EVENT FACTSHEET

IGNITE SKILLS CHALLENGE 2021
Virtual Award Presentation Ceremony on 20 May 2021

Background on IgnITE Skills Challenge 2021

The ignITE Skills Challenge is an annual national-level skills competition organised by the Institute of Technical Education, Singapore, with support from the Ministry of Education. As the only national competition for Normal stream students in Singapore, the aim is to excite secondary school students about the value of vocational and skills education.

After a one-year hiatus due to COVID-19, the competition is back this year for its fifth installation. For the first time, it will be taking on a fully virtual format. Since its inaugural instalment in 2016, the number of challenges has increased from 12 to 15 (information on the Challenges is in **Annex A**). Challenges are designed to be engaging and fun to make learning enjoyable and memorable. Students who have signed up for a competition challenge are required to attend one online workshop training. The purpose is for them to learn the necessary skills required for the competition and qualify for the preliminary rounds of each Challenge.

Despite the challenges arising from the ongoing pandemic, registration for the 15 game challenges this year stands at 100%. Only one in four teams who took part in the preliminary rounds made it to the Finals. The breakdown is as follows:

IGNITE SKILLS FUTURE	2021
No. of Game Challenges	15
No. of Teams registered	502
No. of Schools participating	63
No. of Student participants	1506

After the preliminary rounds, finalists were shortlisted to compete virtually on 29 April and 19 May 2021. The top three teams from each Challenge will win trophies and medals. The school, which wins the most challenges, will receive the Champion Trophy.

For more information on ignITE Skills Challenge 2021, please visit:
www.ite.edu.sg/ignite-skills-challenge

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Skill Challenges

1) SOCIAL MEDIA RETAILING

Objective of Challenge

Participants will learn to how to sell on social media! Teams will identify products and create relevant and engaging social media content on Instagram to sell these products.

What will be done during the Challenge?

Each team will need to identify a category of products, which they would like to sell. They will need to create original contents in the form of videos and pictures to 'market' on Instagram (Preliminary teams). The top nine teams will proceed to the finals, where they will be tasked to create a simple mobile website that is linked to the previously created Instagram post to let shoppers find out more about the products and eventually purchase them.

What skills will students learn?

Skill Level 1: Critical thinking skills in the form of identifying their target market.

Skill Level 2: Market research skills pertaining to their chosen product.

Skill Level 3: Usage on variety of software in creating original social media content.

What are they scored for?

- Creativity in video and picture production
- Quality of content creation
- Language adopted in video
- Relevance of video.

Related ITE Course(s):

Nitec in Retail Services
Higher Nitec in Retail & Online Business

2) DIGITAL MEDIA STORYTELLING

Objective of Challenge

Participants will create and produce a video story using series of images and video captured by themselves.

What will be done during the Challenge?

Using video editing software, participants will create a video storyboard using a series of video clips based on a central theme.

What skills will students learn?

Skill Level 1: Learn techniques of capturing frames of a scene and editing the videos.
Skill Level 2: Narrate a story within stipulated time.
Skill Level 3: Work and coordinate as a team to complete the video storyboard.

What are they scored for?

- Effective delivery of story theme
- Appropriate perspective of camera angles to suit mood of scene
- Effective flow of story plot
- Coordination and teamwork
- Visual appeal

Related ITE Course(s):

Nitec in Video Production
Nitec in Visual Communications
Nitec in Animation
Higher Nitec in Filmmaking
Higher Nitec in Performance Production
Higher Nitec in Interactive Design
Higher Nitec in Motion Graphics
Higher Nitec in Visual Effects

3) NINJA BALL

Objective of Challenge

Participants will control a robotic ball to navigate through a game maze by using codes in the Sphero Edu App. There will be pre-determined tasks to be completed, which will put their problem-solving and programming skills to the test.

What will be done during the Challenge?

Participants have to create a maze according to the given theme and specification, write code using Sphero Edu App to control the robotic ball and navigate through a maze with tasks to complete. Teams will need to submit a video of the Sphero navigating through the maze, and a copy of the code used.

What skills will students learn?

Skill Level 1: Able to learn the basic programming skills.

Skill Level 2: Able to navigate a robotic ball to pre-determined locations accurately.
Skill Level 3: Able to control a robotic ball to achieve pre-determined tasks.
Skill Level 4: Problem-solving skills

What are they scored for?

- Technical Elements
- Aesthetic and Creative Elements
- Public voting (Only for Prelims)

Related ITE Course(s):

Higher Nitec in IT Applications Development

4) DIGITAL MAKING USING MICRO:BIT

Objective of Challenge

Digital Making using Micro:bit is a competition where participants build a project based on the theme: Digital Making for Safety Measures.

What will be done during the Challenge?

Participants will learn and build a micro:bit project based on a given theme. The challenge requires using a micro:bit as the microcontroller and writing programming codes to control a project.

What skills will students learn?

Skill Level 1: Construct the project.
Skill Level 2: Write programming codes.
Skill Level 3: Present and demonstrate the project.

What are they scored for?

- Theme: Adherence to theme, and originality of concept
- Project : Design, creativity, innovation, technical knowledge application
- Presentation : Presentation skills

Related ITE Course(s):

Nitec in Electronics, Computer Networking & Communications
Nitec in Microelectronics
Higher Nitec in Electronics Engineering

5) DAEDALUS CHALLENGE

Objective of Challenge

Participants will develop skills in using CAD software to design and assemble an aerodynamic glider that can clear obstacles.

What will be done during the Challenge?

With Digitalisation as the theme, Daedalus Challenge makes use of Cyber Physical Design method with CAD software to design a glider. This process allows participants to try out different design and optimise it before putting in production. Besides learning CAD assembly software, participants will also program the glider to clear a series of obstacles.

What skills will students learn?

Skill Level 1: 3D CAD Software to do assembly.
Skill Level 2: Aerodynamic in the design of the Glider.
Skill Level 3: Skill to clear obstacles.

What are they scored for?

- Teams will be scored based on the 3D drawing against the actual design given.
- Teams will also be scored on the ability of the glider to clear the obstacle course.

Related ITE Course(s):

Nitec in Aerospace Avionics
Nitec in Aerospace Technology
Nitec in Digital & Precision Engineering
Nitec in Mechanical Technology
Higher Nitec in Precision Engineering
Higher Nitec in Mechanical Engineering

6) POTION ALCHEMY

Objective of Challenge

Participants will learn about the benefits, uses and applications of various essential oils. They will get to experiment with different essential oils to produce unique products and package wellness products for sale on social media.

What will be done during the Challenge?

Participants will have to demonstrate their understanding of the properties of essential oils and use that knowledge and skills to produce and package a wellness product. They will have to reach out to target audience with health and wellness benefits through marketing on social media platform.

What skills will students learn?

Skill Level 1: Identify the different essential oils.
Skill Level 2: Understand the health and wellness properties of essential oils and their application.
Skill Level 3: Concoct and produce lifestyle and wellness products to target specific concern on well-being and health.
Skill Level 4: Market products/message on social media platform.

What are they scored for?

Final - scores will be awarded for the:
- On-line presentation to showcase end product and to present the social media marketing plan.
- 1-minute video to promote the product.

Bonus - scores to be awarded for:
Most popular product on social media platform.

Related ITE Course(s):

Nitec in Beauty & Wellness
Higher Nitec in Beauty & Wellness Management

7) CRAFT A BOT

Objective of Challenge

Participants will learn to build a robot and programme its movement through motors and sensors.

What will be done during the Challenge?

Craft a BOT is a challenge using pikaBot to create and program a BOT to follow a path and detect and avoid obstacles.

What skills will students learn?

Skill Level 1: Identify different types of microcontroller board, I/O components and their function.
Skill Level 2: Perform coding, modify interface program and test the programme function.
Skill Level 3: Perform interfacing with sensors, wireless networks such as bluetooth.

What are they scored for?
- Concept
- Design
- Creativity and innovation
- Technical knowledge

- Presentation with tiktok

Related ITE Course(s):

Nitec in Electronics, Computer Networking & Communications
Nitec in Electronics & Internet of Things (IoT)
Higher Nitec in Electronics Engineering

8) ROBOTITO CHALLENGE

Objective of Challenge

Participants will learn about robotics arm movements and will challenge in programming the movement of the robot arm to complete tasks.

What will be done during the Challenge?

Robotic arms, often known as mechanical arm are used as the "stepping stone" to industrial robotics and automation. In the preliminary challenge, the teams will undergo a creativity challenge. Teams will be able to display their creativity through submission of their innovative ideas based on a given theme. The top 10 winning teams will proceed to final challenge for a more challenging task. Based on a provided scenario, each team will code and control robot arm to complete the given task.

What skills will students learn?

Skill Level 1: Understand the impact of robots in everyday lives and learn parts of a robotic arm.
Skill Level 2: Understand the general functionality of the robot arm.
Skill Level 3: Block Code programming with Micro:bit controller to control the robotic arm.

What are they scored for?

Preliminary Challenge:
- Report and video content
- Creativity
- Originality
- Imagery abilities
- Feasibility
- Presentation skills

Final Challenge:
- Time to complete the task
- Control accuracy.
- Coding consideration.

Related ITE Course(s):

Higher Nitec in Mechanical Engineering

9) FILTRAXXION

Objective of Challenge

Participants will discover renewable resources and construct a filtration system using natural materials. They will also learn to create, set up and optimise the messenger bot to converse with other learners.

What will be done during the Challenge?

Teams will explore their creativity through filtration science. They will discover more about renewable resources and create filters using natural media.

What skills will students learn?

Skill Level 1: Filtration process.
Skill Level 2: Separation techniques.
Skill Level 3: Renewable resources.
Skill Level 4: Create an interactive ChatBot.

What are they scored for?

- Effectiveness and efficiency of filtration
- Creativity in building a filter system (e.g. Filter on stand)
- How effective and precise the Chatbot in answering the queries

Related ITE Course(s):

Nitec in Chemical Process Technology

10) SOCIAL MEDIA MARKETING

Objective of challenge

Participants will be putting their creative skills to the test in designing a brand awareness campaign on social media.

What will be done during the Challenge?

Teams will identify and select an appropriate social media platform to implement a brand awareness campaign.

What skills will students learn?

Skill Level 1: Principles of Social Media Marketing on the go.
Skill Level 2: Perform basic visual imagery using appropriate apps.

What are they scored for?

CONTENT
- Appropriate choice of social media platform(s)
- Identification of brand personality
- Social media goal(s)
- Description of target audience

CREATIVITY
- Originality
- Visuals imagery and layout

Related ITE Course(s):

Nitec in Business Administration course
Nitec in Retail Services course

11) RAPID TRANSIT RADIO COMMUNICATION

Objective of Challenge

Participants will compete on how to run a busy and efficient rapid transit operation and react appropriately in emergency scenarios. They will learn script writing, audio editing and using software to create videos.

What will be done during the Challenge?

Teams will have to demonstrate their ability in sound decision-making and reaction to various intense situations that may occur during any train operation. They will be tested on efficiently and effectively they tackle such challenges with proper radio procedures.

What skills will students learn?

Skill Level 1: Learn different railway terminologies, radio etiquette and NATO Phonetic Alphabet.
Skill Level 2: Enhance decisive decision-making process.
Skill Level 3: Enhance creativity on the script writing.
Skill Level 4: Learn various digital skill in script writing, video & audio recording and editing.

What are they scored for?

- Time taken to complete the script writing and audio submission via online.
- Content creativity of the script writing
- Quality of the video, audio and subtitle submission.

Related ITE Course(s):

Higher Nitec in Rapid Transit Engineering

12) STORYTELLING WITH DATA

<u>Objective of challenge</u>

Participants will use datasets to design interesting visualisations for data analysis using Microsoft PowerBI and tell a story based on visualisations created.

<u>What will be done during the Challenge?</u>

Students will choose fun datasets to experiment with, and come out with interesting visualisations and dashboards. Some examples can be: "my perfect pet", "highest paid jobs in Singapore", etc. Students tell a story with their visualisations and top nine teams will go into the final. In the final, team will be tested on how fast and accurate they can create visualisations and answer a question (storytell) using a virtualisation created.

<u>What skills will students learn?</u>

Skill Level 1: Create visualisations and dashboards based on datasets given.
Skill Level 2: Analyse the visualisations and dashboards to gain insights.
Skill Level 3: Make a presentation based on the insights gained.

<u>What are they scored for?</u>

- Quality and creativity of visualisations and dashboards.
- Data analysis quality that leads to new insights
- Quality and effectiveness of presentation

<u>Related ITE Course(s):</u>

Nitec in Info-Comm Technology

13) LOGISTICS CHALLENGE

<u>Objective of challenge</u>

Participants will learn about emerging technologies in the logistics Industry and apply their drone piloting knowledge to perform different logistics operations. They will also design and present a future warehouse concept.
<u>What will be done during the Challenge?</u>

Teams will play the role of logisticians coordinating warehouse activities and deploying drones in performing order fulfilment. For the Preliminary, teams will be tasked to design a future warehouse layout with drone operations in mind. Each team will submit a short video presentation and report

on their creative design. For the Final, teams will need to complete a logistics circuit challenge to coordinate order fulfilment.

What skills will students learn?

Skill Level 1: Understand the processes involved in order fulfillment and the application of drones in warehouses.
Skill Level 2: Understand how to pilot a drone. (Final)
Skill Level 3: Apply knowledge/skills to fulfil warehousing/delivery tasks given.

What are they scored for?

- Design of logistics circuit
- Picking of correct goods with proper packing
- Delivery to the correct location
- Completion time
- Teamwork

Related ITE Course(s):

Nitec in Logistics Services
Higher Nitec in International Logistics

14) PROGRAMME DANCING DRONES TO PERFORM AERIAL ACROBATIC MOVEMENTS

Objective of challenge

Participants will learn drone programming using Python codebase, and perform simultaneous flying of multiple drones.

What will be done during the Challenge?

To demonstrate and showcase a swarm of drones performing aerial acrobatics movements within a designated indoor area.

What skills will students learn?

Skill Level 1: Program and manoeuvre a single drone using command-line interfaces with python.
Skill Level 2: Program multiple drones to fly in a swarm formation with audio-visual synchronization.

What are they scored for?

- Manoeuvre multiple drones over mission pads in a swarm formation
- Complete the manoeuvring patterns within a stipulated duration

- Create and synchronize audio-visual background for the Swarm Drones (applicable to the Final Challenge only)

Related ITE Course(s):

Nitec in Electronics Engineering
Nitec in Security Technology
Higher Nitec in Electronics Engineering
Higher Nitec in Security Technology

15) MAD MOCKTAIL STRIKES AGAIN!

Objective of challenge

Participants will identify the densities of various liquids (syrups and juices) and create an attractive signature mocktail with different coloured layers.

What will be done during the Challenge?

Students have to create an attractive mocktail using an assortment of juices and syrups, and apply knowledge of layering liquids (syrups and juices) with different densities.

What skills will students learn?

Skill Level 1: Appreciate the various types of liquids used in making mocktails.
Skill Level 2: Understand the basics of densities of liquids and the concepts behind layering them.
Skill Level 3: Conceptualize a deliciously looking mocktail utilizing the knowledge attained.

What are they scored for?

- Creativity
- Density Effect
- Visual Appeal
- Presentation and Timing

Related ITE Course(s):

Nitec in Hospitality Operations

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Eligibility and Rules

1. ignITE Skills Challenge 2021 is open to students doing *ISC* or students in the Normal (Technical)/ (Academic) Streams.
2. Each team must be made up of three students from the same level and cohort.
3. Each student may join only one team.
4. Students need to attend only ONE virtual workshop between 5 April to 9 April 2021.
5. Top nine teams of each challenge will be shortlisted to compete in the Final Challenge.

Key Dates

Registration
(25 Jan – 5 Mar 2021)

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Training Workshop
(5 April – 9 April 2021)
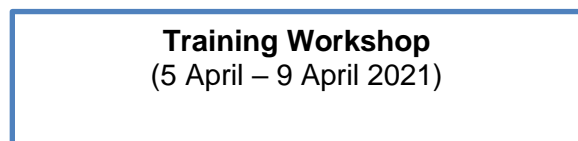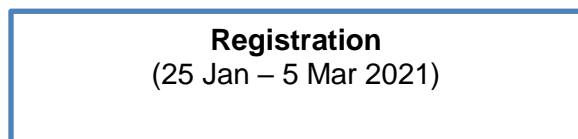
Participants must attend **ONE** online workshop relevant to the Challenge they have registered,

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Preliminary Rounds

Selection for participation in Finals - deadline for submissions is 14 April 2021. Results will be released on 19 April 2021.

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Final Challenge
29 April/20 May 2021
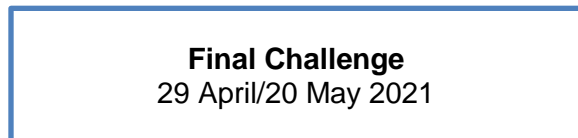
1st round of virtual finals will take place on 29 April 2021 (10 Challenges)

2nd round of virtual finals will take place on 19 May 2021 (remaining 5 Challenges)

List of Challenges conducted virtually on 29 Apr 2021 via Zoom:

- Craft a BOT
- Daedalus Challenge
- Digital Making using Micro:bit
- Digital Media Storytelling
- Logistics Challenge

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- Mad Mocktail Strikes Again!
- Potion Alchemy
- Rapid Transit Radio Communication
- Robotito Challenge
- Social Media Marketing

In view of the ongoing Covid-19 situation and latest Advisory from the Ministry of Education, the **remaining Challenges are revised to an online project submission basis. Deadline for submission is 18 May 2021. Projects will be judged virtually on 19 May 2021.** They are:

- Dancing Drones
- Filtraxxion
- Ninja Ball Challenge
- Social Media Retailing
- Storytelling With Data

Prizes for each Challenge?

- 3rd Prize: Individual Medals, Trophy and Voucher worth $150
- 2nd Prize: Individual Medals, Trophy and Voucher worth of $300
- 1st Prize: Individual Medals, Trophy and Voucher worth $450
- Champion Trophy for the top-performing secondary school (obtained most number of medals)

Sponsors

Name of Challenge	Sponsor	Service/Gift-In-kind
Digital Making using micro:bit	Infocomm Media Development Authority	• 90 pcs of Micro:bits programming board
Logistics Challenge Dancing Drones	65 Drones Pte Ltd	• Loan of safety netting • Provision of consultancy
Mad Mocktail Strikes Again!	Honey-Land International Pte Ltd	• Guest judge for the Final
Robotito Challenge	PLAY CODING SEA LLP	• Provision of consultancy