THIRD YEAR INTERNSHIP PROGRAM

What is the calibre of the students?

All students entering Software Engineering have a TAR score of 60 per cent or higher. They are bright, technically astute and highly motivated young people eager to test themselves in the workplace.

What skills do they offer?

By the time they reach their third year, the students have spent two years in full-time study, gaining a strong skill base in software engineering and computer science. In particular, they will have knowledge of:

- Java, C, C++, SQL, assembler;
- OMT modelling and databases;
- web development;
- program analysis and design; and
- data structures and algorithms.

They will also have experience of project work in teams and will have studied electives that may include graphics, user interfaces, networking and object programming.

What sort of work are they equipped for?

Some of the roles students have filled in an organisation are:

- software developer;
- web developer and manager;
- programmer; or
- telecommunications programmer.

Is there an academic program during the internship year?

Students are required to complete a number of academic assignments specific to their workplace. They will be asked to identify and report on how particular software engineering practices such as design, testing, documentation etc. are done and show how this relates to the theory they have learnt about these practices at university.

What are the advantages to the employer?

- The students are eager and technically excellent;
- They are available as a regular full-time employee for a year (40 – 75 weeks);
- The salary is affordable (negotiated between $25k – $45k in 2000);
- It will give you the flexibility to handle bigger workloads, short-term contracts, or cover long-term absences of permanent staff; and
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FOURTH YEAR INDUSTRY PROJECT

What will be the experience of students working on fourth year projects?

All students available for undertaking a fourth year project will have completed between 40 – 75 week of internship in industry during their third year.

Can our company choose the student?

Companies can require that they meet and approve the group allocated to them within the final week. However, students choose their own group of four interns which is then allocated by the project leader. This is done to ensure that students are selected only after the feedback from the participating companies to ensure there is a good match of skills. It is likely that many companies will choose to retain their third year interns on the project teams and as in many cases this will be possible.

What sort of project would be suitable?

The project must involve the full Software Engineering cycle of activities:

- requirements elicitation, analysis and specification;
- architectural and detailed design;
- implementation;
- testing of the system developed; and
- evaluations.

In addition, the students are required to swap projects with another group for the final 25% of the year in order to gain experience with maintenance issues. This also provides an opportunity for the groups to review and evaluate their peers’ work – and make any improvements.

As the project is part of a course (CS394), the academic needs must take priority, which means the project must be self-contained and not part of a critical path-commitment.

It should also be noted that if students are working on a commercially sensitive project, they – and any RMIT staff involved – will be happy to sign a non-disclosure agreement.

How much time will the team spend on the project?

Twenty-four hours per week are allocated to course CS386, of which four are spent in the classroom. Students spend the remaining 20 hours working on their project, with 1.5 – 2 days available for on-site work. The project must involve the full software engineering cycle of activities.

What does it cost to take on a fourth year project team?

This is open to discussion. Companies willing to share intellectual property rights may pay nothing. Others may pay a fixed or variable fee on satisfactory completion of the project. The department is conscious that the cost must be realistic for companies; on the other hand it is important that students are dealt with fairly.

CASE STUDIES

The following are samples of work taken on by third and fourth year Software Engineering students.

THIRD YEAR INTERNSHIPS

 Aspect Computing was supporting a number of applications in C when it took on an intern in 2000. The intern had strong C skills and was able to take his part very quickly as a programmer, picking up problems, fixing them and documenting them. “He was very good and needed little supervision,” said John Kakouros, Project Manager at Aspect.

The Multimedia Database Systems (MDS) Group provided placements for four interns in 2000. Three were employed as programmers and one as a system administrator. The interns worked on a range of tasks including the redevelopment of a large web site and helping to build a document management system. “It’s been a very positive experience, we’ve been surprised at the level of initiative,” said Phil Anderson, Project Leader at MDS.

IBM Germany provided an exciting and supportive workplace for two interns in 2000. Based in Heidelberg, the interns worked on a range of projects, including e-business security and applications for secure business to business transactions...
FOURTH YEAR PROJECTS

Configurable Virtual Router
With the growth of packet switched networks there is a need for high-level management tools to enable the provision and maintenance of various services through the network. Because it is difficult to test such management tools on real network hardware and prohibitively expensive to duplicate the hardware, a team of fourth-year students will this year work with Ericsson to design and implement a simulator for various routers in a carrier network.

Biometric Solutions for Secure Remote Access
Authentic8 provides a service for secure remote access using smart cards on a PKI infrastructure. The company has taken on a fourth-year team to develop a system incorporating biometric data such as fingerprint identification and information from devices such as retina scanners.

Web Site Development
This project involves the development of Web sites for the Multimedia Database Systems Group. The initial site they will work on will support authoring in Word, workflow, an XML repository, dynamic delivery of content, personalization, discussion groups and other features.

Web Database
The Department of Computer Science has an industry database in Access format that lists all contact information and communications that have taken place with companies.

The existing database is unsatisfactory, mainly because it has limited search capabilities and information cannot easily be shared with departmental staff.

This project will develop a database with advanced search capabilities and reporting mechanisms, including the ability to convert Information into a mail merge format. It is expected that the new database will be a web version with different security levels.

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