

T-106.530 Embedded Systems Exam-12.05.2004

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INSTRUCTIONS:

- Read the **entire** exam before starting
- Stay in the scope of the question
- Answer all questions in any way possible.
- Justifications and explanations are considered
- The total point value of the exam is 110. You need 100 points to score 100%

BACKGROUND INFORMATION FOR THE QUESTIONS:

(Referred to as 'the system' or '<Exam Problem> system' in later mentions)

Known facts:

- East-West (EW) road has heavy traffic and needs to flow as well as possible
- North-South (NS) road has less traffic
- NS road has car sensors to indicate when there is a vehicle waiting
 - SensorN for north
 - SensorS for south
- Pedestrians have request buttons to indicate they wish to cross
 - The request buttons are one per road
 - RequestNS to cross NS road
 - RequestEW to cross EW road
 - The lights are always on and operating
 - The lights are only based on demand, there is no schedule

Goals:

- Safe flow of people and vehicles
- Maximum throughput
- Minimum cost to create

