Division of Environmental Design	Research field	Water Environmental Engineering	Lab. ID ED13

Laboratory web site

Research subjects

Our researches are about development of biological wastewater treatment, utilization of sewage biomass and monitoring of water environment. Especially, we focus on the role of sulfate reducing microorganisms, and their use in wastewater treatment. Practical research of methane fermentation is also being conducted using the pilot-scale reactor with government and company. Furthermore, the sources of pollution in lake environment are evaluated by monitoring of lake and basin river. All researches are based on the experiments including operation of reactor, sampling and water quality analysis. And to understanding the microorganisms in the wastewater treatment system, we are development a detectional tool for the microorganisms.

Master/Doctor course: Education policy, curriculum, typical activity in the laboratory

In our laboratory, 4-5 groups are made and each experiment is conducted with all group members. Group members discuss the experimental plans and results with professors once a week. Master course students take two seminars, laboratory seminar and intensive seminar. The first stage of the laboratory seminar is basic subject of water environment. Then, students find some references from the Journals and explain about the contents using ppt, and discuss each other. In the intensive seminar once a month, students present about their research and reserve some advices from professors. On February in first grade, first grade students have to take an examination for promotion. Professor can advise about future plan after graduation. Doctor course students also belong to each research group as a leader, and join to two seminars.

Daily life in the laboratory, etc.

Personal working desk with a personal computer is available for every student. Undergraduate and Master students in our laboratory share a laboratory room, and everyday free discussion on environment or related topics are strongly encouraged. Doctor students in the same floor share a laboratory room, and free discussion beyond research field can be encouraged. Many laboratory activities are organized like, welcome and party for new comers, farewell party. Sometimes Takoyaki party and Birthday party will be held in the laboratory.

Message or comments by the laboratory faculty staffs

We aim to supervise students as an independently thinking individual. We can support the students who hope to present a paper at an academic conference, as much as possible. We accept many foreign students belonging to Environmental Technology International Course, and Japanese students from the other universities and college in Master course. Most of the Master graduates take occupation as Environment relating companies, construction companies and local government. Some students will enter the Doctor course. International students and candidates from the industry are also accepted. After taking the doctoral degree, graduates will be postdoctoral researchers at foreign countries, research or educational staffs at higher education organization.

Recent Master theses in these 3 years (+ more if appropriate)

year.month	Thesis title (including English translation of Japanese thesis title)
2017.9	High concentration thermophilic co-digestion of sewage sludge and rice straw
2017.9	Influence of sulfur cycle on enhanced biological phosphorus removal process
2017.9	Removal of ammonium from wastewater by single-stage partial-nitrification/Anammox process
2017.3	Effects of microwave pretreatment on methane production of dewatered sludge
2017.3	Dynamics of dissolved organic matter in Lake Kahokugata basin
2016.9	Influence of nutrients from agricultur and livestock activities on water quality of Lake Kahokugata
2016.9	Effects of rice straw addition on supernatant characteristics in sewage sludge digestion
2016.9	Nitrogen removal by anaerobic-anoxic-oxic biological filter based on sulfur cycle and anammox reaction
2016.3	Role and use of sulfate reducing microorganisms in wastewater treatment
2016.3	Water quality variation in Lake Kahokugata basin and effects of agricultural lands and livestock related facilities
2016.3	Nitrogen removal by an anaerobic- anoxic-oxic process using sulfur denitrification and ANAMMOX reaction
2015.9	Influence of sulfate on anaerobic treatment of soybean-curd wastewater
2015.9	Increase in biogas production and phosphorus content in digested sludge by sulfate reduction
2015.3	High concentrated anaerobic co-digestion of sewage sludge and waste biomass with microwave pretreatment.

2014.9	Nitrogen removal in an anaerobic–anoxic biological filter reactor by heterotrophic denitrification, sulfur denitrification and anammox reaction
2014.3	Garbage collection system for co–digestion with sewage sludge in wastewater treatment plant.
2014.3	Improvement of methane recovery and production of high phophorus containing digested sludge by pretreating in the sulfidogenic condition.
2014.3	Effects of sulfate in anaerobic treatment of organic wasetewater.
2014.3	Co–digestion of plant biomass with sewage sludge and garbage.
2013.9	Effects of biomass addition on methane yield and microbial population in high concentrated sludge digestion process
2013.9	Anaerobic treatment of organic wastewater by a biofilter reactor equipped with carbon fiber and interaction among microorganisms.
2013.3	Anaerobic treatment of starch wastewater by using sulfate reduction.
2013.3	Anaerobic codigestion of sewage sludge, plant biomass or food wasete.
Recent Doctoral theses in these 3 years (+ more if appropriate)	
year.month	Thesis title (including English translation of Japanese thesis title)
2016.9	Effect of herbaceous biomass and food waste addition in anaerobic digestion of sewage sludge
2016.3	Development of high–solids anaerobic co–digestion of waste biomass mainly consisting of dewatered sludge produced in an oxitation–ditch process and waste fried tofu
2012.9	Cahracteristics of restrant wastewater and effects on enviromnent.
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