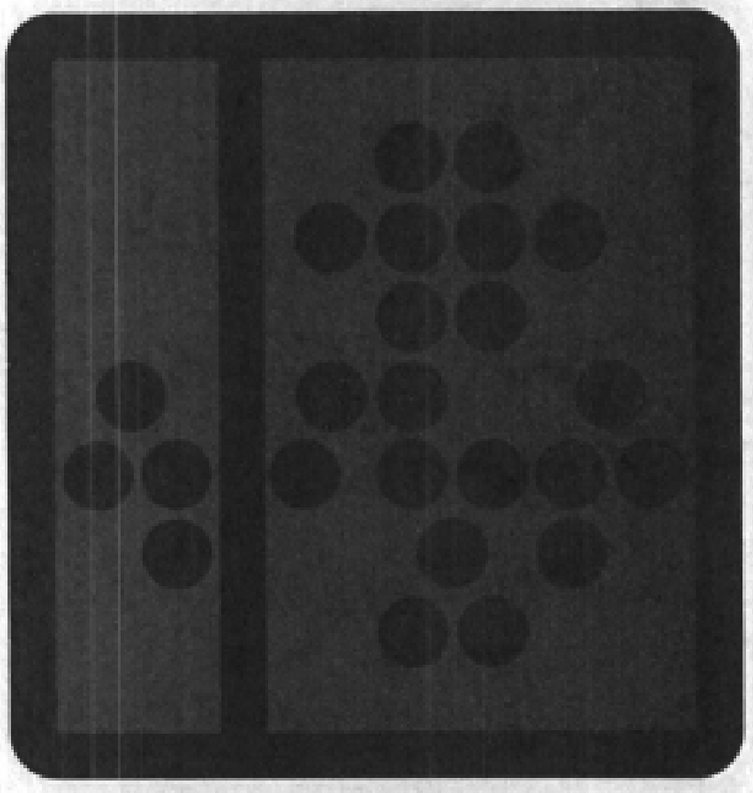
1986-02
Spring 1986

SOUTHERN METHODIST UNIV

Network Optimization for the Assignment of SEAS Courses

Ronny Ortiz
Eva Sanchez

NETWORK OPTIMIZATION FOR THE
ASSIGNMENT OF SEAS COURSES



DEPARTMENT OF OPERATIONS RESEARCH AND ENGINEERING MANAGEMENT
SCHOOL OF ENGINEERING AND APPLIED SCIENCE
DALLAS, TEXAS 75275

NETWORK OPTIMIZATION FOR THE ASSIGNMENT OF SEAS COURSES

PREPARED FOR DR. BARR
OREM 4390
May 10, 1986

Submitted by:
Ronny Ortiz
Eva Sanchez

MANAGEMENT SUMMARY

Our project entailed a network modelling and optimization problem that assigned courses to classrooms, based on the following criteria:

1. Size
2. Time
3. Professor Preference

Using a course data file and a classroom data file, we wrote a program to generate a network of nodes and arcs. This network was used as input for Dr. Barr's modified "optnet" (optimization network) program which determined the assignments of courses to classrooms. The assignments were made to minimize costs based on professor preferences. We assigned a cost of $1 for a professors first choice and a cost of $7 for the second choice, which we had to assume. Courses taught by "Staff" were assigned higher costs. See Figure 1.

Professor	1st Choice	2nd Choice
x	$1	$7
Staff	$3	$8

- Figure 1-

*Note: The difference in costs between choices was made in an effort to avoid the possibility of a professor having to teach two different courses at the same time.

When Dr. Barr's "EZNET2" ran with the network generated from our program. We found the optimal solution to be 33 first choice and 4 second choice assignments. One course was sent to central scheduling because ~~thay~~ it could not be assigned. The minimum cost was $179, and the actual network consisted of 169 nodes and 551 arcs. The assignments made in the solution were very similar to those previously made by Chris Schmaling, and we accomplished our goals of assigning the maximum number of first choices while minimizing the time spent in the entire assignment process.