



A French University: Encouraging hands-on experience

by Jean-Pierre Caliste and Gilbert Farges, Professors and researchers at the University of Technology of Compiègne



In line with the scale developed by the European harmonization of higher education, which introduced standards for Bachelor's, Master's and Doctorate degrees (see **Box overleaf**), the University of Technology of Compiègne (UTC) in France established a Master's degree in quality management (MQ), as an option of its Master's of Sciences and Technology.

Since 1992, the Master's programme NQCE (*Normalisation, qualité, certification et essais*), on standardization, quality, certification and testing, trains professionals seeking to learn and develop competencies to become standardization and/or quality managers within companies, healthcare or public services organizations.

The Master's programme NQCE has been periodically accredited since its inception by the *Conférence des Grandes Ecoles* (a conference of the most prestigious higher education institutions), up to the end of 2007. It is one of the two accredited Master's of UTC.

About the authors



Jean-Pierre Caliste, after more than 25 years of activities in metrology organization (Bureau National de Métrologie), testing laboratory (Laboratoire National d'Essais), management of the national quality policy (Ministry of industry, Mouvement Français pour la Qualité), is currently a professor and researcher at the University of Technology of Compiègne (UTC), where he is responsible for the Master NQCE and co-responsible for the Master MQ. Prof. Caliste conducts expertise and researches about quality approaches for services, more specifically for public administrations, research laboratories, training organizations and healthcare activities.



Gilbert Farges, who holds a PhD in engineering, is a professor and researcher at UTC specializing in biomedical processes (biomedical sensors and equipments, quality and safety of the medical dispositive, pre-standardization researches and standardization). Prof. Farges is responsible for training in biomedical technology and quality management for researchers, hospital managers, biomedical technicians and engineers. He is co-responsible for the Master MQ and collaborates with the UMR* 6600 laboratory for biomechanics and biomedical engineering. Since 2000, Prof. Farges manages quality approaches and networks for research and training activities (<http://www.utc.fr/qualite-recherche>).

*) UMR : "Unité Mixte de Recherche", joint CNRS and University laboratory.



The University of Technology of Compiègne (UTC).

The purpose of a Master's MQ, as with Master's NQCE, is to teach students to become specialists capable of applying standardization management and/or quality management for improving the performance of organizations.

Two different paths for standardization Master's

These two programmes are available in French and open to foreign students with a good command of English and a satisfactory level of French. A large part of the courses are translated into English.

Main Focus

The programmes are organized in teaching units (TU). Each TU is equal to five credits in the European Credit Transfer and Accumulation System (ECTS), and consists of lectures/courses, and group and individual projects and evaluations.

The Master's NQCE takes 12 months to complete, and includes six months of professional work experience. The Master's MQ lasts nine months, with four months of hands-on experience working for a company.

During the 2005-2006 academic year, we piloted an e-learning version of the Master's NQCE. Following positive results, we are now repeating the session, starting 2007.



European higher education

Under the new European harmonization system launched in 1998 by France, Germany, Spain and the United Kingdom, higher education will be organized in semesters and study modules recognized throughout Europe. The system gives higher education a clear structure: a Bachelor's degree on completion of three years' study, a Master's at the end of five years and a Doctorate after eight years.

This European Higher Education Area is due to be completed by 2010. Already successful trials in France have resulted in lowered drop-out rates and increased successful entries.

According to the French law on the validation of experience (Validation des Acquis de l'Expérience – VAE), it is possible for an applicant to obtain the diploma of Master's MQ or Master's NQCE based on their work experience.

The courses cover a diversity of subjects including quality, statistics and metrology. In box (*at right*) are the different courses included within the NQCE and MQ Masters' programmes.

Practical experience

Students of the Master's MQ and Master's NQCE are required to work for a limited period within a company (four and six months respectively), during which they can put into practice what they have learnt. This applies in particular to technology processes, manufacturing maintenance, and improvement of sustainable development performance in different sectors of activities. In 2007, we were in contact with more than 150 French and European companies, contributing to a fruitful partnership for the education of professionals.

Using technology as an advantage

A Web site (internet and extranet), <http://www.utc.fr/Mastermq>, gives students, administrative bodies and professors up-to-date information about the monitoring process of completed training. Work by students is evaluated and stored on the same Web site. Students can also access information from graduates of previous years to compare and share experiences. According to the schedule of each TU, the courses are uploaded online in PDF version. WIFI access allows students to follow courses and take notes directly on their computers. All evaluations are uploaded on the site immediately after the completion of each TU. Access is always maintained for the former students.

Objectives are defined for each TU and transformed into targeted knowl-

edge, aptitudes, and skills. Based on these, all students can make self-assessments before, during and after the delivery of the course. After the completion of a TU, a general evaluation between the TU teacher and student permits them to analyse strengths and weaknesses, and take corrective action if necessary. Students' suggestions are always requested and implemented whenever possible.

International cooperation

Based on the current programme which is adapted to health-care activities, cooperation has been established with the University of Montreal. A joint diploma will be awarded upon successful completion to candidates taking this option (QUEOPS).

We have trained 200 students since 1992. More than 90 % have successfully obtained a diploma, and more than 85 % are employed¹⁾. A large international participation reinforces intercultural exchanges. Among the countries represented are: Algeria; Brazil; China; Côte-d'Ivoire; Gabon; Madagascar; Morocco; Lebanon; Russia; Senegal; Syria; Tunisia; United Kingdom. ■

1) According to available information.

Courses (Master's NQCE and Master's MQ):

- Performance and improvement management
- Standardization, metrology, testing and international trade
- Structures and functions of metrological services
- Management, organizations and systems
- Risk management within organizations
- Information system management
- Case study
- Other management systems
- Statistics
- Quality management system