

EDM in Engineering Mech Eng Module at ICL An Overview



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In October 2022 the Mechanical Engineering department launched a new elective module Equality Diversity and Inclusion (EDI) in Engineering.



<https://www.imperial.ac.uk/media/imperial-college/faculty-of-engineering/mechanical-engineering/public/EDI-in-Engineering-Module-Creation-UROP-Final-Report.pdf>

Module Stats

- Technical Elective for 3rd and 4th year undergraduates
- Differentiated assessment for levels 6 and 7
- Available within Mechanical Engineering only
- 5 ECTS
- Capped at 30 students



WHEEL OF POWER/PRIVILEGE

Autumn term

Students learn:

- How to use reflective and reflexive tools to consider their positionality
- About a range of EDI issues, by a diverse group of speakers from minority groups.



Adapted from ccrweb.ca

@sylvriaduckworth



D&I in Eng. / Gender

Dawn Bonfield
Towards Vision



Neurodiversity

Sara Rankin
Imperial – Medicine/NHLI



Race & Colonialism

Aakeen Parikh
Imperial – Mech Engineering



WP / Class

Simon Foster
Imperial – Physics



Uni Measures / Actions

Stephen Curry
Imperial – Associate Provost EDI



Ind. Measures / Actions

Kieran Thompson
Cundall



LGBTQIA+

Mark McBride Wright
Equal Engineers



Embedding & Evaluating

Kate Ippolito
Imperial – Educational Dev. Unit

Student Interaction



MODULE
CREATION



REFLECTIVE
LOGBOOK



EXTENSIVE
TIMETABLED
DISCUSSION



STUDENT
VOICE FOR
DEADLINES



COFFEE
MORNINGS

Spring Term

Initiatives proposed

Small student teams

4x biweekly assessments (40% total)

Formative peer assessment

Prizes to be won!



FEMFLUENCE

ENGINEERING INITIATIVE EVENT

28th March 2-4pm

HAVE YOU CONSIDERED A DEGREE IN ENGINEERING?

Talks run by women Alumni from ... who are completing their degree!

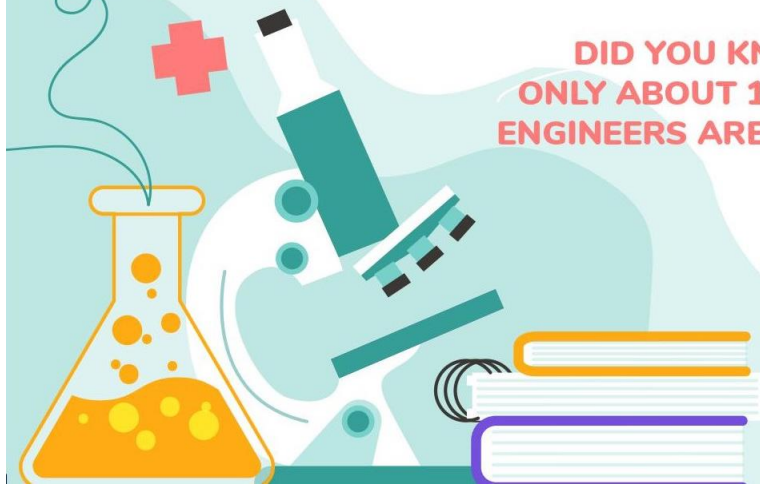
Debunking Engineering Myths!

Opportunity to ask questions about application and university life!

Get a Glimpse into the world of engineering!

**DID YOU KNOW:
ONLY ABOUT 16.5% OF
ENGINEERS ARE FEMALE?**

More info
www.femfluence.com



ACCESSIBLE BOILERSUITS



The workshop boilersuits are an essential part of the student experience here at Imperial College.

This student-led initiative aims to tackle the issue of ill-fitting PPE and lack of inclusivity by catering to a range of body shapes, sizes, disabilities and cultural beliefs.

For more information, scan the QR code below or reach out to accessibleboilersuits@ic.ac.uk

Scan here!



Initiatives

Class and entry to university

Decolonising A-Level STEM

Gender and choosing engineering

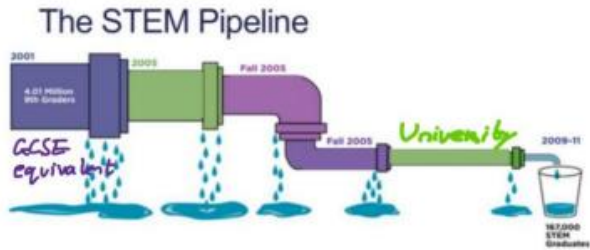
Inclusive PPE

Literature Review Assessment

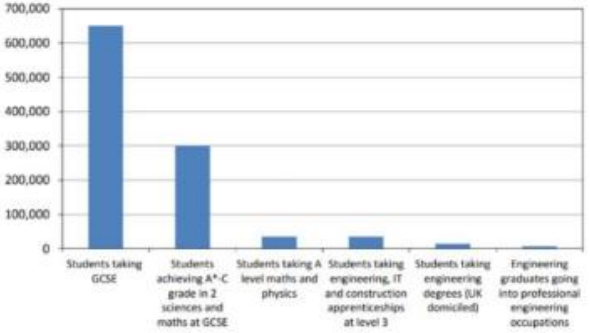
Neurodiversity and culture

WP transition to employment

From the very first session, it struck me that EDI measures are put in place far too late. Not only in terms of time (why is this module only happening now, for example), but in terms of education and professional development. In school, there was never any mention of EDI, especially not within specific subject areas like STEM. In sixth form it only cropped up as a result of university applications but was generally seen as a negative (in my college at least). Obviously, it is not a negative, and if it were introduced earlier it would surely not be as stigmatised. I found it particularly interesting in Dawn Bonfield's lecture that, while most businesses strive for diverse teams, they are severely limited in what they can do due to the failings of the earlier education system in not just not diversifying, but in actively discouraging diversity in subjects, it seems.



At GCSE, boys - girls are equal in STEM, as it is compulsory.
 ↓
 At A-level many girls drop out of STEM
 ↓
 Why?
 • Stigma from teachers & family?
 • Don't want to be the only girl in a class
 • Encouraged to do what you're best at
 ↓
 It's not that boys are better at STEM, it's that girls are better at humanities/arts.



20% of STEM students at undergraduate level are female; 10% have a disability; and 30% are non-white

In the workplace it's only 16.5% female (that's the 16.5% vs for 10.5% in 2010)
 ↓
 Heading in right direction? Sure, but not fast enough..
 ↓
 Businesses are stupid not to hire diverse teams
 ↓
 Teams with various cultures, genders, ethnicities etc. always outperform a team of 'straight white males'

Strong Business Case – e.g. McKinsey

- McKinsey's 2019 analysis finds that companies in the top quartile for gender diversity on executive teams were 25% more likely to have above-average profitability than companies in the fourth quartile
- A substantial differential likelihood of outperformance—48%—separates the most from the least gender-diverse companies.
- In the case of ethnic and cultural diversity, the business-case findings are even more compelling: in 2019, top-quartile companies outperformed those in the fourth one by 36% in profitability

An extract of my notes during Dawn's lecture

End of module assessment:

Curated log book

- 40% of marks
- 4 A4 pages
- ~500 new words
- Demonstrate a learning journey

End of
module
assessment:
Reflective
Essay (20%)

“Upon completing this reflection, I now recognise that my strengths lie with actual completion of tasks, however my weaknesses appear to be a result of my own perception of the power I possess (based on the wheel of power/privilege) in comparisons to those I am around. I allowed my ideas of how others perceive me to influence my actions and contributions which at times compromised communication and submission quality”

Award Nomination

Inclusion Programme of the Year 2023

- Equality, Diversity and Inclusion in Engineering Module, Imperial College
- Everyone Belongs – Culture, Inclusion and Diversity at Wessex Water, Wessex Water
- Grid for Good, National Grid
- Jacobs / upReach Engineering Springboard Programme, Jacobs / upReach
- Morson Maker Space, Engineering Summer School, The University of Salford
- UCL x BADU “Bridging The Gap” programme, University College London



Focus Group Feedback

“When talking about the module a year ago the response was laughter/dismissing it, now it’s seen as valuable by both students on the module and those who haven’t done it”

Confidence “definitely skyrocketed” – I have the facts to back up my action and stop myself from being shut down

We are a self-selecting cohort who are already advocates so the starting baseline is higher therefore there is no dramatic change

It would be good to build skills on bid proposals and boardroom presentations and align this with the coursework

Next steps in good practice



Staff reflection + focus groups



Running again next year with adaptations



Student – staff co-led presentation at E&PDE



A catalyst for broader change (ND UROP, LRPs, etc.)



Other departments / universities interested

[CREATING A MODULE TO EMPOWER ENGINEERING STUDENTS TO BECOME CHAMPIONS FOR EQUALITY, DIVERSITY, AND INCLUSION / The Design Society](#)

Provide feedback!

If you used this resource, please take the time to fill out this form to provide your feedback.

If you have any questions or require more information about the REET (Resources for Embedding EDI in Teaching) project, please contact the Project Lead using the following contact details:

Chloe Agg c.agg@imperial.ac.uk

<https://forms.office.com/e/pHBZpniFvB>

