E-Foundry is a part of the NKN mission to connect knowledge providers and seekers through a high bandwidth network. Users can freely access the teaching content developed in IIT-B, to update their knowledge in casting design and simulation.

**Teachers:** Deliver more interesting lectures, engage students  
**Students:** Understand casting process, explore industry projects  
**Industry:** Gain better insights, ensure casting quality and yield

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**Metal Casting Industry**

India is among the top three global casting producers, but faces an acute dearth of skilled manpower, as per a recent annual report of Institute of Indian Foundrymen. There is an urgent need for manpower trained in CAD & simulation technologies, which are needed for casting quality and yield improvement. The E-Foundry resources can be freely used by students and industry professionals to enhance their knowledge. IIT Bombay also conducts certificate courses to train engineering and polytechnic teachers in using these resources, so they can support their own courses, student labs and industrial projects.

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**NKN E-Foundry Resources**

- **Lesson videos**, in five parts: introduction, science, engineering, technology, and application.
- **Online simulation lab**, which accepts a 3D CAD model and generates solidification images.
- **Reference material**: animations, presentation slides, paper abstracts, industrial case studies, web links.
- **Quizzes and tutorial** with answers for self-evaluation
- **Discussion hub** for questions and answers.
- **Projects page** for researchers.

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E-Foundry: Online Learning Resources

Simulation Lab

CASTING SIMULATION is a powerful tool to visualize progressive solidification of cast parts. It enables the user to understand the solidification process, which is typically invisible during actual casting. The software is equipped with features that allow the user to control the simulation process, such as setting the cooling rate, applying heat sources, and observing the temperature distribution and solidification front progression. The simulation results can be exported in various formats, making it easier to share and analyze the data.

Library

Simulation Cases

Casting Videos

Web Links

Tutorial

Exercise 12 - Gating Choice Design

Exercise 11 - Gating Choice Design

Exercise 10 - Gating Choice Design

Exercise 9 - Gating Choice Design

Exercise 8 - Gating Choice Design

Exercise 7 - Gating Choice Design

Exercise 6 - Gating Choice Design

Exercise 5 - Gating Choice Design

Exercise 4 - Gating Choice Design

Exercise 3 - Gating Choice Design

Exercise 2 - Gating Choice Design

Exercise 1 - Gating Choice Design

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