

# Employers Engagement in Work-Integrated Learning: University- Industry Collaboration in Curricular & Co-Curricular Studies.

Department of Civil & Environmental Engineering



**Sophie Grimes**  • 1st

Assistant Engineer (Highways) at Arcadis  
Glasgow

 Experience: Arcadis, University of Strathclyde, and 1 more



**Dr Michael Murray**  
Senior Teaching Fellow



**Elizabeth A.** • 2nd

Civil Design Engineer at Civic Engineers  
Glasgow

 Experience: Civic Engineers

# Programme Accreditation

Joint Board of Moderators 2023 Guidelines for Developing Degree Programmes (Version 1 Revision 3 – 26 July 2023)

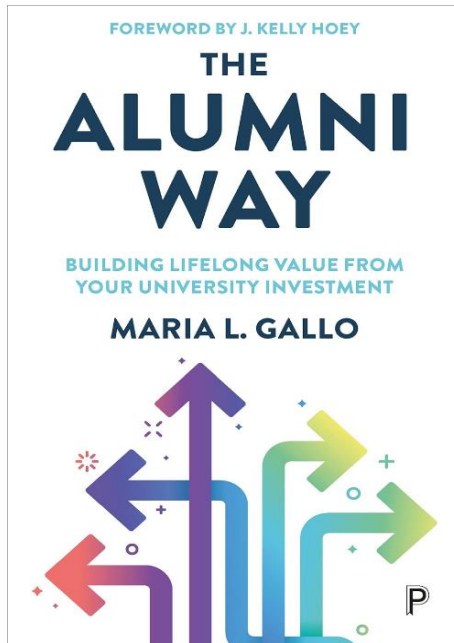
[https://www.jbm.org.uk/media/hdojdcyf/guidelines-for-developing-degree-programmes\\_ahep4.pdf](https://www.jbm.org.uk/media/hdojdcyf/guidelines-for-developing-degree-programmes_ahep4.pdf)

- Industrial Influence & Input in Degree Programmes
- There should be strong, viable and visible links between departments and the profession. It is essential for BEng and MEng that local practising engineers should become involved with the education of students (p.30).

Zegwaard K E Pretti T J Rowe A D and Ferns S J (2023) **Defining work-integrated learning**. In K. E. Zegwaard & T. J. Pretti (Eds.), *The Routledge international handbook of work-integrated learning*, 3rd ed. London: Routledge. pp. 29-48.

- Students undertake authentic work-focused tasks.
- The tasks are either curricular or co-curricular but not extracurricular.
- Students engage in purposeful learning tasks learning through doing.
- Tasks involve students integrating theory with practice.
- Tasks require students to work in a similar way to that expected of a professional in industry.
- Tasks are relevant to the students' discipline of study and/or professional development / career interests.

Gallo M L (2021) *The Alumni Way: Building Lifelong Value from Your University Investment*, Bristol: Policy Press



- Alumni are like bees to the university hive. We explore far away fields collecting pollen. We enable flowers and plants to pollinate, bloom and thrive. **As we return to the hive, we release our collective wisdom, to ensure the hive prospers, creating the nourishment for others-and for ourselves.** Without the return of these alumni bees, the hive is merely a shell. As alumni, we are the key external connections in the university biosphere (p.39).



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## Industry Mentoring 2010-2024



- 1130 3<sup>rd</sup> year civil & environmental engineering student mentees.
- 294 groups comprising between 4-5 mentees.
- 306 Industry mentors.
- 80 Employers (44 consultants; 26 contractors; 10 clients).

# Civil Engineering 4 Real (CE4R)

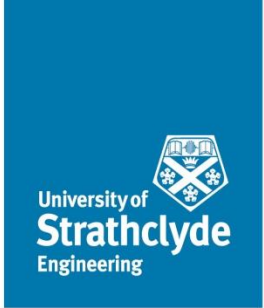
## Project & Problem Based Learning for Undergraduate Civil Engineers

### 2012-2024



- 133 x 2hr workshops (Monday 5-7PM).
- 594 undergraduate students attended one or more workshops (years1-5).
- 2867 student attendances. X 2hr workshop = 5734 hrs. of student IPD whilst at university.
- 76 industrial partners (30 contractors / 38 consultants / 8 clients).
- 218 industry workshop presenters (Including Alumni).

- Talent Pipeline for Employers
- Evidence of Adding Social Value
- Evidence of Corporate Social Responsibility (CSR)



**PROJECT SCOTLAND**



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News

## Strathclyde students complete GRAHAM mentoring scheme

6 June 2017

Advertisement



Tony Dixon, GRAHAM Construction contracts manager, with a group of University of Strathclyde engineering students



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## NEWS

### HAVE YOU GOT WHAT IT TAKES TO MEET OUR CE4R CHALLENGE?

14.02.2019

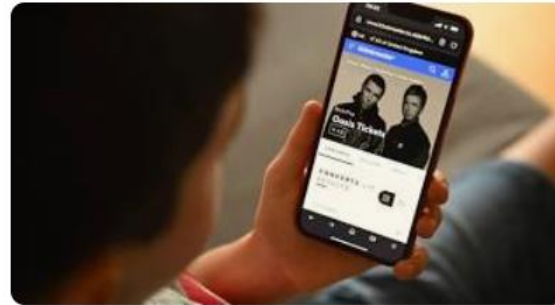


This week saw AWD host the latest of the **University of Strathclyde's** Civil Engineering for Real (CE4R) workshops, attended by 34 civil engineering students.

The workshop series sees students work with professional engineers to tackle real-life engineering problems, allowing them to get hands on experience of industry projects and develop critical thinking skills in a supported environment. The workshop was also a great opportunity to highlight to students the important role temporary works and access engineering play within the construction sector.



# A “Win-Win” without the “Ching”



Noel and Liam Win= You Lose!

 POLITICO.eu

Oasis Ticketmaster fiasco prompts UK probe into 'dynamic pricing'

Pro Bono  
Win-Win

- Undergraduate students secure industrial capital.
- Graduate engineers enhance their Initial Professional development(IPD).
- Employers secure talent pipeline + CSR Kudos.
- Department secures more motivated students (anecdotal).
- University can demonstrate employability and employment.
- Professional Institutions (i.e Institution of Civil Engineers) secure exposure.
- Lecturer remains embedded in industry practice.



# Reading

- Murray M Ross A Blaney N and Adamson L (2015) Mentoring Undergraduate Civil Engineering Students. *Proceedings of the ICE-Management, Procurement & Law*, 168(4): 189–198.  
<https://doi.org/10.1680/mpal.1400043>
- Murray M Hendry G and McQuade R (2019) Workplace Experience: Co-curricular Learning for Undergraduates 2012-2019. In, *New Approaches to Engineering Higher Education in Practice*, The Institution of Engineering and Technology (IET) and Engineering Professors' Council (EPC). pp 36-39,  
<https://www.theiet.org/media/8784/new-approaches-to-engineering-higher-education-in-practice.pdf>
- Murray M Hendry G and McQuade R (2020) Civil Engineering 4 Real (CE4R): Co-curricular Learning for Undergraduates. *European Journal of Engineering Education*. 45(1):128-150.  
<https://doi.org/10.1080/03043797.2019.1585762>
- Murray M (2022) An Industry-Student Mentoring Scheme 2010-2022, Engineering Professors Council Crucible Project, 16th February, Session 1: Collaborating with industry for teaching and learning,  
[https://strathprints.strath.ac.uk/81026/1/Murray\\_EPC\\_2022\\_An\\_Industry\\_Student\\_Mentoring\\_Scheme.pdf](https://strathprints.strath.ac.uk/81026/1/Murray_EPC_2022_An_Industry_Student_Mentoring_Scheme.pdf)



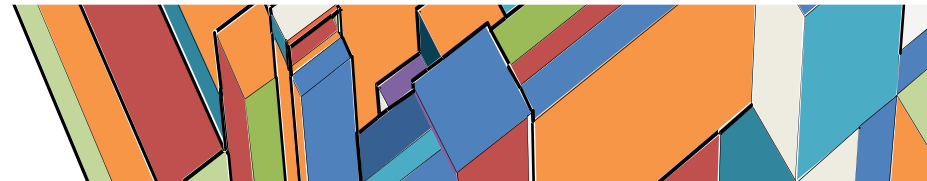
# **CE4R: Employability Skills and Professional Knowledge**

Sophie Grimes MEng GMICE



# ABOUT ME

- Graduated with Distinction in Civil and Environmental Engineering in 2021 from the University of Strathclyde
- Highways Engineer with Arcadis in Glasgow
- Attended CE4R sessions from years 1-5 gaining 60+hrs of CPD



# Employability Skills



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## PROBLEM SOLVING

Ability to pull out key  
issues from client's  
brief



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## COLLABORATION

Working in new and  
diverse teams



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## DESIGN

Practising options  
appraisal under time  
pressure

# Professional Skills



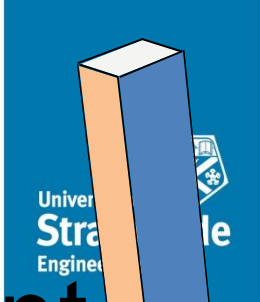
Commitment to CPD/Professional  
Development



Leadership and  
Time Management



Seeking  
Sustainable  
Solutions



# CE4R and Seeking Employment

## CV Building

- Removes the barrier of not having engineering experience

## Demonstrates Professional Commitment

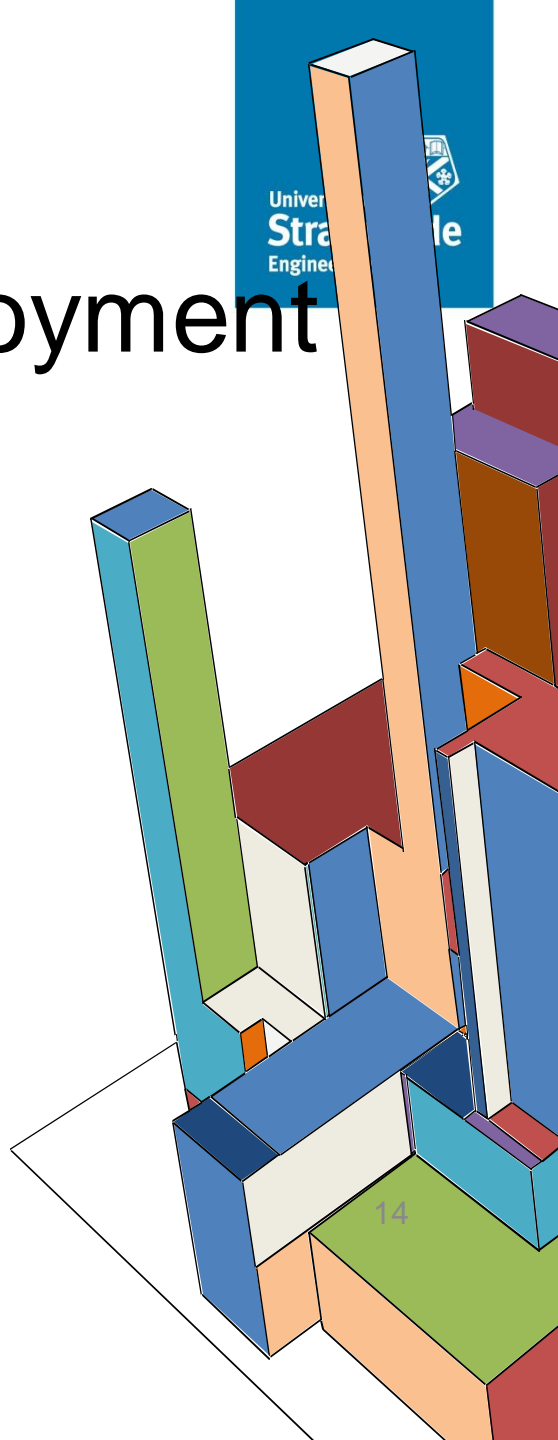
- Understanding the importance of CPD before graduating

## Interview Technique

- Provides discussion points
- Personalised to companies

## Diversifies Employer Options

- Clients/Contractors/Consultants of varying sizes
- Arcadis – “industry’s best kept secret”



# CV Benefits

24<sup>th</sup> January 2019

Dear Colin Walker,

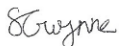
I am writing to you because I am interested in a summer placement with your company this year. I have seen details of placements available on Arcadis's website and would like to get experience working as either a bridge or geotechnical engineer. I have accommodation in Glasgow, Edinburgh and Aberdeen but I am willing to go wherever the opportunity is.

I would like a placement with you because I have enjoyed being mentored by you so far and learning about the company. By listening to other employees, I can see that Arcadis is a company that would be able to support me through getting my chartership. This is my next goal after I graduate from my Masters at the University of Strathclyde. I would also like the chance to work on big projects such as the London Bridge Station upgrade work. I visited Bam Nuttall over the summer to see the work they are doing on the tunnel shaft drainage and earthworks as part of this project. This visit was part of the prize I won as the Strathclyde ICE Student President 2017 award.

I am in my third year of a Masters in Civil Engineering which I have been achieving high grades in. I have been enjoying modules related to geotechnical and bridge engineering. However, my experience from regularly going to Civil Engineering 4 Real workshops has shown me that there are parts of other fields that interest me so would be happy to experience different areas.

Thank you for taking time to consider my application. I look forward to discussing what opportunities there are for me at Arcadis as well as continuing to work with you on the mentor programme.

Yours Sincerely,



Sophie Gwynne

## Experience

September 2016 – Current | Term-Time

Class representative for Civil Engineering | University of Strathclyde | Glasgow


I am responsible for dealing with any issues that students face in relation to the course. I have received training on how to effectively approach members of staff and work with them to solve issues. I created a Facebook page for issues and comments to be made by students. I attend Staff/Student Liaison Committee meetings on behalf of my course to raise issues along with attending Student Parliament every month.

September 2016 – Current | Term-Time

Civil Engineering 4 Real Workshop Attendee | University of Strathclyde | Glasgow

During term-time I attend a Civil Engineering workshop held at the University of Strathclyde. This workshop runs on Monday evenings and consists of different Civil Engineering companies coming in to present a project they have worked on. I then, as part of a team of 3-5, work on the project presented to come up with a solution. An example would be trying to minimise the land required to place a footbridge over a 36m railway line with other constraints. This was part of the problem that Chris Short and others presented in January 2019. I gain 2 hours of CPD certification for each session I attend and currently have 28 hours from this.

# Interview technique

Thank You Paul 



**Sophie Gwynne** <sophie.n.gwynne@gmail.com>

 2 Mar 2019, 11:30    

to Paul 

Hi Paul,

Thank you for taking the time to meet with me and discuss the summer placement opportunity yesterday. It was great to hear about your passion for the company and your experience so far.

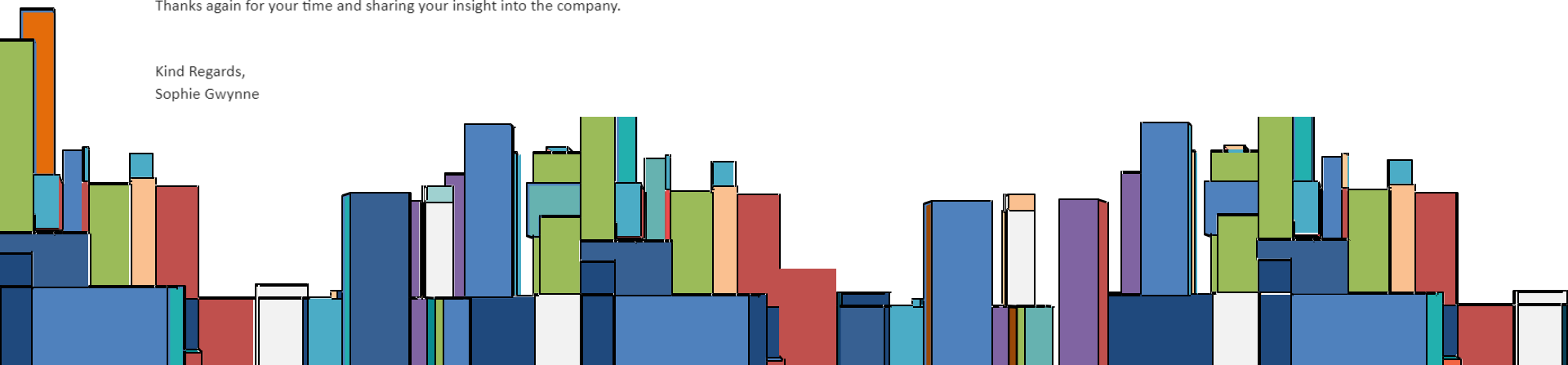
Listening to what you had to say about the new highways team has made me very excited to join Arcadis. In particular, I was thinking about the reason you said Arcadis created this team. I think it's a very smart move to capture an area of the market that others are missing and I'm sure this will create some very interesting projects to work on.

I also had a think about the work you mentioned on the A9. In one of the CE4R workshops I attended last year we were given a problem further up this road near Killiecrankie battlefield. In addition to looking at the geotechnical/structural/environmental aspects of highways engineering, we also had to consider the practicalities of delivering the project by 2025 as planned. Through revisiting this project and speaking to you yesterday, I can see there are many different parts which come together on highways projects. I think a placement with you would give me to opportunity to see many different areas of the company through a project.

If you need any additional information from me, please feel free to contact me. Until then, I look forward to hearing from your team next week.

Thanks again for your time and sharing your insight into the company.

Kind Regards,  
Sophie Gwynne





# Employer Feedback

**Bilan, Joe** <joe.bilan@arcadis.com>  
to me ▾

4 Mar 2019, 13:32 ☆ 😊 ↶ ⋮

Hi Sophie,

Thank you for your e-mail and your wishes.

It was nice to meet you and get to know more about you last Friday.

I am glad we were able to provide you with a clear image on the company and why we chose it. The reason why I am keen to do these interviews, is to help any one early in their career get a good understanding of what to expect from Arcadis and any other company. Many companies will provide promises of multi-disciplinary exposure but very little of them would actually deliver. I believe that any graduate should be entitled to try all relevant disciplines before choosing a role they are comfortable with and I know parts of Arcadis offer that.

I was highly impressed with your cv and your extra curriculums after studies. It really showed us how determined and well-motivated you are, especially after telling us you were going back to the University to hand down leaflets to for your faculty rep re-election. I wish you a Good Luck in your application with Arcadis and also with your election for the Faculty Representation for Engineering.

If you require any assistance, please do not hesitate to contact me.

Regards,

**Joe Bilan MSc BSc** | Assistant Engineer | [Joe.Bilan@arcadis.com](mailto:Joe.Bilan@arcadis.com)  
**Arcadis** | 180 West George Street Glasgow | G2 2NR | UK  
[www.arcadis.com](http://www.arcadis.com)



# SUMMARY

- Invaluable and unique extra-curricular to help students stand out
- Sets students up for professional development in their careers
- Enjoyable way to get “hands-on” experience quickly and in a range of scenarios

THANK YOU

Any  
Questions?



# Employment Showcase - Mentoring Benefits

Elizabeth Aspinall

thriving  
together

## Step One

Mentorship



## Step Two

Internship

## Step Three

Long term  
employment and  
beyond.

## About me

- Civil and Environmental Engineering at University of Strathclyde between 2018-2022.
- I am currently a Design Engineer at Civic Engineers.
- Undertook mentoring in 2021 with Civic Engineers which lead to a 14 week internship and then long-term employment.



## Mentoring outline

- Took place over several months via online meetings, facilitated through a compulsory module. Concluding with an assessed piece of work and reflective report.
- Allowed a hands-on look into the workplace, allowing me to see what my day to day would look like as an engineer.



## Mentoring into Internship

- Mentoring helped me prepare for my internship by allowing introduction to team members early on, as well as allowing me project insight.
- In turn, this allowed me to improve my professional skills and make a good impression whilst hitting the ground running.

# Benefits Overview

- Mentoring helped confirm the type of employment I was seeking post graduation.
- Mentoring facilitated a palpable confidence improvement.
- The professional connections made through mentoring allowed me to work with Civic through my dissertation, using one of their projects as a research subject.
- I was able to participate in the mentoring scheme from the other side in 2022-2023, a lovely full circle moment!



CIVIC

**Thank You**

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together