**USN, Kongsberg Campus**

**Embedded Systems with UML**

**ES-UML4100**

**Autumn 2018**

Week 4: September 3rd and 4th 2018

Lectures

Lectures for 3rd and 4th September are based on UML documentation <http://www.uml.org/> , peer reviewed UML publications and Chapter 5 from the text book (which could be read in advance, i.e. prior to the lectures, but it is not compulsory).

PART I

The first set of lectures focuses on use cases and their role in modelling of systems Selection of topics:

* The purpose, notation and role of USE CASES
* Actors and multiple/shared use cases
* Relationships between use cases: Stereotyped dependencies for modelling commonalities and exceptions
* Generalization in use case models
* USE CASE descriptions
* Extracting abstractions and using semantics stored in USE CASES
* Functional and non-functional requirements modelled with use cases

Upon the completion of this first set of lectures, students should be able to model functionality of “a system” through use case modelling and understand what the purpose of use case diagrams in system(s) development are.

PART II

We will work on a research paper and answer questions related to the paper’s content. The papers are listed in the PPT slides from the lecture Please check these links and let me know if you can retrieve them. Some of them might not work outside out USN network environments.

Published Papers

*How UML is Used*

by Dobing, B., and Parsons, J. (2006) in CACM, Vol 49, No 5, Available at <http://dl.acm.org/citation.cfm?id=1125949&CFID=620802304&CFTOKEN=97674554>

*UML in Practice*

by Petre, M. In the proceedings of the 35th Intern. Conf. on Software Engineering (ICSE 2013), pp. 722–731.

Available at <http://www.pragmadev.com/downloads/UmlInPractice.pdf>

*Evaluation of UML-Real Time Profiles for Industrial Control Systems*, by Latif, K., Rauf, A., Ur Rahman, M.A.B., Nadeem, A. (2010) in Proceedings of the 2010 International Conference on Information and Emerging Technologies (ICIET), available at [http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=5625673&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxpls%2Fabs\_all.jsp%3Farnumber%3D5625673](http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=5625673&url=http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=5625673)

*Basic Rules to Build correct UML Diagrams*

by ALMAZI, M.N (2009) in Proceedings of the 2009 International conference on Trends in Information and Service Science

Available at [http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=5260494&searchWithin%3DUML%26sortType%3Dasc\_p\_Sequence%26filter%3DAND%28p\_IS\_Number%3A5260409%29](http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=5260494&searchWithin=UML&sortType=asc_p_Sequence&filter=AND(p_IS_Number:5260409))