



IPSS Doctoral Spring School 2016: Detailed Program

The program could be subject to modifications, and will be updated accordingly.

Day 1 – Introduction

Date	Day	Time	Activity	Speaker
13/06/16	Monday	Afternoon	Welcome to the School	Elisabetta Ceretti (University of Brescia) Sergio Cavalieri (University of Bergamo) Marco Perona (University of Brescia)
13/06/16	Monday	Afternoon	Introduction to the school program and activities	Paolo Gaiardelli (University of Bergamo) and Nicola Sacconi (University of Brescia)
13/06/16	Monday	Afternoon	Product services for a resource-efficient and circular economy	Arnold Tukker (Leiden University)
13/06/16	Monday	Afternoon	Welcome cocktail	

Product services for a resource-efficient and circular economy (Arnold Tukker)

Since the 1990s, Product Service Systems (PSS) have been heralded as one of the most effective instruments for moving society towards a resource-efficient, circular economy and creating a much-needed 'resource revolution'.

The lecture will present the results of a comprehensive literature review on the topic and professor Tukker's direct experience about the characteristics and the evolutions of the PSS concept. It will also focus on the obstacles and challenges in the actual implementation of PSS.

Day 2 – PSS operations strategy and configuration

Date	Day	Time	Activity	Speaker
14/06/16	Tuesday	Morning	PSS Network and capacity configuration	Nicola Sacconi (University of Brescia)
14/06/16	Tuesday	Morning	PSS Network and capacity configuration: Discrete-Event simulation for PSS capacity management	Filippo Visintin (University of Florence)
14/06/16	Tuesday	Afternoon	WORKSHOP on PSS provision process mapping and improvement	Alice Rondini (University of Bergamo)

PSS Network and capacity configuration (Nicola Sacconi, Filippo Visintin)

We first draw a conceptual framework about the choices and decision drivers concerning the service capacity dimensioning and the service network configuration in PSS contexts.

We then propose a practical activity on the use of discrete events simulation as tool to test and assess capacity configuration and management alternatives, and to support decision-making.

WORKSHOP on PSS provision process mapping and improvement (Alice Rondini)

This workshop will provide some insights about the difficulties that designers and operations managers can encounter when setting the PSS provision process. This process strongly relies on human resources and it is quite complex to manage and to organize in an optimum configuration. The aim of this workshop is to make participants aware about difficulties in the PSS process mapping and analysis. Two main practical activities will be proposed: i) process mapping through Service blueprint tool and ii) adoption of discrete event simulation to select between process configuration alternatives while monitoring customer and company value.

Day 3 – Lean Methods for PSS

Date	Day	Time	Activity	Speaker
15/06/16	Wednesday	Morning	Lean Methods for PSS	Daryl J. Powell (Kongsberg Maritime division) Annika Hauptvogel (Siemens)
15/06/16	Wednesday	Afternoon	WORKSHOP: Lean methods application in the automotive sector	Roberto Ronzani (Istituto Lean Italia)
15/06/16	Wednesday	Afternoon	Social Activity	

Lean Methods for PSS (Daryl Powell, Annika Hauptvogel)

In this practice-oriented session on lean services, Dr Powell and Dr Hauptvogel will provide insights into the application of lean principles in the post-production phase of the product life cycle, with particular emphasis on after-sales services. Drawing on practical examples, this session will give participants the chance to reflect on role of lean thinking in service operations.

- Introduction round with participants
- The KONGSBERG Way to Lean Service
- Siemens: Operational Excellence in Life Cycle Management, Annika Hauptvogel
- Lean Services Exercise

WORKSHOP: Lean methods application in the automotive sector (Roberto Ronzani)

Simulation “Game” of a “Service” process. Steps:

- game explanation and “First Run”
- Value Stream Mapping of the “Present State”
- Lean “theory” needed
- Hypotheses of “Future State”
- “Second Run”
- Reflection on results

Day 4 – Total cost of Ownership for PSS

Date	Day	Time	Activity	Speaker
16/06/16	Thursday	Morning	WORKSHOP on Total cost of ownership for PSS	Shaun West (Luzern University of Applied Science and Art)
16/06/16	Thursday	Afternoon	WORKSHOP on Total cost of ownership for PSS	Shaun West (Luzern University of Applied Science and Art)
16/06/16	Thursday	Evening	School dinner	

WORKSHOP on Total cost of ownership for PSS (Shaun West)

Using the total cost of ownership models it is possible to create a cradle-to-grave equipment life-cycle for equipment, this can be presented in a high visual form that allows improved understanding. Using this approach the 'job' can be allocated to the equipment owner, their O&M team, the OEM or a third party dependent on capacity, capabilities and strategic rational. Equilibriums can occur in the division of the jobs that may be disrupted by changes in technologies, ownership or markets. The aim of the workshop will be to map out the cradle-to-grave equipment life-cycle for some different capital equipment (e.g., a power plant, a ship, a bridge, a truck, etc). Service design tools will be used to assist in the process (e.g., customer value proportions, ecosystem mapping, personas) in addition to more quantitate methods.

At the end of the workshop, each student group will provide:

- i. feedback on their solutions for the product service systems that they have worked on
- ii. feedback on the discovery process
- iii. areas that need are open for additional research opportunities

Day 5 – Technologies for PSS design and delivery

Date	Day	Time	Activity	Speaker
17/06/16	Friday	Morning	Technology as a key factor for PSS design and delivery	Thorsten Wuest (West Virginia University) Mario Rapaccini (University of Florence)
17/06/16	Friday	Afternoon	Installed base monitoring for PSS business models: experiences from the T-REX project	Jean-Baptiste Leger (Predict) Nicola Saccani (University of Brescia)

Technology as a key factor for PSS design and delivery (Thorsten Wuest, Mario Rapaccini)

The lecture aims to enable students to understand the importance of various (new) technologies to successfully design and operate a PSS. During Friday's lecture, the students will be provided with information regarding commonly utilized technologies incl. examples. Based on that, in a first interactive session, the students will then work in groups to analyse popular PSS examples regarding the technologies employed and present their analysis results. After a short break, the second part focuses on (re-)design of PSS based on (new) technologies. First, examples are presented on how technologies can help to transform existing PSS and make them, e.g., more efficient/effective and how entirely novel PSS can be designed around (new) technologies. The groups then put the theoretical learning into practice by choosing to either design a novel PSS or redesign an existing PSS with a technology focus and present their results to the audience.

Installed base monitoring for PSS business models: experiences from the T-REX project (Jean-Baptiste Leger, Nicola Saccani)

Fleet-wide asset health management, condition monitoring and predictive maintenance are important levers for the development and operations of PSS. The lecture will present the technological lever and how it works, based on the technology developed by Predict and three industrial cases in the machinery, automation and transportation domains that have been the object of the ongoing T-REX project, funded by the European Union under the 7th framework programme (<http://t-rex-fp7.eu/>)