








4.00 credits

15.0 h + 5.0 h

Q1

Teacher(s)	Guillet Alain ;
Language :	French > English-friendly
Place of the course	Louvain-la-Neuve
Prerequisites	Basics of probability and statistical inference
Main themes	- Statistical tools for quality insurance - Principles and classes of Shewhart control charts - CUSUM and EWMA control charts - Control charts for autocorrelated and multivariate data - Capability analysis - Decomposition of sources of variability. Gauge analysis. - Reception sampling
Learning outcomes	At the end of this learning unit, the student is able to : 1 At the end of this course, the students will have gain knowledge and a critical view of the statistical tools usefull in the setup of quality insurance policy, in process control and daily follow up of analytical devices. They will be able to apply these tools to industrial data sets.
Evaluation methods	<ul style="list-style-type: none"> • Written exam • Project with an oral exam
Teaching methods	Lectures (15h) <ul style="list-style-type: none"> • Methods presentation on the basis of real-life situations. • Formal but intuitive discussion of theoretical concepts and formulae for most methods. • Interpretation of software outputs. • Interactive lectures: students are encouraged to participate during the course. Computer labs (5h) <ul style="list-style-type: none"> • Case studies on JMP, methodological exercises, and JMP Output interpretation.
Content	The themes discussed in this course are : <ul style="list-style-type: none"> • Statistical tools for quality insurance • Principles and classes of Shewhart control charts • CUSUM and EWMA control charts • Control charts for autocorrelated, multivariate and short run data • Capability analysis • Reception sampling
Inline resources	See the Moodle site: https://moodleucl.uclouvain.be/course/view.php?id=9935
Bibliography	D. C. Montgomery, Statistical Quality Control. New York: Wiley.
Other infos	Prerequisite : <ul style="list-style-type: none"> • First course in statistical inference ; • Use of Word and Excel ; • Ideally : knowledge of the software JMP.
Faculty or entity in charge	LSBA

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Biomedical Engineering	GBIO2M	4		
Master [120] in Statistics: Biostatistics	BSTA2M	4		
Master [120] in Statistics: General	STAT2M	4		
Approfondissement en statistique et sciences des données	APPSTAT	4		
Master [120] in Mathematical Engineering	MAP2M	4		
Minor in Statistics, Actuarial Sciences and Data Sciences	MINSTAT	4		
Certificat d'université : Statistique et science des données (15/30 crédits)	STAT2FC	4		
Advanced Master in Nanotechnologies	NANO2MC	4		