Module descriptions: Logistics Engineering

Semester 1

Project 1: Warehousing

In addition to transport, the correct warehousing method plays a major role in logistics so that the end customer receives the goods in the desired quality. Within a project group, you work out two solutions for a company's warehousing problem. The advantages and disadvantages, as well as the corresponding consequences, are weighed against each other to achieve the best possible result. You demonstrate your knowledge in various ways (presentations, conducting interviews, writing reports, etc.).

CAS 1.1: Logistics in a Company

Through this module you receive insights into the general structure of a company and the individual company departments (purchasing, production etc.). The focus is on understanding various logistical interrelations. In addition, you acquire business know-how. You recognise how logistical objectives behave with regards to costs and benefits. Your knowledge is put to the test in a written exam.

CAS 1.2: Warehousing, General & Strategic

You learn about the roles of business aspects, flow of goods and the flow of information in relation to the topic of warehousing and how important these components are. You focus on warehousing and learn what exactly happens in a warehouse, what storage types there are and what processes are associated with them. In addition, you take a look at future logistics trends and developments. Test your knowledge in both a written exam and a presentation.

CAS 1.3: Warehousing, Tactical & Operational

As a future logistician, it is important to know, evaluate and be able to apply the most common storage methods, transport systems, storage and sorting systems, picking equipment and identification systems. Acquire additional knowledge from the areas of management and organisation, so that you can combine your knowledge in the future and apply it successfully. Put your knowledge to the test in a written exam.

CAS 1.4: Tools

Learn how to visualise and analyse logistics processes by using flowcharts and ABC analyses. The handling of data is of utmost importance for future logisticians and often forms an important basis for decision-making, for example in demand forecasting. You not only learn how to handle data, but also how to present and interpret the already collected data and how to apply it for future forecasts. Prove your knowledge in a written exam.

Semester 2

Project 2: Distribution

In this project, you and your group work on a structural task, according to provided guidelines, for the management of a retail company. Your results are supposed to serve as a recommendation for actions for the fictitious management of the retail company. The results of your group work are documented in a report and presented to the management.

CAS 2.1: Distribution, General & Strategic

Distribution plays a very important role in logistics as it deals with the processes necessary to get a company's products to the customer as quick as possible. In this module, you learn about the flow of money , goods, and information, what a distribution network is, why it exists, which actors play a role in it and what strategic decisions can be made according to it. Furthermore, you learn how to use KPIs (Key Performance Indicators) as a tool to monitor processes and ICT (Information and Communication Technologies). You prove your knowledge in a written exam.

CAS 2.2: Transport, Tactical & Operational

Explore the field of transportation in greater depth. Different types of transport are discussed and presented so that you can recommend the appropriate transport modality in the future. Not only the distance and the duration of the transport play an important role, but also the costs. For this reason, you get to know and apply different decision factors. Put your knowledge to the test in a written exam.

CAS 2.3: Distribution, Tactical & Operational

To get an overall picture of the planning and management of a distribution network, you not only find out which parties play an important role in the distribution, but also how to view distribution from a marketing perspective. This knowledge is in direct relation to the organisational and management aspects of a company. Test your knowledge in a written exam.

CAS 2.4: Tools

To make efficient and strategic decisions in the future, you once again deal with project-based work. Not only you learn about the different methods and techniques relevant to the various distribution networks, but you also discover several data collection methods. Then you are able to successfully apply your knowledge to route and trip planning and determine exactly what lead times need to be considered for a distribution network. You put your knowledge to the test in a written exam.

Semester 3

Project 3: Production

The third project focuses on the area of production and is carried out in a production environment of a company. The project consists out of two parts. In the first part, together with your project group, you will look for a production company that gives you the opportunity to solve one of its problems. Together with your group, you work out a solution and apply your previous knowledge. In

the end, your result are presented orally and reflected on accordingly. In the second part of the project, you carry out a project of your choice with the help of a project plan. The aim is to carry out the project as independent as possible. This part prepares you ideally for your work placement.

CAS 3.1: Production, General & Strategic

Gain knowledge about the organisational, logistical, and economic challenges of a future production manager. Before a product can be manufactured, it must first be planned. Learn which planning and control techniques are used for different production technologies, which production costs are incurred and how to design these processes efficiently. In addition, you learn more about the different types of machines, the production environments, and the logistical challenges of certain processing technologies. Put your knowledge to the test in a written exam.

CAS 3.2: Production, Tactical, Operational & Functional Organisation

Products often go through several steps before they are fully manufactured. In this module you learn more about functional production organisations. Discover how production organisations look like and how you can control a functioning organisation with the help of tactical and operational decisions. Test your knowledge in a written exam.

CAS 3.3 – Production, Tactical, Operational and Product Oriented Organisation

As a logistics student, you learn to deal with the issues that arise in product-oriented production planning. During this module you not only learn how to set up an assembly line, but how to implement a product-oriented organisational structure. Furthermore, the business side occurs once again within the production environment. Prove your knowledge in a written exam.

CAS 3.4: Tools

Here, you dive into project work as it plays a major role in the final grade. You deal with different methods and techniques and learn which methods or techniques are suitable for which problems. In addition, you explore methods for conducting an operations research. The central topics are queuing theories, quality control, network planning and linear programming.

Semester 4

Project 4: Integral Logistics

Do a project in a company of your choice. This project combines all areas of logistics you have learned so far: Warehousing, Production, Distribution, Transportation and Sales. During the project you combine your previous knowledge with additional competences (soft skills) such as conducting an interview and thus work on a complex task, according to research guidelines. The result of your project serves as a recommendation for the company and will not only be documented in a report, but also presented and reflected upon.

CAS 4.1: Integral Logistics, Strategic & Tactical

Explore the implementation of integral logistics guidelines. Learn about the integration at the strategic and tactical levels. Topics covered include strategies, the integration of processes and its economics. This module is complemented by knowledge of IT systems, as well as the latest trends and developments. Taking all these topics into account, you are able to perform a general or strategic assessment in integral logistics.

CAS 4.2: Control

The correct handling of data and the control of processes are part of the everyday life of a logistics specialist. In this module, you learn about ERP systems, how and when to use them. ERP systems are business software solutions for controlling business processes. Furthermore, you learn how to create management dashboards, develop inventory controls and how to use the software "R". The focus here is clearly on the aspects of "Data Science" and has a strong relation to Information Systems (IT). Your knowledge is tested through the preparation of a report, a presentation, and a written exam.

CAS 4.3: Tools

As a future logistics specialist, you are constantly dealing with changes. This may involve changes in management or process optimisation. To be able to deal with changes in the best possible way, you need the appropriate knowledge and tools. These will help you to control and successfully implement the necessary changes. You learn more about the Lean philosophy, Lean tools, and change management. Within this module you have the possibility to get a certification in the field of Lean Management called "Lean Orange Belt". Test your knowledge by preparing a report, a presentation, and a written exam.

Semester 5

Work Placement

You do your first work placement and spend the whole semester at a company of your choice. Although it is your responsibility to apply at companies Fontys supports you in providing contact data of various companies. Additionally, you are prepared for writing a good letter of motivation, a convincing CV and how to master job interviews. Next to small and medium sized companies our students regularly do work placements at famous international companies such as Amazon, BMW, Bosch, Coca-Cola, Henkel, L'Oréal, Lufthansa, Philips, Porsche and many more.

Semester 6

Minor

Now is the time to specialise in a certain field. You may choose one of the specialisations (minors) offered at Fontys, e.g. "E-Commerce" or "Customs". Alternatively, you can spend this semester at one of our partner universities abroad in countries such as China, India, Mexico, Spain and many more.

Semester 7

Project 7: Supply Chain Management

This project with the topic of supply chain management links all areas of logistics that you have learned so far and serves to deepen your knowledge. During this project you work together with your group in a simulated environment and create and optimise a supply chain using the SCM theories you have learned.

CAS 7.1: SCM from a Strategic Perspective

To be best prepared for a successful future in the logistics industry, it is important that you have a well-founded knowledge in the field of supply chain management. For this reason, this module deals intensively with the various SCM models and theories and examines SCM from different perspectives. Among other things, you learn to identify, present, and improve performance deficiencies in SCM, so that future companies can benefit from your know-how and remain competitive. Your knowledge is tested with the help of the Supply Chain Quick Scan and documented in your own portfolio. If possible, the Supply Chain Quick Scan is carried out in a company by the project group.

CAS 7.2: Supply Chain Control

Due to the booming logistics industry, not only are global logistics activities and value chains becoming increasingly more complex, but also the associated new, intelligent, and automated technologies. Consequently, the amount of data to be analysed is also increasing. As a future logistics specialist, it is therefore even more important to have well founded methodological skills for analysing, evaluating, and interpreting data so that intelligent and efficient decisions can be made. For this reason, in this module you learn to analyse, evaluate, and intelligently use data with the help of business analytics tools. Finally, new technologies are discussed so that in the future you can accurately weigh where and how these technologies can be effectively applied and where they have a notable practical impact. Your knowledge is tested with an assessment and recorded in a portfolio.

Semester 8

Work Placement + Bachelor Thesis

You do your second work placement and spend the whole semester at a company of your choice. During this work placement, you write your bachelor thesis and present it to a committee at Fontys. Next to small and medium sized companies our students regularly do work placements and start working at famous international companies such as Amazon, BMW, Bosch, Coca-Cola, Henkel, L'Oréal, Lufthansa, Philips, Porsche and many more.