

# GDSEAI18 Graduate Diploma of Software Engineering (Artificial Intelligence)

## 1. About the Graduate Diploma of Software Engineering (Artificial Intelligence)

The Graduate Diploma of Software Engineering (Artificial Intelligence) is comprised of fundamental software engineering skills and knowledge enhanced by the field of artificial intelligence. In addition to core software engineering skills, the course ensures a sound foundation of mathematical principles required for a successful career in the field of Artificial Intelligence. Learners build intelligent systems applied to robotics, natural language processing, computer vision and machine learning.

Due to the approach of the course, founded on extensive industry consultations, students pathway into the Master and Master Advanced equipping themselves with a mixture of creative application skills, cognitive and technical abilities.

The Graduate Diploma of Software Engineering (Artificial Intelligence) is developed to address the needs of a rapidly evolving industry and as such serves as an exit qualification from Master of Software Engineering and Master of Software Engineering (Advanced) courses. Graduates will have a combination of skills and knowledge additional to software engineering fundamentals enabling them gain entry in field of Artificial Intelligence.

### Graduate employment opportunities:

The Graduate Diploma of Software Engineering (Artificial Intelligence) provides graduates with the capability to seek mid-level employment in either generalist or niche roles found within the software development industry. The specialisation of artificial intelligence gives them a competitive advantage in what they can provide to an employer or client.

### Examples include:

- Associate Software Engineer
- Software Engineer
- Software Developer
- Mid-level Programmer
- Business Intelligence Developer
- Systems Engineer
- Machine Learning Engineer
- Computer Vision Engineer

## Course Overview

<b>Course Title</b>	<b>Graduate Diploma of Software Engineering (Artificial Intelligence)</b>		
<b>Study Options – Domestic Australian students</b>	Face to Face delivery Online delivery Full-time and part-time options available.	<b>Study Options – International students</b>	International students on a student visa must not enroll into any more than a third or 33% of online subjects over their course and must study at least one subject that is face to face in each trimester.  International students on a student visa are required to study full time, i.e. the student must complete a minimum of 1.0 EFTSL of study per year.
<b>Start Dates</b>	February, June, September For specific dates visit the <a href="#">website</a> .	<b>Course Length</b>	Full-time: 1 Year Part-time: 2 years
<b>Payment Options - Domestic Australian students</b>	<b>Upfront payment</b> This means tuition fees will be invoiced each semester and payment is required on or before the due date.  <b>FEE-HELP</b> FEE-HELP is Australian Government's loan scheme for higher education degree courses. It can assist you in paying for all, or part of, your course fees. Repayments commence via the tax system once your income rises above a minimum threshold. Just like with any other debt, a FEE-HELP debt is a real debt that impacts your credit rating.	<b>Payment Options – International students</b>	<b>Upfront payment</b> This means tuition fees will be invoiced each semester and payment is required on or before the due date.
<b>Course study requirements</b>	Each subject involves 10 hours of study per week, comprising 3 hours of facilitated study and 7 hours self-directed study.	<b>Assessment</b>	Project/Application/Research Proposal, Process/Research Documentation, Application Outcome, Reflective Journal/Blog, Report/Essay, Presentation/Pitch, Examinations/Tests/Quizzes, Research, Collaboration, Individual self-directed major project, Work integrated learning project work, Software development for social enterprise

<b>Locations</b>	Sydney Melbourne Adelaide Online	<b>Delivered by</b>	Torrens University Australia
<b>Provider</b>	Torrens University Australia Ltd is registered as a self-accrediting Australian university by the Tertiary Education Quality and Standards Agency (TEQSA).	<b>CRICOS Course Code</b>	TBD
<b>Provider obligations</b>	Torrens University is responsible for all aspects of the student experience, including the quality of course delivery, in compliance with the <a href="#">Higher Education Standards 2015</a>	<b>Accrediting body</b>	Torrens University Australia Ltd
<b>Course Fees</b>	For details, refer to the <a href="#">website</a> .	<b>Any other fees</b>	For details, refer to the <a href="#">website</a> .

## 2. Essential requirements for admission

The general admission criteria that apply to Torrens University Australia courses can be located by visiting the Torrens University Australia website - <https://www.torrens.edu.au/general-admission-information-for-torrens-university-australia-ltd>.

## 3. Admission Criteria

<b>Title of course of study</b>	<b>Graduate Diploma of Software Engineering (Artificial Intelligence)</b>
<b>Applicants with higher education study</b>	The standard entry requirement is a completed qualification at AQF Level 7 (Bachelor degree) or above from an Australian University in a relevant field of study or an equivalent overseas higher education qualification or equivalent.
<b>Applicants with vocational education and training (VET) study</b>	N/A
<b>Applicants with work and life experience</b>	Students without an undergraduate degree, may be admitted to the Graduate Certificate as a pathway with:

<b>Title of course of study</b>	<b>Graduate Diploma of Software Engineering (Artificial Intelligence)</b>
	<ul style="list-style-type: none"> <li>at least 3 years professional experience in software development (documented e.g. CV), demonstrating a reasonable prospect of success; AND</li> <li>a discipline specific portfolio; AND</li> <li>a recommendation letter from 2 most recent employers</li> </ul>
<b>English Language Proficiency</b> (applicable to international students, and in addition to academic or special entry requirements noted above)	IELTS level 6.5 required, with no element less than 6 (or equivalent TOEFL, CAE or PTE).

## Other admission options

*(For applicants who will be selected on a basis other than ATAR)*

<b>Special Entry</b>	Applicants in any category whose study, work or life experiences have been impacted by disability, illness or family disruption will be given special consideration for admission. Each application will be considered on its merit, based on the evidence supplied by the applicant attesting to the circumstances of the applicant. Applicants for special entry may need to complete written or numerical tasks to assist with assessing eligibility for admission.
----------------------	--

## 4. How to apply

Via direct application to the institution

- o <https://apply.torrens.edu.au/>

## 5. Advanced standing/academic credit/recognition of prior learning (RPL)

You may be entitled to credit for prior learning, whether formal or informal. Formal learning can include previous study in higher education, vocational education, or adult and community education. Informal learning can include on the job learning or various kinds of work and life experience. Credit can reduce the amount of study needed to complete a degree.

Applicants admitted based on prior higher education study may be eligible for Advanced Standing in the form of credit and/or recognition of prior learning (RPL) under the Torrens University Australia [Credit Policy - \(https://www.torrens.edu.au/policies-and-forms\)](https://www.torrens.edu.au/policies-and-forms).

- Students with completed subjects may be eligible for specified credit and/or elective exemptions
- Students who have completed a qualification at AQF level 5 (diploma) or above may be eligible for block credit (where a block credit agreement exists)
- Students with a mix of formal study and informal and/or non-formal learning may be eligible for recognition of prior learning in addition to any credit approved.

Credit will not be applied automatically. Applicants must apply for credit and/or RPL as early as possible prior to each study period, with applications not accepted after week 2.

For further information about credit and recognition of prior learning please see <http://www.torrens.edu.au/apply-online/course-credits>.

## 6. Where to get further information

- Torrens University Australia (TUA) Website
  - <https://www.torrens.edu.au/>
- Universities Admissions Centre (UAC) Website
  - <http://www.uac.edu.au/>
- Quality Indicators for Learning and Teaching (QILT) Website
  - <https://www.qilt.edu.au/>

## 7. Additional Information

### Course Structure

The course structure comprises 5 Software Engineering (SE) core subjects, 2 specialised subjects and 1 elective subject over levels 400, 500 and 600, as follows:

- Level 400: 4 SE core subjects
- Level 500: 1 SE core subject + 2 specialised subjects + 1 elective.

The elective subject can be level 400, 500 or 600.

\*Electives available to students may be chosen from the elective bank (please refer to the Course Structure on the Student HUB) or can be taken from any Torrens University course at the appropriate level with approval from the Program Director (or delegate).

### Course Rules

To be awarded the Graduate Diploma of Software Engineering (Artificial Intelligence), students must complete 80 credit points over 8 subjects as outlined in the course structure. Each subject has a value of 10 credit points.

### Subjects

SUBJECT DETAILS
SUBJECT TITLE, DESCRIPTOR
LEVEL 400

<b>SUBJECT DETAILS</b>
<b>SUBJECT TITLE, DESCRIPTOR</b>
<p><b>SEP401 Software Engineering Principles</b></p> <p>In this subject students are introduced to the current Software Engineering standards and processes, with the aim of enabling them to analyse, design, and implement software projects that follow certain quality measures at every stage of the Software Development Life Cycle. The subject covers requirements engineering, modelling and design of software, software architecture, verification and validation of software systems, and other topics that are related to software engineering practices.</p>
<p><b>HCD402 Human Centred Design</b></p> <p>This subject helps students explore several non-technical aspects of software development, especially pertaining to human behavior and interactions so that students can appreciate the human aspects of technology. Broadly, the subject covers the theory of knowledge, human cognition, ethical and moral values, analysis of human history, critical analysis, creative aspects of the human mind and social interaction among human beings through a technological context. Students will use the specialised skills that they gain in other subjects to help formulate and suggest innovative solutions to problems that affect diverse societies.</p>
<p><b>SBD403 Secure by Design</b></p> <p>This subject deals with integrating the entire development lifecycle of IT systems in a secure environment through secure design methodologies, software development models, architecture design and industry Secure by Design standards like OWASP (Open Web Application Security Project). This subject also deals with how to build adequate security into systems to maintain integrity and safety of the functionality of IT systems while being exposed to cyber threats.</p>
<p><b>SDM404 Software Development Management</b></p> <p>In this subject the students are introduced to the main project management principles and modern software project management practices. During the subject, the different methods for managing and optimising the software development process are discussed along with the different techniques for performing each phase of the software development life cycle.</p>
<b>LEVEL 500</b>
<p><b>MFA501 Mathematical Foundations of Artificial Intelligence</b></p> <p>The purpose of this subject is to provide a solid mathematical background that students will encounter in studies of Artificial Intelligence, specifically in sub-areas such as machine learning, natural language processing, speech recognition, and computer vision. This subject will cover topics including linear algebra (equations, functions and graphs), differentiation and optimisation, vectors and matrices, statistics and probabilities. Thorough understanding of these mathematical concepts is necessary for understanding the inner workings of the algorithms in Artificial Intelligence.</p>
<p><b>REM502 Research Methodologies</b></p> <p>This subject introduces students to a framework for developing good scholarly inquiry skills and fundamental knowledge needed to make rational decisions about research strategies. Students will be presented with research strategies to critically investigate exemplar studies and examine the connection between a research question with appropriate research design and methodology. On completion of this subject, students should be able to develop researchable questions, and write research proposals and literature reviews. They will have a critical understanding of the strengths and limitations of the quantitative, qualitative and mixed method approaches to research. They will also learn about the ethical principles of research, challenges in getting approval and the approval processes.</p>
<p><b>ISY503 Intelligent Systems</b></p>

<b>SUBJECT DETAILS</b>
------------------------

<b>SUBJECT TITLE, DESCRIPTOR</b>
----------------------------------

<p>This subject aims to give a broad introduction of intelligent systems, that is, how technologically advanced machines perceive and respond to the world around them. Discussion will focus on how Artificial Intelligence (AI) concepts and classifications are used to design intelligent systems. Overview of AI topics such as representation, reasoning, search methods, intelligent agents, learning, uncertainties and probabilities, perception and action, and communication are presented. It also includes discussions of AI classifications such as Machine Learning, Robotic, Natural Language Processing, Speech Recognition, Expert Systems, Computer Vision, and how they are used to make intelligent systems. This subject also enables students to understand the particular ethical issues that AI presents and how it can be used to benefit society.</p>
--

## Locations

The Graduate Diploma of Software Engineering (Artificial Intelligence) can be studied fully online or at the below Torrens University Campuses:

- Sydney: Level 1, 46-52 Mountain Street, Ultimo NSW Australia 2007
- Melbourne: 196 Flinders St, Melbourne, VIC 3000
- Adelaide : 82-98 Wakefield Street, Adelaide, SA, 5000

## Campus Facilities and Services

All campuses are designed to provide students with professional spaces in which to learn and work. They have been planned with student study needs in mind with well-equipped accessible learning spaces as well as student breakout areas for group work and spending time with friends.

Facilities and Services include:

- The Customer Service Hub – our friendly and experienced staff can give help and advice about courses, your enrolment and campus life, including all services and activities on campus.
- Counsellors are available for students to consult with on a range of personal issues
- Student wireless access throughout the Campus
- Student break-out and relaxed study spaces for group work
- Student lounge areas – most with microwaves, kitchenette facilities and vending machines
- The Learning Hub, home to the Learning Support Team, encompasses Learning Skills Advisors, Learning Technology Advisors, and Library & Learning Skills Officers. It provides an integrated, holistic support program for students throughout the study lifecycle within a library/collaborative study environment. The service includes:
  - Support and workshops with highly qualified staff in the areas of Academic skills, Library skills, and Technology skills, both on campus and online.
  - Physical and digital resources relevant to studies, such as books, journals, multimedia, databases
  - Self-check kiosks for library loans and print and copy facilities

## A positive student experience

Torrens University Australia values the importance of a positive student experience, and therefore has robust processes to resolve student complaints. The Student Complaints Policy, and associated procedures, can be accessed from the [website](https://www.torrens.edu.au/policies-and-forms) (https://www.torrens.edu.au/policies-and-forms).

## Paying for your qualification

We offer two payment options for this course:

- **Upfront payment**  
If you want to complete your qualification debt-free you can choose to pay as you go. This means tuition fees will be invoiced each semester and payment is required on or before the due date using EFTPOS, credit card or direct transfer.
- **FEE-HELP**  
FEE-HELP is Australian Government's loan scheme for higher education degree courses. It can assist you in paying for all, or part of, your course fees. Repayments commence via the tax system once your income rises above a minimum threshold (\$45, 881 in 2019-20). Just like with any other debt, a FEE-HELP debt is a real debt that impacts your credit rating.

*Torrens University Australia Ltd, ABN 99 154 937 005, RTO 41343, CRICOS 03389E. Information provided in this document is current at the time of publishing (Feb 2021).*



Further information about FEE-HELP, including eligibility, is available at:

- FEE-HELP website:  
<http://studyassist.gov.au/sites/studyassist/help-payingmyfees/fee-help/pages/fee-help->
- FEE-HELP booklets:  
<http://studyassist.gov.au/sites/studyassist/helpfulresources/pages/publications>

### **Austudy and Abstudy**

Students enrolled in this course may be eligible for government assistance, such as [Austudy](#) or [Abstudy](#).