



# Production and Logistic Management

Production and Logistic Management (PLM) is one of the tracks within the Industrial Engineering and Management (IE&M) Master's degree programme. This track focuses at the heart of the design and control of manufacturing processes in the supply chain from raw material delivery to delivering end products to customers. PLM is a broad field that requires people with knowledge of and insight in models in production and logistics in the tradition of management science. Modern production and logistic processes are becoming increasingly complex. Product lifetimes are decreasing, the geographic distance between suppliers and buyers becomes increasingly large (globalisation) and more and more activities are outsourced.

Important issues in supply chain design include:

- Location of production facilities, distribution centres;
- Allocation of resources in production, distribution centres;
- Management of operations in production, warehousing, transport and distribution, purchasing;
- Maintaining desired service levels to customers;
- Process reliability and its interaction with maintenance planning.

Any mismatch in the supply of raw materials, semi-raw materials, components or finished products will lead to overstock or production delays with service consequences.

## Programme structure

The PLM track works to provide an understanding of the impact of designs (e.g. flow lines, job shops) and logistics control principles (i.e. engineer to order, make to order, assemble to order) on overall performance. PLM track courses focus primarily on theory and its applications. This master's track consists of 16 obligatory courses, two equalisation courses (which



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can be used as elective courses if all prerequisites have been satisfied) and a master's thesis.

At the core of the PLM track is the design, planning and control of the primary process – from sourcing via manufacturing and delivering to return. Core courses include *Purchasing, Production (two courses), Warehousing, Supply Chain and Transportation Management* and *Reverse Logistics and Re-manufacturing*. Around this core, we pay attention to supporting processes (e.g. maintenance, ICT), as well as management and organization. The foundation is comprised of three courses on generic methodology (i.e. empirical research, optimization and simulation techniques). Further, one course is offered to demonstrate how PLM principles can also be applied to a (for PLM) non-traditional sector, namely health care. This sector has been under a lot of pressure in recent years to focus more on productivity and efficiency. In a manner similar to the manufacturing sector, we will explore the application of operations research, advanced planning and simulation in health care. The principles of PLM are illustrated in our Business Process Laboratory, where you gain experience in the use of advanced software tools for:

- enterprise resource planning and workflow management, advanced planning systems
- simulation
- formulating and solving integer linear programming problems for production and logistics
- capacity analysis of production systems using queuing networks
- distribution planning and vehicle routing.

### Master's thesis

The master's thesis (30 EC) is your final 'masterpiece'. It affords you the opportunity to demonstrate your skills by applying the knowledge gained during a company traineeship. Recent examples of graduation projects include:

- providing stock management and production planning at AKZO Oleochemicals (Emmerich, Germany)
- improving the capacity utilization of a sausage production line at Unilever Bestfoods (Oss)
- optimizing spare part inventories for equipment maintenance at Europe Container Terminals (Rotterdam)
- increasing space utilization at a Wehkamp distribution centre (Maurik)
- optimizing inventories in the supply chain of Mead Johnson Nutritional (Nijmegen)

- providing logistic planning and control of operating theatres at Erasmus Medical Centre (Rotterdam)
- conducting a make-or-buy analysis for cable assemblies at Arvin Meritor (Hoofddorp)

### Career prospects

The PLM track provides a solid academic background for a management career in production and logistics. After graduation, our students pursue careers in a wide range of companies, including multinationals, medium-sized manufacturing companies, and consultancy firms. Some even go on to start a company of their own. Typical positions include:

- Logistics manager: the logistics manager's task is to manage the flow of goods and its effects on the organization. This applies both to internal logistics (i.e. production and inventory) and external logistics (i.e. supply of raw materials and delivery of final products)
- Logistics analyst: large companies often have dedicated departments that focus on the analysis and improvement of their production and logistics processes
- Consultant in production and logistics management

Examples of starting positions of PLM graduates include:

- Analyst/consultant at the supply chain management department of Procter and Gamble
- Logistics analyst at Wehkamp
- Management trainee at Stork
- Consultant operations management in health care
- Solutions analyst for UPS Supply Chain
- Solutions and logistics manager at Burg Industries.

### Additional information

The IE&M Master's degree programme is a dynamic programme. Regularly consult our website [www.graduate.utwente.nl](http://www.graduate.utwente.nl) for the latest developments.

The website also presents information on such aspects as: tracks, courses, admission requirements and registration.

If you have further questions regarding this track or the IE&M Master's degree programme, please contact the IE&M programme information desk by e-mail at [master@utwente.nl](mailto:master@utwente.nl) or by phone on +31 (0)53 489 5489.

