



**MUTAH UNIVERSITY**  
**Faculty of Engineering**  
**Department of Chemical Engineering**



**Unit Operations / Solid**

**Course syllabus**

Course Code	Course Name	Credits	Contact Hours
0404453	Unit Operations / Solids	3	Office hours

**INSTRUCTOR/COORDINATOR**

<b>Name</b>	Rasha A. Hajarat
<b>Email</b>	hajarat@mutah.edu.jo
<b>Website</b>	

**TEXTBOOK**

- 1- Unit operations of chemical engineering by W. McCabe, J. Smith and P. Harriot
- 2- Shreve's chemical process industry, by G. Austin.

**Other Supplemental Materials**

- 1- Perry's chemical engineering handbook, by R. Perry, and D. Green.

**SPECIFIC COURSE INFORMATION**

**A. Brief Description of the Content of the Course (Catalog Description)**

Obtain general knowledge about the solid properties, separation of solid particles using different methods such as screening and sedimentation, mixing of particulate solids, size reduction and enlargement, and different equipment's used for the different processes related to solid materials such as filtration.

**B. Pre-requisites (P) or Co-requisites (C)**

(P) Heat transfer 404430

**C. Course Type (Required or Elective)**

Required

## SPECIFIC GOALS

### A. Specific Outcomes of Instruction

1. Volume distribution methods. (SOL 1, 2)
2. Obtain information about screening and mixing of solid particulates process. (SOL 1, 2)
3. Granulating and grinding processes and equipment's. (SOL 1, 2, 6)
4. Know how sedimentation process is applied in different chemical processes. (SOL 1, 2, 6)
5. Obtain knowledge about types of filters and membranes that are used in separating solid materials from fluids. (SOL 1, 2, 6)
6. Use polymath program is solving problems. (SOL 1, 2, 6)

### B. Student Outcomes Addressed by the Course

1	2	3	4	5	6	7				
x	x				x					

## BRIEF LIST OF TOPICS TO BE COVERED

List of Topics	No. of Weeks	Contact Hours
Characterization of solid particles	1	3 hrs per week
Properties of solids	1	3 hrs per week
Screening	2	3 hrs per week
Mixing of solids	2	3 hrs per week
Size reduction	2	3 hrs per week
Ultrafine grinders	2	3 hrs per week
Filtration	2	3 hrs per week
Gravity sedimentation processes	2	3 hrs per week
Centrifugal sedimentation processes	2	3 hrs per week
Total	16	

## METHODS OF ASSESSMENT

No.	Method of assessment	Week and Date	%
1	First exam	5 <sup>th</sup> week	20
2	Second exam	10 <sup>th</sup> week	20
3	Project / assignments	Project	10
4	Final exam	End of Semester	50
Total			100