MASTER IN BUSINESS ENGINEERING

MAIN SUBJECTS: DATA ANALYTICS • FINANCE • OPERATIONS MANAGEMENT

120 ECTS CREDITS – LANGUAGE: ENGLISH – DEGREE: MASTER OF SCIENCE

COURSE CONTENT

A business engineer has a thorough knowledge of the discipline of business administration and technology, i.e. technological products and processes. In this respect, a business engineer may act as a mediator between technical and business economic positions to conduct data analysis, modelling and decision-making. He is trained to develop and implement business solutions starting from a model to a business process.

The Master of Science in Business Engineering is a programme in business administration that focuses on management science, business processes and technology.

These three subdisciplines are educated throughout the two-year master programme in different manners through theoretical lectures, practical case studies and business games as well as guest speakers and company projects. Where the Bachelor of Science in Business Engineering mainly lays the (quantitative) foundation, the master programme studies different aspects of these subdisciplines in a more applied manner.
The specific content of the study that links business analytics and business processes with technology helps to translate processes into business models and organisational structures into information systems. Business operations within a single company and between companies in a supply chain, that encompass processes and the logistical flow of products, services and/or information, are studied thoroughly by data analysis techniques, conceptual or mathematical modelling techniques and techniques of decision making. These tools support the efficient organisation of resources in companies towards its common goals and objectives.

COURSE STRUCTURE

The link between management science, business processes and technology is a constant throughout the master programme. In this perspective, attention is spend to the management of an organisation, its resources and its business processes by means of courses like Strategic Management, Human Resource Management, Business Process Management, Business skills, Managing Service Organisations, etc. The technology component in the course is further widened by the topics of Environmental Technology and System Dynamics and the link between these technology courses and business management is further ascertained with the courses in Financing High Tech Entrepreneurial Companies, High Tech Marketing and Innovation and Technology Management and Implementation and Management of IT within an Organisation. Different management science principles are discussed and maintained throughout these courses including mathematical modelling, statistics and numerical algorithms to improve an organisation's ability to enact rational and meaningful management decisions. Students can specialise and choose one of three main subjects.

The discipline of **Operations Management** is an area of management concerned with overseeing, designing, and controlling the process of production and redesigning business operations in the production of goods or services. It involves the responsibility of ensuring that business operations are efficient in terms of resource use, and effective in terms of meeting customer requirements. It is concerned with managing the process that converts inputs (raw materials, labor, and energy) into outputs (goods and/or services). Important business concepts concerning Project Management, Total Quality Management, Production and Supply Chain Management will be highlighted from various angles and perspectives and their application will be illustrated in a real-world business decision making setting. For more information visit our website: www.projectmanagement.ugent.be.

The discipline **Data Analytics** mainly emphasises 'Business Intelligence' and refers to the analysis of business data to uncover hidden patterns, unknown correlations and other useful information that can be used to make better business decisions. McKinsey and Gartner claim that there is an enormous shortage of graduates in this field. Due to the more quantitative schooling of business engineers, emphasis is placed on price-fixing, analytical customer management systems (analytical Customer Relationship Management = aCRM), predictive and prescriptive analytics as well as more recent evolutions in Big Data, social media and web analysis.

The discipline **Finance** analyses the financial decisions of enterprises, as well as of investment managers who decide to invest in shares or derived financial instruments. The quantitative background of business engineers enables them to draw up complex financial models, for example with regard to risk management in enterprises, the planning of financial requirements, optimal investment portfolios, etc.

CAREER PERSPECTIVES

With a degree in Business Engineering you can follow different career paths. With their strong foundation in business economics, their broad knowledge of new technologies and their strong focus on quantitative analytics in production, services, logistics, marketing and finance, business engineers understand better than anyone else how to improve the efficiency in the various parts of a company's logistic chain.
Their job deals with managing production processes and services, with analytical and quantitative tasks to improve business decisions, as well as with optimising the bottleneck processes in a company to improve its overall efficiency.
As a bridge builder between business economists and engineers, they are able to optimise the decision making process at various levels of the company, ranging from operational decisions on the work floor to strategic decisions at the top level of the company.
As an economic agent, they are familiar with the company processes in order to perform cost price calculations, but as an engineer they also have a much wider overview on the company's logistic processes and their potential for improvements.
With their essential knowledge of the latest technologies and their strong background in business analytics, business engineers rely on the state-of-the-art ICT concepts to optimise the business processes. This essential skill is embedded in almost every course of Business Engineering curriculum and will be key to today's modern international business strategy.

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TOELATINGSVOORWAARDEN VOOR HOUDERS VAN EEN VLAAMS DIPLOMA

Rechtstreeks:
- Ba toegepaste economische wetenschappen: handelsingenieur
- Ba toegepaste economische wetenschappen: handelsingenieur in de beleidsinformatica
- Ma toegepaste economische wetenschappen: handelsingenieur in de beleidsinformatica

Via voorbereidingsprogramma: (65 studiepunten)
- Ba/Ma toegepaste economische wetenschappen/Business Economics
- Ba/Ma economische wetenschappen/Economics
- Ba/Ma handelswetenschappen
- Ma handelsingenieur

Via voorbereidingsprogramma: (64 studiepunten)
- Ba/Ma industriële wetenschappen
- Ba/Ma ingenieurswetenschappen
- Ba/Ma bio-ingenieurswetenschappen
- Ba/Ma informatica
- Ba/Ma wiskunde
- Ba/Ma computerwetenschappen

Taal
Je voldoet aan de taalvoorwaarden op basis van je Vlaams diploma.

PRAKTISCHE INFORMATIE

Studieprogramma:
https://studiegids.ugent.be
> faculteiten > opleidingstypes > ga naar de opleiding van je keuze

Voorbereidende initiatieven
Je kunt je basisvaardigheden wiskunde online bijschaven, een vakantiecursus wiskunde en/of een vakantiecursus boekhouden bijwonen. Alle informatie op https://studiekiezer.ugent.be. Selecteer deze opleiding en je vindt toelichting en praktische details onder de rubriek 'Vlot van start'.

Alternatieve trajecten
De voorbereidingsprogramma's worden in één of twee delen aangeboden (kunnen dus gespreid worden over één of twee jaar). Dat maakt de combinatie met werken of andere studies mogelijk. Je kan terecht bij de trajectbegeleiding voor inhoudelijke of administratieve vragen met betrekking tot de toelating.

Infomomenten
Masterbeurs www.ugent.be/masterbeurs
Opleidingsgebonden infosessie
30 maart 2017, 18.30 u. en 24 juni 2017, 9.30 u.,
campus Tweekerkenstraat
www.ugent.be/nl/studeren/masteropleidingen

Trajectbegeleiding
Frauke Cuelenaere
Campus Tweekerken, Tweekerkenstraat 2 – 9000 Gent
T 09 264 34 66 – frauke.cuelenaere@ugent.be – www.ugent.be/eb

Meer info
Afdeling Studieadvies – Campus Ufo, Ufo,
Sint-Pietersnieuwstraat 33, 9000 Gent, T 09 331 00 31
studieadvies@ugent.be – www.ugent.be/studieadvies

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ADMISSION REQUIREMENTS FOR INTERNATIONAL DEGREE STUDENTS

Admission can only be granted after an individual application procedure. The Study Programme Committee will make the final decision whether to accept the application or not. The Study Programme Committee can decide that students need to follow a preparatory course or an individual master's programme, for instance for students who hold another diploma of bachelor or master than mentioned.

LANGUAGE

More information regarding the required knowledge of English:
www.ugent.be/languagerequirements

PRACTICAL INFORMATION

Study programme
www.ugent.be/coursecatalogue
> by Faculty > Programme types > select your programme

Application deadline for international degree students
- for students who need a visa: 1st of March
- for students who do not need a visa: 1st of June

www.ugent.be/deadline

Enrolling institution
Ghent University

Tuition fee
More information: www.ugent.be/tuitionfee

Learning Track Counsellor
Frauke Cuelenaere
Campus Tweekerken, Tweekerkenstraat 2 – 9000 Gent
T 09 264 34 66 – frauke.cuelenaere@ugent.be – www.ugent.be/eb

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MASTER

GENERAL COURSES	**51**
Strategic Management [en]	6
Environmental Technology	6
Human Resources Management	5
System Dynamics	5
Business-to-business Marketing [en]	6
Managing Service Organisations [en]	4
Implementation & Management of ICT within an Organisation [en]	4
Innovation Management [en]	4
Business Process Management	4
Financing High Tech Entrepreneurial Companies [en]	4
Technology entrepreneurship [en]	4
COURSES RELATED TO THE MAIN SUBJECT	**34**
DATA ANALYTICS	
Social Media and Web Analytics [en]	6
Analytical Customer Relationship Management [en]	6
Pricing and Revenue Management [en]	6
Predictive and Prescriptive Analytics [en]	6
Big Data [en]	6
Robust and data-driven optimalisation and simulation	4
FINANCE	
Investment Analysis [en]	6
Financial Risk Management [en]	6
Financial Modelling [en]	6
Advanced Investment Analysis [en]	6
Valuation and Financial Risk Management [en]	6
Business skills	4
OPERATIONS MANAGEMENT	
Advanced Production Management [en]	6
Project Management [en]	6
Total Quality Management [en]	6
Decision Making for Business [en]	6
Supply Chain Management [en]	6
Robust and data-driven optimalisation and simulation	4
ELECTIVE COURSES	**11**
Courses to be chosen from a list of elective courses. This list can be consulted on www.ugent.be/coursecatalogue.	
MASTER'S DISSERTATION	**24**

VOORBEREIDINGSPROGRAMMA (65 SP)

Wiskunde II (A)	3
Wiskunde II (B)	4
Applied statistics [en]	5
Natuurkunde	5
Scheikunde	5
Productiebeleid [en]	6
Beleidsinformatica	7
Operationeel onderzoek [en]	7
Elektrotechniek en elektronica	4
Materialenleer	3
Werktuigkunde en bouwkunde	4
Econometrie [en]	5
Objectgeoriënteerd programmeren	3
Algoritmen en datastructuren	4

VOORBEREIDINGSPROGRAMMA (64 SP)

Economie (A)	4
Economie (B)	5
Applied statistics [en]	5
Financiële analyse van de onderneming	5
Analytisch boekhouden en kostencalculatie	5
Econometrie	5
Marketing I	6
Productiebeleid	6
Beleidsinformatica	7
Operationeel onderzoek [en]	7
Bedrijfsfinanciering	6
Bedrijfskundige vaardigheden	4

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