Product Development
STUDY PATH

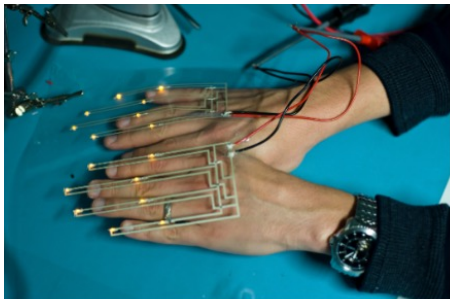
The product development advanced study path offers the students of mechanical engineering the opportunity to apply the knowledge gained from the focused engineering courses into the whole process of building products from an idea to a final prototype. Students can focus on product development to develop expertise in development processes and engineering innovation, or combine product development courses with other paths such as: mechatronics, production engineering, solid mechanics and marine technology, depending on their interest and focus.

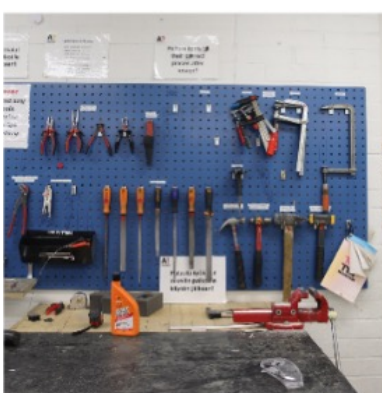
Students will learn the skills and methodologies that experts use during the complex process of delivering new product to the market. Product development follows an iterative process starting with a research or needfinding phase, ideation phase, prototyping phase, testing phase, while keeping the end-users at the center of the process, hence the name: user-centered design.

Product development courses are hosted at Aalto Design Factory (www.adf.fi), a co-creation platform that offers its students 24/7 access to materials and prototyping facilities from machining, 3D printing to electronics workshops and woodwork.

A great share of our graduates start their career in product development roles. **The Product Development Project course PdP** offers the best way to prepare for these activities, and a help to pave the way for finding your dream thesis topic in industry. However, we believe all engineers benefit from understanding development process and you are warmly welcome to take any of the course even if you do not intend to specialize in product development.



Product development advanced study courses include:

Code	Course Name	Type of course	ECTS	Periods
MEC-E3001	Product Development Project (PdP)	Project-based course with company sponsors	10-15	I-V
MEC-E3002	Methods in Early Product Development	Lectures & group presentations	5	I
MEC-E3005	Prototyping for Innovation	Lectures & workshops	5	III
MEC-E3006	Design Thinking and Creativity for Innovation	Online self-study course	1-3	any
MEC-E3999	Product Development Course with varying content V	Separately agreed individual work to extend PDP-course studies	1-10	any

In addition to the master's level MEC courses, students can find complementary content in the IDBM minor (International Design Business Management, www.idbm.aalto.fi/relevant) as well as the bachelor-level Aaltonaut course AAN-C2007 Product Sustainability. Additionally, multidisciplinary perspectives offered in online courses such as DesignBits or Starting up can broaden understanding of development.

MEC-E3001 Product Development Project (PdP)

Product Development Project (PdP) course is primarily aimed at students starting their first year Master studies. The course follows a project-based learning methodology. The challenges are given and sponsored by industry partners, who are searching for innovative cooperation with the next generation of product developers. At the start, a lot of attention is directed to the forming of global interdisciplinary teams. A project typically includes phases of understanding the challenge, planning, research, concepts generation, prototyping and testing. The project concludes with the Product Design Gala where the teams present their final functional prototypes of a tangible product or service solution for their industry challenge.

For more info: www.pdp.fi

You can find all up-to-date course descriptions and teaching times in MyCourses.

Any questions?

Don't hesitate to get in touch with the two professors in product development!

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Example
STUDY PATHS

To help you plan your studies, we've developed three example study paths that fulfill the degree requirements and keep the recommended pace of 60 credits per year. However, product development ties to multiple topics taught across Aalto so remember to follow your interests in building a study path that makes sense for you.

Degree structure

Common studies	31cr
Advanced studies	30cr
Electives	29cr
Master's thesis	30cr

Example 1:
Focus on product development and engineering innovation

Year 1					Year 2				
P1	**P2**	**P3**	**P4**	**P5**	**P1**	**P2**	**P3**	**P4**	**P5**
MEC-E1001 Mechanical Engineering in Society 5cr + LC-0400 Communication 1cr							Master's thesis 30cr		
MEC-E3002 Methods in Early Product Development 5cr		MEC-E3005 Prototyping for Innovation 5cr				MEC-E3006 Design Thinking and Creativity for Innovation 3cr (online self study)			
MEC-E3001 Product Development Project (PdP) 12-15cr					MEC-E1060 Machine Design 5cr*				
MEC-E1080 Production Engineering 5cr*		MEC-E7002 Manufacturing Methods I 5cr* + MEC-E7003 Manufacturing Methods II 5cr* or MEC-E9020 Patentit 3cr*			MEC-E1003 Machine Design Project 5cr*				
MEC-E1070 Selection of engineering materials 5cr*	Electives 10cr				Electives 19cr				

*examples of complementary common and advanced study courses

Example 2:
Focus on product development and engineering innovation

Year 1					Year 2				
P1	P2	P3	P4	P5	P1	P2	P3	P4	P5
MEC-E1001 Mechanical Engineering in Society 5cr + LC-0400 Communication 1cr		MEC-E3005 Prototyping for Innovation 5cr			Master's thesis 30cr				
MEC-E3002 Methods in Early Product Development 5cr		MEC-E9020 Patentit 3cr*			MEC-E3006 Design Thinking and Creativity for Innovation 3cr (online self study)				
MEC-E3001 Product Development Project (PdP) 12-15cr									
MEC-E1060 Machine Design 5cr*	MEC-E1090 Quality Management and Metrology 5cr*		MEC-E3004 Safety Management in Complex Sociotechnical Systems 5cr				TU-C2090 Starting up 2cr (online self study)		
MEC-E1003 Machine Design Project 5cr*		MEC-E5001 Mechatronic Machine Design 5cr* or MEC-E7003 Manufacturing Methods II 5cr*		Electives 5cr	Electives 22cr				

*examples of complementary common and advanced study courses

Example 3:
Product development and another advanced study topic

Year 1					Year 2				
P1	P2	P3	P4	P5	P1	P2	P3	P4	P5
MEC-E1001 Mechanical Engineering in Society 5cr + LC-0400 Communication 1cr							Master's thesis 30cr		
MEC-E3002 Methods in Early Product Development 5cr		MEC-E3005 Prototyping for Innovation 5cr			MEC-E3001 Product Development Project (PdP) 10cr				
Common studies 10cr		Advanced studies 10cr			Common studies 10cr				
Electives 9cr		Electives 20cr			Advanced studies 10cr				