

## TTI Online Summer Seminar 2022 – LIST of ENGINEERING LECTURES

**To attend the Engineering Lectures:** International students from TTI's partner universities (applicants) select up to five lectures based on their academic interests and experiences. TTI will assign each student to up to two of the lectures of their choice. Please note that application may be turned down if an applicant does not meet the requirements for joining the lectures. Also, applicants may not be assigned to their preferred lecture(s) in case others fill in the seats. For information about the faculty members giving lectures and their laboratories, please visit our [website](#).

Laboratory	Field of Engineering	Lecturer(s)	Lecture Topic	Lecture Summary	Number of Seats Available (* )May be limited due to network capacity	Interactive Aspect in the Lecture	Required Skills and Background Knowledge for Engineering Lecture Applicants	Tools to Be Prepared by Engineering Lecture Participants	Pre-seminar Preparation Required of Engineering Lecture Participants	
<b>A</b>	Micro-Nano Mechatronics Laboratory	Mechanical Systems Engineering	Professor SASAKI Minoru	Microfabrication and MEMS sensors	The microfabrication technique and our MEMS devices are explained. For assisting the understanding the effect of the small sensor, the acceleration sensor signal in the smart phone is observed.	Not limited(*)	YES	Basic knowledge of mechanical and electrical engineering	Optional tool: Smart phone (Android OS is preferred) with the free application installed	TBA
<b>B</b>	Intelligent Information Media Laboratory	Electronics and Information Engineering	Professor UKITA Norimichi	Computer Vision using Deep Learning	I will introduce recent progress of computer vision (image recognition) using deep learning. You can enjoy easy Python codes on Jupyter Notebook with Python, if possible.	Up to three	YES	Basic Knowledge of Python	Web browser on a computer	Nothing
<b>C</b>	Laser Science Laboratory		Professor FUJI Takao Lecturer KUDO Tetsuhiro	Frontiers in infrared lasers and applications	introduction to latest lasers and their applications	Not limited(*)	NO	Basic knowledge of Optics	Nothing special	Nothing
<b>D</b>	Memory Engineering Laboratory		Professor AWANO Hiroyuki Associate Professor TANABE Kenji	Information recording technology in the big data era	In the Fourth Industrial Revolution, a large amount of data obtained from innumerable IoT will be stored as big data, and from this huge amount of data, data mining using AI will create novel ideas to increase productivity. We will introduce the technology related to this information recording.	Up to five	YES	Basic knowledge on electromagnetics and electric & electronic circuits	A standard PC with which Excel and Powerpoint can be run.	Nothing special
<b>E</b>	Electromagnetic Energy System Laboratory		Professor FUJISAKI Keisuke	Magnetism on Motor Drive System	An overview is given on magnetic materials that are applied for electrical vehicles, motors, and power electronics.	Not limited(*)	NO	N/A	N/A	N/A
<b>F</b>	Quantum Interface Laboratory	Materials Science and Engineering	Professor KAMIYA Itaru	Introduction to Quantum Structures	Overview on quantum structures, together with their preparation and physical properties, will be given.	Up to twenty	YES	Fundamental knowledge on quantum mechanics.	N/A However, it might be helpful if you can run some kind of a program for performing simple calculations on quantum mechanics.	TBA
<b>G</b>	Surface Science Laboratory		Professor YOSHIMURA Masamichi Associate Professor HARA Masanori	Fabrication of CNT-modified electrode for Li ion battery	Synthesis of vertically-aligned carbon nanotube on a Cu substrate by the chemical vapor deposition, and evaluation of the CNT-modified Cu electrode as an anode of Li ion battery.	Up to three	YES	basic knowledge about chemical reaction and battery	no	no
<b>H</b>	Optical Functional Materials Laboratory		Professor OHISHI Yasutake Associate Professor SUZUKI Takenobu Assistant Researcher Tong Huang Tuan	Lightwave generation and control by specialty optical fibers	State of the art technology on lightwave generation and control, such as supercontinuum generation, amplification and propagation, using specialty optical fibers made of tellurite and chalcogenide glasses are presented.	Not limited(*)	NO	Basic knowledge of optics	N/A	N/A