

Abstract:

This paper describes a senior level course in concurrent programming using Ada. Unlike other similar courses in the subject area, it is not part of an operating systems course, nor is it tied to a particular hardware architecture. The course is software oriented and it discusses in depth a concurrent programming language, Ada, so that students are able to actually develop effective concurrent programs to solve problems in a wide range of applications. Ada is selected because of its popularity, superb portability, numerous hardware platforms, and rich concurrent constructs. Classical issues in concurrent programming are presented in the context of Ada. General issues in designing concurrent programming languages are elaborated using Ada, together with other concurrent programming languages such as CSP, Occam, and Linda. Finally, general principles of designing parallel programs are also discussed. Therefore, the course provides both the depth in a concurrent programming language for program development and the breadth in concurrent programming theory for insight. Using Ada throughout the course strengthens student's expertise in Ada and provides an useful reference point for understanding concurrent programming theory. The course is heavily based on handouts, examples, homework and programming assignments. A rich set of instructional materials are available from the author.

Citation:

Yue, K., An Undergraduate Course In Concurrent Programming Using Ada. SIGCSE Bulletin, vol. 26, No. 4, pp59-62, December 1994.