worldskills

Standards and Assessment Guide

Industrial Design Technology

V1.0

@WorldSkills International

Introduction

Welcome to the Standards and Assessment Guide (SAG), a comprehensive resource designed to support excellence in assessment practices for all skills competitions hosted at the WorldSkills Competition. A key component of the SAG is the commitment to continuous improvement through ongoing review, ensuring that these guides consistently reflect the latest industry innovations and high standards of assessment in an open and transparent manner.

Purpose

The primary purpose of this guide is to provide a structured framework for the consistent and fair assessment of each skill competition. It aims to ensure that all assessments are conducted with a high degree of accuracy, reliability, validity, and reflect global industry standards. By adhering to these guidelines, assessors can maintain the integrity of the competition and uphold the high standards associated with WorldSkills.

Note: this guide is not a replacement for the Marking Scheme and should only be used as a reference when required during the assessment process. Competitors are not allowed to have a copy of this SAG in the workshop in either digital or paper form.

Scope

This document covers general assessment practices applicable to a diverse range of industry sectors including:

- Manufacturing and Engineering Technology
- Information and Communication Technology
- Construction and Building Technology
- Transportation and Logistics
- Social and Personal Services
- Creative Arts and Fashion

Each skill competition has its unique requirements and benchmarks, which are detailed within sections of this guide. The consistency of assessment across each skill is the overarching principle, ensuring a unified approach to evaluating Competitor performance to the highest standards.

Key Components

The guide is structured into several key components, each addressing critical aspects of the assessment process:

Assessment Principles and Objectives

- Emphasis on fairness, transparency, and objectivity in assessments.
- Alignment with global industry standards and best practices.

Assessment Methods and Tools

- Description of various assessment methods in Measurement and Judgement.
- Guidance on the application of appropriate assessment tools and equipment (if applicable).

Criteria and Benchmarks

- Examples of assessment criteria and aspects for each skill, outlining the expected competencies and performance standards.
- Benchmarks for different levels of proficiency i.e. Judgement award range 0, 1, 2, 3 or Yes/No criteria alongside clear measurable descriptors.

Expert assessment requirements

- Completion of the Access Programme.
- Approved Curriculum Vitae (CV).
- Reaching 100% Expert preparedness.
- Full participation of online and in-person Mandatory Assessment Training (MAT).
- Completion of practical assessment testing at the Competition.

Quality Assurance and Improvement

- Monitoring and evaluation: Ensuring assessments are carried out correctly and produce reliable results.
- Continuous improvement: Using feedback from Experts and Skill Competition Managers to enhance future assessments.
- Periodic review: Regularly updating processes to reflect current industry and WorldSkills standards.

Implementation

For effective implementation, this guide should be used for guidance purposes only and in parallel with the Technical Description for each skill. Experts are encouraged to familiarize themselves thoroughly with both the general guidelines and the particular requirements of their respective skill areas. Collaborative efforts between the Skill Management Team, Experts, and Competitors are vital for achieving the ultimate goal of global skills development.

Conclusion

The Standards and Assessment Guide embodies the commitment of the WorldSkills movement to nurturing talent and promoting the highest standards of vocational education and training worldwide. By providing clear and comprehensive guidance, we aim to empower Experts to conduct marking and assessment practices that are not only rigorous and equitable but also inspiring and transformative for all participants.

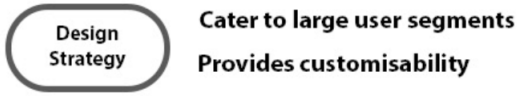
Thank you for your dedication to upholding these standards and contributing to the success of the WorldSkills Competition. Together, we can continue to champion skills excellence and celebrate the achievements of talented individuals from around the globe.

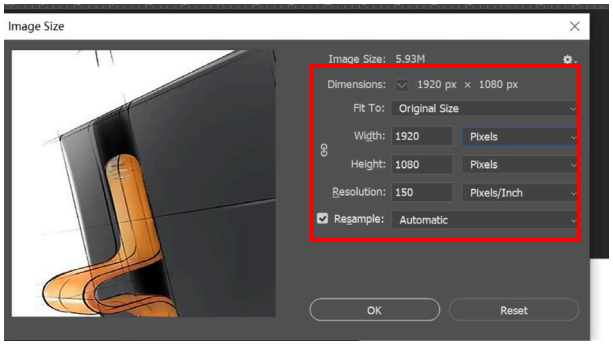
Skill 59 – Industrial Design Technology

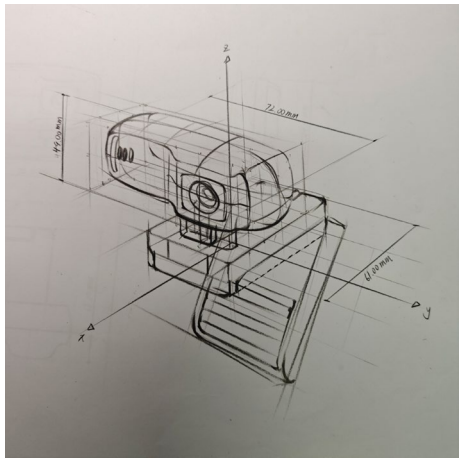
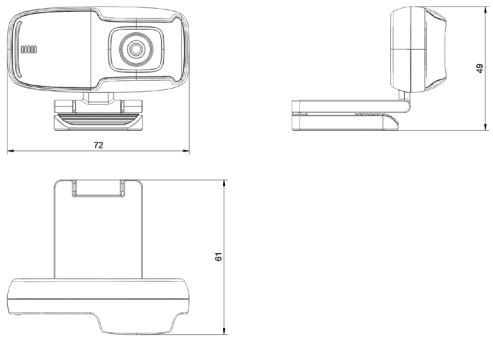
Measurement

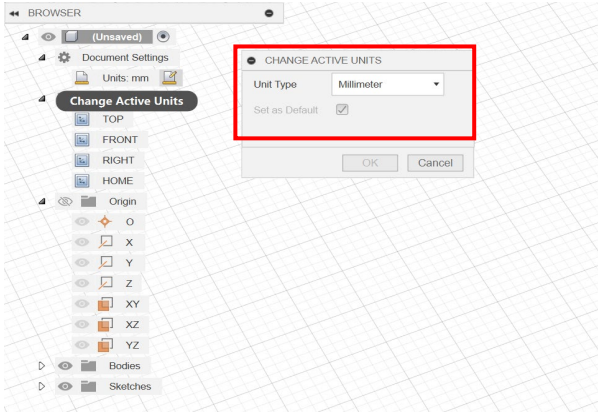
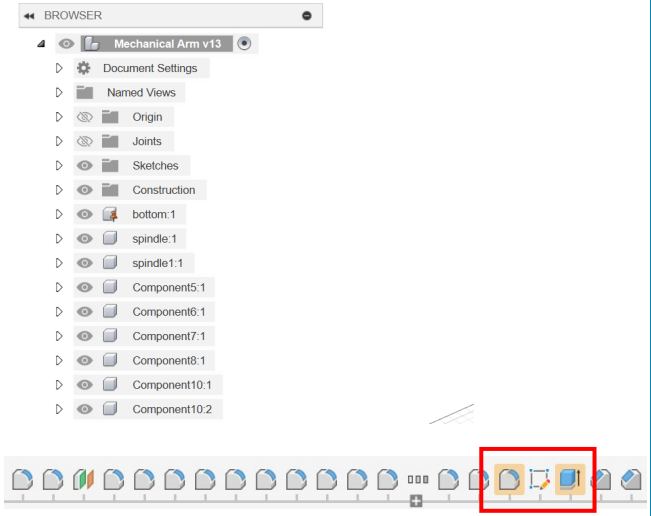
Measurement is used to assess accuracy, precision, and other performance that can be measured objectively. It is used where ambiguity must be avoided.

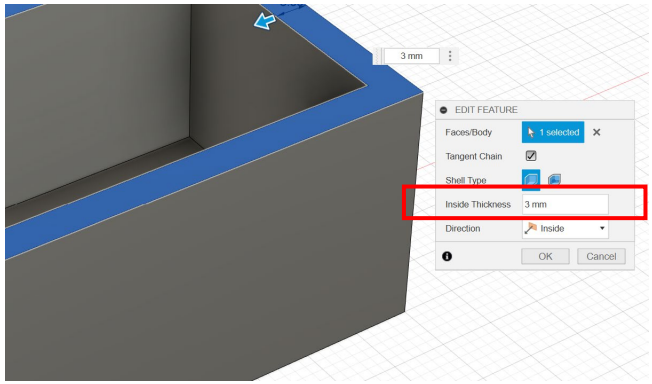
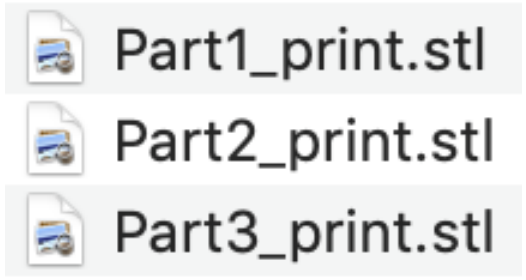
The total marks allocated to measurement marking may vary from competition to competition depending on the Test Project.

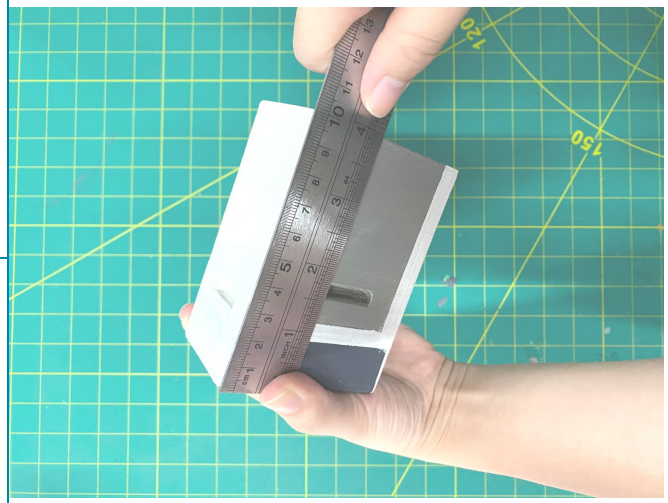
Aspect	WSOS section as per TD	Sub-aspect	Description	Resource	Score
Design analysis	2	Design strategy descriptions related to appearance design, functionality, materials, and user experience.	At least four (4) descriptions correspond to these four aspects.		Full Marks
			Description of one aspect is missing.		Zero (0)

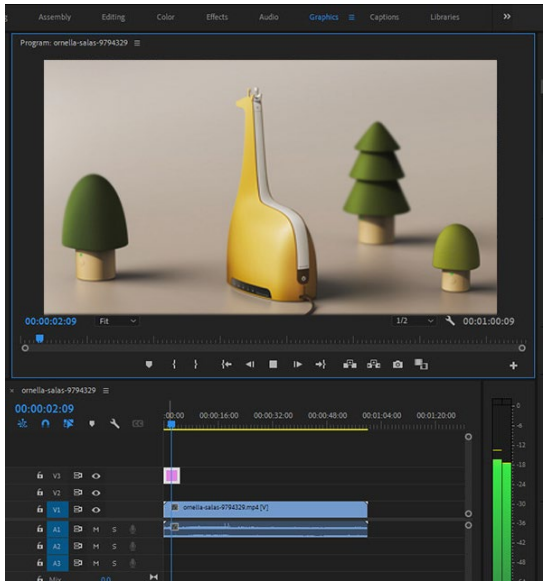
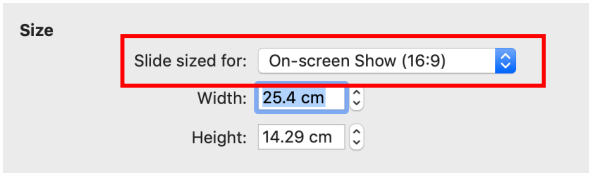
Aspect	WSOS section as per TD	Sub-aspect	Description	Resource	Score
Design exploration	3, 4	At least three (3) concepts in color perspective.	There are enough concepts in perspective, all of which are in color.		Full Marks
			The number of concepts is insufficient, or one of them is not perspective or one of them has no color.		Zero (0)
File saving	1	All the concept exploration files are saved in JPEG format with a resolution of 1920x1080px, in landscape mode, and 150dpi.	All of the parameters are correct.		Full Marks
			One (1) of the parameters is incorrect.		Zero (0)

Aspect	WSOS section as per TD	Sub-aspect	Description	Resource	Score
3D modelling	3, 4	Scale of the object's 3D model is 1: 1.	The scale of the 3D model is 1:1 according to the dimensions showed on sketch. (Each size difference in length, width and height is within 5mm)		Full Marks
			The scale of the 3D model is not 1:1 according to the dimensions shown on sketch. (Any size difference in length, width and height exceeds 5mm)		Zero (0)

Aspect	WSOS section as per TD	Sub-aspect	Description	Resource	Score
3D modelling	3, 4	Measurement unit of the object is mm.	The unit of the CAD system is millimeters.		Full Marks
			The unit of the CAD system is not millimeters.		Zero (0)
3D modelling	3, 4	No errors in the "construction tree “and the bottom history bar.	There is no error in the "construction tree “and the bottom history bar.		Full Marks
			There is an error in the "construction tree “or the bottom history bar.		Zero (0)

Aspect	WSOS section as per TD	Sub-aspect	Description	Resource	Score
3D modelling	3, 4	Thickness of the shell is set, which is not less than 2mm and not more than 5mm.	Thickness of the shell is from 2mm to 5mm inclusive.		Full Marks
			Thickness of the shell is above 5mm or below 2mm.		Zero (0)
3D printing	5, 6	Files with the parts ready for 3D printing named “Part 1_Print", "Part 2_Print", etc., with. still extension, saved in this module folder.	All of the file names and the files’ extension are correct.		Full Marks
			One (1) of the file names or file extension is incorrect		Zero (0)

Aspect	WSOS section as per TD	Sub-aspect	Description	Resource	Score
3D printing	5, 6	Prototype made in 1:1 scale, and the dimensions of the prototype correspond to the size of the 3D model.	The overall dimensions of the object is similar to the 3D model. (The difference of each dimension is within 3mm)		Full Marks
			The overall dimensions of the object differ significantly from the 3D model. (Any dimension difference exceeds 3mm)		Zero (0)

Aspect	WSOS section as per TD	Sub-aspect	Description	Resource	Score
3D animation video editing	7	No "excess" elements inside the frame.	There is no excess element in the video frame.		Full Marks
			There is one element unrelated to the content displayed in the frame.		Zero (0)
The final design proposal making	7	The ratio of the page is 16:9.	The ratio of the page is correct.		Full Marks
			The ratio of the page is incorrect.		Zero (0)

Judgement

Judgement is used to assess the quality of performance about which there may be small differences of view when applying the external benchmarks.

The Resources column in the table below may include all kinds/formats of resources such as: a link to a YouTube video, a website link, an illustration, a photo, a reference to a book, and so on. It needs to be as detailed as possible to show the differentiation between 0, 1, 2, 3.

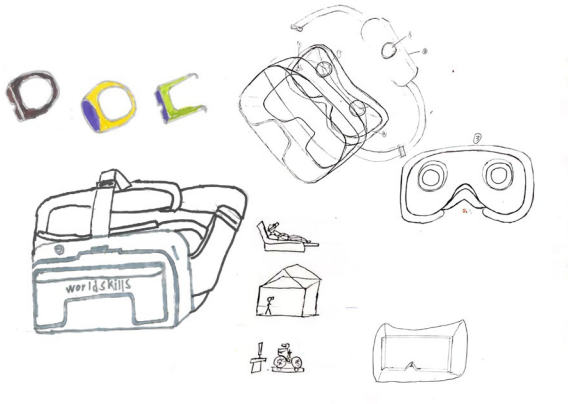
Generic rules:

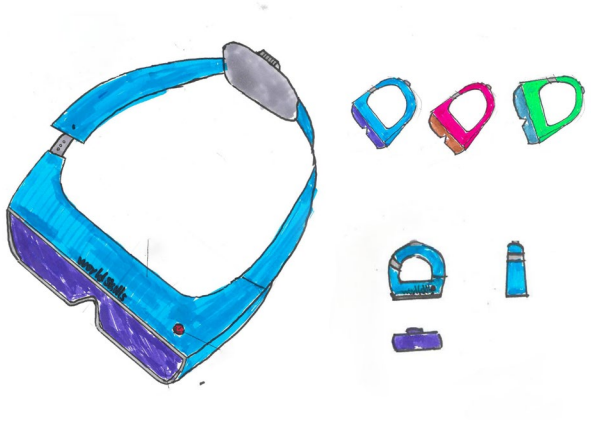
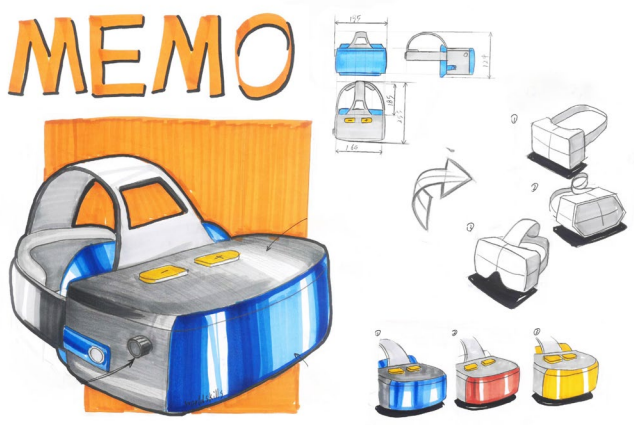
The assessment group comprises three Experts plus one Expert who acts as the supervisor. The supervising Expert will replace an Expert in the marking group to prevent compatriot marking.

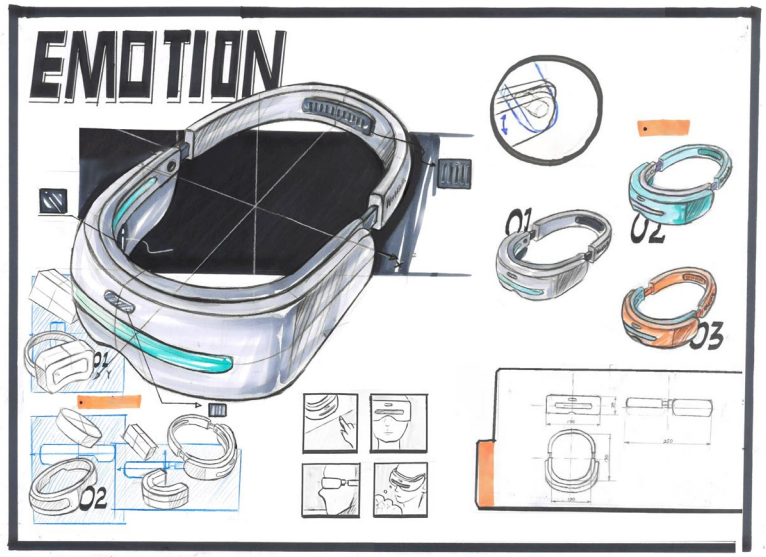
The difference of the three Experts' scores may not exceed 1. If this is the situation the Experts must re-score until there is a maximum difference of 1. As long as the three Experts judge within 1, the result can be entered into the CIS.

The total marks allocated to judgement marking may vary from competition to competition depending on the Test Project.

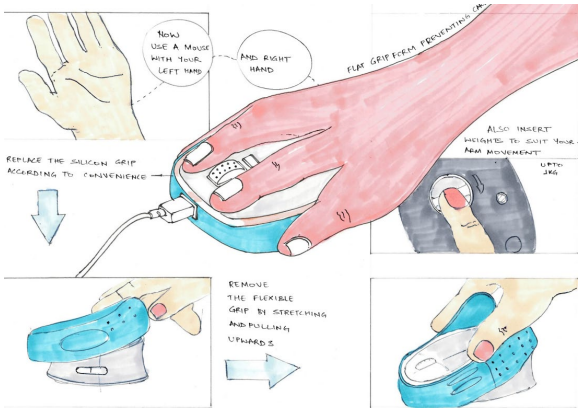
Aspect – Sketch expression

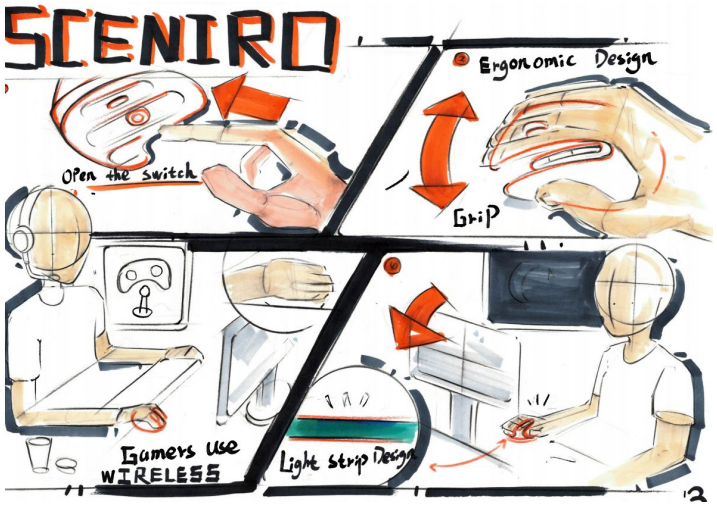
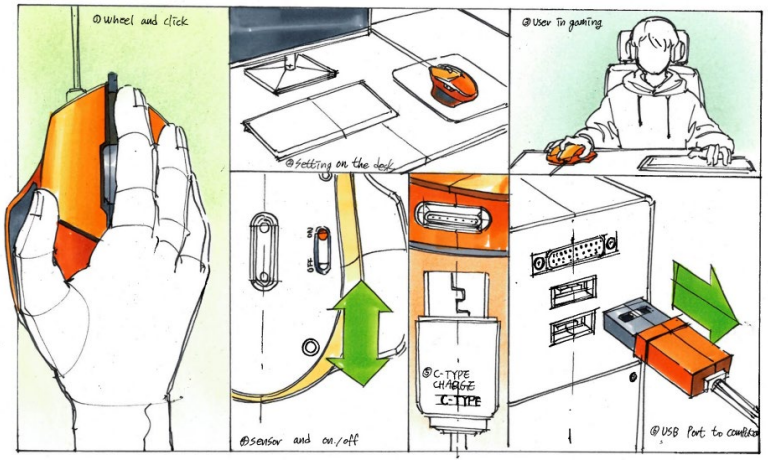
WSOS section as per TD	Score	Description	Resource
3, 4	0	Sketches do not make any impression. (Not acceptable, the work is far from the standard specified)	

WSOS section as per TD	Score	Description	Resource
	1	Sketches have a low level of expressiveness. (Moderate sketching skills, have a major deviation)	
	2	Sketches are expressive. (Professional, but still have a few minor deviations)	

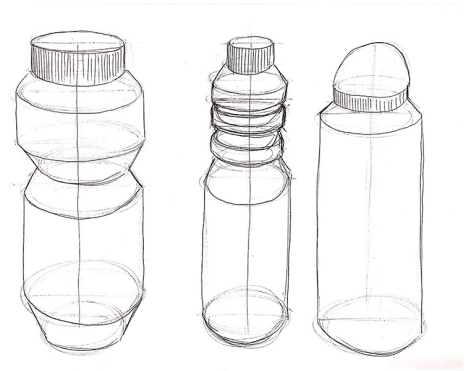
WSOS section as per TD	Score	Description	Resource
	3	Sketches have a high expressiveness. (Excellent, and high-level sketching skills)	

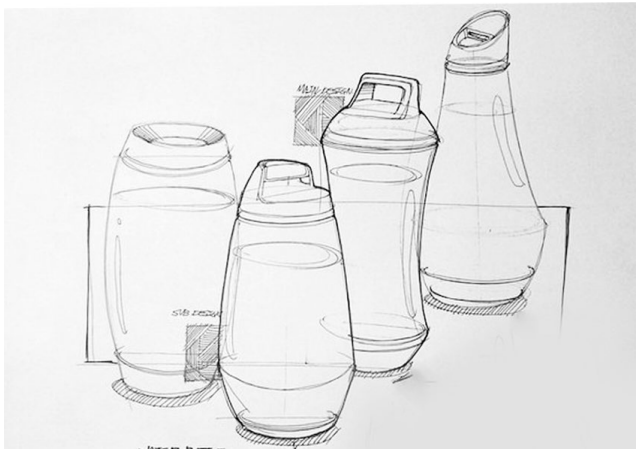
Aspect – User interaction expressiveness

WSOS section as per TD	Score	Description	Resource
6	0	The hand-drawn effect is unclear or fails to effectively represent the user's scenario.	
	1	The hand-drawn effect is serviceable but could be more detailed or precise.	

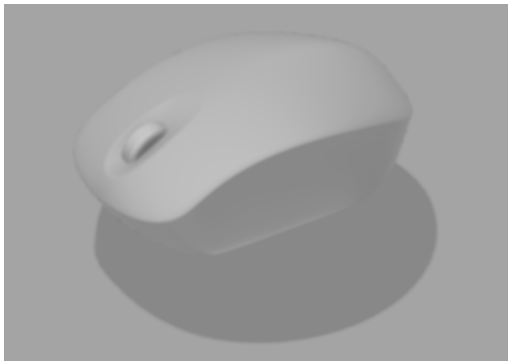
WSOS section as per TD	Score	Description	Resource
	2	The hand-drawn effect is clear and effectively represents the user's scenario.	
	3	The hand-drawn effect accurately communicates the user's scenario and is highly engaging.	

Aspect – Ergonomics of the project: The shape of the object is consistent with anthropometry.

WSOS section as per TD	Score	Description	Resource
6	0	The object is not user friendly.	
	1	More than half of the parameters correspond to anthropometry.	

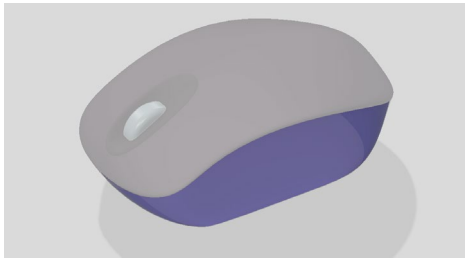
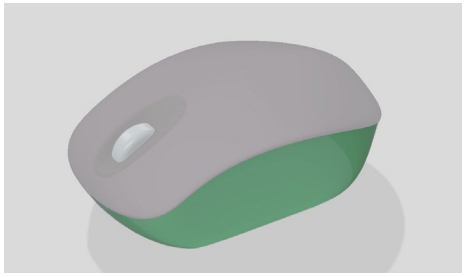
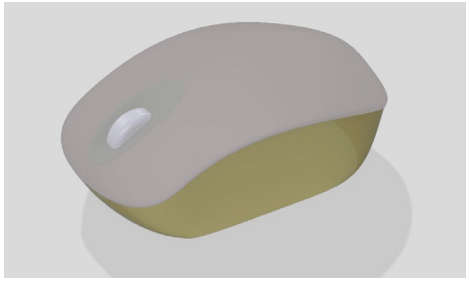
WSOS section as per TD	Score	Description	Resource
	2	Overall, the object is correct.	
	3	All parameters of the object correspond to the anthropometry	

Aspect-The attraction of 3D rendering

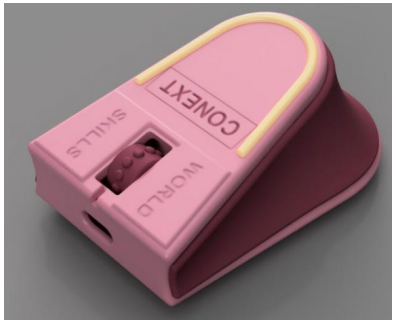
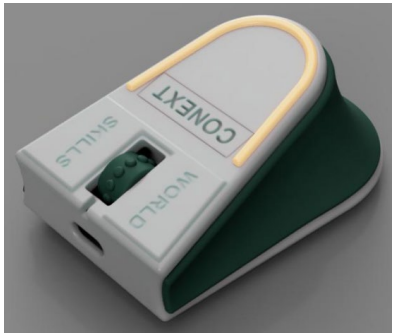
WSOS section as per TD	Score	Description	Resource
4, 5	0	The 3D rendering lacks visual impact.	
	1	The 3D rendering has a basic level of visual impact.	

WSOS section as per TD	Score	Description	Resource
	2	The 3D rendering has a good visual impact, the colours and materials are clearly displayed.	
	3	The 3D renderings have a strong visual impact, creating a stunning experience.	

Aspect – Colour schemes development

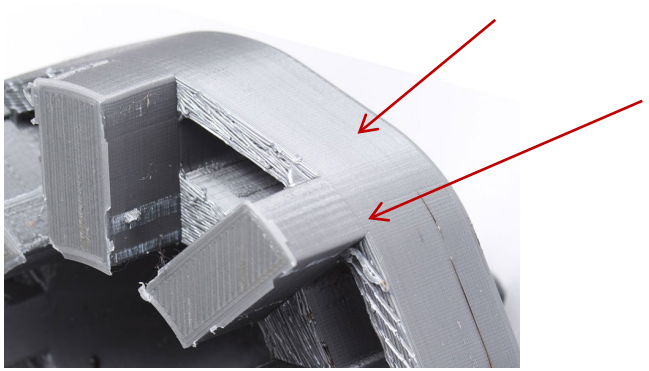
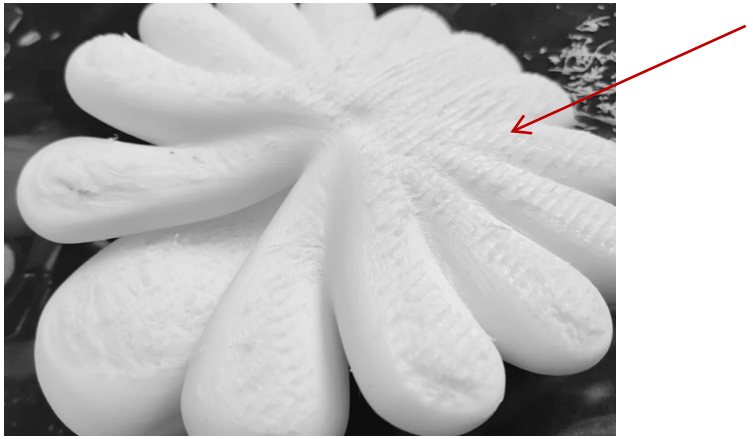
WSOS section as per TD	Score	Description	Resource
4, 5	0	The product's colour scheme is unappealing or inharmonious.	  

	1	The product's colour scheme is serviceable but lacks distinctiveness.	  

	2	The product's colour scheme is visually appealing and cohesive, enhancing its overall aesthetic appeal.	  

	3	The product's colour scheme is highly distinctive, creating a memorable and impactful visual identity.	  

Aspect – Accuracy of post-processing of printed parts

WSOS section as per TD	Score	Description	Resource
5, 6	0	Significant remarks on post-processing quality of a printed part.	
	1	There are remarks on the post-processing quality of the printed part.	

WSOS section as per TD	Score	Description	Resource
	2	High quality of post-processing of the printed part, but there are minor remarks.	

WSOS section as per TD	Score	Description	Resource
	3	High quality post-processing of a printed part, all surfaces are smooth.