



**THE INSTITUTE
OF INDIAN
FOUNDRYMEN**
NATIONAL CENTRE FOR
SKILL DEVELOPMENT

**AN UNIQUE
MULTILINGUAL
TRAINING
PROGRAM FOR
FOUNDRYMEN**

**IMPROVE THE SKILL
LEVEL TO ENHANCE THE
COMPETENCY EDGE**





Introduction

1. Yogyata Vikas is an exclusive programme for the foundrymen focussing on skill development. It is a programme completely designed to impart technical knowledge with practical orientation to foundrymen.
2. This pan-India training will be carried out by proficient trainers with foundry background, selected from different locations of India.
3. Predominant topics from the foundries were selected and developed into 23 modules which give better understanding of technical information, system and process.
4. The training programmes will be carried out in the vernacular to reach the workmen effectively.

5. This is an on-site programme conducted at foundries, in which case the trainer will visit the foundry.
6. IIF is committed to train more number of workmen in a year and to conduct the training on a continual basis.
7. IIF invites Indian foundries to utilize these programmes to enhance the skill level of their employees to be competitive in global market.

INTRODUCTION



Abstract of Training Program Modules



YV 01

Casting Defects in Grey and SG Iron and their Remedies

Discuss on various types of defects like surface, subsurface, shrinkages, dimensional variations, differences in chemical composition and non desirable microstructure. A case study has been talking through providing solution to control casting rejection.

Module Sponsor:



YV 02

Melting Grey Iron, GS Iron and Steel in Induction Furnace

Melting techniques and Induction furnace lining practice has been illustrated. Technical points in basic metallurgy and practical aspect of post-melting, inoculation, ladle maintenance and pouring technique aspects are well covered.

Module Sponsor:



YV 03

Sand Quality and Testing

The mould ability of sand, gas escape by testing permeability, moisture control tester and importance of good silica sand are dealt with extensively. The quality of new incoming sand, grading, grain size and distribution by sieve test, loss on ignition and sand binders have been covered in this module.

Module Sponsor:



YV 04

Mould Making Process

Moulding process like floor moulding, machine moulding, automatic moulding lines, sweep moulding and CO2 core assembly techniques and their working with illustration. Also, selections of right moulding machine and process have been explained.

Module Sponsor:



YV 05

Basic Metallurgy of Steel Castings

Impact of carbon on plain carbon steel, low alloy steel and high alloy steel is explained. The metal chemistry, charge makes up, furnace design, refractory lining, ladle maintenance, metal degassing and testing have been discussed.



YV 06A

No Bake Resin & its Economics

Types of sand and selection of resin binder to achieve dimensional accuracy, faster production, and better finish of casting are explained. Full chemistry of resins and working details with illustration and application in foundry is elaborated.

Module Sponsor:



Abstract of Training Program Modules



YV 06B

Foundry Refractory Coating Application & Its Techniques

Foundryman needs to choose the right coating for its foundry. Single coating or two coatings for best casting surface finish. Depending upon application process for moulds & cores different coatings are recommended. Techniques to improve surface finish, minimize casting defects, and enhance mold performance are discussed.

Module Sponsor:  **SHAMLAX**



YV 09

Pattern-Making and Methoding of Castings

Pattern-design, material & making, contraction allowance, venting, methoding & method card are discussed in detail with illustrations. It also explains pattern maintenance, storage and factors to be considered during the pattern design and methoding an integral part of pattern design.

Module Sponsor:



YV 07

Defects in Steel Castings and their Remedies

Steel castings have high metal contraction ability while pouring and causes of defects like cavities, shrinkages, rough surface, sand fusion, sand inclusion and hot tears are explained in detail. Also remedial measures to produce quality casting are dealt.

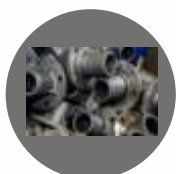
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YV 10

Melting Practice of Grey Iron by Induction Furnace

Basic metallurgical details, effect of elements, metal fluidity, casting hardness and the advantage of induction melting over cupola melting have been explained in detail. It also emphasizes on power conservation, metal testing, ladle maintenance, inoculation and metal pouring in the mould.



YV 08

Metallurgy of Grey and SG Iron for Foundrymen

Effect of alloy addition, melting operation, metal contraction, shrinkage defects and risering of castings have been explained in detail. Enhancing mechanical properties of grey iron and SG iron by addition of various elements by various compositions are considered.

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YV 11

Production of SG Iron by Induction Furnace

In this module detailed information about basic metallurgy of S G iron, melting check list, selection and making of metal charge, furnace lining and metal testing. Various magnesium treatment process and effect on nodularity, fading, etc. are covered extensively.

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Abstract of Training Program Modules



YV 12 **Basic Metallurgy of Aluminium Alloy**

This module discusses properties of aluminium and various aluminium alloys. It also deals with furnaces for bulk melting and holding liquid metal treatments and casting heat treatments.



YV 13 **Sand Casting Process for Aluminium Casting**

Types of patterns, pattern making processes and mould making are illustrated. The importance of types of sand, sand testing and recycling are elaborated.



YV 14 **Sand Casting Defects of Aluminium Alloy & Remedies**

The various types of casting defects occur internal & external are elaborated. And the causes for defect with remedies are explained.



YV 15 **Aluminium Gravity Die Casting Process**

The basic principles of metal filling & feeding, runner and riser designs are discussed in detail. The die coating for enhanced coating life, method for new die proving and statistical analysis for defect location & prevention were reviewed.



YV 16 **Defects and Remedies of Gravity Die Casting**

The various causes of defect occur internally & externally are determined and remedies were discussed. Defect analysis using air and helium pressure testing and X-ray testing is talked over. A live case study of casting defects and solutions, casting weight monitoring and die service are briefed.



YV 17 **Aluminium High Pressure Die Casting Process**

It explains the pressure die casting process, process parameters, machine operating, die operating, setting of machine and maintenance.



YV 18 **Defects and Remedies of Aluminium High Pressure Die Casting**

It examines different types of defects happen internally & externally. The causes of defect with remedies and a case study are illustrated.

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YV 19 **Heat Treatment of Steel Castings**

To provide practical insights into processes like annealing, normalizing, quenching, and tempering. It focuses on improving mechanical properties, enhancing performance, and ensuring reliability of steel castings in diverse applications.

Abstract of Training Program Modules



YV 20

Foundry Testing Fundamentals: Chemical, Mechanical & Metallurgical

It covers essential chemical, physical and metallurgical testing methods. It equips participants with practical knowledge to evaluate material properties & ensure casting quality meeting with the required parameters.

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YV 21

Best Practices in Investment Casting Process

It is designed to help participants achieve precision, efficiency, and consistency in investment casting operations. It will highlight step-by-step process controls, defect prevention, and quality improvement techniques.

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YV 22

Mental Metallurgy: Strengthening Minds for Better Workplace Performance

Good Mental & Physical Health is paramount for any organization's growth at each level. The module is aimed to promote the principles of emotional health & wellness for employees at workplace. Each workshop delivered shall be a customized training session touching upon the pressure points/bringing resilience towards work & workplace.

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YV 23

Core Making Process

The core making module explains different core making processes, Heat setting, Gas setting and Self setting along with information on core sand mixing, core manufacturing equipment and core coating material and practices.



YV 24

Customized Training

The session is designed to address specific organizational needs through tailor-made training modules. Foundries can write the matter for that as tailored to address specific needs of individual foundries, focusing on their unique processes, challenges, and skill requirements. It enables targeted learning for practical improvements and sustainable growth.

List of Trainers



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Ajit Gadewar



Anant Bam



Ashis K Chowdhury



B N Raghavendra



Bharat Davda



D Sathyanandan



Dr Shamim Haidar



Dr M Arasu



Dr V S Saravanan



E Manoharan



Gautam Banerjee



K Balasubramanian



K P Surampalli



K Varatharajan



M K Shaikh



P Suresh Kumar



R S Kumar



Rajasekhar C Thomas



S Sivakumar



Sandeep C Kulkarni



Satish Sohoni



Sharad Dhumane



Shreedhar S Bapat



Sumit Banerjee



Thirugnanam

Training Details

We would like to provide training at your foundry.
You can choose option I or option II, on terms mentioned below:



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Option I

Basic Training

The trainer shall carry out classroom training based on the module selected by the foundry.

Option II

Customized Training

The trainer shall visit your foundry a day prior to the scheduled date of training, discuss and understand your requirements and customize the training module to suit your needs.

IIF Deliverables

Training will be based on the audio visual presentation of the relevant modules prepared by IIF. While giving lessons, the trainer will take care to connect the module with the process, technology and equipment used in and relevant to your foundry. Towards, the end of the session, the trainer will answer queries of the participants.

Responsibilities of Your Foundry

- (i) Training program at your premises with a batch size of max. 25 no of trainees.
- (ii) If option II is selected, a work visit for the trainer from IIF will be organized, to enable him to get acquainted with process/technology and equipment at site. Accordingly the training programme will be finalised.
- (iii) Audio visual presentation will be provided by the foundry.
- (iv) Attendance sheet, duly signed by the participants filled in will be handed over to the trainer.

Remuneration/Financial Obligation

IIF Corporate Members

Option I

Training fee shall be Rs 10,000 per day of training + service tax.

Option II

Training fee shall be Rs 20,000 per 02 days of training + service tax.

The amount is payable in advance to the Institute through NEFT. Bank Details are as follows:

Name: **The Institute of Indian Foundrymen**

SB A/C No: **098301001880**

Bank: **ICICI Bank Ltd,**

Branch: **Kasba, Kolkata.**

IFS Code: **ICIC0000983**

UPI ID:
insindfoundrymen@icici



Note:

- 1. Other facilities and arrangements required for training, including trainer's local conveyance, boarding & lodging will be provided by the foundry.
- 2. For outstation trainers, 2nd class A/C train / air travel will be arranged by the foundry.

Training Program: Requisition Form

Google Form Link:

https://docs.google.com/forms/d/e/1FAIpQLSc1JrzIUUhs_GujIKmMOcjtjS1hrltUkzJFSBagUzEaOuxATw/viewform?usp=header



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