MH2501 The Fundamentals of the Steel Business;

(Ekonomisk processanalys och strategi)

Introduction

MH2501 (F4H5910 doctoral course) is an optional course for all students at KTH. Is comprises 6 ECTS (F4H5910 6 ECTS) study points and is presented by the division of Metallurgy, department of Material Science, KTH.

Examiner: Professor Pär Jönsson.

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Coordinator Material Science: Anders Eliasson

Prerequisites

The course is based on previous knowledge of Management and economics equivalent to *Industriell ekonomi, grundkurs B*. It also requires intimate knowledge of metallurgy and metallurgical processes.

Description and contents

The course is an introduction to the fundamentals of the steel business. It deals with practical and theoretical issues of managing companies in the steel industry but can also be used as an example of management in the wider process industries. It centres round a case study which serves as an application example.

Management issues are situation dependent; hence the company as a whole and its environment will be the discussed in the framework of a case study. The case study itself will comprise outlining of the

company's products, business processes (production, innovation, marketing) and its business functions (management, control, finance). Apart from company dependent conditions, also its markets, customers, customer's customers and competitors are analysed as well as the conditions governing different actors on said markets.

Case study

The application example starts with a management issue in an actual company (or situation). From this, the time frame of the issue, the production flow setting etc. is analysed. In conjunction both company processes and different supply chains are analysed in terms of the *setting of the problem*, *physical flows involved*, *economic consequences* and *information flows*. The case study is reported as a ppt-presentation at a seminar and in a written report.

Learning Objectives

After passing the course the student should be able to:

- Specify organizational, business economics and market concepts and apply them with focus on steel-, process- and other manufacturing industries
- Apply models in analyzing of process engineering issues from a business-financial perspective.
- Formulate, analyze and evaluate a business-financial problem in the steel-, process- and other manufacturing industries
- Critically review the work of others mainly with regard to the use of business economics concepts and models in the analysis and synthesis of process engineering issues.

Examination

To pass the course the following is required:

- TEN1 Written exam (3 hp): A, B, C, D, E, Fx, F
- SEM1 (Seminar) (3 hp): P/F
    - Oral and written presentation of own case study
    - Oral and written peer-review of one (peer) case study

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Litterature

Engwall et al. Industriell ekonomi – metoder och verktyg, Studentlitteratur, 2014

Engwall et al. *Industrial Management – tools and techniques*, Studentlitteratur, 2016

Content overview

Industry specific content

- Introduction: a world of steel; the study of economics and business in the steel industry; Course overview, case study
- The Steel Business – an introduction
    - the unit operation, the production lay out, the value chain; the industrial firm/company; industrial operations: innovation, production, marketing, sales and logistics
- Steel Markets:
    - determinants of steel demand, market theory
    - raw materials markets,
    - competition: the steel industry
- Steel strategies, strategic choices

General company resource management

- Operations management - tools:
    - economic management, book keeping, accountancy, P/L, Balance sheet, cash flow
    - product calculations, example
    - cost management Du Pont; example
    - investment calculation, example; finance (company valuation),
- Repetition, preparations for the exam

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Schedule

Lectures and seminars	Content	Lecturer
Lecture 1, October 31st 13:00 – 15:00 hrs, Digital	Introduction to the course and general overview	Peter
Lecture 2, November 2nd 10:00 – 12:00 hrs, Digital	The steel business	Peter
Lecture 3, November 7th 14:00 – 16:00 hrs, Digital	Steel companies - operations I	Peter
Seminar 1, November 11th 13:00 – 15:00 hrs, Digital	Case study assignment formulation	Peter
Lecture 4, November 14th 13:00 – 15:00 hrs, Digital	Steel companies - operations II	Peter
Lecture 5, November 16th 10:00 – 12:00 hrs, Digital	Steel Strategies and Investments	Peter
Lecture 6, November 21st 13:00 – 15:00 hrs, Digital	Sales and marketing - operations	Peter
Lecture 7, November 23rd 10:00 – 12:00 hrs, Digital	Steel Markets I	Per
Lecture 8, November 28th 13:00-15:00 hrs, Digital	Steel Markets II	Per
Seminar 2, November 30th 10:00 – 12:00 hrs, **Hjärne (KTHB)**	Case study: half way report	Peter
Lecture 9, December 5th 13:00 – 15:00 hrs, Digital	Financial calculus	Peter
Lecture 10, December 7th 10:00 – 12:00 hrs, Digital	Course summary	Peter
Seminar 3, December 12th 13:00 – 15:00 hrs, **M37**	SEM 1: Case study, final report + peer review	Peter
Exam, January 11th 14:00 – 18:00 hrs, Digital	TEN1: Exam	Peter

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