

**Department of Chemical Engineering**

**Cairo University  
Faculty of Engineering**

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| **Course Specifications** | | | | | | | | | | | | | | | | | |
| **Program(s) on which this course is given:** | | | | | | | Chemical Engineering | | | | | | | | | | |
| **Department offering the program:** | | | | | | | Chemical Engineering | | | | | | | | | | |
| **Department offering the course:** | | | | | | | Chemical Engineering | | | | | | | | | | |
| **Academic Level:** | | | | | | | 2nd year | | | | | | | | | | |
| **Date** | | | | | | | 2013-2014 | | | | | | | | | | |
| **Semester (based on final exam timing)** | | | | | | | Fall Spring√ | | | | | | | | | | |
| **A- Basic Information** | | | | | | | | | | | | | | | | | |
| **1. Title:** | Momentum Transfer | | | | | | | | | **Code:** | | | CHE 203B | | | | |
| **2. Units/Credit hours per week:** | | Lectures | | | 2 | | | Tutorial | | | 2 | Practical | | **0** | | Total | 4 |
| **B- Professional Information** | | | | | | | | | | | | | | | | | |
| **1. Course Description:** | | | | The objective of this course is to provide the students with the industrial applications of Momentum Transfer including piping systems, open channel flow and flow of compressible fluids. | | | | | | | | | | | | | |
| **2. Intended Learning Outcomes of Course (ILOs):** | | | | **a) Knowledge and Understanding** | | | | | | | | | | | | | |
| 1) Principles of design including elements design, process and/or a system related to specific disciplines. | | | | | | | | | | | | | |
| 2) The principles of chemical engineering including transport processes | | | | | | | | | | | | | |
| **b) Intellectual Skills** | | | | | | | | | | | | | |
| 1) Think in a creative and innovative way in problem solving and design. | | | | | | | | | | | | | |
| 2) Combine, exchange, and assess different ideas, views, and knowledge from a range of sources. | | | | | | | | | | | | | |
| **c) Professional and Practical Skills** | | | | | | | | | | | | | |
| 1) Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services. | | | | | | | | | | | | | |
| 2) Create and/or re-design a process, component or system, and carry out specialized engineering designs. | | | | | | | | | | | | | |
| **d) General and Transferable Skills** | | | | | | | | | | | | | |
| 1) Demonstrate efficient IT capabilities. | | | | | | | | | | | | | |
| 2) Effectively manage tasks, time, and resources. | | | | | | | | | | | | | |
| **3. Contents** | | | | | | | | | | | | | | | | | |
| **Topic** | | | | | | **Total hours** | | | **Lectures hours** | | | | | | **Tutorial/ Practical hours** | | |
| Flow of Viscous Fluids | | | | | | 12 | | | 6 | | | | | | 6 | | |
| Piping Systems | | | | | | 8 | | | 4 | | | | | | 4 | | |
| Flow of Compressible Fluids | | | | | | 8 | | | 4 | | | | | | 4 | | |
| Flow in Open Channels | | | | | | 4 | | | 2 | | | | | | 2 | | |
| Turbo-machinery and Industrial  Applications of Momentum Transfer | | | | | | 8 | | | 4 | | | | | | 4 | | |
| **4. Teaching and Learning Methods** | | | | | | Lectures (√ ) | | | Practical Training/ Laboratory () | | | | | | Seminar/Workshop () | | |
| Class Activity (√ ) | | | Case Study () | | | | | | Projects (√ ) | | |
| E-learning ( ) | | | Assignments /Homework (√ ) | | | | | | Other: | | |
| **5. Student Assessment Methods** | | | | | | | | | | | | | | | | | |
| * **Assessment Schedule** | | | | | | | | | **Week** | | | | | | | | |
| -Assessment 1;Class Test | | | | | | | | | 3 | | | | | | | | |
| -Assessment 2;Midterm Exam | | | | | | | | | 7 | | | | | | | | |
| -Assessment 3; Project Assignment | | | | | | | | | 9-12 | | | | | | | | |
| -Assessment 4; Class Test | | | | | | | | | 11 | | | | | | | | |
| -Assessment 5; Final Exam | | | | | | | | | 14 | | | | | | | | |
| * **Weighting of Assessments** | | | | | | | | | | | | | | | | | |
| -Mid-Term Examination | | | | | | | | | 10 | | | | | | | | |
| -Project | | | | | | | | | 10 | | | | | | | | |
| -Class Activity | | | | | | | | | 10 | | | | | | | | |
| -Final-term Examination | | | | | | | | | 70 | | | | | | | | |
| -Total | | | | | | | | | 100 | | | | | | | | |
| **6. List of References** | | | | | | | | | | | | | | | | | |
| 1. Streeter, L.V., “Fluid Mechanics”, McGraw-Hill Book Company, New York, 1958 | | | | | | | | | | | | | | | | | |
| 1. Munson, B., Yound, D., and Okiishi, T., "Fundamentals of fluid mechanics”, John Wiley & Sons, Inc., 2002 | | | | | | | | | | | | | | | | | |
| **7. Facilities Required for Teaching and Learning** | | | | | | | | | | | | | | | | | |
| 1. Organized halls 2. Data show | | | | | | | | | | | | | | | | | |
| **Course Coordinator:** | | | Prof. Salwa Raafat | | | | | | | | | | | | | | |
| **Head of Department:** | | | Prof. Fatma Ashour | | | | | | | | | | | | | | |

