|  |  |
| --- | --- |
| Course Name [科目名] | Advances in Mechanical Systems Engineering |
| Instructor Name [教員] | Ten Professors in different fields of Mechanical Systems Engineering (in omnibus style) |
| Course Number |  |
| Course Structure [授業形態] | Lecture |
| Course Credits [単位数] | 2 |
| Course Overview [概要] | Mechanical Systems Engineering is one of the key approach to solve the current problems where keywords are “safe and secure”, “quality of life”, “clean environment”, “supply of food and energy”, etc. In this course, each lectures are selected from each significant field in mechanical systems engineering, provided by the professors of department of mechanical systems engineering, also including the researcher of external institute.  \* This course is a part of the course for Japanese students who take this course over 14weeks. Then there is a possibility for alternative topics from the list below depending on the arrangement of lectures. |
| Course Key Words [キーワード] | Mechanical Systems Engineering, Advanced Concepts, Advanced Approaches |
| Academic Goal [目標] | 1. capable to have a knowledge for the approaches in mechanical systems engineering to solve the problems,  2. capable to have a knowledge behind the approaches in mechanical systems engineering to solve the problems,  3. understand the importance of basic knowledges in mechanical systems engineering to solve the problems |
| Course Schedule [授業内容] | Week1: Recent Topics in Nanotechnology: Renewable energy generation and advanced microfabrication  Week2: Advances in Die & Mold Technology  Week3: Active Vibration Control of Structures  Week4: Mobile Robot Olfaction  Week5: Car-Robotics Technology for Enhancing Active Safety  Week6: Recent Topics in Plasma Propulsion  Week7: Introduction to Mechanics of Solids and Some Recent Topics  Week8: Connecting Advanced Technology in Vehicle Design and Manufacturing Companies to Customer and Business Needs Through a Strategic Framework of Deployment  Week9: Bubbles, Drops and Particles - Fundamentals of Multiphase Flow  Week10: Theory of Plasticity and Its Application to Industrial Forming Problems  \*This list is the topics in 2014. Some topics may be revised in 2015. |
| Textbooks, References,  and Supplementary Materials  [テキスト、参考書、その他] | Nothing especially (if needed, reference will be provided from supervisor) |
| Grading Philosophy  (Percentage / Criteria / Methodology)  [成績評価の方法]Attendance at classes: 50 points if attending more than 10 classes, or 5 points per class. | Participation at each class: 50 %  Submission of summary paper: 50%.  Submit a summary paper containing the following contents via e-mail. The dead line and the submission address will be announced at the beginning of the semester.  The paper should not exceed 4 pages of A4 paper.  (Task 1) Provide a short description on what you have learned from each lecture.  (Task 2) Provide your opinion/impression/comments on this subject.  For Task 1, comprehensive descriptions without logical/grammatical errors are required. For Task 2, reasonable amount of description is required. |
| Other  (i.e. Expectations on Classroom  Conduct and Decorum etc.)  [その他] | (none) |