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Yelahanka, Bangalore- 560 064

### Centre for Reuse

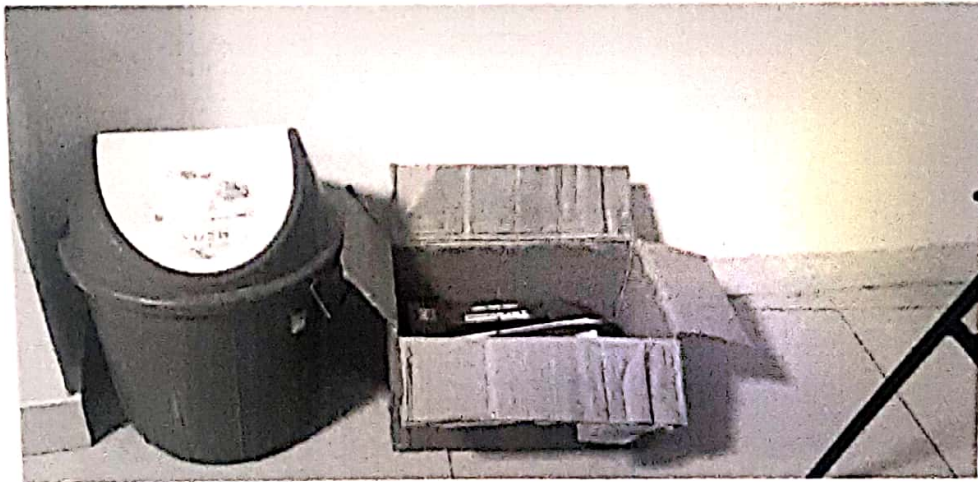
### Using Cardboard boxes as Dust bins.

05-01-2015

Making a Sustainable built environment is individual responsibility. Every possible effort should be made to reduce the amount of wastage which becomes the landfill later.

Improper handling of waste can lead to not using wastage in an alternative way till its life cycle. As an educational institution it is inevitable to avoid enormous amounts of fresh stationaries for office. As an initiative BMSSA has started a campaign to reduce waste and creating best out of waste.

Medium sized cardboard boxes which encases the stationaries are of decent quality and can take medium wear and tear. Hence these boxes are used as dustbins to collect dry waste in staffrooms and some places of office where dry wastes are to be collected. These boxes are emptied by housekeeping staff every day. Looking at the quality of box it could be used for a semester replaced each semester. This will minimize the purchase of new plastic dustbins. Impact of this can be seen in future.



# Center for Reuse - Best Practice - 1

## BMS SCHOOL OF ARCHITECTURE

Making the best out of waste: Chandelier from Bottles

Subject: Basic Design and Visual Arts

Faculty In charge: Anjan Kumar M and Shreyas K

Activity done as a part of class activity in BDVA: 10/09/2015.

As class activity a chandelier by using discarded plastic bottles, was produced to aesthetify the corridor of space first floor at of BMS School of Architecture. Waste plastic bottles were handled creatively as well as technically so that it fits as an appropriate covering around the electric bulb.

It was a hands-on exercise for the students of the first year. All of them actively participated in this playful activity. Finally finished *chandelier gives the delightful experience* to the spectator with the light glitters from its center. *At the same time creating awareness of reusing the discarded plastic bottle was a success among the students.*

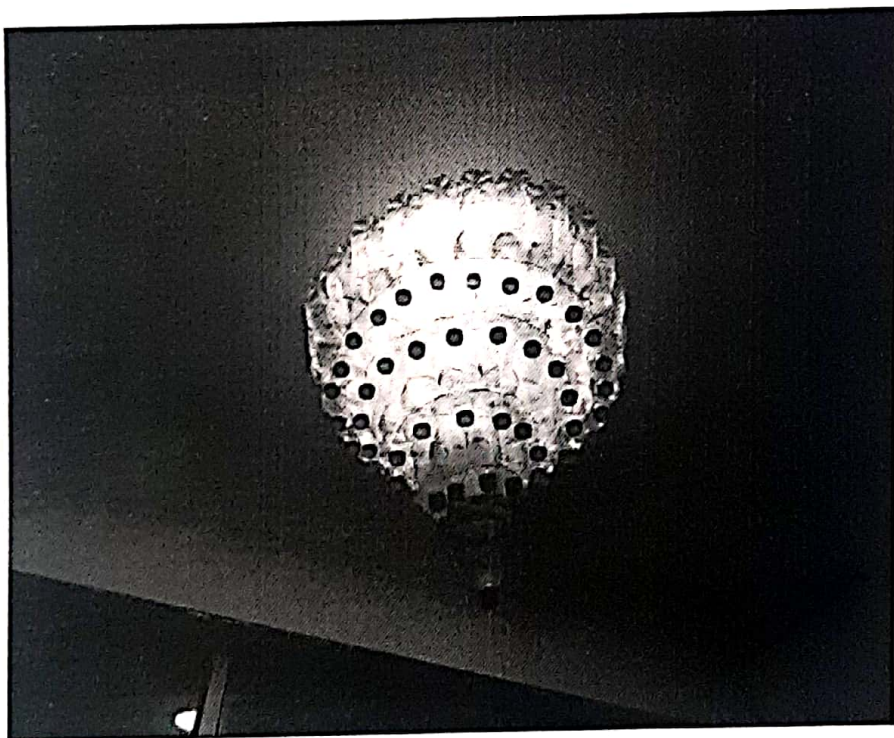


Figure 1 – Chandelier made of plastic bottles in first floor - BMSSA.

# Center for Reuse - Best Practice - 1



**Event: Books binding using old and discarded sheets**

Date: 16 -03-2016

Event Coordinator: Chandan K

Event Summary

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In order to reuse the discarded portfolio of the students in the year 2015-16 BMS School of Architecture had organized a book binding workshop on 16-03-2016 for the selected 2nd Semester students at the BMS SA campus. Workshop's major concern were, at one hand, to creatively explore single side used sheets out of students' portfolio, and at the other hand to make some beneficial product out of it for the students.



Model Book made by students

A handwritten signature in black ink, likely belonging to the event coordinator, Chandan K.

# Center for Reuse - Best Practice - 1

## BMS School of Architecture

Event: Lecture on Reusing waste material for the model making. (Conducted as a part of class activity)

Speaker: Chandan K

Date: 13:08:2016

### Event Summary

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BMS School of Architecture- Centre for reuse had organized a talk at BMS SA on 13:08:2016 for the 1<sup>st</sup> semester students; session focused on how waste materials can be reused for the classroom activity (model making) creatively. Wherein, much emphasis was given to reuse the students' old discarded portfolio sheets and single side used A4 and A3 sheets, old newspapers and students' old models.

In this direction various possibilities were discussed and a detailed explanation was provided for how old newspapers and old portfolio sheets can be rolled into thin straws and aligned to constitute some aesthetically appealing formations by following design principles. In addition, corrugated sheet of the 'biscuit' box was mentioned as a possible firm base for the model.

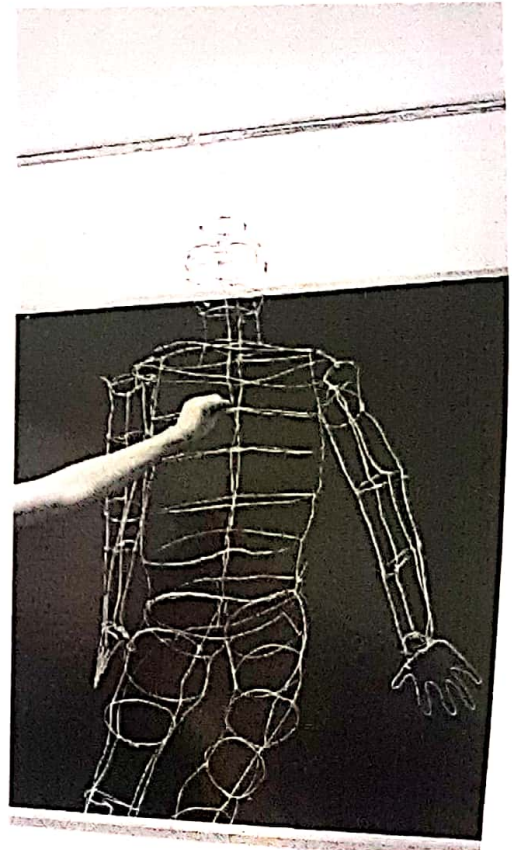
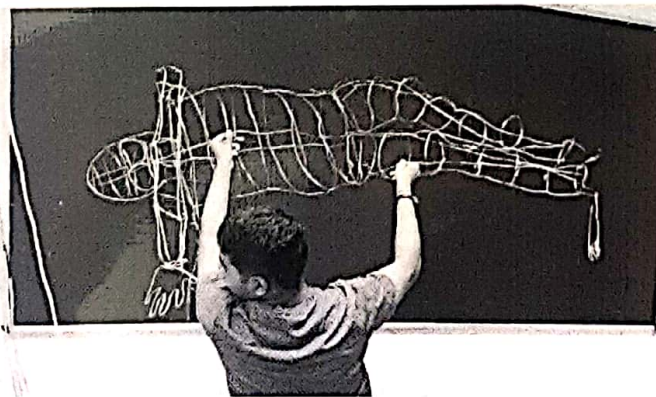
Furthermore, old models either in parts or full was recommended for the creative works like wall mural. For new models how some parts of the old models can be reused was also discussed.

In totality, the overall session was pitched to sensitize the 1<sup>st</sup> semester students of BMS SA to the values of 'reduce' and 'reuse' by incorporating old discarded materials into the classroom/ creative work.

**Class Activity Brief - ARCHITECTURAL DESIGN-1 Models (Anthropometry)**  
**Date : 03-09-2016**

When designing a product that needs to fit the human shape, students often use a small set of 3D models, called design models, in physical form, as representative shapes to cover the shape variability of the population for which the products are designed. Until recently, the process of creating these models has been an art involving manual interaction and empirical guesswork. The availability of used sheets, cardboard boxes etc., provide an opportunity to create design models optimally. All 1<sup>st</sup> semester students of batch 2016 were involved in this activity

Students have used wire mesh to create anthropometry models.



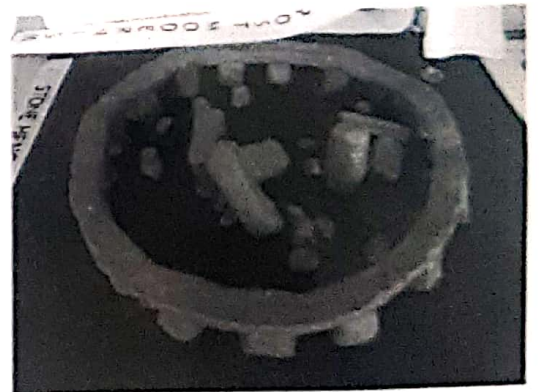
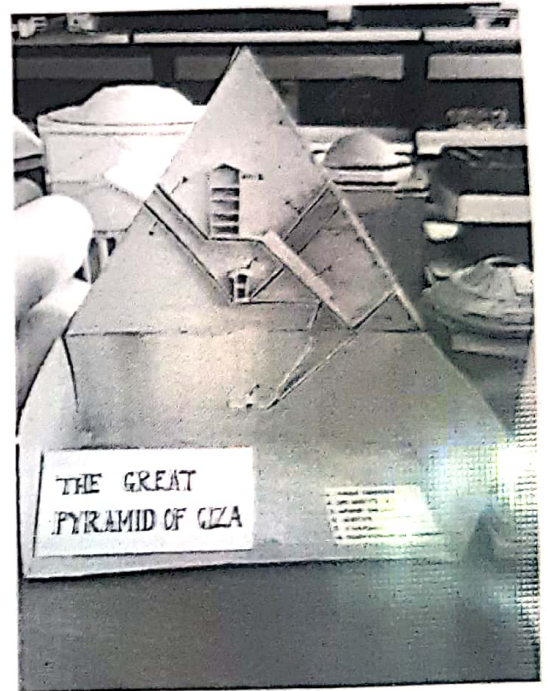
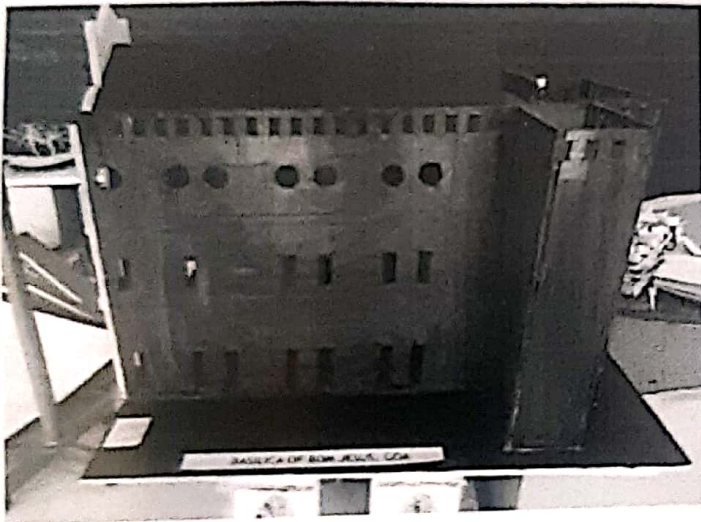


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## Class Activity Brief - History of Architecture Model Making (2016-17)

Date: 14-03-2017

Students were asked to make presentation on any architect and his buildings with models. They used waste generated from old portfolios, used pens, straws etc. to make history models. Library has a collection of all semester's history models ranging from pre historic times to contemporary.



History Models of various forms of architecture



# Center for Reuse - Best Practice - 1

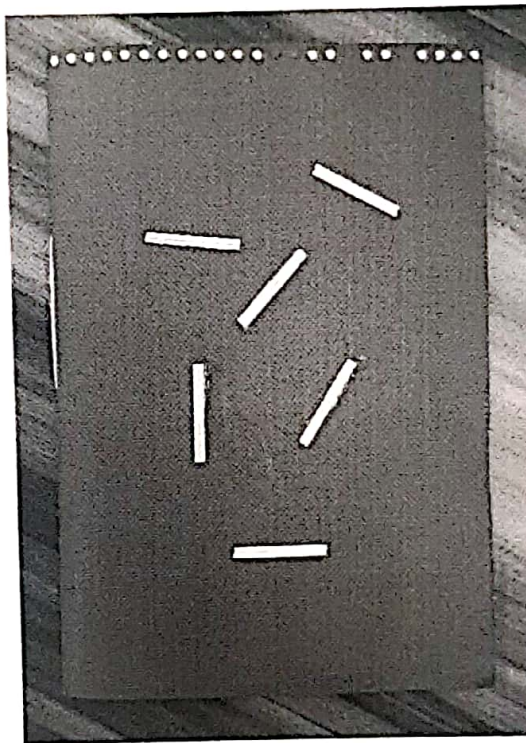
## BMS SCHOOL OF ARCHITECTURE

**Center for Reuse: Book Binding workshop**

**Date: 15-03-2017**

**Coordinator: Chandan K**

By following the success of the book binding workshop of 2015-16 once again the workshop was arranged on 15th of March 2017 at BMS SA campus for the students of second semester (academic year 2016-17), who in the workshop spend their creative times and transformed the single side used sheets into the books for their own academic consumption.



*Chandan K*

# Center for Reuse - Best Practice - 1

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**Class Activity: 23-04-2017**

**Models out of discarded newspapers**

In order to promote spirit of 'reduce-reuse-recycle' BMS School of Architecture introduced old newspapers in one of the Model making workshop sessions for the 2<sup>nd</sup> semester students (academic year 2016-17) on 20<sup>th</sup> of April, 2017, wherein, discarded newspapers were employed to prepare models to explore design principles. Thus awareness was created among students about reusing mundane discarded materials.



**Model from waste news paper sheets**

# Center for Reuse - Best Practice - 1



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Class Activity Brief - Model Making In structures.

15-10-2017

Faculty Incharge : Pooja S M , Supritha M Y, M S Harsha.

Model making and understanding concepts and by integrating and disintegrating part of a miniature gives better understanding of a structural system and it is integral part of learning. Models of long span structures for various systems like Arch, Dome, Fabric structures, shell structures portal frames and cables were asked to make.

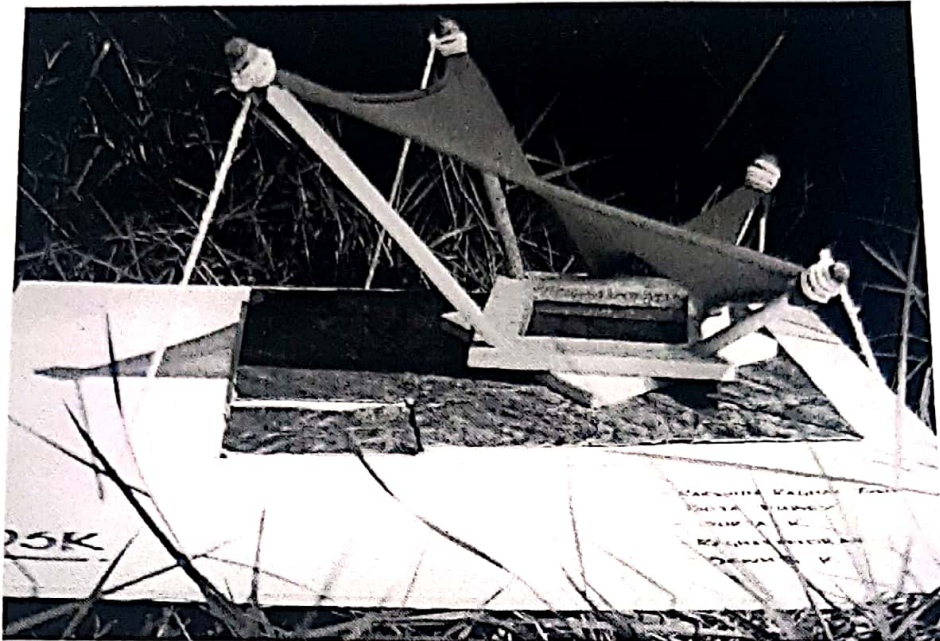
Making model requires very less amount of any material therefore instead of buying new stationaries for models. Hence students were instructed to use wastes from their previous portfolios and other available wastes like, newspaper, pens, cardboard boxes plastic bottles and waste clothes.

Students took this as challenge and responsibility and came up with various types of explanatory models from various waste materials following were observed in the models.

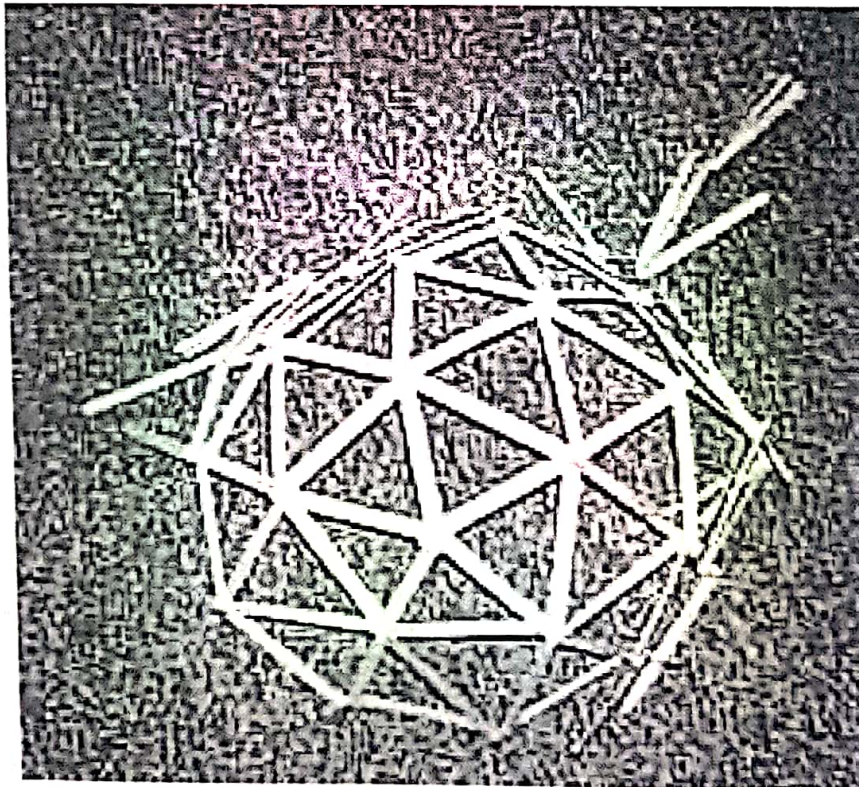
1. Very Good models were observed for shell structures and cable structures where entire model was made with waste.
2. Whereas few models like fabric structures, domes, arches requires using few new materials because of the requirement.
3. Students used materials very innovatively and motivated to reserve wastes for model making in future model making.



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Fabric Structure Model



Geodesic Dome with Sticks

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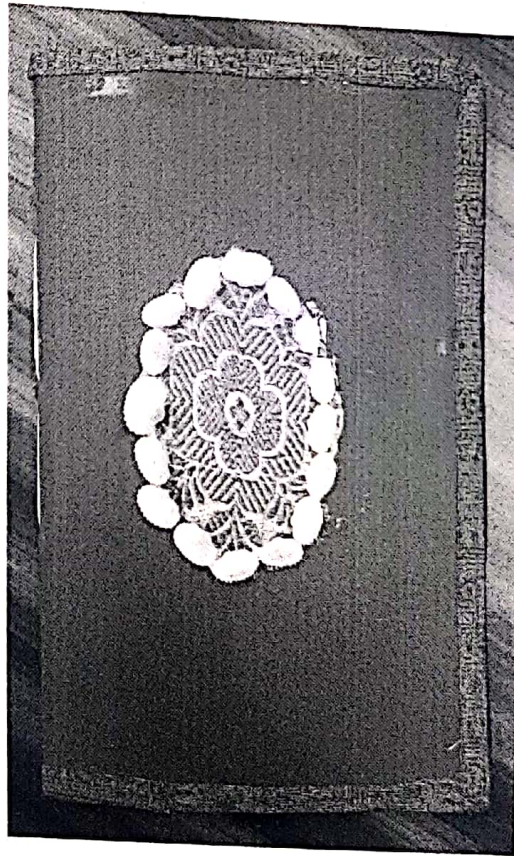
Event Under Center for Reuse: Dairy Making out of discarded Sheets.

Date : 25-10-2017

Faculty In charge: Chandan K

### Event Summary

At BMS SA campus in the academic year 2017-18 a Dairy making workshop was organized for the 1<sup>st</sup> semester students on 25<sup>th</sup> of October 2017. In this workshop students participated with their creative spirit and gained hands-on experience. Thus, in the process Dairies were produced by incorporating single side printed sheets for their own consumption.





# Center for Reuse - Best Practice - 1

MATERIALS AND METHODS IN BUILDING CONSTRUCTION (Academic Year: 2017-2018)

Faculties In charge: Binny Johnson, Pramod Bhargav

Class Activity based on Reusing waste Materials,

Subject: MATERIALS AND METHODS IN BUILDING CONSTRUCTION 5 - 15ARC5.2

Date : 10-11-2017

Instead of designing the models in software students handcraft 3D models using used sheets, pens, wires, cardboards etc. While handmade models are viewed as a bit old-fashioned, they can still be valuable for times when you need to communicate a project's perspective, scale, and proportion, which can sometimes be difficult to facilitate with 3D printing.

1. Used sheets and thin tissue papers are often used for folded structures, shell structures etc.
2. Chop sticks, match sticks and ice cream sticks are used for trusses, domes, space frames etc.

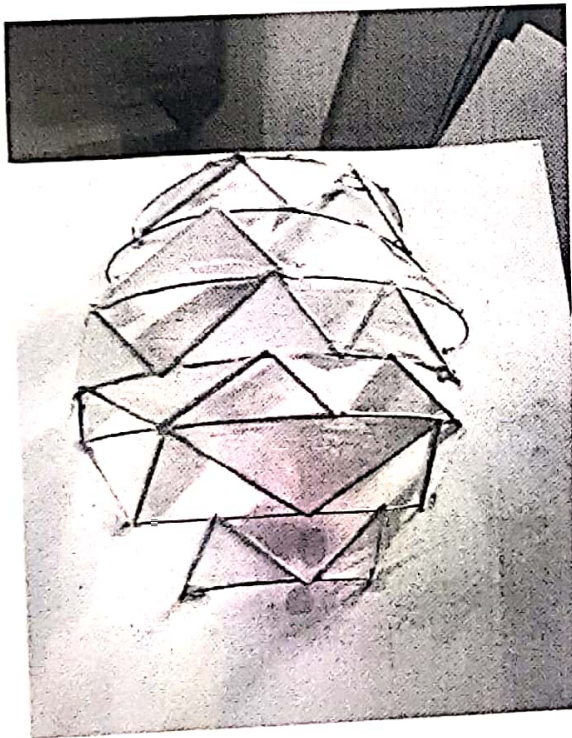


Figure 1: Geodesic Dome Model using waste cloth and broom Sticks

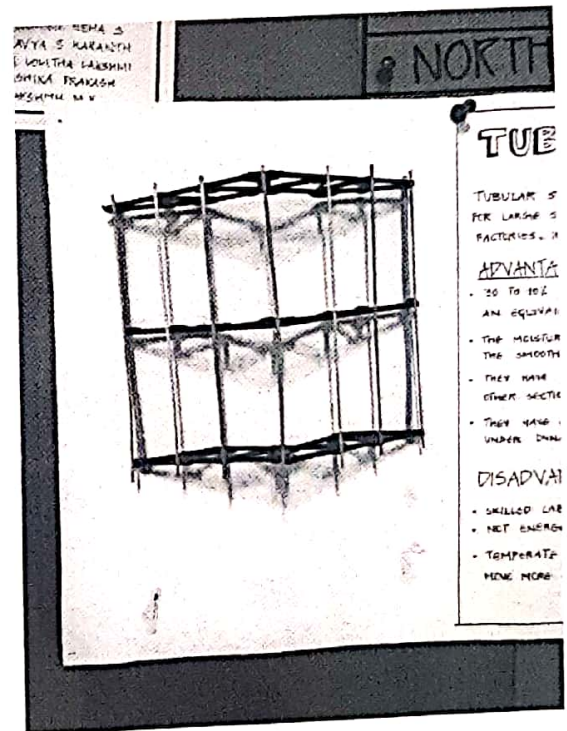


Figure 2: Truss Model Using Broom Sticks and waste straws.



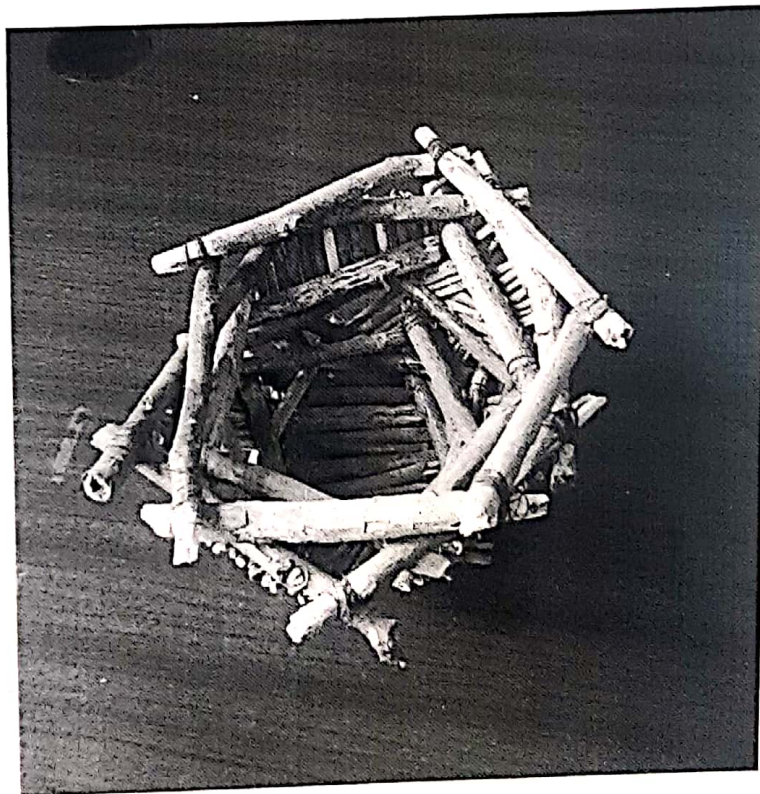
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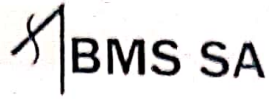
### CLASS ACTIVITY - 20-09-2018

#### MODELS OUT OF TWIGS

By exploring the campus greenery BMS SA had conducted model making workshop session for the 1<sup>st</sup> semester students on 19<sup>th</sup> of September, 2018 (academic year 2018-19); wherein, fallen twigs were accumulated and models were prepared. Students enjoyed the process of the accumulation of twigs, its segregation, as well as the execution of the model. Thus, they felt closer to nature and the creative possibilities of the broken twigs were explored.



Model Made out of twigs

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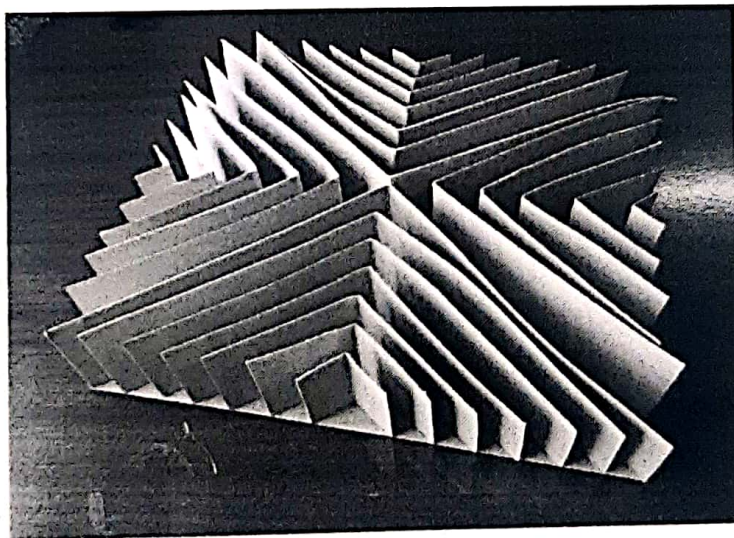
**Event Summary**

**Title: 'Using Waste Materials in Making Models'**

**Date: 27<sup>th</sup> and 28<sup>th</sup> December 2018**

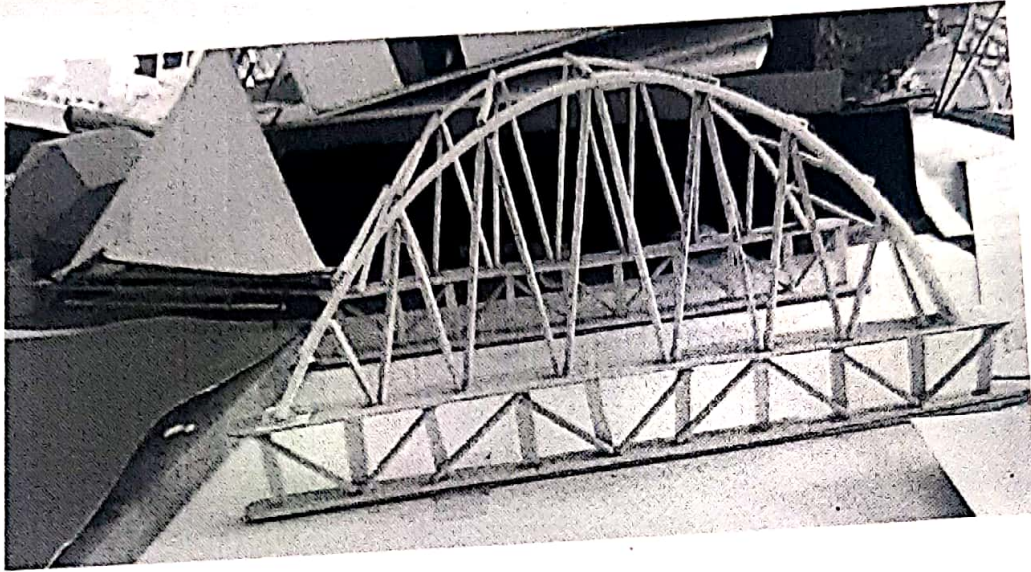
BMS SA had organized a special model making workshop for the 1<sup>st</sup> year students (without any charges or enrollment fee) on 27<sup>th</sup> and 28<sup>th</sup> of December 2018. Workshop was held afternoon 1:30 PM onwards in order to maintain the regular class hours in the morning session.

Materials were provided by College and students of 1<sup>st</sup> year A, B and C sections participated with lots of enthusiasm and produced (3-dimensional) models based on design principles by exploring their creative talents as well as skillset



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**Event Coordinator Signature**

## Center for Reuse - Best Practice - 1



### BMS SCHOOL OF ARCHITECTURE

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Model making in MMBC – Methods and materials in building construction

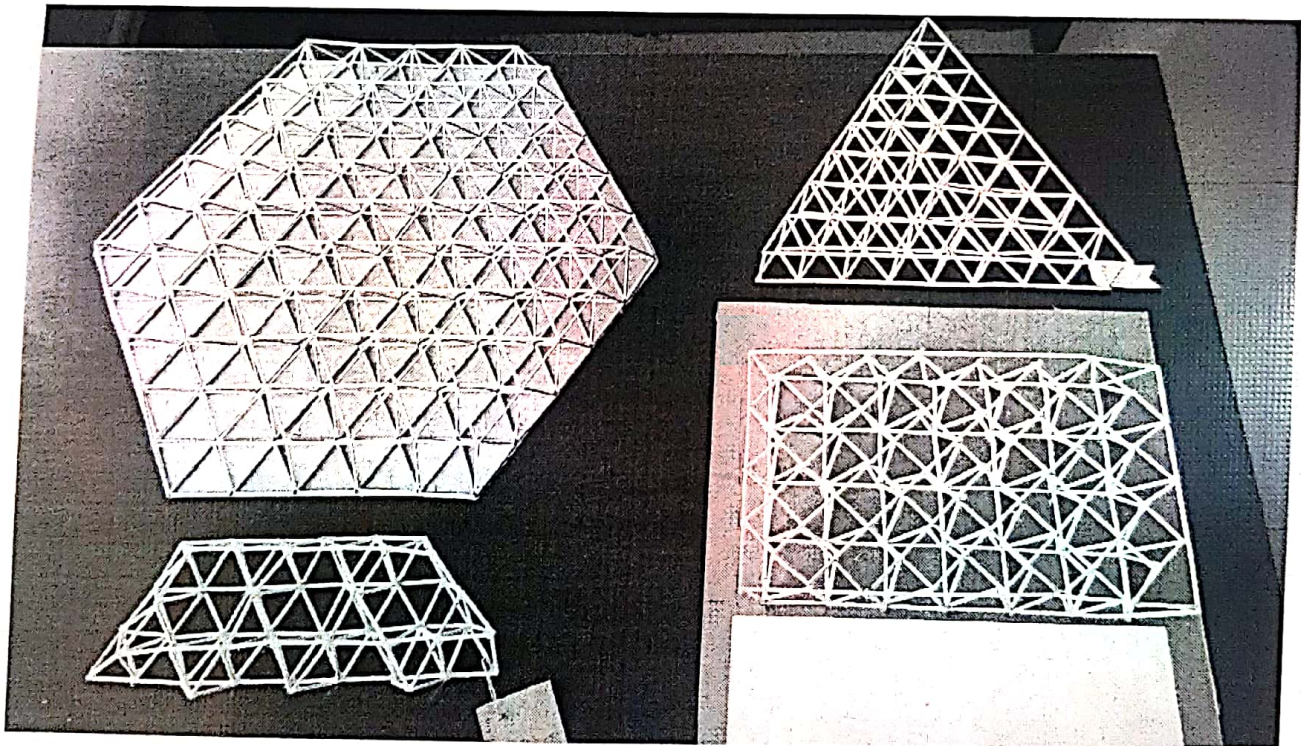
Date : 2nd NOV 2018

Faculty In charge: Binny J and Jigisha D

This subject deals with understanding the construction details in building construction through creating detailed measured drawings and the study of physical property of various materials. Creating detailed drawing means the student has fully understood the physical geometry of the structure. In order to grasp a 3 dimensional understanding of the modelling we encourage students to make proportionate physical model of the structure as a whole as well as the individual details of its parts.

There are a lot of waste materials that are generated during the entire semester and we encourage students to utilise them for creating the study models.

Though There are few materials we have to procure from outside as everything Is not possible to be made out of paper, we still courage them to avoid plastic and opt for renewable and degradable materials.



**Tetrahedron Space Frame Model**

BMS SA

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**Making the best out of waste: Books and Files**

**Activity done as a part of Centre for Reuse on 02/02/2019**

Centre for Reuse plays an important role in creating environmental awareness amongst students, faculties, and staff of BMSSA. Many programs and projects are formed and combined to make a framework of Centre for Reuse. Preparation of Eco-friendly product out of waste material forms an important part of this initiative as it enables us to make the useless things more useful.

Objectives:

1. To develop the ability to think and organize the thinking to create something useful.
2. To indulge the students into an extracurricular activity with exclusive tool i.e. waste material.
3. To explore the environmental concepts and actions which are beyond the curriculum & syllabus.
4. To make our vision and outlook broader about the nature & society.
5. To control the harmful effects of waste on our environment.

**VARIOUS WASTE MATERIAL USED FOR MAKING BOOKS AND FILES**

• Old Newspaper • Notebooks and chart paper • Cardboard and book cover • Paper plates, spoons and disposable glass • Pens and refills • Old CDs and DVDs • Toothpicks and matchsticks • Dry stem of plants and trees • Mango seeds • Seeds of various fruits • Old curtains & table covers • Used foil paper • Jute rope • Plastic bottles • Strings and sequences, etc.

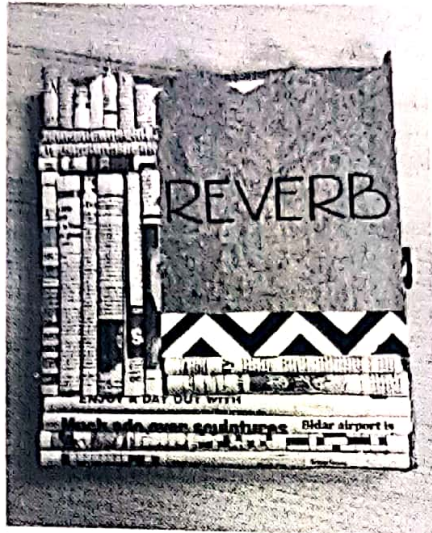


Figure – 1 : Folder made by newspapers and sheets



Figure – 2: Book Made by Discarded sheets.



Figure 3 – Dairy made by discarded sheets.

## Center for Reuse - Best Practice - 1



### BMS SCHOOL OF ARCHITECTURE

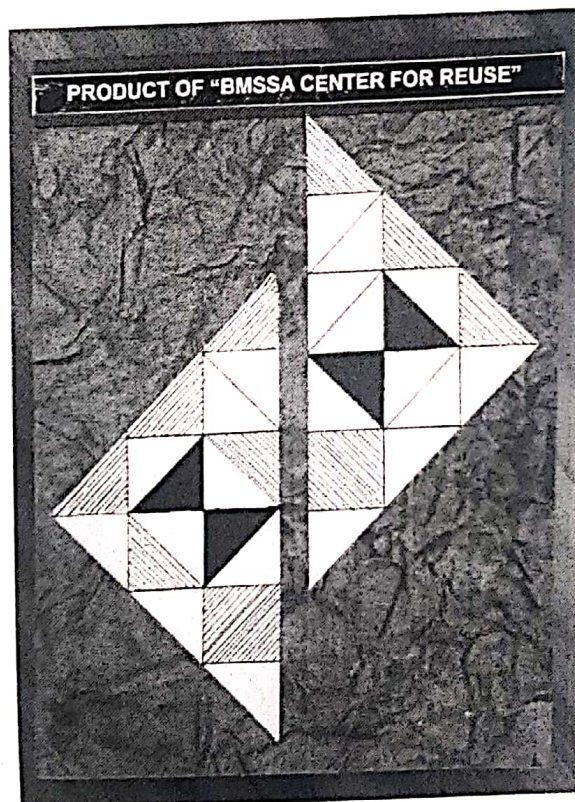
Event as a part of Center for Reuse: Book Binding Workshop

Event Coordinator: Chandan K

Date: 14-03-2019

#### Event Summary

BMS School of Architecture had conducted a book binding workshop in the academic year of 2018-19 for the students of the II Semester in the College campus on 14<sup>th</sup> of March 2019. In the event, books were produced by exploring the old single side used sheets out of students' portfolio. Thus, the culture of reuse was disseminated among the students' fraternity.



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## Making the best out of waste: Mural

Activity done as a part of Centre for Reuse on 14/09/2019

Lots of paper waste is generated in the college, and students discard on an average 3 of their old models every semester. Realizing the creative potential of these rubbish and keeping students work as memoir, a huge mural was planned in New Block BMSSA.

- All the junk materials were sorted out.
- Recognizing the materials for its right place in the mural was a creative challenge.
- Following the plan selected students of second and higher semesters actively participated as a team.
- Finally, a huge, monumental wall space of 'B' block BMS School of Architecture was creatively handled. This has added an aesthetic vibrancy to the ambience of the block.

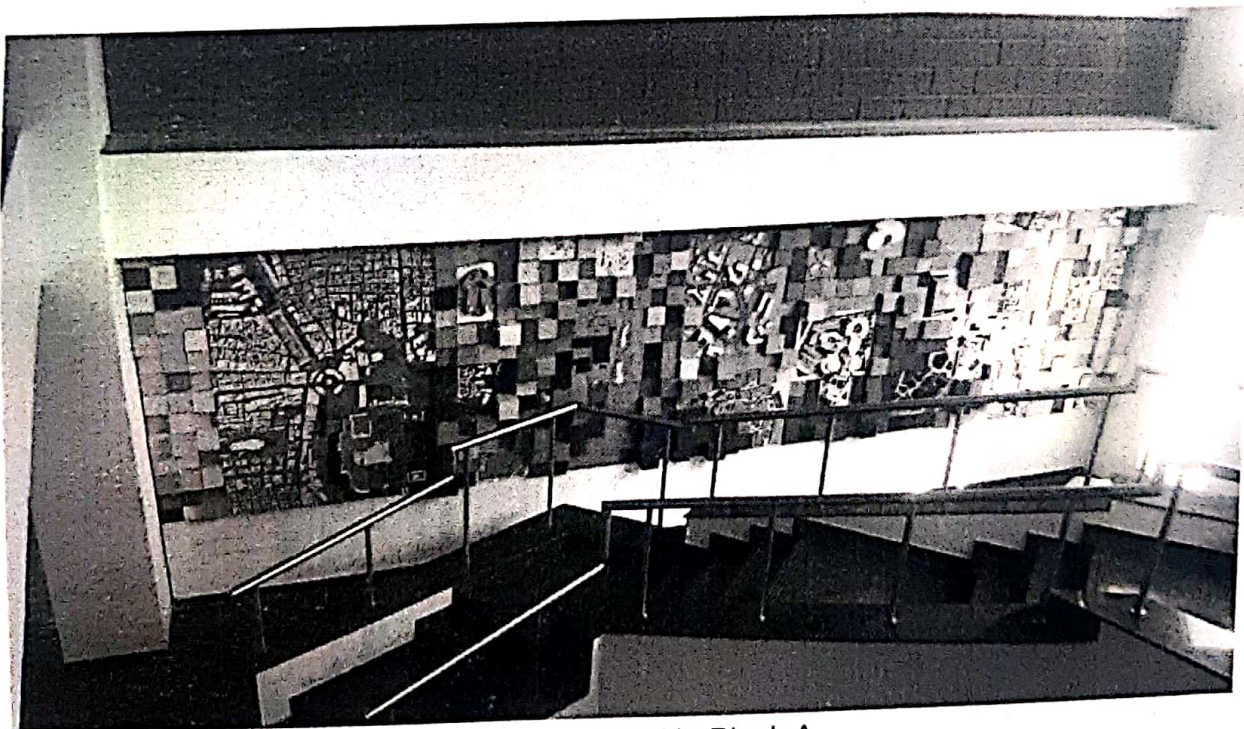


Figure 1 – Mural in Block A

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Figure 2 - Side View of Mural



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17-10-2019

Class Activity Brief - Model Making In structures.

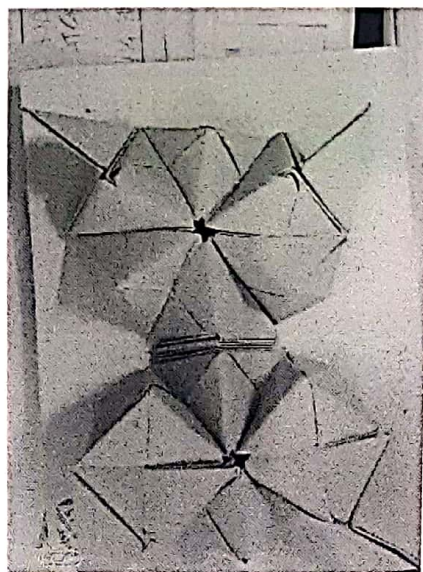
Faculty Incharge : Pooja S M and Supritha M Y

Advanced learning of subjects requires visual aid or hands on experience to understand and grasp the concepts. Therefore model making has become integral part of teaching and learning. As an institution at college considerable amount of waste is generated like, Sheets, pens, cardboard boxes and papers. Instead of buying new products these materials could be used for making models.

Bases on success achieved previous semester students were encouraged to use above mentioned wastes and any other kind of used products.

Students took this as challenge and responsibility and came up with various types of explanatory models from various waste materials following were observed in the models.

1. Sheets could be used easily in making some systems like shell and laminated structures.
2. Innovative idea of waste straws and match sticks were used in making a geodesic dome and space frames.
3. For sturdier structural systems like arches, portal frames were difficult to engineer from these wastes therefore in models partially waste products were used.



Shell Structure Model using Discarded sheet





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### Class Activity Brief - Model making in MMBC

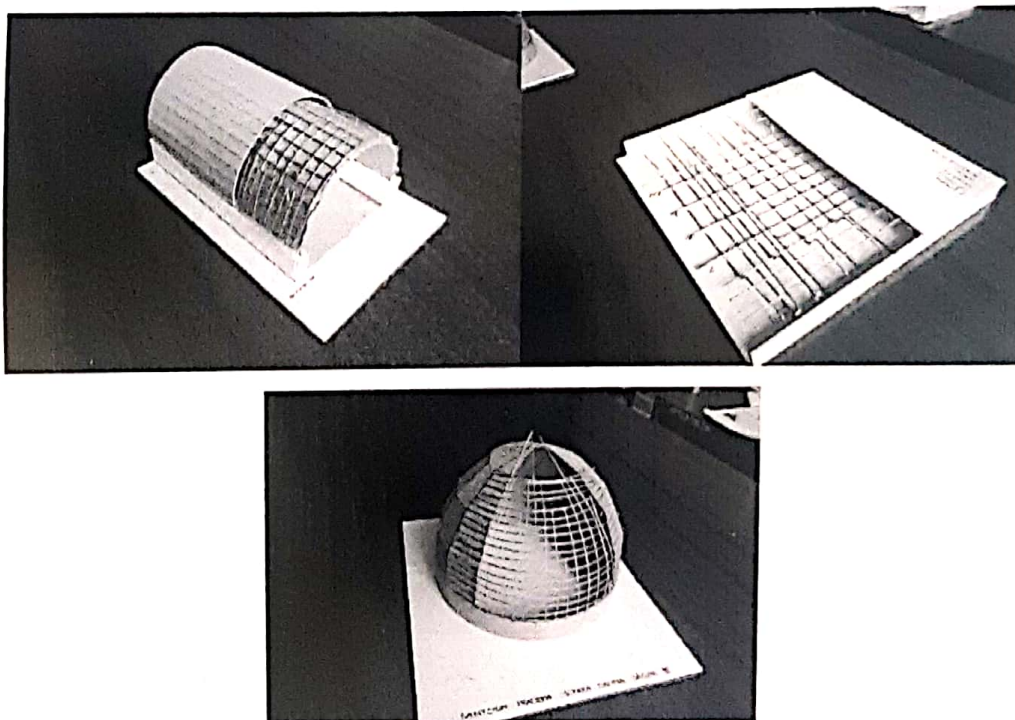
Date : 13<sup>th</sup> NOV 2019

Faculty In charge - Binny J. M S Harsha

This subject deals with understanding the construction details in building construction through creating detailed measured drawings and the study of physical property of various materials. Creating detailed drawing means the student has fully understood the physical geometry of the structure. In order to grasp a 3 dimensional understanding of the modelling we encourage students to make a proportionate physical model of the structure as a whole as well as the individual details of its parts.

There are a lot of waste materials that are generated during the entire semester and we encourage students to utilise them for creating the study models.

Though There are few materials we have to procure from outside as everything is not possible to be made out of paper, we still encourage them to avoid plastic and opt for renewable and degradable materials.

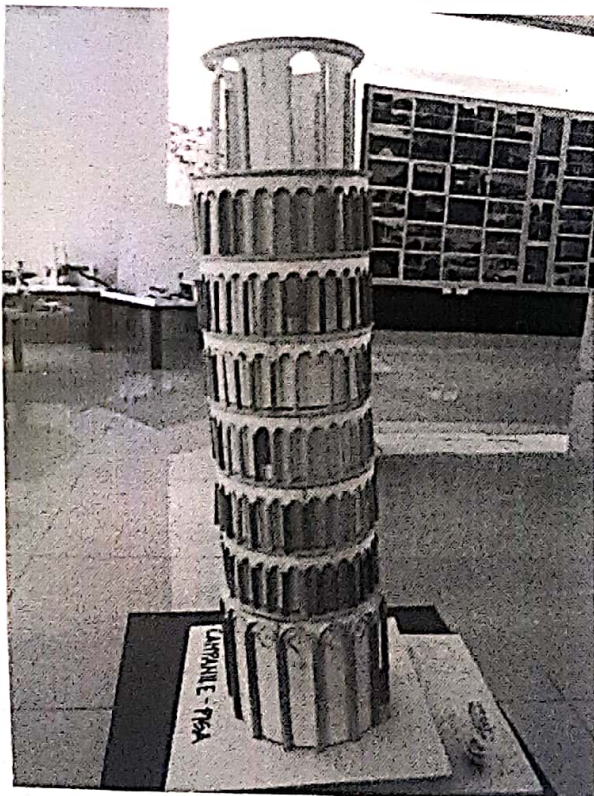


Models Made by students in MMBC

#### Class Activity Brief - History of Architecture – (2019-20)

Date : 20-11-2019

As part of assignment, students were asked to make models of buildings dating from historic times. They used newspapers, portfolio sheets, thermocol etc. Groups were made and students were asked to work as a team.



Model of historical structures of various styles.



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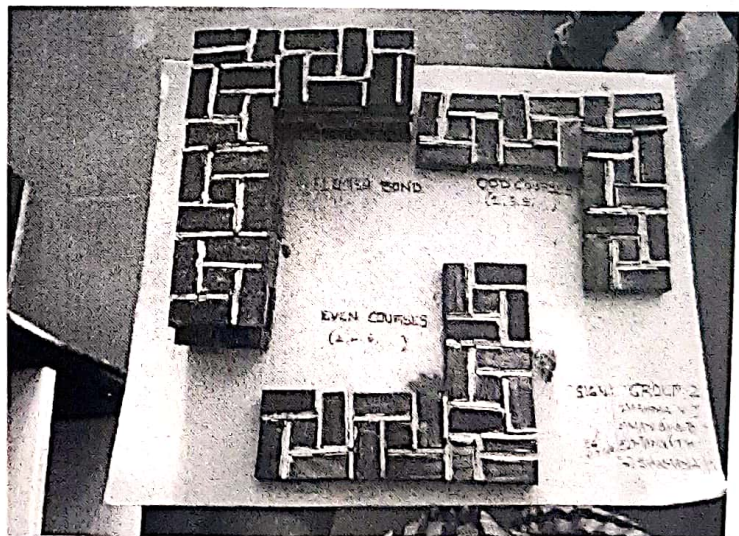
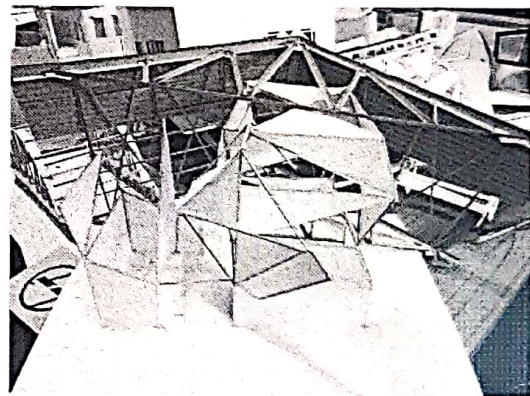
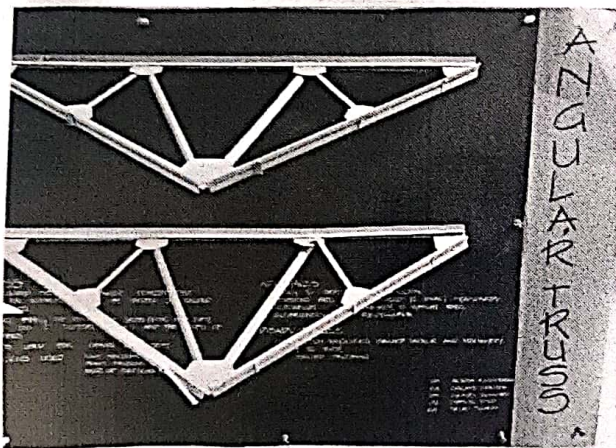
Class Activity Brief - MATERIALS AND METHODS IN BUILDING CONSTRUCTION (2019-2020)

Date - 12-12-2019

Faculty Incharge : Jigisha D , Rakesh M

Students have always opted to use minimum resources to make well-ordered and distinct models using discarded sheets, pens, cardboard boxes and papers. Students took this as challenge and responsibility and came up with various types of explanatory models from various waste materials following were observed in the models.

1. Used sheets and thin tissue papers are often used for folded structures, shell structures etc.
2. Chop sticks, match sticks and ice cream sticks are used for trusses, domes, space frames etc.



MMBC models of Truss,, truss roofing , folded plates and brick bonds



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## Centre for Reuse: Composting of leaves

BMSSA has lush green garden of about 1 acre. The matured leaves fall off the tree and there is huge waste, which is created regularly, and amount of waste is seasonal. Instead of dumping this waste with local municipality waste, this is reused to generate organic manure for plants around the campus. (It has been elaborated in 7.1.3 – Managing solid waste)

Process of composting adopted here is traditional method of aerobic decomposing of waste and using the disintegrated product as manure for plants.

The fallen leaves are collected in 7 composting pits located in various locations in campus, waste collection and composting is in alliance with BMS Institute of Technology and management since both buildings are in same campus.

Periodically leaves are collected manually and composted in scientific way. These pits are examined regularly and maintained, and manure is maintained regularly for aerobic action.

### Outcomes

1. Leaves and decomposable waste is reused and less waste disposal to municipality.
2. Organic manure is very useful for improving fertility of land since it doesn't contain chemicals.
3. Creating awareness among the students and other faculties about preparing organic manure.

### Challenges

1. Collection of materials and transporting them to the pits.
2. Maintenance of pits regularly.
3. Identifying the location of pits at places where human access is less.

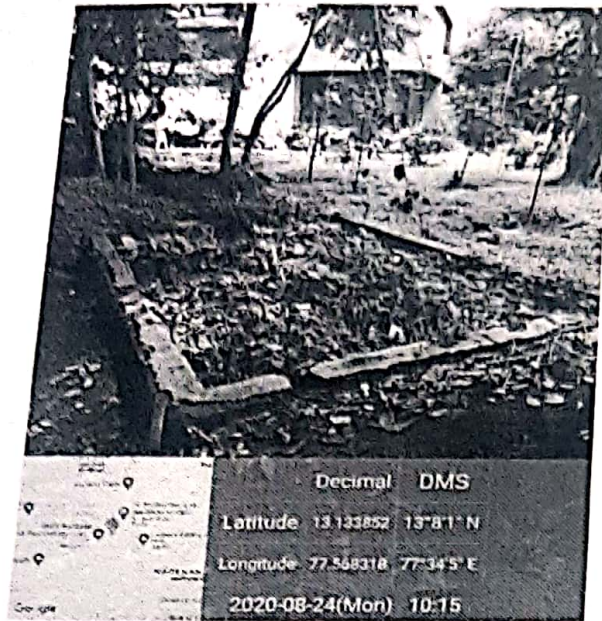


Figure 1: Composting Pit in Campus

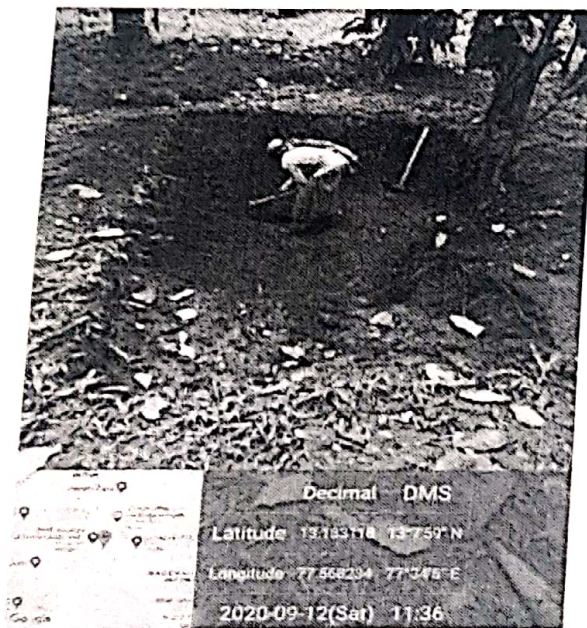


Figure 2: Composting Pit in Campus



## BMS SCHOOL OF ARCHITECTURE

The objective of the practice is to mould the young generation to become informed human beings who are sensitive towards the needs of the society and to create a platform for the students to explore their potential so that they know how they can contribute towards the betterment of the community. BMS School of Architecture conducts various events initiated by faculties and students based on the current needs like donation for flood affected areas, School cleaning, railway station cleaning, donation to an orphanage, educating school students about reusing old materials and repairing them instead of replacing it with new one etc, some activities are regularly conducted in college like Blood Donation Drive, planting trees etc. (Details about mentioned activities are mentioned in criteria 3 – 3.4.3).

### **Photograph(s)**



Donation for flood affected area in Uttar Kannada district



*(L)Sweets being distributed by Director, BMSSA in an Orphanage (R)BMSSA team (i-r Ar Jiasim, Dr Sapna, Ms Deepa and Ar Viswanath) at the orphanage*

**SOCIAL RESPONSIBILITIES - Best Practice 2**



*BMSSA team planting trees in locality.*



*Participants engaged in Repair café conducted by BMSSA at Kendriya Vidyalaya Rail Wheel Factory Yelahanka*

## SOCIAL RESPONSIBILITIES - Best Practice 2



*BMSSA team cleaning activity in Nagenahalli*



*Member from surrounding community with donated clothes.  
Donations stored in BMSSA before distribution*



*Few members of the BMSSA team at Majestic Railway Station*



## SOCIAL RESPONSIBILITIES - Best Practice 2



*(L)BMSSA team at Nandi Halt station  
(R)BMSSA team at cleaning work*



*Few members of the Blood Donation camp team*



*Renovation by students of BMSSA at Nagenahalli Government School*

## SOCIAL RESPONSIBILITIES - Best Practice 2

### PARTICIPATION BY STUDENTS.

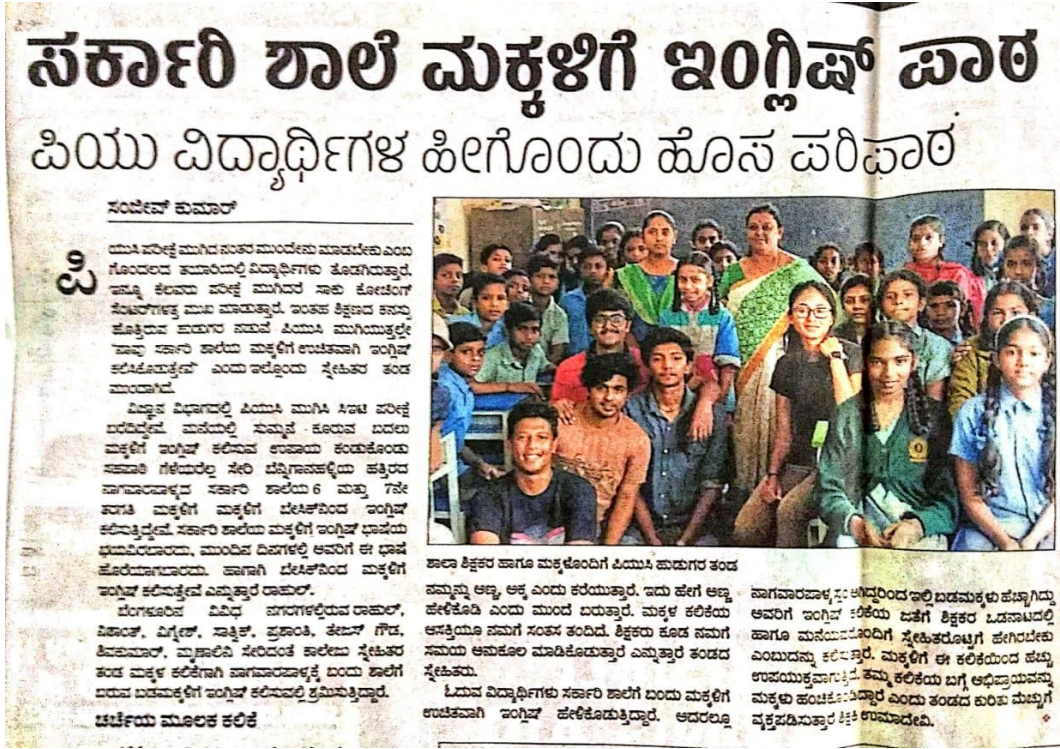
This practice in college has motivated students to help and participate in various community activities which were appreciated by Certificate of participation. Students have volunteered for donation drives, blood donation, planting drive, teaching at Government School and members of various rotary clubs.



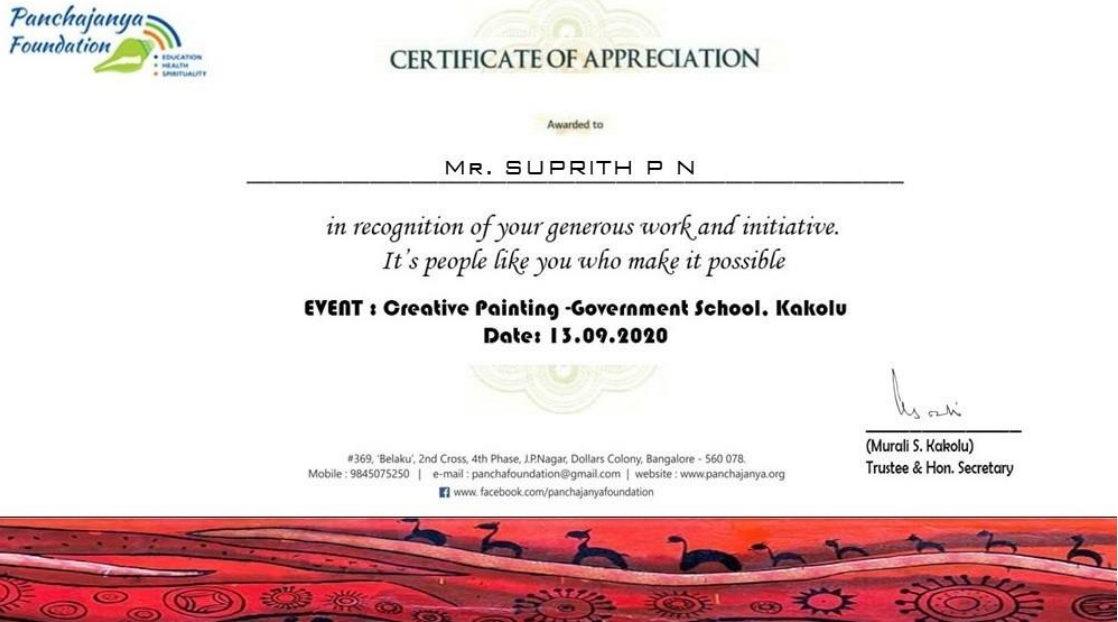
*Certificate of Blood Donation done by student*



*Certificate of appreciation to student for teaching in Govt. School*



Students Volunteered to teach in Govt. School, Appreciation by Local News Paper.



Students Volunteered for Creative Painting in Govt. School



Student participation in Food Donation drive