



WESTERN MICHIGAN UNIVERSITY

January 20, 2022

Dear Metal Casting Professionals:

Hope 2022 is off to a great start. The past couple of summers we had been Covid restricted from offering summer camps at WMU. The Short Course in Metal Casting at WMU has been a beneficial learning experience for the high school students that participated. We plan to offer the one-week metal casting course at WMU June 27th through July 1st 2022.

The short course is designed with a goal of identifying and promoting the variety of viable metal casting careers. This hands-on program in metal casting is tailored towards 10th - 12th graders and the activities will appeal to the interest, attitude and motivation of our young people. It is our hope that each Chapter will select and support some young people for week at WMU. The fee is \$700 for each student, room & board is included in these prices.

Please send me name(s) and contact information for the student(s) that your Chapter will be supporting. I will in turn send them each (first week in May 2022) an agenda, directions to WMU and information on room & board at WMU. Attached is the description and schedule of activities for the short course. Thank you for your interest in metal casting education. If you have questions, please contact me at (269) 276-3373 or ramrattan@wmich.edu. Be good!

Sincerely,

Dr. Sam Ramrattan, Foundry Educational Foundation Key Professor
Department Engineering Design, Manufacturing and Management Systems
Western Michigan University

Short Course in Metal Casting

Presenter:

Dr. Sam Ramrattan is a Full Professor in the Department of Engineering Design, Manufacturing and Management Systems, College of Engineering and Applied Sciences, Western Michigan University and a Key Professor for the Foundry Educational Foundation.

Objective:

To educate young adults about the valuable career opportunities in metal casting.

Location:

Western Michigan University Metal Casting Laboratory

Who should attend?

High School Students (grades 10th through 12th) with an interest in math and science.

Prerequisites:

None

Type of presentation:

There will be short lectures related to metal casting with practical applications of the casting processes. Field trips to metal casting industries with opportunities to meet and converse with professionals.

Duration:

5 days (Monday, 27th June through Friday, 1st July 2022)

Attendance limit:

18 students

Equipment:

Computers will be provided for the students.

Handouts:

Workbook designed as an instructional aid to be used by students during classroom activities. It has sections for answers, drawings, calculations, charts, and general note taking.

Topics Covered:

- The history of metal casting.
- Current trends in the metal casting industry.
- Interrelationship between manufacturing (molding, melting, filling and finishing), engineering, quality, purchasing, marketing and sales of castings.
- The application of computers in metal casting.
- The application of mathematics and sciences in metal casting.
- Career opportunities (AFS/NADCA/FEF) in the metal casting industry.



WESTERN MICHIGAN UNIVERSITY

SHORT COURSE IN METAL CASTING

College of Engineering and Applied Sciences
Department of Industrial & Manufacturing Engineering
Monday, June 27 - Friday, July 1, 2022
Room F-111 CEAS Parkview Campus

AGENDA

6/27/22

9:00 a.m. – 10:15 a.m.	Welcome & Introduction to Metal Casting
10:15 a.m. – 10:30 a.m.	<i>Break</i>
10:30 a.m. – 12:00 noon	Molding, Melting & Filling
12:30 noon – 1:30 p.m.	<i>Lunch</i>
1:30 p.m. – 2:30 p.m.	Metal Casting Demonstration PART I
2:30 p.m. – 2:45 p.m.	<i>Break</i>
2:45 p.m. – 4:00 p.m.	Metal Casting Demonstration PART II
4:00 p.m. – 5:00 p.m.	<i>Break</i>
5:00 p.m. – 6:00 p.m.	<i>Dinner</i>
6:00 p.m. – 9:00 p.m.	Tour Kalamazoo/Portage Metro Area

6/28/22

9:00 a.m. – 10:15 a.m.	Casting Materials & Processes
10:15 a.m. – 10:30 a.m.	<i>Break</i>
10:30 a.m. – 12:00 noon	Properties of Casting Alloys
12:30 noon – 1:30 p.m.	<i>Lunch</i>
1:30 p.m. – 2:30 p.m.	The ability of metal to flow PART I
2:30 p.m. – 2:45 p.m.	<i>Break</i>
2:45 p.m. – 4:00 p.m.	The ability of metal to flow PART II
4:00 p.m. – 5:00 p.m.	<i>Break</i>
5:00 p.m. – 6:00 p.m.	<i>Dinner</i>
6:00 p.m. – 9:00 p.m.	Meet WMU Administrators to discuss university entrance requirements and expectations.



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College of Engineering and Applied Sciences
Department of Industrial & Manufacturing Engineering

AGENDA (Continued)

6/29/22

5:00 p.m. – 6:00 p.m.
6:00 p.m. – 9:00 p.m.

FOUNDRY TOUR
Dinner
Attend Sporting Event

6/30/22

9:00 a.m. – 10:15 a.m.
10:15 a.m. – 10:30 a.m.
10:30 a.m. – 12:00 noon
12:30 noon – 1:30 p.m.
1:30 p.m. – 2:30 p.m.
2:30 p.m. – 2:45 p.m.
2:45 p.m. – 4:00 p.m.
4:00 p.m. – 5:00 p.m.
5:00 p.m. – 6:00 p.m.
6:00 p.m. – 9:00 p.m.

Using math to make metal casting decisions
Break
Using science to make metal casting decisions
Lunch
Metal Casting Project PART I
Break
Metal Casting Project PART II
Break
Dinner
Meet with Foundry Industry Professionals

7/1/22

9:00 a.m. – 10:15 a.m.
10:15 a.m. – 10:30 a.m.
10:30 a.m. – 12:00 noon
12:30 noon – 1:30 p.m.
1:30 p.m. – 2:30 p.m.
2:30 p.m. – 2:45 p.m.

Computers in metal casting PART I
Break
Computers in metal casting PART II
Lunch
Career opportunities in metal casting (AFS/FEF/NADCA)
Wrap-up