Photonics Summer School

Joensuu Campus, Metria, 101

18.8. – 22.8.2025

Monday (Introduction)

9:15-11:00

Opening Session & Introduction to Summer School

- Overview of the program, objectives and challenges provided by industry by PhD Heikki Immonen and PhD Ana Gebejes
- Lecture: Introduction to innovation in photonics by Prof. Jyrki Saarinen

11:00-12:00

Industry Talk: Real-World Insights from Industry Partner Valamis (Valamis representative)

- Getting to know the company Valamis
- Insights about the role of innovation in the company's operations
- The role of light-based tech and AI in the future of Valamis
- Industry challenge and Q&A

12:00-13:00 – Lunch break

13:15-14:00

Industry Talk: Real-World Insights from Industry Partner Kelluu by Janne Hietala, Kelluu CEO

- Getting to know the company Kelluu
- Insights about the role of innovation in the company's operations
- The role of light-based tech and AI in the future of Kelluu
- Industry challenges and Q&A

14:15-14:45

Team formation workshop

- Lecture: High-performing teams by Astronaut PhD Charles J. Camarda
- Team formation objectives by PhD Heikki Immonen and PhD Ana Gebejes

Tuesday (Problem Definition)

9:15-10:30
Lecture: Problem Brainstorming and Problem Validation by PhD Heikki Immonen

- Learning to identify the right problems
- Understanding the importance of validating problems before investing resources

10:30-12:00
Hands-on Team Work Session guided by PhD Heikki Immonen and PhD Ana Gebejes

- Problem brainstorming and problem validation

12:00-13:00 – Lunch break

13:15-14:00
Lecture: Problem Definition Validation by PhD Heikki Immonen

- The importance of clearly defining problems in the innovation process
- Overview of the problem definition process

14:15-15:00
Hands-on Team Work Session guided by PhD Heikki Immonen and PhD Ana Gebejes

- Problem definition

Wednesday (Creativity)

9:15-11:00
Lecture: Creativity in Photonics by PhD Ana Gebejes

- Improve creativity through usages of different creativity techniques with emphasis on bioinspiration
- Developing the ability to apply photonics knowledge to inspire innovation in non-photonics fields
- Fostering Cross-Disciplinary Thinking

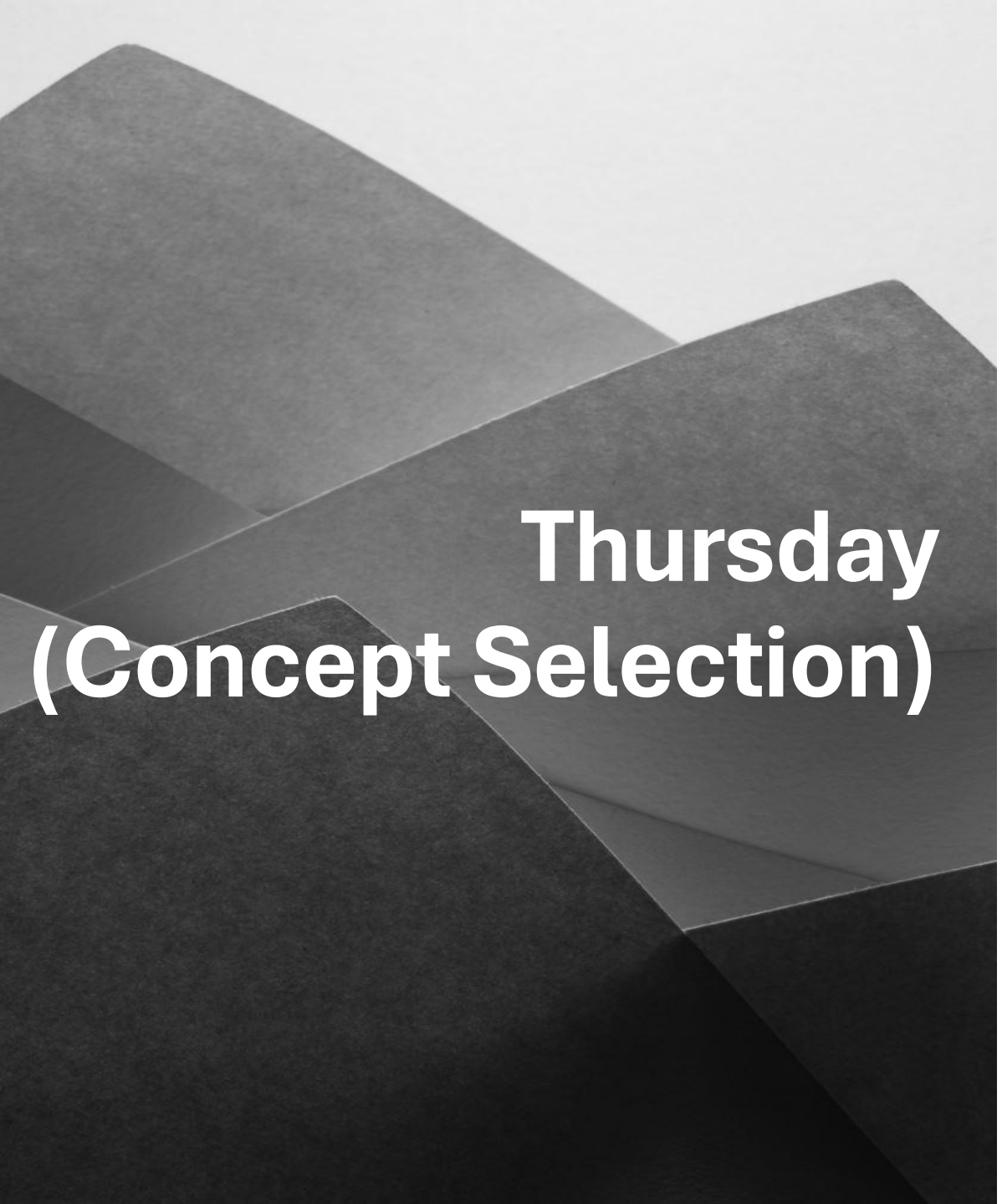
11:00-12:00
Lecture: Generating Concepts using Morphological Tables by PhD Heikki Immonen

- Morphological concept generation
- Concept definition

12:00-13:00 – Lunch break

13:15-15:00
Hands-on Team Work Session

- Morphological analysis
- Generating concepts



Thursday (Concept Selection)

9:15-11:00
Technology Readiness Levels

- Lecture: The story of Columbia shuttle disaster aftermath by Astronaut PhD Charles J. Camarda
- Technology Readiness Levels (TRLs) Astronaut PhD Charles J. Camarda

11:00-12:00
Concept selection and presentation instructions by PhD Heikki Immonen

- Lecture: The Pugh Method
- Instructions 3-slide pitch deck

12:00-13:00 – Lunch break

13:15-14:00
Hands-on Team Work Session

- Selecting the concepts (and preparing the presentations)

14:15-15:00 Final test

Friday (Presentations)

9:15-12:00
Team Presentations and Feedback

- Each team presents their pitch followed by feedback from industry partners, supervisors and peers

12:00-13:00 – Lunch break

13:15-14:00
Team Presentations and Feedback continues

14:15-15:00
Closing Session

- Reflections on the week, feedback collection, and certificate distribution.