

Technical Description Industrial Design Technology

ART & DESIGN TECHNOLOGY





The WorldSkills Russia organization, in accordance with its Constitution, Standing Orders and Competition Rules, has adopted the following minimum requirements for the professional skill: **Industrial Design Technology** for the national WorldSkills competition.

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1. INTRODUCTION

1.1. Name and description of skill

1.1.1 Industrial design technology

1.1.2 Skill description

Industrial Design Technology. The goal of industrial design technology is a creation of easy-to-use products with a modern look.

Industrial design technology as a kind of activity includes elements of art, marketing, design and technology.

STAGE 1 — Pre-Project Research includes the following types of work:

- familiarization with technical requirements and development of a technical design assignment;
- study of technological indicators, constructive, composite and other features of a design object;
- receipt and collection of necessary materials and documents, including archival ones;
- natural surveys of the situation (photo-fixation, sketches, timing, autotransplant research, questionnaire survey, etc.);
- study of domestic and foreign experience in a project area, including existing analogues.

Complexity of the stage is 10-15 % of the design project as a whole.

STAGE 2 — Conceptual Solution (brief sketch) includes the following types of work:

- development of general principles (basic models, layout or compositional schemes) of functional and compositional organization of a projected object;
- development of general artistic and plastic form-building principles of a projected object, its color and volume solution;
- technical substantiation of a projected product: development of ergonomic, constructive-technological, economic and other parameters;
- sketch graphic and volumetric solutions of options, specific frames, diagrams illustrating the main functional, artistic-stylistic and technical principles of form-building.

Complexity of the stage is 30-35 % of the design project as a whole.



STAGE 3 — Sketch Design Project (sketching), which includes the following types of work:

- artistic and compositional development of the shape of a projected object, three-dimensional and color-textural solutions;
- development of technical issues: ergonomic substantiation of volumetric solution, substantiation of general design scheme, selection of protective and decorative materials and finishing technologies, etc.;
- comparative analysis of options and selection of the main option of volumetric, color-texture and ergonomic solution.

Complexity of the stage is 25-30 % of the design project as a whole.

STAGE 4 — Technical Design Project (detailed sketch), which provides for final and detailed development of the adopted option of design solution, including:

- detailed sketch of a projected object in color;
- development of an ergonomic scheme;
- development of a map of the color-texture solution;
- development of an explanatory note.

Complexity of the stage is 25-30 % of the design project as a whole.

Design project (its separate stages) is performed and transferred to the customer in one copy, unless otherwise stipulated by the contract, on paper, cardboard, tablets and other solid media, made in manual or computer graphics in accordance with the existing GOST. By agreement of the parties, the design project can be presented on electronic media or in another form.

TYPES OF DESIGN WORKS

Group A — Production Means: industrial machinery and equipment, mechanical handling equipment, professional computer and multimedia equipment, office furniture and equipment.

Group B — Consumer Goods: household electrical equipment, household computer and multimedia equipment, personal vehicles, household furniture equipment.

CATEGORIES OF TECHNICAL COMPLEXITY OF THE DESIGN OBJECT



Category I — products of simple design and shape with a minimum number of elements.

Group A. Simple technological equipment, simple handling equipment, simple office furniture equipment, etc.

Group B. Packaging, utensils and household items, fitters, garden tools, mechanical equipment for food processing, etc.

Category II — products of simple design and shape with a small number of elements.

Group A. Simple machines, welding equipment, medical tools, simple office equipment, office interior equipment and furniture, etc.

Group B. Electric lighting and wiring accessories and equipment, sports equipment, etc.

Category III — products having design and shape of medium complexity.

Group A. Means of underground transport, machinery, complex professional electric tools, medical equipment, etc.

Group B. Household appliances, muscular and combined means of transport, combined furniture, household multimedia equipment, musical instruments, etc.

Category IV — products of complex design and shape.

Group A. Complex machinery, professional computer and multimedia equipment, mining machines, road machines, tractors, urban transport, power equipment, complex computerized medical equipment, etc.

Group B. Computerized household appliances, cars, motorcycles, washing machines, etc.

Category V — design programs, industrial products and product suites, the most complex in design and shape.

Group A. Airplanes, cars, ships, passenger cars, team of equipment and aggregates.

Group B. Conceptual developments of the assortment of new products of mass consumption.

1.2. Scope



1.2.1 All Experts and Competitors must know and understand this Technical Description.

1.3. Supporting documents

This document is based on the official WSI documentation (<http://worldskills.org>)

1.3.1 Since this Technical Description contains only skill-specific information, it must be used in association with the following documents:

- WorldSkills Russia, Competition Rules;
- WorldSkills International, WorldSkills Russia: online resources listed in this document;
- OHSE rules and sanitary standards.

2. STANDARDS SPECIFICATION

2.1 WSSS defines the knowledge, understanding and specific competencies that underlie the best international practices of technical and professional performance. It should reflect a collective common understanding of what a relevant working profession or profession represents for industry and business.

The purpose of the competency competition is to demonstrate the best international practices, as described in the WSSS and to the extent that they can be implemented. Thus, the WSSS is a guide to the necessary training and preparation for competitiveness competitions.

In competency competitions, the testing of knowledge and understanding is carried out by evaluating the performance of practical work. There are no separate theoretical tests for knowledge and understanding.

WSSS is divided into clear sections with numbers and headings.

Each section is assigned a percentage of relative importance within the WSSS. The sum of all percentages of relative importance is 100.

In the rating scheme and the competitive task only those competencies that are set out in WSSS are evaluated. They should reflect WSSS as comprehensively as the competitiveness limits allow.

The rating scheme and the competition task will reflect the distribution of the assessments within the WSSS as much as possible. Variations in the range of 5% are allowed provided that they do not distort the weights specified by the WSSS conditions.



Section		Importance (%)
	ART-Design	
1	Technical documentation of the project	20
	<p>The specialist should know and understand:</p> <ul style="list-style-type: none"> • the principles of working with the client and how to take into account his needs in the design development; • different target markets and design elements that satisfy each market direction; • design principles; • principles of concept development and individual elements of the design project; • color; • technical standards; • properties of modern materials; • current trends in materials and molding; • expediency in the use of materials; • the principles of corrective ergonomics; • properties of fine materials. 	
	<p>The specialist should be able to:</p> <ul style="list-style-type: none"> • develop an art object • carry out a sketch of the project that reveals its essence; • search for a color solution; • correctly balance the composition; • use accurate measurements; • compile an explanatory note to the project; • work with the client; • understand the tasks; • determine the functional and decorative characteristics of the object; • interpret the characteristics of the object and use it when formulating the task; • draw a conclusion about its positive and negative properties; • analyze the object according to the specified parameters; • offer the best option for improving the properties of the object; • draw up a detailed technical assignment, including all aspects necessary for the performance of tasks; • search for the necessary information and save it; • accurately formulate the idea and rank sentences by relevance; • repeat the design decision, work in the style direction, develop your own design solution; 	



	<ul style="list-style-type: none"> • depict any shape and material; • create vivid and expressive sketches; • bring the information to the viewer; • reflect the requirements of TK in the developed facility; • show the color scheme of the project; • show the general structure (layout) of the object; • for a fixed period of time to develop a worthy offer. 	
2	3D sketch of the project	20
	<p>The specialist should know and understand:</p> <ul style="list-style-type: none"> • software for professional activities; • ways to influence the viewer. 	
	<p>The specialist should be able to:</p> <ul style="list-style-type: none"> • create 3d model; • To model the model according to the design decision; • create high-quality static and dynamic visualization; • create 3-dimensional objects in the software; • develop an object based on the sketch (sketch); • modify the existing 3D object; • set the light environment; • choose an information perspective for the render; • customize the physical interaction of objects; • set the scale ratio; • organically enter the object in the space. 	
	Product-design	50
3	Technological process	
	<p>The specialist should know and understand:</p> <ul style="list-style-type: none"> • the principles of working with the client and take into account his needs in the design development; • different target markets and design elements that satisfy each market direction; • software for professional activities; • methods and types of prototyping; • software for drawing drawings for ESKD; • The ESKD system; • technology and technological processes; • the impact of technology features on the appearance of the object; • properties of modern materials; • current trends in materials and molding; • limitations in the applicability of materials and their environmental properties; • expediency in the use of materials; 	



	<ul style="list-style-type: none"> • anthropometric tables; • the principles of corrective ergonomics; • properties of materials for prototyping; • types of glue joints; • safety when working with materials; • select an information advantageous perspective for the render. 	
	<p>The specialist should be able to:</p> <ul style="list-style-type: none"> • take into account the environmental properties of materials; • Draw on the system of ESKD; • develop an item for serial production; • execute the layout in any materials in accordance with the task; • select an idea that can be reproduced in the allotted time; • carry out drawings using computer programs; • prepare drawings and print them out; • Take into account ergonomics in the project; • work with the target audience; • pick up materials that correspond to the image of the project; • Take into account the psycho-physiological properties of materials; • compile an explanatory note to the project; • build existing 3D models; • customize the physical interaction of objects; • place an object in accordance with the corporate style; • for a fixed period of time to develop a worthy offer; • select an idea that can be reproduced in the allotted time; • competently stylistically select materials based on the terms of TK; • create a drawing based on the developed 3D model; • use corrective ergonomic tables and directories; • use the breadboard tool; • prepare a 3D model for printing; • customize the printer for specific printing; • be able to run the printing of 3D models on a 3d printer; • finalize the printed prototype; • fulfill parts of the prototype from the materials provided; • use the properties of mock-up materials; • reproduce the form of the specified object; • carefully execute the prototype; • fill in the technical documentation. 	
4	Project Presentation	6
	<p>The specialist should know and understand:</p> <ul style="list-style-type: none"> • The means of convincing the customer and the structure of the report. 	



	<p>The specialist should be able to:</p> <ul style="list-style-type: none"> • clearly formulate and protect its project solution; • create a demo photo montage; • create a video; • competently present your project; • culture of speech; • clearly formulate thoughts; • structure the report; • withstand timing; • submit the project on a favorable basis; • Convince the advantages of the proposed solution; • Deeply answer the questions; • hold the audience during the presentation; • Interest in your project; • adequately respond to irritating factors. 	
5	Soft Skills	4
	<p>The specialist should know and understand:</p> <ul style="list-style-type: none"> • The WorldSkills Russia documentation structure; • regulation WorldSkills Russia; • safety instructions. 	
	<p>The specialist should be able to:</p> <ul style="list-style-type: none"> • work with tender documentation; • observe safety precautions; • organize working hours; • observe the order in the workplace; • It is rational and economical to use the materials provided. • comply with the rules of the competition. 	
	Bcero	100

2.2 Theoretical Education

2.2.1 Theoretical education is needed, but is not subject to separate testing

2.2.2 Knowledge of rules and laws is not tested separately

2.3 *Practical work*

The assignment for competitors in the competitions can consist of 5-6 modules divided into 4 working days.



3 THE TEST PROJECT

3.1 Format and structure of the Test Project

The project is divided into several modules with their own subtasks.

Module Design for Competitions

Object(s) of design: any of the listed in clause 1.1.2

During the competition, two objects are being developed, one of which is hidden before the start of the competition.

The first object is executed in modules No. 1-3; it is individual; check the work on creativity and art design

The second object is executed in modules No. 4-7; it is replicable; check the work intended for mass production, manufacturability and ergonomics.

Approximate list of modules

Art-Design Block

Day 1 (7 hours)

Module 1. Technical Assignment for Redesign

Materials and equipment: A4 sheets, ruler, caliper, personal computer, keyboard, mouse, monitor, A4 printer

Software: Internet browser, MS Office (Word, Excel), Corel Draw

You were addressed by a customer, for whom it is important to develop a new form of an already familiar object. To start working on this order, you need to develop a package of documents:

- 1. Measure geometric characteristics of the provided object*
- 2. Carry out a search for and analysis of existing analogues*
- 3. Develop a technical assignment*
- 4. Develop a Moodboard*

Module 2. Creative Development of the Idea

Materials and equipment: A3 paper, toolbox for sketching.

Develop two proposals based on the Technical assignment from the first module. Proposals shall be different and not related to each other. They should also not repeat someone else's design. Each proposal is developed on one A3 sheet.



Module 3. 3D-Sketch of the Project

Materials and equipment: personal computer, mouse, keyboard, paper

Software: 3DSMax, Rhinoceros

Develop a fast 3D model of the object based on the sketch and the technical assignment using textures to demonstration to the client.

Product-Design Block

Day 2 (7 hours)

Technological process (module 4-5)

Module 4. 3D-Modeling of the Project and Its Visualization

Materials and equipment: personal computer, mouse, keyboard, paper

Software: Fusion 360, SolidWorks, Photoshop.

At the request of an important company's customer, you shall offer a project within short timeframes. Your task is not only to develop a concept that meets the needs of the customer within a short time, but also to make a 3D model of it, technical documentation and a presentation poster. Also to prepare a file for printing on a 3D-printer. The customer's technical assignment is in Appendix 3.

At certain times, it will be necessary to hand over: technical documentation, poster. If these items are not handed over at the specified time, this part of the task will not be checked.



Day 3. (7 hours)

Module 5. Prototype Modelling

Materials and equipment: personal computer, 3D-printer, microwave, consumable plastic-bobbin, consumable plasticine, toolbox for prototyping.

A prototype is needed for presentation of the project to customers. Part of it is created on the 3D-printer, (run of a file prepared on the previous day), the other is manually created from sculptural plasticine during the day.

Day 4 (2 hours)

Module 6. Critical design review

Equipment and materials: projector, screen, flash drive, paper, layout, ergonomic map, poster

On the basis of previously completed modules, prepare for review within 30 minutes.

For review, it is necessary to construct a 3-minute report on the given points and to answer three questions from experts.

3.2 PROJECT MODULES AND TIME REQUIRED

The modules and times are summarized in Table 1

Table 1.

Seq. No.	Module description	Operating time	Task completion time
1	Module 1: Technical Assignment for Redesign	C1 9.00-11.30	2.5 hours
2	Module 2: Creative Development of the Task	C1 11.30-13.30	2 hours
3	Module 3: 3D-Sketch of the Project	C1 14.00-17.00	2.5 hours
5	Module 4: 3D-Modeling of the Project and its Visualization	C2 9.00-17.00	7 hours
5	Module 5: Prototype Modelling	C3 9.00-17 00	7 hours



6	Module 6: Critical Design Review	C4 10.00-12.00	2 hours
Total			23 hours

Module 1: Technical Assignment for Redesign

The competitor needs to study the received object and desires of the customer. Conduct an analysis of the object according to directions indicated in the task. It is necessary to identify parameters for improving the object from the competitor's point of view and improving parameters for the customer's order. Prepare a Technical assignment.

Module 2: Creative Development of the Idea

The competitor needs to create sketches in accordance with the Technical assignment and to propose a new solution of the object. Created sketches should be informative, reveal the essence of the project, and contain artistic value.

Module 3: 3D-Sketch of the Project

The competitor needs to create a 3D model of the object that reflects the project essence.

Module 4: 3D-Modeling of the Project Basis

The competitor needs to create a 3D-model of the object that reflects the essence of the project, demonstrate manufacturability and assembly capability of the object.

This module also requires final visualization of the project, including development of drawings and a poster. Preparing for 3D-printing.

Module 5: Prototype Modelling

Printing of part of the project on a 3D-printer and creation of parts for it from sculptural plastic.

Module 6: Critical Design Review

The competitor's task will involve the development and creation of a presentation of the completed project, as well as the demonstration of all modules implemented in previous days. The competitor will need to talk about his project, his idea and answer questions provided by the jury in a time allotted for defense.



3.3 Test project development

The test project must be prepared according to templates provided by WorldSkills Russia. Use the Word template for text documents and a DWG template for drawings.

3.4.1 Who develops test projects / modules

3 groups of experts with participation of special independent experts develop 5 different tasks

3.4.1 How and where the test project / modules are developed

Six months before the competition.

The first versions of tasks are developed 6 months before the competition. Upgraded versions are provided to the Technical Director 3 months before the competition. At least 30 % of test projects are changed before the competition.

3.3.3 When the test project is developed

The Test Project is developed by 2 months prior to the Competition by WSR Experts for a correspondent skill, and then allocated to a correspondent group on the Discussion Forum in the Industrial Design Technology section. The test project is approved by the WSR Technical Director 1 month prior to the current competition.

3.4 Test Projects Marking Scheme

Each test project shall be accompanied by a draft Marking Scheme based on the Assessment Criteria determined in Section 5.

3.4.1 The Marking Scheme is drafted by the person(s) developing the test projects. The detailed final Marking Scheme is developed and approved by all Experts at the competition.

3.4.2 The Marking Scheme shall be supplied to the CAMS (Competition Automated Management System) before the competition beginning.

3.5 Test project validation

At the competition, all Experts get acquainted with a final task and make 30 %-changes, which is confirmed by signing of the protocol. From this moment, the task comes into force as a Test Project for the skill.

The task shall be feasible with the help of tools, materials, equipment provided at the competition, taking into account knowledge of competitors and time for its implementation. Every independent expert should be prepared to prove this.

3.6 Test project selection

Each group of experts develops a task, experts work on it together. Experts shall discuss, ask, respond and cooperate in other ways at a special forum. Each group of experts will complete its test tasks during the competition. Each task must be changed at least by 30 % after preliminary circulation. In the absence of an expert in the discussion, the decision on selection of the task should be deferred.



3.7 Test project circulation

The final competition task should be released on the official WorldSkills website 1 month before the competition.

3.8 Test project coordination (preparation for competition)

The test project coordination shall be performed by Chief Expert and Technical Director.

3.9 Test Project change at the competition

Not applicable.

3.10 Materials or manufacturer's specifications

Each group of developers creates tasks and additional materials for their implementation.

3.11 The competitor's toolbox

1. Set for sketching: means for presentation of color solutions (paints, pencils, pastels, liners, markers, etc.), paint brushes
2. Set for drawing: ruler (not less than 30-50 cm), pencil and eraser, mathematical compass, irregular curves, drawing rule
3. Set for prototyping: adhesive (PVA, pencil), stationery knife, scissors, ruler (at least 30-50 cm), double-sided tape, transparencies

4. MANAGEMENT OF THE SKILL

4.1 Discussion forum

Prior to the competition, all discussions, communication, collaboration and decision-making regarding the skill competition take place on the specific discussion forum (<http://forum.worldskillsrussia.org>). All decisions taken with respect to any skill are only valid only when they are taken on such forum. The WSR Chief Expert (or the WSR Expert appointed to this position by the WSR Chief Expert) is the forum moderator. The timeframes for exchange of messages and the requirements to development of the competition are set by the Competition Rules.

4.2 Information for competitors

All information for registered competitors is available at the Centre for competitors (<http://www.worldskills.org>).

This information includes:

- Competition rules
- Technical descriptions



- Test projects
- Other information relating to the competition.

4.3 Test projects

Announced test projects can be found at the website worldskills.ru

4.4 Day-to-day management

The skill day-to-day management is performed by the Chief Expert in this skill. The skill management group consists of the Jury President, Chief Expert, and Deputy Chief Expert. The skill management scheme is developed 1 month prior to the competition beginning and subsequently finally developed during the competition by the joint decision of the Experts.

5.1 Assessment criteria

Assessment criteria is developed from WSSS by the matrix.

		CRITERIA							Total
		A	B	C	D	E	F	G	
WSSS	1	10	10						20
	2			20					20
	3				30	16	4		50
	4						6		6
	5							4	4
Total		10	10	20	30	16	10	4	100

An example of assessment criteria setting and the number of points (given by the objective and judge assessment) is given in this section. The total number of marks for all assessment criteria is 100. During the competition competitor has to show his/her skills the same level in objective and judge marks.

Section	Criterion	Marks		
		Judge	Objective	Total
A	Development of the project for redesign	5	5	10
B	Creative development of the project	5	5	10
C	3D-sketch of the project	10	10	20



D	3D-designing of the object and its visualization	15	15	30
E	Prototype Modelling	8	8	16
F	Critical design review	5	5	10
G	Personal skills	2	2	4
Total =		50	50	100

5.2 Judges' marks

Points are awarded on a scale from 0 to 3.

EXAMPLE:

A1	Conformity				
		J	of the concept to customer's requirements (module 2) sketches		
				0	do not conform completely
				1	requires revision
				2	will meet the customer's requirements with small modifications
				3	fully meets customer's requirements

5.3 Skills Assessment Criteria

3 groups of experts award points according to two criteria in aspects for each module. Competitors will be provided with necessary materials before the beginning of each stage of the competition. The competitor shall independently check the availability of all materials and tasks, previously checked and signed by two experts.

5.4 Standing orders for skills assessment

The Chief Expert divides the Experts into groups (depending on the number of experts), so that in each group there are both experienced participants of the WorldSkills events and newcomers.

Each group is responsible for assessing each aspect of one of four modules of the Test Project.



Each Expert awards exactly 25 % of the total points.

At the end of each day, the points are transferred to the CAMS (Competition Automated Management System).

- All module manuals associated with the task should be provided to the competitor along with the task itself;
- All experts attending the competition will be divided into groups;
- Experts should use a unified assessment system for all competitors with an error of no more than 5 %;
- To make subjective assessments, experts should be divided into culturally close groups;
- The task is assessed strictly after completion.

6. BRANCH SAFETY REQUIREMENTS

Are met in accordance with the legislation of the Russian Federation in the field of health and labor safety.

Competitors are advised to take frequent breaks to avoid eye strain.

Contestants are advised to use ergonomic keyboards and mice if they have professional joint diseases.

7. MATERIALS AND EQUIPMENT

7.1 Infrastructure list

Infrastructure list is available at the website (<http://www.worldskills.ru>).

Infrastructure list includes everything that is necessary for performance of test projects. The competition organizer complements the list with an exact number of necessary materials, their features, models and brands. Infrastructure provided by the organizer is included in a separate list.

Before each competition, experts are required to check and adjust the list, as well as to coordinate it with the technical director of the WSR.

At each competition, the technical supervisor should maintain accounting of infrastructure elements. The list should not include elements that were asked to be included by experts or competitors, as well as prohibited elements.

7.2 Materials, equipment and tools supplied by competitors in their toolbox

The competitor is allowed to use his/her own:

- headphones;
- music.

All materials brought by competitors can be checked by experts and supervisors



for the presence of internal storage devices. In case of detection, the materials will be withdrawn.

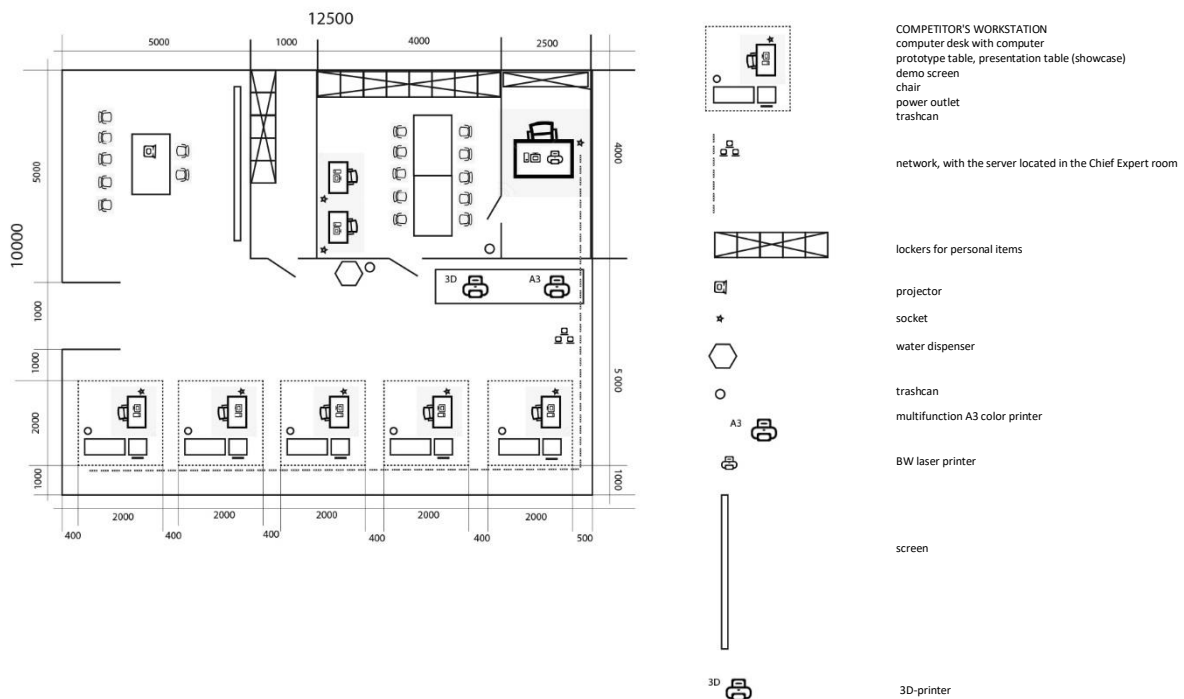
7.3 Materials, equipment and tools provided by Experts

PC, printer, consumable materials.

7.4 Materials and equipment prohibited in the skill area

- additional programs;
- mobile phones;
- photo/video devices;
- memory cards and other storage media;
- internal memory devices in own equipment.

7.5 Approximate scheme of the competition site within the skill limits



Industrial Design Technology 125M2



8. VISITOR AND MEDIA ENGAGEMENT

8.1 Maximum engagement of visitors and media

The competition site of Industrial Design Technology (new skill) shall maximize the visitors and media engagement:

- Offer to try oneself in the profession: a site where visitors and representatives of the press can try themselves in computer modeling
- The displays showing the process of work and the information about the competitors which advertise the career prospects
- Test project text description: public display of test projects
- Demonstration of completed modules: The result of each modules can be published after the assessment is finished.

8.2 **Ecology and ergonomics**

- recycling;
- use of environmentally friendly materials;
- use of completed projects in practice;
- minimization of printing;
- use of pdf-files and electronic documents in the maximum number of cases;
- reduce the number of programs that need to be installed on computers of competitors.



Appendix to the Technical Description of the Skill

Functional Information Sheet

“Industrial Design Technology” Skill

1	Skill name	Industrial design technology
2	Number of modules	6
3	Number of WSI modules	6

4	Code and name of the aspect	Number of points per module (max — 100 points)	Number of WSI points (max — 100 points)
4.1	Aspect A Development of the project for redesign	10	-
4.2	Aspect B Creative development of the project	10	-
4.3	Aspect C 3D-sketch of the project	20	-
4.4	Aspect D 3D-designing of the object and its visualization	30	-
4.5	Aspect E Prototype Modelling	16	-
4.6	Aspect F Critical design review	10	-
4.7	Aspect G Personal skills	4	-

5	Module number	Required skills for module execution
5.1	Module 1: Technical Assignment for Redesign	Be able to develop a technical assignment based on the customer's requirements
5.2	Module 2: Creative Development of the Task	Be able to create a solution search, draw sketches and finished product, prototype the work for demonstration



5.3	Module 3: 3D-Sketch of the Project	Have sufficient knowledge of the software application for creation of a product in a scale of 1: 1, units of measurement
5.4	Module 4: 3D-Modeling of the Project and its Visualization	Have sufficient knowledge of the software application for creation of a product in a scale of 1:1, units of measurement. Have knowledge in 2D-graphics, presentation of static works and animation in 3D-applications. Read GOST on drawings, draw, possess the knowledge of descriptive geometry, stereometry, software applications in 3D and 2D graphics
5.5	Module 5: Prototype Modelling	Draw details, use tools to create parts from various materials (in particular, paper of different density), glue or assemble, assemble and compose a prototype
5.6	Module 6: Critical Design Review	Unveil, answer questions, competently speak, observe the sequence of project review