

# Course Package

## Optimization of healthcare processes – 1B

Name module	Optimization of healthcare processes – 1B
Educational programme	MSc Health Sciences
Period	Second block of the first semester (block 1B)
Study load	15 ECTS (3 x 5 EC)
Coordinator	A.H Prins

Optimization of healthcare processes			
block 1A	block 1B	block 2A	block 2B
	<b>Optimizing Healthcare Processes 201600030 (5 EC)</b>		
	<b>Finance and Healthcare Purchasing 201600025 (5 EC)</b>		
	<b>Quality Management in Healthcare 201600032 (5 EC)</b>		

Required preliminary knowledge: Basic knowledge of Excel and Statistics; Basic knowledge of organization of healthcare; Knowledge on quality and safety in healthcare.

### 201600030 - Optimizing Healthcare Processes

The objective of this course is to provide students with various operations management (OM) tools and techniques for the analysis and optimization of healthcare delivery processes. These include (among others): Queuing Theory, Mathematical Programming, Simulation, Quality Control, Project Management, Reliability, Productivity, Variability, as well as basic spreadsheet (MS Excel). Moreover, we will demonstrate the effectiveness of these tools in various healthcare settings through case studies, and guest lectures from practice.

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 field including, among others, capacity management, inventory management, quality management, and supply chain management. OM in the context of industry has been studied extensively, but OM in healthcare is still in its infancy. It is widely recognized that the healthcare systems in the world are at a critical point. We face aging populations, attrition in the workforce and pressure to adopt new, costly technologies. Moreover, the healthcare systems suffer from inefficiencies and inequalities. To overcome these problems, health system leaders and managers require analytical models, in particular OM models, to analyze the system and to improve it. The University of Twente is a major player in this research area, collaborating with healthcare institutes

all over the Netherlands. This collaboration takes place on several fronts, including student projects on bachelor, master, and PhD level.

Applying OM in healthcare, 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. Although there are quite some similarities between industry and healthcare, there are also some important differences. 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 techniques for analyzing and optimizing healthcare delivery processes and showing their usefulness in health care settings.

### **201600025 - 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.

### **201600032 - 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.