ΟΙΚΟΝΟΜΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ
ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS

ΣΧΟΛΗ ΕΠΙΣΤΗΜΩΝ & ΤΕΧΝΟΛΟΓΙΑΣ ΤΗΣ ΠΛΗΡΟΦΟΡΙΑΣ
SCHOOL OF INFORMATION SCIENCES & TECHNOLOGY
ΤΜΗΜΑ ΠΛΗΡΟΦΟΡΙΚΗΣ
DEPARTMENT OF INFORMATICS

Ειδικά Θέματα Αλγορίθμων

Ασκήσεις Φροντιστηρίου #11

LP-based and Randomized Algorithms

1. Give the IPs for the **Facility Location** problem and for the **Minimum Spanning Tree** problem.

2. Give the LP, for the following problem and find an approximation algorithm based on this LP.
TRIANGLE DELETION: Given an edge-weighted directed graph (V, E), find a set $S \subseteq E$ of minimum cost, such that the graph $(V, E \setminus S)$ is triangle-free.

3. Derandomize the Max-Cut algorithm using condtional expectations.