

## Meta-concepts and unified system design flow ("meta-flow"): introductory course

Prof. Francky Catthoor

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Facultad de Informática - Sala de Grados

miércoles	27 de octubre de 2021	- 16:00
jueves	28 de octubre de 2021	- 16:00
jueves	4 de noviembre de 2021	- 16:00
viernes	5 de noviembre de 2021	- 16:00
miércoles	10 de noviembre de 2021	- 17:00
jueves	11 de noviembre de 2021	- 16:00
miércoles	17 de noviembre de 2021	- 16:00
jueves	18 de noviembre de 2021	- 16:00

### Resumen:

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Traditionally, the gap between system design specifications and RT-level architecture realisations is very broad. Architecture hardware synthesis and software compilation from C are bridging only part of this gap from higher levels specified in SDL, OMT, Concurrent C++... In the last decades, many initiatives have been started up to bridge the remainder of this gap. It should be realized however that on the software side of the problem, i.e. mapping concurrent task descriptions onto (multi-processors) architectures and parallel compilation, many groups have been working for a long time already on higher abstraction level issues. The relation between the software and hardware side of the problem has however been left out or ignored. In this course, an attempt will be made to bring structure in this entire domain by proposing a meta flow from which the other "real" design flows can be derived. The full meta flow is as such unrealizable in a practical design methodology because it would require too much effort, but it allows to identify links between existing flows, links to related literature, identification of "holes" which have been ignored, and also to have a common terminology amongst people working in different communities. Moreover, several related meta-concepts such as the (meta) design-/run-time Pareto approach, "scenario's" and the underlying "orthogonalisation/factorisation" approach will be explained and illustrated.

### Sobre Francky Catthoor:

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I am currently a research fellow at IMEC, Heverlee, Belgium. Since 1983, I have been lecturer for different courses at the Electrical Engineering Department of K.U. Leuven. I have been co-advisor of more than 100 PhD students. Since 1987, I have headed research domains in the area of architectural and system-level synthesis methodologies at IMEC. At 2011 I became *chief scientist* in the Design Technology for Integrated Information and Communication Systems Division. My current research activities belong to the field of architecture design methods and system-level exploration for power and memory footprint within real-time constraints, oriented towards data storage management, global data transfer optimization and concurrency exploitation. Platforms that contain both customizable/configurable architectures and (parallel) programmable instruction-set processors are targeted.