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**MUO-E3001 - Product Architecture Design, 16.04.2019-31.05.2019**

**Schedule of the course:**



**Teacher in charge:**

Professor Eero Miettinen (in addition Aalto University guest lecturers)

**Learning Outcomes:**

On successful completion of this course, students will be able to:

* Identify and respond to varying individual user and customer requirements with flexible and customizable product offerings that are feasible in industrial scale.
* Design and justify concepts for modular product systems and architectures, which generate variation on respects that are relevant, attractive and add value for customers.
* Design product architectures that are based on shared platforms, mass customization, modularity, and flexible manufacturing and logistics solutions, making them aware of and pay attention to the second life of products and design for the recycling of the components of modular products.
* Deliver a criteria meeting product / portfolio concept to an external partner.

**Content:**

* Individual and situation specific variation in customer requirements and design for experience.
* Product architectures, design for modularity, design for platforms, system design.
* Design for customization, personalization and self-customization.
* Mass customization, level of variation, cost structure, logistics and quality.
* Creating future scenarios and using Business Model Canvas.

**Assessment Methods and Criteria:**

Lectures, assignments, briefs and debriefs by discussion. Learning is summarized in a case studies where a student or a team design and present concepts for mass customized products or systems. Learning is rehearsed in practice in a company case - individually or in a team setting.

Evaluation will be based on team and independent assignments.

**Assignments:**

Students choose one of two available company cases in the beginning of the course.

First part (a group assignment till mid-term review): Analysis of the current product portfolio from Product Architecture Design perspective and suggestions for development/change.

* The type of product architectures used
* Type of modularity
* Effect of architecture on manufacturability/usability/experience/sustainability/maintenance/aesthetics
* Could the product portfolio be improved with different product architectures?
* How difficult/costly would it be to change the product architectures?
* Describe 2-4 areas for further development

Second part (group or individual work): Design of a new product concept in the chosen area of development. Work is based on the company brief given at the beginning of the course and guided through regular tutoring sessions. Results of the course work are after the course collected together and presented in a form of a booklet as a printout and in digital form.

**Grading Scale:** 0 – 5

**Credits:** 10