Design and Applied Technology
CASE STUDY

Retail Shop Design

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Design and Applied Technology

Students should be made aware of the relevance of the technology they are studying to the real world. Case studies on technology and design enable students to put their learning into an authentic context.

Authentic Context: Students could explore the idea of visualisation and CAD modelling through the design process of a retail shop in Hong Kong

Topics Covered:

Compulsory Part	Strand 1 : Design and Innovation
Elective Part	Module 5 : Visualisation and Computer-aided Design (CAD) Modelling

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1. Introduction of a CAD system

The general purpose of computer aided design (CAD) system is to communicate design ideas without ambiguity through common knowledge and skill of preparing drawing and sketching. It can be used to visualise and standardise a wide range of presentation drawings for different professions; for instance, the architectural & interior design, engineering design, product design & manufacturing, multimedia production. The advantage of using CAD has hitherto been increasingly appreciated in decade over traditional manual drafting methods. It produces neater and more accurate drawing, and provides faster rate of production. By selecting a variety of commands in CAD program, users could apply different special drafting techniques. It also avoids time-wasting in the repetitive drawing works.

Sketching is an initial stage of professional design practice. It is extremely important in the professional world as ideas tend to be visual. A sketch visualizes the idea for the viewer, providing a shared visual experience that can be discussed, debated, and refined.

CAD is the acronym for both computer aided design and computer aided drafting. In CAD system, it offers a number of advantages over traditional manual drafting. For example, modifying a 2D geometric drawing to become a 3D object will not alter the basic procedures for creating the initial 2D drawing. As a result, it can improve the productivity, provide more consistent and accurate drawings and it can simplify the process of revisions and correction. However, there are people who have been designing for years who are not able to define clearly the impact of visualisation of design process in CAD system.

2. The impact of visualisation in design process

The definition of visualisation is to provide viewable image of an object in high levels of picture-realism before it is actually manufactured. This procedure will stick to the design flow, which includes the development of sketches, preliminary drawings, working drawings, materials, schedules, legends, specifications and anything else necessary to document and communicate the design process.

The case study allows you to participate in the shop design, which reflects different approaches and covers various design process – From ideas generation, sketches, 2D structural drawings to 3D computer models.

3. Case Study – Retail Shop Design

The case study aims to develop your creativity by exploring the basic space, form and structure of shop design. At the same time, it also provides you with solid experience, knowledge and capability to work as a successful spatial designer through visualise their design by using sketches and CAD system. However, you are advised to focus on the aesthetics, human factors and the creative opportunities to spatial design. Furthermore, the scope of this project is also related to multimedia application, branding and corporate marketing strategies. You are encouraged to develop commercially realistic solutions and demonstrate your investigate skills in information gathering and data analysis.

Throughout the 20th century, retail & exhibition design presents the major features of everyday life and social culture. In retail and exhibition design, it is important to understand the social, economic, political,

cultural and technology context that give rise to your conception and realisation.

In this case study, you are required to work in groups. You have to clearly identify the roles and responsibilities of each group member. Each of you will have your own target milestones. You are also expected to carry out your project work in and after class. Nevertheless, project work is carried out under the supervision of teacher in regular basis. A variety of software tools and computing platforms will be available to enable project implementation.

Design Tasks:

a) To communicate design ideas via sketches, CAD software and multimedia software for retail and exhibition design.
b) To design and manage shop branding and corporate image.
c) To produce a set of construction drawings (including 2-dimensional drawings & 3-dimensional model renderings).
d) To recognise the problem-solving design methods by drawing sketches.
e) To learn the aesthetics and importance of using colour, texture, proportion and detail in spatial design.
f) To explore the social and cultural issues on designing shop and exhibition.

3.1 Researches and Analysis:

The impact on retail and exhibition design is based on various social and cultural issues, which including gender, age, changes in lifestyles, work patterns and leisure. To understand the situation on the needs and uses of retail and exhibition design, the design group is required to explore it through teamwork tasks and individual design assignments.

Team Work:

- Form a design group of 4 to 6 people.
- Discuss among your group and select one type of retail shop, such as snack shop, fashion boutique, dessert shop or hair salon, and prepare your design according to the market needs and operations. As dessert shop is one of the trendy popular businesses, we will use it as an example.
- Produce a research folder by collecting pictures, photos, articles, charts and words from different media, such as the Internet, newspaper or magazine etc.
  The research folder may include:
  a) Examples of existing dessert shops in Hong Kong


  b) Examples of different types of dessert



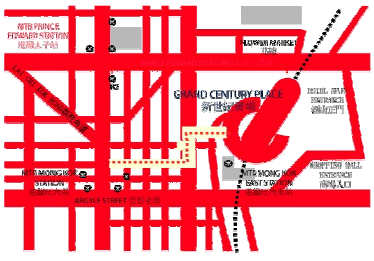

- Analyse the collected materials.
- Prepare questionnaire. *(Optional Activity)*
  A questionnaire is one of research element consisting of a series of questions and other prompts for the purpose of gathering information from respondents.

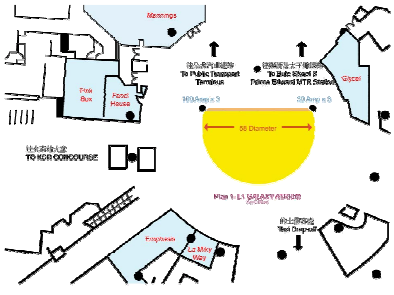
Sample Questions:

1. Are you male or female?
2. What is your age?
3. What is your occupation?
4. What is your favourite colour?
5. What kind of fruit do you like?
6. What kind of dessert do you like?
7. Which dessert shop do you like most? What makes you like this dessert shop?
8. Would you like to order a drink while having dessert? What types of drink you will order?
9. What is the best time you like to have dessert?
10. How often do you have dessert?
11. How much do you spend on dessert while dinning out?
12. What kind of dinning atmosphere do you prefer?
13. What kind of music do you like?
14. Would you like to add any additional comments about dessert?

- Summarised the result of questionnaires by creating charts
- Set the positioning and personality in market
  Market positioning strategy is the process by which marketers try to create an image or identity in the minds of their target market for its product, service or brand. A successful dessert shop is much more than a name and a logo; a brand is a promise of an experience, projecting a distinctive personality. Deciding the dessert shop to be perceived by the marketplace is the most important decision in launching a new brand or reintroducing an established one.
- Choose the location for the dessert shop and exhibition
  - **Site Study** → In this case study, we chose Grand Century Place at 193 Prince Edward Road West, Mongkok (http://www.grandcenturyplace.com.hk)

Shop Location – 3rd Floor





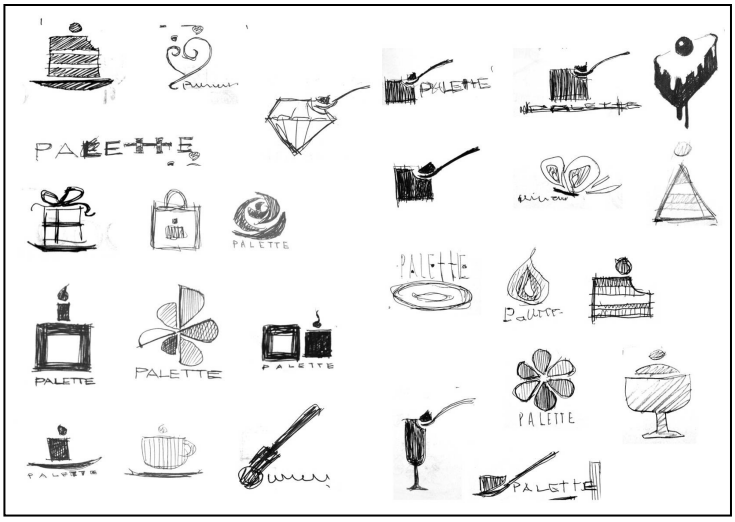
Exhibition Location – Ground Floor (Galaxy Atrium)

3.2 Branding and Corporate Image (CI)

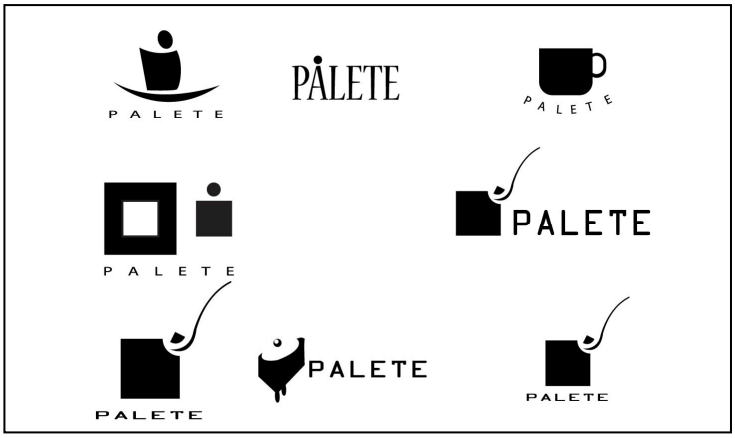
Individual Designer Work:

- **Logo Design**
  - Choose a name for the dessert shop
  - Design and produce a logo with suitable typeface and colours
    (Suggested computer software for graphic design: Adobe Photoshop and Adobe Illustrator)

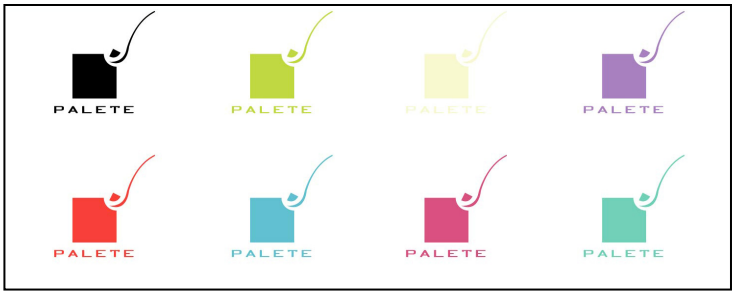
***Step One**:* Hand-sketching



Step Two: Computer graphic



***Step Three**:* Finalise the logo design and try on different colour matching

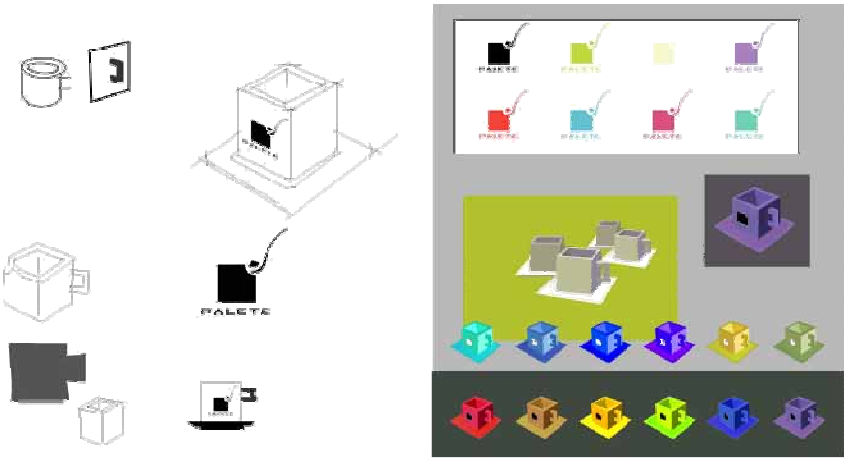


- **Packaging Design**

  Develop the preliminary hand-sketching ideas to 3D visualisation.

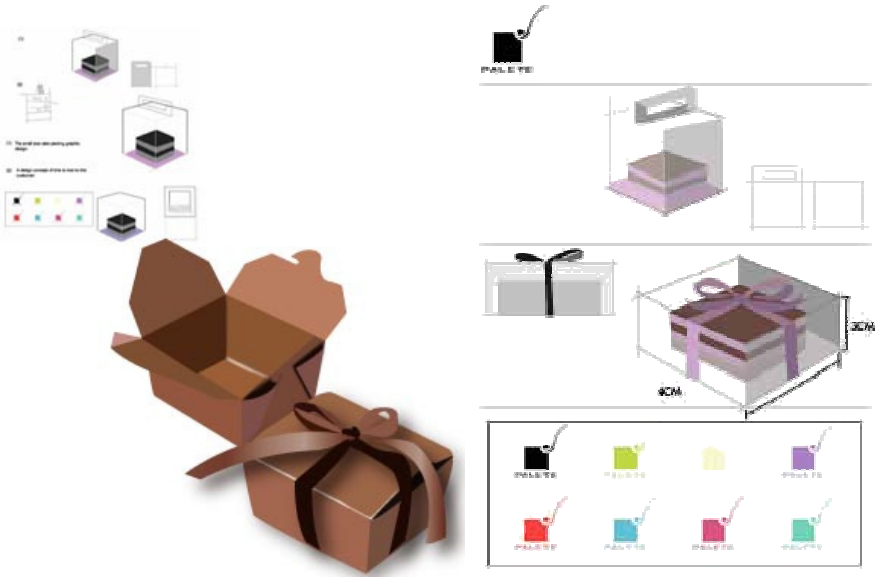
  (Suggested computer software: Adobe Photoshop, Adobe Illustrator and Autodesk 3Ds Max.)

  a) Coffee Cups



  b) Tableware

  c) Take Away Box for cake



Other suggestions of objects that could enhance corporate image (CI) of a dessert shop:

- Napkin
- Coffee Clutches
- Paper Cups for hot drinks (take away)
- Plastic Cups for cold drinks (take away)
- Paper / Plastic Bag
- Condiment Pack
- Staff Uniform
- Business Card
- Company Letterhead and Envelop

3.3 Conceptualization

Brainstorming and mind mapping are visual diagrams with lines and bubbles representing ideas and relationships between them. The core idea sits in the middle with related topics branching out from it. Sketching and other creative process could come up with thousand of concepts and visualises the idea for the viewer, providing a shared visual experience that can be discussed, debated and refined.

Team Work:

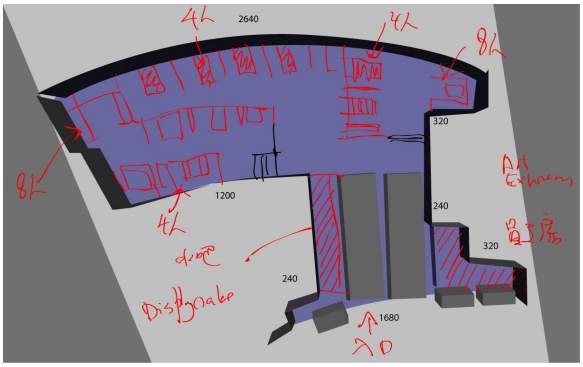
Part One (Core Activity): Retail Shop Design - Dessert Shop

Develop preliminary concept to 3D visualisation.

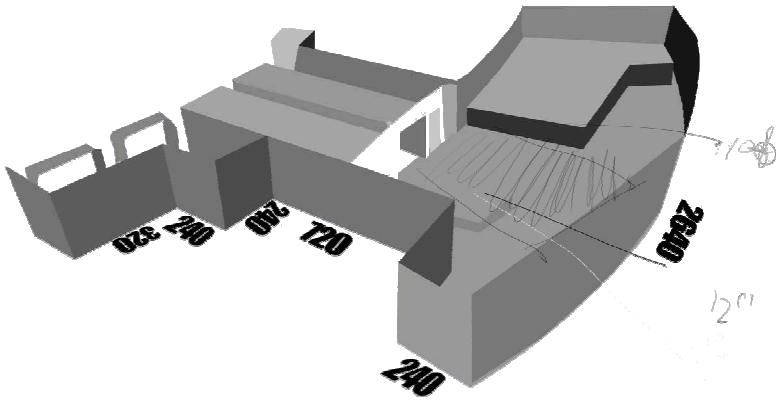
(Suggested computer software: Autodesk AutoCAD and Autodesk 3Ds Max.)

Space Planning (Hand-sketching / Bubble Diagram)

- Entrance / Reception & Waiting Area
- Display Area
- Bar & Catering Area
- Cashier
- Kitchen
- Staff Room & Pantry

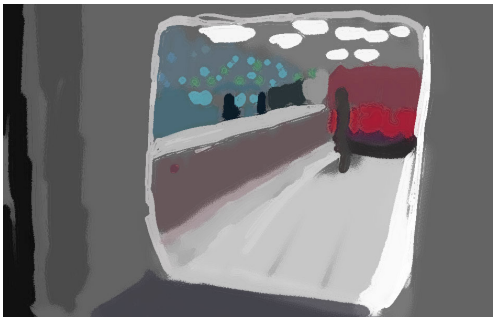


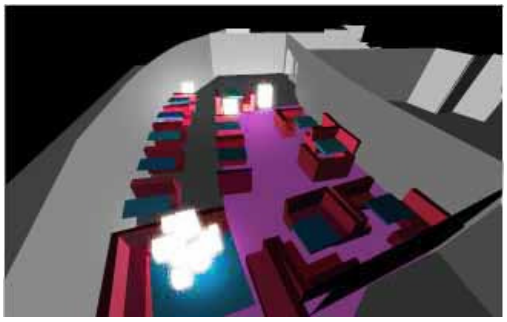
♦ Carry on doing sketch and build the basic forms in 3Ds Max. The primitive designs are created.



3.5 Finalizing the Ideas

Concepts were evaluated and the final idea is generated. Designers started concerning about the use of material, lighting and atmosphere.

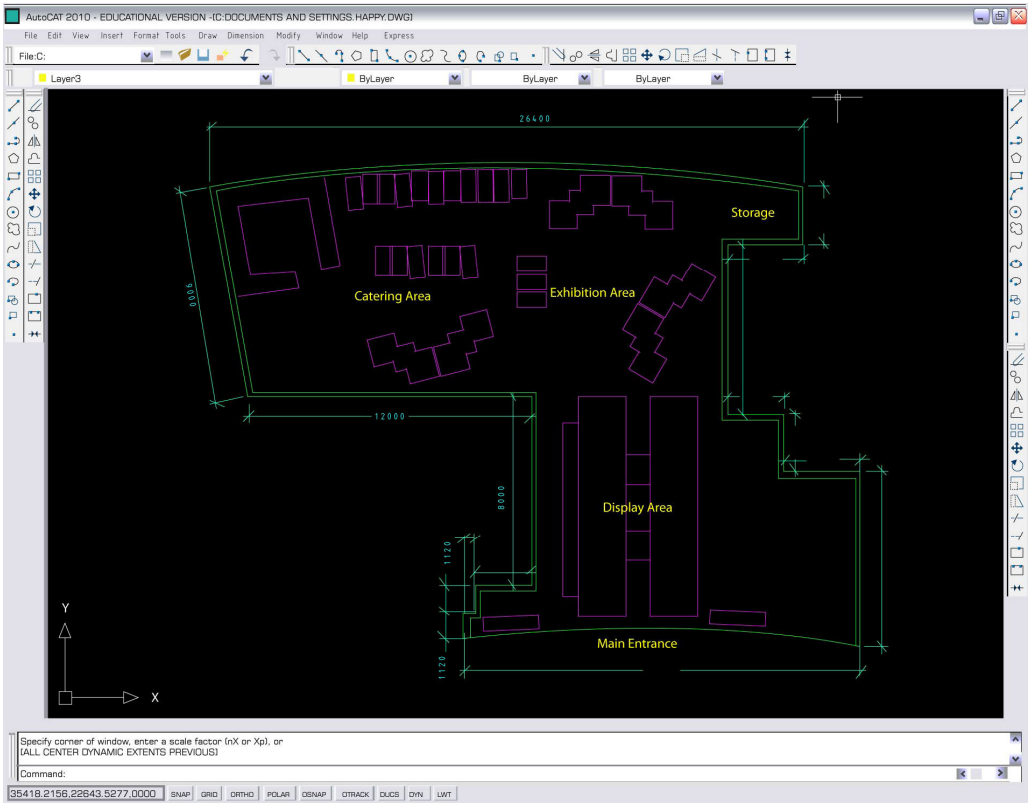




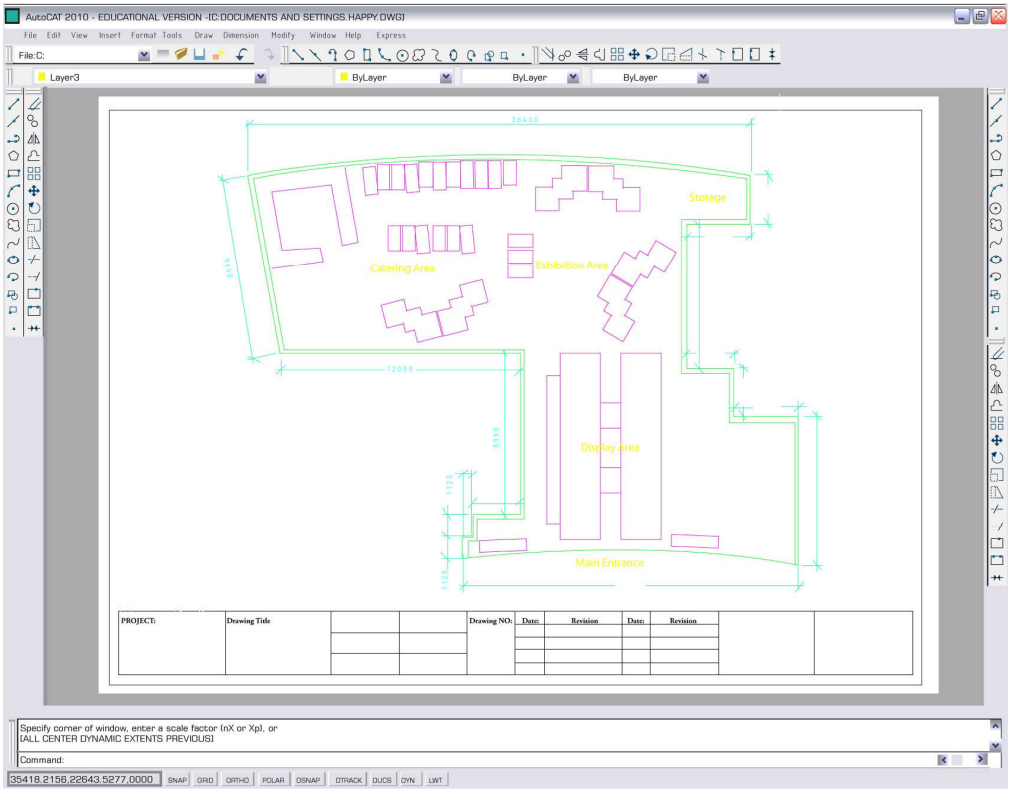
3.6 Construction Drawing Development

There are two modes of drawing in AutoCAD, also called "SPACE". The normal/default mode is called "Model Space". This is the space you will always use; objects are always drawn in real world units (full size). The other mode of drawing or space is called "Paper Space", which allows only a 2-dimensional world, and can be visualized as a flat sheet of paper. Paper Space is a 2-dimensional drawing mode in which you can create various "views" of a 3-dimensional drawing in "holes" of the paper, which is called "viewports" for plotting. It is useful for plotting several views of an object at different scales, or for putting orthogonal drawing titles on a perspective or axonometric drawing.

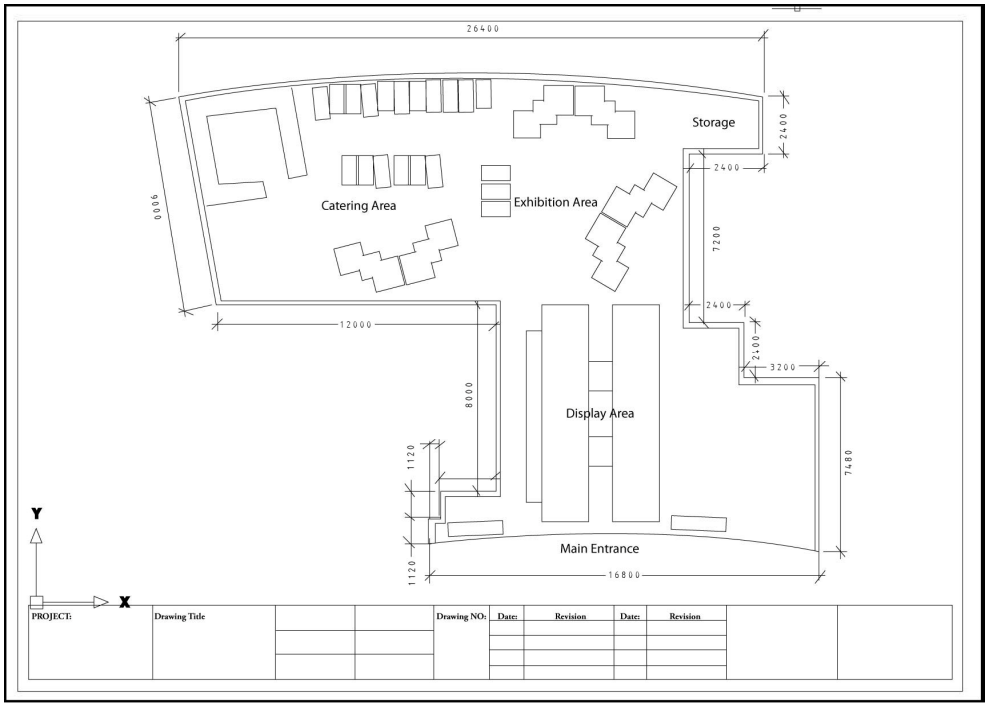
Model Space – For creating real world size drawing.



Paper Space – For producing 2-dimensional drawing in different scales.



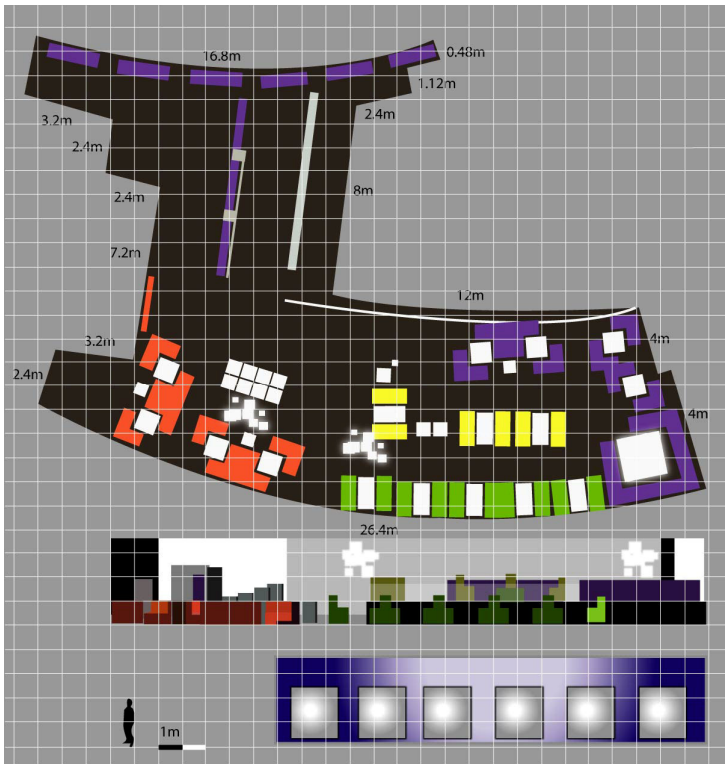
Plot the construction drawing with full dimensions to scale in paper. Title box is required.



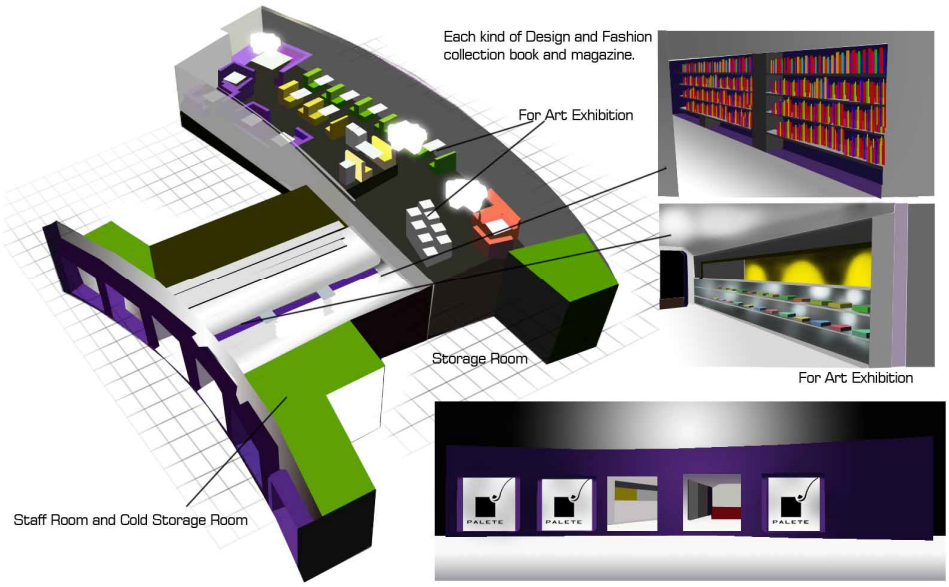
3.7 Three-dimension CAD Modelling and Rendering Production

3D CAD modelling aims to help the designers visualize the form, proportion and material selection of the dessert shop design.

- Top View and Elevations of the dessert shop

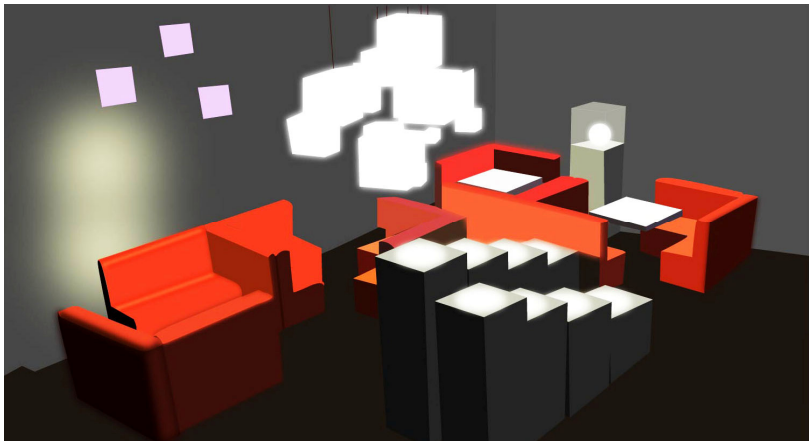


- Isometric View and entrance design of the dessert shop

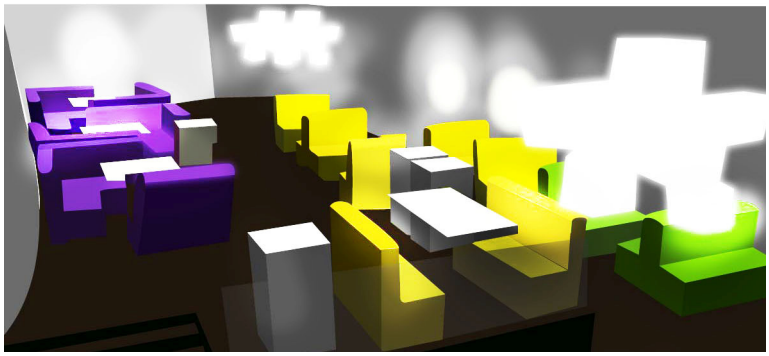


- Perspectives

a) Reading Area



b) Catering Area

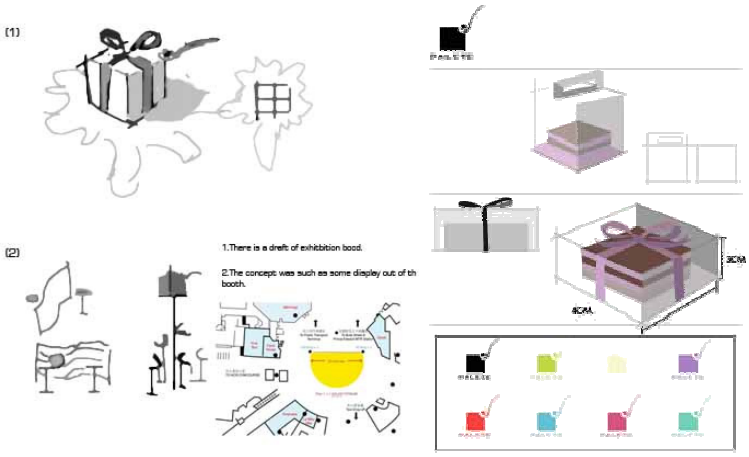


Part Two (Optional Activity): Exhibition Design - Dessert Shop

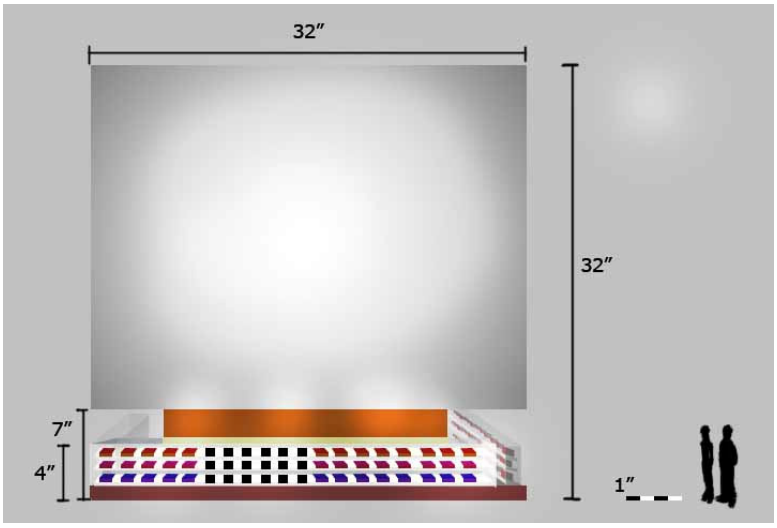
Develop preliminary hand-sketching ideas to 3D visualisation

(Suggested computer software: Autodesk AutoCAD and Autodesk 3Ds Max.)

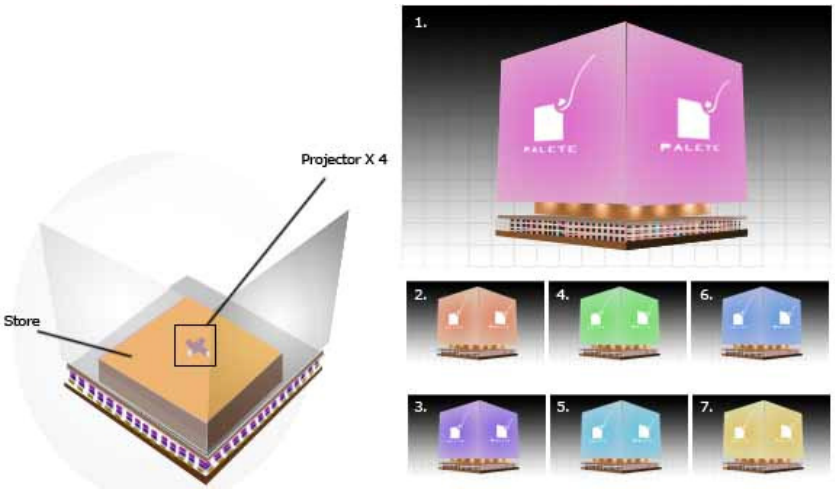
- Custom-made Booth Design in hand-sketching



- Custom-made Booth Design in 3D Modelling



- Idea Development



Worksheet 1: Self-assessing questions about the Retail Shop Design?

Name:	( )	**Class:**	
Title:	**Self-assessing Questions – Retail Shop Design**		

1	**What kind(s) of task will be applied in the design process?**
2	**Which is your favourite local / international brand? Please give the reason(s).**
3	**List out of the item(s) in packaging design in retail design.**
4	**In the research stage, what kinds of material do you need to collect when you design a retail shop?**
5	**In the research stage, what kinds of material do you need to collect when you design an exhibition?**

Worksheet 2: What is visualization?

Name:	( )	**Class:**	
Title:	**Retail Shop Design - What is visualisation?**		

1	**Which software(s) support visualisation and computer-aided design (CAD)?**
2	**List some advantages by using CAD application?**
3	**List some industries which successfully use visualisation and CAD application in their design processes.**

4. Assignment & Project

The project is divided into three parts.

PART ONE: Research and Analysis (Group)

Task:
You are asked to form a group with 4-6 people and prepare a research for retail & exhibition design.

- Select one type of retail shop (fashion boutique, hair salon, bakery, restaurant etc.)
- Collect visual materials (included charts, pictures, photo-taking and words) from different medias. For example: newspaper, magazine, book, Internet.
- Make the collected material tidy and prepare A3 / A4 size folder.
- Analysis the materials with descriptions/ captions and words.
- Set the positioning and personality in market.
- Choose the location for the retail shop and exhibition.

PART TWO: Branding and Corporate Image (Individual)

Suggested Learning Tasks:

You are expected to work individually and create image design for a shop.

a) Logo Design; or
b) Packaging Design
   - Oral presentation / conclusion may necessary for selected students.

PART THREE: Retail Shop Design and Exhibition Design (Group)

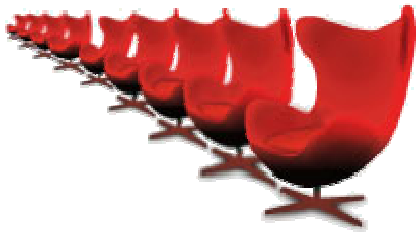
Retail Shop Design (Core Activity) or Exhibition Design (Optional)

Idea Generation and Conceptual Drawing
Task 1:
You have to create the theme and mood of the retail shop and exhibition by using brainstorming or mind mapping method.
Task 2:
a) Finalise one idea from brainstorming or mind mapping method.
b) Students are required to draw sketch or bubble diagram to understand the circulation and space planning.

Concept Development
Task:
You are asked to create different 2D and 3D basic forms in CAD system to understand the basic proportion and scale in real-life scenario.

Suggested design objects to practice:

- Furniture (Tables & Chairs)
- Display Cabinet
- Reception Counter
- Exhibition Booths



Construction Drawing

Task:

- Develop the details of the retail shop and exhibition.
- Measure the dimension of real furniture in school or at home to understand the concept of the actual size of furniture.
- According to the dimension, create a real size floor plan in Model Space of AutoCAD (both for the retail shop & exhibition).
- Mark the area size and furniture dimension.
- Prepare plotting style in Paper Space.
- Plot the drawing on A3/A4 size paper in scale

3D Modelling and Visualisation

Task:

- Transform the 2D objects into 3D models.
- Add different materials and lighting to the objects.
- Produce the perspective renderings.
- Prepare a set of presentation material. (For example: presentation boards, theme / mood boards, mock-up model and poster)
- Make an oral presentation.
  - Oral presentation / conclusion is necessary for each group.

(Suggested computer software: Adobe Photoshop, Adobe Illustrator, Autodesk AutoCAD and Autodesk 3Ds Max)

Worksheet 3: Presentation Mark Sheet

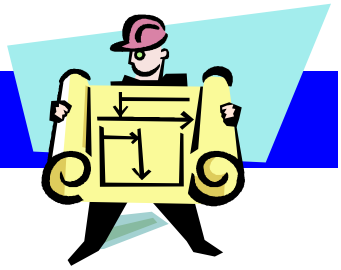
(For Research and Analysis, Retail Shop Design)

Name:	**( )**	**Class:**	
Case Study:			
Group 1	**Comments:**		
Group 2	**Comments:**		
Group 3	**Comments:**		
Group 4	**Comments:**		
Group 5	**Comments:**		
Teacher Remarks:			

You are required to understand and apply knowledge on Retail Shop Design. You are expected to create and manage a shop branding and corporate image, produce a set of 2-dimensional construction drawings and 3-dimensional model renderings.

Each group participating in the project should submit a (i) project plan and (ii) design logbook to their teacher, including a number of bi-weekly log-sheets.

(i) Project Plan (Sample):



Case Study	**Retail Shop Design**
Student Name	
Teacher	
Date	
Project Objective(s)	

Week No.	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
Task 1															
Task 2															
…															
…															
…															
…															
…															
…															
…															
Project report/presentation															

(ii) Design Logbook (Sample):

Case Study	**Retail Shop Design**
Student Name	
Project Title	
Teacher	
Week Number	
Date	

Activities and Progress Made:

We encourage collaborative learning throughout this case study; therefore peer assessment and evaluation on their learning were suggested. It is recommended that you take a minute to evaluate and reflect on your own leaning after each lesson. A simple checklist rubric is provided. You will also take responsibility to assess the performance of other groups during the final presentation with the scored rubrics. Teacher will take the role as a moderator. The assessment rubrics will make the assessment more accountable and let you have a clear goal to strive for your best.

Self / Peer assessment (checklist)

This assessment rubric can be used to keep your learning progress and schedule. Put "Yes" or "No" after each lesson. Teacher can easily check whether you can meet the lesson objectives.

Student Name: _____		***Team:*** _____	
Focus of Assessment: Teamwork		***Date:*** ____/_____/_____	
Criteria	**Self**	**Peer**	**Teacher**
1. I understand the lesson objectives.	Yes / No	Yes / No	Yes / No
2. I work with team members cooperatively.	Yes / No	Yes / No	Yes / No
3. I give my views responsibly.	Yes / No	Yes / No	Yes / No
4. I respect and listen to other members' ideas.	Yes / No	Yes / No	Yes / No
5. I can draw conclusion after this lesson.	Yes / No	Yes / No	Yes / No
6. I am satisfied with my learning today.	Yes / No	Yes / No	Yes / No

Assessment rubrics (Presentation)

Students can use these rubrics for peer assessment of the final presentation. Teacher needs to explain and discuss these criteria with the students.

Peer Assessment for Final presentation														
Team:								***Date:***						___/___/_____
Assessors:								***Class:***						
Focus	**No**	**Scores**					**Assessment Criteria**	**Scores**						
Knowledge	1	1	2	3	4	5	← Understanding of the topic →	6	7	8	9	10	N/A	
	2	1	2	3	4	5	← Content is consistent with the topic →	6	7	8	9	10	N/A	
	3	1	2	3	4	5	← Content is supported with evidence →	6	7	8	9	10	N/A	
	4	1	2	3	4	5	← Content is at appropriate level →	6	7	8	9	10	N/A	
	5	1	2	3	4	5	← Show key concept in content →	6	7	8	9	10	N/A	
Attitude	6	1	2	3	4	5	← Show effort in group discussion →	6	7	8	9	10	N/A	
	7	1	2	3	4	5	← Show effort in information search →	6	7	8	9	10	N/A	
	8	1	2	3	4	5	← Show effort in preparing presentation →	6	7	8	9	10	N/A	
	9	1	2	3	4	5	← Show competency in IT skills →	6	7	8	9	10	N/A	
	10	1	2	3	4	5	← Show organization skills →	6	7	8	9	10	N/A	
Presentation	11	1	2	3	4	5	← Present their views and idea clearly →	6	7	8	9	10	N/A	
	12	1	2	3	4	5	← Logical and consistent flow of ideas →	6	7	8	9	10	N/A	
	13	1	2	3	4	5	← Have interaction with audiences →	6	7	8	9	10	N/A	
	14	1	2	3	4	5	← Show appropriate use of visual aids →	6	7	8	9	10	N/A	
	15	1	2	3	4	5	← Have eye contact with audiences →	6	7	8	9	10	N/A	
Total Scores														

** Performance descriptors: 1 is incomplete; 5 is fair; 7 is good; 8 is very good; 9 is outstanding*

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