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Increasing support to increase engagement and achievement

Day 1 – Parallel III (17.00-17.30)

Producing engineers competent in the mathematical skills needed for the discipline continues to be a challenge. The benefits of the Southampton Solent University's widening participation agenda are the inclusion of students who might not otherwise participate in HE. The challenges of getting all students to the standards required by our IET-accredited BEng degree programme are considerable. In recent years pass rates on first year maths units have been lower than the University benchmark. Action has been taken to address this issue by iterative increase in support offered to students, as well as by detailed monitoring of engagement. The teaching and learning structure for maths consists of 1 hour lecture + 2 hours tutorial each week. During each tutorial session there is a quiz to provide the students with formative feedback. There are also problem sets, on which the students may work in groups if they prefer—thus providing opportunities for both group and active learning. Additional maths sessions are provided during personal tutor sessions, although these are not obligatory. Assessment has a classwork component in terms of phase tests, which cover one topic immediately after it has been taught, with the best 4 tests from 5 phase test scores contributing 40% of the unit mark. The end of year exam covers all topics and contributes 60% of the unit mark.

Engagement is monitored through attendance at lecture and tutorial sessions, and by participation in tutorial sessions on weekly quizzes, and attempts at homework. The correlation between engagement data and phase tests scores has been found to be $R^2 = 0.555$ or 0.353 for two different tutorial sections. One tutorial section consists of part-time students employed by local engineering companies released one day per week to attend units leading to an HNC, while the other group consists of full-time students. The difference in student populations is likely to explain the difference in correlation, although whether the part-time students are better at maths or just more motivated has not been determined. For all engagement criteria and attainment on phase tests, the part-time students scored much more highly than the full time students.

Engagement data is monitored across the engineering subjects, allowing identification of students with less than ideal engagement in maths or other units. Students are invited for interview during weeks 6 and 12, and tutors create a personal action plan for students with less than ideal engagement. Once the marking of the final phase test and end-of-year exam has been completed, it will become clear whether the additional face-to-face support offered during this academic year has improved the pass rate, and demonstrated that we are able to develop our students to the required level of mathematical ability.