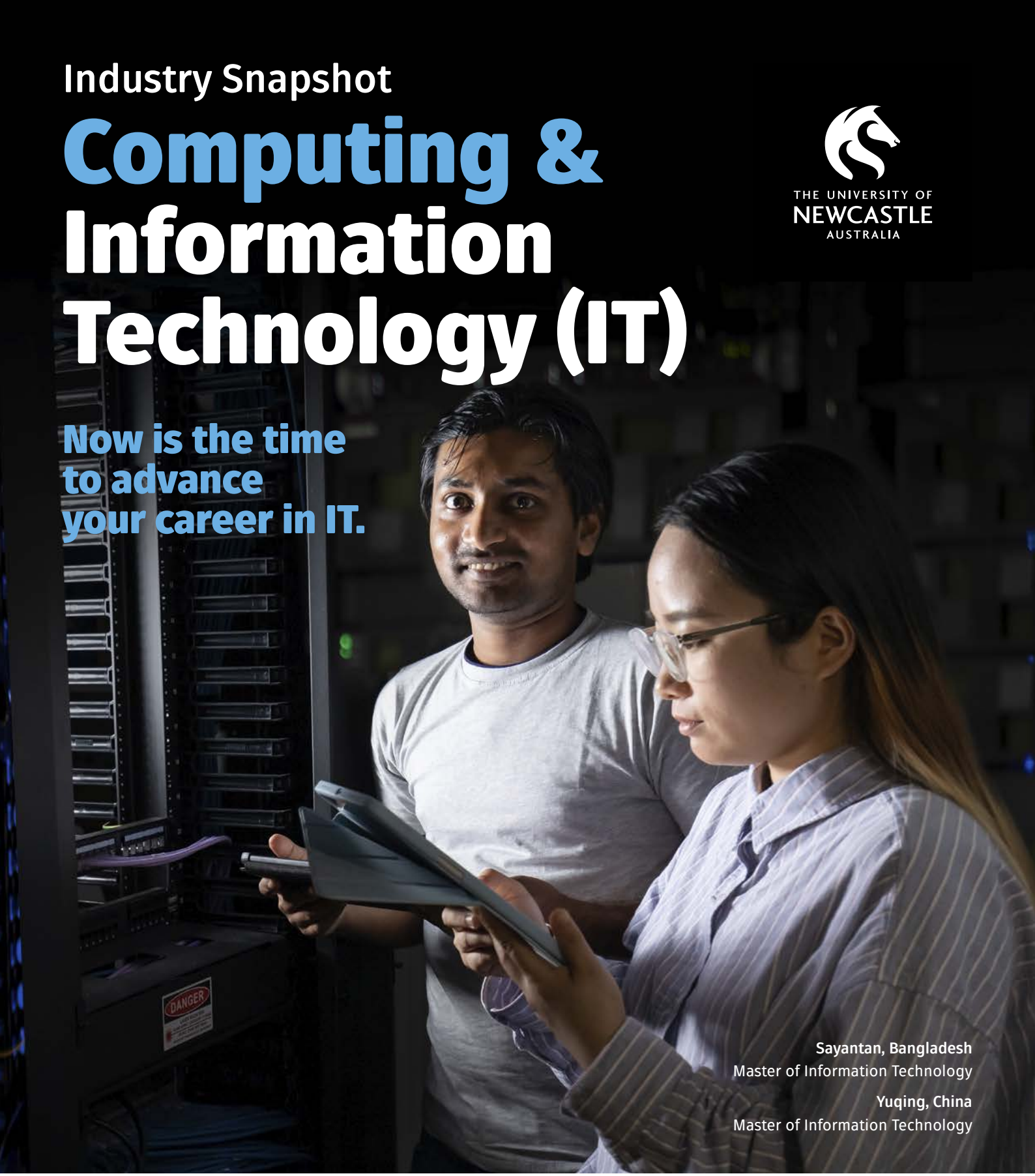
Industry Snapshot

Computing & Information Technology (IT)

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

Now is the time to advance your career in IT.



Sayantan, Bangladesh
Master of Information Technology

Yuqing, China
Master of Information Technology

acs AUSTRALIAN COMPUTER SOCIETY

ENGINEERS AUSTRALIA

Statistical Society of Australia

newcastle.edu.au/computing-technology

Information Technology (IT)

The importance of technology in our lives has never been more apparent since the world was introduced to COVID-19.

Although many of the technologies and platforms we now use existed pre-pandemic, their importance to our daily lives has increased exponentially and is likely to continue post-pandemic.

Jeny, India
Master of Information Technology

No. 1
university in Australia for industry collaboration[1]

Why Information Technology?

Continued global challenges and the rise in popularity of digital technologies has consequently led to an increase in demand for IT professionals, particularly those specialising in cyber security, data analytics and artificial intelligence.

Whether you are an IT graduate, undertaking a degree in IT or considering IT for your future studies, the demand for specialised IT professionals continues and remains strong for 2023 and beyond.

Professor Vijay Varadharajan, Global Innovation Chair in Cybersecurity for the School of Information and Physical Sciences, says the importance of technology starts with education.

The demand for skilled IT professionals remains high throughout the world. In LinkedIn's top 10 in-demand jobs[2] for 2022, 3 out of 10 jobs were IT-related. Software Engineers ranked number 1 with 24 countries across Asia, Europe, and Oceania reporting a need for software engineers and developers.[3]

According to James MacDonald, Director of Newy Tech People, software engineers are most in demand as of late in the Newcastle Hunter Region.

"For the past 18 months, there has been a demand for them, and that demand is not going away anytime soon. It is extremely difficult to try and find good software engineers."[4]

"Technology is pervasive. Anything we do nowadays in our daily lives involves some form of technology. It is vital that we continue to educate citizens about cybersecurity and how to be careful when using technologies. The bottom line is that it is critical that we are able to trust these technologies, and each other."

1 Innovation Connections IC Report 2014 - 2020. 2 linkedin.com/business/talent/blog/talent-strategy/most-in-demand-jobs
3 arnnet.com.au/article/690080/why-newcastle-rising-tech-star-nsw/ 4 business.linkedin.com/talent-solutions/emerging-jobs-report#all

Careers in IT

IT professionals of today realise their role will not remain the same and constant learning, unlearning and relearning is required. What does this mean for you? It means staying abreast of current and emerging trends in technology and having the skills in demand to make you more employable.

Top ICT jobs in Hunter and Central Coast[1]

- Software Developer/ Engineer
- Data/Data Mining Analyst
- Computer Support Specialist
- Computer Systems Engineer/ Architect
- Systems Analyst
- Network/Systems Administrator
- IT Project Manager
- Cyber/Information Security Engineer Analyst
- Business Intelligence Analyst
- Software QA Engineer/Tester

Top 10 specialised skills in greatest demand for Hunter and Central Coast IT Jobs[1]

- Teamwork/Collaboration
- SQL
- Software Development
- Project Management
- Software Engineering
- Python
- Java
- Technical Support
- Customer Service
- LINUX

Top 10 specialised skills in greatest demand for IT jobs in Australia[1]

- Configuration Management
- DevOps
- Python
- LINUX
- Teamwork/Collaboration
- Ansible
- Software Development
- Systems Engineering
- Java
- Git

Top 8 skills in greatest demand in a post-covid world[2]

- Adaptability and Flexibility
- Tech Savviness
- Creativity and Innovation
- Data Literacy
- Critical Thinking
- Digital and Coding Skills
- Leadership
- Commitment to a lifetime of learning

Baseline Skills in greatest demand for IT jobs in Australia[1]

- Communication Skills
- Troubleshooting
- Problem Solving
- Planning
- Writing
- Mentoring
- Research
- Building Effective Relationships
- Detail-orientated
- Verbal/Oral Communication
- Creativity
- Articulate

1 Lightcast Labour Insight. 2 Forbes - 8 Skills to succeed in a post corona virus world.

Fastest-growing IT jobs by region

Southeast Asia[1]

COVID-19 accelerated the adoption of digital platforms within the Southeast Asian region. The demand for employees with tech skills will remain strong, from specialised engineers, to cyber security talent and data analysts.

Career	Job titles	Desired skills
Data Analyst	Business Operations Analyst, Business Development Analyst, Analysis Specialist, Business Analyst, Data Analyst	Data Analysis, Data Visualisation, Analytical Skills, SQL, Requirements Analysis.
Cyber Security	Cyber Security Analyst, Cyber Security Specialist, Cyber Security Consultant, Information Security Specialist.	Penetration Testing, Information Security, Security Information and Event, Management (SIEM), Cybersecurity, Vulnerability Assessment.
Software and Technology	Web Developer, System Analyst, Mobile Application Developer, Full Stack Engineer, Frontend Developer, DevOps Consultant.	JavsScript, Web Development, Amazon Web Services (AWS), MySQL, HTML5.
Specialised Engineering	Mechanical Engineer, Manufacturing Engineer, Engineering Team Lead.	SOLIDWORKS, AutoCAD, Lean Manufacturing, Six Sigma, Structural Engineering.

South Asia[2]

Cybersecurity and data science roles will continue to rise as data safety becomes a key priority for consumers and organisations.

Career	Job titles	Desired skills
Specialised Engineering	Network expert, Software Engineering Specialist, Back End Developer, Development Team Lead, Web Development Specialist.	Node.js, JavaScript, Python (Programming Language), Cascading Style Sheets (CSS), Java.
Cyber Security	Security Researcher, Cyber Security Specialist.	Ethical Hacking, Penetration Testing, Web Application Security, Vulnerability Assessment, Cybersecurity.
Artificial Intelligence	Machine Learning Specialist, Artificial Intelligence Specialist, Machine Learning Engineer.	Deep Learning, Machine Learning, Artificial Intelligence (AI), Natural Language Processing (NLP), TensorFlow.
Data Science	Data Science Specialist, Analytics Consultant, Data Analyst.	Tableau, R (Programming Language), Data Analysis, SQL, Machine Learning.

1 LinkedIn – Jobs on the Rise in South East Asia 2021. 2 LinkedIn - Jobs on the Rise in South Asia 2021.

China[1]

With the digital economy in China continuing to develop rapidly and more comprehensively, the demand for talented skilled professionals has become a key factor to an enterprise's success.

Career	Job titles	Desired skills
Data Science	Data Analysis Experts, Data Analysts, Data Engineers, Data Scientists.	Data Analysis, Python, Market/Business Analysis, Industry Research, SQL, Apache Spark, Hadoop, Hive, Tableau, Machine Learning
Software Development and Engineering	Back End Developers, Game Designers, Embedded Software Engineers, Machine Learning Engineers, R&D Engineers, Solution Architects, Algorithm Engineers, Front-End Developer, Software Engineer, System Engineer, Engineering Team Leader.	Go, Python, Redis, Game Design, Game Development, Unity, MySQL, Java, JavaScript, C++, C, Embedded System/Software/C, Machine Learning, Solution Architecture, Cloud Computing, Deep Learning, Linux, Algorithms, Artificial intelligence, CSS, HTML5.

Australia[2]

COVID-19 has accelerated Australia's digital transformation and prompted a shift to remote work, making opportunities more accessible than before and basic digital skills more essential.

Career	Job titles	Desired skills
Specialised Engineering	Back End Developer, Web Developer, Head of Engineering, Data Manager.	Node.js, Amazon Web Services (AWS), Data Management, Engineering Management, JavaScript.
Cyber Security	Cyber Security Analyst, Cyber Security Specialist.	Security Information and Event Management (SIEM), Information Security, Cybersecurity, Network Security, Machine Learning.

1 LinkedIn 2021 Emerging Job Report. 2 LinkedIn - Jobs on the Rise in Australia 2021.

Degrees to help you reach your full potential

At the University of Newcastle, our degrees in IT are designed to give you the knowledge and understanding needed for your future career, equip you with the in-demand skills to make you more employable and create opportunities for you to apply these in real-world settings with experts from our region.

Bachelor of Computer Science

CRICOS Code	001604G
Duration	3 yrs FT/ Up to 8 yrs PT
Locations	Newcastle – Callaghan
Indicative Annual Fee	2023 A$38,420 2024 A$39,573
IELTS	IELTS overall minimum - 6.0 IELTS section minimum - 6.0
Intake	S1, S2
Practical Experience	Up to 250 hours of mandatory work integrated learning

Course overview

The Bachelor of Computer Science produces innovative and resourceful computer scientists who are experts at complex problem solving. They work across fields such as artificial intelligence, robotics, computer graphics, digital forensics, health informatics, web development, cryptography and data security.

- 81.5% employed within four months of graduating[1]
- Accredited by the Australian Computer Society
- Top 200 in the world for Engineering and Technology[2]

See the website for more information about this degree.

Bachelor of Information Technology

CRICOS Code	044439E
Duration	3 yrs FT
Locations	Newcastle – Callaghan Singapore
Indicative Annual Fee	2023 A$39,365 2024 A$40,546
IELTS	IELTS overall minimum - 6.0 IELTS section minimum - 6.0
Intake	S1, S2 - Callaghan T2, T3 - Singapore
Practical Experience	Work integrated learning opportunities available

Course overview

Information technology prepares you for a diverse career. You can specialise in business technology and manage complex systems critical for big corporations and government. Or you could develop cloud-computing solutions, specialise in IT security or create new games, 3D animations, apps and programs for the manufacturing, healthcare, social enterprise, renewable energy or education industries.

- 81.5% employed within 4 months of graduation[1]
- Top 200 in the world for Engineering and Technology[2]
- Accredited by the Australian Computer Society

See the website for more information about this degree.

1 Graduate Outcomes Survey 2019-2021. 2 QS World University Rankings by Subject 2022.

View more degrees in Computing, Maths and Technology

Master of Cyber Security

CRICOS Code	0100135
Duration	2 yrs FT Accelerated options available
Locations	Newcastle – Callaghan
Indicative Annual Fee	2023 A$42,200 2024 A$43,466
IELTS	IELTS overall minimum - 6.5 IELTS section minimum - 6.0
Intake	S1, S2
Practical Experience	Complete a 1-year project via industry placement or in collaboration with industry.

Course overview

This program is designed to provide students with a working knowledge of important security techniques and expertise needed for designing secure systems, security standards for their application to real-world problems as well as techniques and tools that can be used to exploit security vulnerabilities and threats in systems and networks.

- Learn from global leaders in the field including Professor Vijay Varadharajan
- Place yourself at the forefront of a growing industry with Australia needing and estimated 18,000 additional cyber security workers by 2026[1]
- Access to our industry-leading cyber security labs such as System Security Lam, Smart Network Infrastructure Security Lab and Malware Lab

See the website for more information about this degree.

Master of Information Technology

CRICOS Code	083517F
Duration	2 yrs FT Accelerated options available
Locations	Newcastle – Callaghan Online Sydney Singapore
Indicative Annual Fee	2023 A$41,650 2024 A$42,900
IELTS	IELTS overall minimum - 6.5 IELTS section minimum - 6.0
Intake	T1, T2, T3
Practical Experience	Work integrated learning opportunities available

Course overview

Develop critical knowledge and skills required to work as an IT professional. As well as providing foundational IT skills for entrants with limited IT experience, this program provides opportunities for experienced IT professionals to enhance their skills. Apply your learning to technology-driven areas including communications, management, and business and entrepreneurship.

- Option to specialise in two key interest areas: business analytics or management information systems
- Recognised by Australian Computing Society

See the website for more information about this degree.

1 AustCyber - Australia's Cyber Security Sector Competitiveness Plan.

International scholarships

Worried about the cost of studying in Australia? We are one of the more affordable options for study in Australia and with many different scholarships for international students, this can greatly reduce the cost of tuition and other study-related expenses.

Prepared for success

International student, Cheena, is keen to solve society's growing cyber security problems by completing a Master of Cyber Security at the University of Newcastle.

"I was curious about how to detect spam and how I could better secure my personal data. This interest drew me further toward a Master of Cyber Security," she said.

"The University has an excellent variety of programs which I have not found at other universities," she said.

Cheena has also been impressed by the level of practical knowledge gained through the University of Newcastle programs.

"I also had access to wonderful virtual labs and excellent faculty members," Cheena said.

In planning her future career goals, Cheena feels confident that the University of Newcastle is preparing her for success.

"The University has played a vital role in preparing me for a successful career."

"During study periods, I have the opportunity to build knowledge in my specific stream. Then in breaks, I can take summer internships which give me practical experience and enhance my real-world knowledge," she said.

Cheena will complete her Master of Cyber Security in 2023 and hopes to work in the industry soon after.

"This degree has enhanced my skills, given me core knowledge and definitely will help in building industry connections. I am also gaining practical knowledge which is very helpful for my future career."

International Excellence Scholarship (IT and Computer Science)

Valued at AU$15,000 for each year of full-time study.

No application required.

Find out more about this scholarship.

Get career ready

Career Support

At the University of Newcastle, our careers team run employment expos with the aim of connecting students with employers for graduate, internship and placement opportunities. Specifically for IT, in addition to a yearly expo where local employers from the industry attend, the University often collaborates to host external events like Newcastle Tech Futures. Such opportunities provide students with the opportunity to learn more about their chosen industry and career prospects locally here in Newcastle, nationally in Australia and internationally.

Find out more about career support.

Access Additional Post-Study Work Opportunities

The Australian Government allows students who meet the study and skills criteria to stay temporarily in Australia after they complete their studies to gain valuable work experience in Australia. To promote in-demand industries and living and working in regional areas, students who choose to study with us may be eligible to stay up to 7 years depending on the chosen degree, level of Australian study qualification and location[1].

Find out more about Post-Study Work Oopportunities.

Work Integrated Learning (WIL)

The best way to learn the practical skills required after graduation is to apply your theoretical knowledge in real-world environments. Work Integrated Learning (WIL) is also often referred to as practicum, placement, internship, project-based learning, simulation activities and fieldwork. Through WIL, you will gain hands-on knowledge in your field of expertise, have the opportunity to engage with industry partners and build your professional networks.

Find out more about WIL.

Career Connect

Career Connect is the University wide program that allows you to build your employability skills outside the classroom. Developing these skills will prepare you for your transition into the workforce and the confidence you need to connect with future employees.

Find out more about Career Connect.

Employment Expos and Industry Days

Employment Expos and Industry Days are the perfect opportunity to speak directly with employers and learn more about your future industry and career options. From the first to final year of study, it is always the right time to connect, network and learn more about the world of careers and employment.

Find out more about Employment Expos and Industry Days.

Work While Studying

One of the many advantages of studying in Australia is that international students can work part-time to earn an income while studying. Regardless of whether it is relevant to your studies, these opportunities help build your employability skills.

Retail, Hospitality and Tourism, Health Care and Social Assistance and Manufacturing and Construction are some of the major industries in Newcastle offering part-time work opportunities. The University and Study NSW help to connect students to these opportunities.

Find out more about part-time work opportunities.

1 This information is current as at 21 Feb 2023. For the most recent and up-to-date details, please refer to the Department of Home Affairs website or speak with your agent.

Newcastle and Hunter Region Employment Opportunities

Amanda, Phillipines
Bachelor of Information Technology

Newcastle and Hunter Region Snapshot[1]

Largest regional economy in Australia, ranking above Tasmania, the Northern Territory and the Australian Capital Territory.

Population of over 770,000 and expected to grow by 25% over the next 20 years

Over 300,000 jobs in the region currently with 65,000 new jobs by 2036

Output of $129.541 billion

Home to four world-class research institutions including the University of Newcastle, Hunter Medical Research Institute (HMRI), Commonwealth Scientific and Industrial Research Organisation (CSRIO) and Newcastle Institution for Energy & Resources (NIER)

By 2036 over 70,000 more homes are planned for the region (reference Hunter Regional Plan 2036)

Access to national and international markets through the global gateways of Newcastle Airport and the Port of Newcastle.

Major industries include Health Care and Social Assistance, Education and Training. Retail Trade, Manufacturing and Construction, Tourism and Professional, Scientific and Technical Services

1 Hunter Regional Plan 2036

Future growth and development for the region[1]

- Planned expansion of Newcastle Airport by 2030 which will see it double, expanding the region's tourism industry and enhancing connections with the Asia-Pacific.
- Development advanced manufacturing, defence and aerospace hubs
- Enhance regional linkages to support economic growth through improved transport corridors and freight facilities.
- Diversify and grow the energy sector to more energy efficient and renewable energy technologies.
- The region's economic success and rapid growth will continue to drive competitiveness and new jobs, creating new jobs in accounting and finance, information technology, business and management, tourism and events, education, health, etc.

The Regional Strategic Growth areas include:

- Advanced Manufacturing
- Creative Industries
- Defence and aerospace
- Food and agribusiness
- Medical technology and pharmaceuticals
- Mining equipment, technology and services
- Renewable Energy

The region continues to recognise that modern technology and communications are essential to removing barriers and opening up opportunities to join the bigger markets through high-tech, creative and knowledge based industries.

IT organisations in the Newcastle and Hunter Region

BOEING · City of Newcastle · COALLSL · Forsythes TECHNOLOGY · GreaterBank · Mudbath. · LOVELLSGROUP · ORICA · nib · SENPOS · ACT LOGISTICS · BRENNAN People first – secure always · Australian Government Australian Public Service Commission · SSW ENTERPRISE SOFTWARE DEVELOPMENT · 3ME TECHNOLOGY

NEWY TECH PEOPLE

Agency Recruitment specialising in Technology Recruitment for the region.

Find out more.

1 Hunter Regional Plan 2036.

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newcastle.edu.au/south-asia

china.newcastle.edu.au

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Newcastle City Campus
NUspace
Corner Hunter and Auckland Streets,
Newcastle NSW 2300

Singapore Campus
6 Temasek Boulevard,
#10-02/03, Suntec Tower 4,
Singapore 038986

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Ourimbah NSW 2258

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