

UWE Bristol Women into Engineering and Technology Challenge 2017 – Guidance

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What is the challenge?

Teams of technology minded young women are invited to apply their problem solving and creative skills to come up with an assistive technology design idea.

The UWE Bristol Summer School Challenge is open to teams of young women aged 16-18*, up to a maximum of five members per team. Schools and colleges can enter more than one team at the Design Stage if they wish, however only one design per school or college will be selected for the Summer School Finals residential.

** Keystage 4 students can be included in teams at the discretion of school/college staff*

Stage 1: Human-centred design concept

Submit a design concept by the deadline of 23:59 Friday 7 April 2017. If your design is selected for the finals your school or college will be informed by Wednesday 3 May 2017.

[Download the submission form](#) or visit: www.uwe.ac.uk/post16 to view an online version located on our 'post-16 activities' pages.

Stage 2: Summer School finals

We will help you make your design concept a reality!

The design finals take place from 5 to 6 July 2017 at UWE Bristol Frenchay Campus.

During the two day residential, teams build, test and demonstrate their design. They will have access to state of the art laboratories, academic masterclass sessions, a Student Ambassador Team Mentor from either Engineering, Robotics, Maths, Computer Science or Product Design disciplines.

Team members stay overnight at Frenchay Campus, in en-suite rooms. All accommodation and meals for students and accompanying staff member are provided free of charge during the Summer School.

Finals judging will take place on the afternoon of day two.

Interested?

Background

The incidence and prevalence of chronic diseases and disabilities have a profound impact on all aspects of our economy and society. Providing cost-effective and high-quality support for an ageing population, who have to cope with a range of disabling conditions, is a high priority issue for us all.

Assistive technologies and devices (such as walking aids, medication reminders, fall monitors and alarms, sensors integrated into a smart home environment, ergonomically designed kettles, mechatronic seating, object-recognition apps, etc.) are key enablers in helping older people with ageing-related impairments and those with other disabilities improve their quality of life and live socially active lives.

When designed effectively and aesthetically, assistive devices can transform the lives of people. However, poorly thought out designs, that are difficult to use, don't work in a way that suits the person or the environment, that look 'clinical' and unappealing, can be a source of abject frustration, despair and stigmatisation.

The challenge for us is therefore to design assistive technology that not only enables people to realise their personal goals and aspirations, but also brings them joy and pride in using and owning it.

So how can this be achieved?

It requires the skills:

- of empathy
- creativity
- perseverance
- passion to make a change
- a spirit to experiment
- to treat every unsuccessful attempt or idea as a learning experience
- resilience to take any negative feedback on board and view it as an opportunity to make improvements
- keeping an open mind

A human-centred design approach

The process we want you to adopt for the Women into Engineering and Technology challenge is known as Human Centred Design.

Here are a couple of videos which help to explain this:

- An animation from IDEO <https://www.youtube.com/watch?v=musmgKEPY2o>
- Another from the Grameen Foundation
<https://www.youtube.com/watch?v=6mcZKWhjr9o>

The 2017 challenge, should you choose to accept it, is to come up with an assistive device or technology design concept.

Guidance for teams

- Understand the problem space where an assistive device or technology might be useful.
- Identify a problem you feel passionate about solving.
- Start by doing some research about the problem, investigating the aspects relating to the person or people experiencing the problem.
- Find inspiration for how the problem could be solved.
- The human brain needs to be fed with a variety of different stimuli so that it can make creative links and leaps to come up with innovative ideas. Check out the resources section below on how to find inspiration. We suggest trying all of them!
- Learn about good design. Gain some knowledge about how to design successful solutions and how to think like a designer.
- Then go forth and prototype, and try to seek feedback to improve your ideas.

Resources to help your team succeed

Understanding the problem space:

- Growing old in 3 minutes: A set of short videos explaining the effects of ageing <http://news21.com/columbia/2011/2010/growing-old/index.html>
- If only videos: A collection of short clips of people talking about their everyday frustrations with daily life activities and products <https://www.youtube.com/user/IfOnlyApp/videos?sort=da&view=0&flow=grid>
- Fact sheet from AgeUK about Later Life in the UK https://www.ageuk.org.uk/Documents/EN-GB/Factsheets/Later_Life_UK_factsheet.pdf?dtrk=true

Finding inspiration:

- Visit to your local museums, art galleries and science-learning centres
- Join a local group in their weekly activity. Check in your locality for organisations like this one in Bristol <http://www.linkagebristol.org.uk/your-area.aspx>
- Browse through the science and technology sections of your library or a bookshop
- Spend a day with an elderly relative or friend
- Organise an **ideation session** with a group of friends where each one has to put forward a problem that they have seen someone with a disability experience, then spend a week finding out as much as possible about the disabilities and the

problems, and then jointly come up with at least 30 ideas of how you could design something to help address each problem.

Good design thinking:

- Design for People, Not an Age: This is a very insightful blog about ensuring that you keep the person at the heart of your design process and not fall into the trap of resorting to stereotypes about older people
<https://challenges.openideo.com/blog/tips-for-ideas-design-for-people-not-an-age>
- Universal Design Principles: <https://www.youtube.com/watch?v=b4lw6K61uHo>
- Some great insights on the design process from leading designers
<https://www.youtube.com/playlist?list=PLIeYpC-T18cbnZcJli2x9ScBABYL76n12>

Realising your ideas:

- Modelling: Example of a wearable
<https://www.youtube.com/watch?v=CWDJymFEs0A>
- Prototyping: Example of Prototyping Google Glass <http://ed.ted.com/lessons/rapid-prototyping-google-glass-tom-chi>

Presenting your ideas:

- Storyboarding: http://spark-public.s3.amazonaws.com/hci/assignment_ressources/assignment3_storyboard_notes.pdf
- Sketching: <https://www.youtube.com/watch?v=JMjozqJS44M> (for digital design but provides good general tips)

Maker resources:

- Make Online Magazine: a treasure trove for the technophile <http://makezine.com/>
- Adafruit: Electronics projects for everyone <https://learn.adafruit.com/> and <https://www.youtube.com/adafruit>

Remember to submit your Design Concept by Friday 7 April, using the word document 'UWE Bristol Women into Engineering and Technology Design Concept submission form'.

[Download the submission form](#) or visit: www.uwe.ac.uk/post16 to view an online version located on our 'post-16 activities' pages.

Women into Engineering and Technology Challenge 2017 rules

1. 'Stage 1 Design Concept' and 'Stage 2 Finals' are collectively referred to as the "challenge".

Who may enter?

2. To enter the Competition, you must:

- Be a team of 4-5 female students, studying BTEC National Diploma, A level or equivalent, and under 18 at July 2017;
- Have permission from your school or college, and the teacher named on your entry email, to enter the challenge.

3. Anyone professionally connected with the challenge is not eligible.

How to enter

Stage 1: Design concept

4. You can enter stage 1 from 00:01 10 February 2017 to 23:59 7 April 2017. Entries made after this time will not be valid, even if they appear to be registered.

5. Entry into the challenge is free.

6. To enter Stage 1, you must follow the challenge guidance. Your submission must be in the agreed format, be written in English and entirely your own work.

7. Entries must not exceed 600 words and can be accompanied by artwork and/or photos.

8. Only one entry per team is permitted. More than one team from the same school or college may enter the Competition. However, only one team per school or college may be selected by the judges to attend Stage 2.

9. The following entries are not valid entries:

- entries made in breach of these terms and conditions; and
- entries with inappropriate, illegal or offensive content.

Stage 2: referred to as the "finals"

10. Finals will take place at UWE Bristol, Coldharbour Lane, Bristol, BS16 1QY on 5 and 6 July 2017.

11. Students will be required to spend two full days at UWE Bristol. En-suite, residential accommodation and all meals will be provided for up to five students and one accompanying member of school or college staff by UWE Bristol.

12. Every student attending finals must have parental consent and proof supplied to UWE Bristol.

17. Team finals consist of a two-day challenge at the Frenchay campus at UWE Bristol. Students will participate in learning activities related to their Stage 1 design concept entry. The finals culminate with student teams giving a short presentation and demonstration to a panel of judges and other students.

18. The school or college are responsible for their student team's expenses incurred in connection with the challenge, including travel expenses to attend the finals.

Selecting the Finalists

Stage 1: Design concept

19. Finalists will be the entries chosen by the judges nominated by UWE Bristol as well as an independent judge.

20. The winning schools or colleges will be notified by phone by 3rd May 2017.

Stage 2: Finals (Summer School 5-6 July 2017)

21. The winning team will be chosen by the judging panel and notified by the end of the challenge on Thursday 6th July 2017.

23. The name of the schools/ colleges participating in finals and the overall winning team will be made available to anyone sending a stamped, addressed envelope to R&O Team UWE Bristol, Coldharbour Lane, Bristol, BS16 1QY with the reference "UWE Women into Engineering & Technology Challenge 2017" within twenty eight (28) days of the published closing date. No other correspondence will be entered into.

Publicity

24. By entering the challenge, you give UWE Bristol the right to film, sound record and photograph all your activities relating to the Competition ("Footage"). You also agree that UWE Bristol may (but are not obliged to) use your entry, name, likeness, voice, photographs, video footage and any biographical information you provide and any statement made by you concerning the Competition (your "Content") for all purposes related to the Competition (including the promotion thereof).

25. Where any Footage is created or your Content is used, you acknowledge that you have waived your moral rights and any copyright or similar rights and title in the Footage and Content.

26. You also agree that we, or any persons authorised either directly or indirectly by us, can use any part of the Footage and Content as we see fit. We may distribute, edit, copy, translate, distort (for artistic purposes), exhibit and exploit such Footage and/or Content for

the purpose of promoting or in relation to the Competition using all media and formats. This includes social media such as Facebook and YouTube.

General

27. The prizes have no cash equivalent, and no alternatives will be offered. Prizes cannot be exchanged or transferred. However, in the event that any prize is unavailable due to circumstances beyond our control, we reserve the right to offer alternative prizes of equal or greater value.

28. These rules shall be governed by and construed in accordance with the laws of England and Wales and the courts of England shall have exclusive jurisdiction in relation to any disputes arising in respect of this Competition