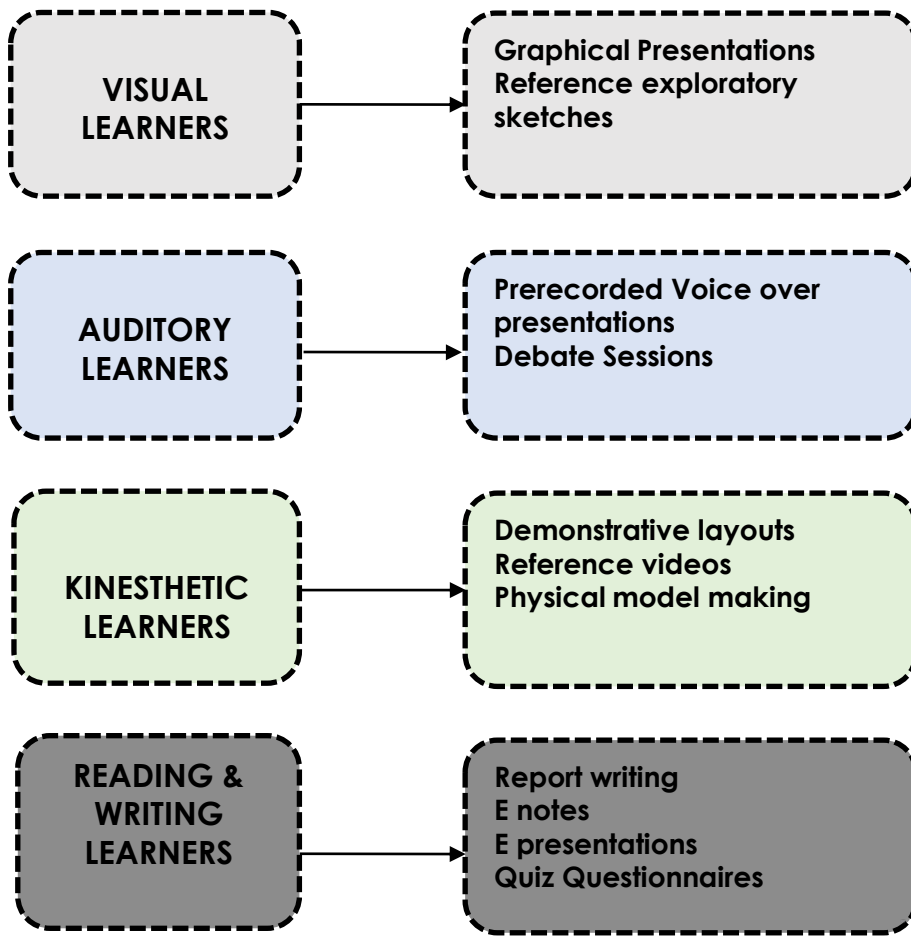


Figure 2: Design framework of e content as per types of learners



6. Subject wise Contribution and Tools

SMEF's teaching learning method is cohesive in terms of content, thinking and creativity. We learn the subjects under Design, thinking & construction streams. The intent is to get in depth knowledge of every subject and explore correlation between the subjects. Our faculty prepared E content of every subject as per the intent of the subject and triggering ideas for different explorations.

6.1 Detailed compilation and coordination in preparing E content notes

Our core faculty took a lead in creating E content for Building Services I as per BOS directives and completed the task in coordination and contribution from other college faculties under the guidance of Er. Jayant Patwardhan as an expert. Also, he did scrutiny with the help of expert Er. Jayant Patwardhan and suggested corrections to respective contributor faculties.

Also, with the coordination of all colleges, he prepared E content notes for Horizontal Drainage unit. Every topic notes had shared with BOS. It helped students for online exams as a one-point reference material in pandemic situation and also in current period.

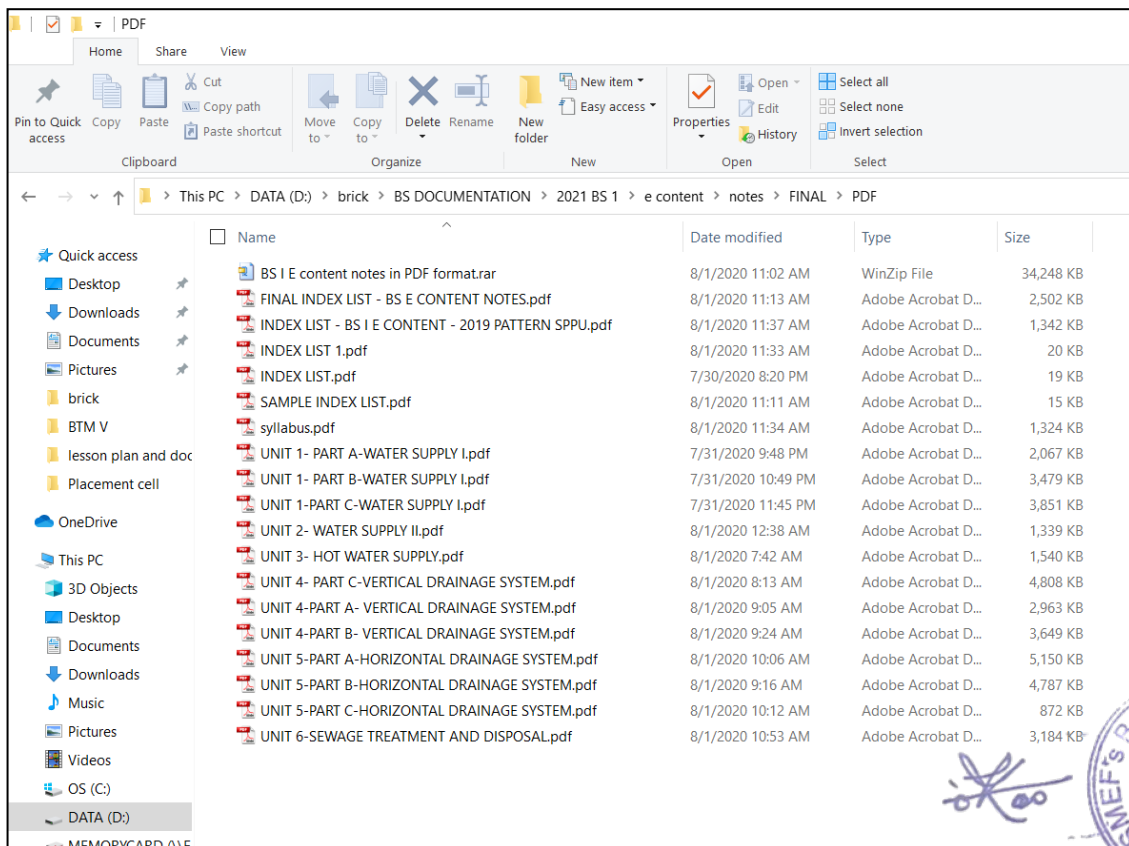


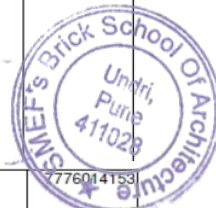
Figure 3: compilation of notes as E content



Subject wise Contribution and Tools

Table 1 Distribution of Units with SPPU college's faculties for E Content development

Building Services I (as per 2019 Pattern syllabus, SPPU) E Content - Index list						
Cordinated and reviewed by Ar. Sudhir Deshpande, SMEF's Brick school of Architecture, pune and Er. Jayant Patwardhan, BNCA, Pune						
Sr. No.	Units as per 2019 pattern syllabus	Contents	Compiled by	College name	email id	contact no.
1	UNIT 1- PART A-WATER SUPPLY I	Principles and techniques of supplying water, Treatment of water - Concept of Pressure head - Flow through pipes,	Ar. Pradnya Patki	BKPS COA, Pune	pradnyapatki@bkps.edu	9767248138
2	UNIT 1- PART B-WATER SUPPLY I	Tapping of water mains on street by means of Ferrule, Requirement, Storage and distribution of water in building premises - Sizing of Water tanks - Static water storage requirements (Fire Tank) -	Ar. Raghunandan A, Ar. Preeti Jogalekar	MMCOA, Pune	raghunandan.a@mmcoa.edu.in	8447184081
3	UNIT 1- PART B-WATER SUPPLY I	Collection and Storage systems - Types of Pumps and applications - Storage and Distribution in High rise buildings	Ar. Vinita Lavate, Ar. Preeti Jogalekar	MMCOA, Pune	vinita.lavate@mmcoa.edu.in	9,922,123,324
4	UNIT 1-PART C-WATER SUPPLY I	Pipes and piping network - Materials of Pipes - Joinery - Installation techniques, Various control valves and their applications	Ar. Asmita Kale (Under the guidance of Dr. Priyamvada Chitale)	Sinhgad COA, Pune	asmitakale.scoa@sinhgad.edu	9881996482
5	UNIT 2- WATER SUPPLY II	Types of Taps, Faucets, Fittings and advanced proprietary systems used in baths, kitchen and WC units. Provisions, Installations and applications of above	Ar. Tanmayee Panase (Under the guidance of Dr. Priyamvada Chitale)	Sinhgad COA, Pune	tanmayeepanase.scoa@sinhgad.edu	8446636000
6	UNIT 3- HOT WATER SUPPLY	Hot Water Supply. Systems of hot water supply using conventional and non-conventional energy sources. - Instantaneous and Centralized - Direct system and In-Direct system -	Ar. Rajashri Deshpande Ar. Vaishali Munehsvar	Aayojan school of Architecture & Design, Pune Allana college of Architecture	rdp.pune@aayojan.edu.in vaishalimuneshwar@gmail.com	8554982719 8605161619
7	UNIT 3- HOT WATER SUPPLY	Piping Insulation, safety and special considerations in piping network. Failures, precautions, and safety measures Information on other Circulation systems i.e. ring system, up-feed/ down-feed systems, etc. and its application.	Ar. Rajashri Deshpande Ar. Vaishali Munehsvar	Aayojan school of Architecture & Design, Pune Allana college of Architecture	rdp.pune@aayojan.edu.in vaishalimuneshwar@gmail.com	8554982719 8605161619
8	UNIT 4-PART A- VERTICAL DRAINAGE SYSTEM	Introduction to various sanitary fittings with necessary knowledge of provisions to be made and their Installations. - Sanitary fittings like Wash basins, Sinks, Bathing units, Water Closets (Indian and European), Urinals - Selection criteria and variations in Installing and provisions to be made for same - Assembling, combining and coordinating them in washing, bathing and WC units	Ar. kalyani Nilesh Junankar	SKNCOA, pune	kalyanilesh2911@gmail.com	9822835671
9	UNIT 4-PART B- VERTICAL DRAINAGE SYSTEM	Study of various Traps, with their working and applications. - All types of traps and their installation.	Ar. Rupali Borhade,	DYPCOA, Akurdi, Pune,	rupaliborhade.dypcoa@gmail.com	9890227222
10	UNIT 4- PART C- VERTICAL DRAINAGE SYSTEM	Pipes and piping network. Techniques of Vertical drainage system in shafts, ducts and external face of low, medium and high rise buildings. - Study of service Shafts, Ducts, Floors - Single and double stack systems with part and full ventilation	Ar. Deeparani Chougule	VIT's PVPCOA, Pune	chougule.pvpcoa2020@gmail.com chouguledeepa.pvpcoa08@gmail.com	9657843853
11	UNIT 4- PART C- VERTICAL DRAINAGE SYSTEM	Pipe materials, their classification and methods of Installation - Special fittings used for - Joining and installations. - Special fittings for High rise buildings (vent system, Expansion chambers, Pressure relief lines, Bypass Socket etc) - Anti-Syphonic system of ventilation in drainage system	Ar. Yashashree L A	VIT's PVPCOA, Pune	yashashree.la.pvpcoa@gmail.com	7798984319
12	UNIT 5-PART A- HORIZONTAL DRAINAGE SYSTEM	Techniques of underground drainage systems for waste water, effluents and sewage. Principle and concept of self-cleansing velocity in flow through pipes. Techniques in laying, leveling, planning, aligning, testing, inspection and maintenance - Invert levels, Gradients, Access point planning	Ar. Jayalaxmi Deshmukh	BSOA, Pune	jaya@brick.edu.in	8830984186
13	UNIT 5-PART B- HORIZONTAL DRAINAGE SYSTEM	Types of Chambers, Sumps, Channels, Shafts, service corridors, catch basins - Ventilation of drainage system. - Connection to Main Sewer Drain on Road side	Ar. Sudhir Deshpande	BSOA, Pune	sudhirdeshpande@brick.edu.in	9776014153 8
14	UNIT 5-PART C-	Rainwater drainage system and	Ar. Niranjan / Under the	BNCA, Pune	niranjan@bnca.ac.in	9876792926



6.2 detailed compilation and coordination in preparing e content readers for design subjects

Architectural design subject requires reading from multiple subjects, sources. There is no single point reference. Therefore, our institute take conscious efforts to prepare a comprehensive reader which includes all required data and reading material for students. It also includes standard theories and design principles.

Urban Design Studio- Reader- Semester 8- 2021-22

Urban Design Studio-Housing Reader- Semester 7

Prepared by: Ar. Ninad Rewatkar

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Urban Design Studio- Reader- Semester 8- 2021-22

Urbanisation in India

Introduction

More than half of the world's population now live in urban areas — increasingly in highly-dense cities. However, urban settings are a relatively new phenomenon in human history. This transition has transformed the way we live, work, travel and build networks. This entry presents an overview of urbanization across the world, extending from the distant past, to present, and projections of future trends.

Number of people living in urban areas
 More than 4 billion people – more than half of the world – live in urban areas
 For most of human history, most people across the world lived in small communities. Over the past few centuries – and particularly in recent decades – this has shifted dramatically. There has been a mass migration of populations from rural to urban areas.
 How many people live in urban areas today?
 In the visualization we see estimates from the [UN World Urbanization Prospects](#) on the number of people globally who live in urban and rural areas. In 2017, 4.1 billion people were living in urban areas.
 This means over half of the world (55%) live in urban settings. The UN estimates this milestone event – when the number of people in urban areas overtook the number in rural settings – occurred in 2007.
 You can explore the data on urban and rural populations for any country or region using the "change country" toggle on the following chart: (Richie & Roser, 2018)

Number of people living in urban and rural areas, World, 1960 to 2020

Source: World Bank based on data from the UN Population Division. Note: Urban populations are defined based on the definitions of urban areas by national statistical offices. OurWorldInData.org/urbanization • CC BY

Urban Design Studio- Reader- Semester 8- 2021-22

Layers of Urban Morphology Mapping

Urban morphology is the study of urban spatial form – the assemblage of buildings and public spaces that comprise the city. It also entails analysis of the forces that produce such an assemblage and the spatial practices that are produced therein. The mapping of urban morphology requires that we treat the city as a series of distinct layers of information and then select particular layers for specific analytical purposes. In urban design these often include: building footprints, heights, types, grain size, densities, functions, movement networks and streetlife.

Why do we understand and analyze the layer of Urban Morphology in Urban Design Studio?

The focus of doing the Urban Morphology mapping on an understanding of how various techniques of urban mapping can creatively contribute to different urban design concepts, approaches and outcomes within a global context. Urban Morphological Mapping forms part of the Towards Practice Specialisation in the field of Urban Design.

Objectives:

1. Comprehend the role and importance of morphological mapping for urban analysis and design;
2. Critique a layered morphological database;
3. Develop layered database for an urban site;
4. Apply mapping as an analytical, communicative and creative tool for urban design

Generic skills:

1. Mapping and graphic representation.
2. Use of computerised databases.
3. Ability to engage in interdisciplinary work.
4. Use and citation of sources.
5. Written, verbal and visual presentation of ideas.
6. Ability to analyse social and cultural contexts.
7. Critical thinking and analysis.

Following is an article based on the exhibition where the author is trying to showcase Layers of Urban Morphology for the city of Melbourne as a case study. This article introduces the field of urban morphological analysis and a range of mapping techniques.
 by Coordinator: Dr. Elek Pafka Tutors: Shwili Ravisankar and James Kelly

Throughout the semester we used a transect of central Melbourne along Russell Street as a laboratory for exploring these themes. This is an urban area that slices through a range of morphological conditions, densities, spatial practices, experiences and transformational prospects. The studied transect has been divided into 14 zones. While for some exercises students were focussing on only a slice of it, for other exercises they mapped the entire transect. The exhibition presents the final assignment which is a choice between 'Assemblage' and 'Collage'. For 'Assemblage' students choose a keyword from a list and use that as a theme from which to produce a map of the whole transect. The keywords span across the various layers of urban life mapped throughout the semester. The aim is to visualize relevant links between the various layers. For 'Collage' the task was to propose a typological diversification of the transect. The proposed urban intervention had to increase the diversity of the transect by introducing one or more new urban type(s): street, square, building, interface, monument or any other urban element that doesn't exist in central Melbourne.

This exercise is relevant for students majoring in Architecture, Landscape Architecture, Urban Planning, Property and Spatial Systems, as well as for prospective students of Urban Design.

DIVERSIFYING URBAN ATMOSPHERES AND PEDESTRIAN EXPERIENCE

PEDESTRIAN & CYCLIST GARDEN LINK - SUPERKILN URBAN PARK BY BBS ARCHITECTS

GARDEN BROKE LINKING QV & CHURCHTON - THE BUDDO LINE BY ASPECT STUDIOS

PEDESTRIAN PLAZA ACCENTUATING CELLINS STREET - HAMBROOK BY BBS ARCHITECTS

Figure 5: Creation of comprehensive Design Readers

6.3 detailed compilation and coordination in preparing e content readers for construction subjects

Construction subject requires reading from multiple sources, allied fields. There is no single point reference. Therefore, our institute take conscious efforts to give learning to our students beyond the syllabus. Our faculty prepare a comprehensive reader which includes all required data and reading material for students. It also includes standard theories and technical details.

SMEF'S GROUP OF INSTITUTES
 BRICK SCHOOL OF ARCHITECTURE

ADVANCED BUILDING TECHNOLOGY AND SERVICES

Team -
 Prof. Hemant Joshi
 Ar. Swati Vaidya
 Ar. Anurakt Yadav

Batch -
 Fourth Year Term I, Jan-Nov 2020

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LONG SPAN STRUCTURE

Long span roofs are generally defined as those that exceed 12 m in span. Long span roofs can create flexible, column-free internal spaces and can reduce substructure costs and construction times.

Long span roof are today widely applied for sport, social, industrial, ecological and other activities. The experience collected in last decades identified structural typologies as space structures, cable structures, membrane structures and new - under tension - efficient materials which combination deals with lightweight structural systems, as the state of art on long span structural design. In order to increase the reliability assessment of wide span structural systems a knowledge based synthetic conceptual design approach is recommended.

Theoretical and experimental in scale analysis, combined with a monitoring control of the subsequent performance of the structural system, can calibrate mathematical modelling and evaluate long term sufficiency of design.

According to the state of the art, the more frequently typologies and materials used for wide span enclosures are:

Space structures
 - single layer grids
 - double and multi layer grids
 - single and double curvature space frames

Cable structures
 - cable stayed roofs
 - suspended roofs
 - cable trusses
 - single and multilayer nets

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Membrane structures
 - prestressed anticlastic membranes
 - pneumatic membranes

Hybrid structures
 - truss-gyroid systems
 - beam-cable systems

Convertible roofs
 - overlapping sliding system
 - pivoted system
 - folding system

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There are mainly two types of barrel :-

Short barrels - in these vaults span are shorter than width, beam action is prominent. Structural behavior of short barrel shells: these shells are typically supported at the corners and can behave in one or a combination of the following ways:

Long barrels - arch action is prominent. Structural behavior of long barrel shells: these are typically supported at the corners and behave structurally as a large beam.

STIFFENING BEAMS AND ARCHES:

UNDER LOCAL LOADS THE THIN SHELL OF THE BARREL VAULT WILL TEND TO DISTORT AND LOSE SHAPE AND EVEN COLLAPSE IF THE RESULTANT STRESSES WERE MORE. TO STRENGTHEN THE SHELL AGAINST THIS POSSIBILITY, STIFFENING BEAMS OR ARCHES ARE CAST INTEGRALLY WITH THE SHELL.

THE COMMON PRACTICE IS TO PROVIDE A STIFFENING MEMBER BETWEEN THE COLUMN SUPPORTING THE SHELL.

DOWNSTAND STIFFENING RCC BEAM IS MOST EFFICIENT BECAUSE OF ITS DEPTH, BUT THIS INTERRUPTS THE LINE OF SOFFIT OF VAULTS, FOR THIS UPSTAND STIFFENING BEAM IS USED.

THE DISADVANTAGE OF UPSTAND BEAM IS THAT IT BREAKS UP THE LINE OF ROOF AND NEED PROTECTIONS AGAINST WEATHER.

Stiffening beams and arches for reinforced concrete barrel vaults

3. Trusses - these include a) Lattice and Warren truss
 b) Pratt truss
 c) Vierendeel truss
 d) Castellated beams

a) Lattice and Warren truss-

lattice truss provides increased structural stability due to its dispersion of forces because it is typically designed with more unit members than are required. The total forces of a lattice truss depend on the individual forces and stiffness of each member, in addition to the equilibrium conditions.

The main uses are:

- in buildings, to support roofs and floors, to span large distances and carry relatively light loads.

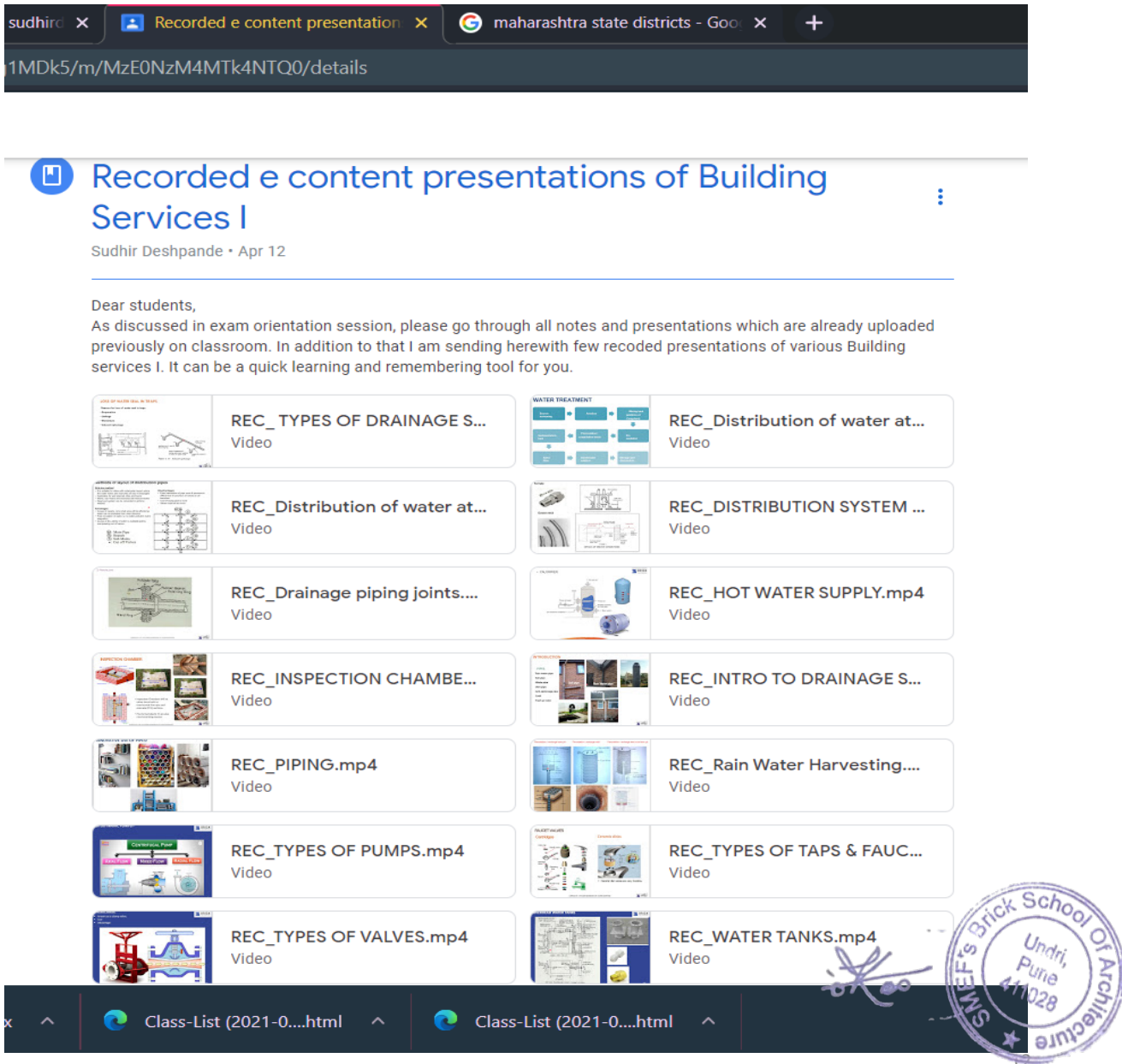
(d) Vierendeel girder

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Figure 6: Creation of comprehensive Construction Readers

6.4 Evaluation of pre-recorded videos on various topics of services and construction as e content

Our faculties created 20-25 minutes short presentation with recorded voice over on some topics. The idea was to create reference audio visual reference material which can be referred at any place and at any time. The presentations and videos were simple to understand and were designed more graphical and process oriented to convey the content. Used soft marker and power point pen to highlight the component while explaining in the video.



The screenshot shows a Google Classroom interface for a course titled "Recorded e content presentations of Building Services I" by Sudhir Deshpande, dated April 12. A message to students states: "Dear students, As discussed in exam orientation session, please go through all notes and presentations which are already uploaded previously on classroom. In addition to that I am sending herewith few recoded presentations of various Building services I. It can be a quick learning and remembering tool for you." Below the message is a grid of 14 video thumbnails, each with a title and "Video" label:

- REC_TYPES OF DRAINAGE S... Video
- REC_Distribution of water at... Video
- REC_DISTRIBUTION SYSTEM ... Video
- REC_Drainage piping joints.... Video
- REC_HOT WATER SUPPLY.mp4 Video
- REC_INSPECTION CHAMBE... Video
- REC_INTRO TO DRAINAGE S... Video
- REC_PIPING.mp4 Video
- REC_Rain Water Harvesting.... Video
- REC_TYPES OF PUMPS.mp4 Video
- REC_TYPES OF TAPS & FAUC... Video
- REC_TYPES OF VALVES.mp4 Video
- REC_WATER TANKS.mp4 Video

The bottom of the screenshot shows a taskbar with two "Class-List (2021-0....html)" browser tabs and a circular stamp for "SMEF's Brick School Of Architecture, Undri, Pune 411028".

Figure 7: Recorded e content reference voice over presentations

Students refereed these videos after session also and also it was a benefit for the students who are struggling with connectivity issues during live sessions.

After first stage we reduced the time of these recorded presentations to 15 minutes. It was done to catch attention span of students and the longer topics were split in 2 or 3 sessions.

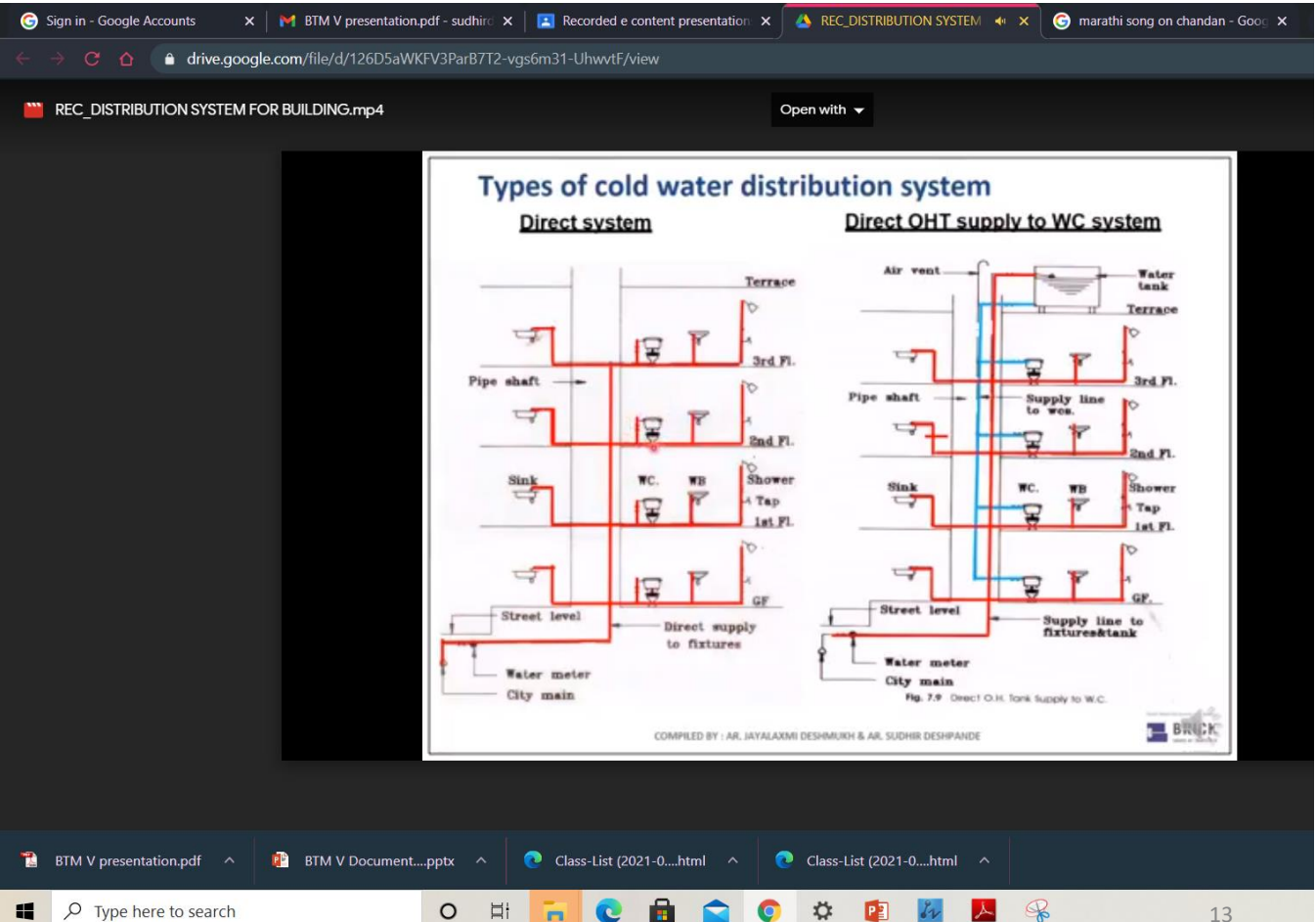
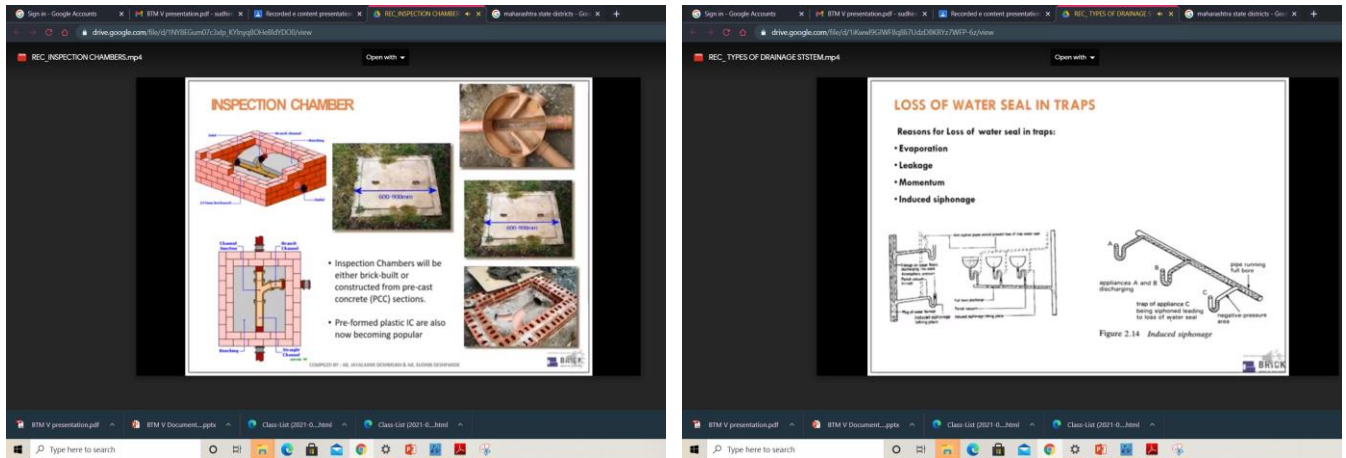


Figure 8: Recorded e content reference voice over presentations

Our institute received MASA student showcase award for technology category in 2021. Our core faculty prepared orientation videos on construction technology topics and gave open ended problem for students to explore. The guided factor was less and unguided i.e. self driven factor of learning was more which inculcated in students.



Figure 9: Recorded e content reference voice over presentations

The subjects like Specification Writing, Quantity estimation, Professional practice are important to understand site working, management, budget conditions etc. Our institute developed a library of reference videos to show latest technologies, materials with specifications, machinery on site. Also, faculty prepared some voice over presentations to understand the basic orientation of the subject.

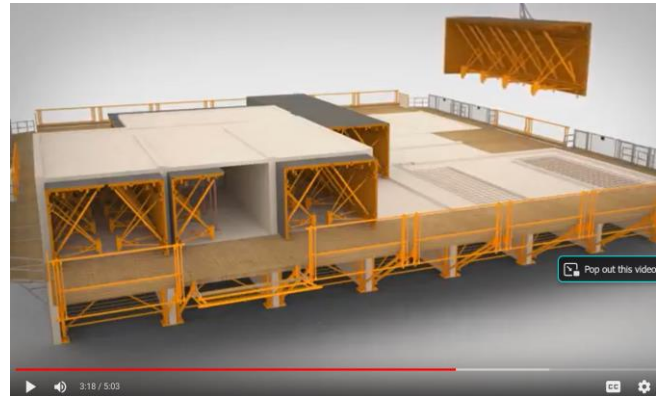
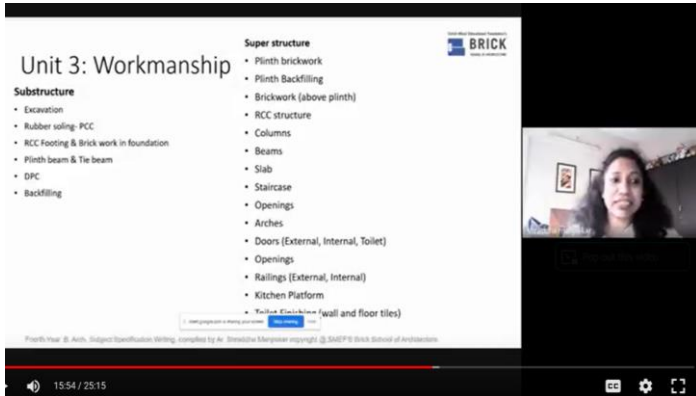


Figure 10: Recorded e content reference video library

6.5 Creation of exploratory sketches on various technical topics of construction as e content

Our faculty created and sketched out the technical details and uploaded as E content on portal. These sketches were exploratory giving an idea of whole structural assembly with joinery details

These types of explorations helped students to explore their own structural details in a 3-dimensional way.

More graphical content minimizes time of grasping any topic.

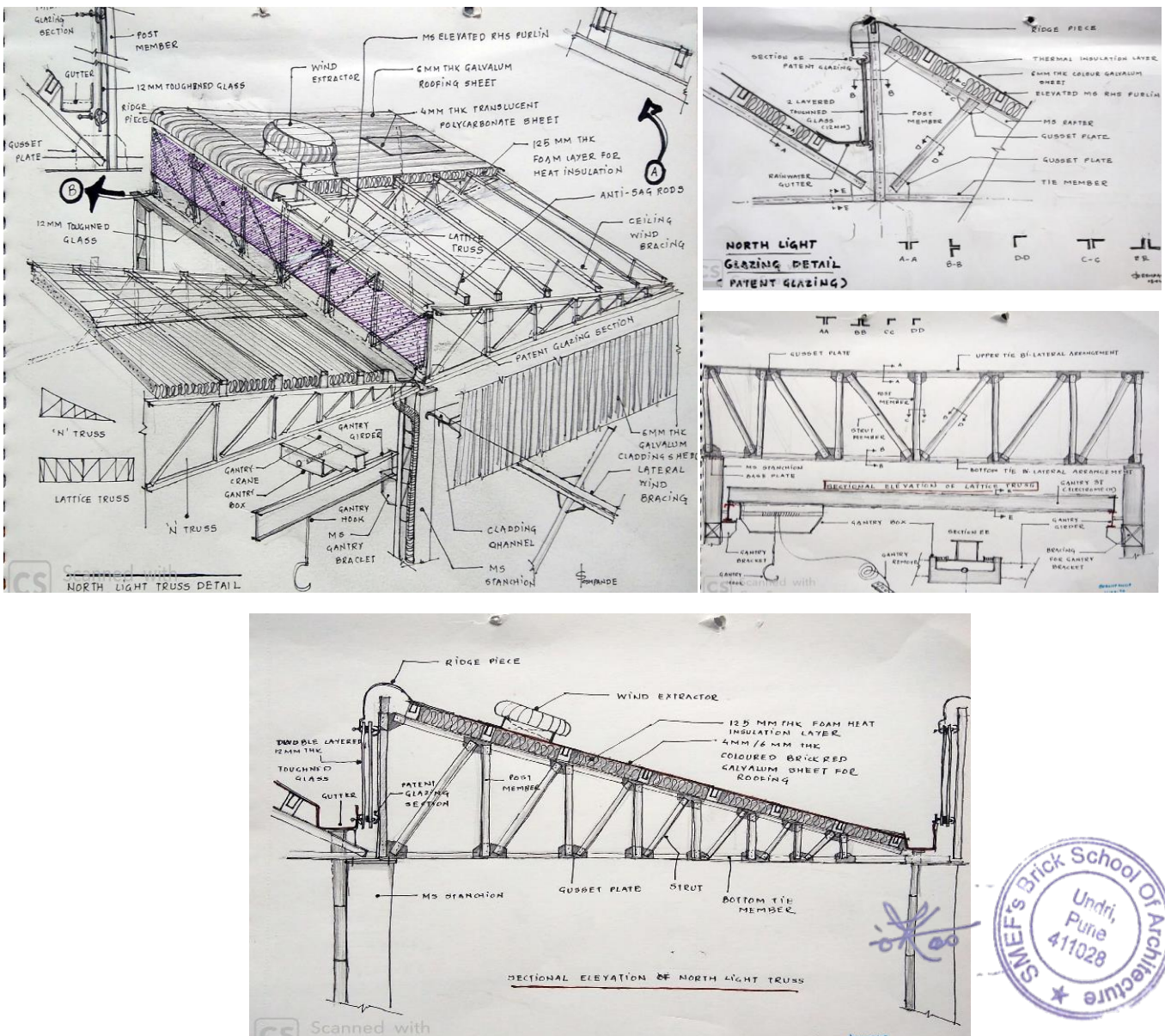


Figure 11: Creation of exploratory sketches

6.6 Creation of exploratory sketches on various technical topics of construction as e content

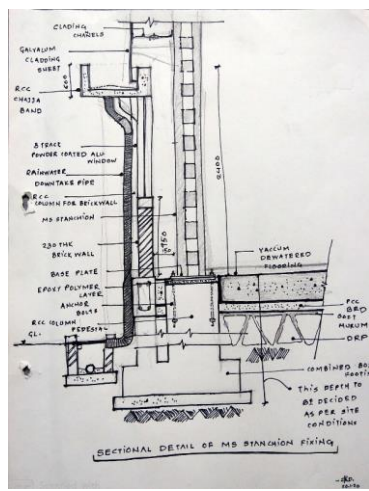
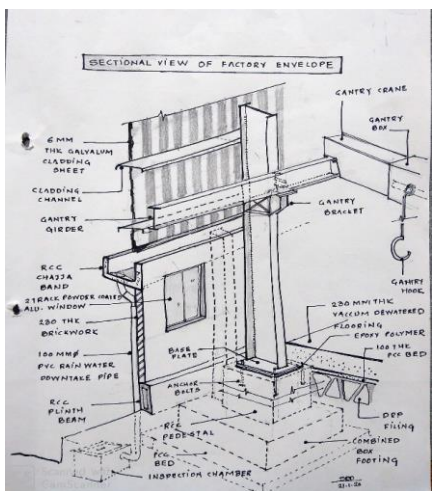
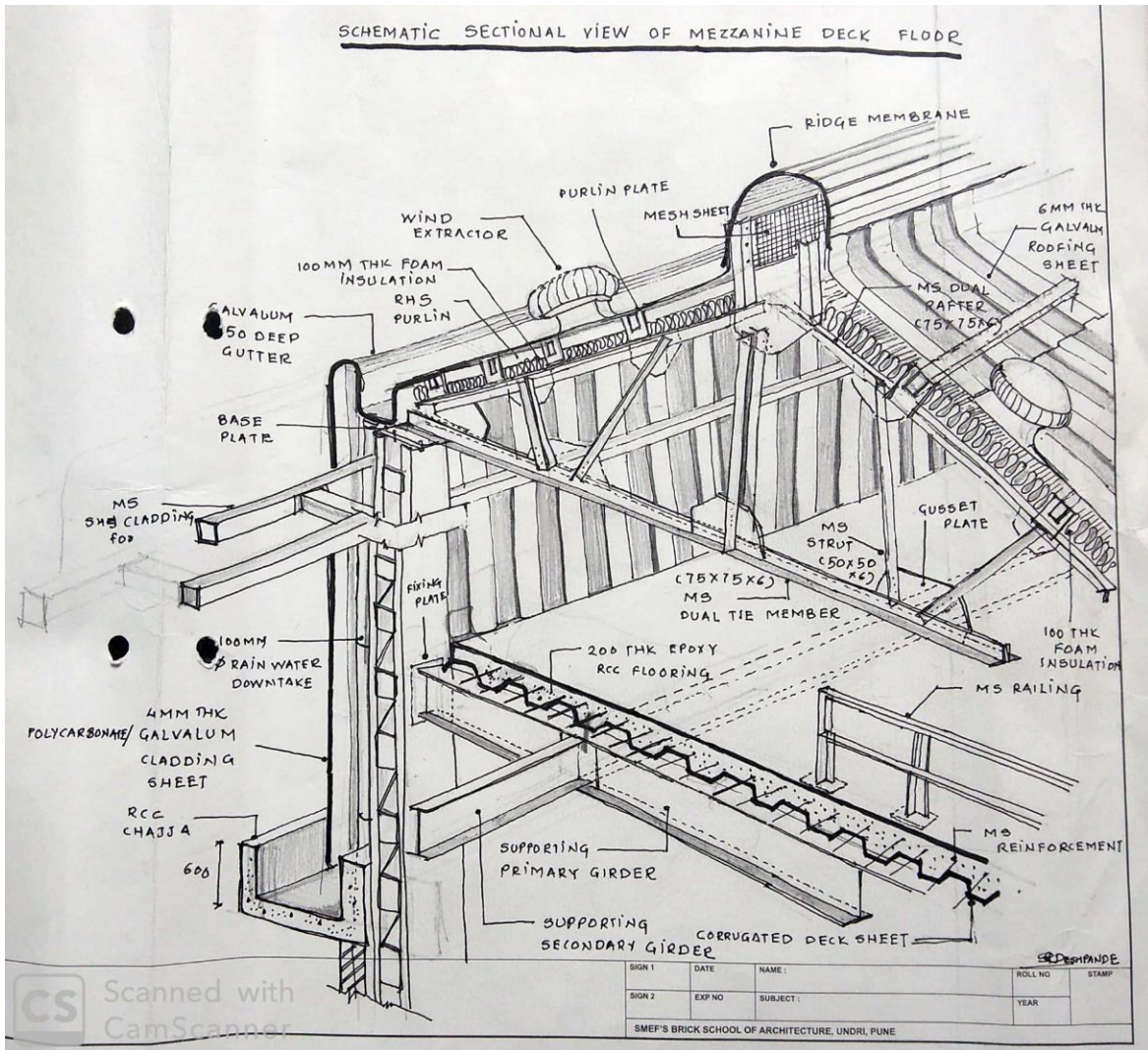


Figure 12: Creation of exploratory sketches

6.6 Preparing process working diagrams for technical topics like HVAC as e content

Our core faculty created and sketched out the working process of HVAC systems. These sketches helped to understand the whole system with components. Also, it gave them an idea about architectural facilitation for service areas.

Also, it was easier for students to grasp the learning of these systems while having physical site visit for HVAC systems

More graphical content minimizes time of grasping any topic.

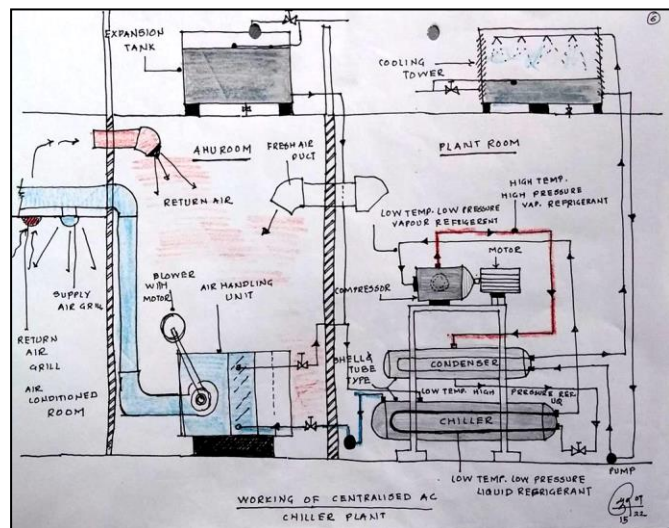
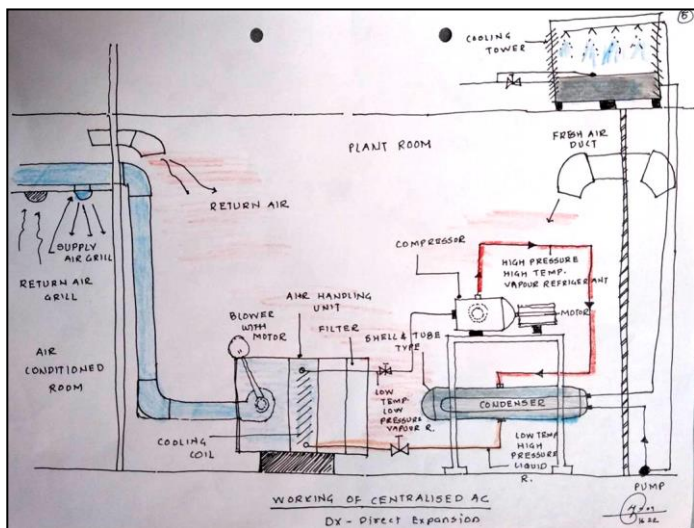
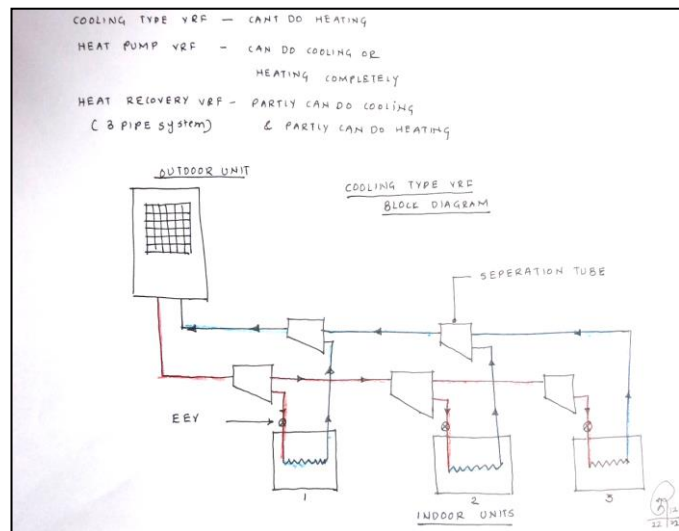
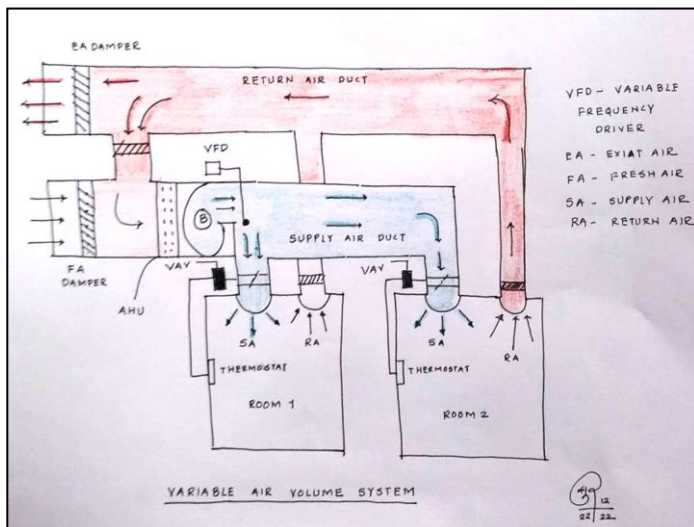


Figure 13: Process working diagrams

6.7 Creation of graphical presentations as e content

While developing E content, our faculties revised and improved their earlier presentations with more graphical, analytical sketches for easy understanding. Architecture is a combination of space design, structure, services and technology. It was easier for students to perceive architectural content because their core concepts were cleared due to these demonstrative presentations.

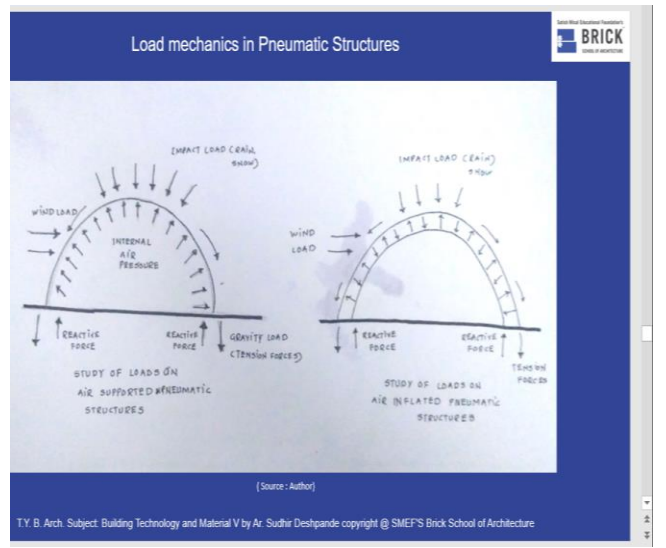
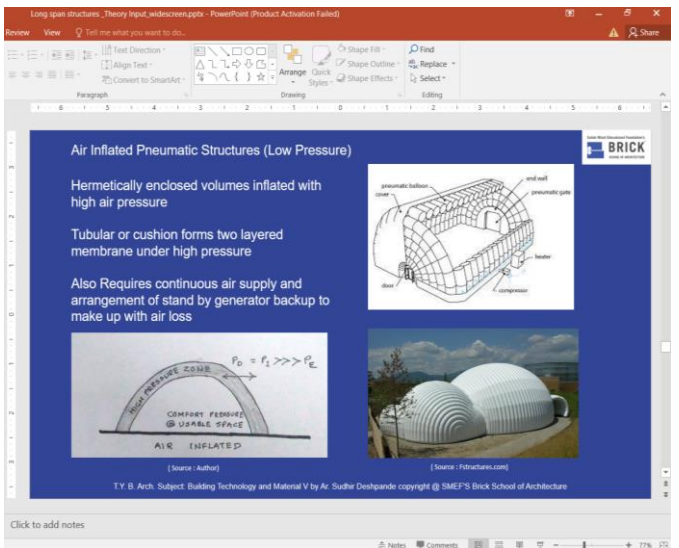
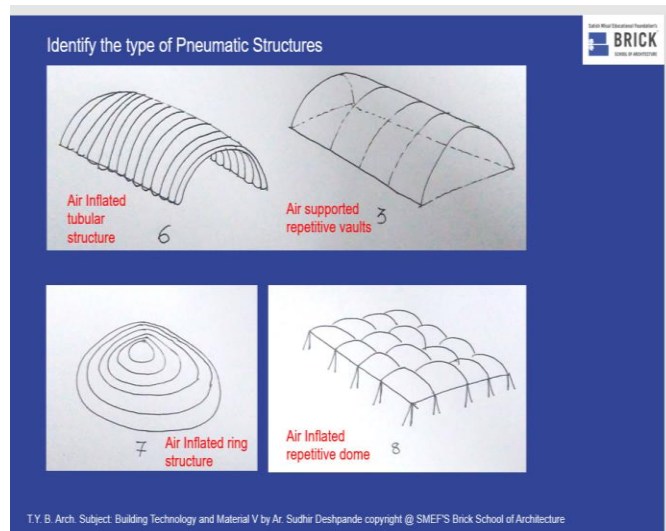
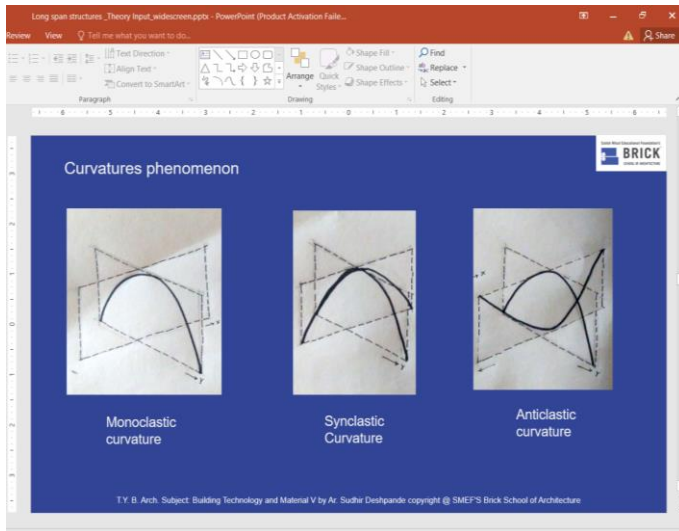
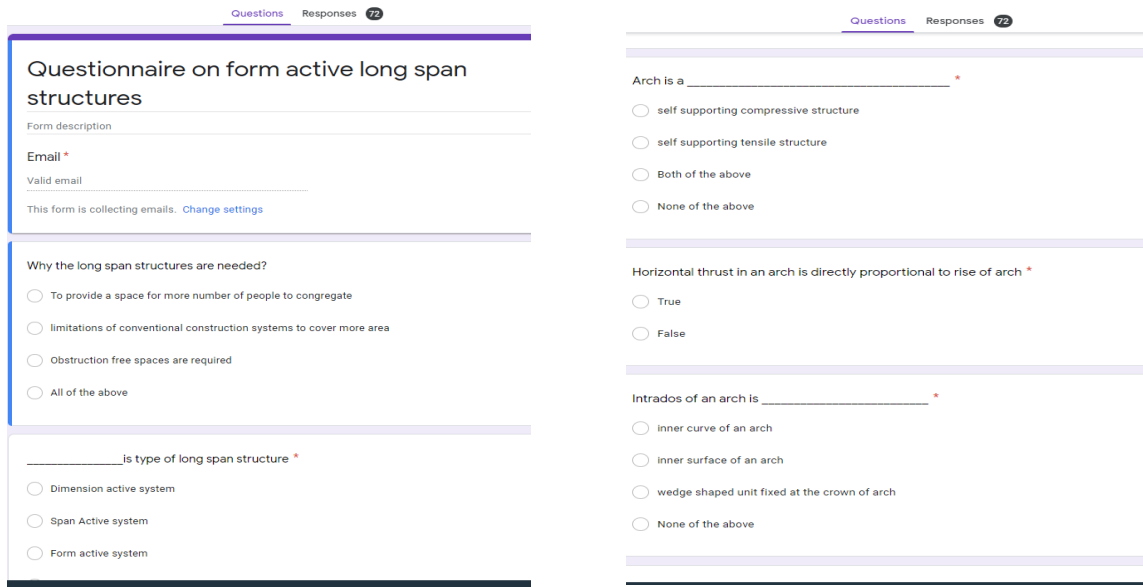


Figure 14: Graphical Presentations



6.8 Preparation of quiz questionnaires on various topics as e content

After input and discussion session these types questionnaires were shared with students on google drive. Students responded and submitted after lecture input. Generated scores and individuals' analysis is shared with the students. It helped students to understand the topic in a very specific manner. Also, it prepared students for Online examination and other competitive examinations, quiz competitions.



Questionnaire on form active long span structures

Form description

Email *

Valid email

This form is collecting emails. [Change settings](#)

Why the long span structures are needed?

- To provide a space for more number of people to congregate
- limitations of conventional construction systems to cover more area
- Obstruction free spaces are required
- All of the above

_____ is type of long span structure *

- Dimension active system
- Span Active system
- Form active system

Arch is a _____ *

- self supporting compressive structure
- self supporting tensile structure
- Both of the above
- None of the above

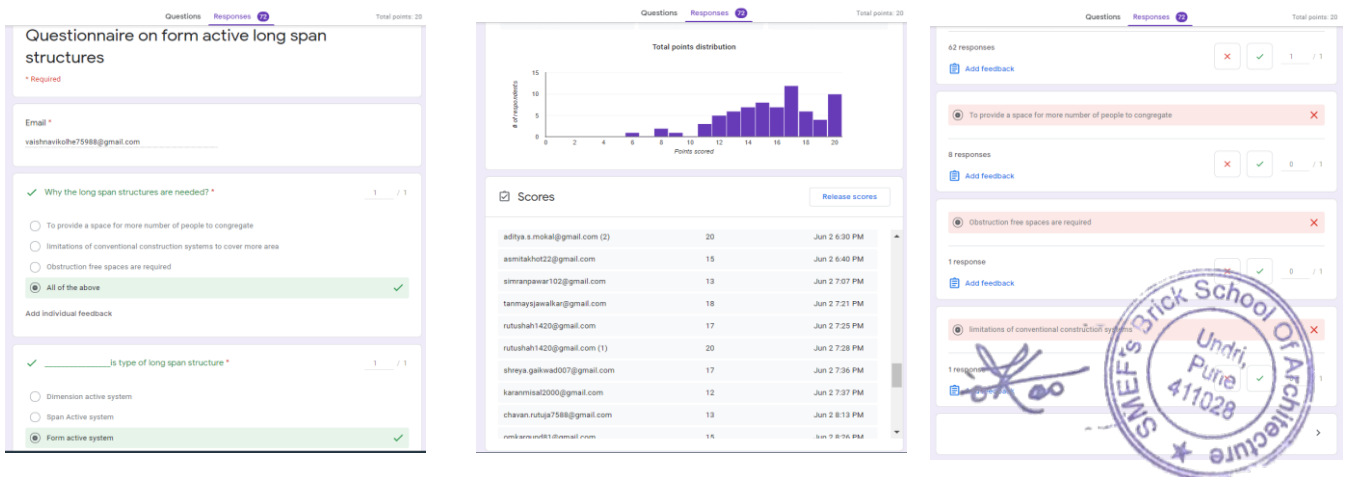
Horizontal thrust in an arch is directly proportional to rise of arch *

- True
- False

Intrados of an arch is _____ *

- inner curve of an arch
- inner surface of an arch
- wedge shaped unit fixed at the crown of arch
- None of the above

Figure 15: Preparation of Questionnaires as E content



Individual Analysis

Score Analysis and Point distribution

Question Analysis

6.9 Demonstration of service layouts and recorded sessions as e content

The service layouts were evaluated in interactive discussion with the students. These layouts were uploaded on Google classroom as e content into that particular folder of topic.

Also meeting session is recorded and the video is shared with the students as a reference.

Students referred these layouts and meeting video at the time of evaluation of their own layouts. That was the value addition to E content considering need for further batches also.

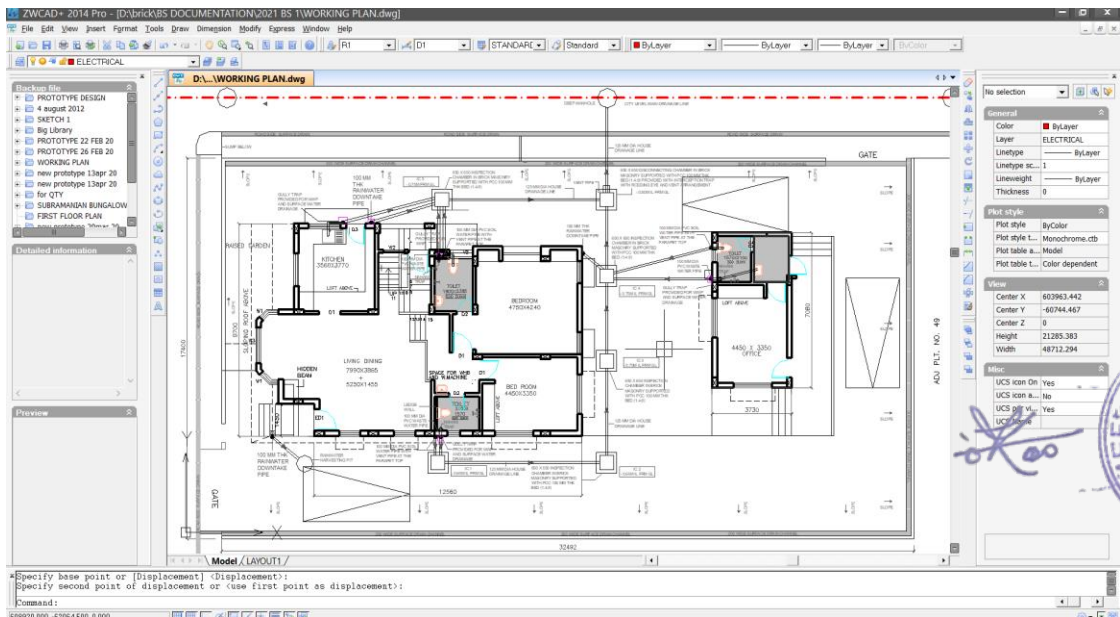
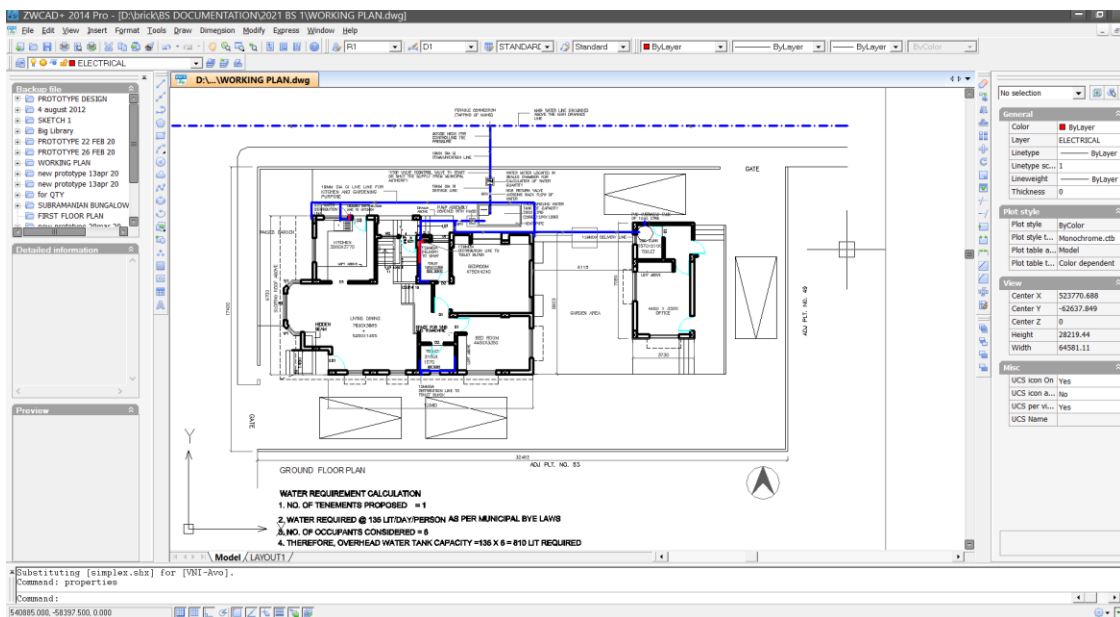


Figure 16: Preparation of Drainage and Water supply layout

EVALUATION OF SERVICE LAYOUTS AND RECORDED SESSIONS as E Content

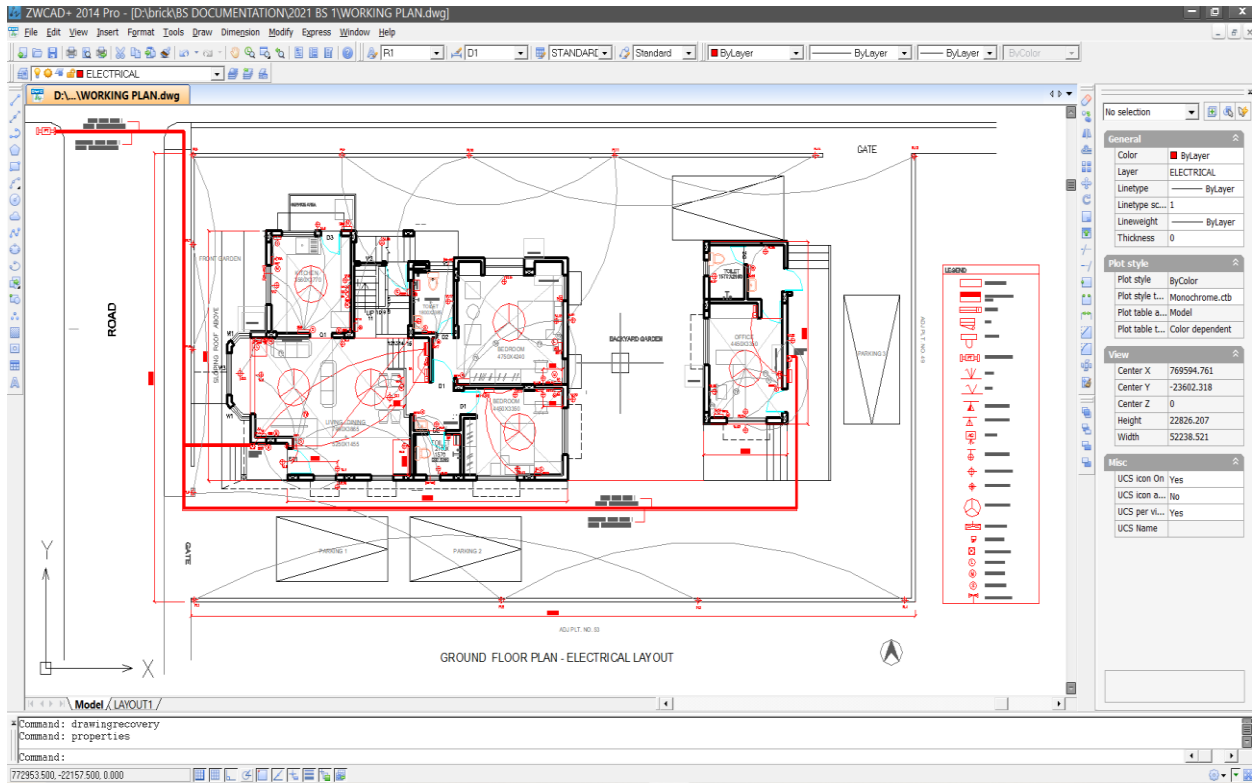
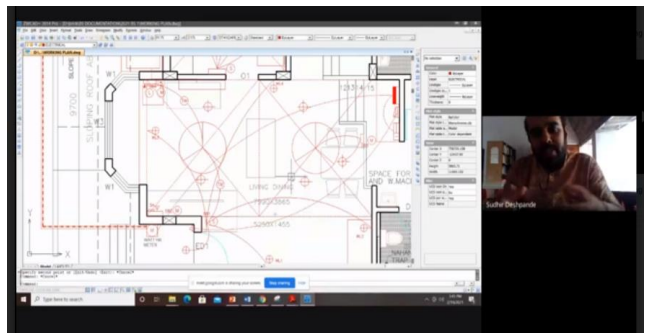
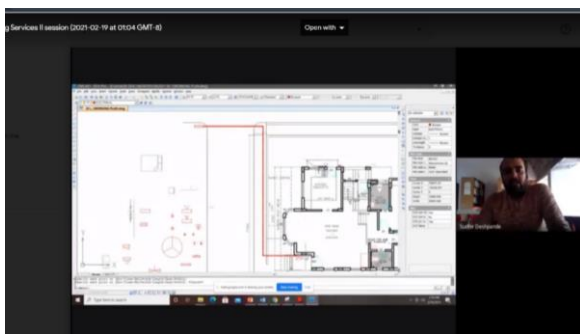
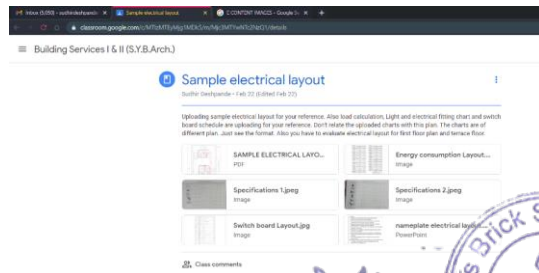
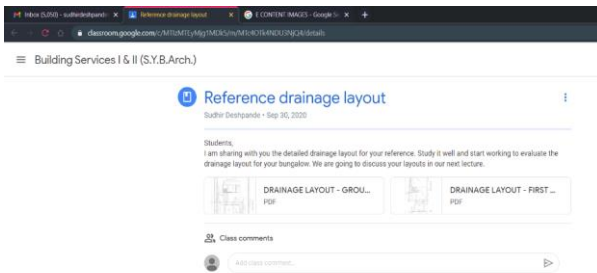


Figure 17: Preparation of Electrical layout



Recorded demonstrative videos

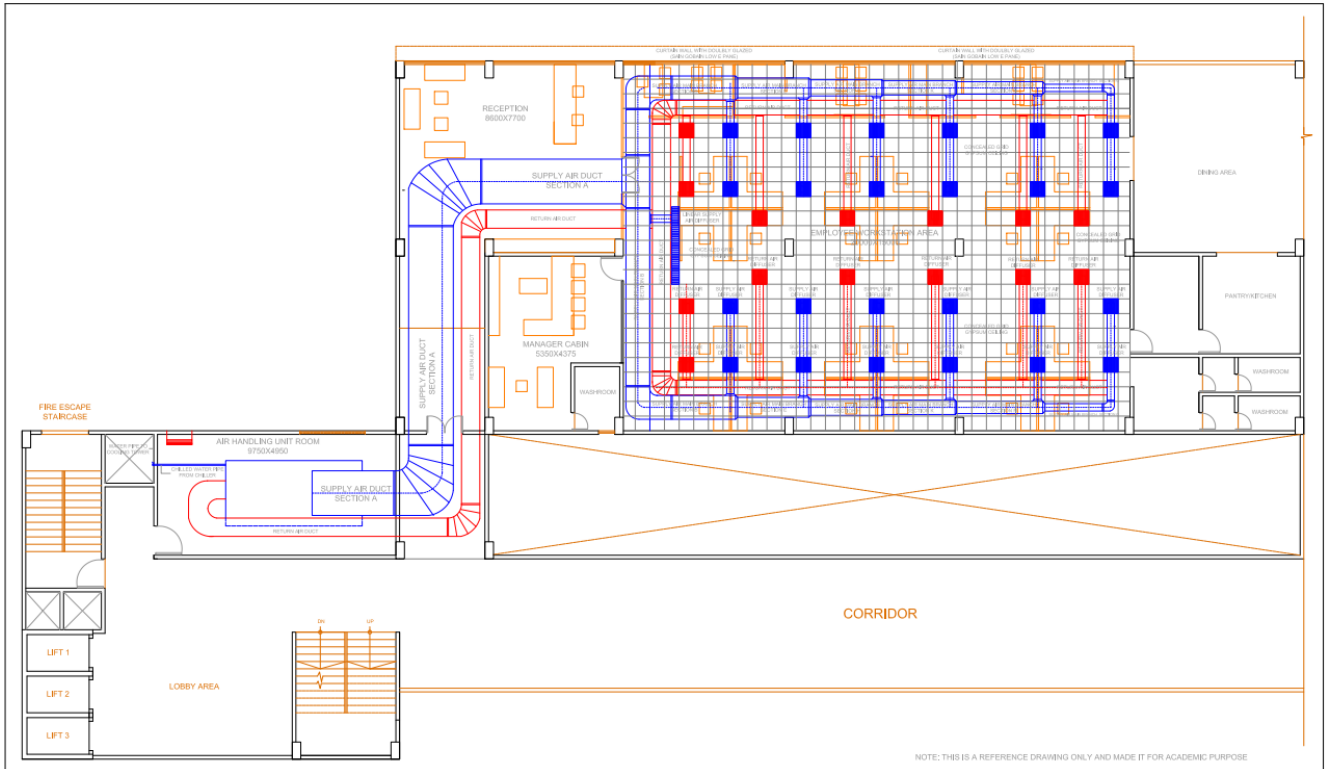


Uploaded layouts as E content on classroom



Preparation and demonstration of HVAC layout and heat load calculations

HVAC Layout for a commercial building was demonstrated on screen and later it was uploaded as a E content for students. Also, standard table formats were prepared for AC Calculations and Duct Size calculations. The institute take consistent efforts to convey practical knowledge to our students in a demonstrative way.



AIR CONDITIONING - HEATING & COOLING LOAD CALCULATIONS

Sr. No.	Area to be air conditioned			Motor			Area of external wall in sq.ft.	Area of external wall in sq.m.	Temper. received per sq.ft. sq.m.	Heat Load due to external surface	Heat Load due to internal surface	Heat Load due to Occupants (BTU/hr)		No. of occupants	Total lighting energy (W)	Heat gain by lighting (W)	Heat gain by Equipment (BTU/hr)	Heat gain by Equipment (W)	Heat gain by Equipment (BTU/hr)	Heat gain by Equipment (W)	Values of Spots		Infiltration Air flow (Cfm)	Infiltration Air flow (m/s)	Heat Load due to Infiltration (BTU/hr)		Heat Load due to Infiltration (W)		Heat Load Ventilation of spaces (BTU/hr)	Effective Room Load (BTU/hr)	Effective Room Load (W)	Factor of Safety (FS)	Effective room load	Tonnes required due to load	Total Tonnage Required								
	L	B	Area in Sq.ft.	L	B	Area in Sq.m.						Scasible	Latent								Scasible	Latent			Cfm	Ccu	BTU/hr	W								BTU/hr	W						
1	Emploves spa	65	49	3205	20	18	500	780	72	21	4376	732	6250	5000	1075	1375	25	6370	26666	7444	1430	1630	55015	1110	175	0	3231	1052	4292	1536	1583	2	46127	10654	57571	4656	62077	5	26				
2	Board room																																										
3	Manager Cabin																																										
4	Reception																																										
TOTAL TONNAGE REQUIREMENT																																											

Duct Section	Q (CFM)	Velocity (FPM)	Width of Duct (inch)	Height of Duct (inch)	Width of Duct (mm)	Height of Duct (mm)	Remarks
A	10800	1200	72	18	1830	450	Main duct
B	4800	1000	38	18	975	450	Main Branch
C	800	800	12	12	300	300	Branch
D	400	750	12	7	300	175	Branch
E	4000	1000	32	18	815	450	Main Branch
F	800	800	12	12	300	300	Branch
G	400	750	12	7	300	175	Branch
H	3200	1000	26	18	660	450	Main Branch
I	800	800	12	12	300	300	Branch
J	400	750	12	7	300	175	Branch
K	2400	1000	23	15	585	380	Main Branch
N	1600	1000	20	12	510	300	Main Branch
Q	800	800	12	12	300	300	Branch



Figure 18 : HVAC Layout and heat load calculations

Our institute take efforts in creating for reference layouts for advanced services. Our faculties prepared a reference layout for low voltage network systems. Students got advantage because these types of layouts are nor available in any reference books or website.

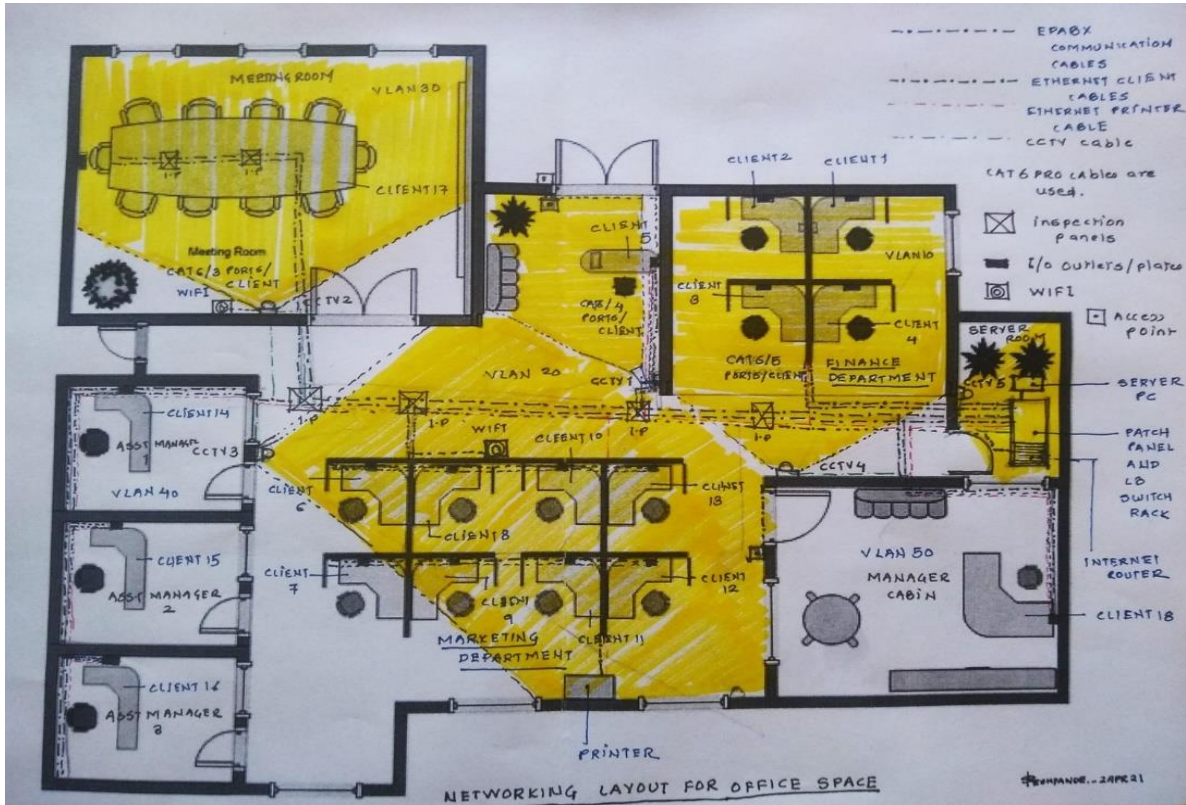


Figure 19 : Low voltage Network layout

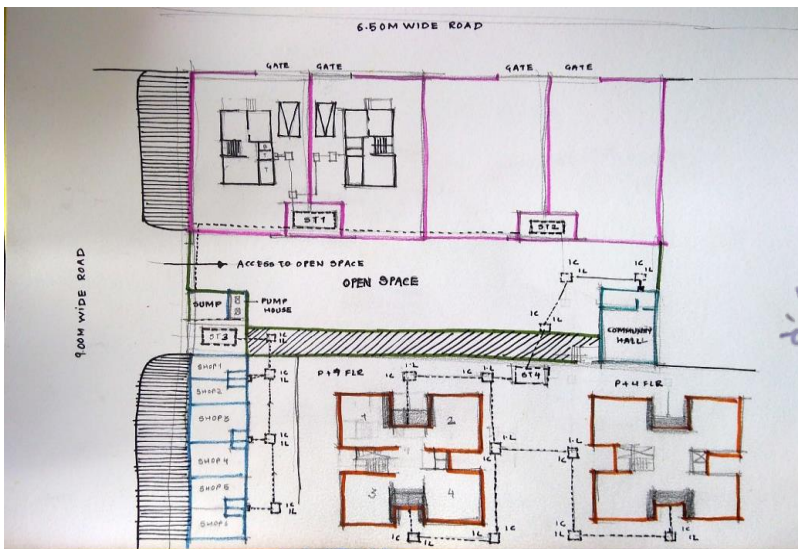
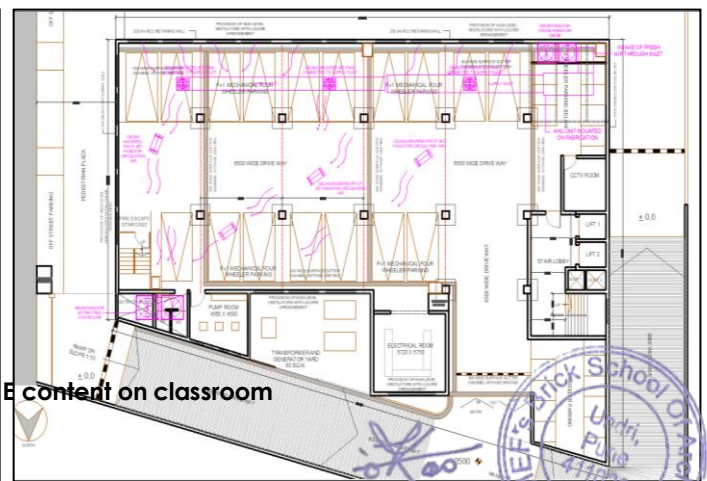
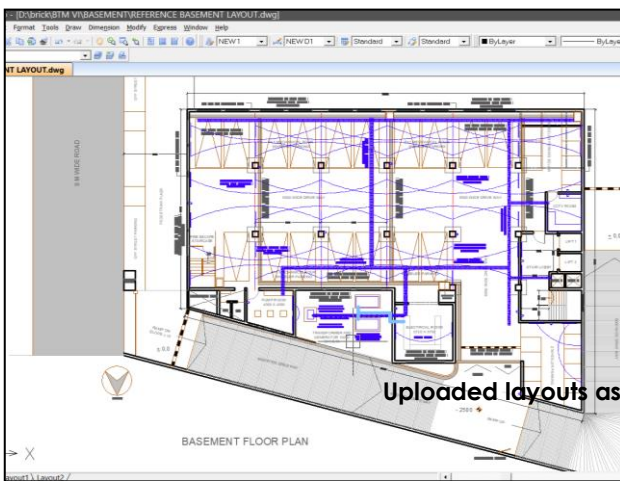
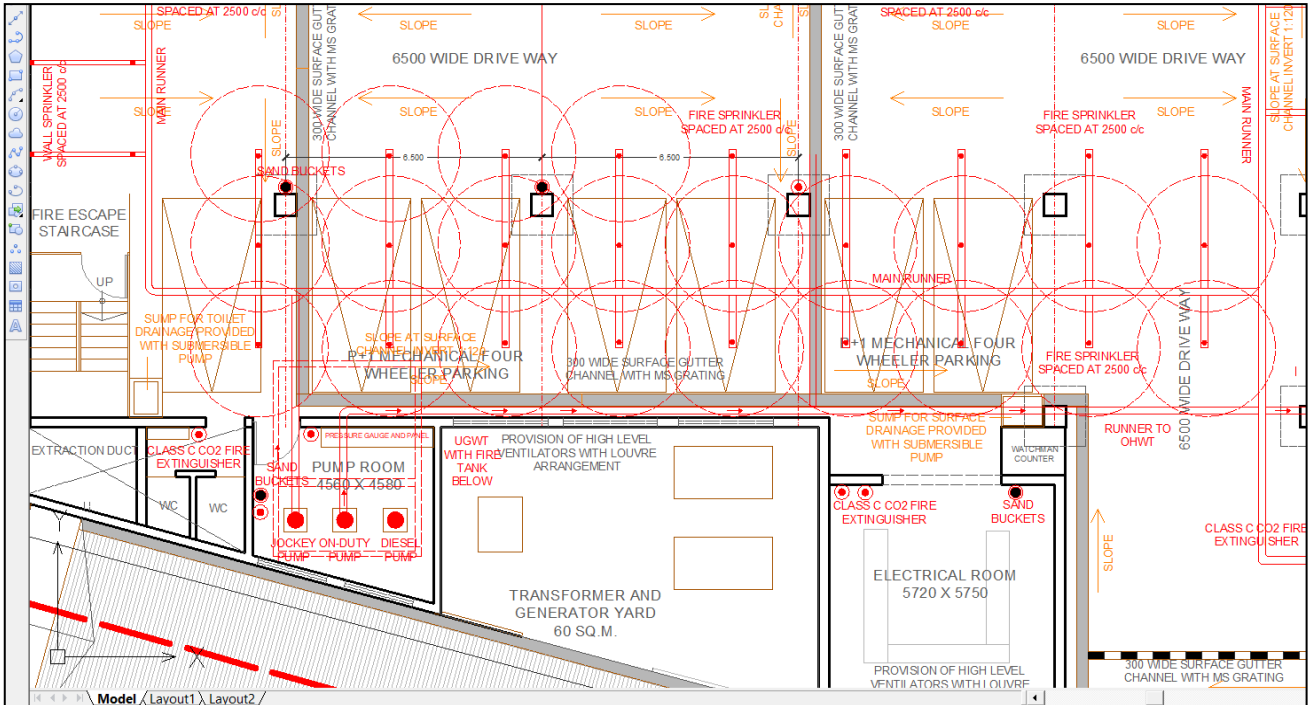


Figure 20 : Multi Building Drainage layout

Preparation and Demonstration of basement service layouts and recorded sessions as e content

The topics like basement floor are critical in terms of understanding the allocation and circulation of services in a project. Our faculty developed reference service layouts for basement design to enable the core understanding and routing of services in a project.



Uploaded layouts as e content on classroom

Figure 21 : Reference Service Layout in Basement Design

6.10 RECORDINGS OF DEBATE SESSION as E content

On some topics we arranged online debate sessions to explore the topic comprehensively. Even it helped the students in understanding of topic and its correlation with allied fields. The institute invites juror for the sessions and later recorded video share with the students as E content for future reference.

Even some last year debate session was also recorded in the classrooms and they are also shared. Debate sessions explores different sides, approaches, angles of proposed subject.

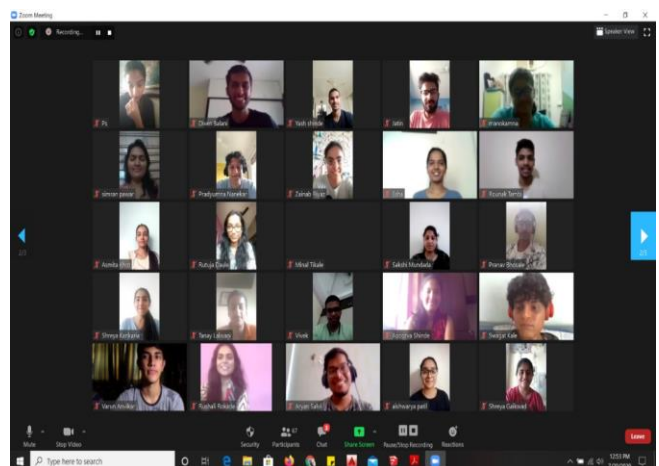
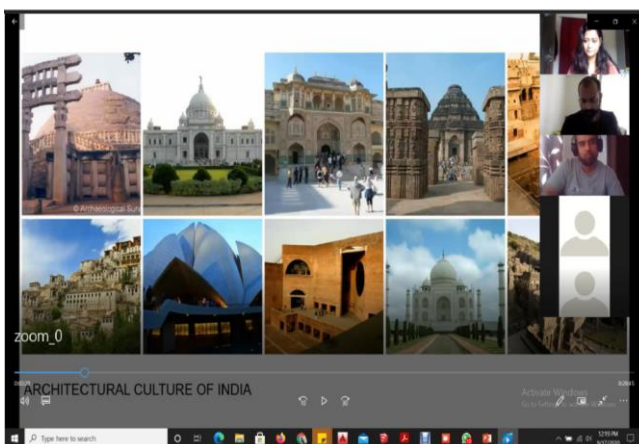
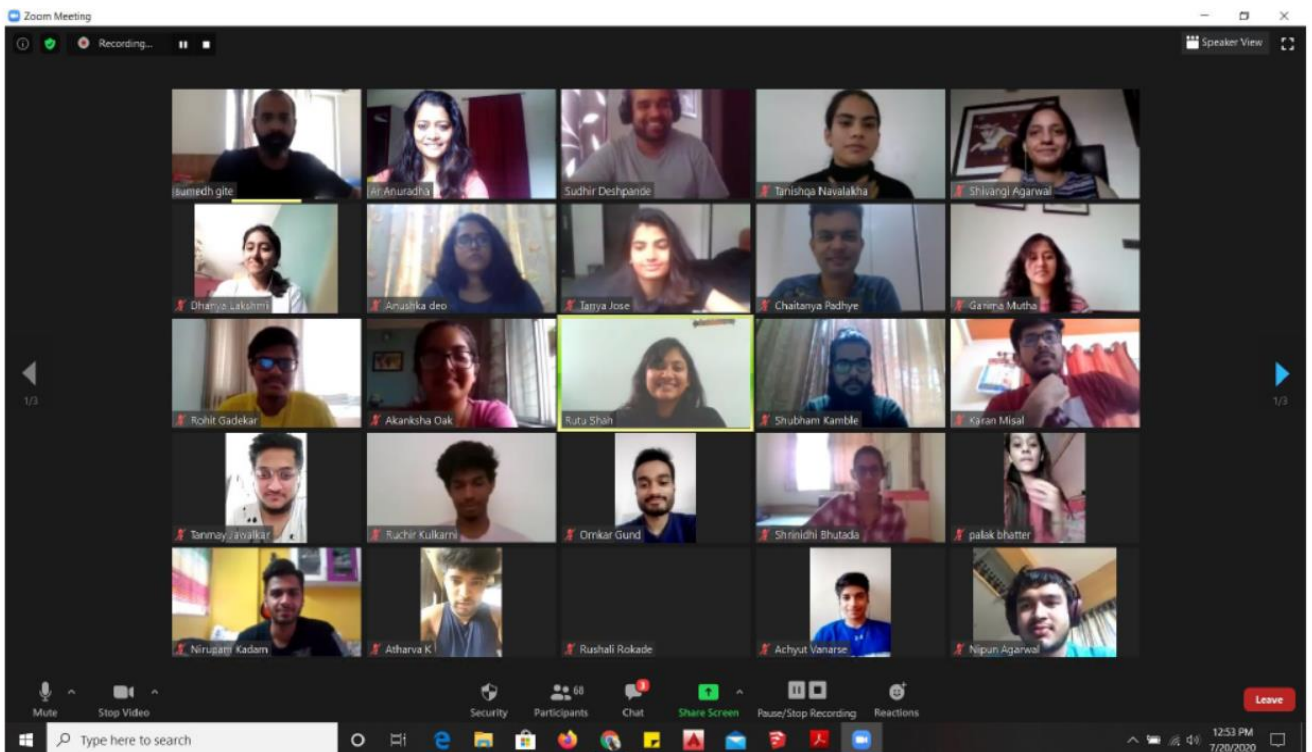


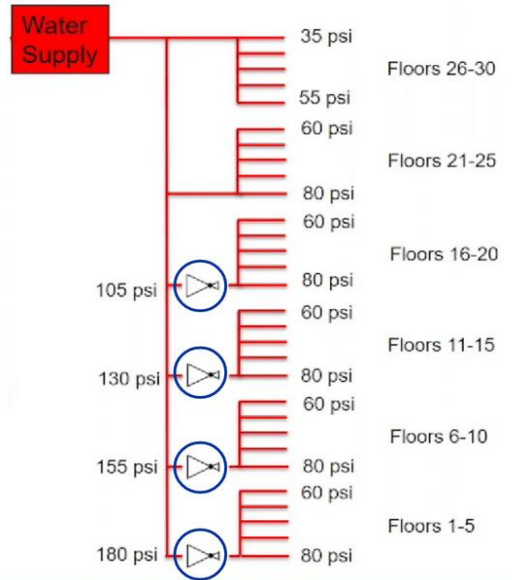
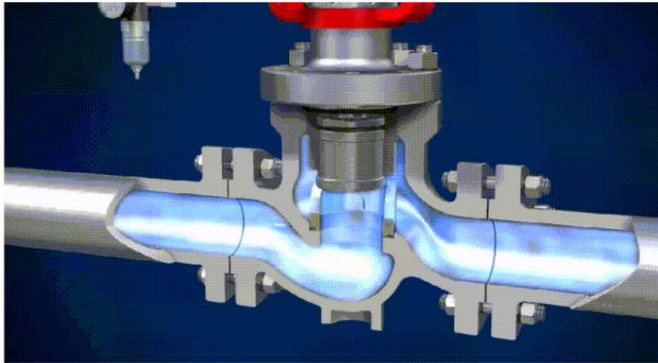
Figure 22 : Online Debate sessions

6.11 Preparation of system animations and illustrations as e content

Our institute takes efforts in graphical effective communication. Our faculties created some animations for understanding the systems and some 3D illustrations to understand the system comprehensively. The intent was to show working principle of any component or a system in a simplified way. Students really benefitted with these efforts.

Pressure Relief Valve (PRV) in high rise buildings

A pressure Relief Valve (PRV) is a safety device designed to protect a pressurized vessel or system during an overpressure event.



S.Y. B. Arch. Subject: BUILDING SERVICES - I copyright @ Ar. Omkar Kale SMEF'S Brick School of Architecture

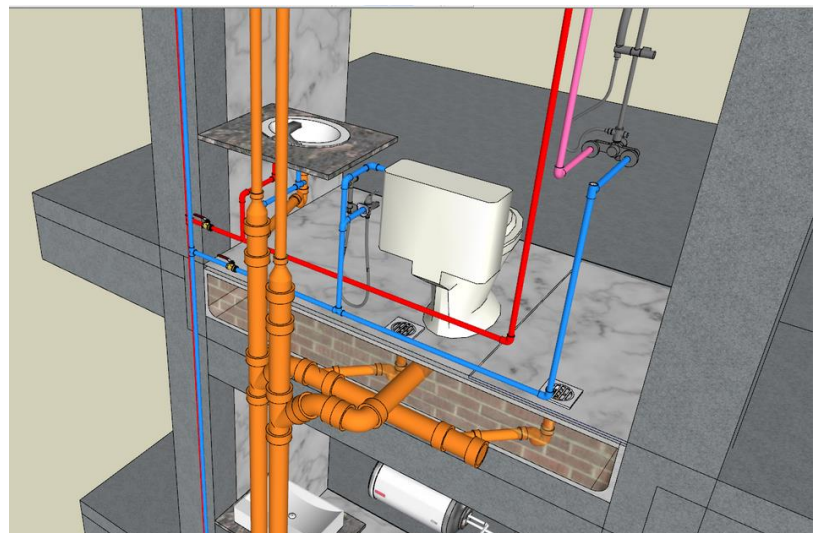
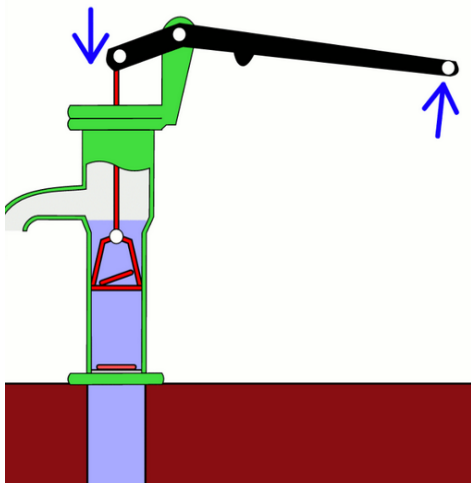


Figure 23 : Animations and illustrations

7. Innovation brought in e content preparation

More Graphical presentations are done, some are compiled.

Detailed e notes are prepared for theoretical base preparation and also for SPPU examinations

Innovative, Interactive and Participative approach taken and evaluated service layouts

Site photographs are compiled for virtual site visits in online teaching period

Pre recorded voice presentations are prepared to initiate the subject for further discussion and exploration.

8. Conclusion

Information and communication technology is expanding dramatically on a worldwide scale nowadays. The use of computers in education must improve current methods of instruction and learning. The young generation of the twenty-first century is evolving to meet tough tasks and assignments through in-depth study of the topic concepts for marketing their skills in their specialization. They desire to acquire multi-skill talents in the field of education. In some circumstances, conventional techniques are ineffective for enhancing their multifaceted personality. Because additional senses are not engaged at the time of delivery, traditional content distribution cannot satisfy students' brains. Hence, modernization encourages students to be enthusiastic about learning and improves student learning results. Therefore, our institute has already started to create a knowledge bank in the form of innovative E content. Also, we are experimenting with blended teaching learning methods to address the students of generation next.

