



9th International
Abilympics
Bordeaux 2016

Vocational Skills Contest

V33 CAD Industrial Design

1. Task Assignment

The task consists in the completion of 2 modules.

- Module n°1: 1) Reverse engineering

- Using the physical model of a mechanical part (displayed for 20 minutes), contestants will take measures and draw rough sketches (non-evaluated). The part will then be removed from sight and contestants will start recreating the design on their computer using the measurements they took during the observation phase.

- Expected results: 3D model of the mechanical part and display of its physical characteristics.

2) Assembly drawing

- Data: 3D models of the assembly's components and all the necessary additional information.

- Task: assemble the components to create an animation of the functioning parts, establish a nomenclature.

- Expected results: assembly file, assembly drawing and nomenclature.

- Module n°2: 1) Using the computer file of the drawing of a system to be provided on the day of the competition, contestants will modify the shape of a mechanical part to adapt it to a new production process: casting.

- Expected results: 3D model of the part, layout drawing, dimensioning of the machined parts.

2) Using the digital model of a given assembly, contestants will create an exploded view.

- Expected results: layout drawing of the exploded view. Realistic rendering.
- Integration of the results into a given brochure.

2. Allocated time: 6h00

6 hours of competition.

- Module n°1: 3 hours.
- Module n°2: 3 hours.



3. Requirements

- Once the animation completed, contestants will notify the jury for evaluation directly on their computer (1-minute-break). Contestants will then save the file in a specific folder and under a specific name, print it and hand it to the jury for evaluation (dimensions measurement will not be evaluated). Contestants are allowed to perform two test prints.
- The jury will collect all electronic means of communication contestants may have (Cell phone, tablet computers...) at the beginning of the competition. They will be returned to their owners once the competition is finished. Contestants may keep MP3 players to listen to music once the jury has performed an inspection of the equipment.
- Any material brought by contestants that is not referenced in chart n°6 is subject to the jury's approval.
- The use of USB flash drives is forbidden.
- Any contestant caught cheating, talking to someone from the public or using a communication device will suffer a penalty of 5 points for the first transgression. A second transgression will lead to an exclusion from the contest.

Caution: contestants will specify which computer-aided design software they wish to use when they complete their online registration. They will choose between Inventor 2014 and Solidworks 2014.

4. Procedure

Day -1 (March 24th): On the day before the competition, contestants will be welcomed by members of the jury. A briefing about the organization of the competition and the safety rules will be arranged. Contestants will draw lots to be assigned a work station, get used to its equipment and set the software's parameters. They will also install their personal equipment (peripheral devices, special needs equipment).

Day 1 (March 25th): The final task assignment for module n°1 will be handed out to contestants. They will have 30 minutes to read it, after which a Q&A session will be organized. Contestants will have 3 hours to complete module n°1.

Day 2 (March 26th): Contestants will have 3 hours to complete module n°2.

5. List of the provided equipment

Non-exhaustive list.

N°	Equipment	Photo	Qty	Notes
01	Computer		1	8 Go RAM, 1 To hard-drive, QUADRO video card. 22-inch screen, mouse with 3 buttons and 1 scroll wheel, AZERTY keyboard
02	Windows 7 – pro 64 bits		1	English version
03	Microsoft Office 2010		1	English version
04	Inventor 2014		1	English version. Contestants will select which software they wish to use when registering online (between Inventor and Solidworks)
05	Solidworks 2014		1	English version. Contestants will select which software they wish to use when registering online (between Inventor and Solidworks)
06	A3 printer		2 in total	2 for all contestants
07	Desk		1	

08	Chair		1	
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6. List of tools to be brought for each contestant

N°	Tool	Photo	Qty	Notes
01	3D mouse		1	Optional. Contestant's choice.
02	USB Keyboard		1	Contestant's choice, other than AZERTY
03	Caliper with depth gauge		1	Can be digital. Contestant's choice.
04	Ruler		1	
05	Protractor		1	Can be digital. Contestant's choice.
06	Special needs equipment			Reserved for contestants with special needs
07	Note-taking equipment		1	Pens, pencils, eraser...

08	Notebook		1	For note-taking and measurements. Contestant's choice.
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7. Evaluation Criteria



N°	Items to be Evaluated	Scoring scale
MODULE 1 : 50/100		
01	Modeling of the part	10
02	Animation	5
03	Assembly	20
04	Layout drawing of the system	15
MODULE 2 : 50/100		
05	Layout drawing of the modified part	12
06	Dimensioning	13
07	Exploded view	13
08	Realistic rendering	10
09	Integration into a brochure	2
	Total	100