

Skills Challenges for IgnITE Skills Challenge 2025

Theme: Smarter Innovations

| S/N | Challenge | Description |
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| 1 | Digital Making Using Micro:bit – AI-empowered Micro:bit Challenge | Students will integrate AI with Microbit to develop creative and impactful solutions. They can design AI-driven applications that improve efficiency in everyday processes, enhance safety and security systems, or support environmental monitoring and sustainability efforts. |
| 2 | Getting Digital with Spectacles | Students will use an ophthalmic digital device to take measurements of both eyes and spectacle frames. They will also be required to mount a pair of spectacle lenses and measure the lens power with a forcimeter. |
| 3 | iLight ITE | Students will design a visual effects presentation using projection mapping with customised graphics, displayed on chosen mapping objects. |
| 4 | Logistics Challenge | Students will experience emerging technologies deployed in the logistics industry and work as a team to complete challenging warehouse order fulfilment tasks. |
| 5 | Smart EV Mobile Robot Challenge | Students will programme an autonomous robot to navigate through paths and obstacles in the shortest possible time. |
| 6 | Try Hack Me* | Students will gain essential skills and knowledge to navigate the digital world safely and handle real-world cyber threats effectively. |
| 7 | Ultimate Robotic Claw!* | Students will control a robotic arm to grip and move 3D printed wheels and three distinct shapes, Circle, Triangle, and Square, into their respective locations. Each shape is worth different points, and your team's goal is to collect as many points as possible within the given time limit. |
| 8 | X-Bots | Students will assemble various components, including motors, sensors, and controllers, on a functional robot platform. Followed by applying coding to navigate and control the movement and sensors in robotics. |

Theme: Greener Future

| S/N | Challenge | Description |
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| 1 | BreadCycle Challenge: Innovate and Repurpose* | Students will embark on a creative journey to breathe new life into day-old bread and other food waste. They will learn to upcycle these ingredients into innovative products that redefine waste as a resource. Participants will pitch their final upcycled products in a gallery walk/presentation to a panel of judges. |

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| 2 | Sustainable Shorts* | Students will use mobile phones to create engaging videos that promote sustainable practices. Harness AI-assisted tools for script ideas and storyboarding, then edit the videos into social media shorts using AI apps. |
| 3 | The Eco-Racers: Generative Design for Sustainable Transportation* | Students will design and construct solar-powered race cars using recycled materials, leveraging Generative AI tools to enhance performance, optimise designs, and refine programming. |
| 4 | Wild Wild Water | Student will re-purpose used PVC pipes and transform them into captivating water features, with added features for water quality testing. They will monitor the water quality through a mobile device. This challenge aims to promote sustainability, emerging technology and creativity. |

Theme: Bolder Dreamers

| S/N | Challenge | Description |
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| 1 | Aroma Fantasy | Students will create aromatherapy soaps and promote these products. They will produce an editorial poster, an advertising video; product packaging and visual merchandising display with recyclable materials to reach the target audience on social media. |
| 2 | The Business Enterprise* | Students will apply their understanding of business and entrepreneurship to a new start-up company. They will take on the role of the management team of a new start-up business and produce a business plan, profit and loss projections, a business logo, as well as a marketing poster. |
| 3 | The Influencer Showdown | Students will select a product of their choice to work with and develop compelling content to promote it. They will craft strategies for marketing, including videos, photos, and captions, culminating in a live-selling event on a social media platform. |
| 4 | The Pasta & Egg Challenge | Students will make a fresh pasta dish from scratch and serve it with a poached egg. This Challenge aims to show the intertwining of textures, proteins, and flavours that can come from the humble egg. |

**Indicates Skills Challenge introduced for the first time.*