Minitab®

IUT de Cachan: The Pathway to Jobs.
Minitab 16: The Pathway to Business.

Associate Professor Pierre-André Gouge uses Minitab Statistical Software to teach the professional degree course "Manufacturing and Production Management".

KEY FACTS

ORGANIZATION

IUT de Cachan

OVERVIEW

• Founded in 1966, the IUT concentrates on two technological specializations: Electrical Engineering and Mechanical Engineering and Manufacturing.

• Over 1,100 students on campus.

QUALITY CHALLENGE

• Teach a wide range of industrial management statistics in a very limited number of hours.

• Provide students with the skills to be job ready in both manufacturing and non-manufacturing industries.

PRODUCT USED

Minitab® Statistical Software

RESULTS

All students are trained in problem solving, reducing variability and statistical process control, and are prepared for any industry.

Pierre-André Gouge is a teacher and coordinator at the University Institute of Technology in Cachan, France, known locally as IUT de Cachan. He is also a member of RUFEREQ (Francophone Network of Teaching and Research in Quality, Safety and Sustainable Development) and Expérimentique, a recognized group of educators dedicated to Design of Experiments. Minitab 16 is Gouge's statistical software of choice for teaching the Manufacturing and Production Management degree course as part of the Mechanical Engineering and Manufacturing department.

Challenge

Gouge faces a number of challenges as a professor. "I need to adopt a teaching strategy that really makes the most of the few hours I have with my students. In addition to this challenge, with the decreasing number of job opportunities in the French industrial market, I must give them the skills to adapt to the statistical process improvement requirements of other sectors."
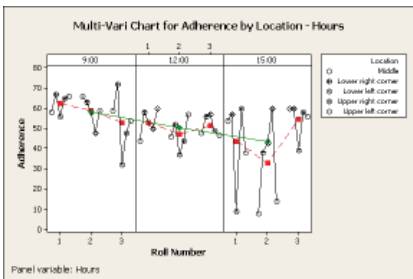
How Minitab Helped

To quickly establish the methods and habits of data analysis, Gouge added a four-hour PPM (parts per million) exercise to his current program of three four-hour sessions that cover statistical process control, reliability and quality tools. This PPM exercise uses Minitab Statistical Software for a zero defect simulation, which was developed by the university professor, Maurice Pillet for the CIPE (International Center for Business Education).
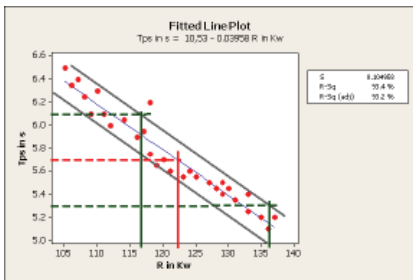
"During the lectures, I incorporate exercises that the students can easily run in Minitab," Gouge says. "The results are then supported and discussed using graphical and statistical outputs."

Mr Gouge teaches his students using exploratory analysis methods including normality tests, regression and analysis of variance. He also uses the reliability functions
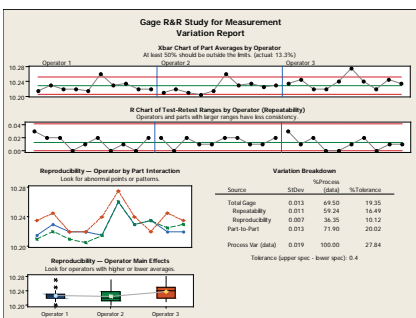
Learn how Minitab software can help you improve quality at www.minitab.com.
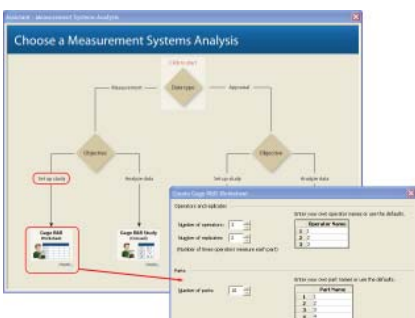
An example of a multi-vari chart showing the impact of bearing adjustments and time.

Using the fitted line plot with a scatterplot to show the relationship between response time and motor control board resistance.

Using the Minitab Assistant to conduct Gage R&R and evaluate the measurement system for critical dimensional specifications using an external micrometer.

"Minitab's Assistant menu is fundamental to a good education as it combines decision trees, tutorials, methodology, and how to interpret the results." says Pierre-André Gouge.

of Minitab Statistical Software in one of his four-hour sessions, functions he learned to use by attending Minitab training on this topic.

He also explains tools commonly used in quality, such as process capability, control charts, multi-vari charts, scatterplots, paired comparisons and the study of measurement systems using Gage R&R.

Minitab 16's Assistant really captured Gouge's imagination: "The Assistant's information on Measurement Systems Analysis is really great! It gives the students a step-by-step guide to ensure that the data is properly collected and that statistical analysis rules are followed."

He adds, "As a teacher, I really appreciate the formal approach to data interpretation that the Assistant brings to the software," he adds. "Take the Measurement Systems Analysis section for example—it outlines how to set up the study, provides guidelines and offers performance graphs. Using graphical output, students can visualize the results and therefore acquire a better understanding of the basic concepts of applied statistics in Measurement Systems Analysis."

Gouge has used Minitab Statistical Software to teach for several years at IUT and also at the ISTY Mantes en Yvelines College of Engineering Mechanics. Minitab's affordability for students and educators, logical menu options, and powerful graphics have made it a critical part of his approach to teaching. The program's menu design and logically organized tools also support instructors while teaching and planning their courses.

Gouge sees a wealth of possibilities opened by Minitab's latest release. "Sending graphics to Microsoft PowerPoint and Word is so much easier with Minitab 16's new export feature. And the DMAIC toolbar gives students little reminders about which tool to use for each phase of a Six Sigma project, while making it easier and faster to execute these tasks."

To ensure that his students become skilled practitioners, he assigns more complex exercises to do outside of the classroom, using Minitab's StatGuide™ as a reference point and the Reportpad™ to record their results. This makes each individual more attractive to existing manufacturing companies who use Minitab, such as Schneider Electric, Air France Industries, Faurecia, EADS and Nissan.

"As job opportunities within the French manufacturing industry are less prevalent, I prepare my students to apply the tools they learn in all kinds of different industries, such as service organisations" explains Gouge, who knows many service-based organisations also use Minitab Statistical Software. For example, large banking companies like Société Générale, and RBS, insurers such as Allianz, telecommunications companies such as France Telecom Orange, Vodafone and Deutsche Telekom, and most Six Sigma consulting firms all use Minitab—and all are potential recruiters for the students and apprentices of Manufacturing and Production Management at IUT de Cachan.

When so many companies, in so many diverse industries trust Minitab for data analysis, it's easy for dedicated educators like Gouge to trust Minitab when teaching students who will enter those industries in the future.

Learn how Minitab software can help you improve quality at www.minitab.com.