FPIRC **Focus** Course

# Package Materials

FPIRC # 33
In co-operation with: ****

**Division, Department, and University:**
[Faculty of Health, Science and Technology](http://www.kau.se/en/faculty-health-science-and-technology),
Department of [Engineering and Chemical Sciences](http://www.kau.se/en/fakulteten-for-halsa-natur-och-teknikvetenskap/institutionen-for-ingenjors-och-kemivetenskap),[Karlstad University](http://www.kau.se/eng/) (KaU), Karlstad

**Course description/Content:** Introduction to Packaging and Package Materials – What is packaging and why is it used?

Packaging will be presented and discussed from the performance perspective, in certain applications with a focus on food stuffs, including product safety (especially materials and barriers perspective), economics (systems perspective), communications and marketing, logistics, design and sustainability. Materials used in packaging, and some of the converting processes, will be covered, such as glass, metals, polymers and fiber based packaging, but with an emphasis on the two latter.

Study visit to a packaging production and a materials recovery plant is planned.

**Learning objectives:** The general purpose of the course is for the participants to acquire a systems oriented perspective of the use and handling of package materials, including the materials choice, design, processing, service life and recycling. Having completed the course, the participant should ...

* Demonstrate knowledge of in which context packages are used and which functions they perform in these uses, whit emphasis on food packaging.
* Demonstrate knowledge about the materials, in particular, and their properties that are of importance to the packaging performance with emphasize on the service life.
* Demonstrate knowledge of the production processes used to produce packages and filling of packages.
* Demonstrate knowledge about processes used to handle packages for materials or energy recycling and life cycle consideration, including legal, economical, materials and energy, used to assess the fate of packages.
* Be able to describe driving forces and systems perspective for packaging development, with emphasis on food packaging.
* Be able to independently identify critical and decisive materials, productions and recycling issues for packaging solutions performance and to suggest solutions, with emphasis on food packaging.

**Pre-requisites:** As doctoral student participant: Enlisted as doctoral student in a science or engineering field, preferably related to forest industry.

Other participants (if ETCS credits are to given upon passing exam): M.Sc. exam (or equivalent) in science or engineering field.

**Contributors:**Lecturers from Karlstad university, Örebro University, NOFIMA/NMBU (Norwegian University of Life Sciences), KTH, Innventia, and contributors from Industry.

**Literature/Course material:**Handouts for lectures, provided at the start of the course.

**Contact person/Course co-ordinator:**Prof. Magnus Lestelius, magnus.lestelius@kau.se

**Type:** FPIRC Focus

**ECTS:**4,5

**Examination:**Written (home exam), including a written essay. Examination (and course) is graded Pass or Fail.