

Appendix F: Major Listings of ICT Careers and Professions

Department of Employment and Workplace Relations (DEWR) Careers Classifications

Reproduced from Department of Employment and Workplace Relations' Job Outlook web-site <http://jobsearch.gov.au/joboutlook/OccCatSearch.asp> (accessed 30th September 2002).

Statement on classifications from web site: *"This classification structure is based mainly on the Australian Standard Classification of Occupations Second Edition (ASCO2), developed jointly by the Australian Bureau of Statistics (ABS) and the Department of Employment and Workplace Relations (DEWR)... Additional IT occupations have recently been added to provide for new and emerging skills and occupations for 'Computing Professionals'."*

Computing and IT:

- IT Business Specialists
 - IT Account Manager
 - IT Business Analyst
 - IT Consultant
 - IT Trainer
 - IT Writer/Documentor
- IT Management
 - IT Development Manager
 - IT Manager - Service, Product, Test, Operations
 - IT Project Manager, Team Leader
- IT Operations
 - IT Database Administrator
 - IT Help Desk
 - IT Network Administrator
 - IT Operator
 - IT Support IT Systems Administrator
- IT Other Occupations
 - IT Computer Animation
 - IT Desktop Publishing
 - IT Other Occupations
- IT Systems Analysis and Design
 - IT Auditor
 - IT Database Analyst/Data Modeller
 - IT Design Specialist, Network Analyst
 - IT Quality Specialist
 - IT Security Specialist
 - IT Systems Analyst
- IT Systems Development
 - IT Analyst/Programmer
 - IT Data Warehouse Developer
 - IT Database Developer
 - IT Developer / Applications Programmer
 - IT Multimedia Developer
 - IT Tester
 - IT Web Developer
- IT Technical/Engineer

- IT Architect/Network/Software
- IT Communications Specialist
- IT Hardware/System Engineer
- IT Network Engineer
- IT Software Engineer
- IT Technician (Hardware)

ACS' IT Careers Portal

List of IT careers from the Australian Computer Society *IT Careers Portal* web site
<http://www.itcareers.acs.org.au/careers/> (accessed 19th September 2002):

BUSINESS ANALYSIS

- Business Analyst
- Business Systems Analyst
- Business Systems Planners
- Principal Solutions Architect

- Corporate Customer Support Manager

DATABASE

ADMINISTRATION

- Database Administrator

COMPUTER ENGINEERING

- Computer Engineer Repair / Service Engineer
- Electronics Engineer
- Customer Engineer
- Hardware Design Engineer
- Technical Support Engineer
- Computer Systems Engineer
- Computer Service Engineer
- Customer Engineer

FINANCE AND

ADMINISTRATION

- Financial / Management Accountant
- Corporate Finance & Administration Manager
- Divisional Financial Controller
- Contracts Administration Manager
- Business Assurance Analyst
- Warehouse & Distribution Manager
- Corporate Logistics Manager
- Chief Accountant
- Payroll Manager
- Administration Officer
- Contracts Administrator
- Logistics Manager
- Facilities Manager
- Administration Manager

CONSULTING AND

CONTRACTING

- Principal Consultant
- Consultant Associate
- Corporate Professional Services Manager
- Professional Services Manager
- Senior Consultant
- Consultant
- IT Contractor

CUSTOMER CONTACT

CENTRES

- Telesales Manager
- Teleseller (Inbound)
- Telesales Representative
- Telephone Support Specialist
- Telemarketing Administrator
- Teleseller (Canvasser)
- Customer Support Manager
- Call Dispatch Operator

IT HELP DESK

- Customer Support Manager
- Telephone Support Specialist
- Senior Telephone Support Specialist
- Trainee Support Specialist

INTERNET AND E-

COMMERCE CAREERS

- Web Programmer
- Web Architect

- Internet / Intranet Administrator
- E-Commerce Project Manager
- Web Designer
- Intranet Engineer
- Online Producer
- E-Commerce Architect
- E-Commerce Programmer
- Web Administrator

IT EDUCATOR

- Lecturer
- Education Manager
- Customer Education Manager
- Senior Customer Training Officer
- Training Consultant
- Training Officer
- Customer Training Officer
- Senior Training Officer

MULTIMEDIA

- Writer
- Web Programmer
- Copywriter
- Online Producer
- Multimedia Content Author
- Multimedia Graphic Designer
- Website Designer

NETWORK SUPPORT

CAREERS

- Network Manager
- Network Support Analyst
- Senior Network Support Analyst

PROJECT MANAGER

- Project Leader
- Project Manager
- Project Director

SALES AND MARKETING

- Sales Representatives
- Regional Sales Manager
- Channel Sales Manager
- Account Manager
- Marketing Analyst

- Marketing Manager
- Corporate Sales & Marketing Manager
- Marketing Communications Officer
- Communications Manager
- Public Relations Manager

SOFTWARE DEVELOPMENT

- Computer Systems Officer
- Application Programmer
- Software Engineer
- Design Technician / Specialist (R&D)
- Programmer
- Systems Programmer
- Analyst Programmer
- Senior Programmer

SYSTEMS ANALYSIS & DESIGN CAREERS

- Network Designer
- Systems Analyst
- Solutions Architect
- Senior Systems Engineer
- Senior Solutions Architect
- Systems Architect
- Principal Solutions Architect

SYSTEMS MANAGEMENT & ADMINISTRATION

- Data Communications Consultant
- Network Administrator
- LAN/WAN Administrator
- Database Administrator
- Network Support Analyst
- Systems Administrator
- Network Manager
- Network Engineer
- Systems Administration Analyst

OTHER AREAS

- Computer Scientist
- Information Systems Management
- Telecommunications
- Electronic Data Processing (EDP) Auditor

NWCET Information technology skill standards

The Northwest Center for Emerging Technology (NWCET) developed a list of IT skills standards based on eight career clusters. The following is the job titles in the eight career clusters, reproduced from Lopez-Bassols (2002, page 32-33).

Database administration and development:

- Data administrator
- Data analyst
- Data architect
- Data management associate
- Data modeler
- Data modelling specialist
- Database administration associate
- Database administrator
- Database analyst
- Database developer
- Database manager
- Database modeler
- Database security expert
- Decision Support Services (DSS)
- Knowledge architect
- Senior database administrator
- Systems analyst
- Tester

Digital media:

- 2D/3D artist
- Animator
- Audio/video engineer
- Designer
- Media specialist
- Media/instructional designer
- Multimedia author
- Multimedia authoring specialist
- Multimedia developer
- Multimedia specialist
- Producer
- Production assistant
- Programmer
- Streaming media specialist
- Virtual reality specialist
- Web designer
- Web producer
- Web specialist

Enterprise systems analysis and integration:

- Application integrator
- Business continuity analyst
- Cross-enterprise integrator
- Data systems designer

- Data systems manager
- Data warehouse designer
- E-business specialist
- Electronic transactions implementer
- Information systems architect
- Information systems planner
- Systems analyst
- Systems integrator

Network design and administration:

- Communications analyst
- Data communications analyst
- Information systems operator
- Information technology engineer
- Network administrator
- Network analyst
- Network architect
- Network engineer
- Network manager
- Network operations analyst
- Network security analyst
- Network specialist
- Network technician
- Network transport administrator
- PC support specialist
- PC network engineer
- Systems administrator
- Systems engineer
- Technical support specialist
- User support specialist

Programming/software engineering:

- Applications analyst
- Applications engineer
- Business analyst
- Computer engineer
- Data modeler
- Operating system designer/engineer
- Operating system programmer/analyst
- Programme manager
- Programmer/analyst
- Project lead
- Software applications specialist

- Software architect
- Software design engineer
- Software design engineer and tester
- Software development engineer
- Software QA specialist
- Software tester
- Systems analyst
- Systems administrator
- Test engineer
- Tester

Technical support:

- Analyst
- Call centre support representative
- Content manager
- Customer liaison
- Customer service representative
- Customer support professional
- Help desk specialist
- Help desk technician
- Senior systems analyst
- Systems analyst
- Technical account manager
- Technical support engineer

- Technical support representative
- Testing engineer

Technical writing:

- Desktop publisher
- Document specialist
- Editor
- Electronic publications specialist
- Electronic publisher
- Instructional designer
- Online publisher
- Technical communicator
- Technical editor
- Technical publications manager
- Technical writer

Web development and administration:

- Web administrator
- Web architect
- Web designer
- Web page developer
- Web site developer
- Web specialist
- Webmaster

US Bureau of Labor Statistics' Career Guide to Computer and Data Processing Services

The following is reproduced from the United States Department of Commerce Bureau of Labor Statistics' Careers Guide to Industries web site, <http://www.bls.gov/oco/cg/cgs033.htm#occupations>:

***Programmers** write, test, and maintain the detailed instructions, called programs or software, that computers must follow to perform their functions. These programs tell the computer what to do, such as which information to identify and access, how to process it, and what equipment to use. Programmers write these commands by breaking down each step into a logical series, converting specifications into a language the computer understands. While some still work with traditional programming languages like COBOL, object-oriented programming languages, such as C++ and Java, computer-aided software engineering (CASE) tools, and artificial intelligence shells now are being used to create and maintain programs. These languages and tools allow portions of code to be reused in programs that require similar routines. Many programmers also customize a package to clients' specific needs or create better packages.*

***Computer engineers** design, develop, test, and evaluate computer hardware and related equipment, software programs, and systems. Although programmers write and support programs in new languages, much of the design and development now is the responsibility of software engineers or software developers. **Software engineers** must possess strong programming skills, but are more concerned with developing algorithms and analyzing and solving programming problems than with actually writing code. These professionals develop many types of software, including operating systems software, network distribution*

software, and a variety of applications software. **Computer systems software engineers** coordinate the construction and maintenance of a company's computer systems, and plan their future growth. They develop software systems for control and automation in manufacturing, business, and other areas. They research, design, and test operating system software, compilers—software that converts programs for faster processing—and network distribution software. **Computer applications software engineers** analyze users' needs and design, create, and modify general computer applications software or specialized utility programs. They analyze user needs and develop software solutions. **Computer hardware engineers**, on the other hand, usually design, develop, and test computer hardware, such as computer chips, and supervise its manufacture and installation. One of the goals of computer hardware engineering is to design and produce computing devices that function efficiently and economically.

Professionals involved in analyzing and solving problems include **systems analysts**, who study business, scientific, or engineering data processing problems and design new flows of information. Computers need to be connected to each other and to a control server to allow communication among users, thus enhancing use of their computing power. Systems analysts tie together hardware and software to give an organization the maximum benefit from its investment in machines, personnel, and business processes. To do this, they may design entirely new systems or add a single new software application to harness more of the computer's power. They use data modeling, structured analysis, information engineering, and other methods. Systems analysts prepare charts for programmers to follow for proper coding and also perform cost-benefit analyses to help management evaluate the system. They ensure that the system performs to its specifications and test it thoroughly.

Database administrators determine ways to organize and store data and work with database management systems software. They set up computer databases and test and coordinate changes to them. Because they also may be responsible for design implementation and system security, database administrators often plan and coordinate security measures.

Computer and information scientists work as theorists, researchers, or inventors. They apply a higher level of theoretical expertise and innovation and develop solutions to complex problems relating to computer hardware and software.

Computer support specialists provide technical assistance, support, and advice to customers and users. This group of occupations includes workers with a variety of titles, such as **technical support specialists** and **help-desk technicians**. These troubleshooters interpret problems, and provide technical support for hardware, software, and systems. Support specialists may work either within a company or other organization or directly for a computer hardware and software vendor. They answer phone calls, analyze problems using automated diagnostic programs, and resolve recurrent difficulties encountered by users.

Other computer specialists include a wide range of related professionals who specialize in operation, analysis, education, application, or design for a particular piece of the system. Many are involved in the design, testing, and evaluation of network systems such as local area networks (LAN), wide area networks (WAN), Internet, and other data communications systems. Specialty occupations reflect an emphasis on client-server applications and end-user support; however, occupational titles shift rapidly to reflect new developments in technology.