La Warner Bros. presenta

MY FAIR LADY

AUDREY HEPBURN REX HARRISON

STANLEY HOLLOWAY WILFRID HYDE-WHITE GLADYS COOPER

International Women's Day 2021

Why can't a woman be more like a man?

(Lerner 1956)

And why she shouldn't be

♂	♀
Rational	Compassionate
Practical	Empathetic
Analytical	Expressive
Logical	Creative
Dependable	Supportive
Dominant	Sensitive
Decisive	Tolerant

Rational	✓
Practical	✓
Analytical	✓
Logical	✓
Dependable	✓
Dominant	✓
Decisive	✓

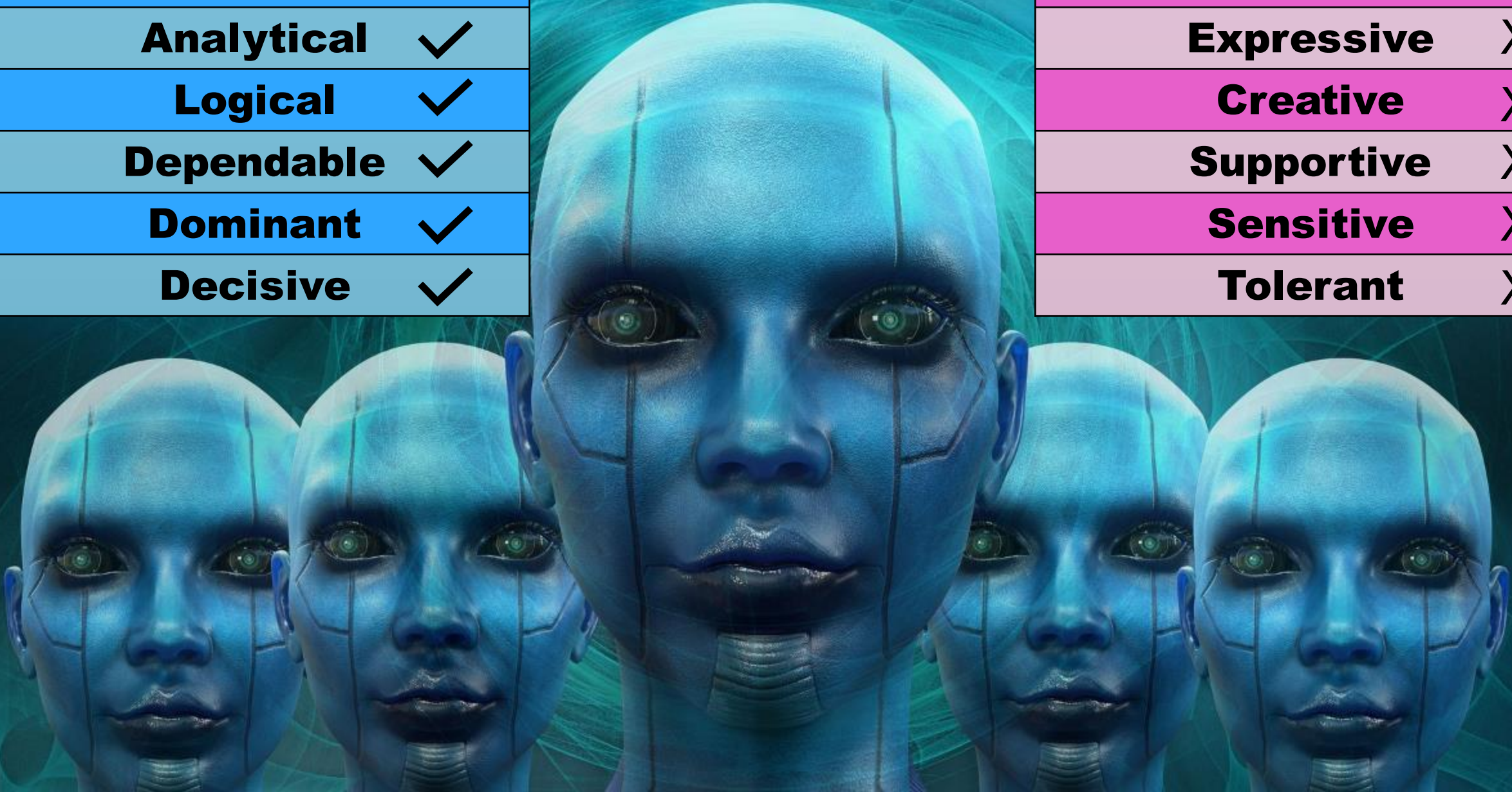| Compassionate | X |
Empathetic	X
Expressive	X
Creative	X
Supportive	X
Sensitive	X
Tolerant	X

INDUSTRY 4.0 SKILLS

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Interpersonal Skills
6. Emotional Intelligence
7. Judgement
8. Service Orientation
9. Innovation
10. Cognitive Flexibility

(Fiat Chrysler Automobiles 2014, Flickr Creative Commons)

(World Economic Forum 2020)

STATISTICS

- The UK has the lowest percentage of female engineers in Europe, at **12.37%**.

- Only **27.1%** of girls, compared to 45.6% of boys, studied STEM subjects at A level in 2017. This has barely changed in 25 years.

- Boys have more positive views of engineering even in primary school.

- In all STEM A-Levels, except Chemistry, more girls get A*-C grades than boys.

(WES 2020, Engineering UK 2018)

STATISTICS

(NASA Goddard Space Flight Center,
Flickr Creative Commons 2019)

○ Only **17.6%** of engineering undergraduates, in the UK, are women.

○ The IET suggest a **48%** UK annual increase is required to fill engineering jobs.

○ Women buy or influence **85%** of all consumer purchases, while **85%** of product designers and engineers are men.

(WES 2020, Engineering UK 2018, NSB 2020)

CASE STUDY 1: CAR SEAT BELT

The odds for a belt-restrained female driver to sustain severe injuries were 47% higher than those for a belt-restrained male driver involved in a comparable crash.

(University of Virginia 2011)

CASE STUDY 2: ARTIFICIAL HEART

Until 2020, the only Food and Drug Administration (FDA) approved artificial heart was a 70cc version which fits "fits a majority of men and some women".

(SynCardia 2020)

CASE STUDY 3: VIRTUAL REALITY

Women are more frequently cybersick than men because 90% of women have pupils that are closer together than the default headset setting, and 27% of women's eyes don't fit the headset at all.

(Stanney *et al*. 2020)

CASE STUDY 4: PERSONAL PROTECTIVE EQUIPMENT (PPE)

A TUC 2016 survey showed that 57% of those women who took part reported that their PPE hampered their work.

More recently, female medical staff are at risk of Covid due to ill-fitting FFP masks (Fidler 2020).

(Women You Should Know 2019)

What Can We Do?

1. Promote role models

What Can We Do?

2. Emphasise the prosocial aspects

home › student campaign › bespoke scholarships and prizes › sidney black memorial engineering award
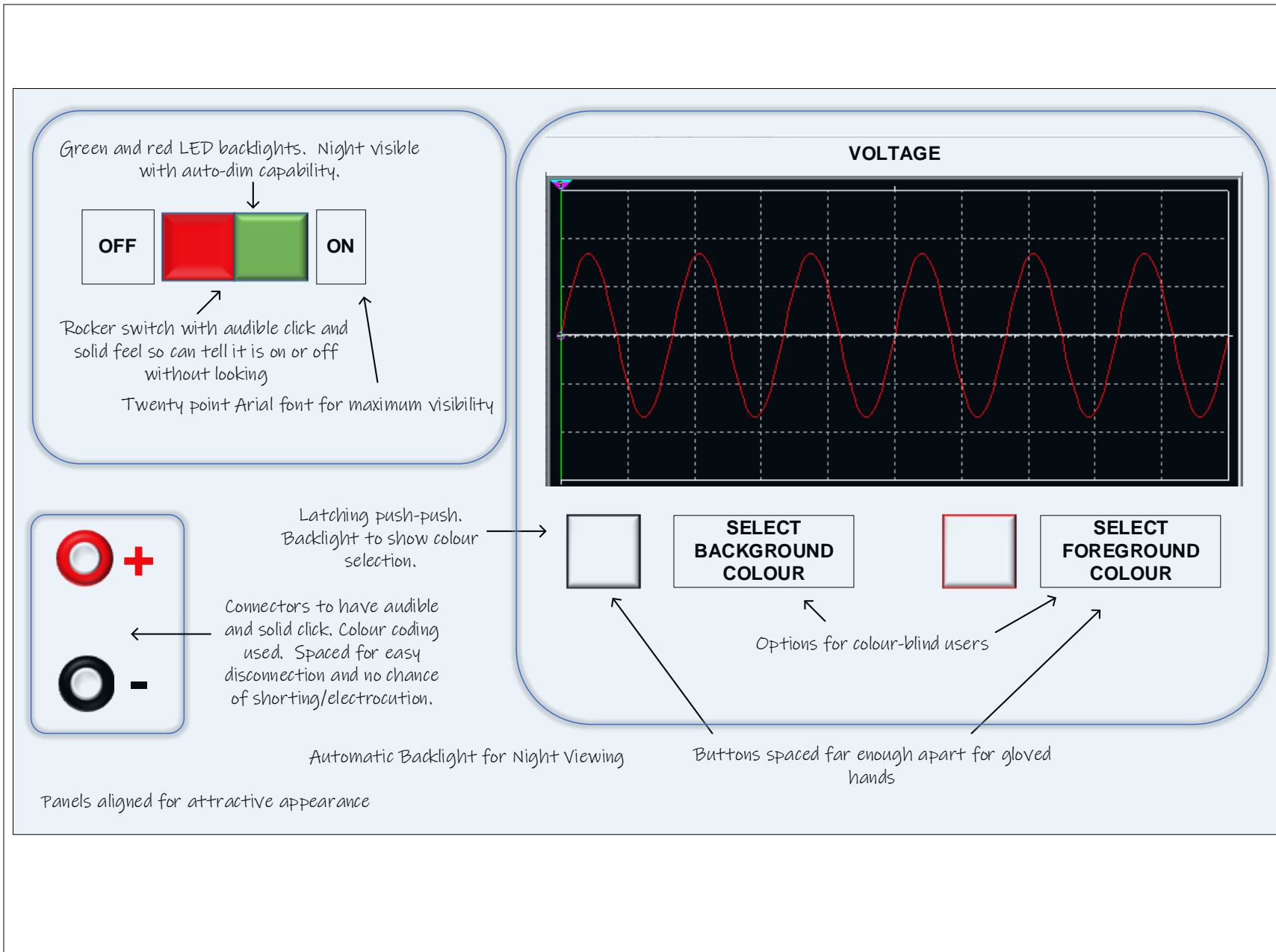
Sidney Black Memorial Engineering Award

The Sidney Black Memorial Engineering Award is offered to the female, undergraduate student who demonstrates engineering excellence in their BEng year (SCQF level 9) of study on any of the BEng (Hons) Scheme programmes: Electrical and Electronic Engineering, Mechanical Engineering, Electrical and Mechanical Engineering or Energy Engineering.

What Can We Do?

3. Gender specific awards

Green and red LED backlights. Night visible with auto-dim capability.

OFF   **ON**

Rocker switch with audible click and solid feel so can tell it is on or off without looking

Twenty point Arial font for maximum visibility

Latching push-push. Backlight to show colour selection.

Connectors to have audible and solid click. Colour coding used. Spaced for easy disconnection and no chance of shorting/electrocution.

Automatic Backlight for Night Viewing

Panels aligned for attractive appearance

VOLTAGE

SELECT BACKGROUND COLOUR

SELECT FOREGROUND COLOUR

Options for colour-blind users

Buttons spaced far enough apart for gloved hands

What Can We Do?

4. Give equal weighting to ergonomics and function

What Can We Do?

5. Project-based collaborative learning, with Industry 4.0 skills assessed.

(WES 2020)

What Can We Do?

6. Creativity and innovation awards

What Can We Do?

7. Female focused engineering clubs

(IAEA Image Bank, Flickr Creative Commons 2019)

What Can We Do?

8. Mentoring and peer review

Contemporary Female Engineers

Meredith Westafer, Senior Industrial Engineer, Tesla Gigafactory

Yael Garten, Director of Siri Data Science & Engineering, Apple

Sophia Velastegui, General Manager of Microsoft's AI Product Unit

(Steve Juvertson, Flickr Creative Commons 2014)

Conclusion

- Women could help alleviate the IET's (2019: 2) predicted UK shortfall of 59,000 new engineering graduates, per annum.

- Women can bring a different and valuable viewpoint to engineering designs.

- Female engineers can help defuse male bias in product design.

- We should do everything we can to attract more females into engineering undergraduate degrees.

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