Project Title: Strengthening Engineering Education in Concurrent and Parallel Programming

Project Summary *(150 words maximum)*
The multi-core and cloud-based computing platforms recently adopted by the computing industry have to be programmed such that multiple streams of computation execute concurrently. This shift is significant because it is challenging to reason about concurrency and, therefore, it is difficult to ensure the correctness and efficiency of concurrent software. Whereas some concurrency aspects can be hidden from programmers by support tools, effective use of these platforms requires that we train engineers to: first, understand and reason about concurrency from their early education in computing, and second, to understand the limitations and make informed decisions on the use of existing tools. Currently, our introductory computer engineering courses only emphasize sequential programming. We aim to change this emphasis by redesigning core courses in the second, third and fourth years of the curriculum (with a total registration of over 270 students) to emphasize concurrent and parallel computation.