Reliability in Mechanical Design

Course Instructor:

Kuei-Yuan Chan 蕭瑞元  Office：704  Tel：06-2757575 ext.62149
E-Mail: chanky@mail.ncku.edu.tw (with mail title: Reliability Class ...)
Office Hour：10:00 am - noon，Wednesdays, or by appointments

Course Information:

Days and Hours：8:10-9:00am, Wednesdays；10:10 am - noon, Thursdays
Classroom：Room #102, ME building
Textbook：course slides and handouts
Webpage：http://moodle.ncku.edu.tw

(login required, please make sure this course is added to your account, update your profile with your preferred email.)

Reference：
“Probability, Reliability, and Statistical Methods in Engineering Design”

Credit：3
Grades (100%)：

| Homework¹ | 25% (5% each) |
| Project   | 30% (5%, 10%, 15%) |
| Attendance and Participation | 15% |
| Midterm Exam #1 | 15% |
| Midterm Exam #2 | 15% |

Course Mission:

Develop fundamental reliability backgrounds for mechanical engineers. Students are expected to have basic knowledge about probability and statistics including set theory prior to this class.

Course Objectives:

- Provide examples to show the significance of reliability in engineering applications
- Review fundamental probability theory and statistics
- Compare various uncertainty models
- Understand some commonly used probability distributions and their physical meanings
- Determine distributions and parameters from observed data
- Determine reliability of serial and parallel systems
- Introduce various reliability analysis techniques
- Advanced topics：system reliability, variance reduction techniques, design for six sigma

Projects:

A project will be assigned early in the semester that will investigate a specific topic related to this course. The project is intended for public utilization and be made public in an appropriate form. Projects will be graded regarding their potential for impacting research and education in reliability. Some possible topics will be suggested early in the semester.

¹ Homework Policy：Due on Thursdays. Past-due homework is not acceptable