



MODULE INFORMATION **EG21006 Fluid Mechanics**
Semester 1, 2017-2018 Academic Year

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CLASS SCHEDULE **• Lectures:**
Weeks 1-12, Monday, 10:00AM - 11:00AM at Fulton F20
Weeks 1-12, Friday, 01:00PM - 02:00PM at Tower D'Arcy Thompson LT

• Tutorials: Weeks 4, 6, 8 and 10, Friday, 02:00PM - 03:00PM at Fulton F20

• Laboratory*: Weeks 6-12, Thursday, 10:00AM - 01:00PM at Fulton F13, Hyd. Lab
* Note that students will only attend TWO 45-minute sessions during this period. Dates and times for each student will be discussed in class.

OFFICE HOURS Monday: 03:00PM-04:00PM
Wednesday: 03:00PM-04:00PM
Friday: 03:00PM-04:00PM
And by appointments.

GRADING Online Assignments (four)* 20%
Laboratory Assignments (two) * 20%
Final Examination ** 60%
* The minimum pass mark for the combined coursework is 30%.
** The minimum pass mark for the final examination is 30%.

GRADING SCALE A ≥ 70%
B ≥ 60%
C ≥ 50%
D ≥ 40%
F < 40%
For more information see:
<https://www.dundee.ac.uk/governance/policies/policy-taught-provision/>

DEGREE EXAM Semester 1 Examination begins on 04/12/2017 and ends on 15/12/2017. Exact day and time of this module examination will be set and announced by the University prior to the examination week.

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| RECOMMENDED TEXTBOOKS | <ul style="list-style-type: none"> • White, F. M. (2015). Fluid Mechanics, McGraw-Hill Education; 8 edition, 864 p., ISBN: 978-0073398273. • Douglas, John F., Gasoriek, Janusz M., Swaffield. John A. and Jack, Lynne B. (2011). Fluid Mechanics, Prentice Hall; 6 edition, 1012 p., ISBN: 978-0273717720. • Munson, Bruce R., Rothmayer, Alric P., Okiishi, Theodore H. and Huebsch, Wade W. (2012). Fundamentals of Fluid Mechanics, Wiley; 7 edition, 792 p., ISBN: 978-1118116135. • Kundu, Pijush K., Cohen, Ira M., Dowling, David R. (2015). Fluid Mechanics, Academic Press; 6 edition, 928 p., ISBN: 978-0124059351. |
| ADDITIONAL RESOURCES | <ul style="list-style-type: none"> • http://web.mit.edu/hml/ncfmf.html • http://www.efluids.com • http://ocw.mit.edu • http://www.annualreviews.org/journal/fluid |
| MODULE COMMUNICATIONS | Module-related material, along with class communications, are held on <i>My Dundee</i> portal. Headlines of some (and NOT all) module material, and some tables and figures will be made available online through <i>My Dundee</i> portal. All Assignments and the solution sets, previous years' examinations, and further helpful resources will be made available online through <i>My Dundee</i> portal. Students are expected to check and use the module webpage regularly. Assignment sheets will be made available at least 7 days before the submission date. All required material should be downloaded from My Dundee and stored locally; access to the module page will not be extended beyond the current academic year. |
| MODULE AIMS | To introduce the fundamental theoretical and practical aspects of fluid mechanics. |
| INTENDED LEARNING OUTCOMES | <ul style="list-style-type: none"> • To develop knowledge of and proficiency in the the basic laws of fluid mechanics, the properties of fluids, the terminology used and to recognize the factors that affect flow in pipes and channels. • To develop an understanding of an appreciation of fluid pressure and velocity, viscosity, laminar and turbulent flow, shear forces and friction factors, conservation of mass and momentum, Bernoullis equation, steady flow in pipes, energy losses in pipes, uniform channel flow. • To be able to carry out simple hydraulic calculations for pipes and channels, carry out laboratory experiments to measure piezometric heads, volumetric flow rates and friction losses in pipes, and to analyze the results within the theoretical framework of the lecture module. |
| PREREQUISITES | None |
| ATTENDANCE POLICES | The module content will be discussed in class. It is assumed that students will attend all classes (lectures and tutorials), and take notes of the material written on the board and discussed in class. Those who miss any of the lectures must follow a combination of approaches to catch up with the class as soon as possible. These include, but not limited to, (i) use of the concise reading list (available on <i>My Dundee</i>), (ii) use of the module content and schedule (next page), (iii) discussion with the module instructor during office hours, and (iv) note-borrowing from fellow students. |

TENTATIVE
SCHEDULE

| MONDAY | | FRIDAY | |
|--------------------------|----|-----------------------------------|----|
| Sep 11th | 1 | 15th | 2 |
| Module Introduction | | Preliminaries; Note Taking Review | |
| 18th | 3 | 22nd | 4 |
| Fluid Properties | | Pressure | |
| 25th | 5 | 29th | 6 |
| Hydrostatics | | Fluid Kinematics | |
| Oct 2nd | 7 | 6th | 8 |
| Fluid Dynamics | | Fluid Dynamics | |
| 9th | 9 | 13th | 10 |
| Conservation Laws | | Governing Equations | |
| 16th | 11 | 20th | 12 |
| Governing Equations | | Governing Equations | |
| 23rd | 13 | 27th | 14 |
| Pipe Flow | | Pipe Flow | |
| 30th | 15 | Nov 3rd | 16 |
| Pipe Flow | | Pipe Flow | |
| 6th | 17 | 10th | 18 |
| Open-channel Flow | | Open-channel Flow | |
| 13th | 19 | 17th | 20 |
| Open-channel Flow | | Open-channel Flow | |
| 20th | 21 | 24th | 22 |
| Dimensional Analysis | | Dimensional Analysis | |
| 27th | 23 | Dec 1st | 24 |
| Final Exam Review | | Review (if needed) | |