

MESPOM Semester 3a at IIIEE: Preventative Environmental Strategies

The aim of this semester is to equip students with knowledge and skills necessary to prepare and implement environmentally-relevant management decisions, especially at a strategic level. Besides lectures and seminars, the module includes writing an individual research paper and is based on direct interaction with various actors in society. All units are mandatory, while the Applied Research in Preventative Environmental Approaches (ARPEA) course gives students a possibility to select research topics in strategic environmental development.

The semester consists of *four mandatory courses*: Environmental Management in Organizations [9 ECTS credits], Integrated Product Policy [6 ECTS credits], Strategic Environmental Development [9 ECTS credits] and Applied Research in Preventive Environmental Approaches [6 ECTS credits]. You can find the overall structure and components of the respective courses in the course description below.

Environmental management in organisations (EMO)

Course co-ordinators: Håkan Rodhe & Beatrice Kogg

9 ECTS credits, corresponding to circa 270 hours of student activity

This course provides the student with a comprehensive introduction to environmental management in companies, with an emphasis on industrial organisations. The course is designed to prepare students for working with environmental management in organisations¹ and will cover the following themes:

- *Corporate Environmental Strategy*, led by Ass. Prof., Tareq Emtairah
- *Operational Environmental Management in Industry* led by Adj. Prof. Torbjörn Brorson,
- *Optimisation of Technical Systems* led by Ass. Prof. Åke Thidell & Assoc. Prof. Håkan Rodhe
- *Environment in product development and design*, led by Ass. Prof., Mårten Karlsson
- *Environment in Marketing & Sales*, led by Ass. Prof., Beatrice Kogg
- *Environment in sourcing and procurement*, led by Ass. Prof., Beatrice Kogg

The course runs from the 13th of September to the 21st of November, and activities include a mix of classes, cases, assignments, readings and study visits. The activities outside the Institute will further assist in placing the student learning in a practical and applied context.

After the course the student is intended to be able to perform basic functions of an environmental manager and understand the various functions of a company and how these relate to environmental management. General learning outcomes for the respective themes include:

- *Corporate Environmental Strategy*:
 - Ability to discuss sustainability in a business strategy perspective
 - Ability to critically analyse the business implications of environmental initiatives and pitch environmental projects and investments to corporate decision makers

¹ For students who seek to work in other fields such as policy or in non governmental organisations, the course will provide an in-depth understanding of the opportunities and challenges that businesses face when seeking to address environmental aspects associated with its operations. Skills that are valuable in many lines of environmental work.

- *Operational environmental management in industry:*
 - Knowledge of the fundamental aspects of industrial environmental management, including environmental management systems, indicators, auditing, reporting and communication.
 - Ability to design an environmental management system according to ISO 14001 including sub-components, and an environmental report
- *Optimisation of Technical Systems:*
 - Solid understanding for prevention vs. end-of-pipe, including generic CP technical strategies
 - Ability to outline components of an industrial improvement programme in support of preventative measures, and insight in the industrial realities of implementing improvement programmes
 - Ability to explain what characterizes an organization that is environmentally effective in its operations
- *Environment in product development and design:*
 - Familiarity with the industrial design process in a generic manner
 - Ability to define and discuss EcoDesign principles, and familiarity with strategies, tools and approaches for, industrial product development, which can enable a company to improve the environmental performance of product systems
 - Familiarity with constraints and limitations relevant to EcoDesign and green product development
- *Environment in Marketing & Sales:*
 - Familiarity with basic practices of the marketing function, and guidelines for green product communication.
 - Ability to describe and discuss restrictions, opportunities and dilemmas that companies may face when seeking to make environmental claims about products
- *Environment in sourcing and procurement:*
 - Familiarity with basic practices of the sourcing and procurement function.
 - Familiarity with current approaches to corporate procurement of products/components/raw materials and services that are superior from a sustainability perspective, and challenges associated therewith

Grading

The course is graded and this is based on a written examination (50%), assignments, in-class contribution – e.g. seminars and cases – throughout the course (25%), and an oral examination (25%). The written examination is scheduled before the course ends and covers the coursework done up to that point, and the oral examination concludes the course and covers everything including study visits.

Integrated Product Policy (IPP)

Course co-ordinators: Naoko Tojo & Thomas Lindhqvist

6 ECTS credits, corresponding to circa 180 hours of student activity

This course builds on to the Products, Environment and Organisation Course and Module 3 of the Environmental Management in Industry Course held at CEU, and further develops the students' ability to comprehend and relate to various aspects of product-related environmental issues. The course relies to a large extent on the students' ability to, individually or in group, independently collect information,

analyse this information and provide a synthesis of the results orally and in written. Lectures, seminars, reading and assignments are the key methods of learning.

General learning outcomes of the course are:

- To further the understanding of product-related environmental policies and how to analyse such policies
- To obtain knowledge of how to review a topical issue and present the results in written and oral forms to a professional audience
- To enhance pedagogical skills in presenting a topic to university students and professional audiences
- To understand the basics of market-based policy instruments as well as issues related to their implementation.
- To understand how the thinking of economics can be used for the design and implementation of law.
- To obtain the basic understanding of the implication of free trade regime on the environmental regime and visa versa.

The course consists of two modules: 1) Product Policy (PP): corresponding to 4 ECTS credits and 2) Law and Economics (econ): corresponding to 2 ECTS credits.

Product Policy (PP) Module

The components of the module as well as the estimated time required for the respective components are presented in the Table below.

Components	Class room hours	Preparation hours
Lectures	8	
Assignment 1: product policy paper and lecture	11	71
Seminars	10	8
Total	29	79

Law and Economics (econ) Module

The components of the module as well as the estimated time required for the respective components are presented in the Table below.

Components	Class room hours	Preparation hours
Market-based instruments	12	18
Law and Economics	16	9
Trade and the Environment	6	7
Total	34	34

Grading

The product policy module constitutes 67% of the entire grading and the remaining 33%, law and economics module. For the former, students' performance is examined by the assignment 1 (80%), the seminars (15%) and eco-label assignment (5%). For the latter, the evaluation is based on a take-home exam which is part of the market instrument assignment (50%) and an oral examination on the law and economics (50%).

Strategic Environmental Development (SED)

Course co-ordinators: Mikael Backman & Thomas Lindhqvist

9 ECTS credits, corresponding to circa 270 hours of student activity

This course focuses on the consumption-related environmental problems in the modern society and aims, in addition, to develop the strategy of distributed economies. It builds the learning process on close interaction with the surrounding society and enhances the skills of the students to collect primary information from societal actors and use this information together with literature to understand the type and magnitude of consumption-related environmental problems, and how these problems are and can be addressed by society and in particular local actors by employing distributed economy approaches. The course combines field work with lectures and seminars and the results of the assignments are presented in written and orally. The course is subdivided into two modules:

- The Consumption Exercise, led by Åke Thidell
- SED assignment led by Mikael Backman & Thomas Lindhqvist

The SED assignment brings in the knowledge from the Consumption Exercise and it is dominating the course time wise (85%) and it is also the basis for grading.

The Consumption Exercise

The Consumption Exercise is mainly a field work during a couple of days when the consumption-related issues are investigated through study visits and interaction with various stakeholders. The exercise is formed in a unique fashion each year, taking into consideration the possibilities to organise specific study visits. The exercise will be described in detail at the introductory lecture.

SED assignment

This course module is a group assignment where the students together address a selected topic related to sustainable consumption and production. The topic is chosen so as to allow a close interaction with various stakeholders in the surroundings of the university and to have defined clients interested in the results produced through the work of the students. The students combine literature information and studies with data collected through interviews, questionnaires and observations to create a picture of the existing situation, the measures taken by various actors to address the issues, and finally to propose future directions of action. The direct interaction with local authorities, manufacturers, retailers, consumers, etc. is an important feature of the assignment. The topic for the autumn 2006 was on the programs and measures initiated by Lund municipality on the areas of transport, food, housing and “over-consumption” and the work was carried out in close cooperation with the municipality. The topic for 2007 was on eco-labelling and the way eco-labels are used in Sweden for various product areas. The work was done in cooperation with the Global Eco-labelling Networks and presented during the annual meeting. The 2008 topic was around Sustainable Cities and linked also to the work of Lund Municipality. In 2009 and 2010 the focus was on distributed economy case studies with the aim of producing case studies for wide distribution and laying the foundation for research applications in the area.

General learning outcomes:

- Understanding of environmental problems related to sustainable consumption and production and how to research and analyse them
- Understanding of sustainable consumption and production challenges and in-depth knowledge of a selected issue related to this

- Understanding of the role of distributed economy approaches in the development of sustainable consumption and production systems
- Enhancement of skills in collecting and analysing primary data through interviews, questionnaires and observation
- Enhancement of skills in analysing a combination of primary and secondary data to understand a complex problem
- Enhancement of skills in producing publications that are aimed for a broad audience of interested parties

The specific topic of the 2011 SED assignment is related to the work in the Öresund region, both on the Danish and Swedish sides, to develop sustainable energy solutions for the region. The course will be conducted in the framework of the Öresund Energy project and report to authorities on regional and municipal levels, as well as companies and research institutions involved in the activities..

Grading

The course is graded on the SED assignment and its various components. This includes assessment of the various parts of the assignment through intermediary reports, seminars and oral examination, and the final oral and written reports. The details concerning the assignment are developed in collaboration between the course coordinators and the students.

Applied Research in Preventative Environmental Approaches (ARPEA)

Course Coordinator: Philip Peck

6 ECTS credits, corresponding to circa 180 hours of student activity

ARPEA will introduce students to the research process required for the generation of scientific paper or the thesis, or both. Research should focus upon preventative environmental approaches. The deliverables are to be a written (academic research) paper, a presentation and input to a peer review process.

The research papers will be presented and defended in a form that allows appropriate discussion and feedback of the individual paper, as well as a common discussion of the research area.

Course objectives

This course has a number of learning objectives. They include:

- To develop theoretical understanding and deeper knowledge of **preventive environmental management and policy**, including:
 - recognition and understanding of relevant theoretical construct(s) and/or scientific frameworks ;
 - ability to apply theoretical constructs, scientific principles and concepts to real life phenomena;
- To learn more of the process of academic research including:
 - how to plan, communicate and justify a search for information to support a scientific argument;
 - how to identify, develop, and justify a theory based framework for organisation and analysis of information;
 - to develop, improve and/or demonstrate skills in the critical analysis of relevant literature and empirical background materials,
 - to write and defend a paper

Course components

The estimated time required for the respective components of the course are presented below.

Components	Class room hours	Preparation hours
Lectures	14	
Mini review assignment		25
Research proposal generation		30
Conduct of research and paper generation		100
Seminars	11	
Total	25	155

A pilot for thesis or stand-alone?

This project **can** be used as a “pilot study” for the thesis work. However, it is **not** formally to be seen as a ‘component’ of the thesis. As such, the ARPEA research report has to be a finalized and stand-alone product.

Moreover, it is completely acceptable that a project separate to the thesis project be undertaken in this ARPEA module. This does **not** have to be part of the thesis project.

Supervisor/tutor

The guidance of the research work is primarily provided by the course coordinator. If feasible, it is however beneficial if you can obtain some advice for your ARPEA paper from other IIIIEE staff where it overlaps upon their research or professional competence. This need not be an intensive guidance interaction (as for the thesis) but rather you should seek to find someone who knows at least a little about your area of work. It is desirable that you actively seek feedback from the course coordinator or other supervisor on items such as:

- a) your topic and its relevance,
- b) the clarity and validity of your focus problem and research question,
- c) whether the scope is reasonable for the size of the course,
- d) any frameworks that you can use to guide your data gathering or analysis,
- e) whether you are targeting the right audience in the right manner,
- f) etc.

In the first instance, it is intended that you seek the help of the course coordinator in identifying an additional supervisor or tutor. Where this is possible, it remains your responsibility to convey to them the type of support that you seek.

If the ARPEA research paper **is to be followed up** with a thesis project at the IIIIEE, then it is common that a tutor/supervisor for the ARPEA paper will also be involved in a supervisory role for the Master’s thesis. However, the formal decision about thesis tutors will be taken later by the IIIIEE. Staff work loads and supervisor availability must be taken into consideration.

The ARPEA topic that is to be addressed must be adequately documented and described and **approved** as feasible by the course coordinator or additional supervisor before Tuesday the 29th of November at 08.00.

Evaluation criteria

The following evaluation criteria will be rigorously followed.

- The formulation of the research problem
- The soundness and applicability of the plan for data collection
- The efforts and skills in collecting material
- The utilisation of relevant literature and background material (e.g. in building a structure for your analysis)
- The quality of the analysis – focusing upon the manner in which the research question is addressed, the manner in which the data you collected is used, the soundness of logic, and originality
- The consistency of the paper (e.g. structure, language, etc.)
- The presentation and defence of the paper; comments on other papers

Grading

By Philip Peck with input from eventual extra tutors/supervisors. 30% will be awarded for the ARPEA proposal (problem definition and work plan), 70% for the paper.

Timeline, effort and paper requirements

Proposal for ARPEA research topic (mini-prospectus)

to be sent to Philip.Peck@iiee.lu.se before: Tue 29 November at 08.00

Prospectus format: guide to be supplied, circa 1200 words

Paper length: 4 000 – 6 000 words

Paper format: IIEE Thesis Templates

Paper due: 10th January 2011 (to be confirmed)

Dates for seminars (in Lund): Early to mid February (to be confirmed)

Dates for seminars (virtual from elsewhere): by arrangement after mid February

Seminar presentation: 45 minutes will be allocated for each presentation, which typically will be used in the following way:

- 15-20 minutes presentation of the paper
- 10 minutes comments/questions by the assigned student
- 10-15 minutes comments/questions by supervisors/staff/other students

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