

Milwaukee School of Engineering

Electrical Engineering and Computer Science Department

SE-3821 – Midterm Examination

Friday 8 October 2004

Closed book and laptop.

One, single-sided 8 ½"×11" sheet of notes may be used.

No sharing of materials.

Some problems have multiple parts. Ensure that you have all parts, which will sum to the point values shown below.

Name: _____

Problem 1: (10 points) _____

Problem 2: (30 points) _____

Problem 3: (25 points) _____

Problem 4: (20 points) _____

Problem 5: (15 points) _____

Total: (100 points) _____

[Extra work space]

Throughout the exam, consider the example of some national government's sponsored development effort to create a system to manage and integrate several aspects of primary education records (parent contact information, standardized test results, notification of grades, scheduling of parent/teacher conferences, attendance, scheduling of rooms and teachers/students at levels of detail corresponding to grade, etc.). In the U.S., this would be for K-8 (kindergarten through eighth grade). Since the actual client is not available during this exam, you have some license to make assumptions, as long as any key assumptions are clearly identified in your work.

It is recommended that you read through the entire exam and make some brief notes as to how you plan to address each question since your answers on earlier questions will affect how you must respond to the later questions.

1. (10 points) Requirements process and lifecycle role

Before beginning the blastoff process, what are some of the pieces of information that should be available? Be specific, **naming** and briefly **describing two** (or more) types of items. Think in terms of the **general** background one should have when entering the blastoff process for any project.

1. (5 points)

2. (5 points)

2. (30 points) *Project blastoff*

- A. (5 points) **List** a purpose/goal of the project, being sure to **include** its **business advantage** and a brief overview of a **way to measure it**.
- B. (20 points) **Draw** a system context diagram with at least **four** adjacent systems, and at least one each of the types cooperative, autonomous, and active. **Label** each adjacent system according to its type. Be sure to **include** the key data flow (or two or three if there are several) for each system.
- C. (5 points) **Discuss** a potential **advantage and** a potential **drawback** of extending the core work context that you identified above to include one of your cooperative, or, perhaps, autonomous systems.

3. (25 points) Event-driven use cases

A. (5 points) **Identify** a business event that would trigger one of the flows in your context diagram.

B. (15 points) **List** the steps for the **normal flow** of a use case that would be triggered by the business event. The use case should accomplish a “**meaningful**” chunk of work as discussed during lecture and should interact with at least two adjacent systems.

C. (5 points) **Identify** one **exception flow** and briefly discuss how it would be handled.

4. (20 points) Functional requirements

A. (6 points) **List three** key attributes of a good functional requirement

B. (14 points) **Write** one functional requirement for one of your use cases steps (normal or exception) from question 3. Briefly **discuss** how it meets each of the attributes of a good functional requirement that you listed above.

5. (15 points) Non-functional requirements

Write a non-functional requirement in both of the following categories:

a. (8 points) Operational

b. (7 points) Legal