

## **Programme Syllabus**

# **Master's Programme in Business Analytics (120 credits)**

**Masterprogram i Business Analytics  
(120 högskolepoäng)**

**Established by:** Pro-Vice-Chancellor and the Deans

**Date of establishment:** 20 March 2023

**Reg no:** BTH-4.1.10-0277-2023

**Programme code:** IYADB

**Adopted by:** Pro-Vice-Chancellor and the Deans

**Date of adoption:** 16 December 2025

**Date of revision:** 4 May 2026

**Reg no:** BTH-4.1.13-0558-2026

**Applies to students admitted:** autumn 2026

## Part 1 — Description of the degree programme

### Entry requirements

Admission to the degree programme requires:

Bachelor of Science in Engineering or Bachelor of Science in a technical area. At least 20 credits should consist of courses in Industrial Economy and/or Management. At least 24 credits should consist of courses in Mathematics and include courses in linear algebra, 5 credits and statistics, 5 credits. At least 5 credits in programming. English 6.

### Outcomes and content

The programme covers several areas of knowledge in industrial economics and management, with relevance for the specialization in Business Analytics. It includes market and business intelligence, decision-making, performance measurement systems, and econometrics, among other topics. In addition, courses in computer science are included. A special focus is on the collection, management, analysis and interpretation of data for value-creating strategic and operational decisions, within the framework of technology-intensive companies and organizations.

Courses contribute to analysis of conditions for and consequences of the commercial realization of technology. Particular focus is placed on how data affects areas such as technology-based business, entrepreneurship, strategy, and innovation. Skills in project management and project work, developed through applied projects with companies and organizations, are continuously refined through exchange with technology-intensive industries, and societal actors. The goal is for the student to be able to work innovatively in their profession and be well-prepared for work in the business world, or in the public sector, as well as for doctoral studies, after completing their studies.

### National outcomes

#### Knowledge and understanding

For a Degree of Master (120 credits) the student shall:

- demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and

- demonstrate specialised methodological knowledge in the main field of study.

### **Competence and skills**

For a Degree of Master (120 credits) the student shall:

- demonstrate the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information,
- demonstrate the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work,
- demonstrate the ability in speech and writing both nationally and internationally to clearly report and discuss his or her 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 autonomous employment in some other qualified capacity.

### **Judgement and approach**

For a Degree of Master (120 credits) the student shall:

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work,
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

## Content

The programme is broad and combines courses in the subject areas of industrial economics and management, market and business intelligence, decision-making, performance measurement systems, econometrics and courses in computer science with focus on artificial intelligence. The acquired knowledge is used in applying and in-depth courses in industrial economics and management and computer science.

During the first year of the programme, the course Data Structures and Algorithms is given and in-depth courses in industrial economics and management with a focus on data analysis to understand the world around us and organizational competitiveness as well as business realization of innovation projects.

The final year of the programme includes advanced research methods, application of artificial intelligence and in-depth courses in industrial economics and management with a focus on how data analysis can be used to, for example, acquire knowledge of the companies' operating environment, analyse competitiveness and make decisions. The degree programme concludes with a Master's thesis in a subject area relevant to the degree programme in the main field of study, Industrial Economics and Management.

The courses and their positions in the degree programme are presented in Part 2.

The degree programme undergoes continuous evaluation and development, which may result in changes in the range of courses offered.

## Implementation and instruction/teaching

The programme has been designed to gradually develop the knowledge and skills of the students, particularly in the areas of industrial economics and management, computer science, and its intersections. Knowledge is put into practice in problem-oriented learning activities and learning situations. Learning activities and teaching elements that occur during the education are, for example, lectures, seminars, workshops, laboratory sessions, report writing and student presentations individually as well as in groups. Additionally, there are guest lectures and project work in collaboration with companies and organizations.

The objectives of the programme are achieved through the courses included in the programme. Assessment and examination take place at course level. Course objectives, examination, and assessment are described in each course syllabus.

The structure of the programme is designed to provide students with an international perspective through current research and established international practice. The programme prepares students to work in a global labour market and

within an international research environment. Through international business contacts, students can take part in conditions in other countries in the area in question. The programme is taught exclusively in English, which contributes to an international study environment.

The degree programme is taught in English.

### **The university's perspectives**

At the university, several perspectives are central - partly to strengthen the strategic focus and profile, and partly to meet the legal requirements that apply to education. At BTH, the perspectives of responsible academia, innovative development, and collaboration are integrated into all degree programmes. Programme managers and teachers work continuously to weave these perspectives into the content of the programmes.

### **Conditions for participation in programme courses**

In order to participate in the courses of the degree programme, the student must be admitted and registered on the courses. In order to be admitted to compulsory or elective courses, the student must be eligible, i.e. meet the course's entry requirements, no later than at the start of the course. Eligibility checks are carried out before each course starts.

The number of study places on elective courses within the programme may be limited. If there are too few applicants, an elective course may be cancelled.

### **Degree**

After completing the studies, the student can apply for a degree. In order to obtain the degree stated below it is required that the objectives for qualifications in accordance with the Higher Education Ordinance have been achieved as well as the requirements stated in the Local Degree Ordinance at BTH have been met.

The programme leads up to the following second-cycle degree:

Degree of Master of Science (120 credits)

Main field of study: Industrial Economics and Management

Specialisation: Business Analytics

## Part 2 — Courses in the programme

### Master's Programme in Business Analytics (120 credits)

Admitted: autumn 2026

| The name of the course                                                                                                        | Course code | Credits | Autumn Sp1 | Autumn Sp2 | Spring Sp3 | Spring Sp4 |
|-------------------------------------------------------------------------------------------------------------------------------|-------------|---------|------------|------------|------------|------------|
| <b>Education year 1</b>                                                                                                       |             |         |            |            |            |            |
| Microeconomics for Decision Makers<br>Industrial Economics and Management, First cycle; G1F                                   | IY1464      | 6       | X          |            |            |            |
| Business Analytics<br>Industrial Economics and Management, Second cycle; A1N                                                  | IY2640      | 6       | X          |            |            |            |
| Leadership in High-Technology and Knowledge-Intensive Organizations<br>Industrial Economics and Management, Second cycle; A1N | IY2653      | 6       | X          | X          |            |            |
| Economic Analysis for Strategic Decision-Making<br>Industrial Economics and Management, First cycle; G2F                      | IY1448      | 6       |            | X          |            |            |
| Industrial Organisation<br>Industrial Economics and Management, Second cycle; A1N                                             | IY2634      | 6       |            | X          |            |            |
| Advanced Econometrics<br>Industrial Economics and Management, Second cycle; A1N                                               | IY2637      | 6       |            |            | X          |            |
| Performance Management in Industrial Businesses<br>Industrial Economics and Management, Second cycle; A1N                     | IY2647      | 6       |            |            | X          |            |
| Project Management in Business Analytics<br>Industrial Economics and Management, Second cycle; A1F                            | IY2646      | 6       |            |            | X          | X          |
| Data Structures and Algorithms<br>Computer Science; Technology, First cycle; G1F                                              | DV1735      | 6       |            |            |            | X          |
| Applied Competition and Market Analysis<br>Industrial Economics and Management, Second cycle; A1N                             | IY2648      | 6       |            |            |            | X          |
| <b>Education year 2</b>                                                                                                       |             |         |            |            |            |            |
| Applied Artificial Intelligence<br>Computer Science; Technology; Second cycle; A1N                                            | DV2659      | 6       | X          |            |            |            |

|                                                                                                                             |        |    |   |   |   |   |
|-----------------------------------------------------------------------------------------------------------------------------|--------|----|---|---|---|---|
| Productivity and Technological Change<br>Industrial Economics and Management,<br>Second cycle, A1N                          | IY2639 | 6  | X | X |   |   |
| Corporate Valuation and Analysis<br>Industrial Economics and Management,<br>Second cycle, A1N                               | IY2643 | 6  | X |   |   |   |
| Advanced Research Method and Design<br>Industrial Economics and Management,<br>Second cycle, A1N                            | IY2638 | 6  |   | X |   |   |
| Master's Degree project in Industrial Economics and Management<br>Industrial Economics and Management,<br>Second cycle, A2E | IY2651 | 30 |   |   | X | X |
| <b>Elective courses education year 2</b>                                                                                    |        |    |   |   |   |   |
| Financial Modeling<br>Industrial Economics and Management,<br>Second cycle, A1N                                             | IY2642 | 6  |   | X |   |   |
| Machine Learning<br>Computer Science, Software Engineering;<br>Second cycle; A1N                                            | DV2638 | 6  |   | X |   |   |