1023-D1-172   **Yana Kortsarts*** (`ykortsarts@mail.widener.edu`), Widener University, Computer Science Department, One University Place, Chester, PA 19013. *A Real-World Scheduling Problem in the Undergraduate Algorithms Course.* Preliminary report.

In the shifts assignment problem a collection of shifts (consecutive intervals of positive integers) and a set of positive load requirements over the hours of a day are given. A solution either assigns integer quantities to shifts so that the load requirements are exactly met throughout the day or reports that there is no feasible solution. The shifts assignment problem is a very simple yet crucial in practice problem. It can be posed as integer linear programming over a 0, 1 matrix so that the 1 are consecutive in columns. The problem admits a simple and basic solution via a reduction to the maximum flow problem. The reduction to the max-flow problem is elementary yet not apparent on first viewing. We present a way to integrate teaching this realworld scheduling problem in the basic algorithms course. Such a problem provides for students an illustrative example of the importance and usefulness of the graph theory, flow algorithms, integer linear programming, and more generally linear algebra in real-world applications. Finally, we note that the presented problem is drawn from the recent research. (Received August 17, 2006)