



**Jordan University of Science and Technology**  
**Faculty of Engineering**  
**Mechanical Engineering Department**

ME343 Fluid Mechanics

First Semester 2023-2024

**Course Catalog**

3 Credit Hours. Fluid and their properties. Fluid Statics. Kinematics of fluid flow. Conservation equations, momentum equation, energy equation and their applications. Euler equation applications, Bernoulli equation applications, Dimensional analysis and similarity. Pipe flows, Calculations of head losses.

**Text Book**

|                          |                                 |
|--------------------------|---------------------------------|
| <b>Title</b>             | Introduction to Fluid Mechanics |
| <b>Author(s)</b>         | Fox & McDonald                  |
| <b>Edition</b>           | 10th Edition                    |
| <b>Short Name</b>        | Introduction to Fluid Mechanics |
| <b>Other Information</b> |                                 |

**Course References**

| Short name                  | Book name                   | Author(s)          | Edition      | Other Information |
|-----------------------------|-----------------------------|--------------------|--------------|-------------------|
| Engineering Fluid Mechanics | Engineering Fluid Mechanics | Roberson and Crowe | 10th Edition |                   |

**Instructor**

|                 |  |
|-----------------|--|
| Name            | <b>Dr. Khaleel Al-khasawneh</b>  |
| Office Location | M5L2   |
| Office Hours    | Sun : 09:30 - 10:30<br>Sun : 12:30 - 13:30<br>Mon : 11:30 - 12:30<br>Tue : 12:30 - 13:30<br>Thu : 12:30 - 13:30<br>Thu : 13:30 - 14:30 |
| Email           | krkhasawneh@just.edu.jo  |

| Class Schedule & Room  |  |
|--|--|
| Section 1:<br>Lecture Time: Sun, Tue, Thu : 10:30 - 11:30<br>Room: C2006 |  |
| Section 2:<br>Lecture Time: Sun, Tue, Thu : 11:30 - 12:30<br>Room: C2006 |  |

| Prerequisites |                         |                      |
|---------------|-------------------------|----------------------|
| Line Number   | Course Name             | Prerequisite Type    |
| 253214        | ME321 Thermodynamic (1) | Prerequisite / Study |
| 252122        | ME212 Dynamics          | Prerequisite / Study |

| Tentative List of Topics Covered |   |  |
|----------------------------------|---|--|
| Weeks                            | Topic   | References   |
| Week 1                           | Introduction  | From <b>Introduction to Fluid Mechanics</b>  |
| Week 2                           | Fundamentals Concepts                                 | From <b>Introduction to Fluid Mechanics</b>  |
| Weeks 3, 4                       | Fluid Statics   | From <b>Introduction to Fluid Mechanics</b> ,<br>From <b>Engineering Fluid Mechanics</b> |
| Weeks 5, 6, 7                    | Basic equation in integral form for a control volume  | From <b>Introduction to Fluid Mechanics</b>  |
| Weeks 8, 9                       | Introduction to differential analysis of fluid motion | From <b>Introduction to Fluid Mechanics</b> ,<br>From <b>Engineering Fluid Mechanics</b> |
| Weeks 10, 11, 12                 | Incompressible inviscid flow                          | From <b>Engineering Fluid Mechanics</b>  |
| Weeks 13, 14                     | Dimensional analysis and similitude                   | From <b>Introduction to Fluid Mechanics</b> ,<br>From <b>Engineering Fluid Mechanics</b> |
| Weeks 15, 16                     | Internal incompressible viscous flow                  | From <b>Engineering Fluid Mechanics</b>  |

| Mapping of Course Outcomes to Program Outcomes                 | Course Outcome Weight (Out of 100%) | Assessment method |
|--|-------------------------------------|-------------------|
| Solve for the forces on emerged bodies                         | 20%                                 |                   |
| Apply momentum equation to calculate forces on dynamic systems | 20%                                 |                   |
| Apply Bernoulli equation                                       | 20%                                 |                   |
| Apply energy equation for flow in conduits                     | 20%                                 |                   |
| Apply dimensional analysis for fluid systems                   | 20%                                 |                   |

| Relationship to Program Student Outcomes (Out of 100%) |     |     |     |     |     |     |
|--|-----|-----|-----|-----|-----|-----|
| SO1  | SO2 | SO3 | SO4 | SO5 | SO6 | SO7 |
|  |     |     |     |     |     |     |

| Evaluation                |        |
|---------------------------|--------|
| Assessment Tool           | Weight |
| First Exam                | 25%    |
| Second Exam               | 25%    |
| Student work and activity | 10%    |
| Final Exam                | 40%    |

| Policy          |   |
|-----------------|---|
| Rules and notes | 1) Never come late to the classroom, you will disturb your mates and your instructor if you do so.<br>2) Turn OFF your cell phones during the class.<br>3) DO Not TALK during the class please, unless you have a question for me.<br>4) Make up exams are not held without an official signed and approved excuse from the Department Chairman.<br>5) Office hours are the hours I dedicate for you to ask me. If you think they do not suit you, then we can still arrange for a time of our convenience by sending an e-mail to me (you should expect an approval from my side). |

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