



HÖGSKOLAN I GÄVLE

Scientific Methods for Industrial Engineering and Management

6 cr

Vetenskapliga metoder för industriell ekonomi 6 hp

Set by Faculty of Engineering and Sustainable Development

Version

Set at

Valid from

10/8/14

HT2015

Level	A1N
Education level	Second cycle
Course identifier	IEA012
Credits	6 cr
Main field of study	Industrial Economics
Subject group	Industrial Engineering and Management
Disciplinary domain	Technology 100.0 %

Learning outcomes

The course is focuses on immersed knowledge on scientific methods with application in industrial engineering and management. After completion of the course, the student shall be able to

Knowledge and understanding

1. describe different philosophical assumptions within research
2. describe different research approaches within industrial engineering and management
3. describe different scientific methods and their pros and cons

Competence and skills

4. search in databases for scientific literature in a particular area
5. use scientific journal articles for writing a literature review study
6. formulate research questions, choose appropriate scientific methods and plan a research project
7. apply some methods

Judgement and approach

8. critically judge scientific literature
9. assess societal and ethical aspects in research projects.

Course content	Philosophical assumptions within research as positivism and phenomenology Research approaches as case study, action research, grounded theory and ethnography Scientific methods as survey, interview, observation, experiment, simulation, statistical analysis with SPSS The research process as formulation of research questions, research planning, research quality, empirical and theoretical research, qualitative and quantitative research, natural and social science Scientific literature search in databases Scientific writing as structure, scientific accuracy, critical view and references Ethical and societal aspects within research as plagiarism, research ethics and the role of the research field of industrial engineering and management in the society			
Teaching	Lectures, seminars and supervision			
Prerequisites	English language proficiency equivalent to (the Swedish upper secondary school) English course 6/B. Bachelor Degree within the area of industrial engineering and management or equivalent			
Examination	Seminar and seminars assignments. Produce and present an individual literature review study in academic format and do an opposition on another student's literature review study.			
Grade	A, B, C, D, E, Fx, F			
Other regulations	Criteria for final grade will be handed out at the beginning of the course.			
Sustainable environment	A minor part of the course content deals with sustainable development.			
Module	0010	Seminars	3 cr	Grade: AF
	0020	Literature review study	3 cr	Grade: AF