

**Department of Chemical Engineering**

**Cairo University
Faculty of Engineering**

|  |
| --- |
| **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 |

