COMPUTER SCIENCE (COMP)

COMP 0001 Introductory Programming (WSTC Prep) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp0001/) Legacy Code: 700204
The subject introduces students to computer programming as an essential tool for problem-solving and data analysis in engineering and science. The focus is on using an algorithmic approach to problem solving. Students will learn how to analyse and solve problems by designing an algorithm and implementing it in a high-level programming language. This subject includes extensive practical work and problem-solving activities. It prepares students for the first year subject, Engineering Computing, in the Bachelor programs in Engineering. Students will also be able to use their acquired programming skills to perform calculations, analyse data and create graphs for their projects and reports in other subjects.
Level: Undergraduate Level 0 Preparatory subject
Equivalent Subjects: COMP 0002 - Introductory Programming (UWSC)
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 0002 Introductory Programming (WSTC) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp0002/) Legacy Code: 900084
Level: Undergraduate Level 0 Preparatory subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 0003 Programming Design (WSTC Prep) (5 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp0003/) Legacy Code: 700047
This subject introduces students to the principles required for the effective design and development of solutions to computer program related problems. This subject has been developed to enhance a student's practical ability as well as build a solid theoretical foundation for further study in programming.
Level: Undergraduate Level 0 Preparatory subject
Equivalent Subjects: LGYB 0451 - Programming Design (UWSCDip) COMP 0004 - Programming Design (UWSC)
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 0004 Programming Design (WSTC) (5 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp0004/) Legacy Code: 900009
Programming Design introduces students to the principles required for the effective design of solutions to computer program related problems. The course has been developed to enhance a student's practical ability as well as build a solid theoretical foundation for further study.
Level: Undergraduate Level 0 Preparatory subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 1001 3D Modelling Fundamentals (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp1001/) Legacy Code: 301164
This subject will introduce the fundamentals of 3D surface modelling. Students will learn the theory of 3D surface modelling and will gain practical skills in creating 3D assets using a popular software package from Autodesk. They will also learn how to design characters and how to integrate their assets with a purpose of producing complex 3D scenes and animated movies. This subject is aimed at students who have no prior knowledge of 3D modelling and are not familiar with associated software packages.
Level: Undergraduate Level 1 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 1002 Advanced Computer Science Activities 1 (0 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp1002/) Legacy Code: 300586
This subject is only for Bachelor of Computer Science (Advanced) students in year one of their studies. Students will participate in industry and research based extension activities (non-assessable). These activities will be identified with the goal of exposing students early in their degree and integrating them into a culture of academic enquiry, problem solving, knowledge generation and scholarship and an awareness of the challenges and current issues confronting the computing/IT industry. The subject will be used to record student activities and a satisfactory/ unsatisfactory grade will be applied at the end of each semester.
Level: Undergraduate Level 1 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 1005 Programming Fundamentals (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp1005/) Legacy Code: 300580
As a first subject in computer programming, Programming Fundamentals covers the basics of developing software with an emphasis on procedural programming. Students will learn about basic data structures, the concept of algorithms, fundamental programming constructs, common programming language features and functions, program design and good programming style. A high level programming language is combined with a highly visual framework to teach problem solving using software.
Level: Undergraduate Level 1 subject
Equivalent Subjects: COMP 1004 - Fundamentals of Programming LGYA 5799 - Programming Principles 1 LGYA 4364 - Business Application Development 1 COMP 1006 - Programming Fundamentals (WSTC)
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 1006 Programming Fundamentals (WSTC) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp1006/) Legacy Code: 700008
As a first subject in computer programming, Programming Fundamentals covers the basics of developing software with an emphasis on procedural programming. Students will learn about basic data structures, the concept of algorithms, fundamental programming constructs, common programming language features and functions, program design and good programming style. A high level programming language is combined with a highly visual framework to teach problem solving using software.
Level: Undergraduate Level 1 subject
Pre-requisite(s): Students enrolled in 7067 Diploma in Information and Communications Technology Extended must pass LANG 0002 Academic Communication 2 (WSTC Prep) or LANG 0032 English for Tertiary Study 2 (WSTC Prep) or LANG 0039 Introduction to Academic Communication 2 (WSTC Prep) and must pass INFO 0008 Computer Studies (WSTC Prep) and must pass COMP 0003 Programming Design (WSTC Prep) and must pass MATH 0008 Mathematics 2 (WSTC Prep) before enrolling in this unit

Students enrolled in 6035 DiplomaBachelor of Information and Communications Technology 6036 Diploma in Information and Communications TechnologyBachelor of Information Systems and 7005 Diploma in Information and Communications Technology must pass COMP 0003 Programming Design (WSTC Prep) before enrolling in this unit

Students enrolled in 6038 Dip in Information and Communications Technology BICT(HIM) 6039 Diploma in Information and Communications TechnologyBICT 6040 Diploma in Information and Communications TechnologyBIS 7067 Diploma in Information and Communications Technology Extended 7134 Diploma in Information and Communications Technology Extended - ICT 7138 Diploma in Information and Communications Technology Extended-ICT 7139 Diploma in Information and Communications Technology Extended 7140 Diploma in Information and Communications Technology Extended–IS 7141 Diploma in Information and Communications Technology Extended-HIM 7163 Diploma in Information and Communications Technology(International) and 7164 Dip Information and Communications Technology (HIM) (International) must pass COMP 0003 Programming Design (WSTC Prep) and must pass MATH 0008 Mathematics 2 (WSTC Prep) before enrolling in this unit
Equivalent Subjects: COMP 1004 - Fundamentals of Programming LGYA 5799 - Programming Principles 1 LGYA 4364 - Business Application Development 1 COMP 1005 - Programming Fundamentals
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 1012 Programming Fundamentals (UG Cert) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp1012/) Legacy Code: 500047
As a first subject in computer programming, Programming Fundamentals covers the basics of developing software with an emphasis on procedural programming. Students will learn about basic data structures, the concept of algorithms, fundamental programming constructs, common programming language features and functions, program design and good programming style. A high-level programming language is combined with a highly visual framework to teach problem solving using software.
Level: Undergraduate Level 1 subject
Equivalent Subjects: COMP 1004 Fundamentals of Programming LGYA 5799 Programming Principles 1
LGYA 4364 Business Application Development 1 COMP 1005 Programming Fundamentals
COMP 1006 Programming Fundamentals
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 1013 Analytics Programming (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp1013/) Legacy Code: 301487
This subject covers the use of computers and computer programming for Data Science. After briefly considering spreadsheet systems, the subject will consider programming in the statistical system "R" in depth. Finally, other special purpose languages will be touched briefly (eg. SQL).
Level: Undergraduate Level 1 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 1014 Thinking About Data (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp1014/) Legacy Code: 301488
This subject covers basic concepts of data centric thinking. The main areas discussed are; Populations and Samples; Sampling concepts; Types of Data; Descriptive Methods; Estimation and Inference; Modelling. The subject takes a computational and nonparametric approach, before briefly discussing theoretical concepts and distribution theory.
Level: Undergraduate Level 1 subject
Equivalent Subjects: MATH 1033 Thinking About Data
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 1015 Programming Fundamentals and Algorithmic Design (WSTC) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp1015/)
As a first subject in computer programming, this subject covers the basics of developing software with an emphasis on procedural programming. You will learn about basic data structures, the concept of algorithms, fundamental programming constructs, common programming language features and functions, program design and good programming style. The entry into programming is made more accessible by pairing a high-level programming language with a highly visual and interactive framework. On successful completion of this subject, you will be able to develop algorithms, design programs and solve programming problems.
Level: Undergraduate Level 1 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 1016 Foundations of Networking and Cyber Security (WSTC) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp1016/)
In our interconnected modern world, understanding computer networks is fundamental for future ICT professionals. This subject will equip you with the basics of computer networking and internet architecture, covering OSI and TCP/IP models. You will explore modern networking technologies, authentication methods, and basic cybersecurity principles. You will also gain hands-on experience designing and troubleshooting a simple LAN and subnetting a network. This subject will also begin to prepare you for industry-based networking certifications such as the CCNA.
Level: Undergraduate Level 1 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2001 Advanced Computer Science Activities 2 (0 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2001/) Legacy Code: 300587
This subject is only for Bachelor of Computer Science (Advanced) students in year two of their studies. Students will participate in industry and research based extension activities (non-assessable). These activities will be identified with the goal of exposing students early in their degree and integrating them into a culture of academic enquiry, problem solving, knowledge generation and scholarship and an awareness of the challenges and current issues confronting the computing/IT industry. The subject will be used to record student activities and a satisfactory/ unsatisfactory grade will be applied at the end of each semester.
Level: Undergraduate Level 2 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2004 Computer Networking (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2004/) Legacy Code: 300565
Computer Networking is an introductory subject in computer systems networking. It covers basic networking technologies, Ethernet fundamentals, ISO OSI model, routing, switching and subnetting, the Internet architecture, networking protocols including TCP/IP, important OSI layer 2 and 3 networking device fundamentals, basic network management and security issues. This subject is also the first of three units, which will prepare students for industry based networking certification (CCNA).
Level: Undergraduate Level 2 subject
Equivalent Subjects: COMP 2007 - Computer Networking Fundamentals LGYA 5739 - Applied Data Communications and Networking COMP 2006 - Computer Networking (WSTC)
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2005 Computer Networking (Advanced) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2005/) Legacy Code: 300946
This subject introduces students to computer systems networking. It covers basic networking technologies, Ethernet fundamentals, ISO OSI model, routing, switching and subnetting, the Internet architecture, networking protocols including TCP/IP, important OSI layer 2 and 3 networking device fundamentals, basic network management and security issues. This subject is also the first of three units, which will prepare students for industry based networking certification (CCNA). Students in this advanced subject will be required to undertake individual assessment activities demonstrating a high level of technical and applied theoretical competency.
Level: Undergraduate Level 2 subject
Incompatible Subjects: COMP 2007 - Computer Networking Fundamentals LGYA 5739 - Applied Data Communications and Networking COMP 2004 - Computer Networking
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2006 Computer Networking (WSTC) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2006/) Legacy Code: 700012
This is an introductory subject in computer systems networking. It covers basic networking technologies, Ethernet fundamentals, ISO OSI model, routing, switching and sub-netting, the internet architecture, networking protocols, including TCP/IP, important OSI layer 2 and 3 networking device fundamentals, basic network management and security issues. This subject is also the first of three subjects which will prepare students for industry based networking certification (CCNA).
Level: Undergraduate Level 2 subject
Pre-requisite(s): Students enrolled in 7067 Diploma in Information and Communications Technology Extended and 7134 Diploma in Information and Communications Technology Extended – ICT must pass LANG 0002 Academic Communication 2 (WSTC Prep) or LANG 0032 English for Tertiary Study 2 (WSTC Prep) or LANG 0039 Introduction to Academic Communication 2 (WSTC Prep) and must pass INFO 0008 Computer Studies (WSTC Prep) before enrolling in this unit

Students enrolled in 7138 Diploma in Information and Communications Technology Extended-ICT 7139 Diploma in Information and Communications Technology Extended 7140 Diploma in Information and Communications Technology Extended–IS and 7141 Diploma in Information and Communications Technology Extended-HIM must pass LANG 0012 Academic Professional Communication (WSTC Prep) and must pass INFO 0001 Academic Skills for ICT (WSTC Prep) before enrolling in this unit
Equivalent Subjects: COMP 2007 - Computer Networking Fundamentals LGYA 5739 - Applied Data Communications and Networking COMP 2004 - Computer Networking
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2008 Computer Organisation (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2008/) Legacy Code: 300096
This subject is designed for computer science students, particularly those interested in systems programming and hardware development. The students will learn about the interface between the hardware and software of a computer system. This will involve study of some aspects of computer architecture and low level interfacing to gain an insight into central processing unit (CPU) organisation at the assembly language level. After completing this subject students will be able to write procedures in an assembly language, use their understanding of the relationship between the instruction set architecture and the implementation of high level languages to write efficient programs.
Level: Undergraduate Level 2 subject
Pre-requisite(s): The following pre-requisite unit applies to course 3771 only
ENGR 1045 Engineering Programming Fundamentals

The following pre-requisites apply to all courses except 3771
COMP 1005 Programming Fundamentals OR
ELEC 1006 Engineering Computing AND
MATH 1006 Discrete Mathematics OR
MATH 1016 Mathematics for Engineers 1
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2009 Data Structures and Algorithms (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2009/) Legacy Code: 300103
This subject introduces students to fundamental data structures and algorithms used in computing. The material covered forms the basis for further studies in programming and software engineering in later subjects and for further training in programming skills. The subject focuses on the ideas of data abstraction and algorithm efficiency. The issues of computational complexity of algorithms are addressed throughout the semester. The topics covered include the fundamental abstract data types (lists, stacks, queues, trees, hash tables, graphs), recursion, complexity of algorithms, sorting and searching algorithms, binary search trees and graphs.
Level: Undergraduate Level 2 subject
Pre-requisite(s): COMP 2014 OR
COMP 2015 OR
COMP 2016 OR
ENGR 1045
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2011 Games Technology (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2011/) Legacy Code: 300491
This subject provides an introduction to the game industry as well as introducing students to the techniques of game design and construction. Students will be exposed to the history of game development and the key aspects of different genres of computer games.
Level: Undergraduate Level 2 subject
Equivalent Subjects: LGYA 5804 - Client Server Applications
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2013 LAN Workshop (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2013/) Legacy Code: 300138
This subject provides students with the knowledge and skills necessary to install, test, tune, customise, repair and maintain networking hardware and software necessary to create a Local Area Network (LAN). Students also learn how to administer a LAN by setting up user accounts, access privileges, security procedures and back-up/recovery procedures.
Level: Undergraduate Level 2 subject
Equivalent Subjects: LGYA 6157 Networking Workshop
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2014 Object Oriented Programming (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2014/) Legacy Code: 300147
This subject presents the concepts and principles of programming languages with the emphasis on object oriented paradigm. It addresses the importance of the separation of behaviour and implementation as well as effective use of encapsulation, inheritance and polymorphism. The students will gain intensive training in programming skills with supervised laboratory sessions and task oriented assignments.
Level: Undergraduate Level 2 subject
Pre-requisite(s): COMP 1005 OR
ENGR 1045
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2015 Programming Techniques (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2015/) Legacy Code: 300581
This subject is intended as a second subject of study in programming. It builds on a basic understanding of procedural programming as would be developed in a first subject. This subject continues the development of programming skills and methodologies required for professional programming and for further study in later computing subjects. Topics covered include multi-dimensional arrays, file I/O, searching and sorting, and an introduction to object-oriented programming involving classes and inheritance.
Level: Undergraduate Level 2 subject
Pre-requisite(s): COMP 1005
Equivalent Subjects: LGYA 5800
COMP 2017
Incompatible Subjects: COMP 2016 - Programming Techniques (Advanced)
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2016 Programming Techniques (Advanced) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2016/) Legacy Code: 300903
This subject builds on a basic understanding of procedural programming developed in previous subjects. Students continue to develop their programming skills and methodologies required for professional programming and for further study in later computing subjects. Topics covered include multi-dimensional arrays, file I/O, searching and sorting, and an introduction to object-oriented programming involving classes and inheritance. Students in this advanced subject will also investigate and apply advanced concepts such as function overloading and recursion.
Level: Undergraduate Level 2 subject
Pre-requisite(s): COMP 1005
Incompatible Subjects: COMP 2015 - Programming Techniques
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2017 Programming Techniques (WSTC) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2017/) Legacy Code: 700257
This subject is intended as a second subject of study in programming. It builds on a basic understanding of procedural programming as would be developed in a first subject. This subject continues the development of programming skills and methodologies required for professional programming and for further study in later computing subjects. Topics covered include multi-dimensional arrays, file I/O, searching and sorting, and an introduction to object-oriented programming involving classes and inheritance
Level: Undergraduate Level 2 subject
Pre-requisite(s): COMP 1006
Equivalent Subjects: COMP 2015 - Programming Techniques LGYA 5800 - Programming Principles 2
Incompatible Subjects: COMP 2016 - Programming Techniques (Advanced)
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2018 Simulation Fundamentals (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2018/) Legacy Code: 301167
In the last couple of decades computer modelling and simulation has evolved into an important discipline used in nearly every aspect of life from computer games to banking. What was once a tool for training pilots is now a capability to better understand human behaviour, enterprise systems, disease proliferation, and much more. This is an introductory, problem-based unit, where students will learn by doing. Students will acquire ability to use different simulation methodologies and tools such as InsightMaker and AnyLogic to build new insights into the world around you and learn how to share these insights effectively with others.
Level: Undergraduate Level 2 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2019 Systems Programming 1 (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2019/) Legacy Code: 300167
This subject provides an introduction to the knowledge and skills required for the design, writing and support of technical software and other such functions normally falling within the role of the systems programmer. It provides for detailed study of a systems programming environment and its application to systems programming tasks.
Level: Undergraduate Level 2 subject
Pre-requisite(s): COMP 2015 OR
COMP 2016 OR
COMP 2020 OR
COMP 2014 OR
ELEC 1006 AND
ELEC 1001
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2020 Technologies for Web Applications (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2020/) Legacy Code: 300582
Building on material covered in Programming Fundamentals this subject introduces students to some of the key technologies for developing interactive and dynamic web applications from both the client and server perspective. The subject covers web site design, web site development, web page accessibility and usability, HTML, CSS, client side and server side scripting, database interaction, web site promotion (Search Engine Optimisation) and web security.
Level: Undergraduate Level 2 subject
Pre-requisite(s): COMP 1005
Equivalent Subjects: COMP 2012 - Interactive Web Site Development
Incompatible Subjects: LGYA 5748 - Creating and Managing Web Sites
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2021 Software Engineering Fundamentals (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2021/) Legacy Code: 301343
This subject introduces software engineering principles including basic software lifecycle concepts, modern development methodologies and version control, conceptual modelling and how these activities relate to programming. Students apply this knowledge together with essential team-based project management to design, build and deploy a simple web-based application. The subject provides students with the skills required in software design and development and prepares them to work in a team setting.
Level: Undergraduate Level 2 subject
Pre-requisite(s): ENGR 1045
OR
COMP 1005
Incompatible Subjects: INFS 1006
INFS 1007
INFS 1015
COMP 2020
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2023 Mathematical Programming (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2023/) Legacy Code: 301375
This subject will introduce the programming language Python, through which students will explore and investigate practical mathematical problems. Python is one of the most powerful versatile programming languages, and it is increasingly used by engineers and scientists as well as banks and financial institutions to tackle their computational problems. The subject promotes an experimental side of mathematics and will employ Python-based computational tools to gain insight and intuition into problems, to discover mathematical patterns and relationships, and to use visualisation techniques to expose mathematical structures.
Level: Undergraduate Level 2 subject
Equivalent Subjects: COMP 2003 Computer Algebra
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2024 Computer Networking (UG Cert) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2024/) Legacy Code: 500049
This is an introductory subject in computer systems networking. It covers basic networking technologies, Ethernet fundamentals, ISO OSI model, routing, switching and sub-netting, the internet architecture, networking protocols, including TCP/IP, important OSI layer 2 and 3 networking device fundamentals, basic network management and security issues. This subject is also the first of three subjects which will prepare students for industry-based networking certification (CCNA).
Level: Undergraduate Level 2 subject
Equivalent Subjects: COMP 2004 Computer Networking COMP 2007 Computer Networking Fundamentals
LGYA 5739 Applied Data Communications and Networking COMP 2006 Computer Networking
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2025 Introduction to Data Science (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2025/) Legacy Code: 301486
Analysis of data is essential for scientific investigation, modelling processes and predicting future events. Data Science is the investigation of the tools required that allow us to perform this modelling and prediction. The increase in accessible data over the past few decades has promoted the use of Data Science, making it a desired skill in many professions. In this subject we further investigate the methods of regression, clustering and classification that form the basis of a data scientist's toolbox.
Level: Undergraduate Level 2 subject
Equivalent Subjects: MATH 2009 - Introduction to Data Science
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2026 Visual Analytics (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2026/) Legacy Code: 301489
This subject introduces the fundamentals and technologies of visual analytics to understand big data. It covers major concepts of information visualisation, human computer perception and methods for visual data analysis. Students will learn knowledge and skills for identifying suitable visual analytics techniques, methods and tools for handling various data sets and applications. The subject provides students with opportunities to explore novel research in visual analytics and visualisation.
Level: Undergraduate Level 2 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2027 Cyber Security (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2027/)
This subject focuses on, but is not limited to, the implementation and management of security and privacy policies of organisations within the standards and legal framework that is also applicable to the Australian standards. Knowledge gained in this subject will benefit students aspiring to careers in the Cyber Security industry.
Level: Undergraduate Level 2 subject
Equivalent Subjects: INFO 3001 - Computer Security
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2028 Cryptography, Cryptocurrencies and Blockchain (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2028/)
Blockchain and cryptocurrency form the backbone of emerging technology systems to secure transactions. The design of blockchain involves cryptographic technology to secure data and ensure confidentiality, authenticity and integrity. Students are introduced to the concepts of blockchain, cryptography and cryptocurrency, and learn how these technologies are transforming online transactions, and solving some of the most important issues in trust, resilience, reputation and transparency. Students also learn about the risks and challenges involving cryptocurrencies, exchanges and wallets as well as money-laundering and criminal enterprises. Students develop practical experience in building blockchain systems and develop smart contract solutions.
Level: Undergraduate Level 2 subject
Pre-requisite(s): COMP 2027
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2029 DevOps (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2029/)
DevOps engineers build tools and pipelines for companies delivering software solutions, assuring the quality of their products. By utilising DevOps, companies limit the risk of introducing errors when updating their applications and experiences which allows them to better serve their customers and dynamically react to their needs. In this subject, students learn the principles and philosophy of DevOps and how to build DevOps tools. Students apply their knowledge in practical activities to create and maintain pipelines for continuous delivery. This involves calculating delivery metrics, estimating and evaluating measures of success. Based on the performance in the subject, a selected number of students will have the opportunity to undergo a week-long placement with a target industry partner. Students doing the placement will work on industry projects assessed by professional staff at their placement venue.
Level: Undergraduate Level 2 subject
Pre-requisite(s): INFO1003
Co-requisite(s): INFO 3019
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 2030 Data Structures and Algorithms (Advanced) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp2030/)
This subject introduces students to fundamental data structures and algorithms used in computing related courses. The material covered forms the basis for further studies in programming and software engineering in later subjects and for further training in programming skills. The subject focuses on the ideas of data abstraction and algorithm efficiency. The issues of computational complexity of algorithms are addressed throughout the semester. The topics covered include the fundamental abstract data types (lists, stacks, queues, trees, hash tables, graphs), recursion, complexity of algorithms, sorting and searching algorithms, binary search trees and graphs. As a subject designed for advanced computer science students, the students will conduct an advanced project on top of the assignment tasks for further training of their programming skills.
Level: Undergraduate Level 2 subject
Pre-requisite(s): COMP2014
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3001 Advanced Computer Science Activities 3 (0 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3001/) Legacy Code: 300588
This subject is only for Bachelor of Computer Science (Advanced) students in year three of their studies. Students will participate in industry and research based extension activities (non-assessable). These activities will be identified with the goal of exposing students early in their degree and integrating them into a culture of academic enquiry, problem solving, knowledge generation and scholarship and an awareness of the challenges and current issues confronting the computing/IT industry. The subject will be used to record student activities and a satisfactory/ unsatisfactory grade will be applied at the end of each semester.
Level: Undergraduate Level 3 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3002 Applications of Big Data (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3002/) Legacy Code: 301110
Many techniques and tools have been developed over the past decade to cope with the ever-growing needs for the processing and analysis of big data. This subject will cover the key techniques that have been widely used in big data applications, such as relational and Not Only Structured Query Language (NoSQL) databases, Web Services, parallel and cloud computing, MapReduce, Hadoop and its eco-system. It aims to introduce the emerging technologies and applications in big data to students, and keep up with the latest trends in the industry.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 1013 OR COMP 1005
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3003 Cloud Computing Architecture (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3003/) Legacy Code: 301204
This subject, the second part of the Amazon Web Services (AWS) Academy Cloud Computing Architecture curriculum, provides deeper understanding about advanced cloud computing services and how to architect cloud applications that are scalable, reliable, and efficient in terms of cost and performance. Students will learn advanced cloud computing concepts including notification and messaging, serverless computing, API gateways, NoSQL databases, content delivery networks, stream processing, and long-term storage. The subject also covers advanced cloud security and infrastructure automation. All these aspects are explored in practice with AWS services. Upon completion of this subject, students will be prepared for the AWS Certified Solutions Architect - Associate exam.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 3012 AND
COMP 1005
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3006 Computer Graphics (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3006/) Legacy Code: 300093
Computer Graphics will examine elementary graphics concepts, algorithms and programming skills for producing graphical applications, in both two-dimension (2D) and three-dimension (3D) using Open GL. Techniques and algorithms will be programmed in Processing, which is a very easy-to-learn programming language yet powerful and comprehensive.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 2014 OR
COMP 2015 OR
COMP 2016 OR
COMP 2020
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3007 Computer Networks and Internets (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3007/) Legacy Code: 300095
This subject extends on the work undertaken in the prerequisite unit, Computer Networking, and provides students with an in-depth understanding of the role of switching technologies and router operations that support small to medium business networks. It includes wireless local area networks (WLANs) and security concepts. Students will also learn key switching and routing concepts allowing them to perform basic network configuration and troubleshooting, identify and mitigate LAN security threats, and configure and secure a basic WLAN. This is the second of three subjects that prepares the student for industry-based networking certification (CCNA).
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 2004 OR
COMP 2005
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3009 Distributed Systems and Programming (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3009/) Legacy Code: 300115
This subject covers the concepts, design, and programming of distributed systems. It builds on basic network communication protocols (specifically IP) to cover client server programming using both the system level socket interface and remote procedure calls. It also examines large scale distributed system architectures particularly those based on distributed objects and considers the complexities inherent in distributed transactions. Key concepts covered include data and algorithmic distribution, idempotent protocols, stateless and statefull servers, and distributed system transparency. Illustrative case studies are included.
Level: Undergraduate Level 3 subject
Pre-requisite(s): Successful completion of COMP 2004 Computer Networking and either COMP 2014 Object Oriented Programming or COMP 2015 Programming Techniques
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3011 Internet Programming (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3011/) Legacy Code: 300130
This subject offers students basic concepts and latest technologies of internet programming and web-based application development. Utilising one of the popular internet programming languages, such as Java, it aims to develop the programming skills and methodologies required for both client-side and server-side programming as well as general purpose programming. The range of topics covered by the subject includes HTML, XML, Java applets, desktop application in Java, servlets, JavaServer Pages and JDBC.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 2014 OR
COMP 2015 OR
ELEC 1006 OR
COMP 2016
Equivalent Subjects: LGYA 5876 - Internet Computing
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3012 Introduction to Cloud Computing (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3012/) Legacy Code: 301203
This subject provides deep understanding of fundamental cloud computing concepts and how they can be applied to build cost-effective, highly available and fault tolerant systems. Students will learn concepts including system virtualisation, virtual machines, cloud networks, basic cloud storage and cloud databases, security in clouds, and auto-scaling, load balancing and monitoring. The main content of this subject is formed around the industry-based curriculum from Amazon Web Services (AWS) Academy which can prepare students for the AWS Certified Cloud Practitioner exam. Based on the performance in the subject, a selected number of students will have the opportunity to undergo a week-long placement with a target industry partner. Students doing the placement will work on industry projects assessed by professional staff at their placement venue.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 2004 OR
COMP 2005
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3013 Mobile Applications Development (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3013/) Legacy Code: 300960
This subject teaches technologies and programming languages for developing applications on common mobile platforms, such as Android and iOS. Students will learn skills for developing programs on the above platforms, along with in-class sample applications that highlight platform-specific implementation details.
Level: Undergraduate Level 3 subject
Pre-requisite(s): For students enrolled in 3687 Bachelor of Information Systems 3688 Bachelor of Information Systems Advanced 3744 Bachelor of Information SystemsBachelor of Business 3745 Bachelor of Information Systems AdvancedBachelor of Busines 6036 Diploma in Information and Communications TechnologyBachelor of Information Systemss or 6040 Diploma in Information and Communications TechnologyBachelor of Information Systems - COMP 2020 Technologies for Web Applications
For students enrolled in 3639 Bachelor of Information and Communications Technology - COMP 2015 Programming Techniques
For students enrolled in 3684 Bachelor of Information and Communications Technology (Advanced)- COMP 2016 Programming Techniques (Advanced)
For students enrolled in 3506 Bachelor of Computer Science - COMP 2014 Object Oriented Programming OR COMP 2020 Technologies for Web Applications
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3014 Networked Systems Design (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3014/) Legacy Code: 300575
This subject builds on and consolidates the skills and knowledge gained in Computer Networking and Computer Networks and Internets. Students successfully completing this subject will acquire the necessary design skills and knowledge required to build and configure enterprise scale networks. The subject provides students with an opportunity to develop problem-solving techniques and decision-making skills to resolve networking issues. Students completing this subject and its prerequisites should also now be prepared to attempt world recognized network industry certification (CCNA).
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 3007
Equivalent Subjects: LGYA 5741 - Broadband Networking
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3015 Operating Systems Programming (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3015/) Legacy Code: 300698
This subject provides the knowledge of the internal structure and functionality of Operating Systems. An operating system defines an abstraction of hardware behavior and provides a range of services more suitable for ICT application development than what raw hardware could deliver, in terms of convenience, efficiency and security. It is important that ICT Professionals have some understanding of how these services are realized. For ICT Professionals whose role includes supporting the operating system this subject provides the introduction to the relevant theory and practice.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 2015 OR
COMP 2016 OR
COMP 2014
Equivalent Subjects: INFS 3014 - Operating Systems
Incompatible Subjects: COMP 3016 - Operating Systems Programming (Advanced)
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3016 Operating Systems Programming (Advanced) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3016/) Legacy Code: 300943
This subject provides the knowledge of the internal structure and functionality of Operating Systems. Through the use of case studies the abstraction that Operating Systems provide will be investigated, and techniques for programming with these abstractions will be developed.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 2016 OR
COMP 2015
Incompatible Subjects: LGYA 6233 - Operating Systems Programming
INFS 3014 - Operating Systems
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3018 Professional Experience (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3018/) Legacy Code: 300579
Professional Experience is a final year 'capstone' project subject. This subject provides opportunities for students to gain hands-on experience in software systems requirements definition, analysis, design and implementation, in a real-world setting. Students work in groups, guided by an academic supervisor or an industry mentor, in achieving the goals set by the client that provides the project. Suitable projects are sourced from external organisations or within Western Sydney University by way of giving the students professional experience in independent learning and reflective practice.
Level: Undergraduate Level 3 subject
Pre-requisite(s): Students in the Bachelor of Information and Communications Technology and associated double degrees with BICT are required to complete the following subjects
INFS 2001 Database Design and Development AND
COMP 3028 Software Construction AND
INFO 3019 Project Management

Students in the Bachelor of Computer Science (catalogue term 2023 onwards) are required to complete the following subjects
COMP 2009 Data Structures and Algorithms AND
INFS 2001 Database Design and Development AND
INFO 3019 Project Management

Students in the Bachelor of Computer Science (catalogue term 2019-2022) are required to pass three of the following subjects
COMP 2020 Technologies for Web Applications OR COMP 2019 Systems Programming 1
INFS 2001 Database Design and Development OR INFS 2002 Database Design and Development (Advanced)
INFO 3008 Professional Development

Students in the Bachelor of Information Systems and associated double degrees are required to complete the following subjects
INFS 2001 Database Design and Development OR
INFS 2002 Database Design and Development (Advanced)
AND
COMP 2020 Technologies for Web Applications OR
COMP 2019 Systems Programming 1
AND
INFO 3008 Professional Development
Equivalent Subjects: INFS 3004
Incompatible Subjects: INFO 3005
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3019 Professional Experience (Advanced) (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3019/) Legacy Code: 300900
Professional Experience (Advanced) is a final year 'capstone' work-placement subject. This advanced subject provides the opportunity for students to gain hands-on experience in software systems requirements definition, analysis, design, implementation and project management, in an external organisation under the supervision of industry experts. During the work placement students work in a real project applying the theories and technical skills learned in previous subjects in an industry setting. Students may propose a work-placement of their choice within an external organisation. All placement proposals will be assessed for suitability in meeting the set subject outcomes and approval must be granted prior to commencement.
Level: Undergraduate Level 3 subject
Pre-requisite(s): Students in the Bachelor of Information and Communications Technology (Advanced) and associated double degrees with BICT (Adv) are required to complete the following subjects

INFS 2002 Database Design and Development (Advanced) AND
COMP 3028 Software Construction AND
INFO 3019 Project Management

Students in the Bachelor of Information Systems (Advanced) and associated double degrees with BIS (Adv) are required to complete the following subjects
INFS 3023 Advanced Systems Development Methodologies AND
INFS 3024 Enterprise Architecture and Design thinking
Incompatible Subjects: INFO 3005 IT Support Practicum
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3020 Social Web Analytics (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3020/) Legacy Code: 300958
The Social Web provides everyone with a voice; information from Facebook, Twitter and other social networks allows us to identify trends and relationships in society. Whilst this has interest on a personal level, the killer-apps will be in analysing social Web data for business, such as tracking the buzz around a new product, and understanding the relationships between customers and products. This subject will introduce its students to the Social Web data that is available, and blend data science and machine learning concepts to allow extraction and analysis of such data.
Level: Undergraduate Level 3 subject
Pre-requisite(s): Students NOT enrolled in the 3770 must have successfully completed one of the following groupings
(MATH 1028 Statistical Decision Making OR
MATH 1003 Biometry OR
COMP 1014 Thinking about Data)
OR
(MATH 1030 Statistics for Business AND
COMP 1013 MATH 1002 Analytics Programming)
OR
(MATH 1012 Management Analytics AND
COMP 1013 MATH 1002 Analytics Programming)
OR
(MATH 2006 Experimental Design and Analysis AND
COMP 1013 MATH 1002 Analytics Programming)
Co-requisite(s): For students enrolled in courses 3769 Bachelor of Data Science or 3770 Bachelor of Applied Data Science
COMP 1014 Thinking About Data
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3021 Special Effects Programming (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3021/) Legacy Code: 301173
This subject will focus on develop programming code to write shaders to create special effects, such as fog, shadows, fire, water, clouds, lightning, motion blur and reflections. These type of shaders are often seen in games and movies. Students will also learn about generic programming algorithms involved in building special effects.
Level: Undergraduate Level 3 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3022 Systems Administration Programming (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3022/) Legacy Code: 300165
This subject covers programming techniques and tools used to administer standalone and networked computer systems. The subject focuses on the use of high level interpretive scripting languages to automate everyday administrative tasks, and to monitor and control running systems. Techniques to extend scripting language capabilities by dynamic linking to compiled code are examined, particularly in terms of access to operating system level functions. The subject also examines the use of administrative programs and tools to monitor and adjust system performance and capacity.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 2019
Incompatible Subjects: LGYA 6160 - Script programming
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3023 Systems and Network Management (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3023/) Legacy Code: 300166
With the advent of the era of Internet of Things, the Internet has become a huge infrastructure in which various kinds of systems are running to deliver a plethora of network services. To ensure the efficient utilization of network resources (e.g., bandwidth) and the convenient access to network services, systems and networks must be managed in a proper way. Facing this demand, this subject covers the standards, protocols and skills pertinent to the management of systems and networks. Moreover, this subject introduces Software Defined Networking (SDN), a new paradigm for conducting network management with programmability, flexibility and scalability.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 3007 OR
COMP 3025
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3024 Video Games Development (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3024/) Legacy Code: 300862
This subject provides students with an in-depth understanding of the development and structure of game engines. It provides the student with a unifying overview of the many modules that are incorporated in a game engine as well as a detailed examination of game-play and engine programming.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 1005
Equivalent Subjects: LGYA 6086 - Games Theory and Design
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3025 Wireless and Mobile Networks (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3025/) Legacy Code: 300952
This subject helps the students gain in depth knowledge in the core concepts and principles in the areas of wireless and cellular networks. It provides them with the technical skills needed to do requirement analysis and evaluate a range of wireless networked systems to plan their institution or expansion. The subject covers the communication characteristics and architecture of wireless systems along with various types of wireless networks, including wireless LANs, personal area networks, sensor networks, mesh networks, and broadband wireless networks. Given the widespread use of mobile phones and devices, a substantial part of the subject is devoted to the study of cellular networks. The subject also covers mobility management and wireless security issues and solutions. Upon completion of this subject, the students will have the capabilities needed for long term and independent learning in the rapidly evolving area of wireless and mobile networking.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 2004 OR
COMP 2005
Equivalent Subjects: LGYA 5741 - Broadband Networking
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3027 Robotic Programming (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3027/) Legacy Code: 301205
Robot Operating System (ROS) is a software integration system that is now widely used for robotics software deployment. The philosophy behind ROS is to modularise software that can work for other robots through small changes in the code. This subject focuses on the main concepts of software development under ROS by looking at the file hierarchical systems (e.g. Packages, Stacks, Messages, Services and others), module communication types through Nodes, Topics, Services, Messages, Bags, Master and how they integrate to operate robot sensors and actuators. This subject also looks at actual AI software examples using C++/Python and Answer Set Programming (ASP).
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 2014 Object Oriented Programming and COMP 2019 Systems Programming 1

OR

COMP 2014 Object Oriented Programming and COMP 3015 Operating Systems Programming

OR

MECH 4003 Mobile Robotics
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3028 Software Construction (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3028/) Legacy Code: 301348
Students learn backend software design and secure API development, while also mastering testing and debugging processes. Students also examine development methodologies and build upon existing knowledge of version control and database queries. Throughout this subject, students have the opportunity to apply theoretical knowledge to practical software construction tasks and projects. This holistic approach ensures that they are not only prepared for subsequent software development subjects but are also conversant with current industry-relevant technologies for career pathways in Back-End Development such as Software Tester/Reviewer or DevOps Engineer.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP2021
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3032 Machine Learning (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3032/) Legacy Code: 301435
Machine Learning is one of the most important technologies in the fields of Artificial Intelligence and Data Science used to explain large datasets, inform decisions and highlight risks. Machine Learning is relevant for solving a range of problems in many industries dealing with significant amounts of information and the structure of that information. In this unit, students put Machine Learning theory into action through widely used algorithms and practical applications for designing, training, and evaluating common learning models and systems. Students use Python programming and, as a result, learn about its important machine learning libraries and packages, such as Scikit-Learn, Keras and TensorFlow for solving practical problems and tasks.
Level: Undergraduate Level 3 subject
Pre-requisite(s): MATH 1028 OR MATH 1033 OR COMP 1014 OR MATH 1003 OR MATH 1030
AND
COMP 1005 OR MATH 1002 OR COMP 3002
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3033 Quantum Computing and Communication (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3033/) Legacy Code: 301437
This subject discusses how computing and communication can be performed by utilising subatomic particles in quantum world, a way very different from classical computing. From a computer science perspective, this subject skips the details of quantum physics and directly explains the concepts of qubits and quantum circuits for the purpose of computing. Necessary mathematical preliminaries are included. Then, this subject discusses major quantum algorithms and communication protocols. Quantum programming will be practised throughout this subject with quantum simulators and real quantum computers in clouds. Students completing this subject will develop skills for designing quantum algorithms/protocols and conducting quantum programming and can pursue careers such as quantum software engineers, quantum security engineers or quantum researchers.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP2014 OR
COMP2015 OR
COMP2016 OR
COMP2023
AND
MATH1028 OR
MATH1030 OR
COMP1014 OR
MATH1038
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3034 Multimodal Interaction (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3034/) Legacy Code: 301468
A key aspect within the field of Human Computer Interaction is capturing user input to a system or device. Called Multimodal Interaction, students learn about the variations of such inputs including how speech, vision, gesture and touch are used to interact with computing devices. Through a mixture of theoretical, research-oriented and practical concepts students will be introduced to novel techniques of interacting with computing devices and interfaces and discuss applications of them, across industrial and research applications, including digital assistants such as Siri, Alexa, facial recognition and surveillance systems.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 1005 AND
INFO 3003
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3035 Discovery Project (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3035/) Legacy Code: 301490
In this subject students will gain experience in applying data science skills and using knowledge gained during their undergraduate studies. Students will carry out a real life project transforming data to knowledge under the supervision of an academic mentor. Students will develop a project proposal and carry out a literature review highlighting the current status of the problem. They will then apply data science skills learned through-out the degree to produce a final discovery project report and/or interactive project tool followed by an oral presentation.
Level: Undergraduate Level 3 subject
Co-requisite(s): COMP 3032
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3036 Full Stack Development (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3036/)
Full Stack Development delivers in-depth knowledge of systems development. Students learn how to develop, test and integrate client (front-end) and server (back-end) parts of the software system. The subject will explore various options for the client-server data communication, using either REST APIs, sockets for live subscriptions or graph-based solutions. The subject focuses also on various testing approaches (i.e. unit, integration and end to end), continuous delivery, containerisation with Docker, integration and deployment procedures. Students use versioning control and engage with the Github platform for project management and quality control; developing authentic, real-world projects. Based on the performance in the subject, a selected number of students will have the opportunity to undergo a week-long placement with a target business partner. Students doing the placement will work on industry projects assessed by professional staff at their placement venue.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 3028
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3037 Cloud Security (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3037/)
The field of cloud security is rapidly growing providing benefits and challenges in comparison to traditional computing environments. The aim of this subject is to provide students with a foundational knowledge of cloud security theory as well as the concepts of cybersecurity principles and services. This subject incorporates the AWS Academy Cloud Security curriculum to support learning in the areas of security design principles, authentication and access management in the cloud and protecting data and applications for the cloud. In addition, students learn about security threats and best practices for securing the cloud through practical activities.
Level: Undergraduate Level 3 subject
Pre-requisite(s): COMP 3012 - Introduction to Cloud Computing
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 3038 Professional ICT Internship (30 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp3038/)
Students will undertake a six month placement in a large IT infrastructure organisation where they actively engage with large-scale capital works projects. Students develop skills in the practical development of enterprise solutions and architectures, such as the infrastructure development for the Western Sydney airport. During their placement students will be mentored by the professional staff and incorporated into the client team at their placement venue. This integration into the client team will allow students to utilise and further develop skills in cloud computing, software development, DevOps and business operations in addition to providing them with valuable career contacts and contexts.
Level: Undergraduate Level 3 subject
Co-requisite(s): MATH 1006
COMP 2029
COMP 3036
COMP 3012
INFO 5001
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 6001 Neuromorphic Algorithms and Computation (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp6001/) Legacy Code: 800232
Designing and implementing processing pipelines for event-based sensory data is a crucial skill for neuromorphic engineers to test novel hardware platforms or to develop new algorithms and learning mechanisms. This project-based subject focuses on principles of neuromorphic algorithm design and hardware-friendly neural architecture design for neuromorphic information processors. This subject consists of two streams of research: applied event-based algorithms and bio-inspired spiking networks. Through solving increasingly challenging tasks using distributed, event-based competitive processing elements, students will learn the differences between conventional and neuromorphic algorithm design, critically assessing real-world problems in a structured manner.
Level: Postgraduate Coursework Level 6 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 6002 Neuromorphic Sensing (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp6002/) Legacy Code: 800233
Neuromorphic sensors offer a new way to electronically sense and process data that have a unique structure based on principles found in biology. Understanding how they operate is integral to their effective use in practical situations, to the development of algorithms, process their data, and to the optimisation of their electronic designs. This subject focuses primarily on neuromorphic vision sensors, which are rapidly being adopted by multiple industries, including exciting applications in automotive and space. Students will develop an in-depth understanding of neuromorphic sensors and the skills to operate a neuromorphic sensor for acquiring data and solving real-world problems. This practical experience is in high demand from both research labs and the industry.
Level: Postgraduate Coursework Level 6 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 6003 Computer Vision (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp6003/)
Computer vision uses artificial intelligence to train computers to interpret and understand visual images. Through the information that is derived, computer systems can make decisions and take actions. The amount of visual information today from digital devices and cameras along with improved technology has enabled considerable advances in automated image interpretation. In this subject students learn the state-of-the-art technologies of image processing and computer vision through practical activities. Computer vision is used, and has the potential to be used, in a range of industries, in novel ways. This presents a unique opportunity to students completing this subject.
Level: Postgraduate Coursework Level 6 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7002 Advanced Topics in Networking (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7002/) Legacy Code: 300252
This subject focuses on the advanced features of networked systems and the emerging network technologies and services. The subject provides students with an in-depth understanding of relevant protocols, the emerging standards, and standards organisations. The emphasis of the subject is on development of the student skills to enable them to do proficient research and development works and studies in the computer networking discipline.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7003 Big Data (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7003/) Legacy Code: 301046
"Big data" is the label for the ever-increasing gigantic amount of data with which humanity has to cope. The availability of data and the development of cloud computing architectures to process and analyse these data have made data analytics a central tool in our endeavours. This subject will introduce students to the realm of "big data", covering the important principles and technologies of retrieving, processing and managing massive real-world data sets. It is designed to provide the basic techniques required by any discipline that needs to make sense out of the growing amount of data, and to equip students with the knowledge and key set of skills set to be competitive in the growing job market in the analytics field.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7004 Cloud Computing (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7004/) Legacy Code: 301042
Cloud computing has become a driving force for information technology over the past several years, and it is moving towards a future in which we won't rely on local computers, but on centralised facilities operated by third-party compute and storage utilities. Governments, research institutes, and industry leaders are rushing to adopt Cloud Computing to solve their ever-increasing computing and storage problems arising in the Internet Age. This subject offers "Academy Cloud Foundations" (ACF) curriculum as part of Amazon Web Services (AWS) Academy. Students will develop knowledge and skills in the areas of virtualization technologies, cloud architecture, AWS core services and their pricing, security, architecture, and support.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7006 Data Science (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7006/) Legacy Code: 301044
The explosion of data in the internet age opens up new possibilities for agencies and business to better serve and market to its customers. To take full advantage of these opportunities requires the ability to consolidate, manage and extract information from very large diverse data sets. In science, data sets are growing rapidly, with projects routinely generating terabytes of data. In this subject we examine the software tools and analytic methods that underpin a successful Data Science Project and gain experience in big data analytics.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7007 Information Security Management (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7007/) Legacy Code: 301162
Cyber Crime costs are increasing at an alarming speed. Security management and ICT project management skills are now essential for IT industry. This unit provides the knowledge, skills, techniques and mechanisms on information security management as well as general ICT project management for postgraduate students. It covers topics on management aspect of information security such as business and Cybercrime, security awareness, security risks, security fundamentals, risk assessment and security system design, planning and regulatory issues for information system security. It also covers general ICT project management phases such as conception and initiation, project planning, project execution, performance and monitoring, and project close.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7008 Internet of Things (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7008/) Legacy Code: 301175
The Internet of Things (IoT) is drastically changing the way organisations operate and how individuals interact with the world. IoT is an infrastructure consisting of fairly constantly communicating objects, or things, that may be smart and process or act on data. The IoT facilitates detailed and meaningful interactions between humans, digital devices, and many other industrial and household equipment, appliances, and things. The IoT is also the enabler of smart environments, including smart homes, buildings, cities, transport, and healthcare, among many others. This subject discusses IoT technologies and applications in detail. It also introduces the students to trends, challenges, and key research topics in relevant areas.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7009 Mobile Computing (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7009/) Legacy Code: 301043
This subject teaches technologies and programming languages for developing applications on common mobile platforms, such as Android and iOS. Students will learn skills for developing programs on the above platforms, along with in-class sample applications that highlight platform - specific implementation details.
Level: Postgraduate Coursework Level 7 subject
Pre-requisite(s): Students enrolled in 2761 Master of Business Administration Information and Communication Technology specialisation must have successfully completed COMP 7015 Programming Proficiency and INFS 7007 Systems Analysis and Database Management Systems
Students enrolled in all other courses must have successfully completed INFS 7009 Web Technologies
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7011 Multimedia Communication Systems (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7011/) Legacy Code: 300256
This subject covers advanced concepts and technologies used in emerging multimedia communication systems. Theory, practice and standards for IT professionals endeavouring to build data compression systems for multimedia applications are emphasised.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7012 Network Management (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7012/) Legacy Code: 300255
The performance of any modern organization is heavily dependent on their networked systems and how these systems are managed. The increasing demand for ICT services and the huge growth of the Internet have resulted in large heterogeneous networks. This subject addresses the issues relevant to management of such networks and the services that run on them. It covers the principles and current practices pertinent to integrated management of networks, systems, and services. The subject helps the students to understand relevant protocols, standards, and standards organizations. It also introduces them to trends and key research areas in management of networked systems.
Level: Postgraduate Coursework Level 7 subject
Pre-requisite(s): INFO 7002 Advanced Topics in Artificial Intelligence OR
COMP 7015 Programming Proficiency AND INFS 7007 System Analysis Database Management Systems OR
MATH 7012 Programming for Data Science AND MATH 7016 The Nature of Data
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7013 Network Technologies (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7013/) Legacy Code: 300695
Computer networking is one of the fastest growing technologies of our time. The Internet interconnects billions of computers providing many new exciting opportunities and challenges. The Internet and the World Wide Web have provided the communication and infrastructure needed for global collaboration and information exchange. As a result of the rapid growth of networked systems and the diverse applications that run on them, success in many professions depends on a sound understanding of the technologies underlying these systems and applications. This subject explores these issues and provides the students with such an understanding. It covers the principles and current practices pertinent to computer networking and communications. It describes some of the important technologies and devices used in modern networks for information distribution and data sharing. The subject helps the students to understand important models, protocols and standards in networking and internetworking.
Level: Postgraduate Coursework Level 7 subject
Equivalent Subjects: LGYA 5883 - Network Technology and Data Communications
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7015 Programming Proficiency (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7015/) Legacy Code: 301038
This subject is aimed at the students whose undergraduate study is in a discipline other than computing or information technology. This subject first covers the programming fundamentals on data types, conditional selections and loop structures, and then further develops the problem solving skills through the use of user-defined functions, records, files, as well as the basic concept and techniques of object-oriented programming. A high level programming language is employed to implement all the problem solutions.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7016 Visualisation (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7016/) Legacy Code: 301112
This subject introduces the fundamentals and technologies of information visualisation. It covers the major concepts of information visualisation, human-computer perception and methods for visual data analysis. Students will learn the knowledge and skills required for identifying suitable visualisation techniques and tools appropriate for various data types and applications. The subject provides students with opportunities to explore recent research in the visualisation field. Please note any offerings at Melbourne campus are only applicable for Australian Technical and Management College (ATMC) students.
Level: Postgraduate Coursework Level 7 subject
Pre-requisite(s): MATH 7016 (for students in 3779)
Incompatible Subjects: MATH 2014 Visual Analytics
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7017 Wireless Networking (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7017/) Legacy Code: 300389
Wireless technologies are amongst the most exciting and rapidly growing areas in computing and information technology. They implement applications that profoundly impact our personal way of communication, as well as how business in a variety of industries and organisations are conducted. This subject goes into details of such issues. It discusses wireless networking technologies and their related applications. The main features of wireless and mobile communication systems and the networked services that are based on these systems are also presented. The subject provides students with an in-depth understanding of relevant protocols, the emerging standards and standard organisations. The students are also introduced to some of the relevant current key research issues of the field.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7018 Advanced Cloud Computing (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7018/) Legacy Code: 301363
This subject offers the Amazon Web Services (AWS) Academy "Academy Cloud Architecting" (ACA) curriculum and provides deeper understanding of advanced cloud computing services and how to architect cloud solutions. Students will learn advanced cloud computing concepts including notification and messaging, serverless computing, API gateways, NoSQL databases, and content delivery networks. The subject also explores strategies to enable high scalability, reliability, cost-efficiency, performance, and operational excellence in a cloud-based system. All these aspects are explored in practice with AWS services. Upon completion of this subject, students will be prepared for the AWS Certified Solutions Architect - Associate exam.
Level: Postgraduate Coursework Level 7 subject
Pre-requisite(s): COMP 7004
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7019 Applied Machine Learning (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7019/) Legacy Code: 301312
This subject introduces the foundation and concepts underpinning Machine Learning (ML) at a more abstract level, and provides more focus on its practical applications in areas such as: the classification and extraction of text data from various documents and web pages, image processing, Google's PageRank algorithm and relational data mining (RDM). These learning objectives are achieved through various ML software and a series of practicals and projects. The subject covers the concepts and notions of supervised, unsupervised and reinforcement learning, perceptron, neural networks, support vector machines (SVM), knowledge representation (KR) based RDM, and a comprehensive introduction to the Scikit-learn ML Python libraries.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7020 Artificial Intelligence Ethics and Organisations (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7020/) Legacy Code: 301314
Artificial Intelligence Ethics and Organisations provides students with a comprehensive grounding in the ethical issues of general ICT and AI technologies. Students will learn the general ICT professionalism, the relevant laws, regulations and policies with respect to ICT and AI ethics, and the existing framework and research trend in the field. With a series of case studies, students will learn how to apply general principles and guidelines in practice. They will also learn to identify potential risks and impacts, to ensure AI ethics are followed in different circumstances regarding data governance, automatic decisions, predictive analytics, autonomous system design and deployment, and structure changes of labour markets.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7021 Knowledge Representation and Reasoning (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7021/) Legacy Code: 301315
Knowledge representation and reasoning is one of the fundamental components of Artificial Intelligence. Students will learn the principles and methodologies that are used to represent and reason about human knowledge effectively in formal computational models, and eventually solve complex tasks using computer systems. This subject covers logic foundations of knowledge representation and reasoning, Answer Set Programming approaches for declarative problem solving, intelligent agent modelling, diagnostic and probabilistic reasoning. The subject plays an important part in preparing students for career paths as AI engineers, robotics engineers and intelligent software engineers.
Level: Postgraduate Coursework Level 7 subject
Pre-requisite(s): INFO 7002 Advanced Topics in Artificial Intelligence OR
COMP 7015 Programming Proficiency AND INFS 7007 System Analysis Database Management Systems OR
MATH 7012 Programming for Data Science AND MATH 7016 The Nature of Data
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7022 Natural Language Processing (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7022/) Legacy Code: 301313
Natural Language Processing involves machine reading comprehension and the technologies using it are becoming increasingly widespread. This subject provides a foundation in using the Natural Language Toolkit, which is a leading platform for building Python programs working with 'human language' data, as well as an introduction to Python for Natural Language Processing. Students will use algorithms and explore accessing text corpora and processing raw text; categorising words and classifying text; understanding information from text and analysing sentence structures; and understanding semantic meanings of sentences. Students also gain real-world hands-on experience with Natural Language Processing through the practical tasks and assignments.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7023 Predictive Analytics (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7023/) Legacy Code: 301495
The information age has allowed business and science to take advantage of the vast amount of available data for predicting outcomes and estimating trends, to make informed decisions. Machine learning is the process of allowing a computer to learn from data, which at its heart is used in making these important decisions. This subject provides students with the knowledge and practice required to implement and effectively use these predictive models such as Neural Networks and Support Vector Machines, and provides opportunity for students to investigate state-of-the-art. Students will use the Python programming language throughout this subject.
Level: Postgraduate Coursework Level 7 subject
Equivalent Subjects: MATH 7011 Predictive Analytics
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7024 Programming for Data Science (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7024/) Legacy Code: 301493
The use of computers and computer programming for Data Science is fundamental to the discipline. This introductory subject will briefly cover the use of spreadsheet systems and then will consider programming in the statistical system "R" in detail. Other special purpose languages will also be touched on briefly including SQL (Structured Query Language).
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7025 Social Media Intelligence (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7025/) Legacy Code: 301494
Social Media Intelligence presents the theory and practice of extracting and analysing information from social media networks. The aims are to identify properties of social networks, and to make predictions about future events. Topics included will cover areas such as Graph theory, Game theory and Network dynamics and we will identify how these can be used to model and extract information from Facebook and Twitter.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7026 Data Engineering Fundamentals (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7026/)
Data Engineers design systems that gather, store and present data for critical decision-making and further analysis. While there are several software tools to set up data systems, the dynamic nature of the data landscape necessitates that Data Engineers possess an in-depth understanding of fundamental concepts and agile processes. In this subject, students will acquire a foundational understanding of key data engineering concepts, enabling them to design and construct robust data systems. Every facet of the data engineering lifecycle will be meticulously explored, providing students with hands-on exposure to state of the art data software systems. Additionally, students will delve into essential topics such as data security, ethics, and data ownership.
Level: Postgraduate Coursework Level 7 subject
Pre-requisite(s): COMP 7024
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7027 Advanced Data Engineering (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7027/)
Data Engineers play a crucial role in designing data systems tailored to certain specifications. While several software modules can be used for constructing data systems, a Data Engineer must be able to identify the inner mechanisms underlying these systems, thereby gauging their suitability. In this subject, students will delve into the intricacies of modern-day data system design and algorithms, ensuring these systems' reliability, scalability, and ease of maintenance. Furthermore, we will explore common problems affecting data systems in the hardware and software space and identify their implications. In addition, students will investigate algorithms and data structures that optimise the storage and flow of data through data systems.
Level: Postgraduate Coursework Level 7 subject
Pre-requisite(s): COMP 7026
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 7028 Hands-on Quantum Computing (10 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp7028/)
This subject enables students to understand the theory of quantum computing and build the skills needed for quantum programming. It covers essential topics, including basic principles of quantum mechanics, quantum bits (qubits), quantum gates, algorithms, programming with quantum simulators and with real quantum computers. Students will explore the fundamental differences between classical and quantum computation and learn quantum programming using a well-known open source toolkit. Additionally, the subject offers insights into quantum hardware and real-world applications, demonstrating the potential and relevance of quantum computing in various fields, from cryptography to optimisation problems. After completion students will be equipped with the essential knowledge to navigate the exciting realm of quantum computation.
Level: Postgraduate Coursework Level 7 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 9001 Higher Degree Research Thesis - Computing and Information Technology (80 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp9001/) Legacy Code: 800049
Level: PhD and Research Masters Level 9 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 9002 Higher Degree Research Thesis - Computer Science (80 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp9002/) Legacy Code: 800221
Level: PhD and Research Masters Level 9 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject

COMP 9003 Higher Degree Research Thesis - Artificial Intelligence (80 Credit Points)
Subject Details (https://hbook.westernsydney.edu.au/subject-details/comp9003/)
This is a 80 credit point year-long subject.
Level: PhD and Research Masters Level 9 subject
Restrictions: Please see the Subject Details page for any restrictions for this subject