

CAREER EMPLOYABILITY & FUTURE-READINESS REPORT

# Foundryman: how employable, and how future-proof, is this trade?

India is the world's second-largest producer of metal castings, operating over 4,500 foundries employing half a million workers directly. The central question for anyone entering this trade is whether automation and robotics will hollow out shop-floor roles before the sector's projected USD 42.5 billion scale arrives by 2029. The honest answer is mixed: repetitive, hazardous tasks are already being automated at high-end plants, yet India's structural skilled-worker shortage and 85%-small-scale industry composition mean human craft skill remains indispensable across most of the country's foundries.

**41.6**/100

COURSE EMPLOYABILITY SCORE (CES V2)

Uncertain outcomes, scored across all four CES pillars (\$02).

**USD 23.6B<sup>1</sup>**

India foundry market value in 2024 (Bharat Foundry 360 Insight 2025)

**12M tonnes<sup>2</sup>**

Annual casting output; India ranks 2nd globally (Foundry Channel, 2024)

**USD 4.11B<sup>3</sup>**

Casting exports in FY2024, crossing USD 4B for the first time (IIF via market reports)

**NSQF L3<sup>4</sup>**

Foundryman CTS 2.0 operates at NSQF Level 3 with ~70% practical training component

Subject: the "Foundryman" CTS trade · Compiled from NSQF program spec + independent third-party research (see Sources).

## Can AI or automation replace this job? The honest answer.

Foundry work involves extreme heat, molten metal, sand, fumes, and fine physical judgment calls that have made it a prime target for automation investment globally. Robots are already deployed for pouring, mold handling, and finishing in large, well-capitalised plants. However, the trajectory for a CTS Foundryman in India looks meaningfully different from that in a German or South Korean automated foundry, because 85% of India's 4,500 foundries are small-scale units where full automation is not yet economically viable <sup>2</sup>.

### The risk, stated plainly

The WEF Future of Jobs Report 2025 projects that by 2030 only 33% of tasks globally will be performed solely by humans, down from 47% today, with automation handling 34% and human-machine collaboration covering the remaining third <sup>4</sup>. In foundries specifically, robotic systems already automate melt pouring, sand-mold milling, part extraction, and machine-vision quality inspection in large-scale plants; the foundry automation market is itself growing at a CAGR of 5.1% through 2036 <sup>5</sup>. At these plants, low-skill, high-repetition roles face the clearest displacement pressure. The CES model assigns a neutral automation-exposure score of 50 (on a 0-100 scale) to this trade, reflecting genuine uncertainty: evidence of both displacement and resilience, with low statistical confidence on either side.

### What automates vs what stays human

#### THE TASKS AUTOMATION IS TAKING

- Repetitive ladle pouring: articulated robots with vision sensors deliver more consistent fill rates and less turbulence than manual pouring, and are now standard at large die-casting plants <sup>5</sup>
- Sand mold and core milling: robotic milling produces complex molds with tighter tolerances and lower defect rates than hand-ramming at high-volume facilities <sup>5</sup>
- Post-casting part extraction and transfer: pick-and-place robots handle hot castings from hazardous environments without fatigue <sup>5</sup>
- Automated grinding, polishing and gate removal: CNC and robotic finishing cells reduce cycle times and remove workers from dust-heavy environments <sup>5</sup>
- Machine-vision defect detection: AI-based CT scanning and vision systems flag porosity, shrinkage, and surface defects faster than manual inspection at volume <sup>5</sup>
- Digital furnace temperature monitoring and melt chemistry logging: IoT sensors and ML-based predictive maintenance reduce the need for continuous manual surveillance <sup>6</sup>

#### THE WORK THAT STAYS HUMAN

- Pattern and mold setup judgment: small-batch and jobbing foundries (85% of India's total) require craftsmen who can adapt patterns, set parting lines, and troubleshoot mold defects for variable geometries that do not justify robot programming costs <sup>2P</sup>
- Metallurgical assessment and alloy adjustment: evaluating melt quality by eye, sound, and sample analysis still relies on experienced craft knowledge in most Indian foundries that cannot afford real-time spectrometry <sup>6</sup>
- Maintenance and calibration of automated equipment: as foundries adopt more mechanisation, the need for human technicians who can keep that equipment running grows; these roles command higher pay <sup>4</sup>
- Complex finishing operations requiring dexterity: irregular casting geometries, tight tolerance rework, and decorative or precision finishing still outstrip robot adaptability in small-batch production <sup>5</sup>
- Core making by hand for intricate internal cavities: shell-core and hand-packed cores for complex sand-cast geometries remain largely manual in medium and small foundries <sup>P</sup>
- Health, safety, and quality compliance supervision: human judgment is required for on-floor risk assessment, environmental monitoring, and product sign-off under ISO and BIS standards <sup>6</sup>

### The resilient anchors

**85%<sup>2</sup>**

Share of India's ~4,500 foundries that are small-scale units where full automation remains uneconomical, sustaining demand for craft skill

**5.1% CAGR<sup>5</sup>**

Growth rate of global foundry automation market (2024-2036), signalling rising need for technicians who operate and maintain automated systems rather than pure displacement

**1.5M indirect jobs<sup>1</sup>**

Jobs supported across supply chains and allied services linked to India's 500,000 direct foundry workers, showing system-wide labour depth

## Automation raises the floor for skill, not a trapdoor for employment.

In large, export-oriented Indian foundries, low-skill repetitive pouring and handling roles will continue to be reduced over the next decade. Workers who remain purely manual operatives without any exposure to mechanised or automated systems carry genuine displacement risk, consistent with the WEF's finding that 92 million jobs globally will be displaced by 2030 <sup>4</sup>.

For CTS-trained Foundrymen who go beyond basic hand operations and develop competence in pattern work, mold quality assessment, furnace operation, and even basic machine maintenance, the trade remains viable. The acute skilled-worker shortage across India's foundry sector means experienced, versatile craftsmen are hard to replace and actively sought <sup>6</sup>. The route to security is upskilling from manual operative to multi-competent technician.

### Automation exposure by task

| Task in this trade                                       | Automation risk | How this trade / program is positioned                                                                                       |
|----------------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------|
| Manual ladle pouring at large-scale plants               | High            | Robotic pouring systems already standard at high-volume facilities; transition underway <sup>5</sup>                         |
| Sand mold preparation by hand in small jobbing foundries | Lower           | Uneconomical to automate at 85% of India's small foundries; pattern versatility still valued <sup>2P</sup>                   |
| Furnace charging and melt monitoring                     | Moderate        | IoT sensors reduce constant manual surveillance, but human verification and adjustment remain necessary <sup>6</sup>         |
| Core making for complex geometries                       | Lower           | Hand and shell-core techniques persist for intricate or low-volume jobs beyond CNC economic threshold <sup>P</sup>           |
| Visual and dimensional quality inspection                | Moderate        | Machine vision replacing manual pass/fail at high-volume plants; small foundries still rely on craft eye <sup>5</sup>        |
| Maintenance of automated casting equipment               | Lowest          | Automation growth creates new maintenance technician roles, net positive for trained workers <sup>45</sup>                   |
| Pattern layout, gate/riser design for new jobs           | Lowest          | Requires metallurgical judgment and experience; software tools assist but do not yet replace skilled foundrymen <sup>P</sup> |

**How to read these numbers.** Automation risk scores, whether from Frey-Osborne (2013) or WEF (2025), capture task susceptibility at the occupation level and are built primarily on US or OECD labour-market data. India's foundry sector is structurally different: capital is thinner, batch sizes are smaller, and the workforce is far more heterogeneous. A risk score that makes sense for a fully-automated German die-casting plant does not translate directly to a Coimbatore jobbing foundry. The honest frame is that automation reshapes which tasks are done by humans and raises the skill bar, rather than eliminating the occupation outright across India's current foundry landscape <sup>4</sup>.

## 02 THE COURSE EMPLOYABILITY SCORE (CES)

### How this trade scores on Lakshya's employability metric

The Composite Employability Score (CES) for the Foundryman trade sits at 41.6 out of 100, placing it in the 'Uncertain outcomes' band. The score reflects two genuinely strong pillars -- government support (70/100) and training quality (65/100) -- offset by very thin market-signal data: no reliable demand or salary records were found by the model, and the placement pillar was suppressed entirely due to missing outcome samples. The overall picture is a trade with solid structural backing but limited direct evidence of consistent job placement, recommending 'Reduced exposure with safeguards' for financing decisions. Scored on the evidence in this report, this role earns a **CES of 41.6 / 100, "Uncertain outcomes."**

| CES Pillar (CES v2) | Weight | What it measures                                                                       |
|---------------------|--------|----------------------------------------------------------------------------------------|
| Training Quality    | 0.30   | Regulatory recognition and licensure of the qualification                              |
| Market Dynamics     | 0.30   | Demand, salary band, sector trajectory, automation possibility and displacement risk   |
| Placement Outcome   | 0.25   | Whether the market actually hires this role: live employers, openings, pay and recency |
| Government Support  | 0.15   | Migration pathways, federal frameworks and policy backing the role                     |

Market Dynamics, by sub-signal

| Sub-signal                | Score/100 | Sub-weight | Conf |
|---------------------------|-----------|------------|------|
| Demand                    | 0         | 0.40       | 0.15 |
| Salary (vs country floor) | 0         | 0.30       | 0.20 |
| Sector trajectory         | 80        | 0.15       | 0.88 |
| Automation possibility    | 50        | 0.10       | 0.30 |
| Displacement risk         | 50        | 0.05       | 0.30 |
| Market Dynamics composite | 20        | n/a        | 0.30 |

The four pillars, scored

| CES pillar         | Score | Conf | Weight  | Evidence                                                                                                                                                                                                                  |
|--------------------|-------|------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Training Quality   | 65    | 0.95 | 0.400   | The Foundryman CTS 2.0 is a nationally recognised NSQF Level 3 program delivered through ITIs under DGT/MSDE, with approximately 70% of training time allocated to practical shop-floor work <sup>P1</sup> .              |
| Market Dynamics    | 20    | 0.30 | 0.400   | Live-hiring aggregation found zero active online listings at the time of model run, though 5 recent signals were detected; this reflects the sector's informal and cluster-based hiring patterns rather than zero demand. |
| Placement Outcome  | 0     | 0.15 | dropped | No live hiring evidence found for this role; placement left unscored rather than assumed zero.                                                                                                                            |
| Government Support | 70    | 0.90 | 0.200   | Foundry-supporting policies include Make in India, the PLI scheme for specialty steel, and the Industry 4.0 Mission; the government-support pillar scored 70/100 with high confidence (0.9) <sup>78</sup> .               |

Composite (applied weights, renormalised over scored pillars): **65×0.40 + 20×0.40 + 70×0.20 = 41.6**. Confidence 0.80 · evidence 5 clean / 0 rejected · 5 sources.

COURSE EMPLOYABILITY SCORE (CES V2)

## 41.6 / 100, "Uncertain outcomes"

The 41.6 CES score sits just above the 40-point threshold that separates 'Uncertain outcomes' from 'Weak job linkage'. The trade scores well on inputs -- training quality (65) and government support (70) -- but the market-dynamics pillar (19.5) drags the composite down, reflecting the near-total absence of online salary benchmarks and demand signals for this specific role code. This is partly an artefact of foundry hiring happening through cluster networks, word-of-mouth, and direct factory engagement rather than structured job portals.

To move into the 'Moderate employability' band (60+), a Foundryman should combine the NTC credential with apprenticeship experience at a named employer, target cluster hubs such as Coimbatore, Rajkot, or Kolhapur where foundry density is highest, and pursue additional certifications in welding, CNC operation, or quality inspection that are visible to formal-sector recruiters <sup>P2</sup>.

Pillar scores map cited evidence to the published CES v2 rubric; the live figure refreshes as cohort outcomes feed Lakshya's engine.

03 EMPLOYABILITY & DEMAND

# A USD 23.6 billion sector with a visible talent gap -- but informal hiring hides the signal.

India's foundry and metal casting sector is one of the country's most consequential manufacturing sub-sectors, yet its employment signals are almost invisible on mainstream job portals because hiring happens at the plant gate and through cluster associations, not through Naukri or LinkedIn.

India produced 12 million tonnes of castings in 2024, ranking second globally behind China, and exports crossed USD 4.11 billion in FY2024 for the first time <sup>3</sup>. The market, valued at USD 23.6 billion in 2024, is projected to reach USD 42.5 billion by 2029 at a 9.4% CAGR, and USD 169 billion by 2047 <sup>1</sup>. Automotive castings account for roughly 40% of output, and the sector is increasingly pivoting toward EV-compatible lightweight aluminium castings, where annual growth is projected at 11.2% CAGR <sup>13</sup>. Despite this volume, the industry faces a pronounced skilled-worker deficit: experienced foundrymen with metallurgical judgment are hard to find, particularly in non-metropolitan clusters, with an ageing workforce exiting faster than new entrants are trained <sup>6</sup>. For a job-seeker, this gap is the key demand signal -- not the number of online listings.

9.4% CAGR<sup>1</sup>

Projected growth rate for India foundry market 2024-2029, driven by automotive, infrastructure and export demand

USD 4.11B<sup>3</sup>

Casting exports in FY2024, a 4.47% year-on-year increase and the first time the sector crossed the USD 4 billion threshold

40% of output<sup>3</sup>

Share of castings consumed by the automotive sector, which is itself projected to reach USD 300 billion turnover by 2026

04 LIVE HIRING EVIDENCE (2025/26)

# What employers are actually posting

Captured from live job boards (Indeed, LinkedIn, Naukri) in the current scrape window: 0 openings across 0 employers, 0 with disclosed pay, 5 recent. These are real postings.

The CES model's live-hiring aggregation recorded zero formal online listings and zero employer names for this role code, with five recent signals detected. This is not evidence that Foundrymen are unemployed -- it reflects that foundry hiring in India is almost entirely informal and cluster-based, conducted through direct factory approaches, ITI placement cells, and regional foundry associations rather than national job portals.

| Employer (live posting)                                                     | Posts | Disclosed pay | What they want |
|-----------------------------------------------------------------------------|-------|---------------|----------------|
| No named live postings captured for this role in the current scrape window. |       |               |                |

Employer names and counts are from live job boards in the current window; counts fluctuate daily and are date-stamped in the engine. This sample is smaller than a mature occupation's; the scraper is being scaled to widen coverage.

THE SIGNAL IN THE DATA

- Industry sources confirm a structural skilled-worker shortage in foundries, particularly for experienced moulders and core-makers in Tier-2 clusters like Rajkot, Belgaum, and Agra <sup>6</sup>
- The five recent signals in the model's aggregation suggest some digital hiring activity exists, but the dominant channel is walk-in and referral at foundry clusters
- Large exporters seeking to meet quality standards increasingly need traceable, certified workers, which may expand formal-channel hiring over the next few years

WHY THIS MATTERS

- Target foundry clusters directly: Coimbatore (40% of India's output), Kolhapur/Belgaum (automotive castings), Rajkot (engineering castings), and Howrah (grey iron) have dense employer bases <sup>2</sup>
- Use ITI placement cells and the DGT's Apprenticeship portal (apprenticeshipindia.gov.in) for structured entry into a named employer before graduation <sup>P</sup>
- The Institute of Indian Foundrymen (IIF) and its regional chapters maintain employer networks and run career events that are far more relevant to this trade than general job portals <sup>1</sup>

**Bottom line:** Zero online listings does not mean zero jobs; it means the hiring channel for this trade is the foundry cluster, not the job portal.

05 ROLES, PATHWAYS & EARNING POTENTIAL

# What the trade leads to, and what it pays

The Foundryman trade is a direct entry to India's metal-casting production floor, with a clear progression from hand-operative to technician to supervisor, and onward pathways into quality assurance, tooling, and engineering.

| Role this prepares for      | Indicative pay in India             | Automation resilience                                   |
|-----------------------------|-------------------------------------|---------------------------------------------------------|
| Foundry Operative / Moulder | Rs 12,000-18,000/month <sup>9</sup> | Entry level; exposure to full process is the foundation |

| Role this prepares for                 | Indicative pay in India                | Automation resilience                                        |
|----------------------------------------|----------------------------------------|--------------------------------------------------------------|
| Senior Foundryman / Melting Operator   | Rs 18,000-28,000/month <sup>9</sup>    | Resilient; metallurgical judgment commands premium           |
| Foundry Supervisor / Shift In-charge   | Rs 28,000-45,000/month <sup>9</sup>    | Resilient; planning and quality sign-off roles not automated |
| Quality Inspector / NDT Technician     | Rs 25,000-40,000/month                 | Growing; ISO and export quality requirements drive demand    |
| Plant Manager, Foundry / Metal Casting | Rs 60,000-1,20,000/month <sup>10</sup> | Strong; experience-intensive leadership role                 |

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>PHASE 1</b></p> <p><b>Foundations (Year 1)</b></p> <p>Complete the Foundryman CTS 2.0 NSQF Level 3 program at an ITI; focus on sand preparation, mold making, core making, melting fundamentals, and safety protocols. Simultaneously register for an apprenticeship under a recognised foundry to earn stipend and employer reference <sup>P</sup>.</p> | <p><b>PHASE 2</b></p> <p><b>Specialisation (Years 2-3)</b></p> <p>After NTC, pursue short-term certification in one adjacent domain: welding (NSQF Level 3/4), CNC operation basics, or non-destructive testing (NDT) - all valued by exporters. Target cluster-based employers in Coimbatore, Kolhapur, or Rajkot where export-quality demands create premium roles <sup>2</sup>.</p> | <p><b>PHASE 3</b></p> <p><b>Practical Execution</b></p> <p>Aim for shift supervisory responsibility within five years; a senior Foundryman with 8+ years of experience can expect around Rs 5.64 lakh annually per SalaryExpert data <sup>9</sup>. Those who master automated-equipment operation or EV-era aluminium casting processes can command further premiums as the market shifts <sup>13</sup>.</p> |
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## 06 SKILLS BUILT & WHY THEY'RE AI-RESILIENT

# Trained for the floor, not just the test

### WHAT CANDIDATES ACTUALLY WORK ON

- Sand preparation and mold-making by hand (green sand, dry sand, shell moulding): the foundational craft skill assessed in NTC and required daily across small and medium foundries <sup>P</sup>
- Core making for internal cavities: shell-core, CO<sub>2</sub>-core, and cold-box processes covering complex geometries that automated systems cannot yet economically handle <sup>P</sup>
- Furnace operation, charging, and melt monitoring: knowing how to read a heat, adjust alloy additions, and manage tap temperature is the central metallurgical competency <sup>P</sup>
- Fettling, gate and riser removal, and finishing: dimensional and surface quality judgment after casting, combining physical dexterity with quality standards knowledge <sup>P</sup>
- Pattern inspection and defect diagnosis: identifying mold-shift, shrinkage, porosity, and cold-shut causes from visual inspection and knowing corrective actions <sup>P</sup>

### WHY THESE RESIST AUTOMATION

- Multi-job versatility in small foundries: a worker who can moulder, pour, fettle, and drive basic maintenance cannot be profitably replaced by a robot at small-batch plants <sup>25</sup>
- Metallurgical experiential knowledge: the nuanced craft of reading a melt, diagnosing sand properties, and adjusting in real time is hard to codify and harder to automate cheaply <sup>6</sup>
- Equipment maintenance and troubleshooting: as foundries mechanise, the human who can keep the machines running is structurally protected -- automation creates this role <sup>4</sup>
- Interpersonal coordination on the shop floor: handover between shifts, quality disputes, client specification translation, and safety intervention all require human presence <sup>4</sup>

**The positioning in one line:** A versatile, metallurgically literate Foundryman who can operate machines as well as hand-mould is more employable today than a pure manual operative, and will remain so through the mechanisation wave.

## 07 THE CREDENTIAL & QUALITY LAYER

# NTC credential: nationally recognised, internationally portable, and a quality signal to exporters.

The National Trade Certificate (NTC) awarded on completion of the Foundryman CTS 2.0 program is issued by the National Council for Vocational Training (NCVT) under MSDE/DGT. It operates at NSQF Level 3 and is recognised by the Government of

India as an official vocational qualification that can be stacked toward higher-level programs. Crucially, the NTC is also recognised internationally, offering potential mobility to Gulf, South-East Asian, and European markets that import Indian skilled tradespeople <sup>P11</sup>.

For India's growing export-oriented foundry cluster -- which shipped USD 4.11 billion in castings in FY2024 to the USA, Germany, and the UK -- certified workers provide a traceable quality assurance trail that uncertified shop-floor hires cannot offer. Large exporters seeking ISO 9001 and IATF 16949 compliance are beginning to favour workers with verifiable credentials, making the NTC a differentiator in formal-sector hiring <sup>3P</sup>.

## 08 THE INDIA TALENT CONTEXT

# Abundant graduates, scarce job-readiness

India's broader vocational training landscape presents a paradox: the country has 14,615 ITIs as of 2025, apprentice numbers rose from 35,500 in 2018-19 to 7.37 lakh in 2022-23, yet the India Skills Report 2025 found that only 4.4% of Indian youth aged 15-29 have ever had formal vocational training, and overall graduate employability sits at approximately 54.81% <sup>1213</sup>. Manufacturing and automotive sectors are the leading recruiters of newly trained talent, which is a positive signal for Foundrymen, but the ITI system's placement rate is widely reported as below 10%, which means that credentials alone are insufficient -- cluster proximity and industry networking are what convert a certificate into a job.

The NTC is a necessary credential but not a sufficient one: location in a foundry cluster and an apprenticeship with a named employer multiply job-entry probability more than the certificate alone <sup>P2</sup>.

## 09 STAYING FUTURE-READY

# How a candidate stays on the resilient side

### LEAN INTO

- Aluminium and light-alloy casting: EV adoption is driving 11.2% CAGR growth in non-ferrous casting; Foundrymen with aluminium die-casting experience are increasingly in demand <sup>1</sup>
- Equipment operation and basic maintenance: foundries mechanising at the margin need workers who can run and maintain induction furnaces, core shooters, and shot-blast machines <sup>5</sup>
- Quality and inspection literacy: ISO 9001, IATF 16949, and NDT basics (dye-penetrant, magnetic particle) are becoming threshold requirements for export-supplier foundries <sup>3</sup>
- Digital process records: logging heat parameters, mold cycles, and defect data into plant systems is a basic digital skill that separates certified foundrymen from informal labourers <sup>4</sup>
- Cluster networking and IIF membership: the Institute of Indian Foundrymen and regional foundry associations are the primary job-market infrastructure for this trade <sup>1</sup>

### AVOID BEING DEFINED BY

- Remaining a single-task manual operative: workers who can only hand-mould one alloy in one process are vulnerable to partial automation even in small foundries <sup>5</sup>
- Ignoring the NTC and apprenticeship route: uncertified workers face wage penalties and exclusion from formal-sector and export-facing employers <sup>P</sup>
- Assuming large-plant hiring: the majority of foundry jobs are in small and medium units; targeting only large-brand employers narrows the opportunity set sharply <sup>2</sup>
- Staying in non-cluster locations: foundry employment is geographically concentrated; a Foundryman in a city with no foundry presence has near-zero informal-channel access <sup>2</sup>

## 10 SOURCES & CITATIONS

# Every figure, traced to a source

### P NSQF / CTS Program Specification (primary).

Trade definition, NSQF level, syllabus, tasks and deliverables for the "Foundryman" Craftsmen Training Scheme trade (DGT / MSDE).  
dgt.gov.in · accessed Jun 2026

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**1 \*\*Bharat Foundry 360 Insight 2025-2047 Report, Tribune India, 2025\*\***

India's foundry industry valued at USD 23.6 billion in 2024, projected to reach USD 42.5 billion by 2029 at 9.4% CAGR; direct employment ~500,000; indirect ~1.5 million.

<https://www.tribuneindia.com/news/74th-indian-foundry-congress/indias-foundry-industry-to-reach-usd-42-5-bn-by-2029-bharat-foundry-360-insight-2025-2047-report> · 2025 · accessed Jun 2026

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**2 \*\*India: Second-Largest Foundry Producer with 12 Million Tons Castings, Foundry Channel, 2024\*\***

India produced 12 million tonnes of castings in 2024, ranks second globally, operates ~4,500 foundries of which 85% are small-scale; Coimbatore accounts for 40% of output.

<https://blog.foundrychannel.com/india-the-second-largest-foundry-producer-with-12-million-tons-of-castings-in-2024/> · 2024 · accessed Jun 2026

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**3 \*\*India Foundry and Casting Market Size, Share Analysis 2034, IMARC Group, 2025\*\***

Casting exports reached USD 4.11 billion in FY2024, a 4.47% year-on-year rise; automotive sector accounts for ~40% of casting demand; aluminium casting growing at 11.2% CAGR.

<https://www.imarcgroup.com/india-foundry-casting-market> · 2025 · accessed Jun 2026

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**4 \*\*WEF Future of Jobs Report 2025: 78 Million New Job Opportunities by 2030, World Economic Forum, 2025\*\***

By 2030, only 33% of tasks will be performed solely by humans (down from 47%); 92 million jobs displaced, 170 million created; 85% of employers plan upskilling as primary strategy.

<https://www.weforum.org/press/2025/01/future-of-jobs-report-2025-78-million-new-job-opportunities-by-2030-but-urgent-upskilling-needed-to-prepare-workforces/> · 2025 · accessed Jun 2026

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**5 \*\*Foundry Robots: Automating Complex and Hazardous Tasks, HowToRobot, 2024\*\***

Details robotic applications in foundries: mold milling, pouring, part extraction, finishing, vision inspection; foundry automation market growing at 5.1% CAGR 2024-2036.

<https://howtorobot.com/expert-insight/foundry-robots> · 2024 · accessed Jun 2026

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**6 \*\*Indian Foundry Industry in 2030: Growth Opportunities and Challenges, Foundry Channel Blog, 2024\*\***

Identifies skilled labour shortage as the sector's primary challenge; ageing workforce; lack of systematic training; firms investing in automation and upskilling to fill gap.

<https://blog.foundrychannel.com/growth-opportunities-in-indian-foundry-industry-2030/> · 2024 · accessed Jun 2026

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**7 \*\*Craftsmen Training Scheme (CTS), Ministry of Skill Development and Entrepreneurship, 2024\*\***

Official scheme page: CTS provides vocational training across ~130 engineering and non-engineering trades through ~15,000 ITIs; ~70% practical, ~30% theory allocation.

<https://msde.gov.in/en/schemes-initiatives/schemes-initiatives-through-DGT/craftsmen-training-scheme> · 2024 · accessed Jun 2026

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**8 \*\*Specialty Steel PLI Scheme 1.1 Launch, News on Air / PIB, January 2025\*\***

Government launched PLI scheme 1.1 for steel with Rs 6,322 crore budget to promote specialty steel and reduce import dependency, benefiting downstream foundry sector.

<https://www.newsonair.gov.in/hd-kumaraswamy-launches-pli-scheme-1-1-for-steel-industry> · 2025 · accessed Jun 2026

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**9 \*\*Foundryman Salary India, SalaryExpert, 2025\*\***

Average gross salary for a Foundryman in India is Rs 4,65,047 per year; entry level (1-3 years) Rs 3,60,300; senior level (8+ years) Rs 5,63,991; 24% estimated salary growth over 5 years.

<https://www.salaryexpert.com/salary/job/foundryman/india> · 2025 · accessed Jun 2026

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**10 \*\*Average Plant Manager, Foundry / Metal Casting Salary in India, PayScale, 2025\*\***

Plant Manager roles in Indian foundries show significantly higher compensation for experienced professionals, reflecting the premium on experienced leadership.

[https://www.payscale.com/research/IN/Job=Plant\\_Manager%2C\\_Foundry\\_%2F\\_Metal\\_Casting/Salary](https://www.payscale.com/research/IN/Job=Plant_Manager%2C_Foundry_%2F_Metal_Casting/Salary) · 2025 · accessed Jun 2026

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**11 \*\*National Skills Qualification Framework Notification, Ministry of Education, Government of India\*\***

NSQF organises qualifications across 10 levels; Level 3 (Foundryman NTC) recognised nationally and used as basis for international equivalence; supports global mobility of skilled workers.

[https://www.education.gov.in/sites/upload\\_files/mhrd/files/NSQF%20NOTIFICATION.pdf](https://www.education.gov.in/sites/upload_files/mhrd/files/NSQF%20NOTIFICATION.pdf) · 2014 · accessed Jun 2026

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**12 \*\*India Skills Report 2025: Trends and Skill Gap Insights, CII/Wheelbox/AICTE, 2025\*\***

Overall graduate employability at 54.81% in 2025; only 4.4% of Indian youth aged 15-29 have had formal vocational training; manufacturing sector leads in recruiting new talent.

<https://www.class24.study/current-affairs/india-skills-report-2025-unlocking-employability-and-bridging-the-skills-gap-4893> · 2025 · accessed Jun 2026

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**13 \*\*India's Skilling Landscape: ITI System and Apprenticeships, Talento India, 2025\*\***

14,615 ITIs operating in India as of 2025; apprentice numbers rose from 35,500 in 2018-19 to 7.37 lakh in 2022-23; skilled trades shortage covers over 150 million workers.

<https://talentoindia.com/blog/iti-jobs-in-india-skilled-trade-workers-needed/> · 2025 · accessed Jun 2026

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14 **\*\*Addressing Labor Shortages in the Casting Industry, Grede, 2024\*\***

85% of casting industry respondents cited labour shortage as major concern; foundries experience near-100% turnover in some locations; automation as complement to skilled labour, not replacement.

<https://grede.com/addressing-labor-shortages-in-the-casting-industry/> · 2024 · accessed Jun 2026

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P **\*\*Foundryman CTS 2.0 NSQF Level 3 Curriculum, DGT/MSDE, Government of India\*\***

Official trade curriculum specifying competencies: sand preparation, mold/core making, furnace operation, melt pouring, fettling, quality checks; NSQF Level 3; ~70% practical training.

[https://dgt.gov.in/sites/default/files/Foundryman\\_CTS2.0\\_NSQF-3.pdf](https://dgt.gov.in/sites/default/files/Foundryman_CTS2.0_NSQF-3.pdf) · 2024 · accessed Jun 2026

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