50 ENGINEERING DEGREE

THINK

SPECIAL FEATURE

Smart phones, supersonic planes, Formula 1 cars, green cities, the Internet; engineers built them all. Engineers are everywhere. The world needs them and so do you.

The University of Malta is celebrating 50 years of teaching the engineering degree (to mould tomorrow's engineers). **THINK** magazine collaborated with Ing. Emmanuel Francalanza to peek into the future. The cutting edge of research is always trying to solve new problems, manufacture better artificial limbs, cheaper electric cars, an endless power source, or even an exoskeleton. We took Malta's latest findings and went a step further: five, 10, 30 years into the future. Where will this research end up? »

1958 Marsa Power Station Commissioned

1960 Maltese government requests assistance from UN to teach Engineering

1963 Polytechnic Institute starts teaching Engineering Degree

1966 First six undergrads graduate

1978 Polytechnic incorporated into University as the Faculty of Engineering and Architecture

1983 First two female Electrical Engineers graduate

1987 Faculty of Mechanical and Electrical Engineering established

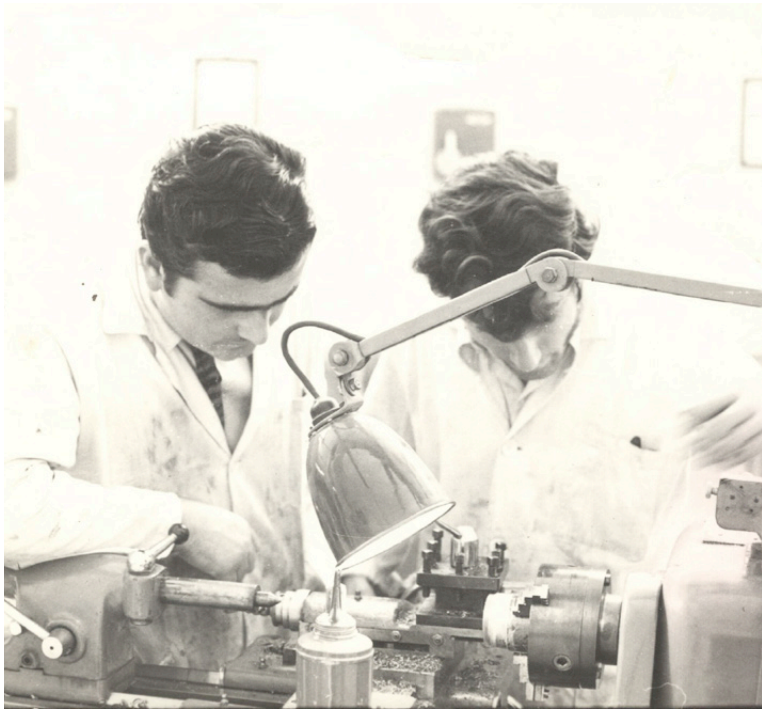
1989 First two female Mechanical Engineers graduate

The first of three articles, *The Bionic Human* (pg. 18) sees how this research can improve human abilities. In the years to come we will be able to integrate ourselves with a robotic arm capable of gently holding a baby or of crushing metal. We might even be able to control that arm just by thinking about it, then glance at a curtain and smile as it opens. Tomorrow's new and improved human would even have man's new best friend: a robotic assistant.

A Greener Malta (pg. 25) sees how research can help us clean up our act. During Malta's post war rebuilding and subsequent economic boom, the environment was neglected. The latest technology and more research can help turn back the hands of time. With the right support Malta could be one of the cleanest islands in the Mediterranean that we'd all enjoy a lot more.

Following up on reducing pollution, car traffic is a big reason for Malta's air pollution problems. In *Transport 2025* (pg. 34), Francalanza takes the latest research in car, ship, and plane improvement, and sees how it could change the country. Our cars could be cleaner, ships lighter and stronger, planes made safer by reimagining them from the inside out. The future looks bright. ●

The late Charles Bezzina (left) and Daniel Mallia (who emigrated to Australia) at the University Workshop. Both were apprentices at the time.



101 students graduate

Faculty of Engineering founded

First two postgrads graduate

1992

111 students graduate due to new policies at UoM

1996/7

1998

1999

Combined cycle plant installed in Delimara

2012

Over €7 million EU ERDF funds invested in the Faculty

Celebrating 50 years of the Engineering degree at UoM

DR ING. JOHN C. BETTS

If there is one constant in engineering, it is change, and the very nature of the profession demands a belief in research-driven change which is powered by creativity and the competitive desire for innovation. The students of the first year of entry, 1963, are greatly outnumbered by the present day cohort but postgraduate student research is the greater cultural change within our Faculty. In 1988, the unmarked 25th anniversary, practically no engineering research was performed, and the Faculty focused on teaching undergraduates only. The situation has changed beyond anyone's expectations. Research lab facilities are of an international standard, and Faculty members regularly take part in multi-million euro projects. Last November, these collaborations helped the Faculty present a compilation of over 122 peer-reviewed papers from the last 21 months to President George Abela.

In the coming years we plan to exceed this output as our research projects mature and develop. New fields are being explored, and collaborations with industry, with foreign institutions, and perhaps most importantly, with other professions are being cemented – our endeavours in bioengineering (check *The Bionic Human* pg. 18) are particularly noteworthy.

University needs more funding to achieve operational sustainability and attain a critical mass of researchers, a requirement which has not matched the dedication of researchers, which in some cases is of lifetimes, and which has received little recognition outside of University. Frequently it is seen as an individual choice or sacrifice rather than a national or public decision.

Over its 50 years, the degree has consistently and successfully provided engineers with the skills to drive the technological infrastructure of society. From aeroplanes to mobile phones engineers are essential, but apart from these infrastructures technology needs to be driven forward. Progress can only come through research, and teaching research skills to our students. A successful degree is not attained by the stagnant memorising, compiling, and delivering of facts, but by dynamically questioning them and that is what research is all about. ●

President of Malta visits Faculty

First engineer elected to parliament

50 ENGINEERING DEGREE

2013

Sharp increase to 120 international research publications over the last two years

Oldest undergraduate student ever celebrates birthday

Thanks for the assistance of Prof. Michael Saliba, Dr Claire De Marco, Michael Spiteri and Enemalta. Special thanks to Rev. Prof. Saviour Chircop and the staff of the Faculty of Media and Knowledge Sciences for their assistance during the staff photoshoot for the Faculty of Engineering