



School of Mechanical Engineering

Department of Manufacturing Engineering

Foundry Lab

In foundry laboratory metal castings are produced. Metals are cast into shapes by melting them into a liquid, pouring the metal into a mold, and removing the mold material after the metal has solidified as it cools. A sample pictorial view of the casting operation is shown in Fig.1 below.

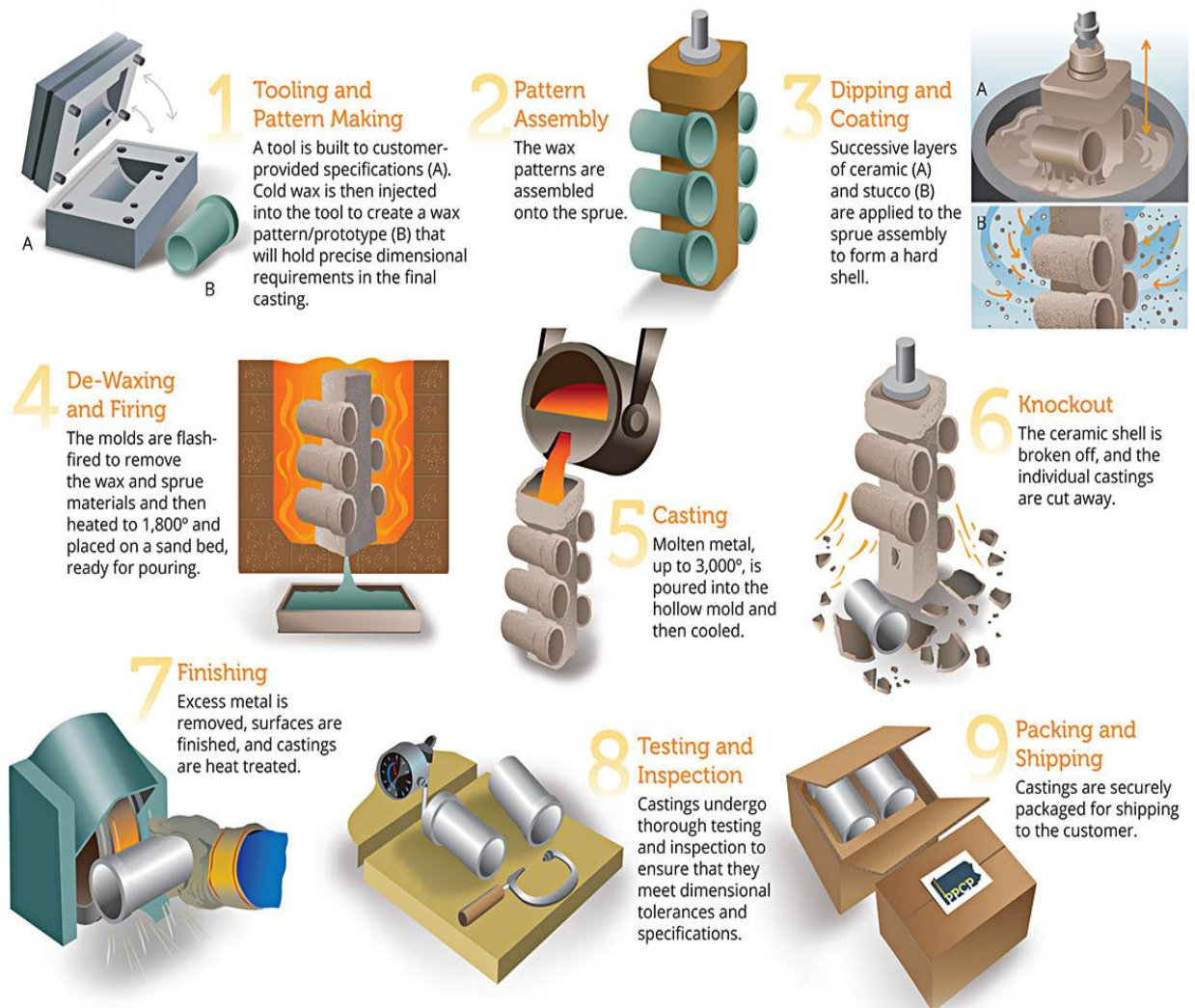


Fig.1 investment casting operation

Objectives of foundry Laboratory

Foundry Lab is at Vellore Institute of Technology, Vellore is a part of School of Mechanical Engineering and it is equipped with state of the art research facilities viz. molten material preparation, sand testing equipment, various casting machines etc. The major objectives of the foundry lab are given below:

- To promote interdisciplinary research and industry driven innovation in the fields of materials and manufacturing.
- Conduct cutting-edge research in foundry technology to provide new materials and processes for foundry industries to remain competitive
- To support industries by developing cost effective engineering technologies and providing novel solutions through consultancy services.
- To provide a collaborative research mechanism for creating innovative technologies in the fields of materials and manufacturing.

Major research facilities

Foundry lab is equipped with the state of the art research facilities for upgrading skills with the following equipments.

1. Weighing machine
2. Sand Rammer machine
3. Universal strength machine
4. Permeability machine
5. Muller Machine
6. Mixer machine
7. Oven 450°C
8. Stir casting machine
9. Squeeze casting machine
10. Vacuum casting machine
11. Centrifugal casting
12. Vacuum furnace 1700 °C
13. High temperature box furnace



Fig. 2 Foundry Lab QR code

Major Research interest

- Solidification modeling and pouring, feeding, heat and fluid flow; predicting solidification sequence and structure-properties
- Developing new solidification processes and novel casting techniques
- Developing metal matrix microparticle and nanoparticle composites
- Developing metal matrix-carbon nanoparticle and nanotube composites
- Characterizing and measuring physical and mechanical properties
- Statistical quality and process control, statistical design of experimentation, and reliability in foundries
- Aluminum alloy castings
- Grain refinement, modification, slag, and inclusion control

Faculties involved

Name of the Faculty
Prof. Senthil Kumaran
Prof. Ariful Rahaman
Prof. Sundermali
Prof. Raja Annamalai
Prof. Jambeswar Sahu
Prof. Chinmaya P Mohanty
Prof. Solomon Bobby
Prof. Benedict Thomas
Prof. Jayakrishna K
Prof. Rajamurugan
Prof. Prabu K
Prof. Venkateswarlu
Prof. Raghuraman DRS

Foundry lab equipments



Stir casting 5kg
Capacity 1000 ° C



Sieve shaker machine



Stir casting 1.7kg Capacity
1000 ° C with squeeze casting,
centrifugal and vacuum casting



Mixer Machine



Permeability meter



Box type high temperature
furnace 1700 ° C



Vacuum sintering furnace with hydraulic press

Contact Us:

Happy to answer any queries and supply information about our work. Please contact Prof. Chinmay P. Mohanty for further details.

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