

LEARNING BY DOING: THE ANU MAKERSPACE



Australian
National
University

John Debs
Founder and Director, ANU MakerSpace
Associate Professor, Research School of Physics
Likes to ferment things



A STORY OF...



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MAKERSPACES: A HOME FOR PROJECT-BASED LEARNING



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2015: Vision for an Academic MakerSpace:

- Where undergraduates, graduates, teachers and researchers from all disciplines come together; that all but demands frequent interaction.
- With real research tools, the knowledge, and the resources for people to experiment, investigate, work on projects, and solve problems.
- Where knowledge flows between peers, teachers, staff and academics alike. A research-led teaching environment, providing students the confidence to be life-long self-learners.

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 - *In 2026: to provide an evidence-rich environment for authentic and assured learning, and assessment of that learning.*
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THE ANU MAKERSPACE



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- Opened in Feb 2016
- Anyone with a University ID can join for free, and use for any reason.
- 3D printers (various), Hand/Power tools, CNC Router, Laser Cutter, Sewing Machine, Soldering and testing, CNC Mill, Waterjet cutter, and more.
- Diverse staff and Egalitarian. First-come, best-dressed. Partly student-led.
- Built with a focus on community and peer-peer learning.
- Not a service space.



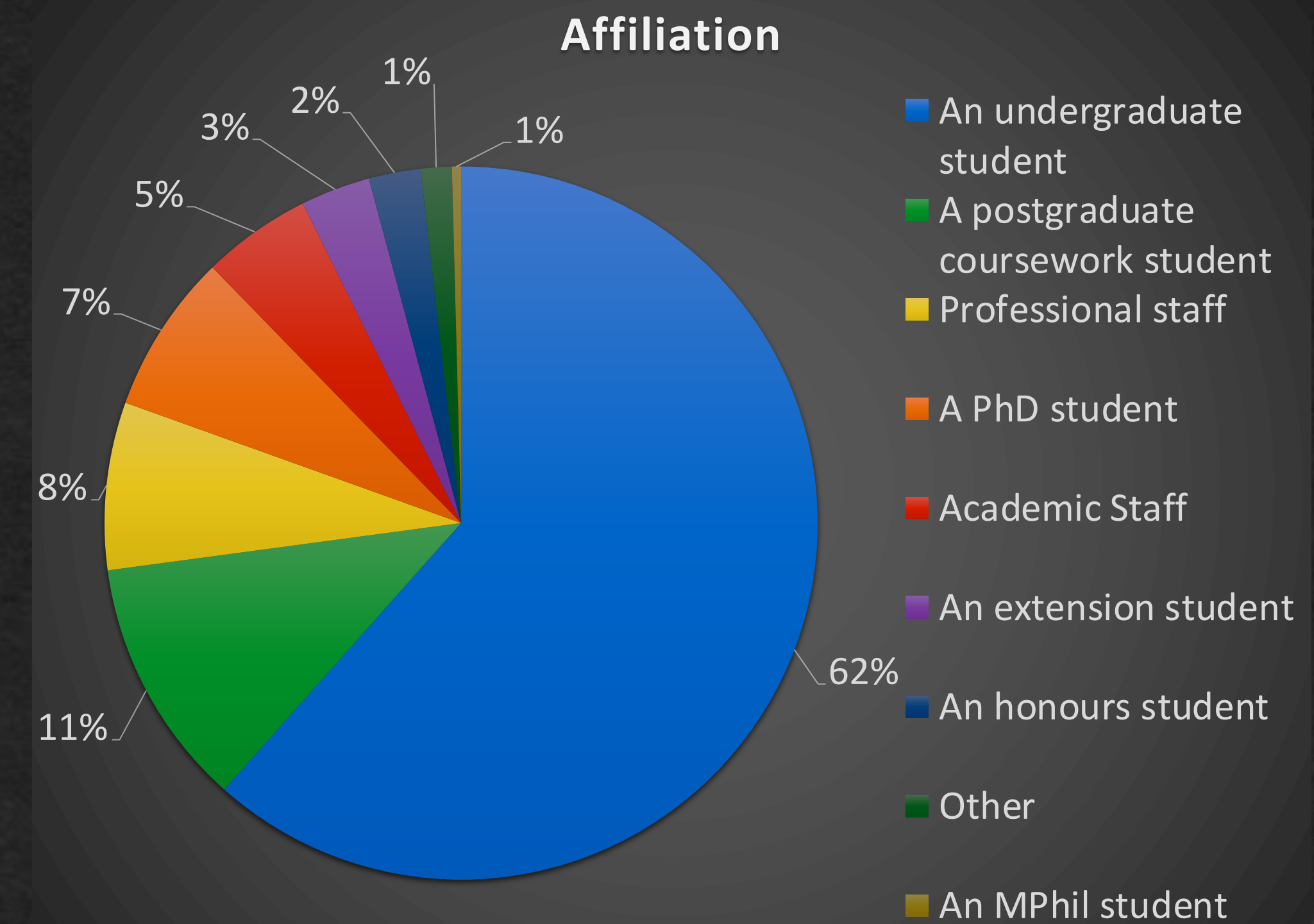
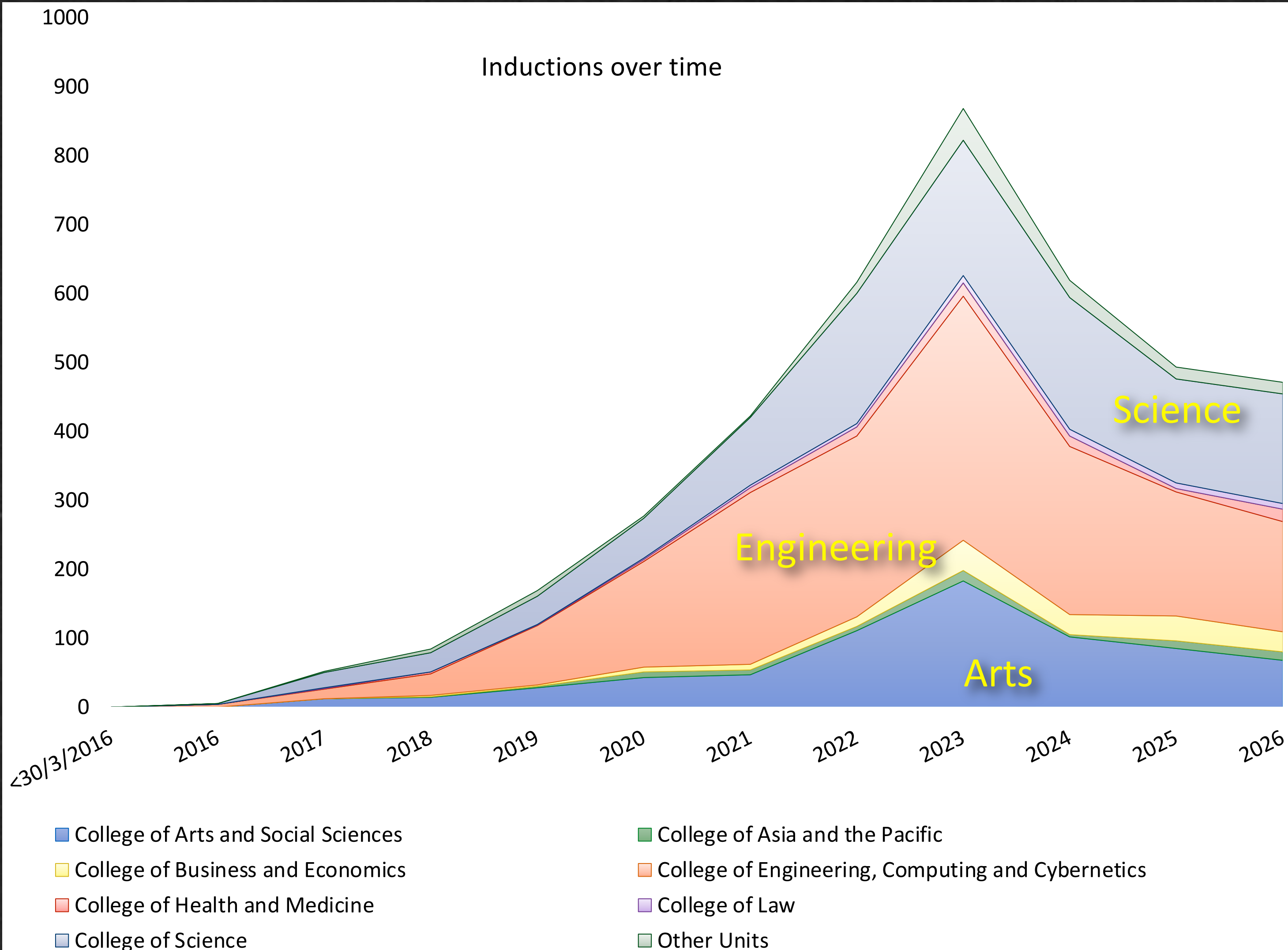


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MEMBER GROWTH AND DISTRIBUTION



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- Membership from all parts of ANU.
- >5000 members over time.
- >2000 members with current access.

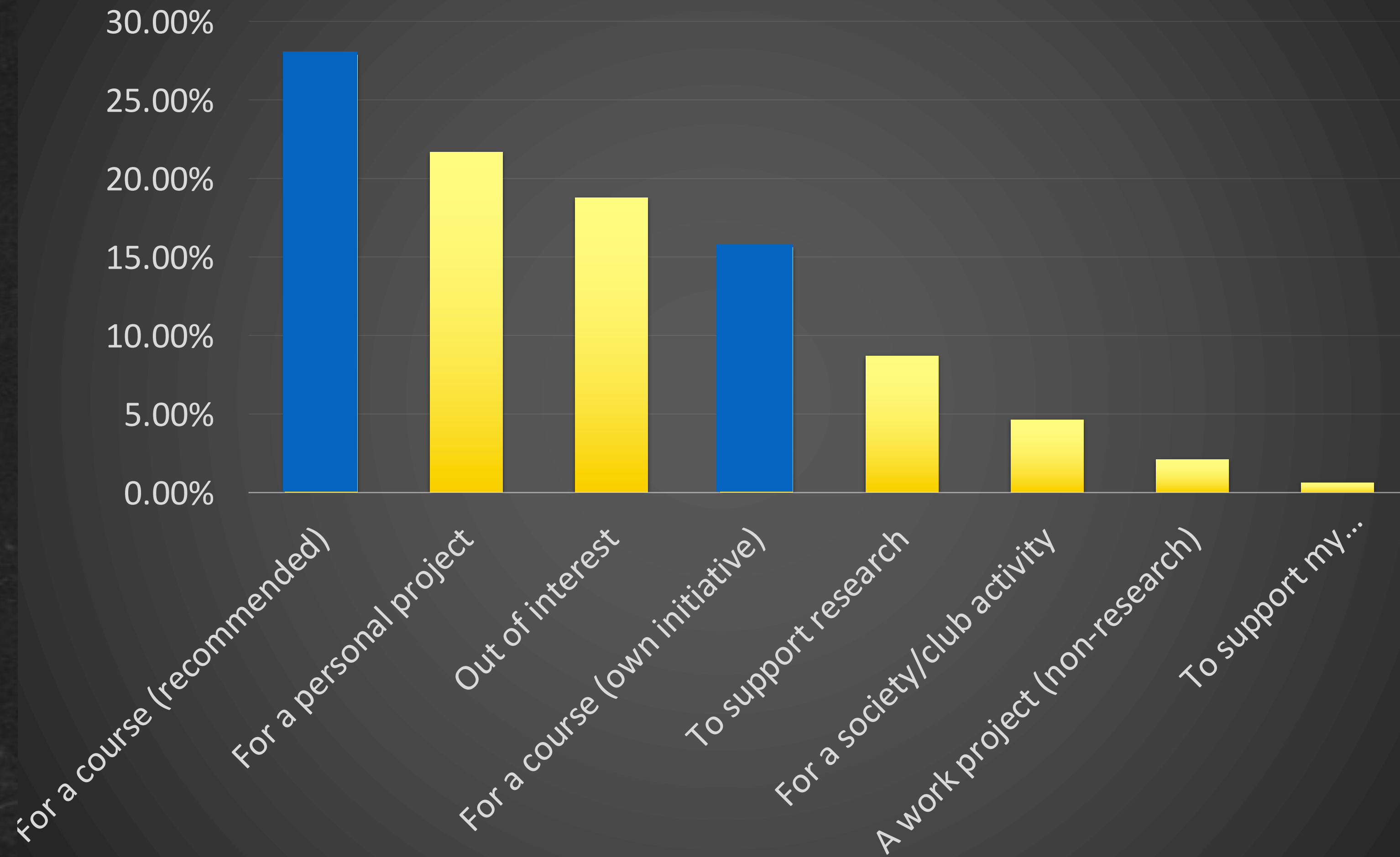
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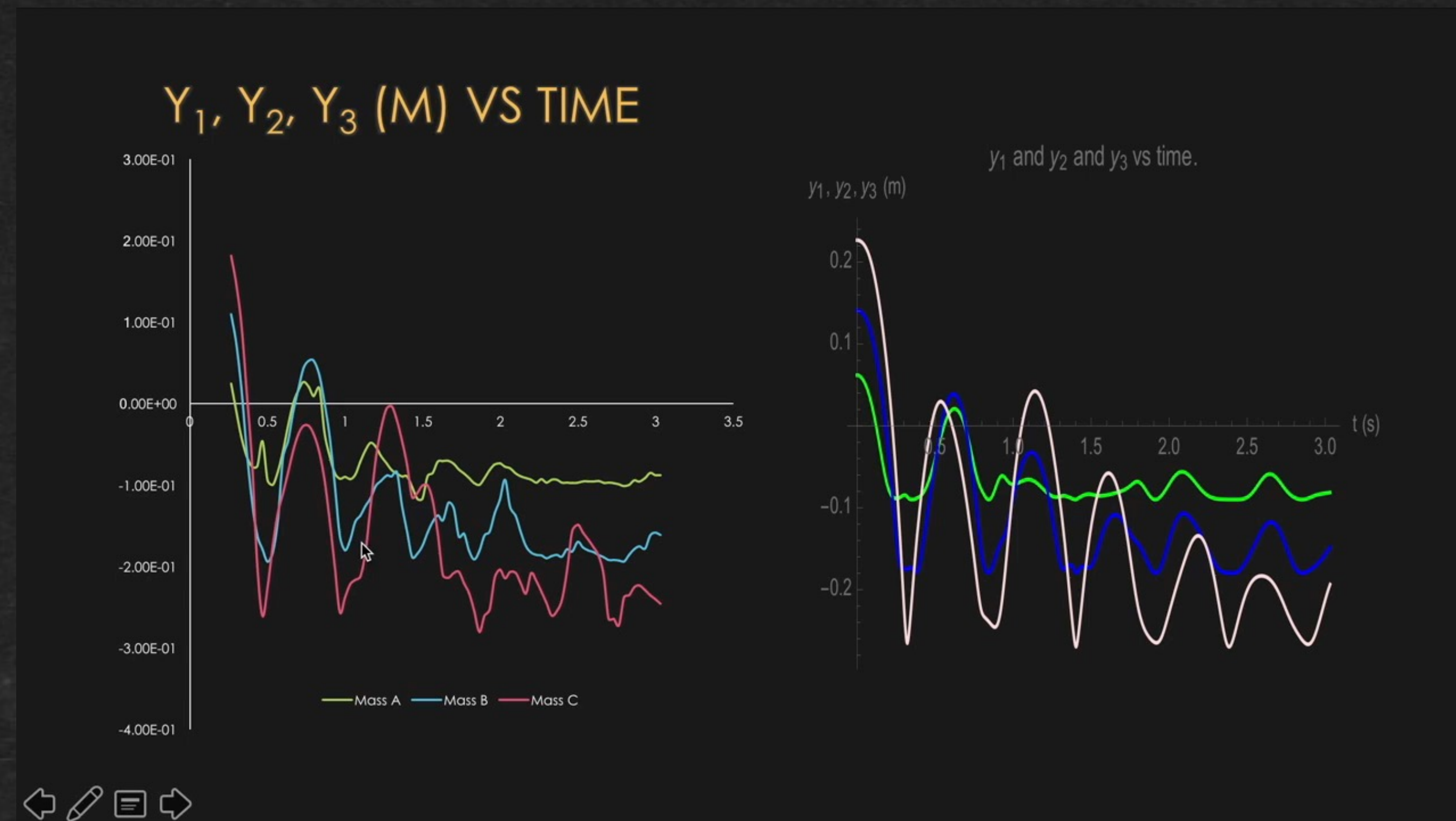
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Reason for Joining



- >40% join for coursework.
- ~130 unique course codes supported.
- Personal projects, interest, and research are other significant reasons.
- All in around 150sqm!

Physics 2 (PHYS1201): Modelling and measuring complex pendulums



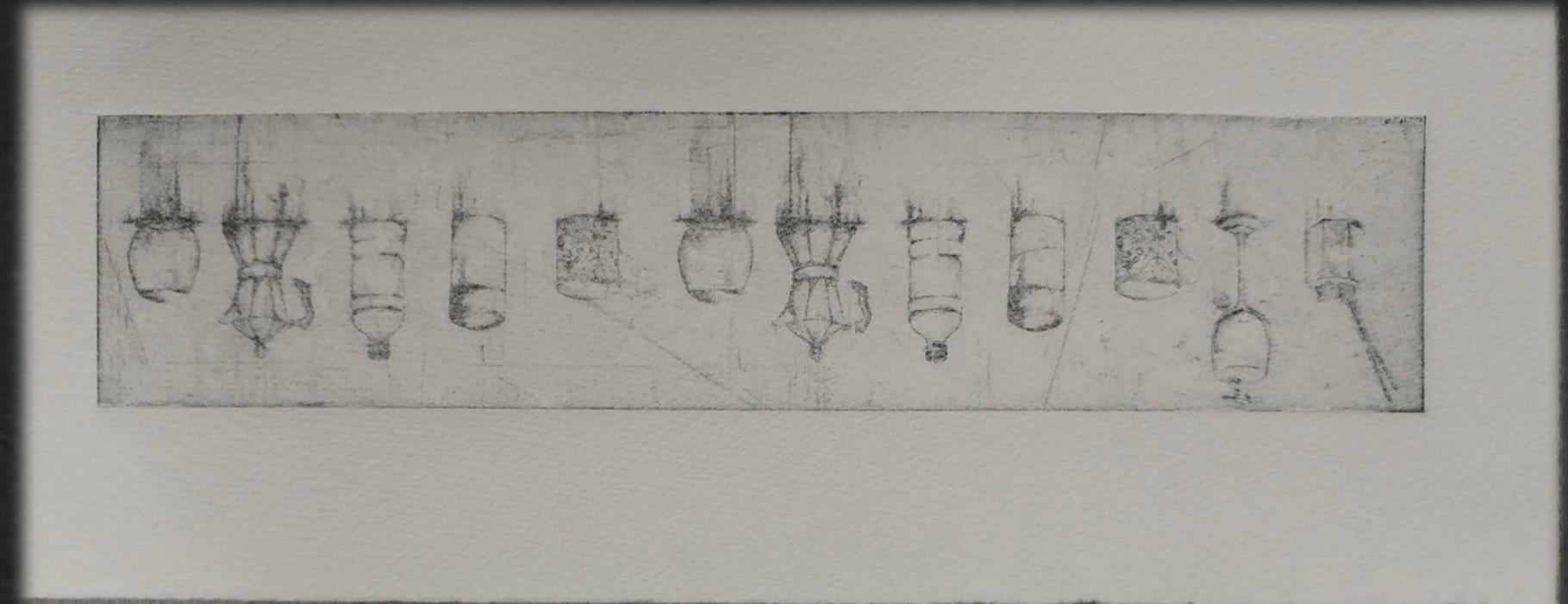
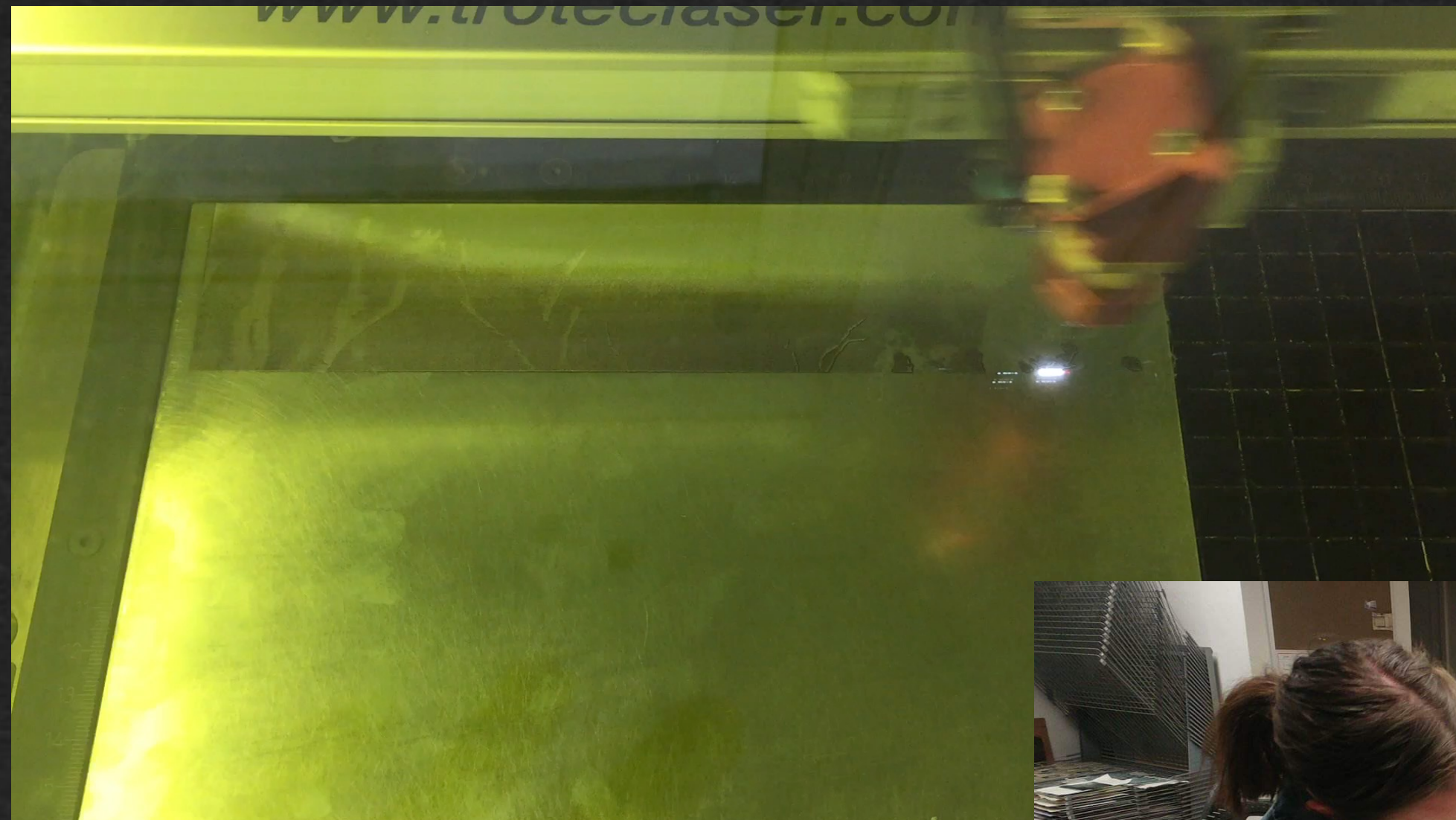
Kriti Tripathi & Zain Mehdi

PROJECTS: COURSEWORK

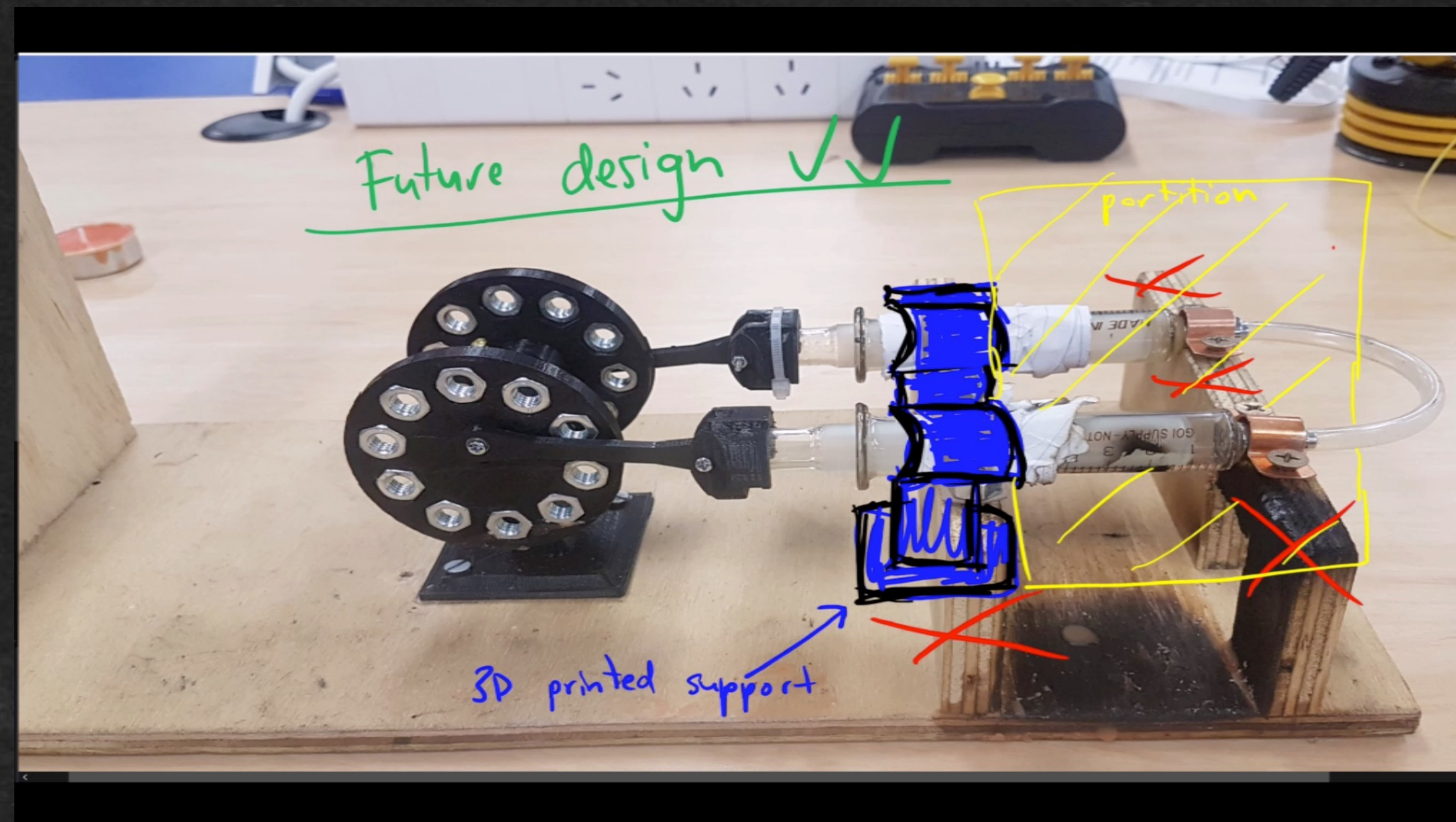


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2nd year Print Making & Digital Fabrication



Second-year Thermodynamics: *Making and modelling a Stirling Engine*



Lucas Rowe

PROJECTS: COURSEWORK



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Questacon Science Circus - Hovercraft Deep Dive



PROJECTS: COURSEWORK



PROJECTS: COURSEWORK



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First year Design (School of Art and Design)

PROJECTS: COURSEWORK



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First year Design (School of Art and Design)

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maker
space.



PROJECTS: COURSEWORK



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Building an automated air-filter after the 2020 bushfires (and during a pandemic!)



Ryan Husband

PROJECTS: RESEARCH PROJECTS/SUPPORT



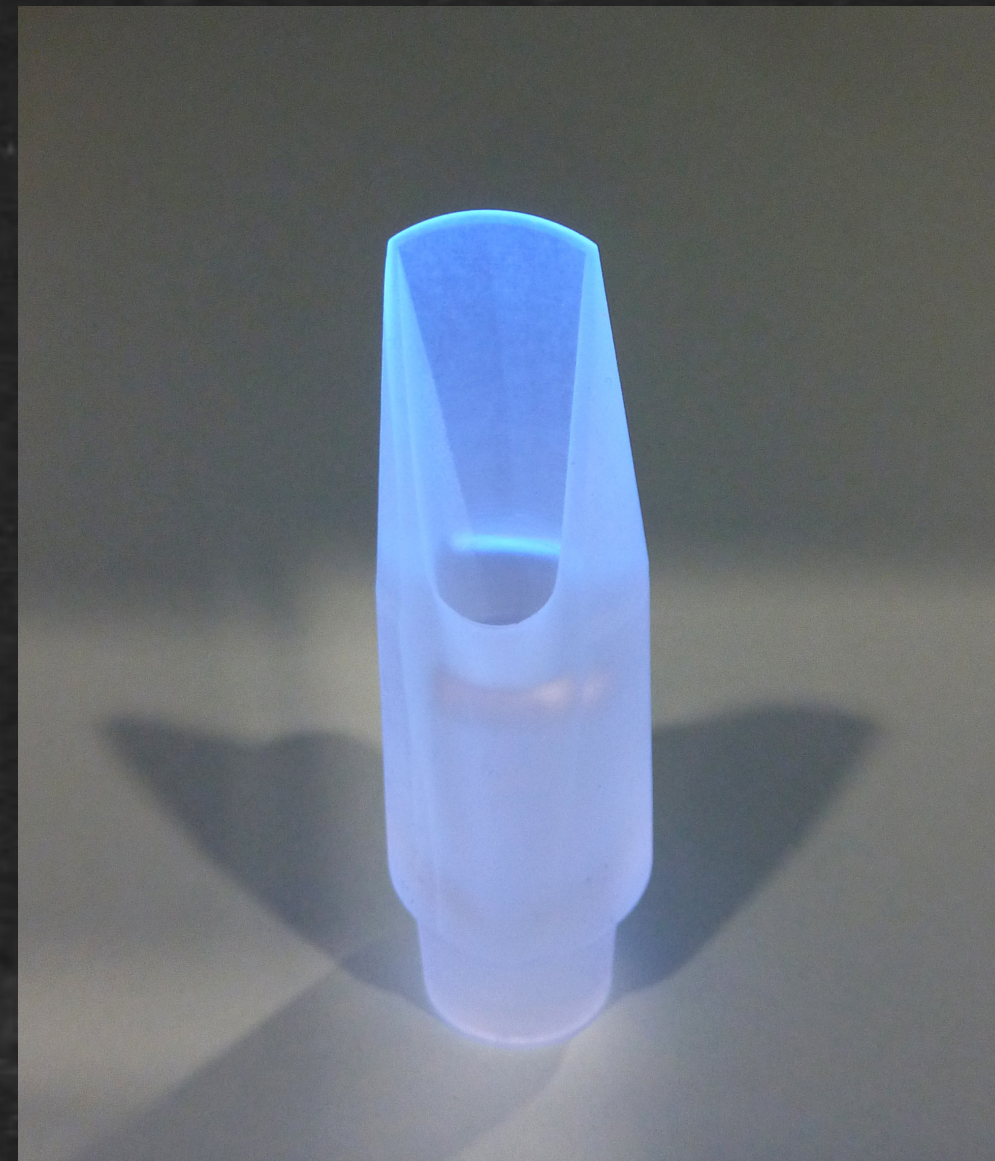
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Research Project (3rd year)

Design, Fabrication & Acoustic Modelling of Saxophone Mouth Pieces



@hugoleemusic



PROJECTS: RESEARCH PROJECTS/SUPPORT



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Research Project (3rd year)

Design, Fabrication & 3D Modelling of Saxophone Mouth Pieces

"This enabled me to further explore my field of acoustics beyond what would have been possible without the makerspace..." - Hugo Lee, March 2017

Hugo Lee

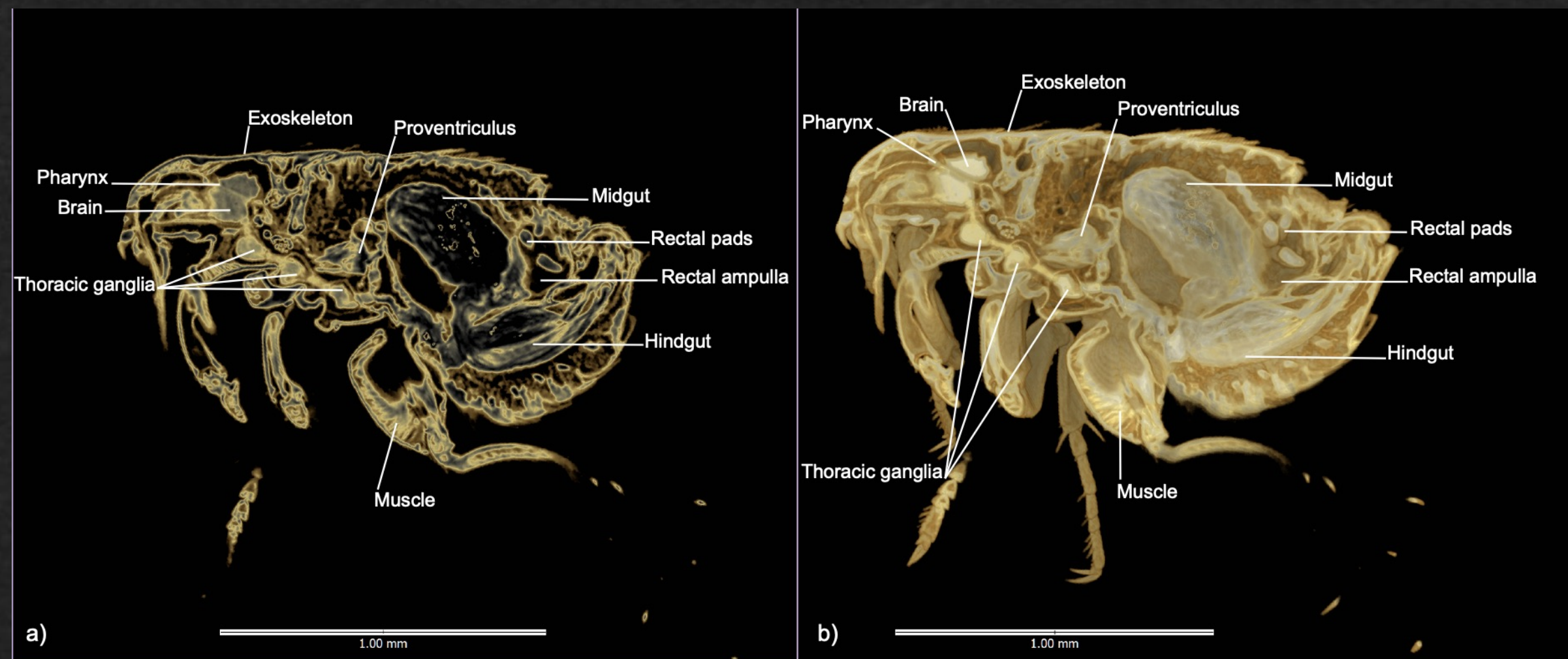
@hugoleemusic

PROJECTS: RESEARCH PROJECTS/SUPPORT



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Biology Honours
3D printed, anatomically correct flea



Richa Harnal

PROJECTS: RESEARCH PROJECTS/SUPPORT



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PROJECTS: PERSONAL AND MORE

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ASSESSMENT AND STUDENT EXPERIENCE



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- Students often say it motivates them and builds confidence
- Enables learning outside curriculum
- Natural support for transdisciplinary learning and projects
- **Assess process over product:**
 - Presentations or videos that weight process in the rubric
 - Reflections and Challenges
 - Scaffolded projects

RECOGNITION AND THANKS



Rachael
Woodwork/Mech Eng.



Jordan
Elec. Eng.



Cat
Textiles/Electrician

And countless mentors,
colleagues, tutors,
volunteers, and my
students!



@anumakerspace

<http://makerspace.anu.edu.au/>



Sophia



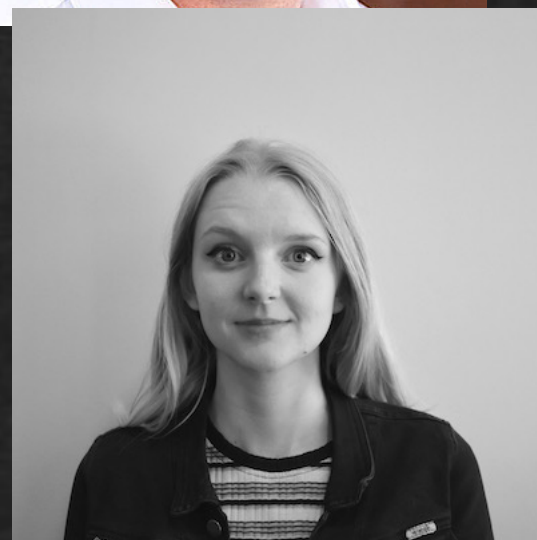
Tim



Ella



Liam



Saskia

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<http://makerspace.anu.edu.au/>



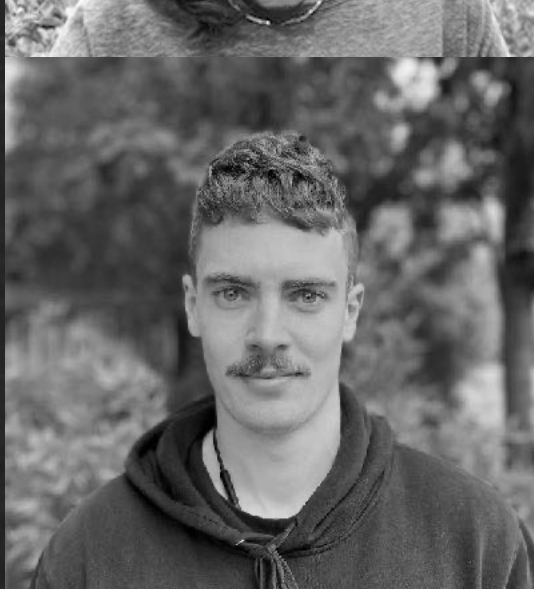
Sophia



Tim



Ella



Liam



Saskia

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