

Thesis Topic	Colored Petri Net Patterns for Dependability Modeling in Cyber-Physical Systems
Motivation	Cyber-physical systems are embedded computing systems tightly integrated with human beings and the environment by appropriate sensors and actuators. The complexity and criticality of cyber-physical systems are constantly increasing; hence, the model-based holistic evaluation of system reliability, maintainability, safety and security has become of paramount importance.
Tasks	The thesis will address usage of the modeling formalism of Petri Nets and its extensions (Colored, Stochastic, etc.) for the evaluation of dependability attributes and properties of cyber-physical systems, with the objective of achieving a good trade-off between expressive power and scalability to large and heterogeneous systems. <u>The student will be required to study, design and evaluate generic Petri Net models for diverse dependability applications of industrial relevance.</u>
Prerequisites *	Recommended courses, although not mandatory: - 4DV608 Advanced Software Design - 1DV200/1DV700 Computer Security Minimum grade average: C
We offer you	<ul style="list-style-type: none"> • <u>Preliminary meeting to clarify objectives and requirements.</u> • Support and study materials (slides, lecture notes, technical books, research papers, etc.) on dependable systems and Petri Nets. • TimeNet modeling tool.
Time frame	-
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* All the course codes, like e.g. 1DV101, refer to courses here at DFM. Similar documented experience from other places will do just as well.