



A third intake of students began a new 'Green Leather Manager' course in the Italian region of Veneto this academic year. The main representative body of the region's leather cluster, il Distretto della Pelle, worked with research and academic organisations to create the course with a view to training a new generation of 'green' managers for the industry. This article explains the circular thinking behind the programme.



The first group of Green Leather Manager graduates celebrate completing the course with the mayor of Arzignano, Alessia Bevilacqua (front row, last on the right).



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Leather's circular economy stars of the future

A great variety of highly specialised companies make up Italy's manufacturing network and they are responsible for offering a broad range of products and services of the highest quality. This has a considerable impact on technical professional opportunities. In fact, estimates suggest that in the next five years, Italian businesses are going to need to recruit around 400,000 new people with a science, technology, engineering and mathematics (STEM) background and steadily bring them into the workforce^[1]. Manufacturers contributing to the famous 'Made in Italy' concept are expected to need almost 200,000 of these professionals.

It turns out, though, that Confindustria, Italy's national employers' association, fears that many of these vacancies will remain unfilled and it says the reason for this is a mismatch: there is a misalignment between the skills of the candidates coming through and the needs of the manufacturing sector. There is already evidence of this; it is becoming increasingly difficult for many companies to recruit technical talent with the right set of skills. There are completely new tasks to carry out: people need to be comfortable in multiple disciplines, they have to be able to work as part of a team, offer quick turnaround times, they



The splendid surroundings of the Villa Brusarosco in Arzignano is where most of the classroom learning for the course takes place.

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have to be efficient and effective in their work. These are the qualities that business owners find lacking in secondary school leavers at the moment.

ITS across Italy

To respond to the needs of the business world, and to align with the skills, development and training models that are already running successfully in other countries, Italy's national education system has included specialist technical institutions (ITS) for around ten years now. The ITS includes post-school, non-university, tertiary-level technical colleges. Students qualify to take part by achieving a good high-school diploma, or the equivalent, and they must also have a good knowledge of IT and the English language. Under the established rules, ITS courses run for two academic years (four semesters in all), with studies covering different areas of technology: energy efficiency, sustainable mobility, new lifestyle technologies, new technology to support 'Made in Italy', innovative technology to support consumer products manufacturing, cultural activities and tourism, and, finally, information and communications technology.

On passing their final exams in these subjects, the students receive a higher technical diploma, which corresponds to level five in the European Qualifications Framework (EQF), the equivalent of the *Diplôme Universitaire de Technologie* (DUT) in France, the HBO5 in the Netherlands or the Higher National Diploma in the UK. To help graduates use their skills as widely as possible in a national and European setting, they also receive a diploma from a system called Europass.

In the course of the two years, at least 30% of the students' learning has to take place in the workplace and at least half of their instructors have to come from the world of work. This is so that the skills the young people learn match the profiles businesses are looking for. This, in turn, should mean the system is preparing technologically competent young people who will easily fit into the country's economic and manufacturing set-up. They should be in a good position to

help companies innovate and to make technology transfer easier, especially in small- and medium-sized companies.

So far, the results show that around 80% of ITS graduates go straight into employment and there are certain sectors in which the demand for these qualified young people far outstrips supply.

Arzignano's ITS and the Green Leather Manager course

For multiple reasons, Arzignano's leather cluster, the *Distretto della Pelle*, would appear to be unique. There is, in and around Arzignano, a concentration of hundreds of business connected to the tanning sector, processing hides for all market sectors. There are also important chemicals and tanning machinery manufacturers, companies that handle by-products from the tanning process, others working in wastewater treatment and others providing a wide variety of general services.

The entire leather manufacturing sector, therefore, is well represented in this part of Italy; in many cases, the companies represent genuine excellence at a global level. One fundamental component of the *Distretto*'s success is that Arzignano has had a specialist technical college, the *Istituto Tecnico G. Galilei*, as one of the options available to local high-school students for many years. This institution has been preparing young people to contribute towards keeping tanning technology innovation levels high in Arzignano for 60 years now².

After middle school, all students in Italy have to choose where to go to high school and technical colleges are one of the options. Pupils must go for at least two years, up to the age of 16, but can then stay on for another three. After this, they can either go to university or enter the world of work. Nevertheless, in recent years, even here local business leaders have begun to experience a disconnect between the knowledge and skills with which young people are leaving high school now and real market demands.

This has become clear at some of the meetings that Italy's national leather chemists' association, AICC, has held in recent years. Attendance at AICC's technical seminars has gone up. In fact, it was at an AICC technical seminar in 2016 that the idea of taking Arzignano on the ITS path first came to light. The idea was to build on the work of the *Istituto Tecnico G. Galilei* so that Arzignano might have a specialist, tertiary educational institution able to give specifically to the local leather industry the new-generation technologists it needed. It was Paolo Gurisatti, a former president of the *Distretto* and of specialist national leather research body, the *Stazione Sperimentale delle Pelli e delle Materie Concianti* (SSIP), who first made this connection between the ITS concept and a suitable solution for Arzignano's business leaders.

A small nucleus of AICC members, comprising representatives of tanneries, leather chemicals manufacturers and machinery companies, immediately began work on a teaching programme for the new ITS concept. The programme was set up in the course of just a few weeks of intense work. The then-president of the existing G. Galilei institute, professor Carlo Alberto Formaggio, suggested placing the new, higher-level course under the auspices of the *Fondazione Cosmo* in Padua, an institution that has many years' experience in organising and managing ITS courses in the region of Lombardy and our home region, Veneto.

Fondazione Cosmo representatives welcomed the AICC proposal, and the local authorities in Arzignano, the G. Galilei



institute, the Distretto, the SSIP, Confindustria and its small business counterpart, Confartigianato, joined the initiative.

Midway through March 2017, the executive committee of the Fondazione Cosmo made the official announcement that it was willing to let the new course come into existence, under the 'New technology to support Made in Italy' banner. Then, on July 4, the Veneto regional government announced that the proposal had received "definitive approval", giving the green light for the tanning sector's first ever ITS course.

A new generation

The course's objective is to prepare a new generation of Green Leather Managers, professional, technical people who will engage in the research and development of sustainable products and processes for tanneries and for leather chemicals.

AICC's regional division in Veneto speedily mobilised members in the Arzignano Distretto and they selected a team of technical teachers who would be able to deliver at least 50% of the required course content. In only a short time, one of the world's most important leather sectors was able to make available to participants in the new ITS course an array of leather manufacturing skills, showing that local business leaders regard training future generations of technologists and managers as a strategic necessity.

By October 2017, the first edition of the course was ready to launch with around 20 pioneering students, ready to face up to the challenge and to become the first Green Leather Managers in the industry's history. The businesses of the Distretto provided the majority of the teachers who would deliver five intensive hours of lessons a day on chemistry, tanning technology, IT and many other subjects, dealing with theory and (through laboratory work) practice as well. From the outset, lessons took place in the afternoon, so that many students who were already working in the industry had the opportunity to combine these studies with their work, in keeping with the long-term vision of their employers.

Over the two years of the course, the students also have to complete 800 hours of workplace training on the premises of the leather companies in the Distretto.

One thousand hours

The fundamental structure of the course is based on each of the two years having 600 hours of classroom learning and 400 hours of workplace training on the premises of the leather companies in the Distretto. That makes for a total of 1,000 hours a year. Classroom lectures take place in the prestigious premises of the Villa Brusarosco in Arzignano, a restored, early-twentieth-century building surrounded by a park with an Italianate garden. Students immediately start learning about leather chemistry, in addition to other disciplines, such as the design and management of tanneries, tanning machinery, the economics of the leather industry, general business management, data analysis and much more.

The content of the course pays particular attention to the circular economy and sustainability, based on the knowledge of expert teachers in these subjects from the local leather industry. In parallel, the students immediately begin to have contact with leather, under the guidance of very experienced professionals. They quickly take part in numerous practical exercises for tanning, retanning and finishing. With frequent visits to the companies in the Distretto, students have the privilege of seeing at first hand leather production and other activities in the local supply chain, including waste management. They also have the opportunity to attend industry exhibitions and participate in congresses.

An important component of the second year is that students choose and carry out a leather research project and write up a thesis on it. Last year, the Distretto and AICC selected some of the theses that Green Leather Manager graduates had written and published them in a book; the quality of the material the students produced following their research earned a high level of appreciation in Arzignano. One that stood out in particular was a project on leather



Having access to tannery laboratories during their workplace learning gives the students an opportunity to develop their own research projects.

dyeing using natural, rather than synthetic, dyestuffs. The selection committee was impressed by the project's innovative, original content and by its circular-economy thinking. The student who carried out this research, Veronica Vigolo, presented her results at a high-level industry conference that AICC organised in Chiampo in November.

Reflecting the importance of the English language in the tanning sector, many of the teachers use material in English to deliver their course material. In this way, the students become used to hearing and using the language. In some cases, teachers give their students extra marks for presenting their own work in English. The idea behind this is to make sure that the young Green Leather Managers will be professional people who can communicate well with partners throughout the global leather supply chain.

Input from local businesses

One of the pillars on which the ITS course of studies is founded is the intimate link between activity in the classroom and the local manufacturing sector. In Arzignano's case, as well as providing teachers with the necessary technical expertise, the companies that make up the Distretto are also the ones that open their doors for the students to complete the required 400 hours of practical learning per year on the production line. This consists of ten weeks in which the new-generation technicians have to put what they have learned in the classroom to the test in the real world and test themselves to see how their own professionalism holds up in the field.

Host companies offer the students a complete work experience. Apart from having day-to-day contact with the realities of leather manufacturing, they are able to develop the research projects they have chosen to carry out; these are often ideas that require some practical work. In terms of the parts of the tanneries in which the students work during these placements, they concentrate during the first year on



Made in Italy. The leather industry's role in the success of the Made in Italy concept around the world earned it the right to have its own, dedicated specialist technical institution (ITS).

the beamhouse, tanning and retanning stages, and then in the second year on leather finishing.

ITS and the university

In setting up and running the new Green Leather Manager course, a strong bond has been formed, uniting business culture, technical training and academic research. The last of these, in particular, has the task of effectively developing the specific technical foundations that the tanning sector demands. For this reason, since the launch of the first Green Leather Manager course in 2017, the department of chemical sciences at the University of Padua has provided staff to teach the students about general chemistry and organic chemistry, making an important contribution to the programme. These academic lectures have had positive feedback from students and from those running the course; this shows clearly how important the study of chemistry is in tanning technology. Awareness of this has led to a formal agreement between ITS and the department of chemical sciences at Padua, which, as of last year, means ITS students will receive university-level academic credits in chemistry for their work. In turn, this has led to an increase in the chemistry content in the ITS course.

This article, however incomplete, illustrates that the Green Leather Managers that Arzignano is developing in the leather manufacturing community will be figures with a high professional profile and who combine practical skills with thorough technical knowledge. It appears that the course is already proving to be a good option for young people who want to work in the tanning industry in the near future. 🌱

Notes

- 1 Guida agli ITS, I Libri del Sole 24 ore, N. 16/2019, October 2019.
- 2 Fabris, A., Crestani, M., Maestri della Concia, 2015.