

Fall 2015

NAME 6125

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University of New Orleans

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Advanced Offshore Engineering

Dr. Xiaochuan(Vincent) Yu
MW, 5:00pm – 6:15pm

Email: xyu5@uno.edu; Tel: 504-280-7158; EN935(O)
Classroom: EN316

COURSE INFORMATION

OBJECTIVES:

The objective of this course is to give an introduction of offshore engineering. Some advanced topics may be covered, including offshore field development, offshore drilling, various floaters, engineering design and analysis, etc. Students can deep their understanding of forces calculation and motion prediction of various floating structures. Through this course, students should be able to perform some advanced analysis and calculations of different offshore structures.

SYLLABUS:

The following topics may be included

- Introduction of Offshore Engineering, including offshore field development, offshore drilling, types of offshore platforms and various engineering analysis
- Review unsteady hydrodynamics, linear water waves, etc.
- Morrison's equation
- Statistical description of ocean waves
- Numerical methods for linear wave induced motions and loads
- Second-order nonlinear problems
- Viscous wave loads and damping
- Current wave loads
- Station keeping
- Introduction to model test
- Analysis of measured data
- Some practical engineering analysis will be tentatively introduced, including pipeline design, mooring analysis, etc
- Introduction of platform installation and transportation analysis
- Introduction of riser analysis
- Other advanced analysis in offshore engineering

REFERENCES AND TEXTBOOKS:

Several free references are highly recommended, including

- J.M.J. Journee and W.W. Massie (2001). *Offshore hydromechanics*. Delft University of Technology. You can download it from <http://www.shipmotions.nl/DUT/LectureNotes/index.html>
- Ir. Johan Wichers. *Guide to Single Point Moorings*, Wmooring, Inc. You can download it from <http://www.wmooring.com/>
- Det Norske Veritas (2010). *Environmental Conditions and Environmental Loads (DNV-RP-C205)* You can search and download it freely online with key word: *DNV-RP-C205*.

In addition, the following books or notes are also very useful

- Faltinsen, OM (1990). *Sea Loads on Ships and Offshore Structures*, Cambridge University Press.
- Chakrabarti, SK (1987). *Hydrodynamics of Offshore Structures*, WIT Press.
- Newman, JN(1977). *Marine hydrodynamics*. MIT Press

PREREQUISITES:

Offshore Structures and Ship Dynamics II (NAME 4162/5262) or Analysis and Design of Floating Offshore Structures (NAME 4121/5121) or equivalent

ASSIGNMENTS, EXAMS AND GRADES:

There will be 3-4 home assignments and 1 course project. Normally the assignments will be distributed every two weeks and must be handed in by the due date before the end of the class. Late homework will be penalized 10% each day it is late unless you have an excuse recognized by the university rule and then, only with advance notice (with the exception of emergencies). In addition, 2-3 classes will be scheduled in computer lab EN209, in order to for you to get familiar with the engineering softwares. Meanwhile, you are highly encouraged to use or operate them in your own time.

There will be a mid-term exam on October.5th (Monday) and a final exam in December.

Grading policy: assignments - 20%, course project -30%,computer lab - 5%, mid-term exam-20%, final exam -25%.

OFFICE HOURS:

Monday 7:00pm - 9:00pm; Tuesday 10:00am - 12:00am; Wednesday 1:15pm - 3:15pm
Or, send me an email to schedule an appointment.

AMERICANS WITH DISADIBILITIES ACT(ADA) POLICY STATEMENT:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. If you have a disability requiring an accommodation, please contact the Office of Disability Services.

ACADEMIC INTEGRITY STATEMENT AND POLICY:

Students are expected to understand and abide by the UNO Judicial Code. For more details, please visit:
<http://www.uno.edu/studentaffairs/student-policies/>.

OTHER REQUIREMENTS:

- According to university policy, you are required to attend every class. The attendance sheet may need to be signed! If you are unable to attend class for some reasons, please inform me by e-mail in advance.
- The mobile must be turned off in class.