

# Integrated Product Service Engineering

Programme course

6 credits

Integrerad produkt- och tjänsteutveckling

TKMJ32

Valid from: 2017 Spring semester

**Determined by**

Board of Studies for Mechanical  
Engineering and Design

**Date determined**

2017-01-25

## Main field of study

Energy and Environmental Engineering, Industrial Engineering and Management, Product Development, Mechanical Engineering

## Course level

Second cycle

## Advancement level

A1X

## Course offered for

- Design and Product Development
- Industrial Engineering and Management - International, M Sc in Engineering
- Industrial Engineering and Management, M Sc in Engineering
- Mechanical Engineering, M Sc in Engineering
- Industrial Engineering and Management, Master's programme
- Sustainability Engineering and Management, Master's programme

## Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

## Prerequisites

General technical knowledge from three years of study at a technical university. Especially, knowledge about product development in general.

## Intended learning outcomes

The course gives a student deep understanding about the concept of Integrated Product Service Engineering (IPSE) and Integrated Product Service Offerings (IPSO). Upon successful completion of the course, the student should be able to do the followings in English:

- Describe and explain pros and cons from a business and environmental perspective with IPSE and different IPSO examples.
- Describe and use examples of IPSE methodologies (including e.g. Customer Activity Cycle, Activity Identification Matrix, PSS layer method, design method of IPSO (SPIPS)) that can be used to achieve IPSO.
- Describe and explain how IPSO influence a business model, a network of companies (including a customer), risk and contracts.
- Describe and explain how IPSE influence a company's functions, e.g. product development and service development.
- Describe and explain how some Swedish companies (incl. SMEs) work on IPSE/IPSO as an example.
- Apply some of the course's contents in designing/developing a hypothetical IPSO by analysing and modifying an existing or prospective offering.

## Course content

Review of overall concepts such as IPSE, IPSO, Functional Sales, Functional Product, Service Engineering, and Product/Service System (PSS). How IPSE is related to areas such as Ecodesign. Introduction to IPSE methodologies, and contract issues with IPSO. Mandatory group project work where the students, given an existing or prospective offering, apply some of the theory and methodologies from the course to analyze and develop improvement proposals.

## Teaching and working methods

Instruction is given in the form of lectures and a project work. Course grades are determined based on the written exam and the written report (and possibly an oral presentation) by each project group.

## Examination

PRA1 Approved project assignments and approved seminars	3 credits U, G
TEN1 Written examination	3 credits U, 3, 4, 5

## Grades

Four-grade scale, LiU, U, 3, 4, 5

## Department

Institutionen för ekonomisk och industriell utveckling

## Director of Studies or equivalent

Niclas Svensson

## Examiner

Tomohiko Sakao

## Course website and other links

[www.iei.liu.se/envtech/utbildning/kurser?l=en](http://www.iei.liu.se/envtech/utbildning/kurser?l=en)

## Education components

Preliminary scheduled hours: 36 h

Recommended self-study hours: 124 h

## Course literature

Compendium "IPSE 2013", IEI / Environmental Technology and Management

## Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at [http://stydokument.liu.se/Regelsamling/Innehall/Utbildning\\_pa\\_grund-\\_och\\_avancerad\\_niva](http://stydokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva).