

## MET/MSE 429: Melting, Casting and Powder Metallurgy

### Course Information:

Course title: Melting, Casting and Powder Metallurgy

Course number: MET/MSE 429

Course credits: 3 credits

### Instructor Information:

Instructor: Dr. F.H. (Sam) Froes

Office: McClure Hall, Room 437

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Office Hours: Open

**Assigned Text:** Course handouts and supplemental readings (to be announced)

### Course Scope:

This course is designed to introduce junior/senior students in metallurgical engineering and materials science and engineering to the basics of melting, casting and powder metallurgy.

### Course Calendar/Schedule:

CLASS NO.	MATERIAL TO BE COVERED
1	Introduction – I
2	Introduction - II
3	Introduction - III
--	No Class – Martin Luther King Day
4	Introduction - IV
5	Solidification – Theory I
6	Solidification – Theory II
7	Solidification – Theory III
8	Solidification – Theory IV
9	Solidification – Theory V
10	Solidification – Theory VI
11	Casting Methods/Steel
12	Aluminum
13	Magnesium
14	Titanium
--	No Class – Presidents' Day
15	Semi-Solid Processing
16	Review of Melting & Casting

17	Powder Metallurgy - General Intro.
18	Conventional P/M – Definitions (2)
19	MID-TERM EXAM
20	Conventional P/M – RS & MA (3,4)
--	Spring Break
21	Conventional P/M-Powder Prod.(5)
22	Conventional P/M-Powder Char.-I (6)
23	Conventional P/M-Powder Char.-II (6)
24	Conventional P/M-Pre-Comp. handling (7)
25	Conventional P/M – Compaction-I (8)
26	Conventional P/M – Compaction-II (8)
27	Conventional P/M – Sintering
28	Conventional P/M-Full Density Proc. (10)
29	Conventional P/M-Comp. Char. (11) & Apps. (12)
30	Review of Conventional P/M
31	Non-equilibrium Proc. - Rapid Solidification
32	Rapid Solidification
33	Rapid Solidification
34	Mechanical Alloying
35	Review of Advanced P/M
--	Dead Week
--	Dead Week
--	Dead Week
	FINAL EXAM

**Grading:**

There will be a mid-term and final exam. These exams will make up 60% of the total grade (30% each). Homework will carry 20% of the total grade. A class assignment involving a paper and presentation will make up the remaining 20%

Standard University of Idaho grading policy applies.

**Disability Support Services Reasonable Accommodations Statement:**

**Reasonable accommodations are available for students who have a documented disability. Please notify the instructor during the first week of class of any accommodation(s) needed for the course. Late notification may mean that requested accommodations might not be available. All accommodations must be approved through Disability Support Services located in the Idaho Commons Building, Room 333.**

- 885-7200
- email at <dss@uidaho.edu>

- website at <[www.access.uidaho.edu](http://www.access.uidaho.edu)> or <[www.webs.uidaho.edu/aap](http://www.webs.uidaho.edu/aap)>