

SUSTAINABLE DESIGN ENGINEERING

Bachelor of Engineering in MECHANICAL ENGINEERING

Structure of studies	ECTS
Basic studies	90
Professional studies	75
Optional studies	30
Practical training	30
Thesis	15
Sum	240

1st Academic Year

"GETTING ENGINEERING BASIC SKILLS AND TOOLS & DESIGNER-ATTITUDE"

Autumn 2024	
Engineering Tools 1	15
Introduction to Mathematical Sciences	5
Physics	5
ICT-tools	5
Working Life Skills for Engineers	15
Finnish A1	5
English Professional Skills B2	5
Introduction to Higher Education Studies	5

Spring 2025	
Engineering Tools 2 - 15 ECTS	15
Engineering Precalculus	5
Technical Drawing and 3D Modelling	5
Heat and Electricity	5
Design Skills 1 - 15 ECTS	15
User-centered Design Approach	5
Visualization, Prototyping and Ideation	7
Designer CAD 1	3

Summer 2025	
Basic Training	10

Recommended optional studies	
Occupational Safety	1
Hot work safety education and training	1
Finnish A2	5

2nd Academic Year

"DEEPENING MECHANICAL ENGINEERING SKILLS & INTRODUCTION TO SUSTAINABLE DEVELOPMENT"

Autumn 2025	
Sustainable Perspective in Engineering	15
SUSTIS Sustainable Development Project	3
Introduction to Life Cycle Assessment	2
Material science for mechanical engineering	5
Production Technology	5

Spring 2026	
Working Life Skills for Engineers 2	15
Finnish for engineers A2 / B2	5
Design of Machine Elements	5
Strength of Materials	5

Summer 2026	
Field-Specific Training	10

Engineering Tools 3 - 15 ECTS	
Calculus	5
Engineering Mechanics	5
Product documentation	5

Optional module, includes Finnish language	
Finnish B1	5

3rd Academic Year

"SPECIALIZING IN ENGINEERING AND SUSTAINABLE DESIGN INNOVATION"

Autumn 2026	
Optimal Design and Control - 15 ECTS	15
Computational Design of Structures and Fluid-thermal Systems	6
Robust and Optimal Control	4
Optimal Design and Control Project	5

Spring 2027	
Design Skills 2 - 15 ECTS	15
Digital Visualization	5
Designer CAD 2	5
Prototyping	5

Summer 2027	
Professional Training	10

Project Skills and Entrepreneurship	
Innovation project	10
Entrepreneurship and Sustainable Business	5

Optional module, includes Finnish language	
Finnish B2	5
Finnish C1	5

4th Academic Year

"CO-CREATING SUSTAINABLE DESIGN ENGINEERING FOR THE FUTURE TRANSITIONS"

Autumn 2027	
Future Co-Design	15
Service Design	5
Design for Circular Economy	5
Future Co-design Project	5

Spring 2028	
Optional Studies etc. if left	

Thesis	15
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