



JÖNKÖPING UNIVERSITY
International Business School

PROGRAMME SYLLABUS
Engineering Management (One Year), 60 credits

Programmestart: Autumn 2017



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Engineering Management (One Year), 60 högskolepoäng

Programme code: JAEM5

Programmestart: Autumn 2017

Confirmed by: Dean 2016-09-28

Education Cycle: Second-cycle level

Version: 3

Reg number: IHH 2016/4011-312

Title of qualification

Degree of Master of Science (60 Credits) with a major in General Management

Programme overview

Programme aims

Engineering Management is a one-year programme for engineers about management. The programme aims to prepare participants for new challenges by adding business skills to their foundation of technology related knowledge. Therefore, the programme addresses a wide range of management topics deemed necessary for an engineer to excel as a responsible business leader in various managerial roles. These persons are as important for renewal of local small and medium sized companies as for integration of big international supply chains. Examples of course topics include responsible leadership, strategic renewal, internationalization, (open) innovation, methods for business analysis, training in writing and presenting of business reports.

Objectives

General aims

Second cycle education shall essentially build on the knowledge students acquire in first cycle education or corresponding knowledge. Second cycle education shall involve a deepening of knowledge, skills and abilities relative to first cycle education and, in addition to what applies to first cycle education, shall:

- further develop the students' ability to independently integrate and use knowledge,
- develop the students' ability to deal with complex phenomena, issues and situations, and
- professional activities that demand considerable independence or for research and development work.

Programme specific learning goals

This programme aims to elevate the students' knowledge and skills from their engineering discipline through integration with management understanding that prepares them for a career that requires application of management knowledge in the industrial and engineering sectors; henceforth referred to as engineering management.

Knowledge and Understanding

Graduates of the programme will have a general knowledge and understanding of management principles and a specialised knowledge in the field of engineering management.

Corresponding Objectives:

Graduates of the programme will be able to

- demonstrate knowledge and understanding in general management, including both broad knowledge in the field of general management and specialised knowledge of certain areas of the field;
- demonstrate insight into current research and development work in engineering management; and
- demonstrate specialised methodological knowledge in general management and specifically related to management tools applicable in engineering management.

Skills and Abilities

Graduates of the programme will have acquired the skills to integrate knowledge and to analyse complex issues encountered for a management position in industrial and engineering sectors and be effective communicators of activities associated with these skills.

Corresponding Objectives:

Graduates of the programme will be able to

- demonstrate an ability to integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations associated with engineering management, even with limited information;
- demonstrate the ability to identify and formulate issues independently as well as to plan and, using appropriate research methods, undertake advanced tasks within predetermined time frames;
- demonstrate an ability in speech and writing to report clearly on engineering management issues and discuss their conclusions and the knowledge and arguments on which they are based, in dialogue with different audiences; and
- demonstrate the skills required for participation in research and development work or to work in other advanced contexts, including in academic research related to engineering management.

Judgement and Approach

Graduates of the programme will understand the scientific, social, ethical, and personal responsibility aspects of practical work and research in general management, including the role, use, and development of knowledge and the ethical aspects and possibilities of scientific endeavour.

Corresponding Objectives:

Graduates of the programme will be able to

- demonstrate an ability to make assessments in general management, taking into account relevant scientific, societal and ethical issues and also demonstrate awareness of ethical aspects in research and development work;
- demonstrate insight into the possibilities and limitations of science/research, its role in society and people's responsibility for how it is used; and
- demonstrate an ability to identify their personal need for further knowledge and to take responsibility for developing their knowledge.

Mission driven goals

Graduates of the programme will be equipped to contribute to the advancement of business practice in a global environment, with particular emphasis on aspects of Ownership, and/or Entrepreneurship and/or Renewal.

Corresponding Objectives:

Graduates of the programme will be able to

- demonstrate in-depth knowledge about renewal in engineering and industrial sectors such as coordination of managerial and technological processes.
- demonstrate in-depth knowledge and skills about entrepreneurial approaches to management practice.

The above is in accordance with the intended learning outcomes set for a two-year Master's degree in the Swedish Higher Education Ordinance and JIBS mission.

Contents

The master programme in Engineering Management (One Year) provides a specialised education in general management for those holding a bachelor degree in engineering and already having substantial knowledge and skills in an engineering discipline from their undergraduate studies. It is designed to meet the increasing demand for graduates that combine their technical understanding with the application of management knowledge in the industrial and engineering sectors. These persons are important for renewal of local small and medium sized companies as well as for the integration of large international supply chains.

The education prepares the students for work in business positions that require a broad base of management understanding combined with the technical knowledge required during the bachelor studies. Therefore, the programme addresses a wide range of management topics deemed necessary for an engineer to excel as a responsible business leader in various managerial roles.

The programme consists of six mandatory courses held over two semesters, as described below. *Strategic Entrepreneurship and Innovation* provides an introduction to contemporary management issues and aims to help students develop their entrepreneurial selves while participating in an extensive innovation project in collaboration with businesses in industrial and engineering sectors, academia, and industry organizations. The course develops an understanding for the interrelation of strategic and technological processes. It offers different approaches to achieving a sustainable competitive advantage and provide students with a toolbox for strategic analysis. In parallel, the course *Accounting and Finance for Managers* brings every one up to speed on the workings of a business, its governance structures and functions. This course trains the students to interpret financial statements, compose budgets and analyse financial data. Through the course *Research Methods in Management* the students learn how to plan, perform and report on scientific investigations from a management perspective stressing the importance of ethics in business and research. This serves as preparation for the master thesis but beyond that it prepares students to create and convey knowledge as well as critically assess information in their future careers. *Leading with People* focus on how to be a responsible leader in different cultural contexts. It includes human resource management, project management, strategic change and corporate entrepreneurship. *Industrial Marketing and Supply Chain Management* takes a wider perspective on an organizations role in its larger value system. It includes procurements and sales, supply chain integration and business to business marketing. The *Master Thesis* course runs in parallel with the two spring courses over the whole second semester. It offers the chance of deepening in a specific area within engineering management and contains an extensive research project combining theoretical depth with practical relevance.

Although structured as separate courses, all courses are tightly integrated and build on each other. To secure the practical relevance of the programme and make good use of the students' prior knowledge in engineering, projects with corporate interaction will transcend borders and incorporate collaborations between students, practitioners, engineering faculty and management faculty. These activities will further train the students to work in diverse settings and ensure that

the knowledge and skills learned are applicable in practice.

All courses are taught in English. Due to the fact that JIBS and JTH are international schools with international faculty and that this programme is open to students from around the world, the courses have a diverse participation of students providing an international learning experience both in atmosphere and course content.

Courses

Mandatory courses

Course Name	Credits	Main field of study	Specialised in	Course Code
Accounting and Finance for Managers	7.5	General Management	A1N	JAFR25
Industrial Marketing and Supply Chain Management	7.5	General Management	A1N	JISR26
Leading with People	7.5	General Management	A1N	JLPR26
Master Thesis in General Management	15	General Management	A1E	JGMT26
Research Methods in Management	7.5	General Management	A1N	JRMR25
Strategic Entrepreneurship and Innovation	15	General Management	A1N	JSER25

Programme overview

Year 1

Semester 1		Semester 2	
Period 1	Period 2	Period 3	Period 4
Accounting and Finance for Managers, 7.5 credits	Research Methods in Management, 7.5 credits	Leading with People, 7.5 credits	Industrial Marketing and Supply Chain Management, 7.5 credits
Strategic Entrepreneurship and Innovation, 15 credits		Master Thesis in General Management, 15 credits	

Teaching and examination

To pass a course, the student needs to fulfil all the course requirements. Examination will be executed by written exam, oral exam or project presentation and reports. Different methods of examination can be used within a single course. The student will be offered at least three examination opportunities in each examined section. The university is not obligated to offer re-exams in courses a student has already passed. Mandatory workshops and assignments can figure within the frame of the course.

All courses will be graded according to the grading system where A-E all constitute Passed and F is equal to Failed.

For some workshops and mandatory assignments, only Pass or Fail is given.

Prerequisites

The applicant must hold the minimum of a Bachelor's degree (i.e the equivalent of 180 ECTS credits at an accredited university) with at least 90 ECTS credits in engineering or equivalent. Proof of English proficiency is required.

Continuation Requirements

This programme runs for only one year, and therefore has no continuation requirements.

Qualification Requirements

To obtain the Master of Science (60 Credits) with a major in General Management, the student must complete the course requirements of at least 60 credits at the higher education level that were not used for the bachelor degree, with at least 45 credits overall in second-cycle courses and at least 30 of those second-cycle credits in general management, and furthermore the course Master Thesis in General Management (15 credits) must be completed.

To obtain the Master of Science (60 Credits) with a major in General Management with a focus on Engineering Management, the student must complete: (1) the requirements for the Master of Science (60 Credits) with a major in General Management, (2) all mandatory programme courses as listed in the above contents section, or their equivalent, and (3) a Master thesis in General Management (15 credits) that covers a topic with relevance for Engineering Management.

Quality Development

Our cooperation with JSA and HighTech, the student organizations, are crucial. This work is conducted on two levels, programmes and courses.

Programme level

On the programme level students elect student programme evaluators to represent the student group. The student representatives and the programme directors meet regularly to discuss courses and the progress of the programme. The representatives stay in contact with course coordinators to share the overall impression and student experiences from courses; in addition, the Programme Director leads quality assurance work together with a programme group (faculty) and an advisory board (corporate representatives).

Course level

On the course level, student evaluators and course responsible meet shortly after the course has started. The purpose is to ensure that the course is working well and if necessary make minor changes. After each course is finished all students perform course evaluations on Ping-Pong, and programme developers evaluate the course on the aggregate level and communicate with programme director and course coordinator.

Other Information

Additional information regarding the programme will be presented online before each application period.