The University of Western Australia  
School of Civil & Resource Engineering

UNIT OUTLINE

Computational Fluid Dynamics (CIVL8130)

Semester 1, 2009

**Aims:** The objective of this unit is to acquire fundamental knowledge on computational fluid dynamics and to develop the ability to apply the overall knowledge acquired from this unit to solve a wide range of civil engineering problems. In particular, students are expected to develop a good understanding on how fundamental knowledge is applied to solving practical engineering problems and ability to apply basic computational fluid dynamics techniques to solve engineering problems, and to develop self-leaning skills.

**Unit description:** This is a single semester unit. The topics covered in this unit include introduction to computational fluid dynamics, governing equations of fluid mechanics, numerical discretization techniques, numerical schemes for Navier Stokes equations, use of commercial packages and applications of computational fluid dynamics.

**Timetabling:** Computational Fluid Dynamics (CFD) is a single-semester subject. The timetable provides three hours per week for lectures and two hours for tutorials. The venues and time of lectures and tutorials are as advised in the timetable that is available on the UWA web site.

**Textbooks:** Computational Fluid Dynamics by John D. Anderson, JR., McGraw-Hill.

**Assessment:** Students will be assessed on the following two components:

1. Assignments and projects
2. End of Semester Examination

The students will be assessed according to the aims of the unit set out earlier. The final mark of the unit is calculated as:

\[ \text{Final mark} = \text{assignment and project mark (total 100)} \times 0.50 + \text{examination mark (total 100)} \times 0.50 \]

The minimum pass mark for the unit is the total mark of 50.

It should be noted that the unit marks may be scaled in line with the Faculty's Policy on Assessment Practices and Procedures (http://www.ecm.uwa.edu.au/for/students/assess). No supplementary examinations will be available for the unit.

**Assignment:** Question sheets will normally be distributed every week. Some of these questions will be assessed. Assignments are required to be handed back in within specified period of time on the assignment sheet. Late submissions subject to 20% penalty per day and no assignments will be accepted if the due date is exceeded for more than 5 days. Special considerations, however, will be granted on medical, personal or
other grounds where application must be lodged with the faculty office no later than three working days after the due date for the assessment in question..

**Lecture notes:** The lecture notes and other unit-related materials such as tutorial questions and solutions are available at the unit web site: http://www.civil.uwa.edu.au/for/students/undergraduate/online_teaching_resources/semester_one/CIVL8130/

**Plagiarism:** Plagiarism is taking someone else’s thought, writing or invention and claiming it as your own. Plagiarism is regarded by the University as serious misconduct (see [http://www.ecm.uwa.edu.au/for/students/plagiarism](http://www.ecm.uwa.edu.au/for/students/plagiarism)). If plagiarism of ideas, information, text or other printed material is detected in work submitted for assessment, that work will be assigned a mark of zero. The Head of School will be informed and a note kept on file.

**Appeals and Student Rights:** The Faculty Policy for Appeals can be found at [http://www.ecm.uwa.edu.au/for/students/exams](http://www.ecm.uwa.edu.au/for/students/exams) and the Charter of Student Rights can be found at [http://www.secretariat.uwa.edu.au/home/policies/charter](http://www.secretariat.uwa.edu.au/home/policies/charter).