



Social Issues in Computing – The Course

by C. C. Gotlieb and A. Borodin

In May, 1973, the book *Social Issues in Computing*, by C. C. Gotlieb and A. Borodin was published by the Academic Press. This book grew out of a one semester course which has now been taught for three years at the University of Toronto by the two authors. The first year in which we gave the course, it was offered to first-year students. It was popular, having about ten sections of some 30 students each. Although it was a success, we recognized that the students needed some more maturity, not about computer topics, but about social issues. So, during the next two years, we offered the course to third year students and extension students. For each of these sessions there were about 30 to 40 students participating. In every case, there were many students specializing in computer science, but an appreciable number, perhaps up to one quarter, were students from the humanities, social sciences, engineering, and other disciplines.

As a prerequisite for the course, we have insisted on an introductory course in computer science, because we wanted the students to be able to write some programs. We are not convinced that the latter requirement is strictly necessary for the course.

From the start, we were determined that this course would not be a soft option for those in computer science. Therefore, we coupled the lectures, with many exercises and supplementary requirements. Usually the first project was that the students design a survey on attitudes toward computing, then conduct the survey, punch the results, and prepare tabulations of the results. We also required that they formulate hypotheses about the significance of the results. For example, whether first-year students differed from third-year students, or male students from female students in their attitudes. Besides the survey, students had to write some programs usually involving traffic simulations in connection with sections of the course on modeling. In addition, there was one exercise to be carried out on one of the computer assisted instruction courses. This involved preparing a critique of CAI and a comparison of CAI with other teaching modalities within their experience. During the past year, the students have participated in Delphi exercises. Finally, we asked the students, working in small groups, to prepare a research report on a topic of special interest to them, perhaps one in which they had some experience.

The net effect of these requirements was to have a course that was considered demanding by many students, and even too demanding by a few. This was particularly true for those students who had a very high technical orientation. While there was criticism of the course, this was more than balanced

by the enthusiastic response of many of the participants.

On the whole, I would say that motivation remains one of the most difficult problems. Although the course is not required, it is taken by a good many people who are technically oriented and who are advised to take some subjects outside of their specialty. They take this one because it sounds like computer science, but they are not altogether sympathetic to the concepts and work that are integral to the course.

About half of our computer science specialists take this course, and it is not likely that the fraction will go up. However, we are more anxious to attract people from other disciplines into it. This group, in fact, is the key to what we think should happen to the course. We believe that in its further development, and it has changed in each of the three years we have offered it, it ought to be given in conjunction with some of the social sciences. We have explored this with economists, political scientists, and philosophers, and there is considerable interest in giving the course in cooperation with them. Others in our department are presenting the course in coming semesters. Each person who comes to the course does so with his own ideas and we see a development of different emphasis emerging during the coming years. There is no doubt in our minds that the course ought to be embedded in a larger program, perhaps in the context of science and technology. But, we continued to be convinced that a computing science department is a good starting place for the subject.

For both of us, it has been a very satisfying course to develop and to teach, but we feel that there is still considerable room for further development.

Technology Assessment and Social Choice: A Course

by Devendra P. Garg

A year ago Duke University instituted a joint program in engineering and the policy sciences with a grant awarded by the Sloan Foundation. The program was set up under the aegis of the School of Engineering, and the Institute of Policy Sciences and Public Affairs at Duke with a view to improve engineering education as well as the quality of public policy-making. It was felt that engineering education should include, in addition to providing a rigorous training in engineering skills, development of capabilities for exploring the impact of engineering activities on the economy, land, politics, culture, and people affected. The social science and humanistic perspectives can help the engineering students to become aware of the value choices they make in their engineering tasks.