

Skill Media Highlights

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Polymechnics and Automation	01	C1, C2, C3 – anytime (end of the day may be the best to witness the competition) C4 – 11:00 to 13:00 Skill Ends at 15:00	<ul style="list-style-type: none"> • 10 competitors participating from Brazil, Thailand, Austria and Japan to name a few. • The skill entails producing and installing parts for production machinery and equipment in areas that include electrical and mechanical engineering, and fitting hydraulics and mechanics. • With the Industry 4.0, the skill has witnessed massive growth with new technological advancements. 	<ul style="list-style-type: none"> • The competitors have to be proficient in mechanical, electrical as well as integrating the two. • The Expert from Japan, Ryo Takezaki, competed at the WorldSkills Abu Dhabi and is now preparing his young competitor for WorldSkills Kazan 2019. He is the proud winner of the Medallion of Excellence and has been part of the industry for about 5-6 years. 	Sherman Mukoyama (CE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Information Network Cabling	02	Any time	<ul style="list-style-type: none"> The skill entails designing and installing cable systems for telecommunication and network communications. 	<ul style="list-style-type: none"> 16 competitors participating, including 3 females from India, Norway and Singapore. 	Edmund Tan (CE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Manufacturing Team Challenge	03	C2 - After 14:00	<ul style="list-style-type: none"> The team of complementary skilled specialists work to design, manufacture, assemble, and test new or improved equipment – either as a one-off item or as the prototype for mass production. Technicians skilled in project management, finance, organization, computer-aided design, programming, machining, welding, electronics, and fitting, form teams to tackle the Manufacturing Team Challenge. 	<ul style="list-style-type: none"> 8 countries are participating this year with 3 competitors each. Alan Quinterio, an Expert from Brazil competed in WorldSkills in 2007 and has been an Expert since 2011. The competitors will build wheelchairs for which the brief was given one year ago and all the raw materials were shipped here from Brazil to be machined on site. 	Anderson Scalassara (CE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Mechatronics	04	<p>Great activity and the most visually interesting time:</p> <ul style="list-style-type: none"> • C3 - 14:00 and 15:45 – 16:15 (Finish of Module C complete production line) • C4 - 14:00 onward (evaluation of Module E Optimization of the production Line) 	<ul style="list-style-type: none"> • Mechatronics is the modern profession in the age of digitalization, which connects IT and all the different technologies in the field of automation. • The most interesting elements during the Competition are the assembling of unknown production lines and the programming / optimizing of these production line. • An HMI (Human Machine Interface) must be programmed and show data from different resources of production 	<ul style="list-style-type: none"> • The Competitors work in a team of 2, therefore they need high social competences to fulfil the tasks • Most of them are able to communicate without words 	<p>Michael Linn (SCM)</p> <p>Nicolas Godel (CE)</p>
Mechanical Engineering CAD	05	<p>Great activity and the most visually interesting time:</p> <ul style="list-style-type: none"> • C2 and C3 - 9:00 • C4 the 3D Scanner will be in use for 10 minutes from 9:00 <p>Skill Ends at 15:40</p>	<ul style="list-style-type: none"> • 1st Time use of 3D Scanners to complete skills 	<ul style="list-style-type: none"> • 31 competitors this year. For the first time, Oman, Italy, Mexico, Jamaica are competing. US, Hong Kong and France are competing after a long time. • Jennifer Guevara – lone female competitor from Columbia this year. 	<p>Fabio de Souza (CE)</p>

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
CNC Turning	06	C4 – Team Challenge 8:30 – 12:00 Most activity around 11:00	<ul style="list-style-type: none"> The test project includes “live tooling” which is industry standard, increasing the capabilities of the lathe to include milling 	<ul style="list-style-type: none"> Many experts are former Competitors, and can speak to what it takes to train, compete, and support future skilled talent. 	Susan LeFort (CE) Ilya Tonkikh (DCE)
CNC Milling	07	C2 – Most action this day C3 – 12:45 (First group of 16 competitors finish) C4 – 12:45 (Second group of 16 competitors finish)	<ul style="list-style-type: none"> Nearly everything we see or use today has been manufactured utilizing CNC technology – including cars, medical prosthetics, cell phones, toys, and more. The level of performance of the competitors has increased significantly over the years. Additionally, the machinery, cutting tools, technology has improved too/ 	<ul style="list-style-type: none"> 31 countries participating in the competition – will be divided into groups of 16 each and will be competing in 2 shifts. 	Juerg LeFort (CE) Min Liang Liu (DCE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Architectural Stonemasonry	08	C2, C3, C4: 9:15 – 17:15	<ul style="list-style-type: none"> The competition involves working with natural stone, from granite to marble, creating components, carving, and cutting letters on sites from simple commercial buildings to historic structures. Very technical discipline 	<ul style="list-style-type: none"> Most ancient craft at the WorldSkills International Competition. The skill involves using classic methodologies from 1000 of years ago. Hungary is the one country participating for the first time. 	Bernhard Hasenohrl (CE) Diego Pereiro (DCE) Mark Payet – Media contact - +44 7757768692
IT Software Solutions for Business	09	C1- C4 – Every morning and evening Before the competition starts and once it ends for the day, all the competitors and experts engage in a fun activity such as a dance or game. Morning activity will happen at 8:15 C4 – 13:30 Speed Module scheduled	<ul style="list-style-type: none"> The competition has a diverse set of test projects in which the competitors have to build software for mobile phones, laptops and also create solutions for the problems given. 	<ul style="list-style-type: none"> An element of ‘creativity’ has been added to the skill competition which would be tested out in the Speed Module scheduled on C4. The competitors would be provided a problem that they have to solve as quickly and innovatively as possible. The audience can view the score at the screen placed in the centre of the skill area. 29 countries participating, 27 countries competing. 	Harri Hautala (CE) Bong Win Ce (DCE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Welding	10	Any time is good to visit. C2: 16:00 to 18:00 Skill Ends at 17:00	<ul style="list-style-type: none"> • Skilled professionals in welding are referred as the “Master Manipulators of Molten Metal” • The competition involves preparing and joining various types of metal, using both electrical and electrical-gas processes. • Competition consists of 4 modules comprising Stick welding, Mig Welding, Tig Welding and flux welding. 	<ul style="list-style-type: none"> • Out of the 39 competitors, there is only 1 female competitor all the way from Norway. 	Ray Connolly (CE) Chih-Peng Chen (DCE)
Print Media Technology	11	C1 – C4: 16:00 to 18:00	<ul style="list-style-type: none"> • There exists a severe shortage of skilled professionals in this trade. In countries like USA, there aren’t enough people entering this trade. 	<ul style="list-style-type: none"> • 15 countries competing with 3 countries participating for the first time and Finland re-joining the skill after a long time. • 60:40 – male: female ratio of competitors. It’s great to witness participation from the women competitors. There is only one female expert this year. 	Patrick Klarecki (SCM) Douglas Moura (CE) Dominique Gendre - DCE

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Wall and Floor Tiling	12	C4 – At the end, finished product Skill Ends at 13:00	<ul style="list-style-type: none"> • Modular project • 25 Male competitors 	<ul style="list-style-type: none"> • Projects are now more industry related 	David McCay (SCM) Guido van Dingenen (CE) Ezquiel Martins (DCE)
Autobody Repair	13	C1 – 11:00 to 13:00 C2 and C3 – 9:00 to 17:00 Skill Ends at 11:00	<ul style="list-style-type: none"> • The skill competition provides a glimpse of what the automobile technicians do in the outside world. • The skill involves repairing damaged light and heavy vehicles, including the exterior structure and panelling as well as complex mechanical components to strict safety and manufacturing standards. 	<ul style="list-style-type: none"> • 21 competitors participating in the competition, with 2 observing countries. The greatest part is that not only do the countries get a glimpse of the global standards but also, get to take back the knowledge to your home country. It empowers the countries and industry to rethink their way of teaching and thinking about the sectorial advancements. 	Jesper Vang (CE) Dhaval Rajput (DCE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Aircraft Maintenance	14	<p>Anytime is good to visit.</p> <p>The skill area has two helicopters placed at the competition area – competitors would be working on them through the day.</p> <p>Skill Ends at 18:30</p>	<ul style="list-style-type: none"> The technician during the Competition is aiming to certify aircraft by adhering to regulations, efficiently diagnose defects, effectively complete repairs, follow maintenance task instructions, and accurately document work. This year, two ANSAT Helicopters, locally manufactured by Kazan Helicopters are being used. The ANSAT is a mutli-roll, dual engine helicopter capable of carrying up to 8 passengers. ANSATs can be configured for both civilian and military missions, meeting the strict Category A safety standards set out by AP-29 (FAR-29). The ANSAT represents the latest in helicopter technology. 	<ul style="list-style-type: none"> The Experts come from a wide range of different industry sectors. From military fighter aircraft to commercial airline operations to emergency medical transportation to instructing at training centers, each Expert contributes a unique view as to what constitutes a world-class aircraft maintenance professional. By working together, the competition reflects important elements from around the world. This year, three past competitors are returning as Experts. Mr. Abdulla Shehhi of the UAE and Mr. Joseph Kelly of Ireland both competed in WSC2013 Leipzig, while Mr. Rodrigo Campos of Brazil competed WSC2015 São Paulo. 16 countries participating. South Africa is one of the countries participating for the first time. 	<p>Martin Yates – Chief Expert</p> <p>Ryan Gillis</p> <p>ESR Representative Expert</p> <p>rdgillis@gmail.com</p>

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Plumbing and Heating	15	<p>Two Speed Test Modules each 1.5 hours to be done over 3 days.</p> <p>C1 – 9:00 to 17:00</p> <p>C2 – 9:00 to 17:00</p> <p>C3 – 9:00 to 17:00</p> <p>C4 - Team event (Sustainability program)</p> <p>Skill Completed</p>	<ul style="list-style-type: none"> Part of the sustainability effort, they are donating toilets to Childrens Homes in Kazan 	<ul style="list-style-type: none"> Large Skill – 30 Countries competing 1 Female competitor from New Zealand 	<p>Paul Dodds (SCM)</p> <p>Markus Niedere (CE)</p>

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Electronics	16	C1 – 11:00 C1 – 14:00 C2 – 10:00 C3 – 10:00 C4 – 10:00 Skill Ends at 15:00	<ul style="list-style-type: none"> Electronics is very diverse field - Assembling and wiring products, testing systems, and designing prototype circuits. The modules include: <ul style="list-style-type: none"> Computer Aided Design Fault-Finding Programming – lots of mechanical movement Assembly of Electronic circuit board 	<ul style="list-style-type: none"> Gabriel D'Espindula – Expert for AE was a former Competitor winning Gold for Brazil in in London and is now the Expert/Trainer for UAE. 	Rudy Hofer (SCM) Jari Koskinen (CE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Web Technologies	17	C1 – Morning C4 – Team Challenge (group activity)	<ul style="list-style-type: none"> Great Equaliser Skill meaning the skill is for all age groups – young as well as old. Everyone can find something interesting to gage their attention. Mark Du Bois, an expert from USA shares that he has been part of the industry since 27 years and everyday he got an opportunity to learn something new. The skill empowers the professionals to learn quickly, to recognize what’s new and unlearn the stale. 	<ul style="list-style-type: none"> 33 countries participating this year. Witnessed as a male dominated skill across the globe, there are 3 girls competing from Mexico, Finland and Singapore. 	Seng Hin (SCM) Marcelo Strehl (Chief Expert)
Electrical Installations	18	C3 – Afternoon C4 – Morning to afternoon Skill Ends at 12:00	<ul style="list-style-type: none"> The skill has witnessed immense progression in technology which has made the skill only more interesting. In 2011, automation was introduced in the skill and since then the trade has evolved significantly. 	<ul style="list-style-type: none"> More than 30 countries participating this year. The growth of some of the countries has shown a significant impact. 	Luke Boustridge (CE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Industrial Control	19	C2 – All Day	<ul style="list-style-type: none"> Three elements: Correct Installation, Programming and Wire connection 16 Countries - All male competitors 		Peter Friesen (CE) Andreas Hochecker (DCE)
Bricklaying	20	C2 – 9:30	<ul style="list-style-type: none"> Heavy level of Skill testing and design - 22 hours in total 31 Male competitors 	<ul style="list-style-type: none"> 3 Experts are previous gold medalist, also 3 International Gold Medalist Theses 6 Expert Medalist will get together to talk about Worldskills and its impact on their lives (time to be confirmed). 	Troy Everett (CE) Roland Matterdorfer – Media Coordinator +436641846313
Plastering and Drywall Systems	21		<ul style="list-style-type: none"> The skill entails plastering flat surfaces, installing drywall systems, and creating decorative mouldings on projects from private homes to historic houses. 	<ul style="list-style-type: none"> 16 countries participating this year. 	Leo Stillhard (CE) Rudolf Mosching (DCE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Painting and Decorating	22	C3 and C4 Skill Ends at 11:00	<ul style="list-style-type: none"> The painting and decorating professional is responsible for the external and internal appearance of a building and its protection from water, rust, mould, and insects. In the skill competition, the competitors need to use paint, decorative coatings, wallpaper, gilding, and sign writing, both indoors and outdoors in a wide variety of working environments. 		Peter Walters (SCM) Michael Tobisch (CE) Bjorn Nilsson (DCE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Mobile Robotics	23	<p>The best time to visit each day is ANYTIME in the afternoon. There will be a continuous 'Live Action Robot Experience' on NINE Side by Side Performance Courts every afternoon.</p> <p>Skill Ends at 16:00</p>	<ul style="list-style-type: none"> The Competition tasks the Robots and Competitors must jointly complete reflect the wide range of Mobile Robot Applications in use today: <ul style="list-style-type: none"> 100% Autonomous Functionality Mode dealing with a Known in advance set of variables 100% Autonomous Functionality Mode dealing with an UNKnown in advance set of variables A Tele-peration Robot Control Mode 	<ul style="list-style-type: none"> Multiple former Competitors have returned to serve as their countries Mobile Robotics Expert. 	<p>Bob Tone (SCM)</p> <p>Vasco Vaz (CE)</p> <p>Paulo Viliger (DCE)</p>
Cabinet Making	24	C2 – 13:30 to 14:30	<ul style="list-style-type: none"> New technology being utilized in the form of Computer Numeric Control 	<ul style="list-style-type: none"> There is a speed test They are 30 competitors of which 3 are female. They are 3 new countries – Oman, Thailand and Iran 	<p>Kasper Bogelund (SCM)</p> <p>Christian Notley (CE)</p>

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Joinery	25	<p>C1 – All competitors in the same area 9:00</p> <p>Any time is good for C2, C3 and C4</p>	<ul style="list-style-type: none"> • New Experts from Spain and Mongolia • Instead a 2 modules, competitors now only have 1 Module to complete 	<ul style="list-style-type: none"> • They are 24 countries participating, India is now competing for the first time 	<p>Dion Lori (SCM)</p> <p>Andrew Pengelly (CE)</p>
Carpentry	26	<p>C3: 10:00 onwards</p> <p>Putting the roof on the structures – would be visually appealing.</p> <p>C4: 10:00 onwards</p> <p>Final touching in the structures.</p> <p>Skill Ends at 14:00</p>	<ul style="list-style-type: none"> • The skill entails working closely with many other areas of the construction industry, measuring, cutting, and installing wood components both inside and outside. 	<ul style="list-style-type: none"> • Try a Skill area next to the skill which begins at 10:00 on C1 and at 9:00 on C2, C3 and C4. 	<p>Pat Phillips (SCM)</p> <p>Adrian Wenger (CE)</p> <p>Allen Hill (DCE)</p>

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Jewellery	27	C3 – 16:00 C4 – 14:00 (Full assembly of the pieces) Skill Ends at 14:00	<ul style="list-style-type: none"> Darren May, the Skill Competition Manager is a WorldSkills Champion himself. He competed in 1991 from Australia and won a silver medal. He has been associated with WS since then. One of the most interesting skills – Jewellery plays with gold! Gold is a globally used metal. Additionally, all the work in the competition deals with hand work, thereby really testing the skills of the competitors. 	<ul style="list-style-type: none"> For the first time, the jewellery piece has been created by external agent who would also be an assessor. ‘Creativity’ would also be tested for the first time which means the competitors would have a missing piece/ space and they have to create fill that space as innovatively as possible. 16 countries participating this time. They would be the first generation of competitors who have the element of ‘creativity’ and haven’t the entire test project. A young lady from Malaysia is also competing. Even though the country has invested very little on the skill, she is set to bloom. 	Darren May (SCM) Ragnvald Nore (CE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Floristry	28	<p>C1: Plants are conditioned before 13:30, good time to visit would be after 13:30</p> <p>C2 – After 14:00</p> <p>C3 - After 14:00</p> <p>C4 - After 14:00</p> <p>All arrangements will be displayed for the audience to see outside of the Florist Area</p>	<ul style="list-style-type: none"> The test project is designed by an external designer. 	<ul style="list-style-type: none"> They are 22 total competitors in total. It's great that there are 7 male competitors this year as this is considered as a female dominated field. 	<p>Hanne Heikkila (SCM)</p> <p>Andrew Pengelly (CE)</p>
Hairdressing	29	<p>C2:</p> <ul style="list-style-type: none"> Ladies Catwalk design for live models – 11:30 to 12:30 Ladies Long Hair up 14.00 to 15:00 <p>C4: Competitors will be doing men's hairstyles. Best time to visit the competition area is between 10:30 to 11:30</p>	<ul style="list-style-type: none"> The hairdresser works in diverse environments including large, medium, small, or mobile salons, client homes, product companies, and training institutions. They may specialize in a wide range of services, including cutting, colouring, styling, chemical reformation, and special hair treatments for men, women or both. 	<ul style="list-style-type: none"> Competition will include Ladies Catwalk Design for live models along with Ladies long hair up for live models. The competition will also include men's traditional tapercut and beard design for live model. 	<p>Katri Pokkinen (SCM)</p> <p>Donna De Maria (CE)</p> <p>Samantha Kochhar (DCE)</p>

**Beauty
Therapy**

30

C2:

- Facial Treatment: 9:00 to 13:15 and 14:00 to 18:15
- Spa Treatment: 9:00 to 13:15 and 14:00 to 18:15
- Hair Removal: 9:30 to 12:00 and 14:30 to 17:00

C3:

- Facial Treatment: 12:00 to 16:15
- Spa Treatment: 9:30 to 13:45
- Nail Art: 9:00 to 17:00

C4:

- Modules: 10:00 to 12:00
- Make-up judge: 12:00 to 12:30
- Dance Show: 12:30
- Sustainability Awards: 13:30

- There will be a secret component to this Skill

- Four Areas are covered by this skill: Facials, Spa Treatment, Waxing, Nail Art and applying False Lashes.

- This skill is part of the sustainability practices

- 24 Competitors, 1 Male competitor from Hungary

- Many of the experts are past Competitors

 Sue Simpson
(SCM)

 Menna Kleine
(CE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Fashion Technology	31	<p>C3: 16:30 – Major pieces displayed</p> <p>C4: Final Module at 9:15 – lots of movement</p> <p>Skill Ends at 10:45</p>	<ul style="list-style-type: none"> The fashion technology practitioner designs and creates garments based on an understanding of aesthetics and a strong foundation of technical skills including design, pattern making, and use of specialized equipment for pattern making, cutting, and manufacture. The competitors need to work with fabrics, cut them, design them and create clothes. 	<ul style="list-style-type: none"> 1st time competing – Bangladesh, Croatia, Armenia and welcome back to Morocco 	Donna Drain (CE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Patisserie and Confectionery	32	<p>C1: Sugar Presentation Piece which will be displayed from 13:15 and 17:45. Theme is Formula 1 Motor Racing.</p> <p>C2: 2-tier celebration cakes complete with models to depict the theme of Formula 1 Motor Racing to be displayed at 13:45 and the second group at 19:45</p> <p>C3: Same as C2 but different models</p> <p>C4: Has a complete set of mystery items to be prepared and presented by 11:45 and 15:45</p> <p>Skill Ends at 14:00</p>	<ul style="list-style-type: none"> This skill is prominent in the current situation of world environment issues. We are trying to make a difference in sustainability as well as wastage and recycling. At this WorldSkills Competition in Kazan we will start the process by entering the initiative that WorldSkills have undertaken to increase sustainability practices during the Competition, to encourage Competitors to utilize their resources efficiently and produce less waste when completing their Module challenges by attributing marks to these processes. 	<ul style="list-style-type: none"> 23 countries participating this year. 	<p>Yolande Stanley (SCM)</p> <p>Herve Boutin (CE)</p> <p>Cees Bakker (DCE)</p>

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Automobile Technology	33	C1 to C4 – 9:00 am to 11:00 am	<ul style="list-style-type: none"> The skill has got more and more challenging and competitive through the years with technology advancements from across the globe. 	<ul style="list-style-type: none"> 36 countries are competing this year with 3 countries participating for the first time, namely Namibia, Egypt and Ghana. Though there are no female competitors this time, there is a female expert from Namibia. Interestingly, Namibia is competing for the first time in this skill category. 	Grant Petch – SCM Martin Restoule – CE Michael Elder - DCE
Cooking	34	2 shifts, main work starts at 10.00 and 15:00 because of service times Lunch: 13.00 and 14.00	<ul style="list-style-type: none"> Cooking will be done the whole day ending with service/ presentation at the end of each morning and afternoon shift. 	<ul style="list-style-type: none"> The skill with the maximum number of countries participating. The competitors would be divided in two groups with two shifts. 	Svein Magnus Gjonvik (SCM) Shaun Smith – CE Andreas Muller - DCE

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Restaurant Service	35	<p>C1: Skills test from 10:00 to 10:30 and 15:30 to 16:00</p> <p>C1 Bar module: Fruit Carving from 12:45 to 13:15</p> <p>C1: Welcome cocktail from 11:45 to 12:15</p> <p>Skill Ends at 19:00</p>	<ul style="list-style-type: none"> The skill involves providing food and drink services to guests in hotels and restaurants, showing attentiveness and understanding their needs and expectations. Few essentials of this skill are – discipline, etiquette and communication skills. 		Martin Erlacher, Chief Expert
Car Painting	36	<p>In the morning or afternoon between 9:00 and 10:00 or 14:00 and 15:00</p> <p>Skill Ends at 18:30</p>	<ul style="list-style-type: none"> There is a Russian connection built into the project to be released to Competitors during the Competitions 	<ul style="list-style-type: none"> The first competition to demonstrate sustainability as part of their test project. Though a male dominated, a number of women competitors are participating in this skill – from Sweden, Chinese Taipei, Australia, Canada, Switzerland, Germany and Finland. 	<p>Rodney Bolton (SCM)</p> <p>Jens Hansen (CE)</p>

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Landscape Gardening	37	Warm up activity C1 to C4 – 9:00 C3 – 15:00 to 16:00 C4 – 12:00 Skill Ends at 12:30	<ul style="list-style-type: none"> A lot of elements are involved in the skill competition – stone, wood, steel, plants among other elements to create a masterpiece that can be witnessed at the end. Various water fountains, secret elements, unique pieces can be witnessed at the competition area. 	<ul style="list-style-type: none"> 24 countries participating this year out of which 3 countries are participating for the first time in this skill. 	Simon Hugi – Chief Expert Luis Monti – Expert (BR) Vicole Slagmolen – Expert (NL)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Refrigeration and Air Conditioning	38	<p>The most visually engaging activities are when the Competitors are:</p> <ol style="list-style-type: none"> 1. Cutting, bending or silver brazing the pipework 2. Pressure testing the pipework 3. Turning the power on the first time to see if the system operates. 4. Commissioning the system and seeing ice being formed 5. Fault finding systems <p>Timing has to be confirmed.</p> <p>Skill Ends at 13:00</p>	<ul style="list-style-type: none"> • The main refrigeration project requires the installation and commissioning refrigeration system that makes ice in one tank by removing heat from water and transferring it into another tank to produce hot water. This is good for the environment as this heat recovery process is very efficient and saves energy. • Refrigeration and air conditioning system pumps a fluid known as refrigerant, continuously through the system and its change of state from liquid to a vapour produce the cooling effect. The refrigerant is not consumed, just continuously pumped and the technician must ensure it does not escape from the system to the atmosphere. 	<ul style="list-style-type: none"> • The Expert for the United Arab Emirates is Roudha Bin Bahr, the first female expert in the skill, who was a competitor at the last competition in Abu Dhabi 2017. • Chris MacDonald, the Australian Competitor at the Montreal 1999 competition, who was then Australia's Expert in 2011, and Deputy Chief Expert in 2013 and 2015. He is now the National Refrigeration & HVAC Manager for Coles supermarkets in Australia. • Mr Ching Sung Chuo, has been the Expert for Chinese Taipei at every competition since 2001, so this will be his 10th competition. • Skill also has a Try a Skill area which begins at 8:30 on all days. 	<p>Noel Munkman (SCM)</p> <p>Mohd. Zaki Mohamed (CE)</p>

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
IT Network Systems Administration	39	<p>C4 – Morning to afternoon</p> <p>Two secret challenges</p> <ul style="list-style-type: none"> • one 2- hour troubleshooting challenge • one 2-hour secret challenge to solve - will be done with a simulation software and with double-screens so one pointed outward against the visitors so everyone can see and compare the progress between the Competitors. <p>Skill Ends at 13:30</p>	<ul style="list-style-type: none"> • Incredibly powerful skill that underpins all organizations, banks, hospitals, educational institutions etc. • “Competitors are the real experts” as they have no support during the competition and they really have to apply themselves to excel at the test project. • Over time, the test project has got more and more challenging with the technological interventions. 	<ul style="list-style-type: none"> • Out of all the competitors, there is only female competitor – from Singapore. • Two countries are participating for the first time – Oman and Egypt. Australia is participating after more than a decade. 	<p>Anders Lantz - SCM</p> <p>Kravitz Hwang – CE</p> <p>Kevin Large - DCE</p>

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Graphic Design Technology	40	<p>C2 – 15:00 to 17:00.</p> <p>The competitors have to design, print, glue together packaging designs for different products. Lot of activity expected during the day. The final products would be displayed at the competition area from 17:00 onwards.</p> <p>Skill Ends at 18:30</p>	<ul style="list-style-type: none"> • One of the most interesting skills as the products of this skill are everywhere! Most of the experts are famous veterans from across the globe – leaders of the industry. • 35 countries participating. 5-6 countries are participating for the first time. • Significant increase in the level of competition in terms of number of participants, level of the competitors, technological interventions introduced. 	<ul style="list-style-type: none"> • Experts from France, Germany and Australia have together created a resource pool where the experts from across the countries share information, artwork, updates, tutorials etc. • New machinery – large format printer - has been added this time for demo purpose. • Another very interesting thing is that this time, each competitor has designed their own work station. 	Markus Ruben Wiese (CE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Health and Social Care	41	<p>C1 – C4: 10:00 to 18:00 there will always be some action with actors (“patients”) and Competitors on “stage”.</p> <p>Avoid going during lunchtime between 12:00 to 14:00</p> <p>Skill Ends at 17:30</p>	<ul style="list-style-type: none"> • There are 4 settings in health and social care: hospital, residential care, home care and day care. • Modules with actors in all kind of settings. Loudspeakers so the audience can hear what the Competitors discuss with the patients. 	<ul style="list-style-type: none"> • 19 competitors participating. China, Croatia, India are competing for the first time. • The winners have all gone through multiple regional and national level competition to reach WorldSkills International. Depicts the level of competitors and their dedication towards their passion. 	Sabina Decurtins.(CE)
Construction Metal Work	42	<p>C3 – 15:00</p> <p>C4 – 10:00 or 30 minutes from the end of the competition</p> <p>Skill Ends at 11:30</p>	<ul style="list-style-type: none"> • The broad range of skills that a construction metal utilizes, from marking out, welding, cutting forming and bending while working to a tolerance of +/-0.5mm 		Tim O’Halloran (CE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Plastic Die Engineering	43	<p>C2 - 15:15 onwards</p> <p>C3 - 11:00 onwards</p> <p>There are two modules in this skill - manufacturing and design. Both CNC machining and design could be captured.</p>	<ul style="list-style-type: none"> Using injection moulding ensures the parts manufactured hardly require any work after the production. This is because the parts have more or less a finished appearance after they are ejected from the injection molds. Today, plastic injection moulding is an environment-friendly process. The scrap plastic generated during the production process is reground and re-used. Hence, the process generates very little waste. 	<ul style="list-style-type: none"> A memento depicting Tatarstan culture will be moulded and given to visitors 	<p>Mallinathan Puthukuddi (SCM)</p> <p>Dinor Martins Junior (CE)</p> <p>Ketian Li (ESR)</p> <p>liketian@gdut.edu.cn</p>

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Visual Merchandising	44	<p>On C2, C3 and the morning of C4 there is the most activity.</p> <p>Modules:</p> <p>A: Research</p> <p>B: Design</p> <p>C: Moodboard, visual and rationale</p> <p>D: Health and safety, work and workspace organization</p> <p>E: Props and implementation</p> <p>F: Painting, covering and applying vinyl</p> <p>G: Product presentation and styling</p> <p>H: Installing and finish window</p> <p>I: Appeal and client satisfaction</p>	<ul style="list-style-type: none"> The skill is all about trends, but they are always chosen by Competitors, this is part of their skill. The most chosen trends are chosen to communicate with the target audience of the product - sustainability, social media, fashion, are common trends. Creativity, and knowledge of fashion, interior, art, and sales is essential in this skill, combined with technical skills, like painting, carpentry, graphic design, and craftwork. 	<ul style="list-style-type: none"> The pieces and designs created by the competitors will be depicted at the individual stalls provided to them. In total, 15 competitors are participating this year with 4 males and 11 female competitors. 	<p>Erika Scharff (CE)</p> <p>Leo, Tat Keung Chan (DCE)</p>

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Prototype Modelling	45	C2 – anytime during the day C3 – 14:00 to 16:00 Skill Completed	<ul style="list-style-type: none"> The experts will share a product drawing and the competitors need to manufacture that product using the tools and machinery. The competitors are free to choose the process for creating the products. 	<ul style="list-style-type: none"> 12 countries are participating this year. Croatia is one country participating for the first time. Interestingly, there is one female competitor from Japan and one female expert from Croatia. 	Bhasker Singh (CE) Sergey Kukolev (DCE)
Concrete Construction Work	46	From the second hour the formwork grows very fast. On C1 and C2 time-lapse would be of interest. C3 is concrete. On C4, the work is visible. The concrete surface is the result of the quality of the formwork work. Skill Ends at 12:10	<ul style="list-style-type: none"> Very essential skill – the skilled professionals in this skill have to work with other skilled professionals from various other trades in the construction sector. Would be a visually appealing skill competition area as the competitors have to interpret designs and build in concrete both homes and commercial projects. 	<ul style="list-style-type: none"> The winner of the bronze medal in WS Sao Paulo 2015 is now the Expert of Brazil. 	Ilya Ershoc (SCM) Thomas Prigl (CE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Bakery	47	<p>During the day, all the competitors will be in action.</p> <p>C4 – Will display the final products.</p> <p>Skill Ends at 16:00</p>	<ul style="list-style-type: none"> The skill involves mixing and baking a wide range of breads and pastries, showing both skill, attention to detail, and an ability to work within fixed timeframes. 	<ul style="list-style-type: none"> Try a Skill area with the skill area. Learn to bake the pies! 	<p>Ashley Schmidt (SCM)</p> <p>Julie Ivan (CE)</p> <p>Natalie Falina (DCE)</p>

Industrial
Mechanic
Millwright

48

C1 – C4: 11:00 to 16:00

Skill Ends at 13:00

- Referred as the “Doctors of Industry”, very powerful skill today with the growth of machinery and massive diversity of elements.
- 4 standalone modules: (two- 6 hour Modules and two- 4 hour Modules)
- The Competitors will have two early starts and two late starts, but all will finish at the same time at the end of each competition day.

Module #1: Fabrication; Welding; Machining; Precision Layout and Mechanical Assembly Build.

Module #2: Power Transmission System Build.

Module #3: Predictive Maintenance and Laser Shaft Alignment.

Module #4: Fluid Power – Pneumatics - Design – Build - Troubleshoot.

- 12 countries participating
- 11 males and only 1 female competitor. She is from Chinese Taipei.

Craig Brazil
(SCM)

Peter
Buttenshaw
(CE)

Bryce Arnold
(DCE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Heavy Vehicle Technology	49	C2, C3, C4 – 9:00 to 12:00 or between 14:00 to 17:00	<ul style="list-style-type: none"> The skill involves repairing and maintaining large stationary and mobile machines and industrial equipment in environments that include transportation, mining, agriculture, and forestry. A lot of different, heavy machines are involved in this skill. The competitor has to train for months to learn the basics of the skill. 	<ul style="list-style-type: none"> 15 countries participating this year out of which 3 are participating for the first time 0 Korea, Netherlands and Hungary. USA is returning to the competition after 2015. The skill competition area is full of various machines – would be very interesting to capture the competitors testing their skills on them. 	<p>Bobby Haraba (SCM)</p> <p>Werner Seltenhammer (Chief Expert)</p>
3D Digital Game Art	50	<p>C4 - Export to the Game Engine (the best time to capture photos and video)</p> <p>C3 - Texturing in Substance</p> <p>Every day towards the end of the day when day's tasks are being finished.</p>	<ul style="list-style-type: none"> The skill requires both excellent visual and technical skills as well as problem solving and creativity. During the course of the competition the Competitors will design and create 3D characters and environment for a digital video game and bring them alive using animation techniques. 	<ul style="list-style-type: none"> The skill started in 2017 and history is still short. Though a fresh skill, there are competitors from 12 countries participating this year. Out of the 12, two are women competitors. 	<p>Mike Spence</p> <p>Mikko Sallinen</p> <p>JungYeon Kim</p>

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Freight Forwarding	51	C1 – Customer Meeting 13:10 to 16:35 C2 – Customer Polls 10:30 to 11:30 or 14:30 to 15:30	<ul style="list-style-type: none"> The competition involves arranging shipments from the producer to the final point of destination using different carriers and shipping methods. The skill competition is very close to the real world – applying those tools, creating that environment, the test projects. The WorldSkills Competition is very essential for this trade as it informs and motivates young people to come forward and explore this path of profession. 	<ul style="list-style-type: none"> 7 competitors participating this year. Brazil, Ireland and Germany are competing for the first time. Out of the 7, there is only one male competitor. He is from Germany. 	Elena Malyugina (SCM) Gabriela Lugmayr (CE)
Chemical Laboratory Technology	52		<ul style="list-style-type: none"> The laboratory chemical analyst performs laboratory analyses, tests, measurements aimed at determining the qualitative chemical composition of a substance. 	<ul style="list-style-type: none"> 9 countries are participating this year. Out of the 9, two of them are male competitors. 	Gerald Hoglinger (CE) Andrey Yakovenko (DCE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Cloud Computing	53	C1 – C4: Anytime	<ul style="list-style-type: none"> • There exists a huge demand of cloud computing across the globe. Cloud computing is the “way of having computer resources on demand” – it is the system that supports Netflix, Dropbox, Spotify among others. • Countries like Ireland, Australia are motivating women to join this skill. • Skill competition includes 4 modules spread over the 4 days. 	<ul style="list-style-type: none"> • New skill introduced in WorldSkills International. • 16 countries participating this year with only 1 female competitor from Russia. 	<p>Fernando Perez Teller (Chief Expert)</p> <p>Jeffrey Nugent (Deputy Chief Expert)</p>

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Cyber Security	54	<p>C3 or C4: 10:00 to 12:00</p> <p>During C3 or C4, the competitors will attempt challenges in the Capture the Flag (CTF). CTF presents cybersecurity in an exciting and engaging context to hone their skills in simulated cyber security attack scenarios.</p> <p>During the competition, the teams competed to take down enemy servers, expose vulnerabilities, and win flags while defending their home ground against enemy attacks.</p> <p>Skill Ends at 15:00</p>	<ul style="list-style-type: none"> In the world today, everyone has a digital shadow – social media accounts, bank details etc. making it more important than ever to have proper cyber security in place. All teams resided in the same Cyber Range environment on the same network with over 140 flags to capture and defend The dashboard will show real time score of various teams as they attempt to capture the flags for both attack and defence scenarios. 	<ul style="list-style-type: none"> This is the first time that WorldSkills International is hosting a skill competition in cyber security. Mostly seen as a male dominated trade across the globe, it is amazing that two girls are competing in the challenge. 	Cesar Ibarra (CE)

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Water Technology	55	<p>C1 – C4: VR Test from 9:00 to 10:00</p> <p>C1 – C4: Jar Test from 13:00 to 15:00</p> <p>Skill Ends at 13:30</p>	<ul style="list-style-type: none"> Combines 3 elements – chemical, mechanical and automation process. Competitor needs to be efficient in all three to excel. Festo, Adiro are the two industry partners supporting the skill. 	<ul style="list-style-type: none"> Try a Skill area for the general public. 11 countries participating. All male competitors. Last time, two women competed in Abu Dhabi which awed and inspired many in the country to learn more. 	Rodrigo Zawadzki - SCM

Skill	Skill Number	Key times to visit	Highlights	Unique Elements	Skill Contact
Hotel Reception	56	Visit anytime. Will always have some activity going on.	<ul style="list-style-type: none"> Hotel Receptionist is key to every hotel establishment. This is where the primary communication with the hotel staff is established. The quality, courtesy, and promptness of service can make a great difference with the hotel and their satisfaction during their stay. 	<ul style="list-style-type: none"> New skill introduced this year and it's amazing how 19 countries are participating this year with 16 of them competing. 4 Reception tables have been set up – each of them have an individual theme. <ol style="list-style-type: none"> Multi-cultural – deals with customers from different cultural, countries Disabled people – deals with people with special abilities (people on wheelchair, visually impaired etc.) Family – deals with parents, children VIP treatment – deals with people of high importance 	Benjamin Hallerud (CE) Maria Ilinykh (DCE)