INFS 3027 SOCIAL COMPUTING AND SYSTEMS THINKING

Credit Points 10

Coordinator Athula Ginige (https://directory.westernsydney.edu.au/search/name/Athula Ginige/)

Description This subject critically examines the dynamic relationship between digital technologies and systemic analysis, exploring how digital tools empower communities - both traditional and those aligned with the Sustainable Development Goals (SDGs), including Indigenous communities. Students will engage with advanced systems thinking methodologies, including causal loop diagrams, the iceberg model, and system dynamics simulations, to develop comprehensive models of information flow and value exchange. The curriculum fosters a deep understanding of digital communication patterns, trust dynamics, ethics, and the evolving paradigms of value creation in the digital era. By integrating theoretical insights with practical applications, this subject equips students with the analytical skills and innovative mindset required to design and implement socially enabled computing solutions. It serves as a pathway for those aspiring to lead in developing transformative digital strategies that drive ethical, sustainable, and impactful societal progress, including within Indigenous communities.

School Computer, Data & Math Sciences

Discipline Information Systems

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 3 subject

Pre-requisite(s) INFS 3023 (this pre-requisite ONLY applies to students commencing in the 2025 version of the following programs 3687 3688 2800 2801 3744 3745 2841 2842)

Equivalent Subjects INFO 3011

Restrictions

Students in the 2024 or earlier version of the following programs (only) will require the successful completion of 160 credit points:

- 3687 Bachelor of Information Systems
- 3688 Bachelor of Information Systems Advanced
- 2800 Bachelor of Information Systems/Bachelor of Laws
- 2801 Bachelor of Information Systems Advanced/Bachelor of Laws
- 3744 Bachelor of Information Systems/Bachelor of Business
- 3745 Bachelor of Information Systems Advanced/Bachelor of Business
- 2841 Bachelor of Information Systems/Bachelor of Laws (Honours)
- 2842 Bachelor of Information Systems Advanced/Bachelor of Laws (Honours)

Students from any other programs (excluding the programs above) regardless of the year they enrolled or the version of the program they are coming from, will require the successful completion of 160 credit points.

Learning Outcomes

After successful completion of this subject, students will be able to:

1. Use introductory systems thinking tools to develop a basic understanding of digital ecosystems.

2. Develop straightforward digital information flow models to support the effective exchange of knowledge, material, money, value, and trust.

3. Identify key factors that shape trust and communication in digital communities, including essential ethical, privacy and security concerns.

4. Experiment with simple system dynamics techniques to explore digital system behaviour.

5. Apply foundational concepts to propose simple digital strategies contributing to ethical, sustainable development and addressing community challenges incorporating Indigenous perspectives and knowledge.

Subject Content

1. Introduction to social computing, knowledge economy and systems thinking
2. Social computing in action - addressing SDGs
3. Systems thinking – concepts (CLD/Iceberg)
4. Digital shift in value creation and flow
5. Communication patterns and community formation including Indigenous perspectives
6. Trust and trust flow (Empowerment/Ethics/Security/ Privacy)
7. Material, money and information flow and impact on value exchange
8. Causal and structural model of social computing and design of information flow models
9. Systems thinking – tools (System dynamic - stock and flow/ Simulations)
10. Technology diffusion patterns
11. Emerging topics in social computing

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task	Mandatory
Practical	120 minutes	35	N	Individual	N
Applied Project	400 words and 20 minutes	35	N	Group/ Individual	N
Final Exam	90 minutes	30	Y	Individual	Y

Teaching Periods

Spring (2025)

Parramatta - Victoria Rd

On-site
Subject Contact Athula Ginige (https://directory.westernsydney.edu.au/search/name/Athula Ginige/)

View timetable (https://classregistration.westernsydney.edu.au/odd/
timetable/?subject_code=INFS3027_25-SPR_PS_1#subjects)

Sydney City Campus - Term 3 (2025)
Sydney City
On-site
Subject Contact Athula Ginige (https://directory.westernsydney.edu.au/
search/name/Athula Ginige/)

View timetable (https://classregistration.westernsydney.edu.au/odd/
timetable/?subject_code=INFS3027_25-SC3_SC_1#subjects)