



THE **MAY** GROUP

STRENGTHENING THE FABRIC OF ORGANISATIONS

# ANU COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

  

# CULTURAL AUDIT

Report of Findings

The May Group  
October 2016

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## INTRODUCTION

Across Australia and the world, women are under-represented in the fields of Science, Technology, Engineering, Mathematics and Medicine (STEMM). Women make up 20% of engineering graduates, but it's been estimated that nearly 40% of women who earn engineering degrees either quit or never enter the profession.<sup>1</sup>

Female students do as well or better than male students in school—but often point to the hegemonic masculine culture of engineering itself as a reason for leaving.<sup>2</sup> When women encounter a culture where sexism and stereotypes are left unaddressed, and where only lip service is offered toward improving this situation, they are disproportionately alienated from the field. In order to curb the high rates of women leaving the field, it is recognised broadly that STEMM programs must ameliorate the impact of bias, stereotypes and discrimination, and cultivate a more inclusive environment.

The Australian National University has made a broad commitment to gender equity, supported by participation in the SAGE Athena Swan pilot program and various initiatives around the institution: *'To achieve gender equity we need a cultural shift. We need to stamp out the culture of exclusion and unconscious bias that leaves many women feeling discouraged and marginalised.'* (Brian Schmidt, ANU Vice-Chancellor). These projects aim to increase the representation of women in STEMM fields of study and research, ultimately cultivating more robust ideas, innovation, and problem solving in academia.

The ANU's College of Engineering and Computer Science (CECS) engaged The May Group to identify any unconscious biases or barriers impacting the experience of female undergraduate students, and to provide recommendations to address this issue.

In a College that has a rate of only 20% women in a body of over 1200 undergraduate students, it is imperative that those women are valued and inspired while at university. Our findings show that the College of Engineering and Computer Science clearly needs to do more to support female undergraduates through their time and experiences at CECS.

Effectively responding to the needs and interests of a diverse pool of men and women requires providing all students with equal and full opportunity to learn, receive support, and be assessed fairly. By undergoing this cultural audit process and following through on subsequent recommendations, CECS has the potential to attract a broader range of students and benefit from a richer array of talent, ideas and academic perspectives, as well as possibly identify and ameliorate

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<sup>1</sup> Susan S. Silbey, 'Why do so many Women who study Engineering leave the field?'. August 23, 2016, *Harvard Business Review*.

<sup>2</sup> *Ibid.*,

cultural discrepancies between how men and women experience STEMM environments early on.

## Scope of Audit

25 students participated in this cultural audit: 12 women and 13 men<sup>3</sup> in 5 focus groups. Participants responded to around 20 broad questions<sup>4</sup> about their experiences, observations and perspectives of studying at CECS.

Although only a small number of students participated in the audit, a consistent story emerged, as well as several alarming experiences that need to be addressed. We hope that the findings of this audit act as a catalyst for change.

Participant feedback was analysed through the two interdependent lenses of inclusion<sup>5</sup>:

### 1. Support and Respect:

*Do all students feel equally valued, supported and respected?*

- Connected to the group?
- Safe and confident to speak up and contribute?
- Inspired to do their best?

### 2. Equity of Opportunity:

*Do all students have equal opportunity to participate, contribute and excel?*

- Equal access to staff and faculty?
- Equal access to resources for learning and support?
- Fair assessment of performance and potential?

## Key Findings

Students agreed that hard work, commitment, and a passion for the subject matter were shared traits of undergraduates in engineering and computer science.

Many students experience the College as inclusive, with some divides evident: between Engineering and Computing students; Domestic and International students; and Research & Development and non-R&D students.

Men and women students have equal access to resources and structural support provided by the College, and both experienced ambivalence from tutors and

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<sup>3</sup> This audit was conducted through a binary gender lens, specifically to identify issues facing women. However, we acknowledge that gender identity is not always binary, and that students identifying as transgender, gender non-conforming, and otherwise may have divergent experiences.

<sup>4</sup> See Appendix B

<sup>5</sup> Adapted from Deloitte Australia, Victorian Equal Opportunity and Human Rights Commission report: *'Waiter, is that inclusion in my soup?'* November 2012.

lecturers. However, critically, the experiences of women differ markedly from those of their male peers:

- Women regularly experience sexual harassment and discomfort;
- Women feel excluded or isolated amongst peers due to their gender;
- Women are not considered in the planning of social events and often feel uncomfortable attending;
- Men are more likely than women to feel a sense of connection with their tutors and lecturers;
- Gender bias from peers and faculty affects women's experience of coursework and assessment;
- Overall, women experience a less inclusive environment than their male peers.

These findings are expanded upon below.

## REPORT OF FINDINGS

### Women's Early Experiences

Studying for an undergraduate degree is a key transition point in the lives of many. What students learn and experience in their time at university can greatly impact their understanding of themselves, their abilities, and what they choose to follow in their career.

Women who have chosen to study at CECS have often already faced stereotyping and assumptions about their abilities:

- *'For ANU open day...I was talking to a professor and I was describing what I wanted to do, and he suggested the BIT, which is definitely an inferior degree and I had an ATAR that would allow me to get into the harder one.'*
- *'ANU had an event in Melbourne where the guy told me that Biomedical was what most women did, when I told him I was interested in Maths.'*
- *'People are always surprised I do engineering, and then ask why didn't you do law or arts.'*

They are also conscious of their future opportunities, considering both the potentially inhospitable environment of a workplace and the difficulty in managing a career and family:

- *'After talking to people in the industry, they say you need to take 2 or 3 years off to have children and it's so hard to get back into the field after that.'* (Engineering woman)
- *'I have had a lot of people comment to me that it's going to be super easy to get a job as a woman in engineering, but I don't think that's true because all employers have their own biases and you are still going to face the bias once you are in the workforce.'* (Engineering woman)
- *'It's harder for women to balance work and life. Engineering and Computer Science are fields you need to constantly upgrade but if you have that other dimension [of family] it's really hard.'* (Computing man)

## CECS Culture

How do men and women perceive their environment within the College?

### Engineering:

CECS is: *'Close', **family-like** community', 'not as competitive, more **helpful**', 'relaxed'*

People are: *'Motivated', 'switched-on', 'quite **friendly**', 'happy to help out', 'supportive', and 'Can strike up a conversation with anyone'*

### Computing:

Computing is: *'Technical', 'direct', 'straightforward'*

Men said:

### Engineering:

CECS is: *'**Competitive**', 'lots of face hours', 'lots of group work', 'very math based', 'practical', 'supportive'*

People are: *'smart', '**hard-working**', 'easy-going', '**busy**', 'everyone supports each other'*

### Computing:

CECS is: *'Disengaged', '**cliquey**', 'quirky', '**anti-social**'*

People are: *'clueless', '**male**', 'gamers', 'weird', '**elitist**', 'geeks (embodiment of a stereotype of a geek, almost what you wouldn't expect to be real)'*

Women said:

## **Experiences of Inclusion: Support and Respect - *Do all students feel equally valued, supported and respected?***

### **1) Do all students feel connected to the group?**

Many men, and women at a superficial level, feel supported by their peer group:

- *'They include you in group assignment groups...when we have a hard assignment there is always a group chat when people help each other out.'* (Engineering woman)
- *'Everyone is actively involved in the group assignments, when we book a study room for two hours we have a good discussion on the topic, we distribute the work load and everyone does their own job pretty well.'* (Engineering man)
- *'Sometimes my classmates help me more than the tutors themselves. They help when I'm stuck even outside of classwork...we help each other get through the course.'* (Computing man)

Engineering men feel a sense of personal belonging and connection, especially through inclusion in social events:

- *'ESA has Engibeering, which is quite a social event. Access to other students outside of study is pretty good, especially if you're in Engibeering. Last week we all went out wearing high-vis vests, the theme was tradies.'* (Engineering man)
- *'The ESA is great to socialise; they organise so many events like free BBQs so you can meet many new people like my friends are from there.'* (Engineering man)
- *'It's very inclusive, very warm, lots of camaraderie. Within peers it's pretty inclusive. I haven't experienced any direct student to student exclusiveness.'* (Engineering man)
- *'I definitely haven't seen any inherent bullying around the college, I think it's a pretty respectful place. On a whole I feel really supported by my peers and I think people share similar values to me.'* (Engineering man)

However, women are significantly less likely to feel connected overall. Women's experience of connection is diminished because social events do not cater to their interests:

- *'If you aren't into drinking you are cut out of I would say 75% of the events that are held.'* (Engineering woman)
- *'The drinking culture is less inclusive for women and international students.'* (Engineering woman)
- *'CSSA plans are for predominantly male interests, and it ends up in a negative loop.'* (Computing woman)

67% of women identified exclusion from informal networks as a barrier to their success at the college. Notably, only 8% of men indicated that this was a barrier for women<sup>6</sup>:

- *'A lot of people from my lab last semester would go to the pub after, and it would be entirely male. Even if I was invited, it just wasn't an environment where I felt comfortable.'* (Computing woman)
- *'I just feel like I don't have any peers, I feel so disconnected from the community, I don't even know if there is a community that exists for other people. I feel like a Dickens orphan watching outside from the window.'* (Computing woman)

Women also feel socially isolated in classes and in coursework:

- *'I feel like I actually probably haven't made any friends in computer science, and I don't know if it's a 'me' thing or the typical personality of people in the course. I have also been the only girl in all my subjects and that also makes it really hard.'* (Computing woman)
- *'Sometimes it's hard to know who to ask about certain things. Making the initial contact can be difficult.'* (Engineering woman)
- *'Collaborating isn't an option if you don't have any friends in the subject.'* (Computing woman)

Women feel excluded when they experience gendered bias and expectations from their male peers:

- *'Sometimes I feel like they think you only got in because you are a girl and your level of work isn't as good as their level.'* (Engineering woman)<sup>7</sup>
- *'There is such an expectation amongst the guys in the classes that you don't really belong there.'* (Computing woman)
- *'In group working if you say things guys won't listen or consider what you say, but then a guy will say the exact same thing and they will think it's a great idea.'* (Engineering woman)
- *'There's no interest for the men to form constructive relationships with the women in the class because they have enough of themselves.'* (Computing woman)
- *'I feel like you are more of an object because there is not enough of you to make up a group in the cohort, you're a novelty and don't matter as much to them.'* (Computing woman)
- *'I think of the women in the engineering school as a group separate to us...'* (Engineering man)

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<sup>6</sup> Appendix C.

<sup>7</sup> Appendix C: Stereotyping and Assumptions was indicated by both men and women to be the largest barrier to women's academic success in the college.

It is important to note that some men, primarily international students, also indicated markedly sexist views and opinions:

- *'Women are more good at history, arts, literature and males are more good at engineering, computing – that's the nature of difference I guess.'* (International Engineering man)
- *'I don't have the statistics of grades, but I have the feeling that female students have lower grades and boys are more active in class.'* (International Engineering man)
- *'Only a few girls will keep going in further study once they graduate ...only a few female students are willing to go to further study and put in further effort.'* (International Engineering man)

## 2) Do all students feel safe and confident to speak up and contribute?

75% of women and 77% of men identified lack of confidence as a barrier to women's academic success at the College<sup>8</sup>:

- *'I feel like you need more confidence as a woman just to get to the same point. You feel like you didn't deserve it, you got it because you are a woman, and no one really expects anything from you.'* (Computing woman)
- *'Sometimes I feel like I just don't think the way I am supposed to for what we are supposed to be doing.'* (Computing woman)
- *'The other issues all feed into this issue. Because they are in smaller numbers they might feel a lack of confidence from the get-go. The other issues then compound on them maybe not feeling confident or that they don't fit in.'* (Engineering man)

Most women do not feel confident to speak up and contribute in classes and feel considerably less confident than their male peers to contribute in informal discussions with other students<sup>9</sup>:

- *'I am always too scared to ask questions in lectures. I think it has to do with when I emailed my lecturer and he deflected to my tutor, so this is what I naturally do now.'* (Computing woman)
- *'It's a massive class, I already feel like the lectures go so fast, and if I asked a question I would feel bad because I know some people do understand and I would be holding up others.'* (Engineering woman)

Worrying experiences of sexual harassment and objectification also emerged, contributing to an environment where women do not feel safe, comfortable, or confident to be themselves:

- *'A lot of the guys are just really weird, and one just leant back in the lecture and started stroking my leg repeatedly. One pulled my chair back in a lab, one shone a light in my eye and asked if I thought it was damaging my eye, one*

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<sup>8</sup> Appendix C.

<sup>9</sup> Appendix E.

*started sniffing himself in front of me. This place attracts people with low social skills.'* (Computing woman)

- *'I have a lot of experiences with my guy friends where we go to these events or out and I'm dressed up more, or wearing makeup, they suddenly think of you as an object rather than your friend.'* (Engineering woman)
- *'There hasn't been a single group project that I've been in where I haven't been hit on or asked out.'* (Engineering woman)
- *'The ESA marketing for Engineering was very sexual, many women found it very uncomfortable watching it.'* (Engineering woman)
- *'I feel like... there is this 'oh there's just one girl, why would we bother to include her' unless they are trying to hit on you.'* (Computing woman)
- *'The common room has that classic masculine vibe, with closed curtains and stacks of baked beans. People live there, they sleep there...it's very easy for that room to become inhospitable to a woman.'* (Computing woman)

### 3) Do all students feel inspired to do their best?

Women's lack of confidence was also strongly linked to a lack of role models by the students in discussions, connected with the power of role models to inspire, motivate, and mentor students:

- *'If you can't see it, you can't be it; how do you even know it's an option for you?'* (Engineering woman)
- *'When women lose their self-confidence, or don't have role models they can easily lose their motivation. I know so many men I look up to who I want to end up like and be like, and I guess that would be harder for women here.'* (Engineering man)
- *'It's disproportionate, lack of confidence can affect anyone, but if you are a man you are more likely to find someone like you or in the same position as you.'* (Engineering man)

85% of male students identified lack of role models as a barrier for women in the College, the largest barrier indicated by men as a whole, while 58% of women agreed<sup>10</sup>:

- *'I can't think of any female person in the staff or higher up academics other than Francesca or the Dean.'* (Engineering woman)
- *'More visible role models at the early stages would be helpful, coming into lectures to introduce themselves, the Dean actually turning up to the orientation session.'* (Computing woman)
- *'I haven't had a single female lecturer in my Engineering degree, and only two female tutors. There aren't enough engineering models globally not just in ANU. That might affect women psychologically, that women just aren't engineers.'* (Engineering man)

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<sup>10</sup> Appendix C.

- *'If you wanted a female supervisor you would really be hard pressed to find one in CECS, and then you couldn't choose your topic.'* (Engineering woman)

## **Experiences of Inclusion: Equity of Opportunity - Do all students have equal opportunity to participate, contribute and excel?**

### **1) Do students have equal access to staff and faculty?**

Students of both genders indicated that some tutors lack passion and capability for the subject matter, as well as understanding and empathy for the students:

- *'Sometimes it feels like a tutor is...not really patient. Sometimes I would ask a stupid simple question, and they don't want to answer it. I feel I'm being ignored.'* (Engineering man)
- *'I have definitely had some bad tutors. I've had a tutor in first and second year ... who was an absolute dick, very demonstrative, very demeaning. He was very sexist too.'* (Engineering man)
- *'Assuming that everyone has caught up to what is going on and moving on, not understanding it can be hard to speak up when you are behind.'* (Computing woman)
- *'Quite often they don't have much passion for what they are teaching, they think it is really basic and they think you should know it already anyway. I had a tutor who was surprised that anyone showed up because he said he never went to any of his tutes.'* (Engineering woman)
- *'When they assume knowledge, or they expect certain things to be easy for us. It makes you feel so bad about yourself.'* (Engineering woman)

Many students are also dissatisfied with the availability and communication habits of lecturers, feeling that they are unavailable and disinterested:

- *'They don't respond to emails, or only weeks later, or respond in a tone which makes it feel like it was an inconvenience to them.'* (Engineering woman)
- *'I feel like we've never been given the name of someone to contact for help. Our lecturer specifically said never to send him an email.'* (Computing woman)
- *'You can tell when a lecturer is there to do research and wants to do research and the teaching is something annoying that the College is just making them do.'* (Engineering man)

Women have positive experiences with teaching staff when they are actively encouraging and accommodating of difference, and felt more comfortable speaking to staff one-on-one than male peers<sup>11</sup>:

- *'Providing drop in sessions, walking around the lab and actually asking everyone if they needed help.'* (Computing woman)

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<sup>11</sup> Appendix E.

- *'In some of my courses they have been quite understanding of different learning styles, I have felt really respected by flipped teaching structures.'* (Computing woman)
- *'They want you to learn so they take your questions.'* (Engineering woman)
- *'Not making you feel silly if you don't understand things; [these tutors] are usually younger and have recently done the courses themselves.'* (Engineering woman)

However, men are significantly more likely than women to feel a sense of camaraderie and connection with their tutors:

- *'All of my tutors have been really laid back, and that's like me, so I walk into a maths tute...but I get caught up talking to the tutor for an hour. Doing that shows you're on the same level of respect with the tutor. That's with pretty much all my tutors.'* (Engineering man)
- *'I think they are generally more relatable than lecturers. They draw on their own experiences whether it be in that course or their own life experience.'* (Engineering man)
- *'I've found tutors and lecturers are pretty easy to get in contact with even with 400 students in classes.'* (Engineering man)
- *'The ones who are able to help with a specific task, they walk around the room, ask questions, don't answer things for us but help us solve it.'* (Engineering man)

As women are excluded from informal networks, they are less likely to experience this connection and camaraderie with tutors:

- *'Most of the tutors are also males, so they obviously have male friendship groups and you don't know how to get in with them or get those positions...or they are all sharing a jug of beer on a Thursday and you don't want to do that, or drink with them.'* (Engineering woman)

## **2) Do students have equal access to resources for learning and support?**

Some women recognise that CECS is committed to gender equity and feel advantaged as a result, with Fifty50 mentoring sessions in particular noted as beneficial to their experience:

- *'I always feel really advantaged as a woman.'* (Engineering woman)
- *'I feel like I have been given slightly preferential treatment as a woman, they have suggested I go into positions I wouldn't have previously considered and I'm not sure if that was because I was a woman.'* (Computing woman)
- *'The Fifty50 study sessions have been really good.'* (Engineering woman)
- *'Fifty50 is a really good idea, and as it grows it could be really great and get to the point where it's actually helping people.'* (Computing woman)
- *'We had a Fifty50 high tea, and I thought that was really good.'* (Engineering woman)

Resources for learning and study at CECS were broadly valued, with particular appreciation for Student Services staff:

- *'I get quite a few emails from CECS every week about stuff that's going on.'* (Engineering woman)
- *'Access to the buildings...You can study whenever you want. The light is always on, there's always someone studying.'* (Engineering man)
- *'The comp labs are open 24/7, I am always able to get a computer. There are so many online resources.'* (Computing woman)
- *'They give swift responses, are very helpful and good at making time for you and just being there. Even if it's not in their line of work they will help you or at least try and find someone to help you instead.'* (Engineering woman)
- *'I have used them a few times, every time I have a questions about my courses and my degree. They are really helpful and can refer you to the right people.'* (Engineering man)

### **3) Do all students experience fair assessment of performance and potential?**

Gender bias from both peers and faculty affects women's experience of assessment and learning at CECS. An overwhelming 92% of women identified 'stereotyping and assumptions' from peers, tutors and lecturers as the greatest barrier to their academic success<sup>12</sup>:

- *'In R&D the majority are male and they do stick together, I hear them say 'we'll get an all-boys group because we work better together, we're R&D students, we're smarter than this group here'; they won't choose female R&D students for their group.'* (Engineering man)
- *'I have got a couple of lecturers lately who have been giving bonus points for answering questions in class, and it's always been boys. You don't want to give an answer in class and get it wrong in front of that many people.'* (Engineering woman)
- *'There are occasional off-colour jokes and comments, and assumptions that come out every now and again from staff.'* (Computing woman)

Women are assigned non-technical tasks in group work, hindering their skill development:

- *'In group projects sometimes you are tasked with the writing and the guys do the working out and technical stuff, so you don't learn those things.'* (Engineering woman)
- *'I think sometimes women get delegated to the admin tasks in group work or assignments.'* (Engineering man)

Women receive inadequate guidance from faculty:

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<sup>12</sup> Appendix C.

- *'I feel like they [the male tutors] are trying to not say the girls are different but they give us more attention at the same time. Now I have a female tutor and she spends way less time explaining things to me.'* (Computing woman)
- *'Sometimes when we ask the question they just give us the answer instead of teaching us the process.'* (Engineering woman)

Women experience assumptions about their future family responsibilities:

- *'This one girl was really interested in a lecturer's work and career progression, and as he was telling her about it he said 'oh but at that time you might go off and have babies.'* (Engineering man)

Some men were also aware of this issue:

- *'I found that some lecturers are a little bit gender biased towards men and that's because it still is a majority of students and they would have done their degrees only with men. Being in groups with girls they have told me they notice it. It's not outright slandering to women but they often talk about things in a masculine way which can be distracting.'* (Engineering man)
- *'It's already an issue because they are a minority in the college. If the tutors are treating them differently it means they are getting a different type of education which might mean a different quality of education.'* (Engineering man)

## CONCLUSIONS

It is clear that the College of Engineering and Computer Science can do more to support female undergraduates through their time and experiences at CECS.

While some women recognise the commitment to gender equity at CECS and see it as an advantage, their experiences with peers and some faculty undermine how included, supported and respected they feel:

- *'In the college we [women] are more advantaged, but in our peer cohort we are more disadvantaged.'* (Engineering woman)
- *'It's considered that everything is easier for you... [That] you get more opportunities. But you have to work harder; you have to put in so much more effort to reach the same status.'* (Computing woman)

Findings indicate that bias, stereotyping, exclusion and a lack of respect diminish women's experiences at the College, and if left unaddressed will drive many women from the field:

- *'I can imagine being put off having a career in IT and Computer Science just based on the people I see doing it here.'* (Computing woman)
- *'My female friends in other degrees don't experience the level of stereotyping and assumptions and these knucklehead boys and it makes me think life would be so much easier if I was there.'* (Engineering woman)

It is important to note that many men in CECS are unaware of the experiences of their female peers, in particular within peer networks. This unconscious bias is manifested in the divergent views and perspectives of men and women as they reflect on the culture at CECS. Over two-thirds of women indicated exclusion from informal networks as a barrier to themselves and other women, whereas only 8% of men echoed this. Instead, men considered a lack of role models as the most significant barrier for women.

This demonstrates a significant lack of awareness or recognition of how they unintentionally collude in creating an inhospitable culture: *'I've found my tutorials and stuff have been pretty 50/50 male and female, and mixed ethnicity. I find everyone seems to get along really well, no issues.'* (Engineering man).

The findings of this audit are clear: young men at CECS create and perpetuate the culture at the College, in part simply due to their dominance in high numbers, lack of awareness and apparent indifference.

The College itself is making well-intentioned efforts to support women, and these should be expanded and replicated where possible. However, the male-dominated student culture is pervasive, and manifests through the social events catered to male interests, the class environment that privileges those who are naturally more confident, and the teaching styles of staff who were themselves part of this culture and benefited from it.

Most exclusionary practices are a result of unconscious bias, which is perpetuated through cultural, social and gendered norms and expectations, from peers and faculty alike. Some men are aware of the difficulties their female peers face, however others contribute to and perpetuate it with women through sexual harassment and sexist beliefs.

It is critical that the College address the bias and foster an environment where men and women are comfortable, supported, and inspired to continue on in the field treating each other as equals.

## Cultivating Inclusion

### Cultivating an inclusive culture requires:

#### 1. Leadership and accountability:

- Leaders, from the Dean through to lecturers, must themselves recognise, understand and know how to be inclusive and leverage diversity.
- They must articulate a clear and consistent message.
- They must role model inclusive behaviours.
- They must be willing to be held to account.

#### 2. Supporting systems and structures:

- Systems, processes and structures must override informal norms that privilege 'how we do things around here' and instead embed transparency, consistency and objectivity required to support inclusion. They must also provide the flexibility to support and accommodate a diverse student body with divergent needs, interests and aspirations.

#### 3. Awareness and capability:

- Awareness must be built and capability developed to enable people to recognise, accommodate and leverage diversity, ameliorate unconscious bias and cultivate inclusive behaviours. It must start with developing a richer



understanding of their own and other's experience. This cultural audit begins this awareness raising.

## Recommended Actions and Strategies

Outlined below are recommendations, incorporating students' ideas, for cultivating a more inclusive and supportive environment for women undergraduates at CECS.

### 1. Leadership and accountability:

It is recommended that:

1. The College faculty and staff acknowledge findings of this cultural audit and commit to further and ongoing research into the issues raised.
2. Faculty and staff consistently communicate their commitment to fostering an inclusive environment for all students.
3. The Dean maintains a visible commitment to gender equity and is supported by visible and explicit commitment from her leadership team through to tutors.
4. Staff facilitate a forum to explore issues raised in this study and identify ameliorating strategies.
5. The College executive group identifies, commits to, and holds themselves accountable for taking specific action following this review.
6. The CECS Access and Equity Committee takes a more active role in its responsibility for developing and overseeing plans for addressing bias and barriers for women.
7. This committee is accountable for driving, measuring and reporting on progress against these plans no less than bi-annually.
8. The College leadership reaches out to relevant Student Associations to seek to address unconscious bias within them.

### 2. Systems and structures:

It is recommended that:

1. The College ensures greater transparency in appointments of tutor and research assistant positions. *'They don't advertise research or research assistant positions to students...they just tap people on the shoulder instead. The positions for tutors are the same.'* (Engineering woman)
2. The College creates a common room, targeted specifically to Computing and Engineering women as a safe and appealing space for studying and socialising, and open to all students. *'If the common room and events were more appealing to women that would be good. Make the space specifically catered to women but have both genders allowed.'* (Computing woman)
3. Networking and mentoring opportunities are expanded for women, both within the College and with industry; building on the success of Fifty50 initiatives. *'More events where you get to network with just other female*

*students. Sometimes it's hard to find other females with in your courses or labs.'* (Engineering woman)

4. Course and assessment structures for Computing are reviewed, with a view to increasing opportunities for group work and collaboration.
5. ESA and CSSA include more social events that are more inclusive for students who may not want to drink and are comfortable for women. *'I think the ESA does a lot to help us grow as an identity, but I wish they would do more to support not so much drinking. It would be so much more inclusive if there was less of a focus on that blokey 'let's go drinking' culture.'* (Engineering woman)

### **3. Building awareness and capability:**

It is recommended that:

1. The College shares findings of this cultural audit with students and staff.
2. Unconscious bias awareness training is delivered to all relevant staff, from the College executive through faculty to tutors and all other staff in direct contact with students, to support them to cultivate inclusion.
3. Widespread unconscious bias awareness training is provided for students. *'There should be more awareness; what is unconscious bias, how do we work against it. We had some courses run by a lecturer a few years back where we had access and inclusion come in and talk to us about Disability/LGBTI, what the issues are and what language is appropriate, and that was so great.'* (Engineering man)
4. Students are required to attend sexual harassment seminars and training.
5. Further data is collected, on an ongoing basis, about the undergraduate student experience, with a specific view to assessing the experiences of women and monitoring progress following this audit.

## APPENDIX A: PARTICIPATION

The audit included feedback and data from:

- 5 focus groups, segregated by gender and year level where possible with 12 women and 14 men.

Group	Participants in focus groups	
	Women	Men
Computing	3	2
Early Year Engineering	6	4
Later Year Engineering	3	7
<b>Total</b>	<b>25</b>	

## APPENDIX B: FOCUS GROUP QUESTIONS

1. In a word or phrase, how would you describe the School of Engineering/Computer Sciences?
2. How would you describe the characteristics of a typical undergraduate student here?
3. How would you describe your access here to learning opportunities and resources for study? What other support would help you to achieve your academic success?
4. How would you describe your access here to social events and informal contact with fellow students and staff? What else would enhance your overall experience?
5. What keeps you engaged with your education, helps you get your study done and learn effectively? What gets in the way?
6. Out of 10, where 10 is a lot and 0 is none at all, how much influence on your overall experience at the College do your peers, your tutors, and your lecturers have?
7. Out of 10, where 10 is totally and 0 is not at all, how supported and respected do you feel by your fellow students, your tutors and your lecturers here?
8. How well do your peers respect your contribution in class, work with you on group projects, and include you in social events?
9. How well do your teaching staff communicate with you, respect and encourage your contribution, and provide useful feedback?
10. How would you describe the student services staff at the College? What do they do well, and what more could they do to assist you?
11. Out of 10, where 10 is totally and 0 is not at all, how confident do you feel to contribute in classes? In meetings with faculty? In informal conversations with fellow students?
12. Do you feel that certain groups or types of people are favoured more or less at the College? If so, who and how?
13. How optimistic are you about your academic prospects at the College? Are there are any barriers to your success, and if so what are they?
14. How optimistic are you about your future opportunities and careers after graduation? Are there any barriers to your success, and if so what are they?
15. Is anyone considering leaving the college? If so, why?
16. What do you consider to be the barriers to female students' academic success at the college?

Please describe your experience/observations of how these barriers manifest and their impact:

- Family commitments and responsibilities
- Stereotyping and assumptions about women's roles and abilities

- Lack of role models
- Lack of access to and support from teaching staff
- Lack of respect from College and staff
- Exclusion from informal networks
- Paid work commitments
- Lack of academic ability
- Lack of confidence and self-doubt
- Inhospitable culture
- Lack of motivation
- Poor communication within the College
- Lack of access to resources for study
- Language/cultural barriers
- There are no barriers

17. How inclusive is the environment at the College?

18. What could create a more inclusive and supportive environment at the College?

## APPENDIX C: BARRIERS TO SUCCESS

Students were asked what they considered to be the barriers to female students' academic success at the college, disproportionate to other students.

Barriers to women's success, segregated by gender:

	Women	Men
<b>Stereotyping and assumptions about women's roles and abilities</b>	<b>92%</b>	62%
<b>Lack of confidence and self-doubt</b>	<b>75%</b>	<b>77%</b>
<b>Exclusion from informal networks</b>	<b>67%</b>	8%
<b>Lack of role models</b>	58%	<b>85%</b>
<b>Family commitments and responsibilities</b>	33%	31%
<b>Lack of academic ability</b>	33%	15%
<b>Lack of motivation</b>	33%	23%
<b>Inhospitable culture</b>	25%	31%
<b>Language/cultural barriers</b>	25%	46%
<b>Lack of respect from College and staff</b>	8%	38%
<b>Poor communication within the College</b>	8%	0%
<b>Lack of access to and support from teaching staff</b>	0%	8%
<b>Paid work commitments</b>	0%	8%
<b>Lack of access to resources for study</b>	0%	0%
<b>There are no barriers</b>	0%	0%

Barriers to women’s success, segregated by gender and school:

	ENG Women	Computing Women	ENG Men	Computing Men
<b>Stereotyping and assumptions about women’s roles and abilities</b>	<b>89%</b>	<b>100%</b>	64%	50%
<b>Lack of confidence and self-doubt</b>	67%	<b>100%</b>	<b>82%</b>	50%
<b>Exclusion from informal networks</b>	56%	<b>100%</b>	9%	0%
<b>Lack of role models</b>	44%	<b>100%</b>	<b>91%</b>	50%
<b>Lack of academic ability</b>	33%	33%	18%	0%
<b>Language/cultural barriers</b>	33%	0%	55%	0%
<b>Lack of motivation</b>	22%	67%	27%	0%
<b>Family commitments and responsibilities</b>	11%	<b>100%</b>	18%	<b>100%</b>
<b>Lack of access to and support from teaching staff</b>	0%	0%	9%	0%
<b>Lack of respect from College and staff</b>	0%	33%	45%	0%
<b>Paid work commitments</b>	0%	0%	9%	0%
<b>Inhospitable culture</b>	0%	<b>100%</b>	27%	50%
<b>Poor communication within the College</b>	0%	33%	0%	0%
<b>Lack of access to resources for study</b>	0%	0%	0%	0%
<b>There are no barriers</b>	0%	0%	0%	0%

## APPENDIX D: PARTICIPANT SUPPORT AND RESPECT RATINGS

Participants were asked ‘Out of 10, where 10 is totally and 0 is not at all, how supported, respected and valued do you feel by your peers, tutors, and lecturers?’

Support and Respect Ratings			
	1 to 4 (not very)	5 to 7 (somewhat)	8 to 10 (mostly)
<b>How supported, respected and valued do you feel by your peers?</b>			
<b>Women</b>	17%	33%	50%
<b>Men</b>	8%	38%	54%

Support and Respect Ratings			
	1 to 4 (not very)	5 to 7 (somewhat)	8 to 10 (mostly)
<b>By your tutors?</b>			
<b>Women</b>	25%	50%	25%
<b>Men</b>	15%	62%	23%

Support and Respect Ratings			
	1 to 4 (not very)	5 to 7 (somewhat)	8 to 10 (mostly)
<b>By your lecturers?</b>			
<b>Women</b>	17%	83%	0%
<b>Men</b>	7%	85%	8%

## APPENDIX E: CONFIDENCE TO CONTRIBUTE

Participants were asked ‘Out of 10, where 10 is totally and 0 is not at all, how confident do you feel to contribute in classes, in meetings with faculty, and in informal conversations with fellow students?’

Confidence to Contribute Ratings			
	1 to 4 (not very)	5 to 7 (somewhat)	8 to 10 (mostly)
How confident do you feel to contribute in classes?			
Women	50%	50%	0%
Men	8%	69%	23%

Confidence to Contribute Ratings			
	1 to 4 (not very)	5 to 7 (somewhat)	8 to 10 (mostly)
How confident do you feel to contribute in meetings with faculty?			
Women	0%	17%	83%
Men	0%	69%	31%

Confidence to Contribute Ratings			
	1 to 4 (not very)	5 to 7 (somewhat)	8 to 10 (mostly)
How confident do you feel to contribute in informal conversations with fellow students?			
Women	8%	17%	75%
Men	0%	15%	85%

## APPENDIX F: INCLUSION

Participants were asked to specify how inclusive they think the CECS culture is now, across a culture continuum ranging from a *boys' club* to an *inclusive culture*; where all students feel valued, supported and respected and have equal opportunity.

	Boys' Club	Lip service	Tokenism	Small Steps	Acceptance of value of Women and Diversity	Inclusive culture
Women	0%	8%	33%	58%	0%	0%
Men	0%	8%	8%	69%	8%	8%

### Definitions

#### Boys' club

The culture is dominated by those who have always held power. The status quo is valued. There is a belief that one size and style fits all.

#### Lip service to inclusion

The status quo is maintained and those who have traditionally held power still hold it. There is a formal statement of commitment to diversity and inclusion but there is little action and follow through.

#### Tokenism

There is a commitment to diversity and inclusion without changing the structure, mission and culture of the institution. Attempts are made to support more women.

#### Small Steps

There is active support of women with an increase in their numbers, but they are not truly included and the culture remains essentially the same.

#### We accept and value diversity

Programs are initiated to increase opportunities and inclusion for women. Everyone's growth and development is supported and valued.

#### Inclusive culture

The culture and structure of the institution is truly inclusive and allows everyone to achieve their full potential. Valuing and capitalising on differences is seen as a means of achieving excellence.