

## **Advanced Technology in Emerging Fields 2: 1 credit**

This course introduces the student to cutting-edge scientific and technological research conducted in emerging fields at Tokyo Institute of Technology and Japanese/Asian research institutions. Students can engage in a variety of activities, including expert-led lectures, thought-provoking seminars, research laboratory visits, and interactive group discussions with the opportunity to reconsider the contributing role science and technology can play in society as well as a platform to think about what kinds of science and technology are needed today. Students will have "Special Lecture" to exchange opinions with lecturers and students engaged in interdisciplinary research and development.

### Keywords

- 1) Environment & Energy 1 (Yoshikawa): "Waste Management - Past, Present and Future -" waste management, Incineration, waste-to-energy, biomass, waste conversion
- 2) Nanotech & Nanomaterials (Hayashi): "Introduction to Nanotechnology and Nanomaterials" nanoscopic imaging and spectroscopy, force measurement, self-assembly, single molecular detection
- 3) Natural Disaster (Midorikawa): "Advanced Technology in Earthquake Disaster Mitigation" earthquake, hazard assessment, seismic design, disaster plan
- 4) Environment & Energy 2 (Ihara): "Environmental Energy Innovation" energy conversion chemistry, fuel cell, solar cell, energy system, smart grid
- 5) Special Lecture (Ikegami and Harlan): "Sharing Asia -Potentials and Problems: Environmental Issues-" In search of a better future for Asia, our two speakers will discuss issues that matter to today's Asian youth with our students.
- 6) New Batteries (Kanno): "Scope of New Batteries" lithium battery, fuel cell, all-solid-state battery
- 7) Mechanical Engineering (Mizutani): "Structural Integrity Evaluation of Machines and Structures" failure accidents, failure criterion for engineering materials, nondestructive testing, health monitoring, remained life evaluation