Specific regulations for the organization and conduct of Computer Aided Design Competition

February 15, 2024

HOFAG ENGINEERING – AUTODESK ACADEMIC PARTNER

content

Specific regulations for the organization and conduct of the WorldSkills Computer Aided Design competition

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Field: Manufacturing and Mechanical Engineering
Professional qualification: Computer-aided design technician

These specific regulations for the organization and conduct of the WorldSkills Computer-Aided Design competition are part of the General Framework Regulations for the Organization of the WorldSkills Competition which can be found on the WorldSkills Romania Foundation website www.worldskills.ro .

1. Competition information

The WorldSkills Romania competition is officially recognized by the Ministry of Education through **the 2024 National School Competitions Calendar, without MEC funding, No. chapter N – Technological high school education.** The competition is aimed at trades in the mechanical field, namely the qualification of technician in computer- aided design (CAD). The competition was inaugurated in 2022 and is supported by WorldSkills Romania, Autodesk and Hofag Engineering – as an Autodesk Academic Partner .

1.1 Name and description of the competition and occupation

1.1.1 The name of the competition is: **WorldSkills Computer Aided Design Competition**

1.1.2 Occupation description

The CAD design technician performs technical tasks of design, drawing, verification, operation and commissioning . execution of drawings specific to the technical field. Tests programs , designs and creates diagrams of technical components in the field, contributes to estimating material quantities and costs , to estimating the necessary labor force . Ensures technical control of drawings, corrects and maintains application program libraries in accordance with the technical specifications and regulation in force.

1.2 Eligibility conditions for participation in the competition, including age limit

Each educational unit that is a member in The ECEPAC network organizes the local phase , and can participate with 1 student, for each member teacher in ECEPAC network , at the national phase of the WorldSkills Romania Competition. Participation in this competition is carried out individually, by students of vocational schools or technological high schools, the field of training professional mechanics , mechatronics technician qualifications , CAD design technician, maintenance technician and repairs , mechanical processing technician , transport technician, machine tool processing technician numerical , shipbuilding technician and hot working technician , grades IX-XII. Can participate in the competition and students from other high schools invited by WorldSkills Romania.

Competing students are designated by schools (through internal competition). The maximum age allowed for the competition is 19 years old by the end of the school year in which the competition is organized.
All competitors must demonstrate impeccable behavior in the school environment.
Participation in the competition, national phase, requires the presentation of: a medical certificate issued by the family doctor/school doctor stating "clinically healthy".

1.2.1 Registration and (pre)selection method

Registration for the competition is carried out by the coordinating teacher, member of the ECEPAC network , of the student by completing the registration form in the invitation to participate sent by e-mail by the competition organizing committee. Member schools of **the ECEPAC network will be invited to the competition.** Each educational unit will be able to designate only one student, with only one coordinating teacher. The teacher accompanying the student to the competition may be the coordinating teacher or another teacher from the school.

1.2.2 Phases/stages and competition schedule

Period of implementation:

Local phase:

- It is unfolding within each educational institutions , being coordinated by the coordinating teacher;
- competition The internal evaluation will be recorded by the coordinating teacher with the available means, similar to those of the evaluations. national ;
- The topics will be developed by the coordinating teacher and will be similar to those presented in the "test project "
- The evaluation of the participants will be done by the coordinating teacher in accordance with the evaluation criteria in " marking" schemes ";
- local phase will take place until April 20, 2024.

National phase:

- Technical jury meeting – online, 3 days before the event competition .
- National phase: May 2024, at UCECOM "Spiru Haret" College, Bucharest.

NOTE: If the number of participating high schools is greater than 10, an intermediate stage will be organized online on April 30, 2024. The top 10 will be invited to the final stage. The topics for the intermediate stage will be provided by WorldSkills Romania.

2 Professional skills assessed through competitive exams and the nature of tasks, necessary

equipment

The competition tests will evaluate the practical skills and abilities specific to the field of training as presented in:

2.1 Standards: WorldSkills Occupational Standards and Vocational Training Standards:

2.1.1 Professional Training Standard for the CAD Design Technician qualification.

2.1.2 WorldSkills Occupational Standard (WSOS) for the Mechanical Engineering CAD profession (https://WorldSkills.org/what/projects/wsos/2024/events/579/skills/1664/):

- Workplace organization.
- Materials, software and hardware.
- 3D modeling of parts and assemblies .
- Making 2D drawings for execution.
- Creating 2D drawings for assemblies.
- Creating images obtained through rendering .

2.2 List of equipment, tools, computer programs needed and used in the competition, both those provided by the organizers and those that must be brought by each competitor on the day of the competition.

The software solution that will be used in the competition will be FUSION 360.

Competitors are not required to bring any equipment or materials to this competition. Competitors may bring their own keyboards or mice. Competitors may not log in to the computers provided by the organizers with other devices .

The venue for the event is properly equipped and arranged by the competition organizer .

2.2.1 Method of allocating competitors to workstations. Behavior in the competition space.

Following the draw (carried out by the jury members), the computer where each competitor will work will be determined . Each workstation will be identified by its number. workstation and the name of the competitor. These will be visible throughout the competition .

Candidates cannot communicate with each other or with their coordinating teachers until the end of the competition. Candidates are not allowed to use personal mobile phones/tablets or laptops until the end of the competition (they will be confiscated by the coordinating teacher). Competitors are not allowed to use electronic devices, including voice/video recording devices, during competition hours. During lunch, competitors cannot eat together or have conversations with coordinating teachers or their team members.

3.Structure and duration of the competition test

Candidates will be invited to the competition area to complete the work tasks, 30 minutes before the distribution of the competition topics , respectively 8:30 a.m. After 9:00 a.m., entry into

the competition area of any competitor will be prohibited .

The structure of the activities that will take place during the time slot allocated to the competition is as follows:

1. Creation of 3D models for a number of 3 components, in accordance with the documentation received in paper format;
2. Creation of 3 execution drawings for the models specified in the documentation received;
3. Creation of a general assembly according to the indications received in the competition documentation;
4. Creating the 2D drawing of the assembly resulting from point 3.
5. rendered image of the ensemble obtained in point 4.

Competition duration: 6 hours.
Time slots:

9:00 – 12:00 phase 1;
12:00 – 13:00 lunch break;
1:00 PM – 4:00 PM phase 2.

4.Methodology and criteria for evaluating competitors

Each competition topic is accompanied by a scoring system corresponding to the evaluation criteria. For each of these criteria, a list of evaluation aspects and sub-criteria is established according to the WorldSkills International evaluation procedures.
Each criterion is divided into one or more sub-criteria. Each sub-criteria is divided in several aspects, based on which marks are awarded. These aspects can be of the "judgment" or "measurement" type . A maximum score of 100 points is awarded , cumulatively for each competitor.

Note: The evaluation will be done in accordance with the correction and grading scales, as a weighted average of the score awarded, according to the international WorldSkills rules, taking into account both assessment methods, by observation and by measurement .

5. Testing (Test project)

Assessment topics are not published in advance.

6. Communication channels and methods between all parties involved

Communication will be made via email, for all parties involved.

7. Access to European/international phases of WorldSkills competitions and access to training competitions

- The students who rank in the top 3 places (1st place, 2nd place and 3rd place, in order of cumulative scores) will constitute the Romanian national team for WorldSkills Computer-Aided Design, which will participate in the following period in additional training sessions

and training competitions for access to international competitions, according to the program of the WorldSkills Romania foundation.

- The winner of 1st place will be the Romanian WorldSkills Computer Aided Design champion and will have access to the international competition the year following the national competition. The full name of the profession according to the WorldSkills international standard is ***Mechanical engineering computer aided design (CAD)*** . The 2nd and 3rd place winners will be considered reserve for unforeseen situations (accidents, illnesses, other situations that lead to the cancellation of the presentation at the international competitions).

Important: Romania's National Computer Aided Design Team will benefit from training internships abroad depending on available resources and existing opportunities.

8. Sustainability

This competition focuses on sustainable practices:

- Recycling;
- Use of "green" technologies;
- Avoiding waste of materials;
- Economy of material and human resources.

9. Industry references

CAD Design Technician – Alexandru Filipescu – CADware Engineering SRL – Autodesk Certified Instructor Silver .

10. author

Ing. Gheorghe Cazan, WorldSkills Expert, Hofag Engineering SRL – Autodesk Academic Partner

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