

2023 Industrial Ecology Project Grant Proposal

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1. Project title

Industrial Ecology Methods Crash Course

2. Project description

The series of crash course focus on industrial ecology methods, including life cycle assessment, techno-economic analysis, material flow analysis, industrial symbiosis, and social metabolism on three levels: basic, intermediate, and advanced. Participants with a research interest in industrial ecology will become familiar with well-known methods in the field and gain practical experiences. The course begins with an introductory session discussing the background of industrial ecology methods, the current limitations and benefits, and some of the recent advances made in industrial ecology toward improving the field.

The seminar will be structured with an IE method discussed every two weeks. Each session contains 45 minutes of lecture following 5-10 minutes of Q&A and 30 minutes of minds-on and hands-on individual or group activities on applying the method in a project. Participants can discuss the activity further on the Slack group specifically created to communicate. Seminar outline with major topics are provided below:

Session 1: Introduction to industrial ecology methods

Session 2: Life cycle assessment (Basic)

Session 3: Environmental input-output analysis (Basic)

Session 4: Techno-economic analysis (Basic)

Session 5: Material flow analysis (Basic)

Session 6: Industrial symbiosis (Basic)

Session 7: Social metabolism (Basic)

Session 8: Life cycle assessment (Intermediate)

Session 9: Environmental input-output analysis (Intermediate)

Session 10: Techno-economic analysis (Intermediate)

Session 11: Material flow analysis (Intermediate)

Session 12: Industrial symbiosis (Intermediate)

Session 13: Social metabolism (Intermediate)

Session 14: Life cycle assessment (Advanced)

Session 15: Environmental input-output analysis (Advanced)

Session 16: Techno-economic analysis (Advanced)

Session 17: Material flow analysis (Advanced)

Session 18: Industrial symbiosis (Advanced)

Session 19: Social metabolism (Advanced)

Required and suggested readings before attending each session will be provided to participants. At the end of each level, a certificate of attendance will be provided to those who attend all sessions and fulfill the course's minds-on and hands-on activities requirements.

For each session, a volunteer instructor with expertise in the method will be recruited; for example, Professor Marina Fischer-Kowalski will be invited for social metabolism sessions and Professor Stefan Pauliuk for material flow analysis sessions.

3. How would this benefit industrial ecology?

The industrial ecology methods crash course aims to raise awareness about industrial ecology methods and provide practical and valuable information for improving the knowledge of personal and professional members in various IE methods. The idea is that the crash course participants can take back to their community, institution, organization and industry to implement industrial ecology methodologies. The course will be held with a mission to improve the knowledge in industrial ecology methods and increase meaningful community involvement. An investment in knowledge pays the best interest ~ Benjamin Franklin

4. Budget

Up to EUR 5000

5. Budget breakdown

Phase Estimated Time Hourly Rates, EUR Estimated Costs, EUR

Preparation and resources required (Zoom account, microphone, webcam, video editing software) 15 €25 €1,000

Recruiting presenters and participants 15 €25 €375

Facilitating introduction to industrial ecology methods sessions 1.5 €25 €37.5

Facilitating life cycle assessment sessions 5 €25 €125

Facilitating environmental input-output analysis sessions 5 €25 €125

Facilitating techno-economic analysis sessions 5 €25 €125

Facilitating material flow analysis sessions 5 €25 €125

Facilitating industrial symbiosis sessions 5 €25 €125

Facilitating social metabolism sessions 5 €25 €125

Overseeing communication media (Slack), problem-solving 35 €30 €1050

Editing the recorded videos to be shared with participants 70 €40 €2800

Preparing and distributing certificate of attendance 10 €25 €250

Total Estimated Cost €6,263

Budget from ISIE €5,000

Myself €1,263