NTU Launches Optical and Laser Engineering Center

SINGAPORE, April 8, 2013 — A new optical and laser engineering research center launched by Nanyang Technological University (NTU) will help local small and medium enterprises to develop commercial applications in the competitive global market.

The Center for Optical and Laser Engineering (COLE), located at NTU's School of Mechanical and Aerospace Engineering, will focus its research on three key areas: computational optics, optical metrology and instrumentation, and laser processing and patterning. It has already secured more than S$10 million in industry and research funding, bringing its total worth to S$30 million.

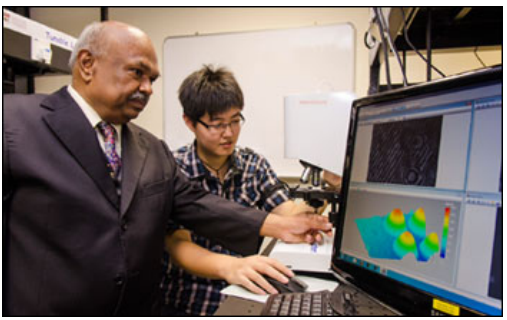
Under the Industry Partnership Program, the Center's first industry partners — Sunny Instrument, WaveLab Scientific, KLA Tencor, JM Vistec System, Life Technologies Holdings, Disco Hi-Tec (Singapore), Opto-Precision and Precision Optical Systems Singapore — will engage in collaborative industry and research projects with other COLE investigators.

Currently, precision engineering contributes about 10 percent of the manufacturing sector's total output; the sector makes up 22 percent of Singapore's gross domestic product and is set for further growth.

New innovations, streamlined processes and skilled manpower trained in optical and laser engineering will give local companies an edge in the worldwide market.

"Optics will be one of the major drivers of technology in the 21st century, just like how electronics and precision engineering had dominated the last century," said NTU provost and professor Freddy Boey. "Together with our partners, COLE will focus on high-value manufacturing solutions targeted at the industry and will bring about greater efficiency as well as new commercial applications. Going forward, we expect that more industrial partners will join us in growing the local research and development scene and keep Singapore at the cutting edge of technology."

COLE has already secured four initial joint projects with industry, including new ways of 3-D measurements for structural engineering, patented lensless microscopes and medical projects to improve resolution and to lower the cost of medical imaging for tissue and cancer diagnosis.



Director of COLE professor Anand Krishna Asundi (left) working with his student to use the patented Holoscope for 3-D measurement of micro-objects (prototype built in collaboration with Ngee Ann Poly). Courtesy of NTU.

COLE also is working with Singapore's economic development board to support the tuition fees of doctoral students who are contributing to indu[illegible]n home-grown and multinational companies through the existing Industrial Postgraduate Program.

"COLE plays an instrumental role in deepening our industry knowledge base and expanding our talent pool in laser and optics," said Chang Chin Nam, executive director of precision engineering at the Singapore economic development board. "Given the increasing industry applications of laser and optics technologies, we see opportunities for growth in this sector."

Professor Anand Krishna Asundi, director of COLE, said optical and laser engineering research will propel the precision engineering and biomedical sectors to new heights in Singapore and beyond.

"In recent years, NTU has developed many new optical and laser technologies, such as a patented lensless 3-D microscope which allows us to take a photo and focus on the details later," Asundi said. "We have also been successful in developing precision laser systems which improve emerging technologies, such as 3-D

printing and nanopatterning. With COLE, we expect our successes in optical and laser engineering to grow further."

With demand for optical and laser engineers growing, NTU has initiated an optical engineering specialization as part of its precision engineering master's degree program. The course, started in 2011 and endorsed by the Optics and Photonics Society of Singapore, already has 30 graduates, with 19 students enrolled at the School of Mechanical & Aerospace Engineering.

COLE also signed a memorandum of understanding with three optical engineering research centers, establishing an optical and laser engineering international research consortium that will lend staff and student exchanges as well as joint projects. The organizations include the Center for Laser Aided Intelligent Manufacturing at the University of Michigan; the Institute of Technical Optics at the University of Stuttgart, Germany; and the Center for Optics Research and Education at the Utsonomiya University in Japan.

For more information, visit: www.ntu.edu.sg