

# **The First World Vocational College Skills Competition**

## **Competition Rules**

### **I. Name of the Skill**

No.: W12

Chinese Name: 迷宫机器人

English Name: Maze Robot

Industry: Electrical, electronics and information, artificial intelligence technology, mechatronics, manufacturing equipment, etc.

### **II. Competition Purpose**

The First World Vocational College Skills Competition (the “Competition”) aims to bring together standards, technologies, equipment, teachers and students in the vocational and technical education field at home and abroad, enhance China’s vocational education to serve international cooperation in production capacity, and build an important platform for teachers and students from international vocational schools to deepen friendship, exchange skills and show expertise, thus facilitating the development of skills worldwide. Through the skills competition, expertise show and experience exchange, this Competition can be a platform to share the best practices of international vocational and technical education, enhance the influence of China’s vocational and technical education in the world in this field, and promote the development of China’s vocational and technical education in line with global vocational and technical education.

The Competition covers such key technologies as electronic information and communication technology, software technology, embedded technology, mechatronics technology, artificial intelligence, intelligent manufacturing, automation, robotics and other professional fields. The Competition process relates to the problem solving process, and the Competition standards are aligned with the international standards. It aims to examine the competitors' expertise and their professional qualities in terms of teamwork, efficiency as well as quality and safety awareness, fully demonstrate the new technological achievements in the development of artificial intelligence and robotics, guide the training of high-level technical and skilled personnel and the professional upgrading of vocational colleges, improve professional construction, and facilitate the conversion of competition results and international cooperation between industry, university and research institute. With focus on market demands and new technologies and forms of business, the Competition will build a high-level platform for international vocational and technical education exchanges, help international vocational and technical colleges to achieve high-quality development, pass on China's vocational education philosophy and experience in running schools, strengthen international cooperation, and realize joint improvement.

### **III. Competition Content**

The Competition contents are divided into three modules: Module A is

the virtual simulation section which takes three hours and accounts for 30% of the total result; Module B is the maze race section which takes about two hours and accounts for 60% of the total result; and Module C is the presentation and defense section which takes about two hours and accounts for 10% of the total result.

#### **IV. Competition Method**

##### **(I) Team formation requirements**

1. "0.5+0.5" hand-in-hand Chinese-foreign mixed team ("mixed team") is adopted, which consists of one Chinese student and one foreign student. Competitors should sign up, compete and win prizes in teams.

2. Domestic competitors must be registered full-time students in higher vocational colleges, as well as registered undergraduate students in vocational colleges.

3. Foreign competitors must be foreign full-time students in related majors of vocational schools or colleges and universities providing vocational education, and international students of undergraduate schools in China are also encouraged to participate.

4. Competitor replacement: If a competitor is unable to participate for any reason during the preparation, the relevant department shall issue a written explanation ten working days prior to the start of the corresponding competition. The competitor will be replaced after verification by the office of the Executive Committee of the First World Vocational College Skills

Competition (hereinafter the “Executive Committee”). After the Competition starts, the team is not allowed to replace the competitor.

## **(II) Competition method**

The Competition will be conducted by on-site + remote network operation means, and the domestic competitors will compete on site. Foreign competitors can participate in the Competition through remote network operation if they cannot compete on site, and the marking scheme will be the same as the on-site ones.

## **V. Competition Process**

### **(I) the Competition contents**

Competition	Module A	Module B	Module C
process	Virtual simulation	Maze race	Presentation and defense
Time	3 hours	About 2 hours	About 2 hours
Marks	30 points	60 points	10 points
Total	100 points		
Craftsmanship spirit	Assess the professional quality and safety awareness, 10 points in total which may be deducted.		

### **(II) Competition timeline**

Date	Time	Work contents	Remark
Day 1	9:00 -	Registration of	Accommodation

	21:00	participating teams, team leader meeting and other preparations before the Competition	hotel and Competition site
Day 2	8:00 - 8:30	Check-in and drawing lots by competitors	
	8:30 - 11:30	Virtual simulation module	
	11:30 - 13:00	Lunch	
	13:00 - 15:00	Maze race module	
	15:00 - 17:00	Presentation and defense module	
	17:00 - 18:00	Summary of results and review	The actual schedule shall prevail
	18:00 - 19:00	Release of Competition results	
Day 3	The closing and award ceremony will be uniformly arranged by the		

	Executive Committee	
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## **VI. Competition Task Paper**

The Competition Rules are formulated by the expert panel following the principles of openness, fairness and justice and adopting the semi-open proposition method. Namely, before the start of the Competition, the Rules and maze will be published on the designated publishing platform of the Competition.

The official competition task papers are available in simplified Chinese, traditional Chinese and English versions. All teams must declare confirmation at the time of registration.

The printing, binding and confidentiality of materials such as competition task papers, technical parameter scheme and marking forms should be under the responsibility of special personnel assigned by the Executive Committee and subject to the supervision of the supervisory staff.

All materials used for the Competition, such as competition task papers, result evaluation process materials etc., will be collected back at the end of the Competition. After checking the number of copies of materials, the competition task papers, answer sheets and marking forms shall be sealed up and properly kept by the organizer of the Competition. No one may consult them without authorization of the Executive Committee. The effective traceability period of all materials is one year.

## **VII. Competition Rules**

### (I) Qualification and registration of competitors

The Chinese students should be full-time students from Chinese vocational colleges (including vocational undergraduate colleges, higher vocational schools or at equivalent level). The foreign students should only be of foreign nationality. International students who study in China or students from schools of similar level abroad can register for the Competition. There is no limit on gender and grade, but the competitors should be school-registered students in 2022. Students should not be allowed to be understaffed, in principle, after their sign-ups are confirmed.

The participating teachers must be in-service teachers of the school where the student is studying, not part-time teachers. Once the teachers are confirmed, they cannot be replaced. Students are allowed to compete in the absence of their instructors.

After the official start of the Competition, if any student applies for absence due to special reasons, the Competition can continue with the approval of the jury. However, in Module A - “Virtual simulation” section, the mark of the absent student will be counted as zero. In Module C - “Presentation and defense” section, the mark of the absent student will be deducted by 1 point.

The validity of the competitors’ qualification is subject to confirmation of the Executive Committee.

### (II) Rules for check-in and entry

1. Competitors should arrive at the designated area 15 minutes before the specified time.

2. The judges will check the identity of each competitor. Competitors must provide valid documents such as entry card, ID card or passport, and student card. The name, age and facial features on the documents should be consistent.

3. Competitors are not allowed to carry any communication tools, network equipment, and non-compliance materials, tools, stationeries, food, drinks etc. to the venue (unless otherwise specified).

4. Competitors will be checked in and then draw the workstation number or competition order.

5. Competitors should enter the venue with the workstation number and wait for competition.

6. It is strictly forbidden to touch the Competition facilities without the permission of the judge before the start of the Competition. Competitors should not leave the venue during the Competition.

## **VIII. Competition Environment**

### **(I) Virtual simulation site**

Virtual simulation competition will be held indoors. The site should be quiet and the on-site computers should meet the needs. The layout and quantity of tables and chairs should meet the demands. When the competitors use the computers, they should be careful to save the



process-based results in time. In case of computer failure, they should timely report to the on-site judges for disposal.

## (II) Maze race site

Practical skills competition will be held indoors. The venue covers a total area of more than 500 square meters (subject to adjustment according to the number of participating teams), with good ventilation and lighting. The site has complete fire protection facilities, unblocked evacuation channels and clear fire evacuation signs, which meet safety requirements. The site should be equipped with medical emergency vehicle, emergency power generator, etc.

The competition site is divided into different functional areas according to needs, including check-in area, waiting area, debugging area, competition area, on-site service and technical support area, rest area and medical area. Each area should be clearly marked and easily accessible.

## (III) Presentation and defense site

The presentation and defense section is conducted indoors, which can be divided into judge seats, defense seats and audit area.

The presentation and defense site provides the following: single-phase AC power supply with a maximum power load of 1000W; a large display screen (size: 86 inch, proportion: 16:9, default resolution: 1920 × 1080) and computer (for use with projector); display table (length, width and height: 1,200mm × 400mm × 750mm) and teaching whiteboard. It does not provide

installation and transportation services for competitors' own devices. It is not recommended that teams bring large equipment exceeding the power load or display equipment in large quantities.

Each workshop may set up visitor path and media area as required, which should not affect the normal operation of the Competition.

## **IX. Technical Specifications**

The Competition is based on the latest version of IEEE Micromouse competition rules and combined with virtual simulation technology. By incorporating Chinese elements, it focuses on the type traits of vocational education combining competition and entertainment together, for the purpose of facilitating the training of advanced skilled and innovative talents in international vocational colleges.

### **(I) Specifications of virtual simulation maze**

1. All teams will compete in a unified virtual simulation software maze.
2. The specifications of competition maze path for virtual maze robot is consistent with the competition maze specification of classical maze robot.

### **(II) Specifications of virtual simulation maze robot**

1. The speed of virtual simulation maze robot should not exceed 0.6m/s.
2. The width and length of virtual simulation maze robot should not exceed the width of the virtual maze path, and its height should not exceed 5cm.

3. Virtual simulation maze robot can use Odometry, LaserScan and Yaw.

4. Virtual simulation maze robot is not allowed to use image processing program. If found, the competitor will be disqualified.

### (III) Specifications of maze

1. The maze is composed of  $16 \times 16$  squares with each square size of  $18\text{cm} \times 18\text{cm}$ ; the squares are randomly grouped into paths to reach the center of the maze.

2. The partition walls of the maze are 5cm high and 1.2cm thick, so the actual distance between two partitions is 16.8cm. The whole maze is required to be enclosed by partition walls.

3. The partition walls of the maze are white on the sides and red on the top. The floor of the maze is made of wood and painted black. The paint on the sides and top of the partition walls reflects infrared rays, while the paint on the floor absorbs them.

4. The starting unit can be optionally set in any of the four corners of the maze, but the three sides of the starting unit must have partition walls with only one exit left.

5. The end of the maze is located in the center of the maze, consisting of four square units with only one entrance/exit.

6. A small column with square cross section can be inserted into the four corners of each unit. The column is 1.2cm long, 1.2cm wide and 5cm

high. The position of the small column is called “grid point”. Every grid point in a standard maze should be in contact with at least one partition wall, except those in the end zone. However, in the actual production and competition scene setting, they can be properly adjusted according to the production process and the actual needs of the Competition.

7. The dimensional accuracy error of the maze should not be greater than 5%, or less than 2cm. The floor joints should not exceed 0.5mm, and the slope change at the joints should not exceed 4°. The gap between the partition wall and the column should not be greater than 1mm.

8. All dimensions of the site described or marked in these rules are approximate values, and the actual dimensions should be subject to the competition site.

9. The brightness, temperature and humidity of the room where the maze is located are basically the same as the surrounding environment. Whether the request for change in brightness or temperature will be accepted is at the discretion of the Competition organizer.

#### (IV) Specifications of maze robot

1. The maze robot must be an independent system and should not be remotely controlled by wired/radio frequency or infrared ray. Power supply must use batteries rather than combustible materials for energy.

2. The width and length of maze robot should not exceed the width of the maze path. There is no limit to the height of the maze robot, but the

detection device cannot be higher than 5cm. Subject to this regulation, personalized design or decoration of the maze robot is encouraged, but logos containing team information are not allowed.

3. Maze robot cannot leave anything behind when it runs through a maze.

4. Maze robot cannot jump, climb, burrow or damage maze walls.

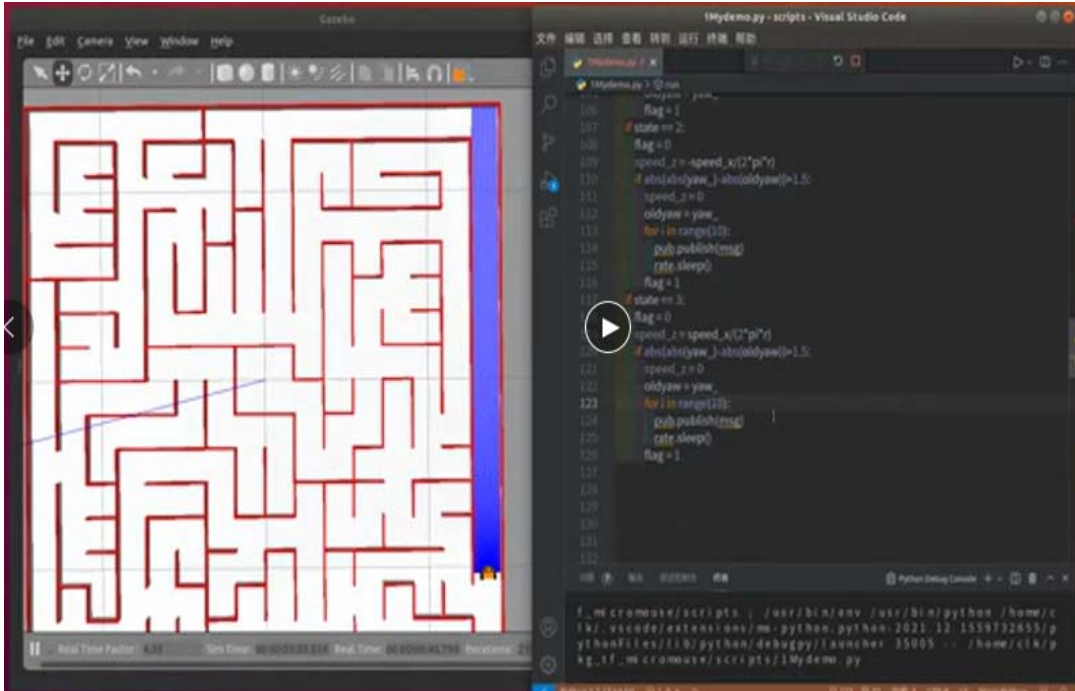
5. Maze robot can have up to three buttons. These three buttons must be pasted with a color block no smaller than 0.5cm x 0.5cm. The unified specification is: the power button is pasted in red, the start button is pasted in green, and the custom button is pasted in blue.

6. The maze robot must use infrared light sensor to detect the maze path before walking, and must not walk when other mechanical sensing devices (including regulating wheels, etc.) touch the wall panel of the maze path.

## **X. Technology Platform**

### **(I) Virtual simulation system**

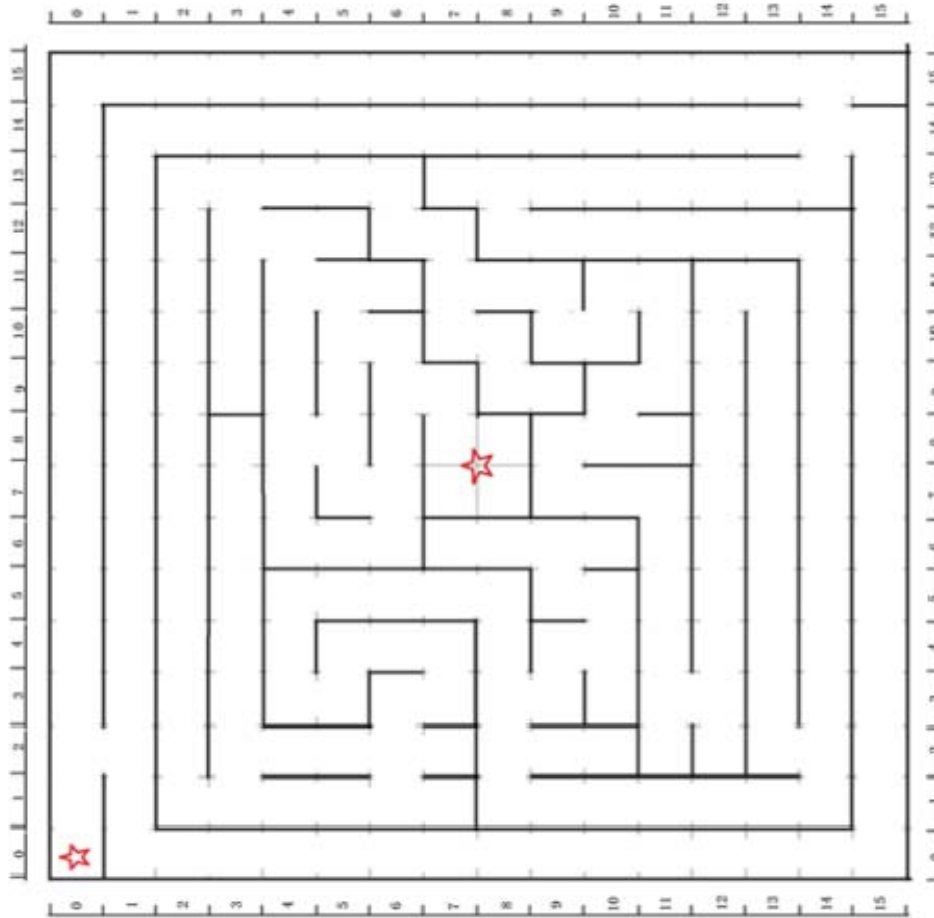
The virtual simulation competition platform uniformly adopts TQD-OCv1.0 virtual simulation evaluation system for maze robot. The Executive Committee will release corresponding free Demo version on the designated website before the Competition for participants to practice and use in advance. The virtual simulation computer system is provided at the competition site, and the example of the corresponding virtual simulation system interface of maze robot is shown in Figure 1.



**Figure 1 Example of Virtual Simulation Evaluation System Interface of Maze Robot**

## (II) Maze robot platform

In order to ensure a unified competition platform, the Executive Committee can provide one TQD-Micromouse-JM/JZ maze robot for each team for use in the race, which should be returned after the race. The competitors can also bring their own maze robot of the same model to participate in the race. The example of maze used for racing module is shown in Figure 2. The formal competition scene will be set separately and unveiled before the Competition.



**Figure 2 Example of Standard Maze for Maze Robot Race**

## **XI. Result Evaluation**

The marking of the Competition is strictly in accordance with the principles of fairness, impartiality, openness, science, standardization and transparency. Under the leadership of the jury president, the judges independently follow the prescribed marking methods. All marking materials in the evaluation process must be signed by the corresponding judges for confirmation, and the correction of results must be signed by the judges themselves, the jury president and the head of the supervision and arbitration team at the correction office for confirmation. The jury president does not

participate in on-site marking.

(I) Virtual simulation competition rules

1. Some contents may be adjusted properly based on IEEE Micromouse rules. For circumstances not involved, please refer to the classical maze robot competition rules.

2. Each team will have the opportunity to practice virtual simulation software and get familiar with the competition process and debugging parameters before the Competition.

3. Before virtual simulation competition, the competitors should draw for position by group (with two terminals). Following the unified instruction from the jury president, two students in the teams log in respectively, then begin to design their own virtual simulation program. It is required to complete the competition of this module within three hours, including result test and system marking time. The competitors could allocate the competition time and work tasks reasonably on your own.

4. The maximum test running time of the result of each student's virtual maze robot is 10 minutes.

5. When the virtual simulation maze robot departs from the starting point, it should be regarded as one run. There is no limit on the number of runs within 10 minutes.

6. The virtual maze robot designed by each competitor could touch at most three times during running of the Competition. If touching one time,



the final result will be deducted by 5s; two times, by 10s; three times, the Competition will end immediately.

7. If the virtual simulation maze robot cannot continue to run due to error during running, or the operator wishes to end the operation in advance, the application can be submitted to the on-site judge, but the touch times will be increased by 1.

8. The on-site judges have the right to require the operator to stop the running of the virtual maze robot designed by the competitor when such running is meaningless.

9. The calculation formula of obstacle removal time of virtual simulation maze robot is as follows:

Obstacle removal time = Running time + Maze time / 30. If there is any touch, the penalty time for the touch should be added.

10. The final virtual racing results of all competitors who successfully reach the finish line are ranked in ascending order according to the obstacle removal time. The first one gets 100 points, the last one gets 60 points, and the rest of the competitors are awarded points in linear proportion to the obstacle removal time, with one decimal place reserved by rounding off. The virtual racing result for those who fail to reach the finish line is 0. The results are given through automatic timing by TQD-OCv1.0 virtual simulation evaluation system of maze robot.

11. The average mark of the two students in each team is multiplied by

30% to represent the mark of the team in Module A - Virtual simulation section, with one decimal place reserved by rounding off.

## (II) Maze race competition rules

1. The basic function of the maze robot is to walk from the starting point to the ending point. This process is called one “run”, and the time taken is called “running time”. The time taken from the ending point back to the starting point is not included in the “running time”. The period from the first-time activation of the maze robot (departure from the starting point) to the beginning of each run is called “maze time”. If a maze robot needs manual assistance during the competition, this action is called “touch”. The marking is based on the speed of maze robot, and efficiency and reliability in solving maze puzzles.

2. The time for running through the maze is automatically measured by sending real-time signals to the marking system from sensors installed at the starting point and ending point. The sensors of the marking system should be installed at the boundary between the starting unit and the next unit and at the entrance of the end unit. The sensors detect signals horizontally, about 1cm above the ground.

3. About touch and penalty time. The maze robot can be touched up to three times during running. If the maze robot is not touched during the whole process, 2s will be deducted, and the time penalty is (-2s). If the first touch occurs, the 2s-bonus opportunity is lost; if the second touch occurs,

the penalty is 2s; if the third touch occurs, the maze race in Module B is forcibly terminated.

4. The competition time of module B is 5 minutes, and there is no limit to the automatic running times of the maze robot during this time. The mark is measured by calculating the “obstacle removal time” for each run, the shorter the obstacle removal time, the better the result. The obstacle removal time is calculated as follows:

Obstacle removal time = Running time + (Maze time × 1/30) + Touch penalty time

5. During the marking phase of the maze race, all teams will wait in the designated area and race in the order of drawing. Only one student is allowed to operate the maze robot who is called the operator and cannot be replaced during the competition process. With the permission of the judge, the operator enters the site where the maze is located to compete. It is forbidden to start the maze robot immediately after the operators enter the site. The robot must be placed at the starting point of the maze to await instructions from the on-site judge.

6. After the maze robot reaches the destination in the center of the maze, it can automatically return to the starting point through the program design. If the automatic return meets with difficulty, the maze robot can also manually return to the starting point, which however will be regarded as one touch.

7. When the maze robot returns to the starting point and prepares to sprint, it must stay at the starting point for more than one second, which will be determined by the automatic timing system.

8. In case of malfunction of the maze robot, the operator may, with the permission of the judge, abandon the run and return it to the starting point to start again, with an additional touch penalty.

9. During the race, the maze robot is not allowed to change any hardware, including changing the battery and wiping the tires. Otherwise, it will be regarded as violation and the race will be stopped immediately, and the result of the racing speed in Module B is 0.

10. The jury reserves the right to suspend or disqualify the competitor in charge if it thinks that the running of certain maze robot will damage or destroy the maze.

11. The maze competition result will be unveiled on the day of the Competition, after which each team will have 1 hour for on-site debugging and program optimization. Each workstation provides 1/4 of the standard maze debugging venue. Competitors should prepare necessary computers, download equipment and programming software in advance.

12. Each team's action is limited within the designated area and must not disturb or influence other teams. The time for drinking water and using the toilet is included in the competition time.

13. The final racing results of all competitors who successfully reach

the finish line are ranked in ascending order according to the obstacle removal time. The first one gets 60 points, the last one gets 30 points, and the rest of the competitors are awarded points in linear proportion to the obstacle removal time, with one decimal place reserved by rounding off.

### (III) Competition rules for presentation and defense

1. Each team will draw lots for the defense order and assemble in the designated area of the competition site. During the waiting time, all teams are not allowed to communicate with each other. The internal communication within each team shall not be too loud, which shall not affect the normal undergoing of the Competition.

2. During the presentation and defense process, all students will enter the defense area, the teachers can enter the site but are not allowed to go on stage to communicate and deliver speech, otherwise, the team will be disqualified for the module and the mark will be counted as 0.

3. Each team will be given 15 minutes for presentation and defense. The teams should first state the strategies and algorithms used in the maze robot skill competition spending up to 5 minutes. It is recommended to prepare PPT in advance for presentation. After that, the on-site judges may interact with students and ask questions for no more than 10 minutes, and require each student to answer at least one question, otherwise, the result of Module C will be deducted by at least one point.

4. The judges will give independent marks to students based on their

on-site performance, focusing on their quality, knowledge, skills, concepts, strategies, models, goals, achievements and innovations in the professional field.

5. In principle, Module C - Presentation and defense should be marked by five judges on the spot, and then the highest and lowest marks will be removed, and the average mark of those from the other three judges will be taken, reserving one decimal place by rounding off to represent the team's competition result in Module C.

#### (IV) Calculation of results and rankings

The final full mark of the Competition is 100 points comprising the cumulative marks for three modules. As for the assessment of professional quality and safety, the full mark is 10 which may be deducted up to 10 points.

The competition result is ranked in order of total results from the highest to the lowest. If the total marks are the same, the competitor with the highest maze racing mark in Module B will rank first. If the further results in Module B are the same again, the competitor with the highest virtual simulation mark in Module A will rank first. If the division still cannot be made, the ranking should be determined by drawing lots under the supervision of the jury president.

#### (V) Result announcement

The jury president will check the results within two hours after the end of the Competition, and submit the results to be signed by the jury president, supervisors and arbitrators for confirmation and release, or follow the

unified process and specific requirements of the Executive Committee. The results will be synchronously submitted to the Competition system.

(VI) Judge arrangement

The jury comprises 10 judges, including 1 jury president, 2 encryption judges, 2 scorekeeping judges and 5 on-site judges. Specific requirements can be adjusted properly according to the actual number of participating teams.

The Executive Committee may assign foreign affairs specialists and a certain number of interpreters to ensure the smooth completion of the Competition.

No.	Professional and technical directions	Requirements for knowledge and competence	Judging, teaching and work experience	Professional and technical titles (level of professional qualification)	Number
1	Electronic information Intelligent manufacturing	Jury president	Appointed by the Executive Committee	Senior professional title (more than two times of experience as jury president)	1
2	Electronic information Intelligent manufacturing	Encryption judge (familiar with the encryption process)	Two times of judge experience in provincial competitions or above	Associate senior title or senior technician above	2

3	Electronic information Intelligent manufacturing	Scorekeeping judge (familiar with the scorekeeping process)	Two times of judge experience in provincial competitions or above	Associate senior title or senior technician above	2
4	Electronic information Intelligent manufacturing	On-site judge (artificial intelligence or robotics related field)	At least two provincial or one national competition judge experience	Associate senior title or senior technician above	5
5	Total number of judges: 10				

## **XII. Awards and Prizes**

There will be one team for gold medal, one team for silver medal and one team for bronze medal. The top 50% in total result (excluding the top three) will win the prize.

## **XIII. Preliminary Plans for the Competition Venue**

Preliminary plans, as the key task for the Competition preparation and operation, should follow the guidelines of being prepared for danger in times of security, scientific prospective, people-oriented, efficient and practical, taking the Competition into overall consideration with unified command and clear division of responsibilities, establish standardized and orderly working mechanism with overall planning of resources, information sharing and rapid response, in order to ensure the smooth running of the Competition. An emergency planning group will be set up to deal with emergencies in the



venue.

(I) Preliminary plans for site electric power

1. The Executive Committee should organize special personnel to conduct power safety assessment and simulation on the competition site before the Competition to ensure sufficient power supply on the day of Competition.

2. The Competition site relates to two main cables, and each workstation is equipped with air switch and leakage protection. Meanwhile, a power generation device is lent outside the site to ensure the safety of electricity consumption. In case of failure in the on-site power supply system that leads to suspension of the Competition, the jury president should announce suspension of the Competition, and the competitors should enter the evacuation passage under the organization of the on-site judges. After the power supply is restored by the emergency generator vehicle and the on-site technicians confirm that all the technical platforms are in good condition, the competitors could return to their places to continue to complete the competition tasks. The delayed competition time will be compensated.

(II) Preliminary plan for site equipment

1. Before the start of the race, the competitors should check the power supply, meters and instruments of the workbench, and check the documents and materials distributed at site. The Competition will begin after their confirmation.

2. In case of failure in the power supply, meters, instruments or on-site competition equipment of the workbench, the on-site technicians will enter the competition site for repair and recovery. The jury president, technicians and the competition arbitration will determine whether the failure is caused by the competitors. If the failure is caused by the misoperation of the competitor, the time will not be compensated after the normal end of the competition time, and the corresponding professional quality and safety mark will be deducted according to the severity of the accident, and the corresponding site record will be made (signed by the competitor for confirmation). If the failure is not caused by the competitor, the team should be compensated with the repair time after the normal end of the competition time, and corresponding on-site records should be made (signed by the competitor for confirmation).

### (III) Preliminary plan for emergency evacuation

Fire escape passage should be set up on the spot, the width of which should not be less than 1m. A dry powder fire extinguisher should be hung every 5m on the walls around the venue. A fire engine stops at the venue on standby. In case of sudden fire, all personnel at site should be evacuated from the site orderly and quickly according to evacuation indication signs, safety path and safety exit, and warning lines should be set to maintain the order of the site. The accident should be reported to the Executive Committee to evaluate the severity of the accident and decide whether to

suspend the Competition. If the race continues, the delayed race time will be made up.

#### (IV) Preliminary plan for epidemic prevention and control

All teams, experts, judges, volunteers and working staff must promise to strictly abide by China's epidemic prevention and control regulations, and promise to obey the management of the health, public security and epidemic prevention and control departments of the host city.

If a competitor cannot arrive at the competition site for competition, he/she can participate by video online. The specific requirements are published on the official website of the Competition before the start of the Competition, but each team must have one student arrive at the competition site and act as the operator of the maze racing module.

### **XIV. Safety**

Event safety is a prerequisite for the smooth running of all work of the skills competition and a core issue that must be considered in the preparation and operation of the Competition. The Executive Committee shall take practical and effective measures to ensure the personal safety of all competitors, instructors, judges, staff, and audience during the Competition.

#### (I) Competition environment

1. The Executive Committee shall organize a special inspection on the workshop, accommodation places and transport before the Competition, and make explicit safety requirements. The arrangement of the workshop, the

equipment and facilities within the workshop, should comply with the relevant national safety regulations. If necessary, workshop simulation tests can also be conducted to identify possible problems. The organizer must exclude hazards in accordance with the requirements of the Executive Committee before the Competition.

2. A cordon should be set up around the workshop to prevent the entry of unauthorized persons in case of accidents. The necessary labor protection should be provided for the competitors with reference to the requirements of the relevant occupational posts within the competition site. In the section with dangerous operation, the judges should take strict precautions against the wrong operation of the competitors.

3. The organizer should provide conditions to ensure the implementation of the contingency plan. For competitions involving hazardous operation, possible falling objects, large electricity consumption, fire prone and other circumstances, policies and plans must be specified, and first aid personnel and facilities must be equipped.

4. The Executive Committee shall formulate the staff evacuation plan for the open workshop and experience area in conjunction with the organizer. In addition to complete indication signs, additional guidance personnel shall be assigned and alternate lanes shall be opened in areas where there are crowded and intersecting traffic and pedestrian flow in the workshop environment.

5. During the Competition, the organizer of the Competition shall strengthen the posts in the management of the workshop, increase security forces and establish a security management log.

(II) Living conditions

1. During the Competition, in principle, the Executive Committee will arrange the food and accommodation for the competitors and instructors uniformly. The organizer shall respect the culture and beliefs of different nations or regions and of ethnic minorities and arrange the food and accommodation for the competitors and instructors in accordance with relevant national ethnic policies.

2. The place of accommodation arranged during the Competition should have the business permit for hotel/accommodation. If the school dormitory is used for accommodation, the Executive Committee and the school providing the dormitory will be jointly responsible for the accommodation, health, and food safety during the Competition.

3. Transport safety of organized visits and observation activities during the Competition is under the joint responsibility of the Executive Committee and the organizer. The Executive Committee and the organizer shall ensure the transport safety for competitors, instructors, judges, and staff during the Competition.

4. The security management of each Competition, in addition to the necessary security quarantine measures that can be taken, should strictly

comply with the relevant national laws and regulations to protect personal privacy and personal freedom.

### (III) Team formation responsibility

1. All teams should purchase personal accident insurance for the competitors during the Competition.

2. All teams should formulate the relevant management policy and conduct safety education to all competitors and instructors.

3. The teams shall strengthen the safety management of the competitors and achieve the alignment with the safety management of the workshop.

### (IV) Emergency response

If an accident occurs during the Competition, whoever finds it should report to the Executive Committee immediately, and also take measures to avoid further deterioration. The Executive Committee should immediately activate the contingency plan to address the problem and report to the Executive Committee of the division. A Competition may be suspended if there is a major safety problem, and whether to suspend it should be determined by the Executive Committee of the division. After the event, the Executive Committee of the division should report the details to the Executive Committee.

### (V) Penalties

1. If a major safety event is caused by a team, the team will be disqualified from prizes.

2. Teams involved in a major safety risk may be disqualified from continuing with the Competition by the jury president, if they are alerted and warned by the staff of the workshop but of no avail.

3. Staff who violate rules will be held accountable according to the corresponding policies. Where the circumstances are serious and cause major security incidents, the relevant parties will be held legally accountable by the judicial authorities.

## **XV. Competition Notice**

### **(I) Notice for teams**

The team name should conform to the international practice or be named according to the rules of the Executive Committee.

Teams should hold an entry card issued by the Executive Committee and valid IDs to participate in the Competition and relevant activities in accordance with the Competition Process. The dress of the competitors must meet the basic requirements on production safety and the Competition.

The competitors should abide by the rules for the competition field, obey the judges' commands, and compete in a civilized manner. They should enter the site with a valid card, and should never bring any non-conforming items into the site.

During the Competition, the competitors must strictly abide by the operation process and relevant rules to ensure the safety of equipment and personnel, and accept the supervision and warning of the judge. As for any

interruption or termination of the Competition due to equipment failure, the jury president will make a decision as the case may be. In the course of the Competition, if the equipment cannot work normally due to misoperation of the competitor, or such behavior causes safety accidents, the competitor in charge will be disqualified. During the competition, the competitors are required to stay at their respective working area and post to complete the tasks. If any team wants to end the Competition earlier, the competitor should raise hand to give a sign to the judge. The judge will record its end time of the Competition. And such team should not do anything after the Competition.

The jury would have the right to make a decision on behavior not covered herein. In the event of any dispute, the decision by the arbitration team should be the final decision.

#### (II) Notice for instructors

1. All teams should carry forward good moral practices, follow instructions and the judges' decisions and refrain from any cheating act. Anyone found cheating will be disqualified and the ranking will be invalid.

2. All team leaders should resolutely implement the regulations of the Competition, strengthen the management of the competitors, make good preparations before the Competition, and urge the competitors to bring their certificates and other relevant materials.

3. If the teams have any objection to the competition process, they shall



first seal the hardware and software equipment involved in the Competition at the designated location, and the team leader should submit a written report to the arbitration working group within the specified time.

4. The team leader should take the lead in obeying and executing the arbitration decision, and require the same to the competitors involved.

5. Instructors should check the notice and content of the Competition on the special webpage of the Competition in time, carefully study and master the rules, technical specifications and requirements of the workshop, and guide the competitors to make all technical preparations and competition preparations before the Competition.

### (III) Notice for competitors

Competitors should strictly comply with the regulations, operating procedures and technological criteria of the venue, ensure personal and equipment safety, accept the supervision and warnings of the judges and compete in a civilized manner.

Competitors must carry the entry card when entering the Competition venue. During the whole operation process in the venue, they should bear the entry card for inspection and wear the uniform competition clothing.

During the Competition, competitors are not allowed to carry any communication tools, portable memories, photographic equipment and other articles irrelevant to the Competition. Otherwise, they will be disqualified.

### (IV) Notice for staff

1. They should bear the corresponding certificates issued by the Executive Committee and dress in a neat and standard manner.

2. They should never affect the Competition of the competitors, and should not behave to the extent that affects the fairness of the Competition.

3. They should perform the duties properly with a strong sense of responsibility, serious and conscientious attitude, and rigorous and meticulous style.

4. They should be familiar with and follow the competition rules and work requirements.

5. They should stick to their posts. If any staff member needs to leave the post in case of emergency, he/she should get the consent of the competition leader and properly hand over his/her work.

6. They should strictly abide by the competition rules, and stop any other personnel from violating the competition rules once found. Serious cases should be reported to the Executive Committee in time.

7. They should carry forward the selfless dedication and teamwork spirit to provide warm and quality services.

8. News media must obtain the approval of the Executive Committee before entering the competition venue, and should follow the arrangement and management of the site staff. They cannot affect the Competition.

## **XVI. Appeal and Arbitration**

### **(I) Appeal**

1. All teams may appeal against equipment, tools and software that do not conform to the competition rules, unfair judging and awards, working staff violations, etc., and their written appeal materials shall prevail.

2. The appeal shall be submitted within 2 hours after the end of the Competition, which will not be accepted if exceeding the time limit. In the event of appeal, the teams shall submit a written appeal to the competition arbitration panel in accordance with the prescribed procedures, which should be verified on site. The appeal form must give a full and realistic description of the scene, specific time and process of the dispute, the people involved, the basis of the appeal and the corresponding reasons, etc. Any evidence, if any, can be provided. Appeals based on insufficient factual evidence and only subjective assumptions will not be accepted.

3. After receiving the written appeal application, the competition arbitration team will review and deliberate the appeal according to the cause of appeal, and the jury president will give the written handling result, basis and corresponding reasons according to the appeal.

4. The complaining party should not refuse to accept the handling result without reason, or take extreme actions to create difficulties for or attack relevant personnel, otherwise, the complaining party should be deemed to have given up the appeal.

## (II) Arbitration

The Competition has an arbitration team to accept written appeals from

the participating teams on the results of the Competition and other issues. The arbitration team should organize a review within two hours after receiving the appeal and timely inform the appealing party of the review result. If the complaining party still disagrees with the review result, the team leader may submit an appeal to the Supervisory Arbitration Committee of the division. The arbitration award of the Supervisory Arbitration Committee of the division shall be final.

## **XVII. Competition Observation**

The competition site will have an exhibition area to display the achievements of the world vocational education and teaching reform, and organize on-site observation in an orderly manner.

(I) Observers: Experts, technicians and instructors from enterprises, schools, industry associations and other units related to the Competition.

(II) Observation method: Observers can enter the workshop in groups in an orderly manner under the guidance of the workshop staff at the specified time.

(III) Observation discipline: Observers must wear the observation card. During observation, no discussion, conversation, or communication the competitors are allowed. Observers should not stay in front of the workstation, so as not to affect the Competition. They should not ask questions to judges or working staff during observation; and they should not take photos or videos during observation. Those who violate the above

regulations will be disqualified as observer immediately.

### **XVIII. Live Competition**

(I) Under the unified arrangements of the Executive Committee, modern network media technology is used for the live broadcast of the whole competition process.

(II) Multimedia technology and equipment are used to record video materials, record the whole process of the Competition, prepare comprehensive information materials for publicity, arbitration, and resource conversion, and provide streaming media resources for producing micro-course video after the Competition.

(III) Interviews with outstanding competitors and instructors and comments by experts and judges are produced and released on the specified official website to highlight the skills and characteristics of the Competition, so as to expand the influence of the event.

### **XIX. Resource Conversion**

#### **(I) Basic resources**

The Executive Committee will be provided with videos of expert comments, interviews with excellent competitors and instructors, and a full set of audio and video materials for the competition process. Completed resources will be uploaded to the website designated for the Competition.

#### **(II) Expanded resources**

1. Organize teachers, industry experts and enterprise engineers to

jointly develop and produce resources, and arrange resources in new-form and integrated teaching materials for school teaching.

2. Build an Internet-based technical exchange platform, including resource sharing, resource download, technical exchange, online training, online learning, online examination, test bank construction and other units.

(III) Method of submission of resources and copyright

For open skills competition organized by the Executive Committee, the copyright of the resource conversion results should be shared by the Executive Committee of Skills Competition and the Executive Committee.

(IV) Use and management of resources

The resource conversion results of the Competition will be uniformly managed by the Executive Committee. The mature resource conversion results will be made public through the Competition information release platform for teachers and students to learn from. Meanwhile, related textbooks, test bank and other high-quality resources will be edited and published by working together with the Competition organizer, relevant experts, publishing house, school teachers, etc.

**XX. Miscellaneous**

None.