

Faculty of Economic, Social and Political Sciences



PROD2200 Quality control and simulation

[30h] 5 credits

Teacher(s): Per Joakim Agrell, Philippe Chevalier
Language: French
Level: Second cycle

Aims

At the end of the class, students should be able to

- Master statistical tools and methods used in quality control
- Apply stochastic problem-solving skills to business process problems.
- Design, program, run and analyse graphical process simulation models.

Main themes

This course is devoted to stochastic analysis of production systems, building a base for applications in quality control and operations simulation. Quality management is covered in some detail, including the statistical tools, sampling techniques and improvement techniques. Simulation techniques aim at improving decision making and analysis for complex systems, largely taught through projects and computer exercises.

Content and teaching methods

Content

Basic concepts: planning, measurement, control, and improvement of quality. Economics of quality. Strategic planning of quality. Total quality management. Statistical tools: tests, regression analysis, design and analysis of planned experiments, control charts for variables and attributes, capability analysis, acceptance sampling: single, multiple, sequential. Computer simulation of systems. Design of simulation models of discrete systems. Statistical foundations and methodology. Design of simulation experiments. Simulation programming languages. Applications: the analysis and design of systems for services, production, and distribution. Model validation. Simulation output analysis. Use of graphic simulation software.

Methods

The course is divided into two parallel modules : stochastic analysis and projects. The stochastic analysis track is based on lectures and exercises covering the necessary theory and techniques to tackle the quality control and simulation analysis. The project track develops the problem-solving skills through three successively more advanced projects in quality control, business process improvement and simulation model design.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Prerequisite : PROD2200

Evaluation : Case reports and oral exam

Support: Articles and book chapters in statistical process control and simulation, simulation software.

References: see support

Pedagogic team: Teachers

Programmes in which this activity is taught

ECGE3DS/SC Diplôme d'études spécialisées en économie et gestion (Master in business administration) (Supply Chain Management)

Other credits in programs

ECAP22	Deuxième licence en sciences de gestion	(3.5 credits)	
ECGE3DS/SC	Diplôme d'études spécialisées en économie et gestion (Master in business administration) (Supply Chain Management)	(4.5 credits)	Mandatory