INFORMATION TECHNOLOGY

2022 GRADUATE COURSE GUIDE
IT’S TIME TO UNLOCK YOUR POTENTIAL

Monash is the only university out of the prestigious Group of Eight to have an entire faculty dedicated to IT. We’re also consistently recognised for the calibre of our education and research — considered among the best in the world.

As one of our graduate students, you’ll learn from leading researchers who are innovating in every area of IT. Internationally recognised, they’ll help enrich your knowledge and enhance your capabilities.

You’ll also get access to cutting-edge facilities designed to let you delve deeper into a field of your choice.
TOP 100
Monash is ranked in the top 100 in the world for Computer Science and Information Systems

MOST INNOVATIVE
Monash was named Australia’s most innovative university in 2017, 2018 and 2019

ABOVE WORLD STANDARD
We’re the only Australian university rated as ‘above world standard’ across every category in Information and Computing Sciences

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Course information fast facts
Look for these icons on each course page for key information.

Location
Duration
Intakes
Degree awarded

This course guide includes QR codes that link to more information. Simply scan them with your smartphone camera or QR app.

1 QS World University Rankings by Subject (2021)
2 Reuters Top 75: Asia’s Most Innovative Universities (2017-2019)
NEW KNOWLEDGE, NEW OPPORTUNITIES

People from across the globe are drawn to our graduate programs, renowned for their breadth, depth and flexibility.

Whether you’ve been in the industry for a few years or just finished your bachelor’s, let our graduate degrees propel you towards your professional goals.

To broaden your skills and expand your career prospects, our courses cover a comprehensive range of units – from the fundamentals to the specialised.

What’s more, they give you the freedom to explore a range of areas before honing in on a discipline you’re interested in.

YOUR GRADUATE DEGREE PATHWAY

Most of our graduate degrees start with foundation and core units. Then, through electives, they let you explore specific topics to refine your expertise.

The duration of your course will depend on which path you pursue, as shown below.

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<tr>
<th>ENTRY PATHWAY</th>
<th>Course components</th>
<th>Complete your master in</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Foundation units</td>
<td>2 years</td>
</tr>
<tr>
<td>Undergraduate degree in any discipline¹</td>
<td>Core units</td>
<td>1.5 years</td>
</tr>
<tr>
<td>Undergraduate degree in IT¹</td>
<td>Elective units</td>
<td></td>
</tr>
<tr>
<td>DATA SCIENCE</td>
<td>Capstone project¹</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: The Master of Computer Science does not include foundation units.

¹ If you have a research honours degree, the Capstone Project may not be required for the Master of Data Science.
We also support our students and their studies by offering immersive, collaborative learning spaces – such as our studios in the Woodside Building for Technology and Design.

bit.ly/ITwoodside
IMMERSE IN REAL-WORLD PRACTICE
INDUSTRY EXPERIENCE (IE)

When you choose industry experience as your capstone project, you’ll work with students from a range of IT disciplines to address a real, pressing challenge. In the project, you’ll deploy everything you’ve learned while gaining valuable business insights and hands-on experience to advance your career. All while under the guidance of a mentor from industry.

*IE is available in all master’s degrees except the Master of Computer Science

RESEARCH IN ACTION

Named Australia’s most innovative university three years in a row, Monash is known for producing high-quality research¹.

Master’s projects

If you want to delve deep into IT research, then undertake a research initiative for the capstone project in your master’s degree.

The ideal pathway into graduate research, you’ll spend two semesters investigating a relevant area of interest and writing a thesis – with the support of at least two experts in the field.

Your project is a rare opportunity for you to develop a profound understanding in an IT discipline you’re passionate about, under the mentorship of leading specialists.

*Master’s projects available in all master’s degrees except the Master of Computer Science

Graduate research degrees

When you undertake a research degree (MPhil or PhD) at Monash, you’ll have access to:

• generous scholarships
• student support
• supervisors who are world leaders in their fields
• partnerships with industry and professional associations
• an inspirational, rapidly-growing community of students like you.

Attracting the largest number of enrolments out of all the Group of Eight universities, our graduate research degrees follow the Monash Doctoral Program that blends original research with training.

The goal? To refine your research skills and acumen – and prepare you for success in your chosen career.

MONASH INDUSTRY TEAM INITIATIVE (MITI)

MITI is an Australian first – and unique to Monash.

An outstanding opportunity, it allows selected students to put their academic knowledge into practice while immersed in a contemporary business environment.

As part of a multidisciplinary team, you’ll be paired with a top organisation where you’ll help design an innovative solution to a business challenge. Through this program, you’ll gain valuable exposure to the dynamics of industry, acquire hands-on experience and set yourself apart in a competitive job market.

¹ Reuters Top 75: Asia’s Most Innovative Universities (2017-2019)
SUPPORTING OUR STUDENTS IN MANY WAYS

Scholarships and grants
When you enrol in a graduate degree, you could receive a Monash scholarship that aims to promote equity and excellence.
We actively find scholarship opportunities on your behalf and put you forward for them. All you have to do is accept!
This added financial support can help cover costs during your studies, so you can focus on your learning – and open greater opportunities. Here’s what you could be eligible for:

- Information Technology Postgraduate Scholarship
- The Broadspectrum Scholarship for Women in Information Technology
- Monash International Merit Scholarship
- Information Technology Indigenous Merit Scholarship
- Information Technology Indigenous Study Support Scholarship
- Merit Scholarship

For more scholarships information, scan the QR code below.
monash.edu/it/future-students/scholarships

Women in IT
On top of our scholarships, we also run the Women in Technology Alumni Mentoring program. This initiative gives women and non-binary IT students greater opportunities to form networks, build confidence and plan their careers with a mentor.

People living with disabilities
Through our peer mentoring program, students living with disabilities can learn through the experiences of others – while expanding and developing their social network at Monash.

Monash Graduate Association (MGA)
For over 50 years, the MGA has provided graduate research and coursework students with advocacy, advice and support services. They can help you resolve any administrative, academic or welfare issues.

The LGBTIQ community
To support the LGBTIQ community, Monash has Queer 101 training for students. We also have the Ally Network, where members take a proactive stance against discrimination based on sexual orientation, gender identity and intersex status.

First Australians
On top of our dedicated scholarships and research projects, we’re also enhancing the participation and success of our Indigenous students by embedding their perspectives and content into our curriculum.

For more information about equity, diversity and inclusion at Monash, scan the QR code below.
monash.edu/about/diversity-inclusion

6
Graduate Certificate of
COMPUTER SCIENCE

This manageable six-month course is delivered 100% online and designed to enhance the career prospects of graduates who don’t have a background in a related field or IT.

Develop a graduate-level understanding of computer science, be ready to ride the latest technological trends and enjoy an abundance of career opportunities across a wide range of industries and countries.

The Graduate Certificate of Computer Science focuses on enhancing your professional experience and building your core knowledge of modern practices, principles, tools and techniques. Through electives, it also introduces you to artificial intelligence, software engineering or cybersecurity – disciplines that lie at the heart of many industries.

What you’ll learn
Emerging from this certificate, you’ll be able to effectively handle technological challenges in various domains by:
• analysing and reviewing theories and techniques in computer science
• applying problem-solving skills backed by theoretical knowledge to design and implement innovative solutions
• assessing and using industry-standard tools and techniques for building software systems
• critically evaluating and addressing ethical, legal and social issues around the use of technology
• communicating and partnering with stakeholders in the IT field and beyond.

Where this certificate can take you
The Graduate Certificate of Computer Science will augment your previous experience and complement your current skill set so you’re equipped to take on a wider range of roles in the workforce.

ENTRY REQUIREMENTS

Bachelor’s degree, or equivalent qualification or experience approved by the faculty.  

To learn more about the Graduate Certificate of Computer Science, scan the QR code.

handbook.monash.edu/2021/courses/C4009

1 In equivalent Monash University grading scale terms, a 100% scale where 50% is a pass. Your prior qualifications must be accredited to the equivalent Australian level specified in the eligibility requirements table.
Graduate Diploma of
COMPUTER SCIENCE

Let this diploma expand your computer science knowledge and then immerse you in artificial intelligence, cybersecurity or software engineering — all rapidly-growing areas around the world.

Switch to an in-demand profession and future-proof your career with the latest expertise.

This flexible online course will equip you with skills to use emerging technologies and address challenges that many industries currently face.

First, build on your existing computer science expertise in areas such as Java programming, algorithms and databases, and architecture and networks. You’ll also be introduced to artificial intelligence, cybersecurity and software development.

After creating a strong foundation, you’ll specialise in one of the three disciplines above to gain graduate-level expertise that will enable you to seize greater, more diverse career opportunities and create a bigger impact in the workforce.

If you’re eager to expand on your qualifications, successfully completing this diploma means you could also fast-track the Master of Computer Science.

What you’ll learn
In this course, you’ll learn how to:
• analyse, critically review, synthesise, evaluate and leverage computer science theories and techniques to solve modern challenges
• apply problem-solving skills and theoretical knowledge to design and construct innovative solutions in artificial intelligence, cybersecurity or software engineering
• assess and use industry-standard tools and techniques to build reliable software systems
• navigate ethical, legal and social issues arising from new technologies
• communicate and collaborate effectively with stakeholders across a variety of industries such as retail, finance, entertainment, IT and government.

Specialist pathways open to you
Completing this diploma puts you in a favourable position to pursue in-demand roles such as:

Software engineer
Use your knowledge of engineering principles and computer science to build different software products such as middleware, operating systems and applications.

Information security analyst
Analyse, assess and investigate vulnerabilities in an organisation’s IT infrastructure to protect important information and systems from cyber threats.

Data analyst
Collect, process and perform statistical analyses on large datasets to uncover valuable insights in data, inform key decision-making and help achieve strategic business goals.

Artificial intelligence specialist
Leverage your expertise with AI technologies and platforms to build services, conduct image recognition, drive natural language processing and more to creatively solve pressing organisational problems.

ENTRY REQUIREMENTS

<table>
<thead>
<tr>
<th>Average requirements¹</th>
<th>Entry level</th>
<th>Duration (part-time in years)²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor’s degree (or equivalent) in a related field³, OR equivalent qualification approved by the faculty</td>
<td>1⁴</td>
<td>1.4</td>
</tr>
<tr>
<td>A Monash University Graduate Certificate of Computer Science</td>
<td>Credit (60%)</td>
<td>2</td>
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¹ In equivalent Monash University grading scale terms, a 100% scale where 50% is a pass. Your prior qualifications must be accredited to the equivalent Australian level specified in the eligibility requirements table.
² Even if you’re eligible for a shorter course duration, you may elect to complete the longer duration.
³ Related fields in any degree in a STEM discipline, or degrees that have mathematics, business analytics, scientific or critical thinking, or problem-solving.
⁴ For entry level 1, to undertake the artificial intelligence specialisation you must have knowledge of calculus and linear algebra at the level of undergraduate physical science or engineering.

To learn more about the Graduate Diploma of Computer Science, scan the QR code.

handbook.monash.edu/2021/courses/C5008
The rise of big data has changed how organisations do business. With this graduate diploma, you’ll be at the forefront of this exciting transformation. This course will equip you to extract valuable insights from data to inform key business decisions.

How? By taking you deep into all areas of data science – including:

• statistical and exploratory analysis
• data formats and languages
• processing of massive data sets
• managing data and its effects on organisations and communities.

What you’ll learn
Through the Graduate Diploma of Data Science, you’ll be equipped to:

• apply major theories in data analysis and data exploration to characteristic problems
• investigate, analyse and report the core issues and requirements in developing data analysis capabilities in a global organisation
• put into practice an understanding of data science to a level of sophistication consistent with senior professional practice
• uphold ethical and legal best practice in privacy and security, and other areas of community impact when it comes to data science.

Specialist pathways open to you
Specialist roles you could move into through this diploma include:

Data scientist
As a data scientist, you’ll analyse and interpret massive data streams to draw out meaning that will underpin key business strategies. Key tasks in this process include cleaning, munging and visualising data.

Data engineer
Your responsibilities as a data engineer will be to compile, install and scale database systems. You’ll also have the important duty of putting disaster recovery systems in place to safeguard your organisation.

FLEXIBLE AND CONVENIENT
This diploma is 100% online and requires you to complete one unit every two months. Enjoy the flexibility you need to balance study, work and family.

ENTRY REQUIREMENTS

Bachelor’s degree (or equivalent) in a related field, OR

Bachelor’s degree (or equivalent) and two years’ professional work experience in programming or databases

Average requirements

Pass (60%)

1 In equivalent Monash University Grading Scale Terms, a 100% scale where 50% is a pass.

2 Related fields include IT, business (with maths), economics, econometrics, engineering or science with completed studies in either maths, programming or databases.

To learn more about the Graduate Diploma of Data Science, scan the QR code.
Master of DATA SCIENCE

With expertise that’s sought-after worldwide, data scientists extract gold from mounds of information. With the insights they uncover, these professionals drive innovation and transformation across many sectors.

Even if you don’t come from an IT-related background, you can still enrol in our Master of Data Science.

This degree first teaches you the fundamentals of the discipline through units covering programming, mathematics and databases. Then you’ll progress to more advanced areas such as data wrangling, IT research and statistical modelling.

Through the course’s choice of electives, you also get to expand your knowledge in an IT specialisation of your interest.

When you reach your final year, it’s time to gain some real-world experience. Choose between developing a data-driven IT solution with the support of a top organisation or complete a research project under the guidance of a leading expert (a step toward a PhD).

What you’ll learn
With access to the largest group of data scientists in any research institution in the Asia-Pacific, you’ll learn how to:

- analyse the lifecycle of data through an organisation
- implement major theories in data analysis and exploration in common contexts and challenges
- plan a data science project in a new area of application using your expertise in the data lifecycle and analysis process
- investigate, analyse, document and communicate the core issues and requirements in developing the data analysis capabilities of a global organisation
- demonstrate an understanding of data science to a standard suited to senior professional practice
- review, assess, synthesise and apply modern data science theories (through an independent research project and thesis, or by using research methods for scholarly or professional purposes)
- review, assess, synthesise and apply modern data science theories (through an independent research project and thesis, or by using research methods for scholarly or professional purposes)
- record and convey ethical and legal considerations in data science regarding privacy, security and other areas of community concern.

Pathways open to you
Here are some careers you could pursue with a graduate degree in data science:

Data scientist
As a data scientist, you’ll extract meaning from data using a range of tools and methods. You’ll also spend a lot of time collecting information and ensuring it’s reliable to act on.

Chief data officer
Your goal as a chief data officer will be to manage the organisation-wide collection, storage and analysis of data — to achieve your business’ high-level mission.

Data architect
Your responsibilities as a data architect will revolve around drawing up blueprints for building, testing and maintaining databases.

Quantitative analyst
In a quantitative analyst role, you’ll design and execute complex mathematical models to inform an organisation’s financial decisions and reduce its risks.

Data analyst
Businesses collect huge amounts of data through a variety of functions. Your job as a data analyst will be to translate all the complex numbers into insights that will help your organisation make better business decisions.

Data engineer
As a data engineer, you’ll be trusted with the development, testing and maintenance of architectures such as databases and processing systems.

ENTRY REQUIREMENTS

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<tr>
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<td>Credit (60%)</td>
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</tr>
<tr>
<td>Bachelor’s degree (or equivalent) in a related field, OR an equivalent qualification approved by the faculty</td>
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1 In equivalent Monash University grading scale terms, a 100% scale where 50% is a pass. Your prior qualifications must be accredited to the equivalent Australian level specified in the eligibility requirements table. In equivalent Monash University Grading Scale Terms, a 100% scale where 50% is a pass.

2 Even if you’re eligible for a shorter course duration, you may elect to complete the longer duration.

3 Related fields include a degree related to IT, or a business engineering or science degree with an IT major including programming, databases, and mathematics.
COURSE STRUCTURE
In the Master of Data Science, you’ll complete:

Four foundation units
- algorithms and programming foundations in Python
- introduction to databases
- mathematical foundations for data science
- introduction to computer architecture and networks.

Five core units
- introduction to data science
- data wrangling
- IT research methods
- data exploration and visualisation
- statistical data modelling.

Three additional units
Choose from:
- applied data analysis
- machine learning
- data processing for big data
- data analysis for semi-structured data
- introduction to bioinformatics
- advanced bioinformatics: efficient genome, transcriptome and proteome analysis.

Capstone project
One elective offered by us or another faculty.
AND

Industry experience
- industry experience studio project
- professional practice.
OR

A master’s thesis

THE SKILLS NEEDED TO SUCCEED
My degree equipped me with the skills needed to succeed as a consultant at KPMG. It also helped me enhance my leadership, communication, critical thinking and evidence-based argument capabilities.

In my role, I use valuable insights from data to point clients in the best possible route – and I walk the journey with them too.

VIVIAN WONG
Master of Data Science

Shobhit’s story
Scan the QR code to learn more about alumnus Shobhit Talwar, his experience at Monash – and how the Master of Data Science enhanced his career.
youtu.be/go3Lh4Z8Fc

To learn more about the Master of Data Science, scan the QR code.
handbook.monash.edu/2021/courses/C6004

4 Previous studies in IT may apply as credit for the foundation units.
Armed with advanced computer science knowledge as well as specialist expertise in artificial intelligence, software engineering or cybersecurity, be ready to take on new challenges and expand your professional prospects.

The Master of Computer Science is a broad-based degree designed by award-winning, internationally-recognised tech pioneers in the only dedicated IT faculty out of the prestigious Group of Eight.

As you progress through the course, you’ll gain key foundational knowledge in algorithms, programming, architecture and networks, databases and more. You’ll also be introduced to three top emerging disciplines – artificial intelligence, software engineering and cybersecurity, one of which you can specialise in.

Back all this practical theoretical knowledge with a portfolio of real-world applications and esteemed accreditations, and you’ll be prepared to seize a whole new world of opportunity.

**What you’ll learn**

After completing the Master of Computer Science, you’ll be equipped to:

- analyse, critically evaluate, synthesise and apply contemporary computer science theories and techniques
- leverage advanced problem-solving skills to drive innovative solutions in artificial intelligence, cybersecurity or software engineering
- use industry-standard tools and techniques to build reliable, efficient software systems
- design architectures that incorporate new and emerging technologies from at least one of the fields of software engineering, artificial intelligence and cybersecurity
- strategically assess, document, communicate, navigate and stay abreast of ethical, legal and social issues surrounding the application of technology in the global economy
- communicate and collaborate effectively with stakeholders from a variety of industries and backgrounds, such as finance, retail, IT, government, not-for-profit and more.

**Pathways open to you**

Comprehensive foundational units, an in-demand specialisation and extensive application study mean you’ll be empowered to transform your career – and occupy an enviable position in the employment market.

Some top-emerging jobs you’ll be qualified to take on include:

- **Software engineer**
  Blend knowledge in programming languages, development and operating systems with engineering principles to create customised software such as mobile applications, security tools and more.

- **Cybersecurity specialist**
  Safeguard organisational systems, networks and data by identifying vulnerabilities and risks, and then evaluating and implementing cybersecurity defenses.

- **Artificial intelligence specialist**
  Leverage your expertise with AI technologies and platforms to build services, conduct image recognition, drive natural language processing and more, to creatively solve pressing organisational problems.

**ENTRY REQUIREMENTS**

<table>
<thead>
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<th>Average requirements1</th>
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<th>Duration (part-time in years)2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor’s degree (or equivalent) in a related field3, OR equivalent approved by the faculty</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Monash University Graduate Certificate of Computer Science</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Monash University Graduate Diploma of Computer Science</td>
<td>3</td>
<td>0.7</td>
</tr>
</tbody>
</table>

1 In equivalent Monash University grading scale terms, a 100% scale where 50% is a pass. Your prior qualification/s must be accredited to the equivalent Australian level specified in the eligibility requirements table.

2 Even if you’re eligible for a shorter course duration, you may elect to complete the longer duration.

3 Related fields include any degree in a STEM discipline, or degrees that have mathematics, business analytics, scientific or critical thinking, or problem solving.

4 For entry level 1, to undertake the artificial intelligence specialisation you must have knowledge of calculus and linear algebra at the level of undergraduate physical science or engineering.
COURSE STRUCTURE

In this course you’ll complete:

Core master’s units
- Java programming
- architecture and networks
- software engineering
- algorithms and databases
- fundamentals of artificial intelligence
- information and computer security.

Specialist studies
You must complete all units in one of the following specialisations:

Software engineering
- web application development
- mobile and distributed systems
- user interface design and usability
- software testing, quality and standards.

Cybersecurity
- software and network security
- enterprise IT security
- blockchain
- cloud computing and security.

Artificial intelligence
- machine learning
- natural language processing
- intelligence image and video analysis
- discrete optimisation.

Applied practice
- applied practice part 1
- applied practice part 2.

To learn more about the Master of Computer Science, scan the QR code.
handbook.monash.edu/2021/courses/C6008
Technology underpins almost all disciplines around the world, including engineering, business, medicine, art and finance. This means professionals with IT expertise are always in high demand.

The Master of IT provides you with the knowledge, skills and experience to solve real challenges using the latest technology.

This course includes preparatory units to create a foundation for the rest of the degree. This means you can still pursue your interest in IT even if you don’t have a background in the field.

This master’s degree also lets you complete either an industry experience project while supported by a driven business mentor or take the lead on a research project – a step towards a PhD. Whatever your goals, the choice is yours.

By studying the Master of IT, you’ll prepare yourself to work at the highest levels in the field and stand at the forefront of technological advancement.

Interested in research?

If you choose the master’s thesis, you’ll undergo training and complete a minor thesis with support from an esteemed academic. High-achievers may progress to further study at PhD level.

Pathways open to you

Software engineer
When you become a software engineer, you’ll use your knowledge of engineering principles and computer science to build different types of software products and run network control systems.

Data architect
In this role, you’ll create blueprints for complex computer database systems. Your work will also involve testing and planning the databases you design.

Enterprise data architect
As an enterprise data architect, you’ll be responsible for collating master blueprints that align IT programs with information strategies. You’ll also drive integration, quality enhancement and successful data delivery.

App developer
As an app developer, your main responsibilities will include creating, testing and programming apps for computers, mobile phones and other electronic devices.

Systems analyst
After becoming a systems analyst, you’ll analyse, develop and implement information systems to reach business objectives. You’ll also liaise with end users, software vendors, programmers and other stakeholders to drive organisational improvements.

Solutions architect
Your duty as a solutions architect will be to translate business needs into frameworks for solutions, and then explain them to relevant stakeholders.

Chief technology officer
This position requires you to examine the short- and long-term needs of an organisation and then invest capital into the right technology, policies and procedures to meet them.
ENTRY REQUIREMENTS

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<th>Average requirements¹</th>
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<th>Duration (full-time in years)²</th>
</tr>
</thead>
<tbody>
<tr>
<td>An Australian bachelor’s degree, not necessarily in IT, OR an equivalent qualification approved by the faculty</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>An Australian bachelor’s degree in a cognate discipline or major in IT including computing, computer science or a technical information technology field, with completed studies in programming, databases, computer architecture, algorithms and data structures, data communications and system analysis and design, OR an equivalent qualification approved by the faculty</td>
<td>Credit (60%)</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: Students eligible for credit for prior studies may not elect to receive the credit and complete one of the higher credit-point courses.

COURSE STRUCTURE

In the Master of Information Technology, you’ll complete:

Four foundation units³
- programming foundations in Java
- introduction to databases
- introduction to computer architecture and networks
- algorithms and programming foundations in Python.

Three core units
- project management
- software engineering
- IT research methods.

Three core elective units
From the approved electives list.

Two IT elective units
From any FIT-coded level 5 units, if you meet the prerequisites and there are no restrictions on enrolments.

Capstone project
One elective offered by us or another faculty.

AND

Industry experience
- industry experience studio project
- professional practice.

OR

A master’s thesis

1. In equivalent Monash University Grading Scale Terms, a 100% scale where 50% is a pass.
2. You can elect to complete the longer course even if you’re eligible for the shorter one.
3. Previous studies in IT may apply as credit for the foundation units.

CONFIDENT AND EXCITED ABOUT MY PROSPECTS

I chose the Master of Information Technology because I wanted to study further in a field that would broaden my career options.

In the course, many of the units focused on building in-demand skills and knowledge. The academics were also excellent, each with a lot of expertise to share. Thanks to my degree, I went from having no formal IT study to being confident and excited about my prospects in the industry.⁴

PAUL FITZGERALD
Master of Information Technology

To learn more about the Master of Information Technology, scan the QR code
handbook.monash.edu/2021/courses/C6001
FAST FACT

‘Cybersecurity Specialist’ is a top emerging job in many countries, such as Australia, Singapore and more.

LinkedIn Jobs on the Rise Reports 2021

The widespread adoption of mobiles and other pervasive devices has greatly increased security risks — and in turn, the need for cybersecurity specialists.

The Master of Cybersecurity develops your ability to design, implement, assess and manage cybersecurity systems to protect sensitive data and communication networks.

Because this course includes foundation units, you won’t need to have a background in IT to complete it. What’s more, in the final year of this degree, you’ll cement everything you learn through either an industry experience project involving business mentors or a research initiative supported by a specialist.

With topics spanning common network protocols, performance analysis, traffic dimensioning and networking management, the Master of Cybersecurity will teach you the invaluable skills needed to identify and mitigate security weaknesses in IT systems.

If you choose research

The research component of this course involves training and a minor thesis, both of which you’ll complete with the support of a recognised cybersecurity expert.

If you achieve high grades, you may be able to progress to further research study.

Pathways open to you

Some exciting career pathways open to you through the Master of Cybersecurity include:

Blockchain specialist

As a blockchain specialist, the opportunities are endless. You could be responsible for creating the security and architecture of a blockchain system. Or you could find yourself developing decentralised apps — or even a brand-new cryptocurrency.

Cybercrime investigator

In this position, you’ll investigate cybercrime through digital forensics and technology. Dynamic and exciting, you could be working on a hacked computer one day — and recovering lost files the next.

Digital forensics analyst

In the digital forensics analyst role, you’ll blend computer science expertise with forensic skills to recover valuable information from computers and storage devices.

What you’ll learn

After finishing this course, you should be able to:

• critically evaluate existing systems using the theories, techniques and software tools available in cybersecurity and blockchain, and propose solutions
• adapt new and emerging technologies through app development based on an understanding of key cybersecurity principles
• analyse and record core issues in building secure, effective systems
• competently design architectures for secure systems
• enhance existing systems with new technologies, learned through either a significant research thesis or research-based industry project
• examine issues and solutions in security and system design as they affect different communities
• demonstrate an understanding of ethical issues and norms in privacy and security.

To learn more about the Master of Cybersecurity, scan the QR code.

handbook.monash.edu/2021/courses/C6002
COURSE STRUCTURE
In the Master of Cybersecurity, you’ll complete:

Four foundation units
- programming foundations in Java
- introduction to databases
- introduction to computer architecture and networks
- algorithms and programming foundations in Python.

Four core units
- project management
- information and computer security
- software security
- IT research methods.

Four elective units
Choose from:
- network security
- advanced topics in security
- enterprise IT security – planning, operations and management
- blockchain
- IT forensics
- smart contracts
- cloud computing and security.

Capstone project
Industry experience
- industry experience studio project
- professional practice
- software engineering.

OR
A master’s thesis

ENTRY REQUIREMENTS
An Australian bachelor’s degree, not necessarily in IT, OR an equivalent qualification approved by the faculty.

An Australian bachelor’s degree in a cognate discipline including computing, computer science, software engineering, computer systems, electrical, electronic or communication engineering, OR an equivalent qualification approved by the faculty.

<table>
<thead>
<tr>
<th>Average requirements</th>
<th>Entry level</th>
<th>Duration (full-time in years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit (60%)</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: Students eligible for credit for prior studies may not elect to receive the credit and complete one of the higher credit-point courses.

REALLY VALUABLE TO MY GROWTH
Due to continuous advancements in technology, cybersecurity is one of greatest challenges of our time.

My learning experience at Monash has been really valuable to my growth, with the course structure and units updated regularly based on gaps in industry. The faculty has also been really approachable, supportive and easy to work with.

Through the Monash Industry Training Initiative program, I was also able to secure an internship with Lactalis Australia, which allowed me to form connections within the local dairy industry. It also enhanced my leadership, communication, critical thinking and negotiation skills.”

JITHU GEEVARGHEESE PANICKER
Master of Cybersecurity
Master of BUSINESS INFORMATION SYSTEMS

Whether it’s for day-to-day operations or strategic decision-making, information drives business. It’s why systems that manage information are integral to modern organisations – as are experts in the field.

When you study this master’s degree, you’ll gain the expertise to design solutions for business information problems and offer strategic advice to enhance governance.

In this course, you’ll explore the spectrum of IT functions within business. You’ll also examine both the theoretical foundations of business information systems and their practical applications.

Begin by completing foundation units, ideal for those who don’t come from a relevant background. Then expand your knowledge with a wide range of units to choose from.

In the last year of your course, work in a team on an industry project while learning directly from seasoned business professionals. Or you can choose to delve deep into a related topic of your choice through a fascinating research project – with the support of recognised IT expert.

What you’ll learn
After you finish the Master of Business Information Systems, you should be equipped to:

* explain and discuss the major theoretical and professional issues related to business information systems
* deeply analyse a business problem, design an IT solution for it and measure performance
* engage in business information systems work to a standard aligned with senior professional practice
* demonstrate social, ethical and communication skills in an industry setting while managing ambiguity and complexity
* convey your research findings and the rationales behind your solutions to diverse stakeholders
* investigate information system problems with skills developed through independent research and a thesis, or by using research methods for academic or professional purposes.

Pathways open to you
Here are some specialist careers you could pursue with the Master of Business Information Systems:

**Business analyst**
In this role, you’ll consult different stakeholders to identify their business problems. Then you’ll gather, document and analyse their requirements to design a technical solution.

**Information management specialist**
Some of your duties as an information management specialist will involve creating information architectures, developing content hierarchies to facilitate workflow and analysing and organising databases for easy access.

**Systems analyst**
As a systems analyst, you’ll identify areas for improvement within an organisation and design systems to bridge these gaps. You’ll also train others to efficiently use the systems you develop.

**IT manager**
IT managers are mainly responsible for planning, coordinating and directing activities related to the computer and information systems of a company. They identify the needs of an organisation and develop technical solutions to meet them.

Accredited by the Australian Computing Society.

To learn more about the Master of Business Information Systems, scan the QR code.

handbook.monash.edu/2021/courses/C6003
ENTRY REQUIREMENTS

<table>
<thead>
<tr>
<th>Average requirements¹</th>
<th>Entry level</th>
<th>Duration (full-time in years)²</th>
</tr>
</thead>
<tbody>
<tr>
<td>An Australian bachelor’s degree, not necessarily in IT, OR an equivalent qualification approved by the faculty</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>An Australian bachelor’s degree in a cognate discipline relating to information systems OR with an information systems major, with completed studies in: basic programming, basic database theory, systems analysis and design.</td>
<td>2</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Plus an understanding of the major enterprise IT applications and their architectures, including enterprise/transaction processing systems and analytical/business intelligence systems, OR an equivalent qualification approved by the faculty

Note: Students eligible for credit for prior studies may not elect to receive the credit and complete one of the higher credit-point courses.

COURSE STRUCTURE

In the Master of Business Information Systems, you’ll complete:

Four foundation units³
- introduction to business information systems
- systems analysis and design
- programming foundations in Java
- introduction to databases.

Four core units
- project management
- IT research methods.
- enterprise systems
- data in society.

AND

Four additional business information systems core units from an approved list.

Capstone project
One elective offered by us or another faculty.

AND

Industry experience
- industry experience studio project
- professional practice.

OR

A master’s thesis

1 In equivalent Monash University grading scale terms, a 100% scale where 50% is a pass. Your prior qualifications must be accredited to the equivalent Australian level specified in the eligibility requirements table.
2 Even if you’re eligible for a shorter course duration, you may elect to complete the longer duration.
3 Previous studies in IT may apply as credit for the foundation units.

GAINED PRACTICAL SKILLS THAT ARE HIGHLY IN DEMAND

After working as a Vodafone Technical Analyst, I discovered that a big part of my job was dealing with clients, working on their requirements and understanding their business processes.

I chose Business Information Systems at Monash because it offered a perfect blend of all my requirements: system design, business process improvement, IT strategy, project management and digital transformation.

I’ve had a fantastic study experience at Monash and I love how the concepts are delivered practically. I’ve gained practical skills that are highly in demand, opening a door of endless possibilities for me.”

HARSHITA SINGH
Master of Business Information Systems
Master of ARTIFICIAL INTELLIGENCE

AI has the ability to transform every aspect of our lives – from performing complex surgery to informing business decisions. With the field advancing at a rapid pace, now more than ever the world needs experts in AI.

The Master of AI spans a comprehensive range of key topics, including deep learning, knowledge representation and reasoning, and modern optimisation techniques. It also delves deep into the ethical issues and best practices in AI.

In this degree, you’ll learn directly from some of the greatest minds in the field – experts who stand at the forefront of AI technology.

After expanding your knowledge in this area, put what you know into practice through a research project supported by an internationally-recognised researcher. Or instead, you could opt to engage in an industry experience studio initiative.

No matter what you choose, this master’s degree will equip you with a skillset that has global appeal.

What you’ll learn

Through the Master of AI, you will learn how to:

- analyse the lifecycle of an AI and machine learning system in relation to the data and computing resources in an organisation
- apply contemporary theories and innovations in AI, machine learning and data analysis to common problems – with an emphasis on social good
- plan an AI-based project in a new area of application, using knowledge of AI system lifecycles and their requirements for data, computing resources and user modelling
- investigate, analyse, document and communicate the core criteria of developing AI capabilities in a global organisation
- demonstrate different ways to implement AI to a standard consistent with senior professional practice
- review and evaluate AI-based projects
- record and convey ethical and legal issues, privacy and security norms, and other key considerations when using and developing AI.

Guess what?

AI professionals are highly sought-after around the world – and this demand is only growing.

LinkedIn 2021 Jobs on the Rise Reports

What you’ll learn

Pathways open to you

The Master of AI prepares you for many in-demand professions, including:

AI specialist
In this position, you’ll create programs and infrastructures that help machines think and act without receiving explicit instructions – to enhance business outcomes and drive innovation.

AI researcher
Your role as an AI researcher will be to lead studies in AI, advancing the science and technology of intelligent machines, and creating greater real-world applications for this innovation.

Data analyst
As a data analyst, you’ll gather data from various sources and translate it into trustworthy recommendations to improve an organisation’s business decisions.

Robotics engineer
A day in the life of a robotics engineer involves planning, developing and testing robot applications. Other exciting functions in this role including debugging robotics programs, creating back-ups and designing end-of-arm tooling.

ENTRY REQUIREMENTS

<table>
<thead>
<tr>
<th>Average requirements¹</th>
<th>Entry level</th>
<th>Duration (full-time)²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor’s degree in any field, OR an equivalent qualification approved by the faculty</td>
<td>Credit (65%)</td>
<td>1</td>
</tr>
<tr>
<td>An Australian bachelor’s degree in a related field³ OR an equivalent qualification approved by the faculty</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

Note: Students eligible for credit for prior studies may not elect to receive the credit and complete one of the higher credit-point courses.

¹ In equivalent Monash University grading scale terms, a 100% scale where 50% is a pass. Your prior qualifications must be accredited to the equivalent Australian level specified in the eligibility requirements table. In equivalent Monash University Grading Scale Terms, a 100% scale where 50% is a pass.
² Even if you’re eligible for a shorter course duration, you may elect to complete the longer duration.
³ Related fields include a degree related to IT, or an engineering or science degree with a substantial IT component including programming and mathematics.

To learn more about the Master of Artificial Intelligence, scan the QR code.

handbook.monash.edu/2021/courses/C6007
In the Master of Artificial Intelligence, you’ll complete:

**Four foundation units**
- programming foundations in Java
- algorithms and programming foundations in Python
- introduction to computer architecture and networks
- mathematical foundations for data science.

**Four core units**
- fundamentals of artificial intelligence
- IT research methods
- statistical data modelling.

**Four additional AI units**
Choose from:
- machine learning
- deep learning
- modelling discrete optimisation problems
- natural language processing
- human-centric AI
- advanced learning and cognitive systems
- solving discrete optimisation problems
- intelligent image and video analysis
- planning and automated reasoning
- multi-agent systems and collective behaviour.

**Capstone project**
One elective offered by our faculty.

AND

**Industry experience**
- industry experience studio project
- professional practice.

OR

**A master’s thesis**
ENGLISH LANGUAGE ENTRY REQUIREMENTS

You can meet the English language entry requirements with one of the following:

1. VICTORIAN CERTIFICATE OF EDUCATION (VCE) OR BY COMPLETING THE FINAL YEAR OF HIGH SCHOOL

2. TERTIARY AND POST-SECONDARY STUDIES
   Study at an institution where English is the language of instruction and assessment.
   Complete study equivalent to 48 Monash credit points (one year of full-time study) or more at Australian VET diploma level or higher, or at an undergraduate award level or higher.
   Note: Time limits of five years for undergraduate or two years for graduate apply.

3. ENGLISH LANGUAGE PROFICIENCY TEST
   Achieve the results listed in one of the following English language tests:

<table>
<thead>
<tr>
<th>Test</th>
<th>Results required</th>
</tr>
</thead>
<tbody>
<tr>
<td>IELTS (Academic)</td>
<td>• An overall score of 6.5 OR higher</td>
</tr>
<tr>
<td></td>
<td>• No individual band scores less than 6.0</td>
</tr>
<tr>
<td>TOEFL paper-based</td>
<td>• A minimum test score of 550</td>
</tr>
<tr>
<td></td>
<td>• A Test of Written English (TWE) score of 4.5 OR higher</td>
</tr>
<tr>
<td>TOEFL Internet-based</td>
<td>• A minimum test score of 79</td>
</tr>
<tr>
<td></td>
<td>• An overall score of 21 or higher in the written section</td>
</tr>
<tr>
<td></td>
<td>• Scores of no less than 12 in listening, 13 in reading and 18 in speaking</td>
</tr>
<tr>
<td>Pearson Test of English</td>
<td>• An overall score of 58</td>
</tr>
<tr>
<td>(Academic)</td>
<td>• No communicative skills score below 50</td>
</tr>
<tr>
<td>The Cambridge English</td>
<td>• Proficiency (CPE): An overall score of 176 with no skill score below 169, OR</td>
</tr>
<tr>
<td></td>
<td>• Advanced (CAE): An overall score of 176 with no skill score below 169</td>
</tr>
</tbody>
</table>

4. ENGLISH LANGUAGE BRIDGING PROGRAM
   Complete the English Language Bridging Program at the Monash University English Language Centre, or an equivalent program approved by Monash University.
HOW TO APPLY

Domestic students
You’re considered a domestic student if you’re an Australian or New Zealand citizen, or Australian permanent resident (including a holder of an Australian permanent humanitarian visa).

To apply for an IT graduate course or learn more about the process, scan the code at the bottom of this page.

International students
Before you apply, please make sure you meet all the Monash minimum entry requirements – including academic, English language and selection criteria. Your application must include certified copies of your academic transcripts and English qualifications or results.

International students can apply online, by mail or through a Monash agent.

Through the QR code you can learn about application open and close dates, and apply for a course.

monash.edu/it/future-students/how-to-apply
IT RESEARCH AT MONASH

We’re home to researchers who stand at the forefront of innovation in data science, cybersecurity, artificial intelligence and other IT fields. As a Monash graduate researcher, you’ll work with the brightest minds to enhance your research potential – and shape the future of our world.

Meet PhD student Sam Reinders. Discover his research for social good.
Scan the QR code to find out how Sam is developing interactive 3D models embedded with conversational agents to help the vision impaired learn.
youtu.be/zDj4NgSq1q4
Pathways into research degrees

Don’t meet the entry requirements for a research degree? Then explore our other coursework programs that can act as alternative pathways.

These courses include an option to undertake a significant research component, providing another route for admission – subject to academic performance.

For more information, scan the QR code.

monash.edu/it/future-students/graduate

Graduate Certificate of Information Technology Research (GCITR)

The GCITR is a short six-month course that offers a faster way for you to enter advanced IT research.

In this course, you’ll blend analytical skills with critical thinking to plan, execute, manage and evaluate an independent research project. Together with sound guidance from an expert in the field, the process will expand your research expertise and prepare you to succeed in a PhD.

This certificate is for you if you’re a high-achieving student with a relevant master’s degree, but lacks the research component required for graduate research.

The certificate will only be offered as part of a package with a conditional offer to enter our faculty’s Doctor of Philosophy.

For more information, scan the QR code.

monash.edu/it/research/graduate-research/pathways-and-conditional-offers

STANDARD GRADUATE RESEARCH DEGREE PATHWAYS

Coursework degree

Entry requirements

Undergraduate IT degree or relevant discipline (3 years)

Honours degree in relevant discipline
(1 year) three units, minor thesis and research methods

Entry requirements

Master’s by coursework IT degree
(2 years) including 24 points of research

Graduate research programs

H2A (70%) or higher

H2B (65%+)

MPhil
(up to 2 years of research)

PhD
(up to 4 years of research)

Grad Cert IT Research
For high-achieving students who’ve completed a relevant undergraduate and coursework master’s degree but don’t have the research component required.

H2A (70%) or higher

Durations shown above are based on a full-time study load.

1 Course duration varies depending on specific qualification.

Apply for a PhD – at any time

Our Supervisor Connect portal lets you explore cutting-edge initiatives and find a leading researcher to oversee your project. With scholarship opportunities always available, apply at any time — and join our world-class research community.

supervisorconnect.it.monash.edu

English language pathway and conditional and packaged offers

Normally, all graduate research applicants must meet Monash University’s English Language Proficiency (ELP) requirements.

If you don’t meet the ELP requirements but demonstrate a capacity to conduct significant research, we may make a conditional offer.

This requires you to undertake the Monash English Bridging program for graduate degrees and higher degrees of research at Monash College.

For more information, scan the QR code.

monash.edu/it/research/graduate-research/pathways-and-conditional-offers

H2A (70%) or higher

H2B (65%+)

H2A (70%) or higher

H2B (65%+)

MPhil
(up to 2 years of research)

PhD
(up to 4 years of research)

Grad Cert IT Research
For high-achieving students who’ve completed a relevant undergraduate and coursework master’s degree but don’t have the research component required.

H2A (70%) or higher

Durations shown above are based on a full-time study load.

1 Course duration varies depending on specific qualification.
Want to join a world-class research community? Looking for a leading specialist to oversee your project? With intakes open all year long, our graduate research programs allow you to delve deep into an IT area of interest.

**Doctor of Philosophy (PhD)**
This PhD is a supervised program involving a major research project on a topic of your interest. To be awarded this degree, external examiners must believe your thesis:
- is an original contribution to the discipline you choose
- demonstrates your ability to perform independent research.

As part of this PhD, you’ll undertake coursework under the Monash Doctoral Program. Supervised by at least two highly-recognised researchers, you’ll break new ground in a specialist area while expanding your research capabilities.

You can also choose to undertake a PhD by Exegesis and Project Demonstration or Exhibition as an alternate type of PhD examination. This is on top of the existing examination by standard thesis.

**Master of Philosophy (MPhil)**
In the MPhil, you’ll be supervised by at least two leading academics as you complete a major research project on a topic of your choice.

To earn this degree, external examiners must declare that your thesis:
- significantly contributes to knowledge in your chosen discipline
- demonstrates your ability to perform independent research.

Unlike a PhD, your MPhil thesis doesn’t need to provide new knowledge to the discipline. However, you are expected to apply, clarify, critique or interpret existing knowledge as your contribution.

The length of your thesis should typically be fewer than 35,000 words.

**PhD by practice-based research and exegesis**
In this innovative PhD, you’ll present a substantial amount of research through an immersive, interactive demonstration or exhibition that engages one or more of the senses.

Your research will typically be interdisciplinary, linking IT with another field such as health and medicine, urban planning, cultural heritage or design. Areas like creative robotics, 3D visualisation, simulation and animation, interactive media, wearable technologies and games are also suitable.

**RESEARCH STUDENT ENQUIRIES**
T: +61 9902 0945
E: fit-graduate.research@monash.edu

To learn more about our research degrees, scan the QR code below.

monash.edu/it/research/graduate-research
A LIFETIME ACHIEVEMENT
I chose Monash for graduate research because its collaborative, cross-disciplinary projects are creating real impact in our world.

The foundation courses and workshops played a big role in advancing my understanding and skills as a researcher. And thanks to my standout supervisors, academics, peer groups and academic language specialist, all the support I needed was there — I only had to ask.

My PhD experience has been a lifetime achievement and will definitely contribute to my future prospects.”

ANINDITA SARKER
PhD student and 3MT® finalist
The information in this brochure was correct at the time of publication (May, 2021). Monash University reserves the right to alter this information should the need arise. You should always check with the relevant faculty office when considering a course. CRICOS provider: Monash University 0008C Monash College 01857J