



## Politecnico di Milano

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### Workgroup and Workflow Management Systems - Written Test of Jan 26<sup>th</sup>, 2009

Family name \_\_\_\_\_ First name \_\_\_\_\_ Politecnico ID # \_\_\_\_\_

Master Course in \_\_\_\_\_

*Please, fill in this sheet carefully.* All answers must be provided on this sheet, which must be returned at the end of the test. No additional sheet will be considered<sup>1</sup>.

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**Rules.** The examination is passed if the student obtains at least 13 points out of a total of 25 points available for this test, and the grand total of obtained points, including those obtained with a presentation or a project, is greater than or equal to 18. Use of books, handbooks, lecture notes is not permitted: only the sheets provided by the teacher can be used. All the questions must be answered, at least partially: tests in which even one question has not been answered will not be evaluated. Duration of the test: 2 hours.

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### Exercises

(1) List and describe the minimum requirements and the recommended requirements two different WfMSs must own in order to effectively interoperate according to a peer-to-peer style, with respect to the adopted DBMS, to the process definition language, and to the exception manager.

space reserved to your answer

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<sup>1</sup>**Remark.** Complete specifications whenever needed. Clarity and order will be taken into account for the evaluation.

(2) In large international IT projects, partners are required to produce large interoperable software modules, which interact to execute specific functions. Projects are coordinated by an executive board (*EB*); every module is owned by a single partner, which assigns to it an internal technical leader (*TL*) responsible for the design, the implementation and the maintenance of the module.

The partners of the *AwesomeStuff* project want to formalize a process for the specification and implementation of new functions within their software platform. The process is defined as follows: the *EB* is the only entity that can address a new request for the implementation of an additional feature. When such a request is performed, an e-mail message is sent to all the technical leaders of the involved components for evaluation. Every *TL* has to evaluate the request and reply within 3 days by a feasibility report, indicating whether the new feature can be addressed by the component and the minimum amount of time required for its implementation. Each technical leader that does not reply within the given deadline is gently notified by a reminding email message, giving him/her 4 more days. If, at the end, the *TL* does not answer yet, the feature is classified as “not feasible” and therefore withdrawn.

If, instead, all the answers are returned within the given deadline, the *EB* evaluates the feasibility reports: for a feature to be implemented, all the technical leaders must agree on a positive evaluation about its feasibility. If at least one report returns a negative evaluation, the *EB* can either withdraw the request or repeat the process from scratch. When a general agreement is achieved, the *EB* sends to all the involved *TLs* another email message to start the implementation and to set up a deadline for its completion; when the deadline expires, for every component resulting as “not completed yet” an e-mail message is sent to the managing *TL*. A *TL* can therefore request additional time to complete the modules, or declare him/herself unable to deliver the updated component. In the former case, the *EB* stays waiting for the delivery of the module, and, if the component still is late, he/she notifies the *TL* once again. If instead, the *TL* is unable to complete the component, the requested component is withdrawn and the process terminates. The process can be considered concluded only when all the involved components are marked as implemented or withdrawn.

Provide a reasonable schema of the outlined process (process model), according to one of the following modelling formalisms: *WIDE* model, *Workflow Management Coalition* model.

(3) With respect to the process described in Exercise 2, provide according to the Chimera-Exception language the definition of an exception to manage an immediate cancelation of the entire process due to lack of funding resources.

space reserved to your answer - exercise 3

space reserved to your answer - exercise 2

(4) Provide a simple example of an activity best managed by a Workgroup System and a simple example of an activity best managed by a Workflow Management System.

space reserved to your answer

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This part for use by the teacher, only.

Ex. 1	Ex. 2	Ex. 3	Ex. 4	Total

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