

The First World Vocational College Skills Competition

Competition Rules

I. Name of the Skill

No.: W06

Chinese name: 虚拟现实（VR）设计与制作

English name: Virtual Reality (VR) Design and Production

Industry: Electronic and information industry

II. Competition Purpose

The World Vocational College Skills Competition aims to bring together standards, technologies, equipment, teachers and students in the field of vocational and technical education at home and abroad, adhere to promoting Chinese vocational education to go global and serve international cooperation in production capacity, build an important platform for teachers and students of international vocational schools to deepen friendship, exchange skills and show styles, and promote the construction of a world community of skills. Through skills competitions, displays and experience exchanges, the best practices of international vocational and technical education are shared, the influence of Chinese vocational and technical education in the world in this field is enhanced, and China's vocational and technical education is aligned with global vocational and technical education.

The Virtual Reality (VR) Design and Production Skills Competition of the First World Vocational College Skills Competition (the "Competition") covers the special technologies and professional core technical skills of many majors such as VR technology, computer and digital media, and examines the comprehensive abilities in teamwork and informatization of competitors in vocational schools in VR technology, computer and other related majors. Meanwhile, it will demonstrate the competitors' awareness of civilized production and teamwork spirit, cultivate high-quality technical and skilled talents and focus on new occupations. Besides, it will also help the development of vocational and technical education in the post-pandemic era, and highlight the importance of vocational education.

III. Competition Content

i. Competition Content

Based on the concept and standards of the WorldSkills Competition, integrating the characteristics of vocational skill education in various countries, and focusing on VR technology to design and produce VR projects, the competition content is divided into five modules: Foreign competitors should complete the tasks of Module 1 online, while domestic competitors should complete the tasks of Modules 2 to 4 offline; Module 5 is set for point deduction.



参赛队 (任务分工)	Team (Task assignment)
国际选手	Foreign competitors
中国选手	Chinese competitors
模块一	Module 1
模块五	Module 5
模块二	Module 2
模块三	Module 3
模块四	Module 4
模块五	Module 5

Module 1: VR project design. Competitors should design the project in a combination of text and graphics according to the task description, express the intention of the design as clearly as possible to the program, art, and interface designers, and provide a video of the project design process.

Module 2: VR model production. Competitors should use model making software to perform 3D modeling according to the task description, and complete the model production through technologies such as 3D modeling, UV unfolding, texture baking and texture making.

Module 3: VR engine production. Competitors should, under the theme, use VR engine to complete the project development according to the requirements of the Test Project and the reference materials provided, and publish it to the VR equipment for operation and demonstration.

Module 4: Motion interaction production. Competitors should complete model binding, animation production, rendering and synthesis according to the animation examples provided, and output dynamic video files as required.

Module 5: Professionalism and safety awareness.

- (1) Competitors should abide by standards and norms during operation.
- (2) Competitors should be harmonious and united, and treat other competitors with kindness.
- (3) Competitors should respect the judges and other venue staff, and behave in a polite manner.

ii. Competition duration

In this Competition, online works should be submitted before the offline competition starts. The offline competition lasts eight hours.

iii. Result ratio

The result ration for each part of the Competition are as follows:

No.	Module	Result ratio
1	VR project design	20%
2	VR model production	30%
3	VR engine production	30%
4	Motion interaction production	20%
5	Professionalism and safety	Deductions

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 two Chinese competitors and two foreign competitors, all of them should be students. 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. There is no restriction on the gender and age of competitors.
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 should issue a written explanation ten working days before the start of the corresponding Competition. The competitor will be replaced after verification by the office of the Executive Committee. After the Competition starts, the team is not allowed to replace any competitor.

ii. Entry methods

The Competition will be conducted in the form of on-site competition and recorded broadcast competition. Domestic competitors will compete on site; if foreign competitors are unable to attend the on-site competition, they will compete through recorded broadcast. Foreign competitors must send the competition video that meets the competition requirements to the mailbox designated by the Executive Committee within seven days before the off-line official competition day, and the Executive Committee will check and try to broadcast the videos and seal them for the record. On the official competition day, the videos should be unsealed by the jury, and those from the foreign competitors should be broadcast on the big screen on site. The marking criteria should be the same as those for on-site competition.

Requirements for competition video: The file format is MP4; the resolution is not less than 1280*720, the recommended aspect ratio is 16:9, and the video content needs to fully display the competition process.

V. Competition Process

i. Competition milestones and timeline

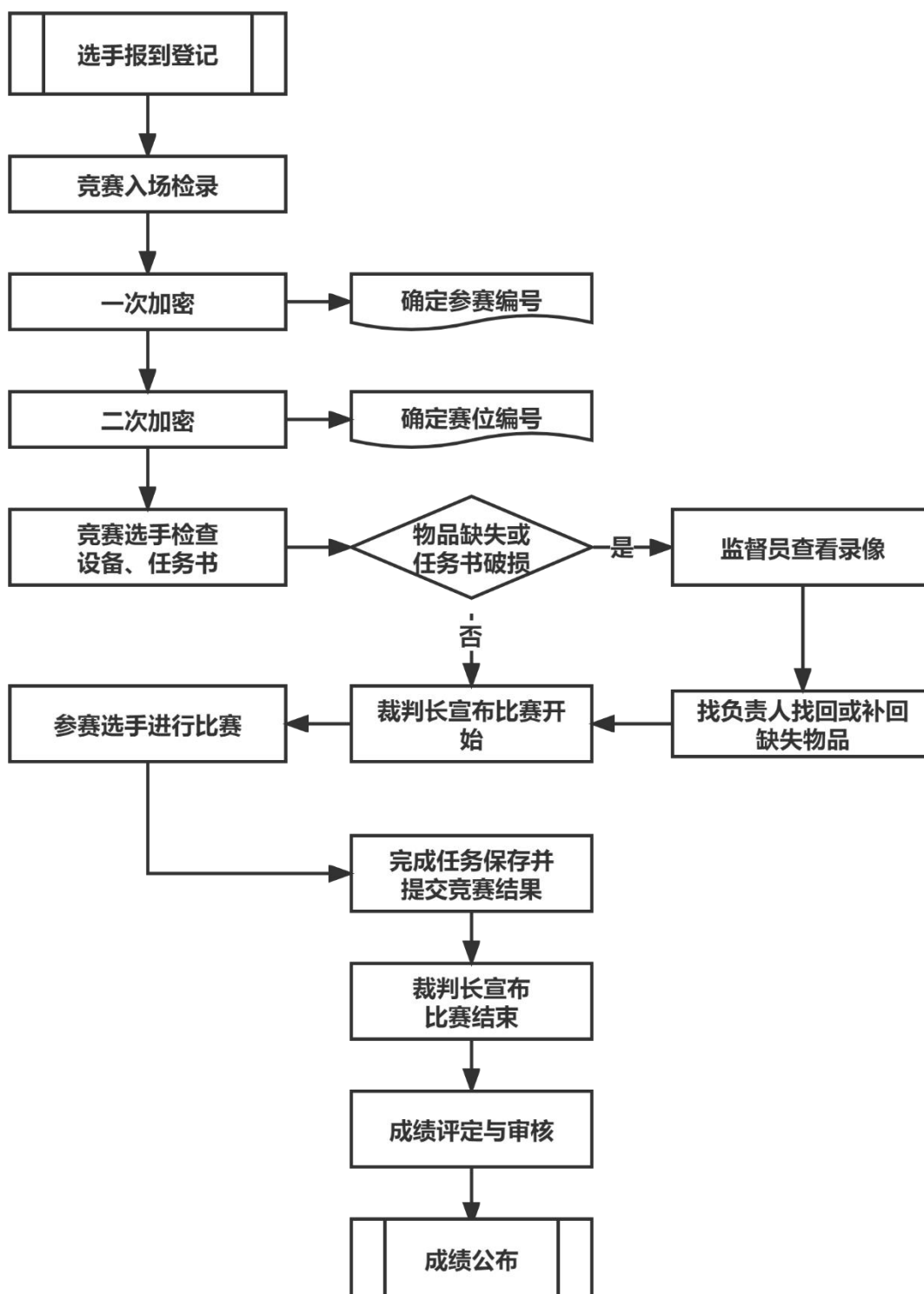
1. Offline competition timeline

Date	Time	Content
Three days before the Competition	Before 20:00	Registration of judges
The day before the Competition	Before 12:00	Registration of participating team
	10:00-11:00	Staff training session
	12:00-17:00	Toaster operation for competition equipment
	14:00-15:00	Work meeting for judges
	15:30-16:00	Team leader meeting
	16:00-16:30	Teams familiarize themselves with the venue
	17:00-18:00	On-site judges conduct an inspection before the Competition, and close the competition venue
Day 1	06:30-07:20	Teams have breakfast
	07:20-07:50	Teams gather and go to the venue
	07:00	Unseal the venue
	07:50-08:50	Check-in, the first encryption, the second encryption
	08:50-09:00	Competitors are guided by the staff to enter the competition workstation according to the workstation number, confirm competition tasks and competition facilities.
	09:00	The Competition starts (Lunch is arranged in the venue, and the time is not counted separately)
	17:00	The Competition ends
	17:00-19:00	Appeal period
	19:00-22:00	Marking: The jury evaluate and review the results of each team
	22:00-22:30	Decryption of encrypted information
Day 2	09:00-11:00	At the designated location, the results are announced to all teams in paper form
	11:00	Summarizing, awarding and closing ceremony

2. Online competition timeline

Online questions should be available to foreign competitors on the platform one week before the Competition. The design works of foreign competitors should be submitted before the offline competition starts.

ii. Offline competition process flow chart



选手报到登记	Registration for competitors
竞赛入场检录	Check-in
一次加密	The first encryption
二次加密	The second encryption
竞赛选手检查设备、任务书	Competitors check equipment and Test Project

参赛选手进行比赛	Competitors compete
确定参赛编号	Determination of race number
确定赛位编号	Determination of workstation number
物品缺失或任务书破损	Missing items or damage to the TP?
是	Yes
否	No
裁判长宣布比赛开始	Jury president announces the start of the Competition
完成任务保存并提交竞赛结果	Complete tasks, save and submit the results
裁判长宣布比赛结束	Jury president announces the end of the Competition
成绩评定与审核	Result evaluation and review
成绩公布	Result announcement
监督员查看录像	Supervisors view videos
找负责人找回或补回缺失物品	Find the person responsible for recovering or replacing the missing item

VI. Competition Task Paper

The competition task paper will be made public through the Competition information release platform one month before the start of the Competition.

VII. Competition Rules

i. Qualifications for registration and requirements for teams

Teams, qualifications of competitors and change of competitors: see “IV. Competition Method”.

ii. Requirements for offline competition venue

1. Competitors should arrive at the designated place to check in before the start of the Competition, and have their identities, qualifications, and relevant documents checked by staff. Competitors who do not arrive within 15 minutes after the competition timer starts are considered a waiver of eligibility.
2. Workstations should be decided by drawing lots and should not be changed or adjusted without permission.
3. Competitors are not allowed to leave the workshop without permission during the Competition. If there are special circumstances, consent must be obtained from the judges. If competitors take a break, drink water, and use the restroom, these are included in the competition time, and no extra time will be allocated. The competition timing tool is based on the clock placed at the competition workshop.
4. During the Competition, competitors are not allowed to bring communication tools such as mobile phones to the workshop; and no information can be transmitted in any way between competitors who are not from the same team, such as slips of paper, hand gestures, and argots.
5. All people in the workshop should neither talk loudly, nor affect other competitors from completing their tasks.

6. Competitors should protect equipment in the workshop, and should not move desks, equipment, and other items or deliberately damage equipment and instruments.
7. In case of special circumstances, competitors should raise their hands, negotiate with judges, and follow judges' opinions.
8. During the Competition, competitors must strictly abide by the operating procedures and receive the supervision and warnings of judges, so as to ensure their personal and equipment safety.
9. Competitors must submit competition results in conformity with procedures, support judges to record information about the workshop, and sign and confirm together with judges. They should not reject to sign.
10. Competitors should not leave tools about or scatter litter. They should tidy up their workstation and count the tools after finishing their tasks. Wires, wastes and tools must not be left on the workstation.
11. Competitors should mind their language and respect judges and other competitors, and should neither verbally abuse judges and staff of the venue nor fight.
12. During the Competition, except for the competitors, judges, and staff of the session and approved personnel, other people are not allowed to enter the workshop. At the end of the Competition, participants should timely leave the workshop, as instructed. Those who do not follow instructions but make trouble out of nothing should be held accountable and a notice of criticism should be circulated.
13. The jury president has two time reminders before the end of the Competition. When the jury president gives the instruction of ending the competition, all teams that have not completed the task should immediately stop operation and tidy up their workstations rather than delay the competition for any reason.
14. Competitors are not allowed to take items related to the competition out of the workshop, such as the Test Project, drawings, scratch papers, and tools. Besides, competitors must be checked by onsite judges and obtain their approval before leaving the workshop.
15. When computer programming and drawing content are involved in the competition, competitors should save relevant documents according to the requirements for the competition questions. They should neither turn off the computer, nor arbitrarily set a password to the equipment.
16. For the sake of fairness and impartiality, the marking judges should mark together with the competitors. The judges should not operate the equipment. All operations should be performed by the competitors. The competitors should not make any modifications except those approved by the judges. After the marking, the results should be signed for confirmation by the judges and the competitors.

VIII. Competition Environment

i. Requirements of environment, facilities and equipment for workshop

1. Domestic competition environment

(1) The Competition venue is set up with a competition area, judge area, service area and technical support area. In the competition area, standard competition equipment should be

provided for teams; each competition workstation in the competition area is marked with a number; each competition room is equipped with several workbenches for placing VR workstations and other related equipment. The judge area is equipped with computers, printers and other marking and statistical tools. In the technical support area, spare parts and testing equipment such as computers and VR related equipment should be provided for competitors.

(2) Each working area of the competition site should be equipped with single-phase 220 V/3A AC power supply or above.

(3) Standards for competition technology platform: Competition platforms, workbenches, computers and related tools and software should be provided. In the workshop, necessary network security controls should be adopted to effectively prevent information interaction inside and outside the workshop.

(3) The workshop should be a bright and ventilated indoor venue with a flat floor, and the net height of the workshop should not be less than 3.5 m.

(4) Each team should compete in an independent partition. The partition area should not be less than 12 m², including 3 workstations. The length of each workbench should not be less than 1.2 m and the width should not be less than 0.6 m.

(5) Each workstation should be able to provide an independent power supply with a power supply load of not less than 2 KW and safe grounding protection.

(6) Each workstation should provide a competition platform, computer and workbench with complete performance, and the relevant software required for the Competition should be installed on the computer.

(7) The competition venue is divided into the check-in area, the waiting area, the on-site service and technical support area, the rest area, and the medical area.

(8) The fire-fighting facilities inside the venue should be complete, and there should be no less than two evacuation gates. Evacuation channels should be unobstructed, and fire evacuation signs should be clear and complete; there should be a channel for emergency vehicles such as ambulance and fire engines beside the venue.

(9) The workstation should be equipped with competition equipment, single-phase AC power supply, console and seats. The teams should complete all competition tasks in the workstation.

2. Online competition environment

(1) The Competition should be held indoors, and the venue should be well ventilated and well lit. The workstations should be marked with numbers and equipped with two computers and two computer tables and chairs. The computer configuration should be ensured to meet the operation requirements of the software specified by the competition platform.

(2) The competition venue should be equipped with power supply to ensure the normal power supply of computers and live recording equipment.

(3) The competition venue should be equipped with video recording equipment and necessary network environment in each competition workstation for online operation. Meanwhile, a corresponding technical service team should be assigned at the venue to maintain and promptly resolve faults of on-site network and recording and broadcasting

so as to ensure the Competition runs smoothly. The recording and broadcasting should record the whole body of two competitors and their computer screens. In principle, the whole process is required to be recorded. After the Competition, the video should be sent to the competition organizer.

IX. Technical Specifications

The questions of the competition project are formulated according to the needs of the enterprise's occupational positions for talent training and with reference to the relevant national vocational and technical standards in the table.

No.	Standard No.	Name of standards
1	LD/T81.1-2006	Technical Specifications for Vocational Skills Practical Training and Appraisal Equipment
2	ISO/IEC8806-4-1991	Information Technology Computer Graphics Three-dimensional Graphics Key System (GKS-3D) Language Binding
3	GB/T28170.1-2011	Information Technology Computer Graphics and Image Processing Extensible 3D Components (X3D)
4	ISO/IEC14496-5-2001/Amd36-2015	Information Technology Audio - Coding of Visual Objects
5	ISO/IEC14496-27-2009/Amd6-2015	Information Technology Audio-visual Object Coding Part 27: Consistency of 3D Graphics
6	ISO/IEC23003-2-2010/Amd1-2015	Information Technology MPEG Audio Technology Part 2: Three-Dimensional Spatial Audio Object Coding (SAOC)
7	ISO15076-1-2010	Image Technology Color Management Software Design, File Format and Data Structure
8	GB/T22270.3-2015	Service Interfaces for Industrial Automation Systems and Integration Test Applications Part 3: Virtual Equipment Service Interfaces
9	GB/T26101-2010	General Technical Requirements for Virtual Assembly of Mechanical Products

X. Technology Platform

The Competition adopts the virtual reality (VR) design and production platform as the competition platform, mainly as follows.

i. Hardware environment

1. Offline domestic hardware environment configuration

No.	Equipment name	Unit	Quantity	Notes
1	VR workstation	Set	2	A personal computer equipment or graphics workstation with a discrete graphics card should be adopted.
2	VR development kit	Set	1	VR head-mounted display equipment which are connected to the computer through video cables and data cables, etc.
3	Graphics tablet	Set	1	General, mainstream
4	Working table	Piece	2	The size should not less than 100x60 cm

(1) The detailed configuration of the VR workstation is as follows:

CPU	7th Generation I7-7700T
Memory	16 GB
Display card	Graphics card with 2 GB video memory and supporting for quad-buffered stereoscopic imaging technology SsF
HDD	256 GB
Port	two USB ports

(2) The minimum configuration of personal computer is as follows:

CPU	9th Generation I7
Memory	16 GB
Display card	4 GB video memory
HDD	256 GB
Port	At least one serial port, two USB ports

(3) The detailed configuration of the VR development kit is as follows:

Degree of freedom	6DoF
Refresh rate	Not lower than 72 Hz
Field of view	Not less than 90 degrees
Connector	USB-C3.0 DP1.2 Bluetooth
Sensor	Gyroscope, distance sensor, pupil distance sensor

2. Recommended configuration list for online foreign hardware environment

No.	Equipment name	Quantity	Unit	Notes
1	Personal computer	2	Set	
2	Workbench	2	Piece	
3	Personal video recording equipment	1	Set	General, mainstream
4	Graphics tablet	1	Set	General, mainstream

The minimum recommended configuration for personal computer is as follows:

CPU	7th Generation I7
Memory	16 GB
Display card	2 GB video memory
HDD	256 GB
Port	two USB ports

ii. Software environment

The following software installation suggestions are provided for online and offline equipment

Software type	Software name	Software version	Recommended installation position
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Operating System	Windows	64-bit Win10	General
VR art resource production software	3ds Max	Version 2020	Domestic
	Maya	Version 2020	
	Photoshop CC	Version 2017	
VR engine	Unity 3D	unity 2019 4.22.f1	Domestic
	Unreal Engine (UE)	Version 4.27	
VR project design and support software	Microsoft Office	Version 2019	Abroad
	Microsoft Visual Studio	Version 2019	
	RdfSnap/ FastStone Capture		

iii. Introduction to the competition platform

The main competition platform used in this Competition is composed of VR art resource production software, VR engine, VR workstation, VR development kit (including VR head-mounted display), which integrates core skills and core knowledge, such as VR head tracking technology, wide-angle stereoscopic display technology, and voice input and output technology, stereo technology, and real-time 3D processing and display technology. Meanwhile, it focuses on cultivating students' abilities in VR engineering project design, VR model material design, 3D modeling, VR model interactive motion production and VR engine production, so that students can more systematically and comprehensively meet the job skills required by the VR industry.

The VR art resource production software is mainly composed of 3ds Max, Maya and Photoshop CC, and it is the main tool for virtual reality (VR) material production. The VR engine is mainly composed of Unity 3D and Unreal Engine 4 (UE4), which is the mainstream engine for virtual reality (VR) project development.

XI. Result Evaluation

The competition marking is based on the principles of fairness, impartiality and openness, and the marking criteria focus on the evaluation on competitors' values and attitudes, as well as their capabilities in virtual reality (VR) design and production.

i. Marking process

Results should be marked for all tasks, and each task should be marked by two or more judges at the same time. The judges should judge the process and results according to the marking criteria. Before the results and rankings of the Competition are released, the jury president and members of the supervision and arbitration team need to sign and confirm the results. If a competitor is found that he/she violates the competition discipline and rules, the current judge should make a written record of the violation and the competitor should confirm and sign it. The leader of the project jury should summarize it to the jury president who should sign it and make penalties according to the corresponding

regulations of the Competition.

ii. Marking criteria

No.	Module	Result ratio	Main contents of assessment
1	VR project design	20%	Competitors should design the project in a combination of text and graphics according to the task description, express the intention of the design as clearly as possible to the program, art, and interface designers, and provide a video of the project design process.
2	VR model production	30%	Competitors should use model making software to perform 3D modeling according to the task description, and complete the model production through technologies such as 3D modeling, UV unfolding, texture baking, and texture making.
3	VR model production	30%	Competitors should stick to the theme, and use VR engine to complete the project development according to the requirements of the Test Project and the reference materials provided, and publish it to the VR equipment for operation and demonstration.
4	Motion interaction production	20%	Competitors should complete model binding, animation production, art rendering and output compositing based on the output of the work shown in the animation example.
5	Professionalism and safety	Deductions	The professional quality of competitors in terms of professional awareness, professional norms, teamwork, organizational discipline, team style, and comprehensive professional skills should be assessed.

iii. Marking method

1. Organization and division of responsibilities

(1) The organizations involved in the management of competition results include the jury and the supervision and arbitration team, which are led by the Executive Committee.

(2) The jury is under the “jury president responsibility system”, with one jury president; three encryption judges; five on-site judges and 16 marking judges (The marking method is result marking, with three judges and one judge as the English interpreter; marking is done by groups and modules). There are totally 25 people in the jury.

No.	Professional and technical directions	Requirements for knowledge and competence	Judging, teaching and work experience	Professional and technical titles (level of professional qualification)	Headcount
1	Majors related to VR technology	The judges should have the ability to design and produce VR projects	The judges should have worked in VR teaching for more than 5 years, and the jury president needs to have served as the person in charge of relevant events above the provincial level, with the associate senior title or above.	Intermediate title or above	7

2	Majors related to animation	The judges should be familiar with modeling and animation module techniques	The judges should have worked in animation teaching for more than 3 years, and in principle, they should have experience in judging in provincial competitions.	Intermediate title or above	7
3	Majors related to computer	The judges should be familiar with engine production skills	The judges should have worked in teaching computer for more than 3 years, and in principle, they should have experience in judging in provincial competitions.	Intermediate title or above	7
4	Majors related to English	The judges should be familiar with computer terminology	The judges should pass the Test for English Majors-Band 8 or above.	Bachelor or above	4
Total number of judges		25			

(3) Check-in staff are responsible for the registration, identity verification of teams (competitors). Encryption judges are responsible for organizing the drawing of lots for the teams (competitors), and encrypting and decrypting the team information, competition number and workstation number. On-site judges are responsible for making the competition records properly, maintaining the competition discipline, and assessing the on-site marks of the teams according to the regulations. Marking judges are responsible for assessing the competition works of the teams according to the competition marking criteria.

(4) The supervision and arbitration team is responsible for supervising the work of the jury throughout the whole process and conducting random inspections and review on the competition results. Besides, it is also responsible for accepting appeals against the judging results submitted by the leaders of teams, organizing reviews and providing timely feedback on the results of the reviews.

2. Result evaluation methods

Result evaluation is to evaluate the performance and final results of the teams in the competition process according to the competition assessment objectives and content. If the total marks are the same, the result of Module 1 should be ranked first; if the results of Module 1 are the same, the result of Module 2 should be ranked; if the results of Module 2 are the same, the results of Module 3 should be ranked; and so on until Module 5. The result reviewed by the judges should be taken as the final result. The marking method for this Competition is result marking, in which, the results are marked according to the marking criteria of the Competition. All marking forms and result summaries should be filed for verification, and the final results should be reviewed and confirmed by the jury president and submitted to the Executive Committee.

3. Sampling review

To ensure the accuracy of the evaluation results, the supervision and arbitration team should review the results of all teams (competitors) ranked in the top 30% of the overall results of the Competition; the rest of the results should be reviewed on a sampling basis, with a coverage rate of no less than 15%. Any mark errors will be promptly notified in writing to the jury president, and he/she will correct the results and sign for confirmation. If the error rate of review and sampling exceeds 5%, the jury will review all results.

4. Result decryption

After the jury president formally submits and checks the results of the Competition and believes that they are correct, the encryption judges should decrypt the encrypted results level by level under the supervision of supervisors.

5. Result announcement

The mark keeper should summarize the decrypted results of each team (competitor) into the competition results, and announce the results in paper form at the designated place after the signature of the jury president and the supervision and arbitration team. If there is no objection in two hours following the announcement, after the jury president and the leader of the supervision and arbitration team have reviewed and signed on the system-derived marking form, the final results are entered into the competition administration system simultaneously and the certificate will be issued at the closing ceremony.

6. Result submission

(1) Result entry: The information officer of the organizer should enter the final results of the total marks of the Competition into the competition system.

(2) Result review: After reviewing the result data, the information officer of the organizer should export and print the results entered in the competition management system, and sign after the review by the jury president of the Competition.

(3) Result submission: The information officer of the organizer should upload the electronic version of the result information confirmed by the jury president to the competition management system, and at the same time submit the printed transcript signed by the jury president to the office of Executive Committee of the World Vocational College Skills Competition.

XII. Awards and Prizes

A gold, silver and bronze medal will be awarded to each different team, and the teams in the top 50% of the overall results (other than the top three) will be awarded the winning prize.

XIII. Preliminary Plans for the Competition Venue

In order to ensure the smooth progress of the Competition and avoid uncontrollable but possible emergencies during the Competition, the following preliminary plans for the competition venue are specially formulated:

i. Preliminary plans for solving the problems of hardware equipment used in the Competition

In the venue, spare workstations and equipment accounting for 10% of the total teams should be provided. It can be replaced in time when it is confirmed that the equipment

needs to be replaced or the workstation needs to be adjusted according to the process stipulated.

If the VR workstation, VR head-mounted display and computer crash or have blue screen during the Competition (which cannot be resolved after restarting), the leader of the competitor should raise his/her hand to signal to the judge. After the on-site judge confirms the fault, the competitor can replace the backup equipment or adjust the workstation. The time to replace or repair equipment can be added accordingly after the Competition.

Note: The live competition of this Competition does not require the establishment of a local area network, servers and switches.

ii. Preliminary plans for solving the problems of test questions and USB flash disks

In the venue, spare test questions and USB flash disks accounting for 10% of the total participating teams should be provided. They can be replaced in time when it is confirmed that the test questions and USB flash disks need to be replaced according to the process stipulated.

If there are problems such as missing pages or unclear handwriting in the TP, the leader of the competitor should raise his/her hand to signal to the judge. After the on-site judge confirms the problems, the questions can be replaced. If the USB flash disks fail to be read or written, the leader of the competitor should raise his/her hand to signal to the judge. After the judge confirms the problems, the USB flash disks can be replaced.

iii. Preliminary plans for solving major problems

If there are major emergencies and major security problems in the venue, the Competition should be suspended with the consent of the Executive Committee and the expert panel. The leaders of the personnel involved, such as the jury president, team leaders, leaders of the Executive Committee and the head of the organizer should coordinate and put forward solutions to the problems and execute the solutions as required.

If accidental injury, unexpected illness and other major incidents occur during the Competition, the jury president should immediately suspend the relevant personnel from the Competition. The school doctor at the medical station of the host school is the first aid to rescue the patient, and the patient must be sent to the hospital by calling 120.

XIV. Safety

i. Competition safety plan

Event safety is a prerequisite for the smooth running of the skills competition and a core issue that must be considered in the preparation and operation of the Competition. The Executive Committee should strictly implement the requirements and regulations for pandemic prevention, and take practical and effective measures to ensure the personal safety of competitors, judges, staff, and audience during the Competition.

1. Competition environment

(1) The Executive Committee should organize a special inspection on the venue, accommodation places and transport before the Competition, and make explicit safety requirements. The arrangement of the venue, as well as the equipment and facilities within the venue, should comply with the relevant national safety regulations. The co-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 venue to prevent the entry of unauthorized persons in case of accidents. After competitors enter the venue before the start of the Competition, the jury president should uniformly inform them of the safety operation specifications of each workstation in the competition site.

(3) Co-organizing schools should formulate preliminary plans for electric power consumption in the venue. In the venue, emergency measures for medical care and firefighting should be provided.

(4) Flammables, explosives, and all kinds of hazardous materials unrelated to the Competition should be strictly prohibited from being brought into the workshop, and it is not allowed to bring school bags into the workshop.

(5) During the Competition, the working group must increase its strength in the key positions for competition management and establish a safety management mechanism.

2. Team responsibility

(1) Each school should arrange to purchase personal accident insurance during the Competition for competitors when organizing the teams. The validity period must be during the competition period and the insurance cannot be replaced by other long-term insurance.

(2) After the teams are formed, each school should formulate relevant management policies and provide safety education for all competitors.

(3) The teams should strengthen the safety management of the competitors and achieve the alignment with the safety management of the workshop.

3. Contingency 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 preliminary 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.

4. 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 the competition, 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.

ii. Safety plan for demonstration and experience

The working group of the Competition should take practical and effective measures to ensure the personal safety of visitors during the Competition.

1. Competition environment

(1) The Executive Committee should organize a special inspection on the presentation and experience area before the Competition, and make explicit safety requirements. The arrangement of the presentation and experience area, as well as the equipment and facilities within the area, should comply with the relevant national safety regulations. The co-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 presentation and experience area to prevent the entry of unauthorized persons in case of accidents.

(3) Co-organizing schools should formulate preliminary plans for electric power consumption in the area. In the venue, emergency measures for medical care and firefighting should be provided.

(4) Flammables, explosives, and all kinds of hazardous materials unrelated to the presentation should be strictly prohibited from being brought into the presentation and experience area.

(5) During the presentation, the working group must increase its strength in the key positions for presentation management and establish a safety management mechanism.

2. Emergency response

If an accident occurs during the presentation, 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 preliminary plan to address the problem and report to the Executive Committee of the division. The presentation may be suspended if there is a major safety problem, and whether to suspend the presentation 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.

iii. Plan for competition environment safety

In order to ensure the smooth progress of the Competition and avoid uncontrollable but possible emergencies during the Competition, the preliminary plan consists of two parts: The reliability design of the Competition and the emergency response to faults.

1. Reliability design of the Competition

(1) Reliability design of power system

The power supply load should meet the power requirements to prevent fire hazards or power interruptions caused by overloading of electronic equipment during operation; three grounding guarantees for power supply should be provided to prevent safety threats such as equipment restart, short circuit, and leakage caused by static electricity during operation; strong and weak current of the wiring should be separated to prevent interference; the power supply in each area should be independent and not interfere with each other.

(2) Reliability design of weak current system

The design of weak current system must ensure that the system operates in a good state, the system should have long-term and stable working ability, and there should be a quick solution in case of emergencies to ensure the reliable operation of the system. The weak

current system should be deployed in isolation from the power system to prevent faults caused by interference.

(3) Reliability design of VR equipment

The deployment of VR equipment must ensure that the equipment operates in a good state, and there should be quick solutions in case of emergencies to ensure the reliable operation of the system. System specifications must meet requirements to ensure good performance and stable operation.

2. Emergency plan for faults

(1) Faults in VR equipment of competitors

If a competitor's VR equipment encounters a fault, whether it is a hardware fault or a software fault should be determined first. If the software fails or freezes, the VR equipment should be restarted. Because the VR equipment is equipped with a recovery card, the system can be restored to the initial state, and the fault recovery takes about 30 seconds. If the hardware fails, it can be replaced with the backup machine with the approval of the on-site judges, and the fault recovery takes about one minute. The keyboard and mouse can be replaced in time, and the recovery takes about one to three minutes. These will not have an impact on students' results.

(2) Power faults at the competition workstation

In case of power faults in the competition workstation, the backup workstation can be replaced with the approval of the jury president. The time for replacing workstations can be added accordingly after the Competition.

XV. Competition Notice

i. Notice for teams

1. Competitors should not be replaced, in principle, after their sign-ups are confirmed. However, if a competitor fails to join the Competition during the preparation for the Competition, the competent department of his/her school should issue a written explanation, replace him/her with a substitute in line with relevant competitor qualifications, and have the substitute reviewed. After the competition begins, teams should not replace members. Competitors are allowed to miss the Competition.

2. Teams should carry designated equipment and tools in accordance with the regulations, and should not bring their own components.

3. When competitors familiarize themselves with the venue the day before the Competition, they are not allowed to touch the competition platform and the equipment on the competition site; when teams check in on the day of the Competition, they are only allowed to bring the equipment and tools specified by the Competition, and are not allowed to bring photographic equipment and communication tools; once found, the equipment will be confiscated immediately.

4. If the team has any objection to the competition process, the team leader may submit a written report to the supervision and arbitration team of the Competition within the specified time.

ii. Notice for instructors

1. Each team should carry forward the good morals, listen to the command, obey the

judges, and do not falsify. Anyone found to have falsified will be disqualified and their results will be invalid.

2. Team leaders should unswervingly implement all regulations of the Competition, strengthen the management of competitors, make the pre-competition efforts, and prompt competitors to take their IDs and relevant materials for the Competition.

3. During the Competition, except for the competitors, judges, and on-site staff and approved personnel, team leaders, instructors and other people are not allowed to enter the workshop.

4. If the team has any objection to the competition process, the team leader may submit a written report to the supervision and arbitration team of the Competition within the specified time.

5. Team leaders should take the lead to obey and execute the arbitration result of the appeal and communicate with the competitors about the result. Competitors should not stop the Competition due to the appeal or objections to the arbitration opinion, or they will be treated as forfeited.

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

iii. Notice for competitors

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

2. Competitors are not allowed to bring any books and other paper materials when entering the venue.

3. Each team should enter the venue to familiarize themselves with the environment in the specified time period.

4. Competitors must check in before operating in the Competition. Competitors should present their ID cards, student ID cards and participation certificates during the check-in. Only after passing the inspection can they participate in the Competition. Those who fail to check in on time or fail to pass the check-in should be disqualified from the Competition.

5. During the Competition, competitors are not allowed to activate the operation before receiving the start signal. Each team should decide on the division of labor, work procedures and time arrangement on its own, and completes the competition project at the designated workstation. Cheating is strictly prohibited.

6. During the Competition, if a team cannot compete due to serious operational errors or safety accidents, the on-site judges have the right to terminate its competition.

7. This Competition lasts eight hours in total. All the competition periods are considered competition time; the time for competitors to rest, eat or go to the toilet is considered competition time. Competitors who need to leave the venue halfway must be approved by the invigilator and accompanied by the staff throughout the whole process. If they leave without authorization, they should be withdrawn from the Competition and should not be

allowed to continue their competition.

8. 30 minutes after the start of the Competition, if a team needs to replace accessories due to damage, loss and other reasons, it must fill in the accessory requisition form, and the accessories should be issued after the judge confirms and agrees, but it will affect the competition result.

9. Competitors should pay attention to saving the file in time. If the file is lost due to the crash caused by improper operation, the competitor should be responsible for it. Staff (including judges) are not allowed to operate teams' computers without permission. At the end of the Competition, technical related documents should be submitted according to the requirements of TP.

10. If a team wants to end the Competition in advance, the team leader should raise hands to give a sign to the on-site judge. The judge will record its end time of the Competition. After the Competition is terminated, no further competition-related operations are allowed.

iv. Notice for staff

1. The venue staff are hired by the Executive Committee and their duties are divided by the Executive Committee. They must wear the hang tags provided by the Executive Committee when they enter the competition venue.

2. The venue staff must obey the management of the Executive Committee, strictly implement the competition rules formulated by the Executive Committee, and implement the work arrangements of the Executive Committee. They should also actively maintain the order of the venue, stick to their posts, and provide orderly services for the venue.

3. The venue staff should not bring any communication tools or items unrelated to the Competition when entering the venue.

4. When teams enter the venue, the on-site judges and the venue staff should review the items brought by competitors into the venue in accordance with the regulations. If any items that are not allowed to be brought into the venue are found, they should be handed over to the accompanying team members for safekeeping. The venue does not provide storage services.

5. The venue staff should not answer any technical questions about the Competition raised by competitors during the Competition, and they should report to the jury president in case of controversial issues.

XVI. Appeal and Arbitration

i. Complaint

1. Teams may file an appeal against equipment, tools and materials that do not comply with the Competition regulations, unfair monitoring and judging, as well as rule violations of staff.

2. Appeals related to equipment, tools and software should be filed within two hours after competitors have familiarized themselves with the competition environment the day before the Competition; other appeals should be filed within two hours after the session of the Competition ends, and should not be accepted after the time limit has expired. When appealing, the team should submit a written appeal to the competition arbitration team in accordance with the stipulated procedures, and on-site verification should be conducted. A

written appeal should give a full and factual account of the incident, time, personnel involved and the basis for the appeal. Appeals with insufficient factual basis and based solely on subjective assumptions should not be accepted.

3. After the competition arbitration team receives the appeal report, it should review it according to the reasons for the appeal. The head of the jury should give the result as well as its basis and reason according to the appeal.

4. The complainant should not refuse to accept the handling result without any reason, and should not take extreme actions to create difficulties for or attack the staff, otherwise it will be regarded as giving up the appeal.

ii. Arbitration

An arbitration team should be set up for the Competition to accept appeals against the judging results and other issues submitted by teams. The arbitration team should organize a review within two hours after receiving the appeal and timely feedback the arbitration 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

Media, industry experts and other personnel can visit the competition site in an organized manner along the designated viewing channel and learn about VR technology and vocational education and teaching achievements, with the approval of the Executive Committee and on the premise that the Competition is not disturbed. Observers should not interfere with the competition process, should not communicate with competitors and judges, and should not transmit information. Besides, they should not collect and record the data about the competition site, and should not affect the normal competition progress.

An open exhibition area will be set up outside the competition venue to publicize the application of VR technology, and show the public the application of VR technology in real life or its future development.

XVIII. Live Competition

In order to ensure fairness, justice and openness, the entire competition process should be broadcast live, including the competition process and opening and closing ceremonies. In addition, videos on interviews with outstanding competitors and instructors, comments by experts and judges, and interviews with businessmen should be produced to highlight the skills and characteristics of the Competition. Comprehensive information and materials should be provided for publicity, arbitration, and resource conversion. Videos can be submitted to the Executive Committee as part of the competition results and historical information of the Competition for the reference of subsequent competitions. The competition results of competitors can be converted into teaching materials to promote the teaching and learning development of relevant majors.

XIX. Resource Conversion

Skill resource conversion should be handled by the Executive Committee. Converted resources should be uploaded to an online information release platform designated by the Competition.

Chinese name: 虚拟现实（VR）设计与制作

Name of resources		Form of expression	Number of resources	Resource requirements	Completion time	
Basic resources	Expertise show	Competition promotional video	Videos	1	> 15 min	Completed within 30 days after the Competition
		Charm show video	Videos	1	> 10 min	Completed within 30 days after the Competition
	Skill summary	Skills introduction, skills points assessment indicators	Text document	1 set	Meet the requirements for a summary description of vocational education skills	Completed within 30 days after the Competition
	Skills operating procedures	Skills operating procedures	Text document	1 set	Comply with industry specifications for virtual reality (VR) design and production	Completed within 80 days after the Competition
	Teaching conversion	Competition questions implanted in teaching	Competition resource package	1 set	Comply with teaching specifications for virtual reality (VR) design and production	Completed within 80 days after the Competition
	Interview with excellent competitors		Videos	2	> 1 min	Completed within 10 days after the Competition

XX. Miscellaneous