Advanced Certificate of Industrial Design.

Six Months Weekend Residential Training Cirriculum.

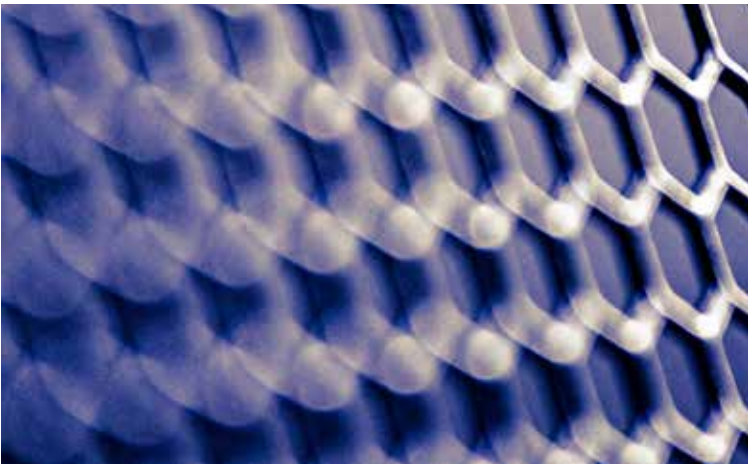
OUR VISION

To be a trailblazer in design and innovation for manufacture using Industrial design principles. Our Mission - to create cutting edge designs of products using the Art & Science of Industrial design.

OUR MISSION

To create cutting edge designs of products
using the art and science of industrial design.

1.0 Preamble



SASA College of Industrial Design SCiD was birthed out of protracted research into the miss-match between the training offered at Institutions of Higher learning and the Employability of graduates after completion. It was awarded the Provisional licence by National Council of Higher Education (NCHE) in June, 2022 to offer a Two-year diploma in Industrial Design - **https://unche.or.ug/institution/sasa-college-of-industrial-design/ SCiD** was also accredited as an **Assessment Centre no. UVQF/2746** and **Certificate no. UG92580A** for Industrial Design by the Directorate of Industrial Design (DIT) in October, 2022. This Accreditation culminated into the Certificate of Training in Industrial Design programs.

2.0 Program Overview

Industrial design is a process of design applied to products that are to be manufactured through techniques of mass production. Its key characteristic is that design is separated from manufacture: the creative act of determining and defining a product's form and features takes place in advance of the physical act of making a product, which consists purely of repeated, often automated, replication. This distinguishes industrial design from craft-based design, where the form of the product is determined by the product's creator at the time of its creation. The Industrial Designers Society of America (IDSA) defines Industrial design as "the professional service of creating and developing concepts and specifications that optimise the function, value and appearance of products and systems for the mutual benefit of both the user and manufacturer".

Generally, the terms Product Design and Industrial design are used interchangeably. Industrial design is a broader term whereas product design is a part of industrial design. Product Design is a subset of industrial design. It is more specific to product function. Product design is further classified into various categories such as mechanical product design, Electrical product design etc. Industrial designer works on product aesthetics and ensures product design is good for mass production. Whereas product designer ensures product functions as desired.

The National Development Program NDP III (2020/21-2024/25) for the Government of Uganda highlights its goal as "Increased household incomes and improved quality of life". This goal is to be achieved under the overall theme of "Sustainable Industrialization for inclusive growth, employment and sustainable wealth creation" which is in line with Uganda Vision 2040, EAC Vision 2050, Africa Agenda 2063 and the Sustainable Development Goals (SDGs). The pursuit for industrialization is based on the need to accelerate growth of the economy, transform the lives of the people and strengthen the country's regional and international competitiveness.

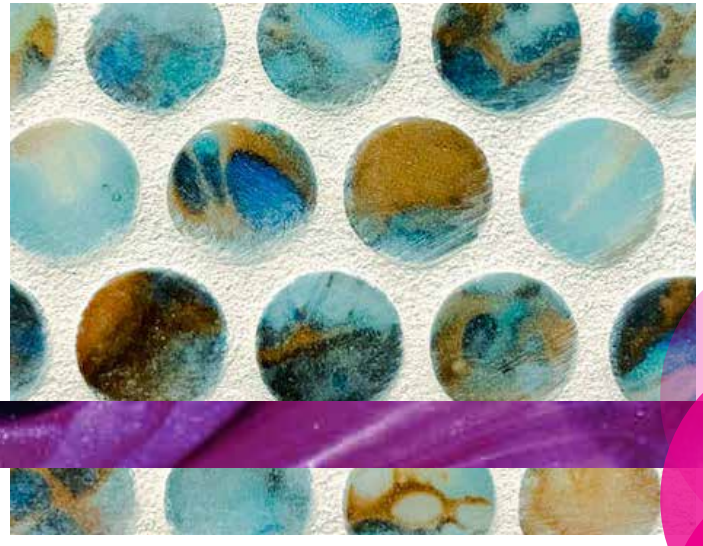
The NDP III Plan identified eighteen (18) programs that have been designed to deliver the required results under this Plan and among them is the Manufacturing Programme which aims at increasing the product range and scale for import replacement and improved terms of trade. The expected results include: increased share of manufactured exports to total exports, growth in the industrial sector contribution to GDP, and increased share of labour force employed in the industrial sector.

Under item 12 in the NDP III it is highlighted that there is need for Increased investment in fundamentals (Human Capital Development, Transport, Energy and ICT) that will bridge the gaps between what is needed to exploit our development opportunities and what is currently available. The Plan noted significant skill gaps in internationally certified welding, scaffolding, machine operators, assemblers and

Six Months Weekend Residential Training Curriculum

drivers. So, investment in skills development will be focussed on production of these in sufficiently large numbers to work in the expanding mineral and petroleum development sectors.

Under item 25, the NDP III reveals that Africa has an opportunity to increase value added in manufacturing. Africa accounts for only 1.9% of global value added in manufacturing and this has not radically changed for decades in spite of the rising levels of urbanization across the continent. Africa's industrial value added contracted from USD 702 billion in 2012 to USD 603 billion in 2018 with countries such as Nigeria, South Africa and Algeria leading the decline (AfDB). For Uganda, most of our trade deficit is made up of imports of light manufactured goods from China and India that, until now, have produced these commodities more competitively due to low labour costs and higher labour productivity.



Having noted the above strategic directions by the Government of Uganda, SASA College of Industrial Design wishes to vehemently support this by the introduction of the training of professionals known as Industrial designers starting at the Certificate level and transforming it into a fully-fledged Institution that offers Undergraduate and post graduate programs in this field in future.

3.0 Program goals & Objectives

Industrial design ID is a process of design applied to products that are to be manufactured through techniques of mass production. Its key characteristic is that design is separated from manufacture: the creative act of determining and defining a product's form and features takes place in advance of the physical act of making a product, which consists purely of repeated, often automated, replication. This distinguishes industrial design from craft-based design, where the form of the product is determined by the product's creator at the time of its creation.

The Four Core objectives of this programme are :

1.The Advanced Certificate of Industrial Design is unique and distinguishes itself by providing an entry point to all creative brains that would like to join the Industrial Design Profession.

2.Develop graduates of Design degree courses into trained persons that can execute a Product design contract from the ideation to presentation of a complete prototype with its detailed technical drawings for use by their clients.

3.To stimulate students to get the maximum out of their talents while developing towards designers of intelligent systems, products, and related services in a societal context of Uganda.

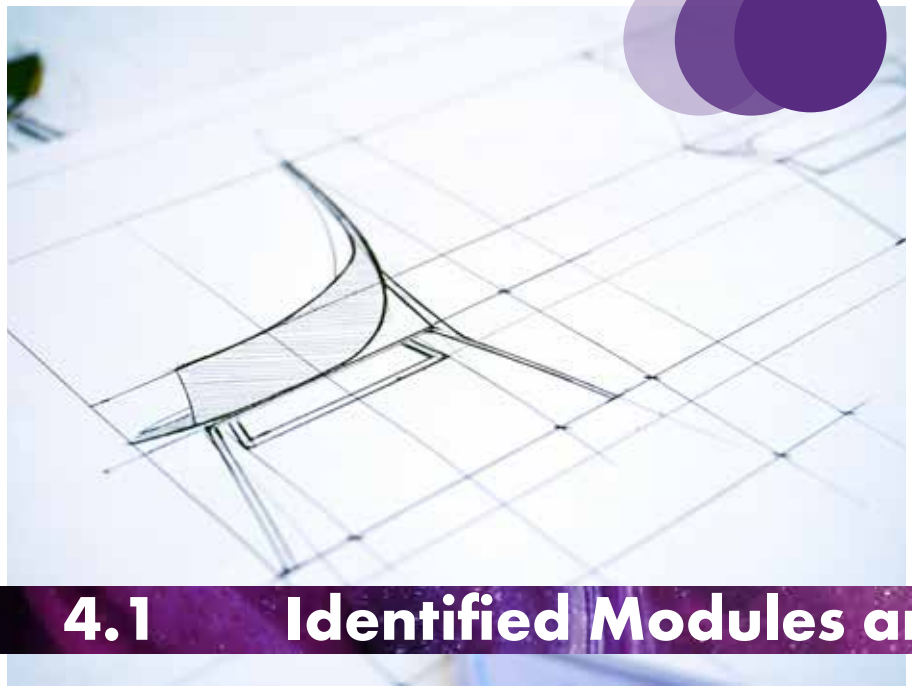
Equip graduates with the theory and practise of Industrial Design with a holistic view of design, in which one integrates competencies towards the overall competency of designing.

4.0 Minimum Entry requirements & Course format

For a person to be admitted for the Advanced Certificate in Industrial design, they must hold a Bachelor degree in a design related course such as Bachelor of Architecture; Bachelor of Environmental Design; Bachelor of Fine Art; Bachelor of Art & Industrial design etc from an accredited institution in Uganda or Internationally.

The course shall take the form of a Weekend residential arrangement (Friday to Sunday) for Six (6) Months starting March 2023 to August, 2023. Only persons who have completed the Advanced certificate shall be eligible for admission for the first cohort of the Diploma in Industrial design at the college in September, 2023.

The Advanced Certificate and Diploma Curriculum have been written in such a way that the capitalise of the candidates already



received skills in design, take them through rigorous Industrial product design training so that they can, on completion of the two, be able to start off on their own and open Industrial design firms as well as cottage industries. It is the College strategy that all its graduates start off their own practices and grow them systematically over the years rather than have educational qualifications that leave graduates seeking for employment.

We have also worked out an arrangement with some internationally acclaimed universities with Industrial design to get some of our graduates have some sessions of at least two weeks to train with them. This will be on a case-by-case basis.

4.1 Identified Modules and their expected Outcomes

(see Table 1)

Students who complete the Advance Certificate of Industrial Design will be able to:

1.Understand, manipulate and apply the various materials used in the Design and manufacturing of a varied range of Products.
2.Research Product design trends for purposes of Innovation for the Uganda's manufacturing industry and hence practice as Trend researchers (a career that is on high demand).
3.Work with a team of diverse industry professionals to develop and bring new products on both the National and International Scene.
4.Design and prepare Visual presentations of newly designed products.
5.Show competence in the use of Two- and Three-Dimensional Industrial Design computer software - Solid Works and Fusion.
6.Prepare Designed products Millworks drawings ready for use in the Manufacturing Industry.

MODULE

MATERIAL APPLICATION IN INDUSTRIAL PRODUCT DESIGN (IPD)

5.1 Module description

In this module, the Advanced Certificate of Industrial design trainee will be taught how the Various products we use in life come together using various materials for particular reasons. They will learn to apply which material for which product in what way and why.

5.2 Learning Outcomes.

By the end of this module, the trainee should be able to understand, apply and make a product using a couple of selected materials.

5.3 Sub-Modules (Table 2)

i. Material collection and classification
ii. Case Product reviews
iii. Material application and methods
iv. Expert Analysis of Product Success

5.4 Assessment Strategies of the Modules

The Module shall be assessed as follows:

Continuous Assessment (50%)

Assignments	–	15%
Practical Sessions	–	15%
Presentations and Crits	–	20%

Practical Exam (50%)

This will consist of one compulsory practical question which will be graded out of 50%.

Assessment tools: These will include marking guides; checklists for activities; Desk Crits and interim presentations.

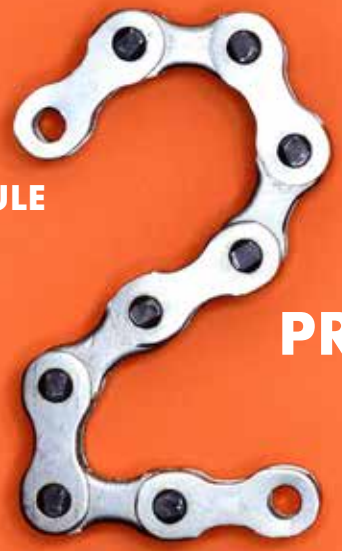
Table 1 - IDENTIFIED MODULES WITH THE EXPECTED OUTCOMES

NO.	MODULE	OBJECTIVES OF THE MODULE	EXPECTED OUTCOMES
1.	**Material Application in Industrial Product Design - IPD**	i. To introduce a learner to the factors that influence product design in the real world. ii. Understand the science and art of materials in design iii. How to experiment with materials in IPD iv. Engage with the issues of sustainability & the environment in the selection of materials for a product. v. How material used affects the economic viability of a product.	i. Ability to successfully handle issues to do with materiality in Product design ii. Critique an existing product with proposals to make it better using another type of material iii. Ably handle the evaluation of a product technical attributes in relation to the material used. iv. Ability to evaluate Usability in terms of Ergonomics & interfaces.
2.	**Product Trend research**	i. Understanding of Human -centred innovation ii. Studying of Product trends iii. Analysis of emerging values and needs of groups in society. iv. Appreciation of innovation and change in IPD. v. Ability to handle the entire trend research cycle. vi. Preparing a scan plan for trend research vii. Documenting the gathered data on a trend.	i. Present a trend research report for a house hold product. ii. Model out the emerging values and needs for customers. iii. Ability to Detect, understand and analyse an upcoming trend iv. Be able to design products that will stand the test of time.
3.	**Product Design Management**	i. Appreciate the deep dynamics behind the Product design process. ii. How Product design is used to solve real customer problems in a way that meets needs of the business. iii. Appreciate the Principles of Strong Product teams.	i. Present an execution plan for a new product on the market. ii. Be able to apply to the Ideation process iii. Handling planning & prototyping techniques
4.	**Visual Presentation Techniques**	i. How an Industrial designer communicates his or her ideas. ii. Understand and be able to prepare the various visual presentations used in the Industrial Design trade.	A visual presentation to a client of a new product

Table 2- DETAILED LEARNING OUTCOMES AND COMPETENCES FOR MATERIAL APPLICATION IN INDUSTRIAL PRODUCT DESIGN (IPD)

No.	TASKS	COMPETENCES	DUTIES & TASKS
1.	**Industrial Product design Material classification**	• Differentiate between various products & their application in IPD. • Usage of materials when & how. • Material connection on a Product.	• Critically study the products. • Make record of the materials used • Product sketches of material application. • Maker records of the material pattern made. • Verify the sizes and thicknesses of materials.
2.	**Case Product reviews**	• Collection of User feedback on product use • How material used affects the Product price. • Writing product specifications • Relationship of material to sustainability.	• Summary of interviews with users • Compare product materials used. • Write product specifications in design • Study materials sustainability.
3.	**Material application and methods**	• Understand how materials are applied on various home used products. • Why certain products are made out of given materials.	• Identify materials of different home used products. • Analyse which materials are commonly used where and why.
4.	**Expert Analysis of Product Success**	• Understand the critic success factors of a product on the market • What role does the material used play in success • How to make decisions for success	• Select a renown successful product like iPhone • Analyse the way it was designed • Find out what makes it popular • Suggest how to better it even further.
	Core Text book	**Materials and Design, The Art & Science of material selection in Product Design, 3rd Edition, Mike Ashby, 2014, 390pg**	

MODULE



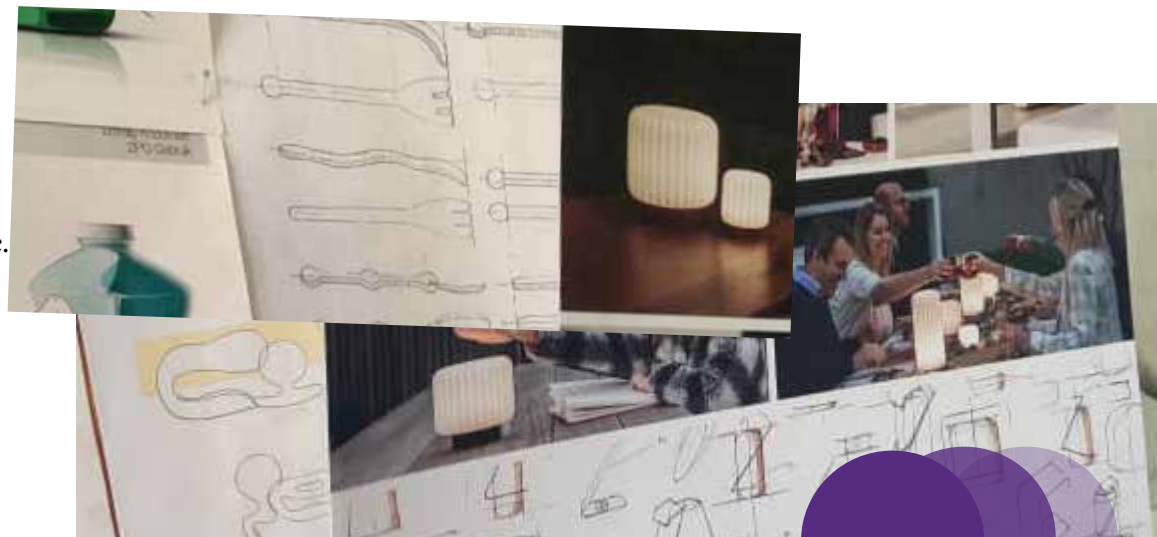
PRODUCT TREND RESEARCH

6.1 Module description

In this module, the Advanced Certificate of Industrial design trainee will be taught about Human -centred innovation, which is buttressed in the understanding of trends, the emerging values and needs of groups in society. This provides the foundation to innovate and create change.

6.2 Learning Outcomes.

By the end of this module, the trainee should be able to research the trends in the design of the various products and objects we use in our daily lives. The trainee should be able to do an own hands-on way to scan his/her environment for signs of change, then be able to analyse our trends spots.



6.3 Sub-Modules (Table 3)

i.Study of society needs and wants
ii.Vocabulary & Theories of Trend research
iii.Scanning the surroundings for trend
iv.Understanding & documenting patterns of change.

6.4 Assessment Strategies of the Modules

The Module shall be assessed as follows:

Continuous Assessment (60%)

Assignments –	15%
Practical Sessions –	25%
Presentations and Crits –	20%

Practical Exam (40%)

This will consist of one compulsory practical question which will be graded out of 40%.
Assessment tools: These will include marking guides; checklists for activities; Desk Crits and interim presentations.

Table 3- DETAILED LEARNING OUTCOMES AND COMPETENCES FOR PRODUCT TREND RESEARCH

No.	TASKS	COMPETENCES	DUTIES & TASKS
1.	Study of society needs and wants	• Differentiate between societal needs and wants • Behavioural styles of different groups of society • Product Design considerations for different needs.	• Critically study the society • Make record of their needs • Make record of their wants • Document your findings • Check any influencing factors.
2.	Vocabulary & Theories of Trend research	• Define what is a trend • Understanding the forces of change in societal needs • Detailing trend levels • Differentiating between Values and needs.	• Interview a selected group of people about a product they commonly use. • Summarise the reading on society values and how they change • Observe some critical needs • Study behaviour change
3.	Scanning the surroundings for trend	• Ability to scan the future of a certain product used. • Understand how to spot signs of change. • Observing relevant signs for change. • How to record your findings.	• Collect evidence of change • Selection of critical signs of change. • Document most relevant signs that point to trend change
4.	Understanding & documenting patterns of change.	• Understand how to analyse your findings. • Recognize underlying insights for trend change • Preparing report on change patterns.	• Cluster your trend spots • Bring out the underlying values and needs. • Prepare a trend cluster • Detail a cluster
	Core Text book	**How to research trends; Move beyond, trend watching to kick-start Innovation; Els Dragt, 2018, 200pgs**	

MODULE

PRODUCT DESIGN MANAGEMENT

7.1 Module description

In this module, the Advanced Certificate of Industrial design trainee will start to appreciate the deep dynamics behind the Product design process. The trainee will learn how Product design is used to solve real customer problems in a way that meets needs of the business world we live in.

7.2 Learning Outcomes.

By the end of this module, the trainee should be able to show an understanding of how to constitute the right people for the Product design adventure to get the right final product through a well constituted process there by forming the right culture for the Industrial Product design industry.

7.3 Sub-Modules (Table 4)

i. The Product design team
ii. The Product specification preparation
iii. The Product Design process
iv. The Right Product Design culture.

7.4 Assessment Strategies of the Modules

The Module shall be assessed as follows:

Continuous Assessment (60%)

Assignments –	15%
Practical Sessions –	25%
Presentations and Crits –	20%

Practical Exam (40%)

This will consist of one compulsory practical question which will be graded out of 40%.
Assessment tools: These will include marking guides; checklists for activities; Desk Crits and interim presentations.

Table 4- DETAILED LEARNING OUTCOMES AND COMPETENCES FOR PRODUCT DESIGN MANAGEMENT

No.	TASKS	COMPETENCES	DUTIES & TASKS
1.	The Product design team	• How to constitute a cross-functional product design team. • Sharing roles among members • Key responsibilities of the team. • Principles of a strong product team • Playing the role of a Product Manager	• Study a case study product • Make findings on performance of a team • Describe the role of a Product Designer • Present the role of the Product Manager
2.	The Product specification preparation	• Define what is the Product to be designed • Understanding the root causes of failed Product design efforts. • Detailing the Product roadmap • Differentiating between various Product roadmaps.	• As a group discuss and prepare your product vision. • Review your product vision against product strategy. • Study different Product Specifications.
3.	The Product Design process	• Understand the task of Product discovery • Study and appreciate the principles of Product Discovery • Application of Discovery techniques • How to use the technique assessment technique • Trying out ideation techniques	• Prototyping a designed product • Testing the various techniques • Prepare the transformation techniques
4.	The Right Product Design culture.	• Understand how to create the right product culture for success over time. • Differentiating between a strong product team and a weak one.	• Study a failed product culture • Bring out the underlying causes for failure.
	Core Text book	**Inspired – How to create Tech Products Customers Love 2nd Edition, Marty Cagan, 2018. 350 pg**	

MODULE

VISUAL PRESENTATION TECHNIQUES

8.1 Module description

In this module, the Advanced Certificate of Industrial design trainee will learn how an Industrial designer communicates his or her ideas to others. The student will come to understand and be able to prepare the various visual presentations used in the Industrial Design trade.

8.2 Learning Outcomes.

By the end of this module, the trainee should be able to prepare design progress reports; presentations for fundraising; presentations to inform engineering; final presentations on the outcome of a design project. This is critical to market their new designed products to the masses in an impressive manner.

8.3 Sub-Modules (Table 6)

i.Perception of Visual information – Principles of Gestalt
ii.Visual Balance
iii.Colour & Unity
iv.Sketches types & Abstraction
v.Visual rhetoric in Design communication

8.4 Assessment Strategies of the Modules

The Module shall be assessed as follows:

Continuous Assessment (70%)

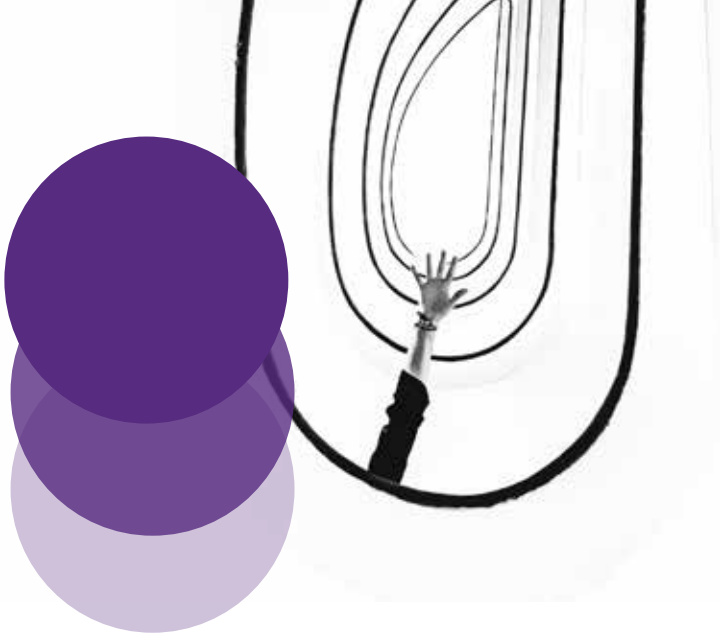
Assignments –	30%
Practical Sessions –	20%
Presentations and Crits –	20%

Practical Exam (30%)

This will consist of one compulsory practical question which will be graded out of 30%.
Assessment tools: These will include marking guides; checklists for activities; Desk Crits and interim presentations.

Table 6- DETAILED LEARNING OUTCOMES AND COMPETENCES FOR VISUAL PRESENTATION TECHNIQUES

No.	TASKS	COMPETENCES	DUTIES & TASKS
1.	Perception of Visual information	• Communicating your idea in the simplest form • Sketching what you really mean and have in mind • Deriving patterns & forming realistic images • Creating balance & Symmetry • Attaining similarity in sketching & presentation.	• Study a design case product • Make findings on its design • Sketch how it was derived • Critic its presentation
2.	Visual Balance	• Using the Focal point in sketching to achieve balance • Accentuating different product parts when sketching • Guiding the user to the most important elements • Achieving Rhythm for visual balance	• Sketching with visual balance • Study a sketch of product • Critic the sketch.
3.	Colour & Unity	• How to engage the Viewer of your presentation • Creating an inner sense of order and balance. • Handling visual weight and colour • Achieving Simultaneous contrast • Applying colour theory	• Design case product reviews • Presentations done by experts
4.	Sketches types & Abstraction	• Learn which sketches are done at different stages. • Differentiating between conceptual and brainstorm sketches	• Study award winning product sketches • Defend your prepared sketches.
5.	Visual rhetoric in Design communication	• Contextualization and framing. • Doing framing as a technique • Handling rhetoric & audience	• Prepare great presentation
	Cover TextBook	**Sketching Product Design Presentation by Koos Eissen & Roselien Steur, 2014 – 200pages**	



9.0
The overall fees for the Six-Month weekend Advanced Certificate of Industrial

Design will be 4,800,000/=.
This can be paid in six (6) installments of 800,000/=
each at the start of each month.

These fees will cover:

i.Tuition fees;
ii.Transport from Gayaza to Busika on Friday and Sunday in College Van;
iii.Accommodation;
iv.Meals;
v.Workshop practice sessions & material.

10.0
Prepare your application not later than Friday 17th, February, 2023 and send it to the email below: sasainnovation@gmail.com. This intake will be a maximum of 50 students on first come first serve basis. The inauguration lecture shall be held on Saturday 4th March, 2023.

The application will be in soft copy and shall include:

1.A motivational statement of why you want to study Industrial design
2.The copy of the Bachelor's degree in the design related field.
3.A portfolio of your works done to-date in your design field.
4.Payment slip - 20,000/= Application fee to SASA Innovation Centre limited Equity Bank Account no 1032201158965
5.Your CV, with passport photograph, to tell us about yourself.

Contact
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