

Project outline (max 1-2 pages) (See guidelines for detail)
A brief description of the aims and rationale for the project

31284 Web Services Development (WSD) is normally undertaken by students early in the second year of their undergraduate IT degree. Its prerequisites (48023 Programming Fundamentals and 31268 Web Systems) are exempted for students arriving from Insearch, from a variety of overseas pathway colleges, and often from TAFE and those who completed the first year of their undergraduate degree at another university. Therefore, students entering WSD, both from pathways and those continuing from first to second year, have an extremely wide variety of previous experiences with computer programming, and a diversity of educational backgrounds, and past access to educational opportunities.

Strategies for helping students from low socio-economic backgrounds (LSES) succeed include making expectations clear using accessible language, and scaffolding students' learning (Devlin, et al, 2012). Feedback from students enrolled in WSD suggest that upon their initial entry to the subject, students are not clear about the level of Java programming knowledge required to succeed, and some students have expressed that once the subject is underway, they are too engaged with trying to understand the concepts of WSD to go back and try to re-learn programming concepts that they may not have fully grasped when they completed their previous programming studies.

Therefore the aim of this project is to use the Orientation & Preparation weeks of the 2016 Academic Calendar to offer students from all backgrounds the opportunity to self-assess their current programming knowledge to identify gaps, and to offer transition support activities to bridge identified gaps. The transition support activities will take the form of several relatively small, self-paced learning modules where students can brush up their Java programming skills, with the opportunity to complete another self-assessment exercise at the end (as many times as they wish) and receive formative feedback. The self-assessment at the end will ask students to write a small program in Java to demonstrate their knowledge, which will be automatically marked using a system called PLATE that provides feedback on students' code.

These aims align with the LSES strategies mentioned in that the initial self-assessment will give students a clearer understanding of the subject's programming expectations, by giving specific examples of programming knowledge required. The transition support activities are designed to help scaffold students' learning. These activities will remain available throughout the session, so if students later identify knowledge gaps, they can still use the "scaffold" to help them step up. The plan is also to include some community-building activities around this introductory program, so students feel included and supported, and ultimately feel prepared for the WSD session ahead.

First Year Curriculum principles for Transition Pedagogy addressed by the project (tick the appropriate box(es) Select the 1-2 strongest principles that you are addressing.

- Transition
- Diversity
- Engagement
- Assessment
- Design (broader focus)
- Evaluation and Monitoring (broader focus)

Provide detail of how the selected principle(s) is (are) addressed in your project.

Transition – is addressed by asking students to self-assess their entering knowledge and skills against the expectations of the subject. It will be explicitly recognised that students entering WSD have a very diverse range of backgrounds in programming, and to explain that the transition support activities will be of particular benefit to students who have joined UTS via pathway programs or have come from other universities, but that the activities will be available to all students.

Diversity – is addressed by offering the self-learning activities around a series of small modules. Students entering WSD via alternate pathways will be confident with certain programming concepts, and uncertain of others. Rather than trying to adopt a one-size-fits-all approach, the purpose of having an initial self-assessment exercise is for students to identify where they are strong and where they need further support, and to offer transition support in modules that students can pick and choose according to their individual needs.

Other University/Faculty/Course/Subject priorities addressed (optional)

The planned approach utilises the new Orientation & Preparation Weeks of the 2016 Academic Calendar, and may incorporate some Open Educational Resources (OER) as part of the learning modules, aligned with learning.futures approaches.

Key project activities and timeline, including appropriate activities that engage the overall teaching team (if applicable)

Jan-Mar 2016:

- Creation of initial self-assessment quiz on UTSONline, with feedback provided to students on their knowledge gaps.
- Collation of resources (e.g. OER) to help students learn small, manageable aspects of Java programming. Create UTS-specific resources only if required.
- Development of several (target is 4) self-assessment tasks using the PLATE system for automated testing (with feedback) of students' programming code.

Mar-Apr 2016:

- Pilot rollout of project to students in WSD in Autumn session, including some online community-building support to engage students who opt-in to the transition activities.

June-July 2016:

- Project evaluation through SurveyMonkey survey, focus groups and tutor interviews.
- Improvement of activities based on evaluation/feedback in time for Spring session.

Your evaluation strategy ie how you will know that the project has been successful, with particular focus on the transition pedagogies that you have chosen, and how will you collect information to improve the outcomes?

- In the initial self-assessment quiz, students will be invited to identify their educational background (Insearch, TAFE, other university, etc), and this can be mapped against their participation and achievement in the transition support activities. This aligns with the 'Diversity' principle of the transition pedagogy, and can help to identify possible new learning modules to introduce in future in areas of most need.
- A final anonymous project evaluation survey (using SurveyMonkey) and one or more focus groups will be used to evaluate the effectiveness of the different aspects of this project in helping students transition from their previous educational experiences in programming to entering WSD. This aligns with the 'Transition' pedagogical principle.
- Results of summative assessment tasks will be compared for those who completed the transition activities and those who didn't. Overall subject results and SFS can be compared with previous sessions.
- Tutors who have been involved in the subject for multiple sessions will be invited to provide feedback on whether the types of questions they receive from students in lab classes has changed after implementation of this project.

Project Budget (insert table or spreadsheet if appropriate) and budget justification (remember to add on-costs – approximately 17%) Salary rates:

<http://www.hru.uts.edu.au/conditions/pay/rates.html>

The budget for this project will be spent on salary costs for project assistance, as follows:

Activity	Amount
Development of self-assessment quiz using UTSONline, and searching and collation of appropriate OERs (with assistance of UTS Library) to use in constructing learning modules 12 hours * \$52.25 * 1.17	\$733.59
Development of transition learning and self-evaluation modules using PLATE (4 modules * 9 hours per module) 36 hours * \$52.25 * 1.17	\$2200.77
Managing and monitoring student engagement and community building (1.5 hours per week for 4 weeks) 6 hours * \$52.25 * 1.17	\$366.80
Project evaluation data collection, organising focus groups, and preparation of project report/presentation 6 hours * \$52.25 * 1.17	\$366.80
Total budget requested	\$3667.96

Note on salary rate: I have already discussed the project with a candidate research assistant, who completed his PhD at UTS and has tutored 31284 WSD for many years. He also tutors other programming subjects at UTS, so has a broad background that is ideally suited for this project. Thus the budget figures are based on the 'Other academic activity – PhD' rate, as the most suitable candidate has gained his PhD.

References

Devlin, M., Kift, S., Nelson, K., Smith, L. & McKay, J. (2012). *Effective teaching and support of students from low socioeconomic status backgrounds: Resources for Australian higher education*, Final Report, ALTC. Available from <www.lowses.edu.au>.