Course Syllabus

1. Class Information
- **Class**: Design Theories of Ship and Offshore Plant
- **Class Number**: 414.361 (3 Credits)
- **Semester**: Fall 2015
- **Level of Course**: Undergraduate / Junior
- **Time**: Tue. 14:00-15:15, Thu. 14:00-15:15
- **Location**: Room 106, Bldg. 36
- **Instructor**: Prof. Myung-Il Roh
  Office: Room 308D, Bldg. 36
  E-mail: miroh@snu.ac.kr
  Phone: (02) 880-7328
  Office Hours: Available before school and after school by appointment.
- **Teaching assistants**: Hye-Won Lee
  E-Mail: gpdnjs0215@snu.ac.kr
  Office: Room 206, Bldg. 36
  Phone: (02) 880-8378

2. Course Topics and Description

This course presents design theories of ship and offshore plant and the optimization technique for design automation of them. As theoretical education, the theories related to hull form design, general arrangement design, structural design, outfit design, and so on are presented, and the practice related to the theories using computer programs are given as the practical education. In addition, the optimization technique for design automation of ship and offshore plant and its applications are presented. Students perform a term project which consists of hull form design, general arrangement design, structural design, outfit design of the given ship or offshore plant.

(1) Design theories of ship and offshore plant: Hull form design (including the generation of hull form, variation and fairing of hull form), general arrangement design (including the design method and related rules, and naval architectural calculation), structural design (including the design method and related rules, midship scantling, evaluation of structural strength), outfitting design (including the design method and understanding of P&ID), and the practice related to the theories using computer programs

(2) Optimization technique for design automation of ship and offshore plant: Introduction to optimum design, Optimization technique, Its applications to design of ship and offshore plant

(3) Term project for design of ship and offshore plant: Students have to work in team, consisting of 2 to 3 students, on a term project. The term project is to design a hull form, compartment, hull structure, and outfitting of the given ship or offshore plant. That is, the outcome of the term project will be drawings and 3D CAD model which show results of hull form design, general arrangement design, structural design, and outfitting design. Of course, the scope of term project can be changed.

3. Textbook and References
(1) Textbook
- Roh, Myung-Il, "Design Theories of Ship and Offshore Plant", Seoul National University, Fall 2015.

(2) References
- Roh, Myung-Il, "Innovative Ship and Offshore Plant Design", Seoul National University, Spring 2015.
- Roh, Myung-Il, "Naval Architectural Calculation", Seoul National University, Spring 2015.

4. Grade Computation
Weighted system is as follows:
- Two Exams: 60%
- Term Project: 30%
- Attendance: 10%

In case of an excused absence, the student must make-up any missed test, quiz or homework the following day during a free period, before or after school. Unexcused absences will result in a zero.

5. Website: http://etl.snu.ac.kr
Most assignments, instructions and notice for supplementary lecture will be made only on the website, so check it frequently.

6. Class Expectation
- Late work will be not accepted.
- Show respect to others and their property.
- Come prepared to class.
- It is required to make appointments to see instructor during office hours. Send email for an appointment at least one day in advance.

7. Exam

	Mid Exam	Final Exam
Date	October 22nd, 2015 (Thursday), 14:00~15:15	December 10th, 2015 (Thursday), 14:00~15:15
Range of Exam	Design Theories of Ship and Offshore Plant: Hull Form Design, General Arrangement Design, Structural Design	(1) Design Theories of Ship and Offshore Plant: Outfitting Design (2) Optimization Technique

8. Course Schedule

Week	Course Schedule			
	Tuesday		Thursday	
	Date	Time: 14:00-15:15	Date	Time: 14:00-15:15
1	09/01	Introduction to Ship Design	09/03	Introduction to Offshore Plant Design
2	09/08	Hull Form Design: Generation of Hull Form	09/10	Hull Form Design: Variation of Hull Form
3	09/15	Hull Form Design: Performance Evaluation of Hull Form	09/17	General Arrangement Design: Design Method and Related Rules (1)
4	09/22	General Arrangement Design: Design Method and Related Rules (2)	09/24	General Arrangement Design: Naval Architectural Calculation (1)
5	09/29	**Holiday**	10/01	General Arrangement Design: Naval Architectural Calculation (2)
6	10/06	Structural Design: Design Method and Related Rules	10/08	Structural Design: Midship Scantling (1)
7	10/13	Structural Design: Midship Scantling (2)	10/15	**Holiday**
8	10/20	Structural Design: Evaluation of Structural Strength	10/22	**Mid Exam**
9	10/27	Outfitting Design: Design Method and P&ID	10/29	Practice Using Computer Programs (1)
10	11/03	Practice Using Computer Programs (2)	11/05	Practice Using Computer Programs (3)
11	11/10	Introduction to Optimum Design (1)	11/12	Introduction to Optimum Design (2)
12	11/17	Optimization Technique (1)	11/19	Optimization Technique (2)
13	11/24	Optimization Technique (3)	11/26	Optimization Technique (4)
14	12/01	Optimization Technique (5)	12/03	Applications of the Optimization Technique to Design of Ship and Offshore Plant (1)
15	12/08	Applications of the Optimization Technique to Design of Ship and Offshore Plant (2)	12/10	**Final Exam**