

UC Davis Summer Abroad Internships, Sydney: Engineering Fields Availability

Please note: After you enroll you will be asked to identify your top two field choices, and you should include at least one field with good availability. Final internship selection is based on relevant experience and first choice placements are not guaranteed.

Fields with good availability:

- Architecture (not Urban Planning)
- Bioinformatics
- Business of Engineering
- Chemical Engineering
- Computer Engineering
- Computer Science
- Environmental Concerns
- Engineering Mechanics
- Environmental Engineering
- Healthcare Engineering (overlap w/ operations management/biomedical & industrial engineering)
- Industrial Engineering
- Manufacturing and Quality Assurance
- Mechanical Engineering
- Software Engineering
- Structural Engineering

Fields with limited availability:

- Bioengineering (within Academic Institute)
- Biomechanical Engineering (within Academic Institute)
- Construction Engineering
- Construction Engineering and Management
- Dynamic Systems and Controls (Electrical Engineering and Computer Science combined)
- Electrical Engineering
- Ergonomics and Human Factors Engineering
- Geo environmental Engineering
- Geotechnical Engineering
- Materials
- Robotics
- Systems and Engineering Management

Fields currently not available:

- Civil Engineering
- Cybersecurity for Critical Infrastructure
- Nuclear Engineering
- Petroleum Engineering
- Signal Processing
- Thermal and Fluid Sciences
- Unconventional Reservoirs
- Water Resources Engineering
- Wind Energy

Example Host Organisations

Australian Internships (AI) has a database of over 1,000 Host Organisations in the engineering industry. In 2014-2015, AI successfully arranged over 350 engineering internships Australia wide. Of which approximately 100 interns were successfully placed in Sydney.

Companies range from large multinational firms to small boutique engineering firms.

Some sample companies include:

| COMPANY NAME | PROFILE |
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| Centre for Neural Engineering - University of Melbourne | The Centre for Neural Engineering (CfNE) is an interdisciplinary centre, established to undertake research in neuroscience and neural diseases. The CfNE draws together leading neuroscientists, neurologists, psychiatrists, cell biologists, geneticists, electrophysicists, chemists, physicists and engineers from the University of Melbourne and partner institutions. |
| CIPS Australasia | The world's largest procurement and supply professional organisation • A global organisation, supporting corporates and SMEs in all sectors and locations • Promoting and developing standards, skills and abilities • Offering best practice tools and techniques • Leading edge thinking, for everyone in procurement and supply management • Recognised throughout the world as the voice of the procurement and supply management profession Our successes • Over 66,000 members in 150 countries • Marking over 54,000 exams each year • 8.7 million page views of the CIPS website each year • Our PR coverage exceeds £20 million Advertising Value Equivalent each year • Over 6,000 members a year attend our events including our annual conference attracting up to 1,000 guests • |
| Delta Group | The Delta Group is a trusted name in Australia's building industry. Construction companies, government organisations, councils, developers and a range of business partners have come to rely on the Delta Group's key services such as demolition, civil works, excavation, landscaping, asbestos removal, commercial and heavy bin hire and heavy equipment hire. Continued growth over the years has enabled Delta to expand the range of services and resources to meet all client project requirements, no matter how large or small. This ability to offer complete packages for all construction works has set a benchmark for the industry. With a commitment to quality, complete solutions and an exceptional safety record, Delta Group will continue to meet client needs and extend service standards. |
| Finisar | World's Largest Supplier of Optical Communication Components and Subsystems - Finisar Corporation is a global technology leader in optical communications components and subsystems. These products enable high-speed voice, video and data communications for networking, storage, wireless, and cable TV applications. Over the past two decades, Finisar has provided critical breakthroughs in optics technologies and has supplied system manufacturers with the production volumes needed to meet the exploding demand for network bandwidth and storage. Finisar's industry-leading optical products include transceivers/transponders, active cables, WSS ROADMs, optical instruments, and active and passive components. In 2008, Finisar merged with Optium Corporation, creating the world's largest supplier of optical communication components and subsystems. |

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| <p>GE</p> | <p>GE works on things that matter, having shaped our world with innovations for over 130 years. Today we're finding solutions in energy, health and home, transportation and finance. Building, powering, moving and curing Australia. Not just imagining. Doing. GE works. Our core businesses provide products and services that meet the world's biggest challenges. We are developing technology to make both traditional and renewable energy sources more sustainable, and providing healthcare diagnosis and treatment technology for an aging population with increased health issues.</p> |
| <p>JBS</p> | <p>JBS Australia is the largest meat processing company in Australia and a division of JBS, the largest animal protein processing company in the world, working in the areas of food, leather, products for pets, biodiesel, collagen, cans and cleaning products. At JBS Australia we believe in being the best we can be. Each day our team strives to uphold the company values of planning, determination, discipline, availability, sincerity and simplicity. Through a network of ten strategically located processing facilities and five feedlots stretched from Townsville in north Queensland to Devonport</p> |
| <p>Komatsu</p> | <p>Komatsu Australia is one of the leading distributors of mining, construction and forestry equipment in Australia and New Zealand, supplying and supporting products to such diverse sectors as: * Mining companies * Contract miners * Civil contractors * Local and state government authorities * Quarries * Forestry contractors * Plant hirers * Owner operators * Agricultural contractors * Farmers. Komatsu Australia has the largest company branch network in the Australian construction, mining and heavy equipment industry, with 25 branches and 35 service depots strategically located close to key mining and civil contracting industries in all states, operating as a single national network</p> |
| <p>NHP Electrical</p> | <p>When NHP was established in 1968, founder, Nigel Peck, was determined to create a 100 per cent Australian-owned company focused on providing the best service and highest level of quality products. Two elements have formed the heart of this company: Bringing the world to Australasia: NHP provides the very best the world can offer that supports our Australasian industrial conditions. Services and solutions: NHP offers a great deal more than boxed production - services and solutions are essential elements in the unique NHP mix. NHP commenced operations in 1968, and continues to grow from strength to strength...</p> |
| <p>Noja Power Switchgear Pty Ltd</p> | <p>NOJA Power Switchgear Pty Ltd specialises in the research and development, manufacture, marketing, sales and service of medium voltage pole mounted switchgear products. In particular we focus on medium voltage pole mounted switchgear that we supply to electricity utilities around the world. Our equipment is in service in more than 50 countries around the world including Brazil. This switchgear is manufactured on a serial production line We specialise in Medium Voltage Autoreclosers for both pole mounted and substation applications from 10kV to 27kV. Our OSM15 product is used in applications up to 15kV and our OSM27 product is used in applications from 15kV</p> |
| <p>Recipher Group</p> | <p>RECIPHER Group is one of the only nationwide technology services partner that focuses solely on the unique computing, networking, and application needs of Small and Medium businesses (SME). Through one of our local Partners in your area, you'll receive a customised solution for your IT network, including: • Computer and Network Consulting • Planning • Design • Procurement • Implementation • Maintenance • Management Technology Consulting Experts: National Reach with a Local Presence RECIPHER Group has served in an IT consulting capacity to thousands of organisations across the nation in practically every major industry. As a technology consulting company with a national reach we are able to negotiate better pricing from key suppliers, expand our expertise using our vast base of knowledge from others within our organisation, and stay abreast of the latest developments.</p> |
| <p>Transformers Manufacturing Company</p> | <p>TMC Australia was established in 1936 and is today recognized worldwide as a leading manufacturer of static induction equipment. Since 1968, the company has been owned and managed by Carlo Vaccari, who now intends to expand the technical and productive capabilities of TMC Spainto encompass the wide variety of induction equipment produced in Australia.</p> |

Sample Internship Tasks – Engineering

Note: Tasks will vary depending on student skills levels, educational background and company feedback

CHEMICAL ENGINEERING

- Assist the team with applying new technologies;
- Assessing options for plant expansion or reconfiguration by developing and testing process simulation models;
- Assist with designing plant and equipment configuration so that they can be readily adapted to suit the product range and the process technologies involved, taking environmental and economic aspects into account;
- Assist with designing, installing and commissioning new production plants, including monitoring developments and troubleshooting;
- Assist with developing new methods of safe nuclear energy production, including projects such as conceptual design, simulation and construction of test rigs, and detailed design and operations support.
- Assist with ensuring that potential safety issues related to the project operator, the environment, the process & the product are considered
- Assist with optimising production by analysing processes and compiling de-bottleneck studies;
- Undertaking small and intermediate-scale manufacturing and packaging activities in pharmaceutical product development for clinical trial purposes;
- Assist by working closely with process chemists and control engineers to ensure the process plant is set up to provide maximum output levels and efficient running of the production facility;

ELECTRICAL ENGINEERING

- Support with identifying customer requirements;
- Assist designing systems and products;
- Support reading design specifications and technical drawings;
- Researching suitable solutions and estimating costs and timescales;
- Assist making models and prototypes of products using three-dimensional design software;
- Liaising with others in the design team;
- Support the team liaising with clients and contractors;
- Attending meetings on site;
- Assist designing and conducting tests;
- Assist recording, analysing and interpreting test data;
- Assist proposing modifications and retesting products;
- Servicing and maintaining equipment;
- Assist preparing product documentation, writing reports and giving presentations;
- Assist monitoring a product in use to improve on future design.

ELECTRONIC ENGINEERING

- Assist discussing proposals with clients;
- Assist systematically improving the detailed design of a piece of electronic equipment;
- Assist with project planning and preparing budgets;
- Assist writing technical reports;
- Ensuring safety regulations are met;
- Following defined development processes;
- Keeping up to date with developments in technologies and regulations.
- Support testing theoretical designs;
- Support the team attending meetings with subcontractors;
- Support the team with creating user-friendly interfaces;
- Support writing specifications;
- Working with colleagues to design new systems, circuits and devices or develop existing technology;

ENVIRONMENTAL ENGINEERING

- Assess, sort, characterize, and pack known and unknown materials.
- Assist develop and present environmental compliance training or orientation sessions.
- Assist develop, implement, and manage plans and programs related to conservation and management of natural resources.
- Assist assess the existing or potential environmental impact of land use projects on air, water, and land.
- Assist design systems, processes, and equipment for control, management, and remediation of water, air, and soil quality.
- Assist in budget implementation, forecasts, and administration.
- Assist prepare, review, and update environmental investigation and recommendation reports.
- Assist the team develop site-specific health and safety protocols, such as spill contingency plans and methods for loading and transporting waste.
- Collaborate with environmental scientists, planners, hazardous waste technicians, engineers, and other specialists, and experts in law and business to address environmental problems.
- Develop proposed project objectives and targets, and report to management on progress in attaining them.
- Inspect industrial and municipal facilities and programs in order to evaluate operational effectiveness and ensure compliance with environmental regulations.
- Monitor progress of environmental improvement programs.
- Provide administrative support for projects by collecting data, providing project documentation, training staff, and performing other general administrative duties.
- Provide environmental engineering assistance in network analysis, regulatory analysis, and planning or reviewing database development.
- Provide technical-level support for environmental remediation and litigation projects, including remediation system design and determination of regulatory applicability.
- Support staff to advise industries and government agencies about environmental policies and standards.
- Support the team coordinate and manage environmental protection programs and projects, assigning and evaluating work.
- Support the team obtain, update, and maintain plans, permits, and standard operating procedures.
- Support with the preparation of hazardous waste manifests and land disposal restriction notifications.

INDUSTRIAL ENGINEERING

- Assist apply statistical methods and perform mathematical calculations to determine manufacturing processes, staff requirements, and production standards.
- Assist coordinate quality control objectives and activities to resolve production problems, maximize product reliability, and minimize cost.
- Assist confer with vendors, staff, and management personnel regarding purchases, procedures, product specifications, manufacturing capabilities, and project status.
- Assist draft and design layout of equipment, materials, and workspace to illustrate maximum efficiency, using drafting tools and computer.
- Assist review production schedules, engineering specifications, orders, and related information to obtain knowledge of manufacturing methods, procedures, and activities.
- Assist communicate with management and user personnel to develop production and design standards.
- Assist in financial planning and cost analysis.
- Assist create sampling procedures and designs.

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| Assist create sampling procedures and designs and assist design layout of equipment and workspace. |
| Assist design methods to ensure product quality. |
| Assist design production planning and control systems. |
| Assist determine most viable plant and factory locations. |
| Assist develop management control systems. |
| Assist develop most efficient ways to use people, machines, materials, information, and energy to make a product or service. |
| Assist estimate production costs. |
| Assist evaluate accuracy of production and testing equipment. |
| Assist evaluate effects of product design changes. |
| Assist help companies increase productivity. |
| MANUFACTURING ENGINEERING |
| Assist designing new systems and processes for the introduction of new products or for the improvement of existing ones; |
| Working with other engineers, such as chemical engineers, mechanical engineers, electrical engineers, to ensure all product and system requirements are taken into account from the initial product conception to the finished result; |
| Working with other professionals, such as accountants and human resources personnel, to manage budgets and the recruitment of junior engineers; |
| Assist with the examining and tendering for new equipment to ensure the highest quality at the best price; |
| Assist with the organising plant start-up and shut-down schedules to ensure minimum loss of production time and profits; |
| Assist with research and to ensure the company is at the forefront of ground-breaking research; |
| Keep up to date with current and developing trends in the manufacturing industry, at a national and international level; |
| Assist evaluates manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. |
| Assist develop manufacturing processes by studying product requirements; researching, designing, modifying, and testing manufacturing methods and equipment; conferring with equipment vendors. |
| Assist improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. |
| Assist assure product and process quality by designing testing methods; testing finished- product and process capabilities; establishing standards; confirming manufacturing processes. |
| Assist provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. |
| Assist provide product and process reports by collecting, analysing, and summarizing information and trends. |
| Assist provide manufacturing engineering information by answering questions and requests. |
| Contributes to team effort by accomplishing related results as needed. |
| MECHANICAL ENGINEERING |
| Assist with designing and implementing cost-effective equipment modifications to help improve safety, reliability and throughput; |
| Assist with developing a project specification with colleagues, often including those from other engineering disciplines; |
| Assist developing, testing and evaluating theoretical designs; |
| Support discussing and solving complex problems with manufacturing departments, sub-contractors, suppliers and customers; |
| Assist make sure a product can be made again reliably and will perform consistently in specified operating environments; |
| Support manage projects using engineering principles and techniques; |
| Assist with the planning and designing new production processes; |
| Producing details of specifications and outline designs; |
| Support with recommending modifications following prototype test results; |
| Using research, analytical, conceptual and planning skills, particularly mathematical modelling and computer-aided design; |
| Support with considering the implications of issues such as cost, safety and time constraints; |
| Working with other professionals, within and outside the engineering sector; |
| Monitoring and commissioning plant and systems. |
| TELECOMMUNICATION ENGINEERING |
| Assist with carrying out site surveys; |
| Support the team travelling to meet suppliers, customers and colleagues based in other offices; |
| Assist with negotiating product requirements with customers; |
| Assist providing technical guidance to colleagues and other teams; |
| Assist finding creative solutions to the challenges of network design, mobile communications, data service requirements, and internet and network signalling protocols; |
| Assist testing theoretical designs; |
| Assist the team liaising with internal and external customers; |
| Assist analysing and interpreting data to inform your work; |
| Working to tight timescales as part of a high-performing team; |
| Assist arranging process meetings; |
| Support the team rewriting/modifying processes to ensure all aspects of the service run smoothly and to schedule. |
| Assist the team managing projects and attending regular meetings to discuss the best way to move projects forward; |
| Assist the manager managing resources, including budgets, physical resources and staff; |
| Assist with preparing high-quality written reports and presentations for management and customer review; |