SYNERGY SQUAD

MICROSOFT AND USYD

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Executive Summary

This report examines the challenges faced by The University of Sydney (USYD) in adapting to changes in the tertiary education sector, particularly with the emergence of Generative AI technologies like Microsoft's Copilot and rapid societal shifts that threaten traditional educational models.

Key issues include the growing scepticism around the value of education as AI capabilities prompt a reevaluation of established systems, along with high living costs that compel many students and staff to prioritise work over their studies, thereby diminishing their engagement with university life. The university is also struggling with inadequate infrastructure due to a surge in enrolment following COVID-19, complicating its ability to support a growing student population.

Employing a design thinking methodology, the report explores how USYD can enhance value for stakeholders by facilitating digitization through a digital campus, recommending the integration of Generative AI tools to improve learning experiences and administrative efficiency. An opt-out policy for Generative AI could empower students and foster autonomy in their education, while implementing flexible scheduling would encourage greater campus participation and support necessary infrastructure improvements. In summary, this report offers strategic recommendations for navigating the complexities of digital transformation, the rise of AI, and evolving cultural attitudes toward flexible learning.

Introduction & Project Aims

Technological developments in AI, shifting societal values and cultural norms accumulate to an existential threat to tertiary education. Increasing number of high school students are shifting towards vocational career pathways or massive open online courses (MOOC) (The University of Sydney, 2024). Additionally, with the development of large language models (LLMs) such as Microsoft's Copilot and OpenAI's ChatGPT that replicate human-like responses, the fundamental principles of tertiary education are being challenged. The impact of this shifting landscape is already evident, with 2024 recording the lowest applications made to the University Admissions Centre (van Onselen, 2024).

These challenges can be articulated in three main categories:

1. Infrastructure.
2. Value and merits of tertiary education.
3. Cost of living pressures and shift towards flexible learning.

With rapid growth in enrolments post COVID-19 (White, 2024), USYD is grappling with underlying infrastructure challenges. Lecture theatres and study pods are becoming increasingly inaccessible, forcing stakeholders to accommodate in hallways or alleyways (McGregor et al, 2024). Moreover, the poor condition of older buildings combined with ongoing construction directly correlate to poor learning experiences (McGregor et al, 2024). Ritika emphasised the psychological impact of poor infrastructure standards, with studies suggesting a 16% decline in results for students with subpar learning environments (Barrett et al., 2015).

In analysing the complex problem further, concerns regarding the perceived value of tertiary education arises. AI models from Microsoft, OpenAI and Google are now able to pass the Turing Test, a benchmark established by British computer scientist Alan Turing (Dwivedi et al, 2023). The distinction between human and machine-generated knowledge becomes increasingly blurred and raises important

questions about the future role of traditional education in a world where AI can replicate cognitive tasks once thought to be uniquely human.

Furthermore, USYD employs various software in its enterprise architecture, including Canvas, Zoom, and Sonia (The University of Sydney, 2024). However, cross functionality issues with limited UniKey implementation across these apps force stakeholders to create separate accounts for each application. This incoherence influences future security risks and increased costs with enterprise system complications (Chanians et al., 2019). Moreover, many stakeholders lack awareness of the extensive range of applications available at USYD beyond the USU and the USYD app. This challenge has been emphasised by Microsoft and various groups in the studio. Importantly, digitisation and streamlined processes can lead to 8% reduction in IT security and maintenance costs (Chanians et al., 2019).

Lastly, significant cost-of-living pressures compel students and staff to prioritise employment over their education to meet their financial needs (Gianinni, 2024). This trend contributes to declining student participation in-class and university life. This has partially contributed to the decrease in the number of PhD candidates in Australia (Johnson, 2024). Concludingly, this elaborates on the desperate need for flexibility to support the growing demands of stakeholders.

Undoubtedly, researching more on this issue unveils the complex and multifaceted nature of this problem, but accounting for the word limitations and feedback received from earlier presentations, the project statement is narrowed down to:

How might USYD continue to provide value to its stakeholders through the digital campus, as AI challenges the existence of USYD both online and offline?

- Identify painpoints and various ways Generative AI is challenging education.
- Examine the cultural challenge "get in and get out" approach to university and how the digital campus can offer the flexibility stakeholders require.

- Examine the accessibility of the digital campus and its potential to exclude stakeholders without access to adequate technologies.
- Explore the feasibility of implementing elements of gamification in the digital campus and using elements of intrinsic / extrinsic motivation.

Approach & Methods

The group's initial research in Week 5 anticipated difficulties in summarising key points, as several sources conflicted heavily with each other. One example, the group's initial research discovered that gamification would be effective in digital campus. However, other sources that appeared later in the research argued conversely. As a result, the group emphasised the need to utilise a methodology where research can be consolidated and summarised effectively. Since the group also focalised more into research, the group wanted to implement a methodology where developing ideas were the focus, limiting methodologies prioritising the development of solutions. Ultimately, these were the key factors in the decision to implement the design thinking methodology. Elaborating further, the group believed the empathise → define → ideate process of design thinking (Interaction Design Foundation, 2024) embedded interdisciplinary perspectives effectively.

Figure 1. Design thinking process

Firstly, the group recognised the sensitive nature of issues discussed at hand. Development of AI was threatening career prospects and every group member excluding Kevin was an international student, sharing concerns regarding the international student caps (White, 2024). As a result, the group believed in the importance of utilising a methodology where stakeholder concerns were communicated effectively, which the "empathise" process did. This process would

be utilised to uncover the obscure challenges with USYD's implementation of AI in the digital campus and its unforeseen consequences. Furthemore, the empathise process would explore how the digital campus could allow stakeholders to be more flexible in learning, contributing to the uptake of the digital campus.

Furthermore, in the process of "defining" the complex problem, the disciplinary perspective of media studies and marketing would be utilised effectively. Further research into the complex problem meant that members became aware of sources overexaggerating or fabricating evidence. Members from the marketing and media studies disciplines had extended experience with sources analysis for credibility and would be extremely effective in narrowing down the sources.

Finally, the "ideate" process required a thorough analysis of stakeholder requirements to devise solutions. This deeply embedded psychology, engineering and business analytics disciplinary perspectives, as identifying the stakeholder perspectives to generate solutions were the basic principles across these disciplines. This process would be effective in addressing solution related elements of the problem statement, such as methods of providing value to the digital campus by utilising elements of gamification, intrinsic/extrinsic motivation. Another observed benefit was members in these disciplines were already familiar with the design thinking methodology.

Time management became a significant issue with the design thinking process. Group members had other commitments and the design thinking process relied on having most group members present at meetings, which was an inherent challenge. Furthermore, cross-cultural communication was a challenge for the group, with more members being familiar with indirect communication (Schulz & Buttlemann, 2021). There was a stage where a group member asked to look back at a section, which implied that they were not satisfied with the quality of the work, which was not recognised by other group members as they did not understand cross-cultural communication. Hence, other mediating strategies needed to be implemented beyond the design thinking principle.

The group continued to utilise the research software, Litbasket in obtaining academic literature. This tool was instrumental in obtaining relevant research in AI and digitisation, as it largely collected journals from technology related journals. If relevant information could not be found, the group utilised Scopus, Elsevier and Jstor.

Findings & Discussion

Context / Market Size:

As of 2024, the Australian tertiary education's total addressable market stood at $38.4 billion (IBISWORLD, 2024). Large proportion of this is generated by the Group of Eight universities, which includes the USYD. However, the industry is expecting a significant decline in the next five years, with the international student enrolment caps (White, 2024). USYD expects a loss of $1 billion over the next five years (The University of Sydney, 2024) with similar figures expected for other Group of Eight universities.

Ways Generative AI is challenging tertiary education:

With OpenAI's release of ChatGPT in 2022, use of Generative AI in tertiary education has increased exponentially, with 82% of Australian university students having admitted to use generative AI (Skeat & Ziebell, 2023). Additionally, around 71% of staff have also admitted to using generative AI for marking and writing up assessment tasks (Cathcart et al., 2024).

Over 70% of students in Australia are unaware of their institution's Generative AI policy (Hay et al, 2024). As a result, over 85% of students admit to using AI but fail to cite properly, putting them at risk of violating academic integrity. This can be attributed to the difficulty in accessing Generative AI policies, as it is the case for USYD. In the Academic Honesty Education Module (AHEM), there is only a small section dedicated to the use of Generative AI, which can be difficult to find (The University of Sydney, 2024). As a result, maintaining the status quo in Generative AI policy can negatively impact stakeholders with more likelihood of unintentional academic integrity breaches.

Recommendation: Include a dedicated section on the AHEM regarding Generative AI use and on every single unit's Canvas page, add links to the unit's and USYD's Generative AI policy on the navigation bar. (Refer to below and appendix B).

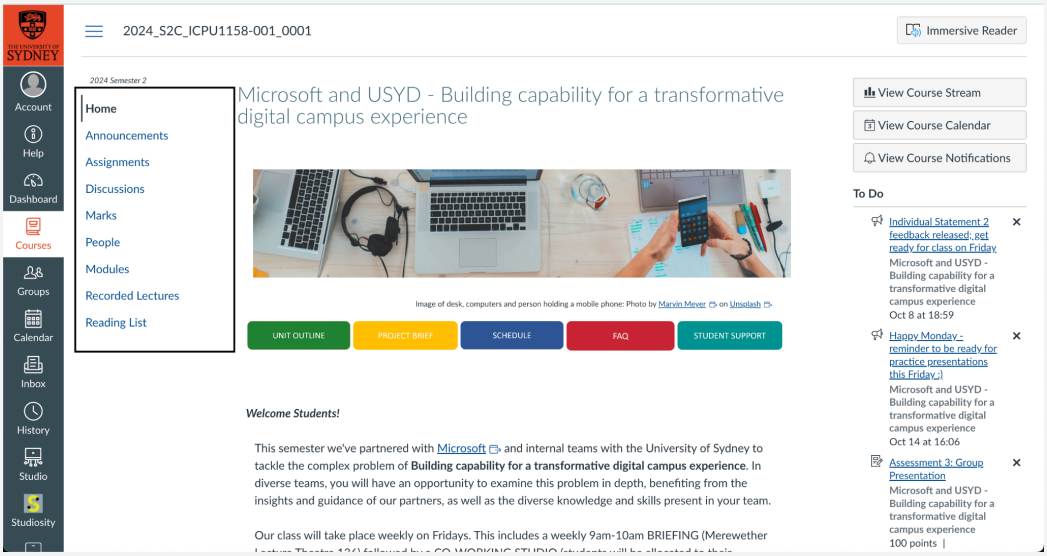


Figure 2. Location of the navigation bar, highlighted in a black box.

Furthermore, the "opt-in" nature of Generative AI policy at USYD has the potential to negatively impact its stakeholders. For instance, the USYD's generative AI policy stipulates that Generative AI, "cannot be used unless explicitly permitted by the unit coordinator for the entire class" (The University of Sydney, 2024). Hence, this forces unit coordinators to explicitly grant permission and outline the boundaries of which Generative AI can be used. This is a time consuming process which staff cannot afford to spend time going through (McGrath, 2024). This practice must be improved as the use of Generative AI has proven to enhance learning experiences for students by answering questions more effectively than search portals such as Google (Hay et al, 2024).

Similar cases of the need to default to an "opt-in" approach can be explored with organ donation. Currently in Australia, organ donation only occurs when a user signs up to donate. Hence, only 36% of the population are registered organ donors (Donatelife, 2024). Experts predict that if this was to change an opt-out policy, the level of organ donors are expected to increase to 82% (Donatelife, 2024). Although "opt-out" policies have been controversial in the past for its exploitation of customer rights in data collection (Brookshire, 2024), the group believes that the use of USYD's educational model for Copilot will limit the impact of data mining.

Recommendation: Redraft USYD's Generative AI policy to an "opt-out" policy to embrace the use of Generative AI more thoroughly in tertiary education.

Another key challenge with the use of Generative AI lies with the lacklustre performance of anti-cheating software. For example, using Generative AI to submit assignments are a violation of USYD's academic integrity policies. However, over 50% of Australian university students have admitted to the use of Generative AI in their assignments, even when it was not permitted (Skeat & Ziebell, 2024). As it is incredibly challenging to the human eye to differentiate the work between a student and Generative AI, teaching staff had relied on traditional anti-cheating software such as Turnitin to detect the use of Generative AI (Skeat & Ziebell, 2024). The false positive rates of Turnitin are around 0.7% in 2024, correlating this to two assignments per unit of study at USYD with 70,000 students, with students taking four units of study per semester, there will be around 560,000 assignments per semester. This means that there will be around 3920 assignments per semester that will be falsely identified as using Generative AI. Not only does the process of academic integrity breaches take more than a semester, it can impact academic progression. However, since Generative AI is new, the anti-cheating software has not been able to fully materialise, as Turnitin's competitors have similar false positive rates (University of Melbourne, 2024).

Recommendation: USYD should modify the assessment structure of various units of study until the false positive rates drop below 0.3%. This can be done by increasing the proportion of tutorial participation marks, mid-semester/final exams and lowering the proportion of assignments.

Interestingly, the increased use of Generative AI in tertiary education has led to the significant downturn in contract cheating (Siele, 2023). For example, Kenya has been a central hub for contract cheating by providing US, UK and Australian students with the ability to outsource their assignments (Siele, 2023). As more students resort to Generative AI, one contract cheating provider in Kenya saw a 76% decline in 2024 (Siele, 2023).

Cultural challenges of Australian tertiary education

Compared to students in the US, UK and Europe, Australian students spend the least amount of time on campus (Richardson et al., 2018). This can be attributed to 90% of USYD students living off campus (The University of Sydney, 2024) and the urban nature of the USYD campus meaning limited space for student accommodation.

However, the reasons for spending the least amount of time on campus go far beyond these reasons.

Cost of living pressures have been impacting people worldwide, leading to increased poverty and homelessness (Sekhar & Patwardhan, 2021). In response, flexible working arrangements have emerged as a key strategy for addressing these challenges, particularly in the tertiary education sector. Many students have increased their work hours by relying on recorded lectures (Hay et al., 2024). While this approach has been beneficial for students, it has raised concerns among teaching staff, who often find themselves lecturing to empty halls (Hay et al., 2024). To address this issue, institutions including USYD, have begun combining lectures and tutorials. However, students continue to voice concerns about the difficulty of balancing their studies with escalating living costs (Pavlich, 2024). Some students, unable to cut their work hours, have felt compelled to drop courses or skip lectures altogether (Pavlich, 2024), which negatively impacts their educational experience.

Recommendation: Create an AI summary tool powered by Copilot. Students who missed content can quickly catch up by reading a five minute summary of the content, like an executive summary of a journal. This should not substitute actually watching the lecture, but provide enough context to allow students to not waste tutorials. (Refer to Appendix C).

The challenges faced by Australian university students are compounded by the structure of tertiary education in Australia. Research indicates that full-time students

spend the least amount of time on campus, typically attending classes just 2-3 times a week (Richardson et al., 2018). Many students deliberately organise their schedules to minimise campus visits, often aiming for just 1-2 days a week. A significant factor influencing this decision is the difficulty of commuting and parking on campus (Ali, 2024).

However, complications arise when timetables require students to attend one or two lectures a day. For those commuting from areas beyond the Greater Sydney Area, such as the Blue Mountains. This comprises about 10% of the university population and the 2+ hour commute can be hard to justify for one or two lectures (Tran, 2023). This "get in and get out" mentality not only reflects students' preferences but also highlights the difficulty in justifying long commute times for one lecture.

Recommendation: Create a centralised platform where the university's functions and events are displayed so that if students are required to come into campus for one lecture/tutorial, they are given suggestions on uni events based on their personal interests, study areas and hobbies. Furthermore, create online study spaces on the digital campus. These study spaces can be adapted to the user's settings - when needing a quiet study space, users can change settings so that microphones are muted when people join this breakout room.

Case Study: Meta's Metaverse and hardware requirements of the digital campus.

Similar to the digitisation efforts undertaken by USYD, a large-scale project with a similar purpose was initiated by Meta in 2021. The Metaverse was a transformational project that would revitalise the social media industry and dramatically change the way we communicate and learn. Initial suggestions from Mark Zuckerberg denoted that the Metaverse has the potential to disrupt the education industry by offering students a quasi-physical learning experience (Brookshire, 2024). For instance, the Metaverse allowed students to observe natural phenomena like the aurora borealis in Antarctica without needing to travel, effectively enhancing student engagement (Tlili et al., 2022).

However, the high cost of hardware and the reliance on stable internet connection have become a major obstacle to its widespread adoption. For example, the initial development costs for a Metaverse app costs $25,000 to $400,000 for a developer. (Katariya, 2024). As a result, the Metaverse hype has diminished and Mark Zuckerberg announced the change of corporate strategy from the Metaverse to AI (Brookshire, 2024) and as of 2023, Meta's hardware division had accumulated losses of approximately $4 billion (Browning & Isaac, 2023). Although Metaverse-related startups raised $664 million in venture capital during 2023 H1, this was a significant decrease compared to the $2.93 billion raised in the same period prior. While the introduction of Apple's Vision Pro has provided a glimmer of hope for the Metaverse, the prohibitive costs of the Apple Vision does not align with USYD's educational goal of offering all students an accessible learning experience.

This lesson can be extrapolated to the digital campus. For example, if the digital campus required VR headsets, not only would the cost of VR headsets deter users, but the need to constantly carry around a VR headset can also be detrimental. Furthermore, the system requirements of the digital campus should be based on the performance of Apple's M1 chip, which is a System-on-Chip released 4 years ago and is utilised as a benchmark in the software development industry (Brookshire, 2024).

Case study: Meta's Metaverse and the use of extrinsic/intrinsic motivation in the digital campus

A key element of the Metaverse was its implementation of gamification. This ranged from rewards for logging into the Metaverse daily, birthday gifts and animated avatars/figures (Brookshire, 2024).

The group believed this could be effective in the digital campus, as this provides a form of extrinsic and intrinsic motivation, by incentivising stakeholders to participate by providing rewards for daily login. Initial research into this also supported this positively, with similar digitisation efforts having increased engagement by 11% (Subhash & Cudney, 2018). Furthermore, digital avatars and interfaces with gamified elements have also demonstrated promising results in increasing the performance

of an organisation, with morale and productivity of a UK finance company increasing by 6% (Subhash & Cudney, 2018).

However, our psychology expert Ritika, has argued that while gamification offers immediate benefits for the digital campus, its implementation would be short-sighted and lack long-term strategic value (Alsawaier, 2018).

Gamification, as a form of extrinsic motivation, encourages engagement by offering practical value or rewards aimed at achieving specific outcomes (Ramirez-Andreotta et al., 2019). After the first set of external rewards, subsequent rewards need to increase in strength or quantity to trigger the desire to engage (Doremi, 2024). This principle underlies annual game releases like Call of Duty, where new instalments provide exclusive content, fostering progression and achievement to retain engagement. Similarly, the digital campus would need to escalate rewards to maintain user interest, which may shift focus from learning to reward-seeking. Hence, the use of gamification is not recommended.

On the other hand, intrinsic motivation refers to being driven by the inherent satisfaction, curiosity, and pleasure derived from an activity itself (Ramirez-Andreotta et al., 2019). Incorporating elements of self-determination theory, which posits that "motivation is psychological energy directed at a particular goal" (Patrick & Williams, 2012) - autonomy, relatedness and competence (Alsawaier, 2018), in the form of perceived competence, perceived challenge, perceived choice, and perceived interest, would be beneficial for generating engagement (Shroff & Keyes, 2017) with the digital campus.

Critical evaluation of recommendations

Consulting our engineering and data science experts, Prosper and Clariya, the recommendations above have been made in consideration of two key factors commonly used in their disciplines: feasibility and time. These factors also align with the design thinking framework, as the "ideate" to "prototype" process considers time and feasibility as key criterion.

Considering feasibility, the group believes that these are all achievable sets of recommendations, as they largely involve change in policies enacted by USYD. Justifying time constraints, the recommendations will not have any noticeable impact on the project development as they involve minimum to no technical development.

However, our cultural expert Yi did note that addressing the cultural challenge of "get in and get out" will only be partially resolved by the recommendations made through the digital campus. Yi notes that the multifaceted nature of the causes involved would mean that there are limitations on what the digital campus can address in the context of the problem statement.

Limitations of research and project

The fact that ChatGPT was released less than 2 years ago unveils the constantly evolving nature of the complex problem and the recommendations devised today may no longer be applicable in months or weeks after submission. Therefore, the group believes it is imperative to consider the overarching challenges that have been identified earlier and to adopt a flexible framework that can adapt to rapid advancements in technology. This means not only addressing current issues but also anticipating future developments that could influence the landscape of AI and its applications.

Conclusion

The set of recommendations based on the solutions are summarised in a table below:

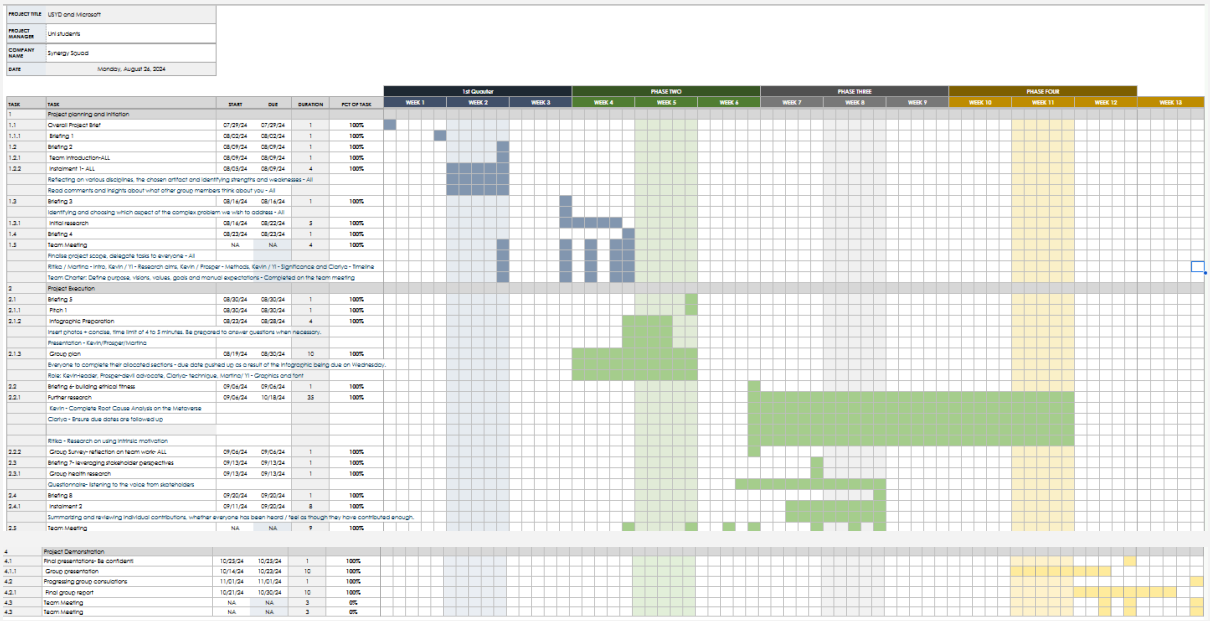
Issue: Impact of AI in education	Recommended solution
Student unawareness of Generative AI citation policies.	Navigation bar to include a hyperlink to USYD's Generative AI policies
The need for an opt-in, not opt-out Generative AI policy	Amendments to USYD's Generative AI policy
Detection software such as turnitin having too high false positive rates	Waiting until false positive rates drop below 0.3%, then consider utilising these systems.
Significant decline in contract cheating services.	Continue to enforce contract cheating policies, no further action needed.

Issue: Students spending as little time on campus as they possibly can.	Recommended solution
Cause 1) Cost of living pressures forcing excessive working hours and the prioritisation of work over education	Create an AI summary tool powered by Copilot.
Cause 2) Commute time into university is not worth the 1 or 2 tutorials / lectures that they have to attend.	Create a centralised platform where the university's functions and events are displayed.
Cause 3) Overcrowded study spaces in universities.	Create online study spaces on the digital campus.

Significance: As identified in the group plan, the group believes the significance of this project relied on whether the project aims and the complex problem could be addressed effectively. To the group's belief, there was an extensive analysis of the complex problem and the recommendations provide new insights on how the complex problem can be addressed and demonstrate underlying concerns from the student's perspectives as key stakeholders. After the group's presentation, elements from the feedback were addressed to ensure the group's approach and solutions remained feasible. This project can provide a unique perspective to the Microsoft and USYD stakeholders and equip them with necessary ideas to ensure the success of the digital campus.

Appendix A: Timeline / Implementation plan

Appendix A.1: Group Plan Timeline [Link of Timeline]



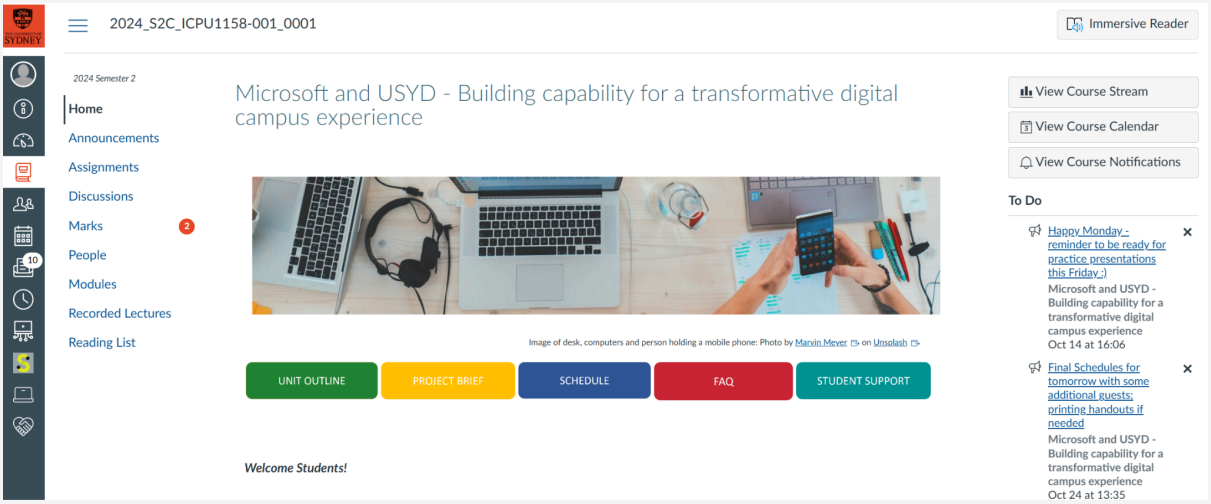
Appendix A.2: Timeline expansion with expected implementation date and brief details [Link of Timeline]

TASK	TASK	START	DUE	DURATION	PCT OF TASK	PHASE FIVE Q1 11	12	Q2 1	2	3	Q3 4	5	6	Q4 7	8	9	10
1	Implementation: Impact of AI in eduation																
1.1	Enhance AI Awareness	11/01/24	12/30/24	2	0%												
1.2	Policy Amendments	11/01/24	12/30/24	2	0%												
1.3	Review Detection Software	01/01/25	03/30/25	3	0%												
1.4	Contract Cheating Enforcement	11/01/24	10/30/25	12	0%												
2	Impact of AI in eduation																
2.1	Develop AI Summary Tool	05/01/25	08/30/25	3	0%												
2.2	Build Centralized Platform	05/01/25	08/30/25	3	0%												
2.3	Expand Digital Study Spaces	09/01/25	10/30/25	4	0%												

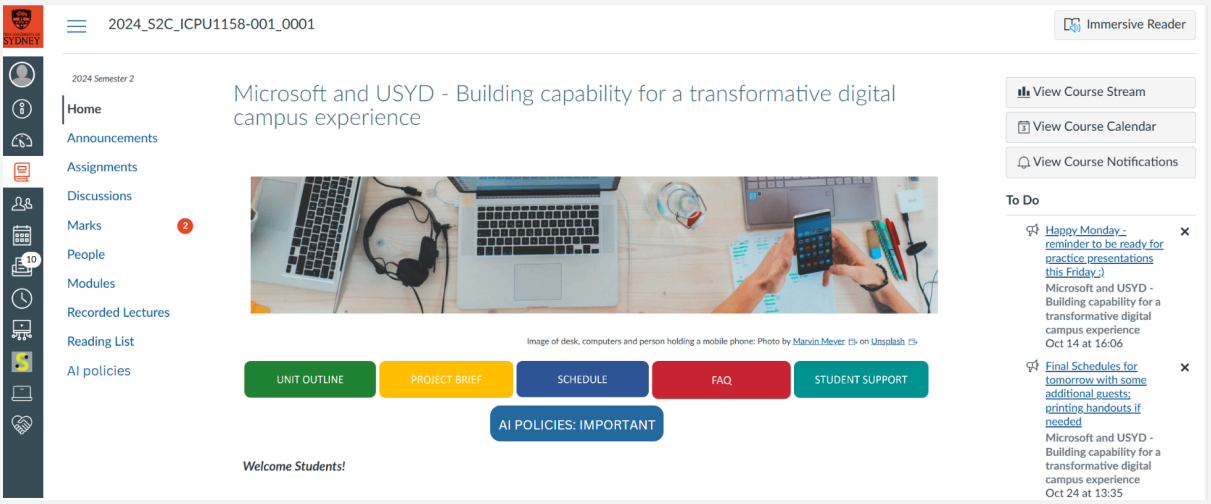
Item No.	Recommendation	Details
1	Enhance AI Policy Awareness	Add a hyperlink to USYD's Generative AI policies in the navigation bar to ensure student awareness to the AI tools.
2	Policy Amendments	Amend the Generative AI policy to an opt-in model to encourage actice participation.
3	Review Dectection Software	Setup the 0.3% false positive rate for the detection softwares such as Turnitin.
4	Continue Enforcing Contract Cheating Policies	Maintain enforcement of contract cheating policies without the conflict with other policies.
5	Develop AI Summary Tool	Create an AI-powered summary tool to support students balancing work and study due to cost-of-living pressures.
6	Build a Centralised Platform	Design a platform displaying university tools and events to increase offline engagements.
7	Expand Digital Study Spaces	Create online study spaces on the digital campus to reduce overcrowded on-campus study areas.

Appendix B: Navigation Bar Design Demo

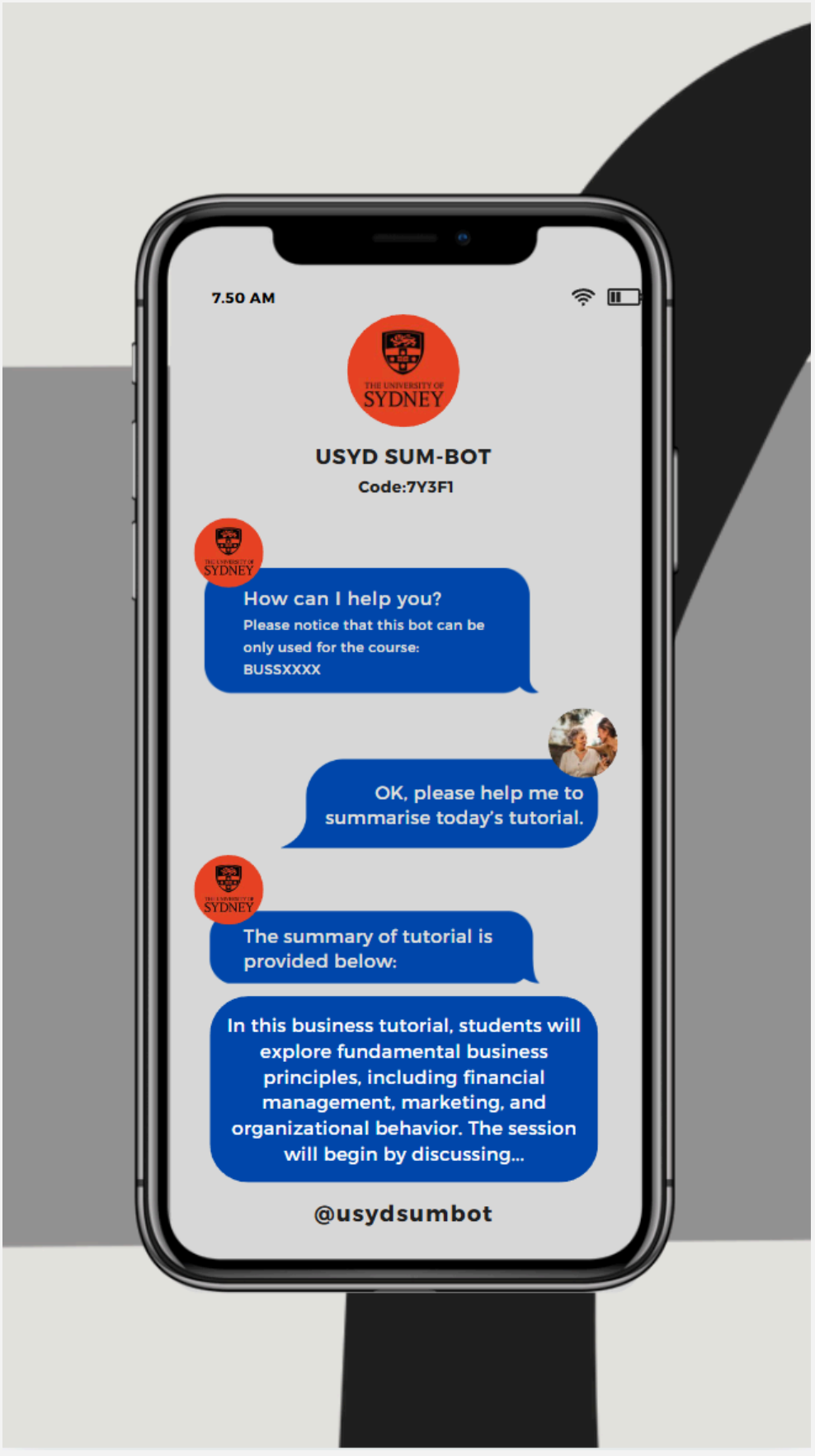
Appendix B.1: Before adding hyperlink for AI policies



Appendix B.2: After adding hyperlink for AI policies



Appendix C: Summary-Bot Demo



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