



الجامعة الألمانية الأردنية
German Jordanian University

German Jordanian University

School of Applied Technical Sciences

Department of Industrial Engineering

Master of Science

Entrepreneurship and Innovation

Management

Thesis Track

Study Plan 2024/2025

Master of Science in Entrepreneurship and Innovation Management (EIM)

I. Overview

The constant evolution of technology has led to a demanding society with advancing quality of living standards. As a result, economies are requiring engineers with innovative and entrepreneurial mentalities to continuously tap into the market opportunities that are fueled by technology. Empowerment of engineering graduates' knowledge and skillsets with innovation and entrepreneurship will lead to technologically driven startups that will promote job creation, economic growth, and unique ideas that reflect greatly onto society. Engineers in the program will undergo a simulated process of creating a startup through ideation, process mapping, product design, prototyping, financial and legal planning, pitching, and finally launching. Engineers graduating from the program will also possess intrapreneurial mindsets to grow within existing companies through research and development.

The Entrepreneurship and Innovation Management (EIM) master's program is a Joint Degree program between the German Jordanian University (GJU) and Magdeburg-Stendal University of Applied Sciences (h2). The program seeks to bridge innovation management and entrepreneurship in an international and corporate context for engineers. The program involves systematically and structurally identifying and developing opportunities that can feed into the creation of technology driven startups and corporate innovation. The program will bridge the technical engineering application areas with the necessary managerial and business processes that will make these innovations and engineering solutions come to life in a profitable and sustainable manner.

The EIM master's program is aimed to attract ambitious engineers that aspire to establish their own startup business or work in corporate R&D and innovation centers. The program is ideal for recent graduates and established professionals to apply their engineering knowledge in the entrepreneurship field. Graduates can work in intrapreneurship roles as product managers and as part of corporate research and development teams. Graduates can also benefit from leadership, entrepreneurship, and employability skills gained from the programs to advance in their current field and move up into higher management roles. Lastly, graduates can become startup founders and create their own business venture.

II. Program Objectives

Graduates of the EIM program will be able to achieve the following objectives:

- a. Promote engineers to utilize science, mathematics, and engineering design skills to generate innovative solutions that fill market gaps.
- b. Employ appropriate prototyping methods for engineer solutions.
- c. Translate market needs and opportunities into engineering solutions.
- d. Design business models and validate them to address market trends.
- e. Drive innovation and innovative culture for business development.
- f. Cultivate an entrepreneurial mindset to identify opportunities and navigate uncertainty.
- g. Distinguish between company structuring elements, scaling, and sustainability.
- h. Catalyze graduates with skills to establish impactful startups and ventures contributing to societal needs and economic development.
- i. Fostering multinational and interdisciplinary collaboration across universities with continuous integration from the local entrepreneurial community.
- j. Develop leadership abilities to lead teams and navigate entrepreneurial challenges.

III. Learning Outcomes

Upon completion of the program, graduates should be able to:

- a. Generate valuable ideas and innovations using ideation and design thinking.
- b. Design and validate business models addressing market trends and social needs.
- c. Develop impactful start-ups and ventures contributing to society and Sustainable Development Goals (SDGs).
- d. Discover leadership abilities to lead teams and navigate entrepreneurial challenges using risk aware and agile strategies.
- e. Evaluating the economics, financing options, and legal aspects of a business.
- f. Analyze technological, societal, and industry and market trends to create robust company strategies and operational plants.
- g. Ability to build networks and disseminate innovations through presentations and pitches to different stakeholders.

Course Delivery Methods

Courses are in one of the following three methods:

- **Face-to-Face (F2F) Method**

Courses using this method are delivered by faculty in person in regularly scheduled class sessions physically on campus.

- **Blended (BLD) Method**

Courses are delivered in a hybrid mode of physical face-to-face class sessions and asynchronous material including online instructional videos, presentations, projects, and similar learning activities.

- **Online (OL) Method**

Courses are delivered exclusively online. This method consists of a hybrid of synchronous regularly scheduled class sessions delivered via the Internet, and asynchronous material including online instructional videos, presentations, projects, and similar learning activities. Virtual classrooms utilizing different online platforms are used. No physical face-to-face meetings are required.

EIM Courses' mode of delivery is distributed as per the following percentages:

Classification	Credit Hours	Percentage
Face-to-Face (F2F) Method	23	64
Blended (BLD) Method	8	22
Online (OL) Method	5	14
Total	36	100

IV. German Dimension

The joint nature between GJU and h2 in the program creates an intercultural profile that enables students to gain entrepreneurial experience and leadership skills in an intercultural context. The cooperation includes the following:

- Student ability to study in Germany for short or semester long periods.
- Professor ability to teach block courses in Jordan and Germany for both sets of students.
- Joint practical and thesis projects between GJU and h2 students and professors.
- Collaboration with various industries and innovation driven companies in German. Mandatory academic exchange to Germany.

V. Admission Requirements

Applicants having a BSc degree in any Engineering discipline or related disciplines (e.g., Computer Science, Software Engineering, etc.) with at least one year of experience can apply to this master's program. Regarding admission, other conditions, such as GPA and language, are covered by the general graduate studies admission requirements. Upon admission, all students are required to submit a letter of consent for mandatory travel to Germany for academic exchange.

VI. Curriculum

The numbering system is structured as follows (from left to right):

1. EIM: Entrepreneurship and Innovation Management
2. Level digit: 7 = Master level
3. The second digit represents the specialized field of knowledge:
 - 1 = Create
 - 2 = International Exposure
 - 3 = Development
 - 4 = Operational Management
 - 5 = Applied Engineering
 - 6 = Research methods
 - 7 = Special Topics
 - 8 = Comprehensive exam
 - 9 = Thesis
4. The right two digits represent the sequence of the course within the field.

VII. ECTS Workload

ECTS: European Credit Transfer and Accumulation System (ECTS): One ECTS is equivalent to 25 actual workloads hours.

VIII. Degree Requirements (Credit hours)

Classification	Credit Hours	ECTS
Compulsory courses	21	57
Elective courses	6	13
Thesis	9	20
Total	36	90

IX. Curriculum (Credit hours)

1. Compulsory Requirements: (20 credit hours)

Course ID	Course Name	Credit Hours	ECTS	Contact Hours		Type	Prerequisites / Corequisites
				Lect	Lab		
EIM7101	Startup Building 1: Market Opportunity to Engineering Concepts	2	8	2	-	BLD	-
EIM7102	Startup Building 2: Engineering Design and Early-Stage Prototypes to Market Planning	3	8	3	-	BLD	EIM7101, EIM7312
EIM7103	Startup Building 3: Developed Products to Company Design	3	8	3	-	BLD	EIM7102, EIM7100
EIM7421	Marketing and Sustainability	2	6	2	-	OL	-
EIM7221	Intercultural Ethics and Onboarding	1	4	1	-	F2F	-
EIM7222	International Leadership	1	3	1	-	F2F	-
EIM7311	Innovation and Entrepreneurship Fundamentals	2	5	2	-	F2F	-
EIM7312	Product Development and Prototyping	3	7	3	-	F2F	-
EIM7422	Company Structuring and Finance	3	6	3	-	OL	-
EIM7611	Research Methods	1	2	1	-	F2F	-
EIM7100	International Exchange	0	0	0	-	-	Min. 2 weeks, Dept. Approval
Total		21	57	21	0		

2. Elective Courses: (A minimum of 6 credit hours and 15 ECTS out of the following)

Course ID	Course Name	Credit Hours	ECTS	Contact Hours		Type	Prerequisites / Corequisites
				Lect	Lab		
EIM7321	Social Entrepreneurship and Impact	3	6	3	-	BLD	-
EIM7511	Applied Data Analytics	3	6	3	-	F2F	-
EIM7512	Mastering Tech Trends	2	5	2	-	BLD	-
EIM7513	Business Performance Optimization and Improvement	3	6	3	-	BLD	-
EIM7423	Risk Management	2	5	2	-	F2F	-
EIM7231	International Research Project	2	5	2	-	BLD	-
EIM7514	AI Innovation Workshop	2	5	2	-	F2F	-
EIM7111	Investor Acquisition	2	5	2	-	BLD	Dept. Approval
EIM7771	Special Topics in Technology*	3	8	3	-	F2F	-
EIM7772	Special Topics in Manufacturing*	3	8	3	-	F2F	-
EIM7711	Special Topics in Entrepreneurship and Innovation Management I*	1	3	1	-	F2F	-
EIM7712	Special Topics in Entrepreneurship and Innovation Management II*	2	5	2	-	F2F	-
EIM7713	Special Topics in Entrepreneurship and Innovation Management III*	3	8	3	-	F2F	-
IE711	Operations Research & Simulation	3	8	3	-	F2F	-
IE734	Quality Engineering and Management	3	8	3	-	F2F	-
IE752	Sustainability and Energy Management	3	8	3	-	F2F	-
SP770	Sustainable Planning I	3	8	3	-	BLD	-

SW721	Community Based Interventions in Social Work	3	5	3	-	BLD	-
LOGS721	Logistics & Supply Chain Management	3	7	3	-	F2F	-
MBA702	Organizational Behaviour & Leadership	3	8	3	-	F2F	-
MBA734	Accounting for Decision Making	3	8	3	-	F2F	-
MBA749	Strategic Management	3	8	3	-	F2F	-
Minimum required		6	13	6	0		

*Only one special-topics elective course can be studied based on the Graduate Studies instructions at GJU.

3. Thesis: (9 credit hours)

Course ID	Course Name	Credit Hours	ECTS	Contact Hours		Type	Prerequisites / Corequisites
				Lect	Lab		
EIM799I	Master thesis	3	7	3	-	BLD	Dept. Approval
EIM799II	Master thesis	3	7	3	-	BLD	Dept. Approval
EIM799III	Master thesis	3	6	3	-	BLD	Dept. Approval
EIM799IV	Master thesis	0	0	0	-	BLD	Dept. Approval
Minimum required		9	20	9	0		

X. Study Plan Guide: Thesis Track

First Year							
First Semester							
Course ID	Course Name	Credit Hours	ECTS	Contact Hours		Type	Prerequisites / Corequisites
				Lect	Lab		
EIM7101	Startup Building 1: Market Opportunity to Engineering Concepts	2	8	2	-	BLD	-
EIM7221	Intercultural Ethics and Onboarding	1	4	1	-	F2F	-
EIM7311	Innovation and Entrepreneurship Fundamentals	2	5	2	-	F2F	-
EIM7312	Product Development and Prototyping	3	7	3	-	F2F	-
EIM7611	Research Methods	1	2	1	-	F2F	-
Total		9	26	9	0		

First Year							
Second Semester							
Course ID	Course Name	Credit Hours	ECTS	Contact Hours		Type	Prerequisites / Corequisites
				Lect	Lab		
EIM7102	Startup Building 2: Engineering Design and Early-Stage Prototypes to Market Planning	3	8	3	-	BLD	EIM7101, EIM7312
EIM7103	Marketing and Sustainability	2	6	2	-	OL	-
EIM7222	International Leadership	1	3	1	-	F2F	-
EIM7422	Company Structuring and Finance	3	6	3	-	OL	-
EIM7100	International Exchange	0	0	0	-	-	Min. 2 weeks, Dept. Approval
Total		9	23	9	0		

Second Year							
First Semester							
Course ID	Course Name	Credit Hours	ECTS	Contact Hours		Type	Prerequisites / Corequisites
				Lect	Lab		
EIM7103	Startup Building 3: Developed Products to Company Design	3	8	3	-	BLD	EIM7100, EIM7102
-	Elective	3	7	3	-	-	-
-	Elective	3	6	3	-	-	-
Total		9	21	9	0		

Second Year							
Second Semester							
Course ID	Course Name	Credit Hours	ECTS	Contact Hours		Type	Prerequisites / Corequisites
				Lect	Lab		
EIM799I-IV	Master thesis	-	-	-	-	BLD	Dept. Approval
Total		9	20	9	0		

XI. Course Descriptions

1. Compulsory Courses

EIM7101 Startup Building 1: Market Opportunity to Engineering Concepts	2 Cr Hr	8 ECTS
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This course has a project-based structure and is the first of a three-series startup building project. Students in this course cover ideation, design thinking, and market opportunity identification methods. Moreover, industry analysis and benchmarking methods are outlined and applied to the students' innovations. Components from value engineering, reverse engineering, and quality engineering are integrated into the concept development. Moreover, the engineering design process is employed to define product specification and architecture. Meanwhile, early-stage idea and concept evaluation methods are outlined. The content is complemented with seminars and guest speakers from the entrepreneurship ecosystem and provide exposure to role models in the field.

*Prerequisites: -
Corequisites: -*

EIM7102 Startup Building 2: Engineering Design and Early-Stage Prototypes to Market Planning	3 Cr Hr	8 ECTS
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This course is a project-based structure and is the second of a three-series startup building project. The course bridges the engineering design and prototyping stages with the market planning stage for the startup project. In this course, product design and development activities are undertaken, and early-stage alpha prototypes are developed. Strategic thinking and decision-making methods are employed to evaluate concepts and prototypes. The course focuses on the startup development through defining implementation and process requirements, business model assessment, agile development, and lean start-up approaches. Moreover, market research and segmentation are performed for the startup, and problem-solving abilities in real-world entrepreneurial scenarios are integrated for startup viability testing. Lastly, the economic structure of the startup is explored by defining revenue streams and cost sources.

*Prerequisites: EIM7101
Corequisites: -*

EIM7103 Startup Building 3: Developed Products to Company Design	3 Cr Hr	8 ECTS
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This course is project-based and is the final of a three-series startup building project. Here the planning function is a major focus, and beta-stage prototypes are developed. Financial plans and projections will be made. Company Structuring and description will be developed. In this stage roles and responsibilities of startup founders are determined and milestones identified. Moreover, scaling methods are discussed. Lastly, business plan preparation, dissemination, and investor engagement are elaborated. The aforementioned content is complemented with seminars and guest speakers from the entrepreneurship ecosystem providing exposure to role models in the field.

*Prerequisites: EIM7102, EIM7100
Corequisites: -*

EIM7421 Marketing and Sustainability	2 Cr Hr	6 ECTS
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This course aims to provide students with the knowledge and skills they need to develop effective marketing strategies and operative measures for companies operating internationally. International marketing is a specific discipline within the broader field of marketing that is becoming increasingly important in the globalised economy. This course begins by introducing fundamentals of international marketing before exploring specific strategies for selecting, entering and developing international markets with innovative products. The role of market research and different methodologies for collecting relevant information are demonstrated. Meanwhile, the features of specific business sectors and the opportunities and challenges, especially in the field of sustainability faced by companies are explored. A broad overview of the characteristics of international marketing policies are taught to explore the strategic decisions made by companies. The advantages, disadvantages, and challenges of global market entries and the adoption of innovative products and services in a sustainable world are a focal point.

Prerequisites: -

Corequisites: -

EIM7221 Intercultural Ethics and Onboarding **1 Cr Hr** **4 ECTS**

In this course, the primary objective is to foster an understanding of intercultural dynamics, enhance team-building skills, and develop a strong foundation for international and interdisciplinary collaboration in a professional setting. It includes interactive learning activities to encourage collaboration and discourse on familiarity and differences among participants from diverse cultural and technical backgrounds. Students will practice the ability to formulate concepts for interdisciplinary and intercultural target audiences through communicative actions in universal groups. Conflict management and conflict resolution methods will be outlined using current global examples (global warming, Fridays for Future, vaccination debates, etc.).

Prerequisites: -

Corequisites: -

EIM7222 International Leadership **1 Cr Hr** **3 ECTS**

In this course the focal points are leadership skills and international research and collaboration. Selected topics on leadership and personnel management with regards to early-stage ventures as well as personnel and organisational management in corporate contexts are covered. This is enhanced with the application of leadership and self-leadership cases. Moreover, the specifics of global, international and intercultural personnel and organisational management are discussed. This course serves as a foundational step in preparing students for the complexities and opportunities inherent in conducting international research within the field of innovation and entrepreneurship management. The primary goal is to introduce students to the principles, methodologies, and considerations involved in conducting international research within the context of innovation and entrepreneurship management, such as, ethics, cross-cultural data collection, and analysis techniques.

Prerequisites: -

Corequisites: -

EIM7311 Innovation and Entrepreneurship Fundamentals **2 Cr Hr** **5 ECTS**

The course gives an introduction into Innovation and Entrepreneurship domains from both a conceptual and practical perspective. The innovation imperative, sources of innovation, and different innovation tools are illustrated. Moreover, the development of innovation research from different dimensions such as product, product system, product performance, process, supply chain, etc. are explored. The different types and stages of entrepreneurial activity are broken down. The course takes student through the process of creating new products and services starting from the creativity stage to the innovation stage, to the entrepreneurial stage. The course also covers innovation and entrepreneurship from multiple angles using real world examples and case studies. Finally, the necessary competencies and resources entrepreneurs need to bring innovative ideas to life are taught.

Prerequisites: -

Corequisites: -

EIM7312 Product Development and Prototyping **3 Cr Hr** **7 ECTS**

This course covers the product development process for bringing a new product to market or renewing an existing product. This is done by integrating of the ideation, design, and manufacturing and fabrication functions of organizations in creating innovative products. Moreover, the voice-of-customer and jobs-to-be-done mentalities are translated into the product architecture, specifications, material selection, and fabrication methods. Competitive benchmarking methods, such as reverse engineering, are utilized. The iterative process between digital designs and physical prototypes are explained, and different prototyping methods, such as concept, looks-like, works-like, and engineering prototypes are differentiated and clarified. Lastly, the course covers methods for managing project scope, schedule, resources, and project life cycle.

Prerequisites: -

Corequisites: -

EIM7422 Company Structuring and Finance **3 Cr Hr** **6 ECTS**

In this course the essential components for structuring a company or early venture are classified. This includes finance and accounting, as well as legal aspects related to startups in an international and European context. The finance component includes theory and concepts of investment and financing (including static and dynamic investment calculations in the presence of economic uncertainty). Moreover, the role of banks, financial institutions, and various sources of capital such as equity, debt, mezzanine, and alternatives are discussed. Additionally, key issues related to insolvency proceedings and sustainable corporate finance are addressed. Meanwhile, creating and measuring report financial positions and performance, understand accounting principles, rules, and standards (national and international) are emphasized. The legal aspect includes European law related to entrepreneurship and international business and develop their entrepreneurial capabilities. Matters related to intellectual property and ecommerce-law are highlighted. Finally, how to define the legal structure of an international start-up is discussed.

Prerequisites: -

Corequisites: -

EIM7611 Research Methods **1 Cr Hr** **2 ECTS**

This course covers the essential concepts related to research that allow the students to critically analyze published research and/or be able to conduct independent research, starting from developing the research idea up to writing and presenting a scientific paper. Focus is on understanding each component of the research process, qualitative and quantitative research approaches, practical strategies for conducting a literature review, various styles of citations (with an emphasis on APA and IEEE style guidelines), how to read, write effectively, and present technical papers, how to evaluate the effectiveness of research, how to prepare a comprehensive research proposal. Various aspects of research ethics (e.g., professional ethics, intellectual property, plagiarism) will also be addressed in this course. The course includes a number of lectures given by faculty and invited speakers where models of research and case studies in engineering are presented.

Prerequisites: -

Corequisites: -

EIM7100 International Exchange **0 Cr Hr** **0 ECTS**

This exchange is an integral component of the Entrepreneurship and Innovation Management master's program, offered in collaboration with our esteemed partner, Magdeburg-Stendal University of Applied Sciences (h2). This immersive experience is designed to expose students to the dynamic landscape of innovation and entrepreneurship in Germany, a global hub for technological advancement. The course provides a unique opportunity for students to engage in hands-on experiences, collaborative projects, and interactions with industry leaders and experts. The duration of the stay in Germany is a minimum of 2 weeks, allowing students to tailor the experience to their academic and professional goals. This course aims to enrich the academic experience of students in the Entrepreneurship and Innovation Management master's program, providing them with a unique and transformative international learning experience.

Prerequisites: Dept. Approval

Corequisites: -

2. Elective Courses

EIM7321 Social Entrepreneurship and Impact **3 Cr Hr** **7 ECTS**

This course provides students with a knowledge and understanding of the principles of social entrepreneurship. Case studies are presented, and students then apply this knowledge to an individual topic that forms the basis of their reports. This course is relevant to entrepreneurs and intrapreneurs that have a social, environmental, or nonprofit focus. Social Entrepreneurial domains on topic areas related to humanitarian, environmental, educational, etc. are discussed.

Prerequisites: -

Corequisites: -

EIM7511 Applied Data Analytics **3 Cr Hr** **7 ECTS**

At the present time, there is a growing need for specialists with background in Python who can apply data analytics methods to practical problems at their workplace. Working in data analytics requires an understanding of many interdisciplinary concepts, involves data mining and application of various methods. The proposed course is designed to fill this need. Students will learn major Python tools, machine learning classifiers and techniques for data analytics. There are weekly in class assignments and mini projects on topics covered in class. These assignments will help build necessary statistical, visualization and other data analytics skills in a variety of applications including finance, time series analysis and recommendation systems. In addition, students will choose a topic for a term project and present it on the last day of class.

Prerequisites: -
Corequisites: -

EIM7512 Mastering Tech Trends **2 Cr Hr** **5 ECTS**

This course's main topics are current advancements in technology innovation and entrepreneurship. The course introduces students to software trends such as Blockchain, AI, Cyber security, and IoT, hardware trends such as 3D printing and automated manufacturing, and the combination software and hardware trends such as virtual reality and autonomous driving. The course also provides a detailed plan for turning an invention into a valuable innovation and product or service. Real-world case studies and insights gained from mistakes are covered and concise and understandable descriptions of the strategic elements of the process of transformation.

Prerequisites: -
Corequisites: -

EIM7513 Business Performance Optimization and Improvement **3 Cr Hr** **7 ECTS**

The course covers value maximization and de-risking projects through good strategic decision making and high performance. It explores both key drivers of value in projects as well as understanding of better strategic risk management. The course outlines strategies for success when facing commodity price shifts, industry saturation, diminishing margins, and myriad other market and operational factors. Gain actionable insights into developing an optimized strategy for a project and the performance measures that can be put in place to align the operations with strategic intent, so the business goals are achieved – with guidance on balancing the trade-offs between the long-term business goals and short-term production targets.

Prerequisites: -
Corequisites: -

EIM7423 Risk Management **2 Cr Hr** **5 ECTS**

The course aims to provide an understanding of the complex and wide range of risks that people and organizations must manage in today's rapidly changing world, as well as the core concepts, frameworks, and techniques of risk management. The purpose is Students learn how to manage, measure, and control these risks. The entire course covers the entire process of identification, assessment, analysis, response, risk management, governance, culture, and risk assurance.

Prerequisites: -
Corequisites: -

EIM7231 International Research Project **2 Cr Hr** **5 ECTS**

In this course, development and implementation of a research project preferably in a group with faculty, students, or industry through h2. The tools and methods of collaborative and virtual work will be practiced for effective outcomes. Students are expected to deepen the application of self-selected research methods from conception to application to publication. Effective presentation of research results via scientific articles; objectives, content, and structure of scientific articles, are presented. Quality assurance and feedback with peer reviews are emphasized. Communication of results via posters and conference presentations are discussed.

Prerequisites: -
Corequisites: -

EIM7514 AI Innovation Workshop **2 Cr Hr** **5 ECTS**

This course introduces the use of Artificial Intelligence (AI) technology for creating innovative Business Solutions. The course exposes students to where and how AI is currently being used in marketing, medicine, personalization, etc. The course offers comprehensive technological preparation for the requirements of today's business world and provides students with the necessary skills to operate successfully in an increasingly digitalized and innovation-driven business world. An important component of this course is the creation of an experimental AI driven environment for the development of new business models and their implementation as prototypes. They will be able to develop innovative business ideas, use AI effectively, implement prototypes, and take ethical aspects into account.

Prerequisites: -
Corequisites: -

EIM7111 Investor Acquisition **2 Cr Hr** **5 ECTS**

In this course, students who have built a viable and promising startup building concept and plan can take this course to bridge them to the implementation and real-life initiation of the startup. This course will have a networking component that will connect students and entrepreneurship ecosystem enablers such as venture capitalists, angle investors, accelerators, and incubators. This course covers how to raise the capital an entrepreneur needs from investors in the industry network that they operate in. How to create and deliver presentations and pitches for investors, venture capitalists and angels. Moreover, methods for identifying appropriate investors for your field will be covered. The course will include a real-life pitch to external ecosystem enablers.

Prerequisites: Dept. Approval
Corequisites: -

EIM7771 Special Topics in Technology **3 Cr Hr** **8 ECTS**

Selected topics of current interest in technology. The course is designed to give the students an opportunity to pursue special studies not offered in other courses.

Prerequisites: -
Corequisites: -

EIM7772 Special Topics in Manufacturing **3 Cr Hr** **8 ECTS**

Selected topics of current interest in manufacturing. The course is designed to give the students an opportunity to pursue special studies not offered in other courses.

Prerequisites: -
Corequisites: -

EIM7711 Special Topics in Entrepreneurship and Innovation Management I **1 Cr Hr** **3 ECTS**

Selected topics of current interest in Entrepreneurship and Innovation Management. The course is designed to give the students an opportunity to pursue special studies not offered in other courses.

Prerequisites: -
Corequisites: -

EIM7712 Special Topics in Entrepreneurship and Innovation Management II **2 Cr Hr** **5 ECTS**

Selected topics of current interest in Entrepreneurship and Innovation Management. The course is designed to give the students an opportunity to pursue special studies not offered in other courses.

Prerequisites: -
Corequisites: -

EIM7713 Special Topics in Entrepreneurship and Innovation Management III **3 Cr Hr** **8 ECTS**

Selected topics of current interest in Entrepreneurship and Innovation Management. The course is designed to give the students an opportunity to pursue special studies not offered in other courses.

Prerequisites: -
Corequisites: -

IE711 Operations Research & Simulation **3 Cr Hr** **8 ECTS**

This course covers basic and advanced Operations Research (OR) methods and applications along with computer simulation of stochastic processes using Monte Carlo and Discrete Event Simulation (DES) software packages. OR is focused on the formulation of mathematical models with linear and integer programming, computer solution, and sensitivity and cost analysis of alternative optimum solutions with applications to production and service systems and logistic networks. The course also covers an overview of queuing systems and decision analyses. The course includes real-world case studies and applications of the learned concepts and methods.

Prerequisites: -
Corequisites: -

IE734 Quality Engineering and Management **3 Cr Hr** **8 ECTS**

To familiarize students with fundamentals of quality engineering and management including quality definitions, quality management principles, total quality management strategy, quality management systems, excellence models, economics of quality, statistical process control, sampling procedures, introduction to ANOVA and DoE, process and measurement system capability, DMAIC methodology and an introduction to Six Sigma.

Prerequisites: -
Corequisites: -

IE752 Sustainability and Energy Management **3 Cr Hr** **8 ECTS**

Students will learn about the principle of sustainability and sustainable development in a broader context, sustainability metrics, energy efficiency, conventional and nonconventional energy resources, economics of energy generation and consumption. They will analyze available data related to energy demand, climate change, and sustainability indicators. They will learn how to perform energy analysis and conduct energy audits in building and industrial facilities. Topics including electricity supply systems, heating, lighting, insulation, and other energy related systems will be reviewed in addition to energy systems maintenance. Students will learn various energy storage technologies like mechanical, electrical, chemical, and thermal technologies. Concepts related to energy in transportation, green buildings, energy management standards will be also covered.

Prerequisites: -
Corequisites: -

SP770 Sustainable Planning I **3 Cr Hr** **8 ECTS**

The course intends to create greater awareness of problems and potentials related to use, conservation and management of natural resources. Emphases are on the concept of resource efficient planning, and the interdependencies between environmental factors and human activities as basic requirements for planners. The course includes the following topics: introduction to the basics of landscape ecology, ecosystems and interaction between man and nature, international environmental conventions, land use zoning, classification and evaluation, environmental economics, natural resources management and conservation, and implementation of environmental projects.

Prerequisites: -
Corequisites: -

SW721 Community Based Interventions in Social Work**3 Cr Hr****5 ECTS**

The course covers fundamental theories and practices relating to community-based approaches in Social Work. Students develop skills to identify significant needs, to gather information and strategy services based on a participatory approach, to reach hard-to-reach subpopulations, and to work with host communities. The community-based approach also sensitizes students to work with special groups such as youth, the elderly, and people with special needs. Students are introduced to methods of working and implementing services with individuals, groups, and communities, where they gain experience in mapping and addressing gaps without duplicating services. While this course is focused on refugees, community-based work requires the consideration of resources and support structures of the host community that has been shouldered with responsibilities. Through such practical engagement and self-reflection, professional competence is developed for promoting sustainable social cohesion within host communities through various means, such as improving livelihoods and providing entrepreneurship opportunities, particularly in contexts of a protracted refugee situation.

*Prerequisites: -**Corequisites: -***SW721 Community Based Interventions in Social Work****3 Cr Hr****5 ECTS**

The course covers fundamental theories and practices relating to community-based approaches in Social Work. Students develop skills to identify significant needs, to gather information and strategy services based on a participatory approach, to reach hard-to-reach subpopulations, and to work with host communities. The community-based approach also sensitizes students to work with special groups such as youth, the elderly, and people with special needs. Students are introduced to methods of working and implementing services with individuals, groups, and communities, where they gain experience in mapping and addressing gaps without duplicating services. While this course is focused on refugees, community-based work requires the consideration of resources and support structures of the host community that has been shouldered with responsibilities. Through such practical engagement and self-reflection, professional competence is developed for promoting sustainable social cohesion within host communities through various means, such as improving livelihoods and providing entrepreneurship opportunities, particularly in contexts of a protracted refugee situation.

*Prerequisites: -**Corequisites: -***LOGS721 Logistics & Supply Chain Management****3 Cr Hr****7 ECTS**

The focus of this course is on supply chain management. Topics include the evolution and objective of supply chain management; the major stages and processes involved in planning and managing supply chains; and why the concept of strategic fit is so important to supply chain managers. Successful students will also understand the major drivers of supply chain performance; key metrics for managing performance; and how to plan and forecast demand under conditions of uncertainty to meet desired customer service levels. This course also addresses the purpose and content of the Supply Chain Operations Reference (SCOR) Model. Case studies and problems are used throughout the course to highlight important principles and best practices in supply chain management.

*Prerequisites: -**Corequisites: -*

MBA734 Accounting for Decision Making	3 Cr Hr	8 ECTS
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In this course students will examine every aspect of cost data and how it relates to decision making, planning and control. More than just numbers and columns, accounting information can be an effective management tool if leveraged correctly. Students will gain insight into the versatility of this data as well as how accounting practices are evolving in manufacturing, service delivery technologies and more. Through this case study-oriented course, students will become familiar with the two basic types of product costing systems as well as the concept of cost flow. From how process costing measures the costs of direct labor, direct materials, and overhead costs for each process, department, or function, to value-based systems that help companies manufacture and deliver products and services while minimizing waste, Students will discover methods for improving operations and lowering costs.

Prerequisites: -

Corequisites: -

MBA702 Organizational Behaviour & Leadership	3 Cr Hr	8 ECTS
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This course is about people in organizations, focusing on how management and leadership practices affect the attitudes, motivation, behaviors, and performance of employees and teams.

Course content is derived mostly from contemporary theory, research, and practice in the organizational behavior and management disciplines. Students will be encouraged to use course material to be self-aware and mindful about how they lead and interact with others, and to adopt an ethic of continuous self-improvement in their leadership, teamwork, and interpersonal skills.

This course is experiential and interactive. Real case examples will be presented often along with guest speakers and students are encouraged to read the news and stay abreast of changes in the business environment which directly apply to classroom topics.

Prerequisites: -

Corequisites: -

MBA749 Strategic Management	3 Cr Hr	8 ECTS
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The course brings together what the MSc. students have learned in the business disciplines into strategy to achieve a sustainable competitive advantage through discussions of strategy formulation, selection, and implementation. It relies heavily on interactive and case analysis learning methods. This course teaches MSc. students the science and art of business and corporate level strategies in modern organizations to achieve long term strategic objectives in today's turbulent business environment. It teaches MSc. students the process of strategic management and business policy as a usual business practice that is embedded in the organization's culture especially on the top levels of management. Resources-based theory, dynamic strategic capabilities, governance, and business politics are an essential part of this course.

Prerequisites: -

Corequisites: -

3. Master Thesis

EIM799I, EIM799II, EIM799III, and EIM799IV Master Thesis	9 Cr Hr	20 ECTS
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The master thesis concludes the program, and it is the ending measure to the students' ability to conduct research and complete original work that pertains to engineering management. Students must demonstrate the ability to integrate the information and the skills accumulated in their study plan through rigorous written and oral communications. Advisors and students select a thesis topic, and students complete the project under the supervision of the advisors by searching relevant literature, collecting, and analyzing data, preparing, and presenting results, and writing research papers. The thesis is completed with a thesis report and a final defense to an examining committee.

Prerequisites: Department Approval

Corequisites: -