Course Name	Space Utilization Engineering		
Semester, Year	Second Semester, 2018 (Fall Term)	Number of Credits	2 credits
Course level	5000	Course Number	27103
Instructor(s) (Institution)	Osamu FUJITA (大学院工学研究院)		
Course Objectives	Students study the recent advancement or the latest technologies of the field of space utilization, fundamentals of physical and chemical processes in microgravity, and technical knowledge required for microgravity experiments. Finishing up this course will deliver the overview of space utilization engineering as well as fundamentals to find the effective way to utilize space environment, especially micro-gravity environment. Students also learn the process of project proposal for space utilization.		
Course Goals	1.Students who take this course can explain features of space environment, method of micro-gravity experiments and latest status of space utilization. 2.They can list up some examples of physical/chemical processes relating to micro-gravity and explain the processes correctly. 3.They can list up some optical methods often used in micro-gravity experiments and explain the principle of the methods. 4.They experience the project proposal on micro-gravity research.		
Course Schedule	1.Introduction (1 time) General description of space utilization 2.Fundamentals of space utilization (2 time) General features of space, Micro-gravity facilities 3.Micro-gravity Science (6 times) Transport phenomena relating gravity, Combustion, Status of the latest micro-gravity science and technology, others including lecture by other researchers 4.Technical issues for designing micro-gravity experiments (1 times) 5.Instrumentation for micro-gravity experiments(3 times) Fundamentals of optics, Interferometry, Others 6.Project proposal (2 times) Proposal and discussion.		
Homework	Students need no preparation for every class, but they need under-graduate level background of machine dynamics, thermodynamics, and fluid dynamics Students will be given assignments often during the course and requested to submit project proposal at the end of the course.		
Grading System	20%: small test at the end of every class 40%: assignments (several assignments are requested during the term) 40%: final exam Class participation more than 60% is required.		
Textbooks / Reading List	There is no one text that adequately responds to the goals and topics of this class. Instead, handouts will be distributed in the class, and references are indicated during lectures if necessary. なし		
Websites			
Website of Laboratory	http://mech-hm.eng.hokudai.ac.jp/~lsu/		
Additional Information			