

Course Package

Optimization of healthcare processes

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| Name module | Optimization of healthcare processes |
| Educational programme | MSc Health Sciences |
| Period | Second quartile of the first semester (Quarter 1B) |
| Study load | 15 ECTS |

| Optimization of healthcare processes | | | |
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| Quarter 1A | Quarter 1B | Quarter 2A | Quarter 2B |
| | Optimizing Healthcare Processes (5 EC) | | |
| | Finance and Healthcare Purchasing (5 EC) | | |
| | Quality Management in Healthcare (5 EC) | | |

Required preliminary knowledge: *Not yet fully available.* Basic knowledge on quality and safety in healthcare.

Optimizing Healthcare Processes

The objective of this course is to provide students with various tools/instruments for the analysis and optimization of health care delivery processes. These tools make use of basic quantitative techniques from mathematics and spreadsheet software (Excel). In this way, we deepen the knowledge gained in basic OM courses. Besides providing tools, the usefulness of the tools in different healthcare applications will be shown. Operations Management is the activity of managing the resources which are devoted to the production and delivery of products and services. It is a broad topic including, among others, planning and scheduling, capacity management, inventory control, warehousing, maintenance management, and transportation. These different topics have been studied extensively for applications in industry, but applications in health care had not been studied until quite recently. These recent studies conclude that huge savings are possible by applying OM concepts in health care. The University of Twente is a major player in this research area, collaborating with health care institutes all over the Netherlands. This collaboration takes place on several fronts, including student projects on bachelor, master, and PhD level.

Applying these OM concepts, however, is not an easy job. Healthcare managers often do not have a background in OM, while OM experts are trained for jobs in industry. And although there are quite some similarities, there are also some important differences between industry and healthcare.

The modules are tentative and subject to change. Please check [the website](#) regularly

This course intends to fill this gap by training Health Sciences students in OM topics. It assumes that students have had a general introduction to OM, and deepens this knowledge by providing tools and instruments for analyzing and optimizing health care delivery processes and showing their usefulness in health care settings. The student is provided with OM tools that can be used in healthcare analysis and optimization. More specifically, the course will discuss (among others): Queuing Theory, Linear Programming, Simulation, Quality Control, Project Management, Decision Theory, Reliability, Productivity, and Variability.

Finance and Healthcare Purchasing

This course covers both finance and purchasing for healthcare providers (e.g. procurement of medical equipment) and the finance and contracting of healthcare itself (e.g. contracting healthcare providers by insurance companies and municipalities). These are important topics worldwide, often discussed in the media and are frequently topic for political debate. The topics also involve large expenditures. Purchasing related operating costs of Dutch healthcare providers add up to about € 18 billion. The purchasing quote of healthcare insurers is estimated to be more than 95% of their total turnover.

For the topics mentioned above and within the Dutch context, the course deals with issues such as: How can contracting healthcare help in reducing healthcare expenses and/or improve the quality of healthcare? How can healthcare providers use their finance and purchasing function to more efficiently and effectively contract suppliers? How can healthcare providers respond to insurance companies and municipalities (healthcare selling)? Et cetera.

Quality Management in Healthcare

Healthcare organizations worldwide are facing challenging quality and safety issues caused by global trends, such as ageing and lifestyle changes. These quality and safety issues are becoming increasingly important in healthcare organizations, especially in those with complex, technological processes. In addition, benchmarking and the relation with efficiency are major topics in this field. In this course 'Quality Management in Healthcare' you will gain knowledge on the history and it will be discussed how trends influence future development of quality and safety management. This will provide insight in ways how quality and safety of healthcare organizations can be improved and optimized. Quality management, benchmarking, accreditation and improvement techniques will be presented through case studies and tutorials. We will explore the impact of value based healthcare, safety, risk management and the reputation effects. The extent and nature of the quality and safety issues will be presented and approached on (inter)national and institutional levels. The topics will be offered by (guest) lectures, tutorials on safety case issues, workshops on indicator development, literature search tasks, project meetings and a visit to a large top-clinical/teaching hospital.