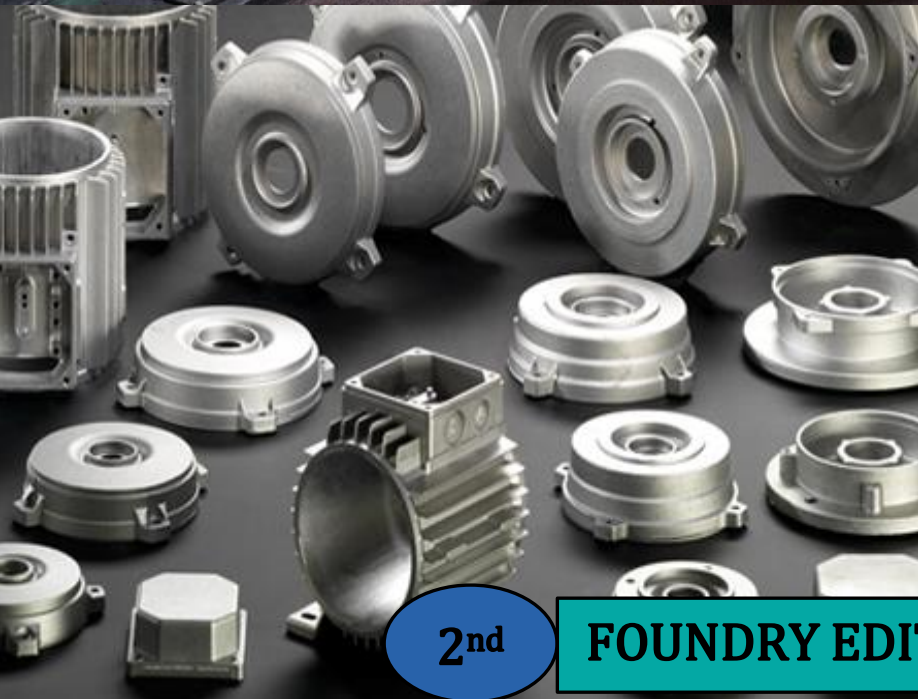


# MET.TEL NEWSLETTER

METALLURGY DEPARTMENT

DR. S. & S. S. GHANDHY COLLEGE OF  
ENGINEERING & TECHNOLOGY, SURAT



2<sup>nd</sup>

FOUNDRY EDITION

JULY 2019

## STAFF MEMBERS



**Mrs. B. H. Goyal (HOD)**  
**ME-Industrial Metallurgy**



**Mr. S. F. Parmar (LME)**  
**ME- Material Technology**



**Ms. S. M. Patel (LME)**  
**ME-Material Technology**  
**PhD (Pursuing)**



**Mr. M. J. Joshi (LME)**  
**ME-Material Technology**  
**PhD (Pursuing)**



**Mr. T. K. Kyada (LME)**  
**ME-Industrial Metallurgy**



**Mr. R. D. Dave (LME)**  
**ME-Welding Technology**



**Mr. N. G. Patel (LME)**  
**ME-Industrial Metallurgy**



**Mr. A. M. Gautam (LME)**  
**ME-Material Technology**



**Ms. J. B. Lad (Lab. Asst.)**  
**Diploma Mechanical**



Faculty Name	Training Title	Duration	Organizer
Mrs. B. H. Goyal	LR-Development in Mechanical, Manufacturing and Automobile Engineering etc.	13/05/2019 to 17/05/2019	N.I.T.T.T.R Bhopal
Mr. S. F. Parmar	Students' evaluation and assessment	10/12/2018 to 14/12/2018	N.I.T.T.T.R Bhopal
	Accreditation of engineering program	10/06/2019 to 14/06/2019	N.I.T.T.T.R Bhopal
Mr. T. K. Kyada	Induction- Training Phase-1	20/08/2018 to 31/08/2018	N.I.T.T.T.R Bhopal
	Industrial-Training Phase-2	03/09/2018 to 14/09/2018	N.I.T.T.T.R Bhopal
	LR-Development in Mechanical, Manufacturing and Automobile Engineering etc.	13/05/2019 to 17/05/2019	N.I.T.T.T.R Bhopal
Mr. R. D. Dave	Induction- Training Phase-I	17/09/2018 To 28/09/2018	N.I.T.T.T.R Bhopal
Mr. N. G. Patel	Faculty Development Programme "Beyond the classroom towards excellence"	06/08/2018 To 11/08/2018	IITE, Gandhinagar
	Induction Phase-I	17/09/2018 To 28/09/2018	NITTTR Ext. Centre, Ahmedabad
	Induction Phase-II	12/11/2018 To 23/11/2018	NITTTR, Bhopal
Mr. A. M. Gautam	Beyond the classroom towards excellence FDP	05/09/2018 To 10/09/2018	IITE, Gandhinagar
	Induction- Training Phase-I	22/10/2018 To 02/11/2018	NITTTR Ahmedabad

## GLIMPSES OF “EXPERT LECTURES”

- Mr. Prakash Sachapara (ASNT NDT Level III) And Mr. Devang Patel (ASNT NDT Level III) delivered expert lecture on “Working principle of advance non-destructive testing methods” on 19/09/2018. 27 Students attended this expert lecture.



- Mr. R. R. Vishwakarma, (Former Additional Chief Engineer at Gujarat state electricity corporation, visiting faculty at M S University, Consultant) has delivered expert lecture on “Welding Metallurgy” on 24/09/2018. 65 Students attended this expert lecture.



- Mr. Parth Mistry (DET Essar Steel India PVY LTD) delivered expert lecture on “Corex Technology” on 17/02/2019. 30 students attended this expert lecture.



- Mr. Jay. Gandhi (QC Engineer at Essar Steel India PVY LTD) has delivered expert lecture on “Thermal treatment of various metals and alloys” on 20/02/2019. 30 Students have participated in this expert lecture.



## GLIMPSES OF “INDUSTRIAL VISITS”

### Theis Precision India Pvt. Ltd.



- Industrial visit at “Theis Precision India Pvt. Ltd., Navsari” was arranged on 07/09/2018 for pre final year students. Mrs. B. H. Goyal and Mr. R. D. Dave guided the students during the visit. 30 students have visited this company.
- Students learn about Rolling of sheet metal, Cold rolling and Hot rolling etc.

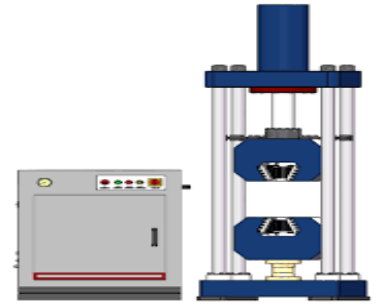
### TCR Advanced Engineering



- Industrial visit at “TCR Advance engineering, Vadodara” & “Heat technology PVT LTD, Vadodara” was arranged on 15/09/2018 for final year students. Mr. S. F. Parmar guided the students during the visit. 24 students have visited this company.
- Students learn about various Destructive and non-destructive testing, Microscopic Examination and other processes.



- Industrial visit at “TCR Advance engineering, Vadodara” was arranged on 13/03/2019 for pre final year students. Mr. S. F. Parmar guided the students during the visit. 28 students have visited this company.
- Students learn about various Destructive and non-destructive testing.



## OTHER ACTIVITIES

The number of co-curricular and extracurricular activities carried out at the institute and departmental level. The details of these activities are:

SR. NO.	ACTIVITY NAME	DATE
1.	Thalassemia test	08/10/2018
2.	Prabhat Pheri(150 <sup>th</sup> Mahatma Gandhi birth Anniversary Celebration)	02/10/2018
3.	Essay Writing competition (150 <sup>th</sup> Mahatma Gandhi birth Anniversary Celebration)	04/10/2018
4.	Drawing competition (150 <sup>th</sup> Mahatma Gandhi birth Anniversary Celebration)	06/10/2018
5.	NCC camp	02/01/2019 to 11/01/2019
6.	Mock interview	05/01/2019
7.	National Voters Oath Day	25/01/2019
8.	Sports week	28/01/2019 to 02/02/2019
9.	Pariksha pe charcha 2.0	29/01/2019
10.	Job fair at VNSGU,Surat	04/02/2019
11.	Food festival	15/02/2019
12.	Science Day Celebration	16/03/2019
13.	Project fair	30/03/2019
14.	Blood Donation Camp	08/04/2019
15.	YOGA day celebration	21/06/2019
16.	Nashamukticampaign(International day against drug abuse and illicit drugs)	26/06/2019



## FIRE SAFETY AWARENESS PROGRAM



A fire safety awareness program was held on 14 December 2018, in which training is given to the students and faculty members on How to use the fire extinguisher to stop extinguish the fire.”

## Prariksha Pe Charcha 2.0

Pariksha Pe Charcha 2.0 program was arranged to motivate the students for exams. Our Prime Minister Shri Narendra Modi has given a motivational speech to the students through Bisag program on 29/01/2019.

## Nasha Mukti campaign



Nasha Mukti Campaign on International day i.e 26/06/2019 was organized against drug abuse and illicit drugs

In this, all students have taken oath.



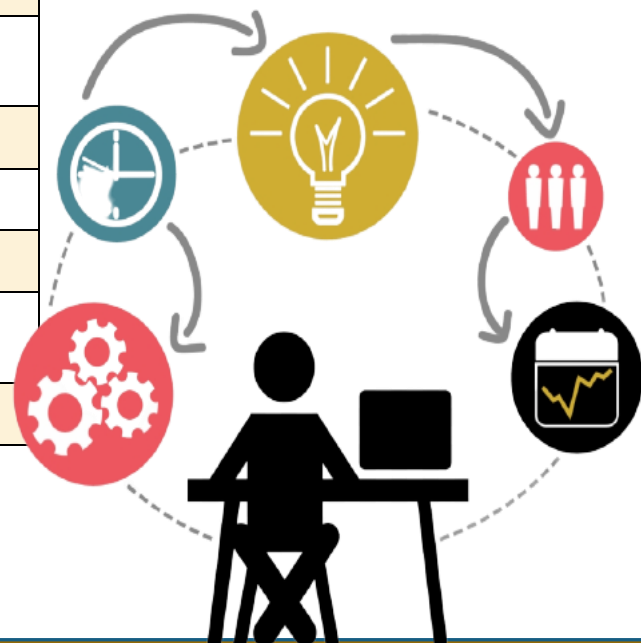
## PROJECT OFFERED IN 5<sup>TH</sup> SEMESTER

GROUP	PROJECT TITLE	GUIDE
1	Salt spray testing for cyclic corrosion	Mrs. B. H. Goyal Mr. A. M. Gautam
2	Study the Effect of Annealing and Normalizing Heat Treatment on Various Steel	Mr. S. F. Parmar Mr. R. D. Dave
3	High Performance Aluminum alloys from Waste Products	Ms. S. M. Patel Mr. T. K. Kyada
4	Laboratory scale Extrusion Machine	Mr. T. K. Kyada Mr. N. G. Patel
5	To Study and Prepare Different Types of Weld joints by SMAW Process	Mr. R. D. Dave Mr. S. F. Parmar
6	Study of the formation of carbide through thermal treatment of 304 SS.	Mr. N. G. Patel Mrs. B. H. Goyal
7	Hot Dip Aluminizing on Various Steel	Mr. A. M. Gautam Ms. S. M. Patel

## INDUSTRIAL TRAINING

Duration: 14 weeks

Sr. No.	INDUSTRY NAME	ADDRESS
1	Vipul Enterprise	Surat
2	L&T Special Steels and Heavy Forgings	Hazira, Surat
3	L&T Heavy Engineering	Hazira, Surat
4	Jay Metal Cast (JMT)	Udhana, Surat
5	C. M. Smith Sons. Ltd	Ahmedabad
6	Welspun Corp Pipes and Plates	Dahej, Surat
7	Essar	Hazira, Surat





## STUDENT SPOTLIGHT



Rahul Gohil, Student of Metallurgy Department, Dr. S. & S. S. Ghandhy College of Engineering & Technology, Surat secured 1<sup>st</sup> position in Gujarat Technological University in 2018.

## STUDENT PARTICIPATION IN FINISHING SCHOOL

Sr. No.	Name of Students	Enrollment number
1	Kathrotiya Rutvik	166120321017
2	Vyas Nikunj	166120321059
3	Tejani Prashil	166120321049
4	Solanki Aayush	166120321044
5	Singh Ritumbhara	166120321043
6	Jariwala Fenil	166120321013

## STUDENT PARTICIPATION IN NCC

Sr. No.	Name of Students
1	Yadav Manishkumar
2	Sah Ajaykumar



### CASTING THE PRESENT AND THE FUTURE

By Aayush Solanki (6<sup>th</sup> Sem)

**India** continues to be the third largest producer of castings in the world at around 10m tons but the industry is faced with a downturn in growth rate as demand slackens. Growth in the sector has been stagnant for the past three to four years but optimism is in the air thanks to new national projects in infrastructure and defence.

The country's 'Made in India' campaign - which predicts India to become the fastest growing economy - will require the foundry industry to grow three-fold in the next ten years to cater for other sectors. The major challenges to achieve this are: lack of skilled manpower, good power supply at competitive rates, sand availability due to mining and environmental issues, and the short-term slowdown in demand which could hinder medium- and longer-term investment.

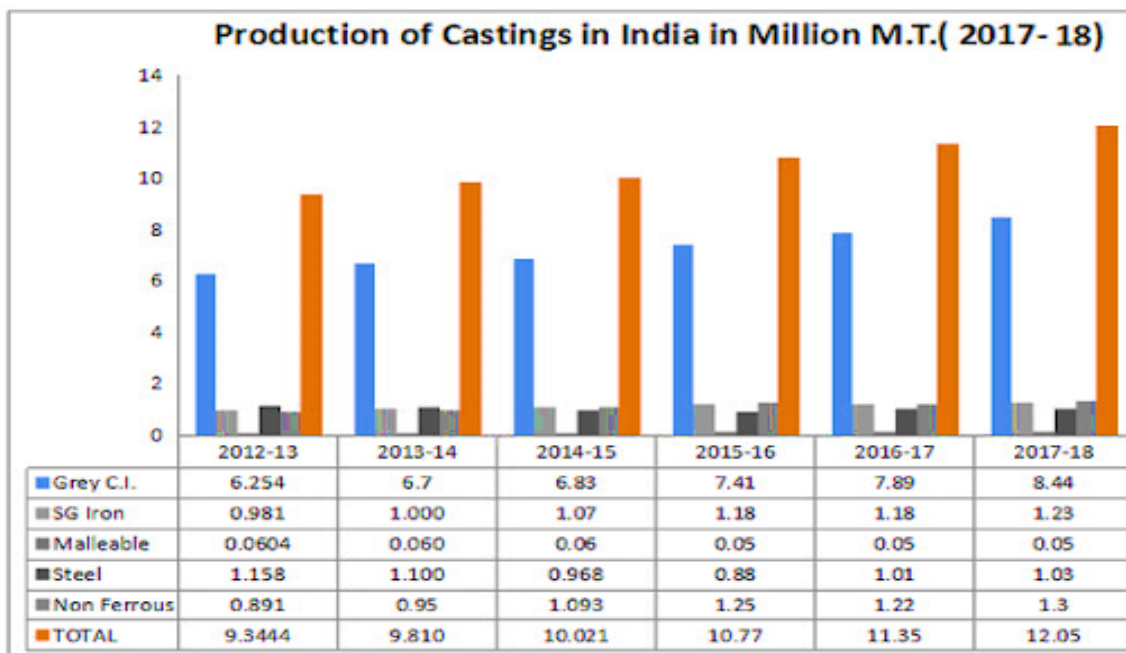
Skills development initiatives and energy audit programmes are either planned or in place to combat some of these issues and the Indian foundry sector has a strong culture of meeting together to drive innovation and growth rate.

The Indian Foundry market that has been growing at the rate of 5 - 7 % for the last few years and is expected to grow at 13 - 14% in the coming years as manufacturing has been gradually picking up and several sectors have opened up new opportunities.

The more than \$19 billion Indian foundry industry is looking to double growth rates. India is the world's second-largest casting producer after China and ahead of USA, but revenue wise the value of castings produced in USA is approx. 30 billion USD as compared to USD 19 Billion in India, indicating that value addition is comparatively very low in India. While China accounts for 40% of the world's 105 million tonnes casting production, the U.S. and India each do between 11 and 12 million tonnes per year.

The industry expects the growth from the emerging opportunities from the agriculture, infrastructure, water pipes, wind turbines, automotive, railways, defence and oil & gas sectors, which will drive the future of the industry and also help in employment generation.

India continues to be the second largest producer of castings in the world at around 11.35 million tonnes but the industry is faced with a downturn in growth rate as demand slackens. Growth in the sector has been stagnant for the past few years but thanks to new national projects in infrastructure and defence there's optimism is in the air.



#### Future Trends:

As many companies in countries throughout the world battle to remain successful there is an ongoing need to add value and be a supplier of choice. To do this it will be important to be innovative and flexible whilst remaining efficient and competitive. Those foundries which can produce components with a high knowledge content and skill base that are difficult to copy will continue to prosper and those which invest in both technology and people will also set themselves apart. It will also be necessary to increase the numbers of highly skilled employees who can drive the company in new directions with greater ability.

Of course, the need to produce more complex, more lightweight castings with a longer life span continues to focus the mind of designers and cast metals engineers in all parts of the world. This will require continued high level of R&D expenditure and improved dialogue between practical foundry personnel, design engineers and OEM representatives at as early an opportunity that is possible in the concept stage.

#### References:

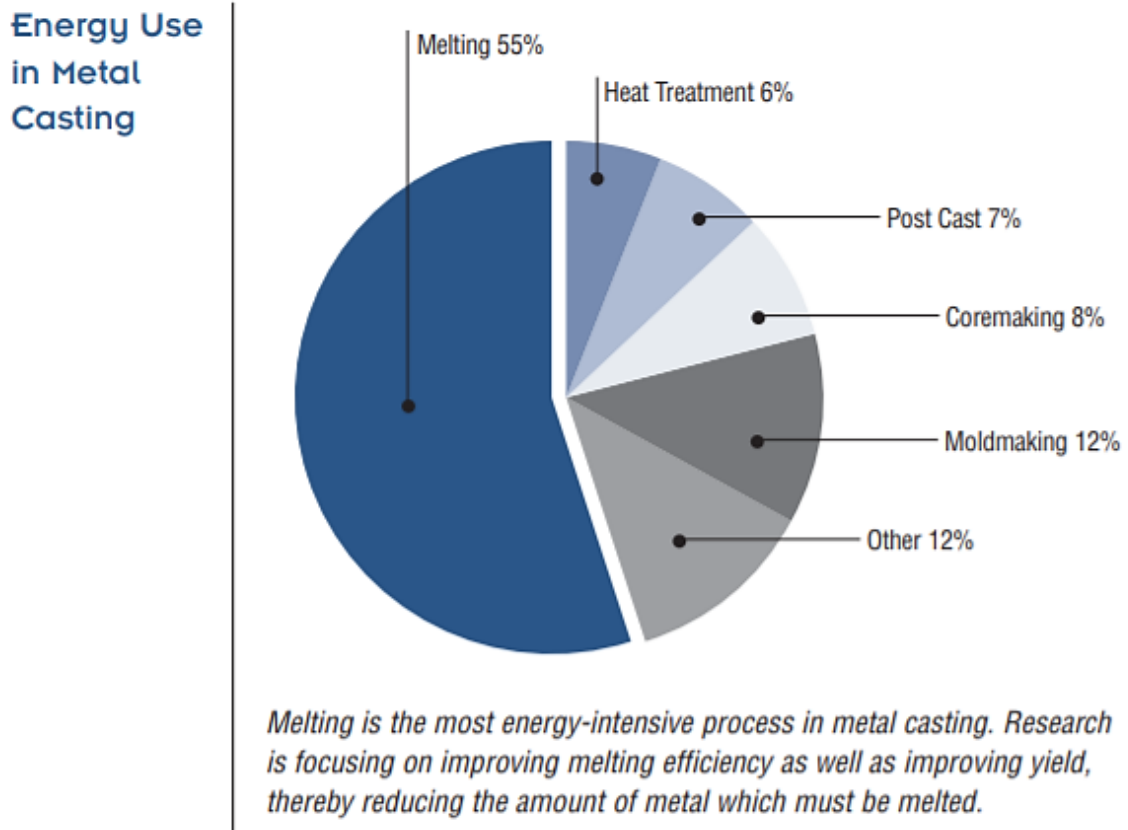
[http://foundryinfo-india.org/Production\\_of\\_castings.aspx](http://foundryinfo-india.org/Production_of_castings.aspx)

<https://www.foundrytradejournal.com/features/casting-the-present-and-the-future>

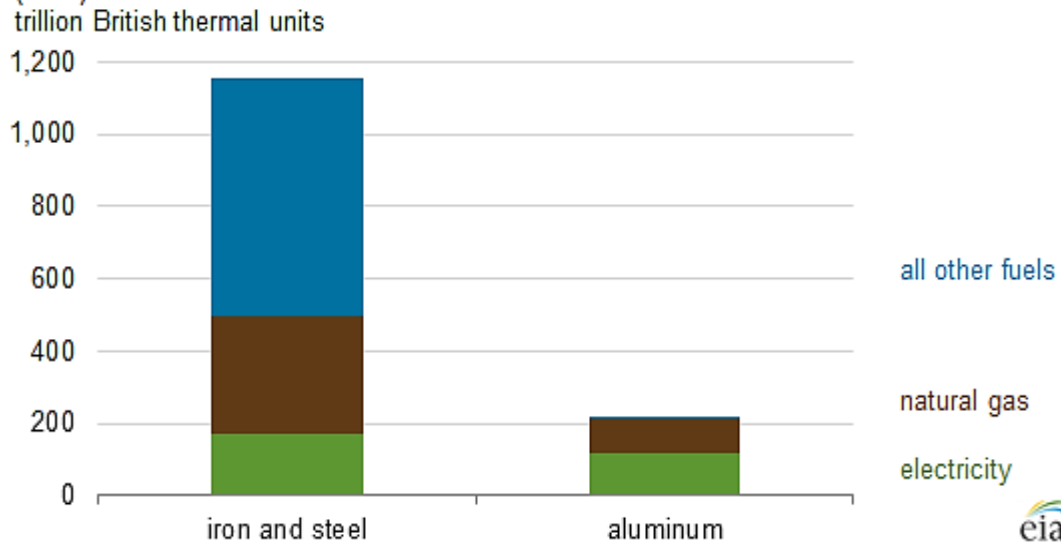
<https://www.apnnews.com/boom-of-the-indian-foundry-sector-the-institute-of-indian-foundrymen/>

# ENERGY USE IN METAL CASTING

By Krunal Presswala (6<sup>th</sup> Sem)



Energy consumption in the iron, steel, and aluminum manufacturing sectors by fuel (2010)



Reference:

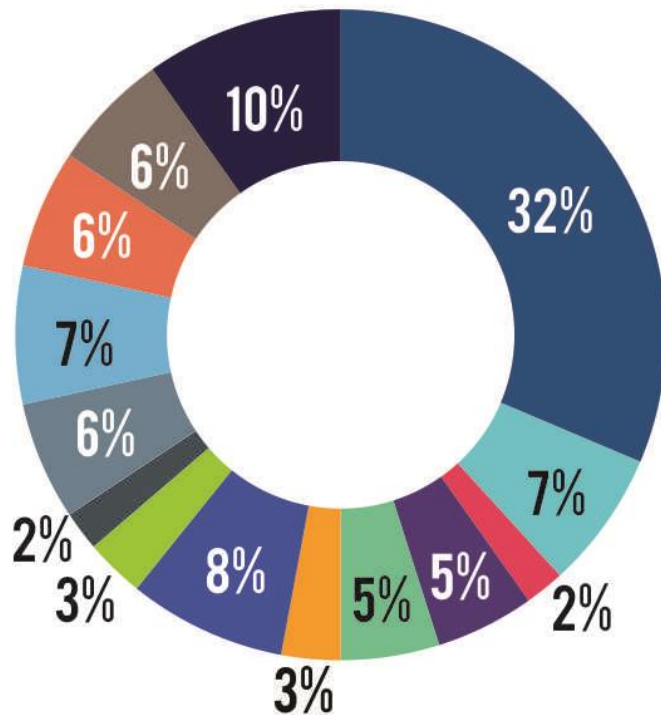
<https://www.eia.gov/todayinenergy/detail.php?id=16211>

# MAJOR CONSUMERS OF CASTING

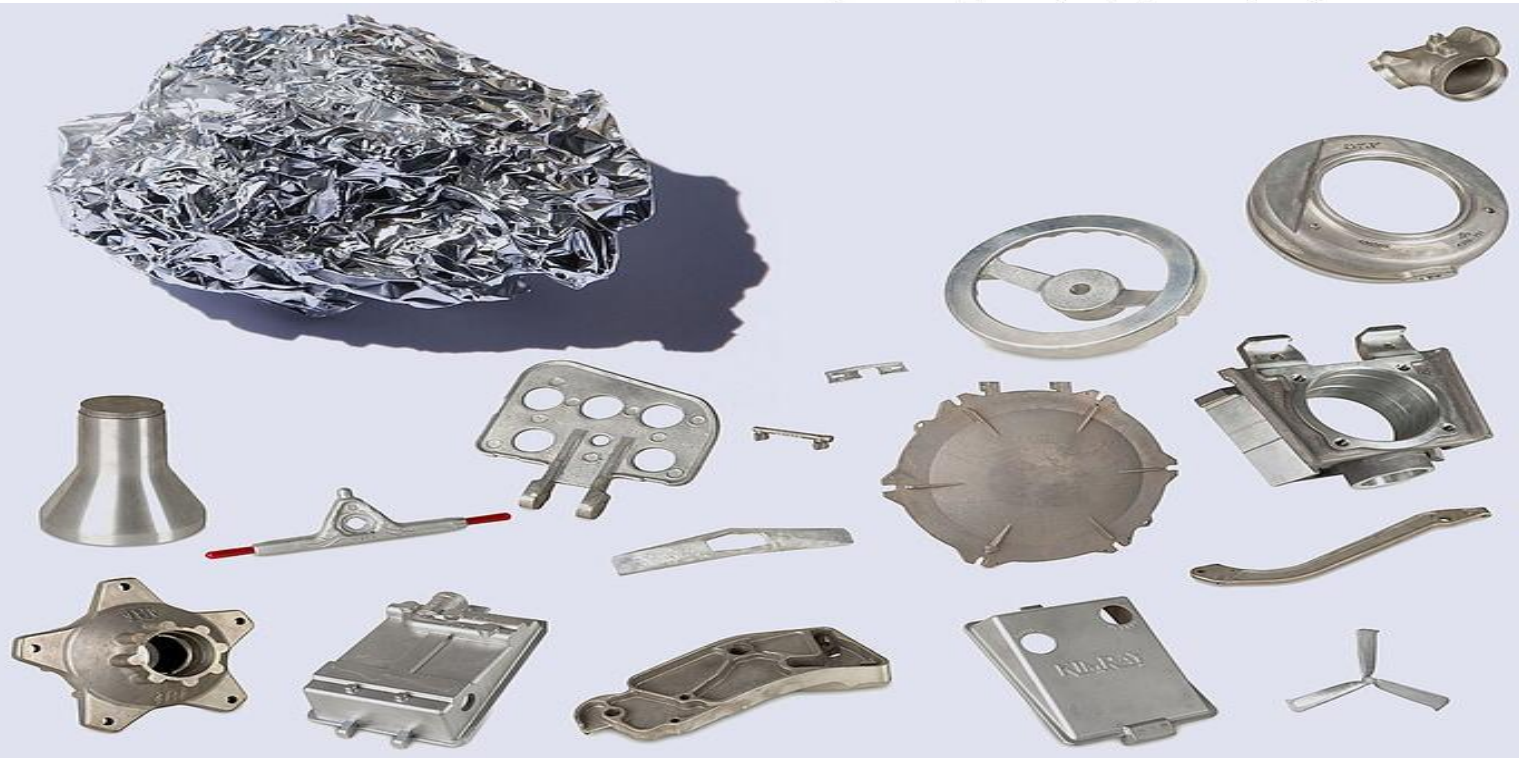
By Ritumbhara Singh (6<sup>th</sup> Sem)

Automobile sector is major consumers of the cast products. Below chart shows the sector wise major consumers of castings.

## Sector-wise Major Consumers of Castings



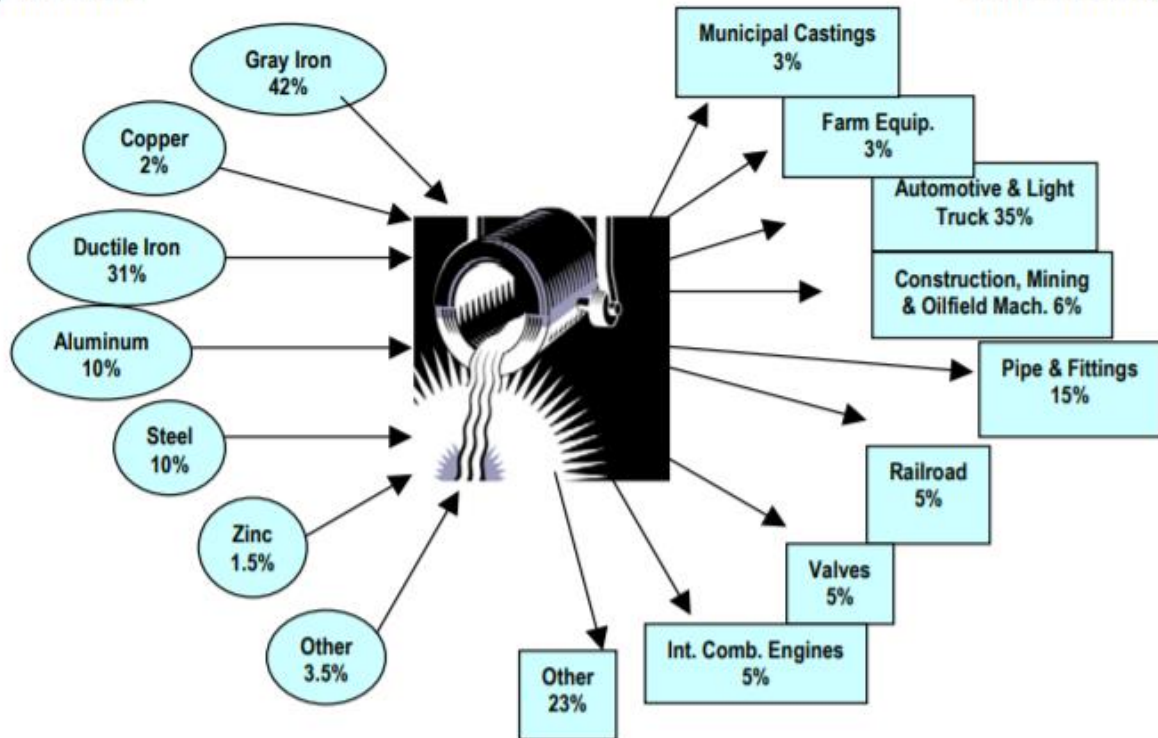
- Auto
- Agricultural M/c
- Earthmoving
- Pumps & Compressors
- Valves
- Diesel Engines
- Sanitary
- Electrical Equip
- Machine Tools
- Industrial M/c
- Pipes & fittings
- Railways
- Power
- Others



# Casting supply and End-Use Markets

## Supply Markets

## End-Use Markets



Source: U.S. Department of Commerce, Bureau of Census, Current Industrial Reports MA331E (00) and MA331A (00)-1

## References:

[https://www.steel-360.com/stories/steel/growing-demand-foundry-sector/attachment/may-2017\\_growing-demand-of-foundry\\_img2](https://www.steel-360.com/stories/steel/growing-demand-foundry-sector/attachment/may-2017_growing-demand-of-foundry_img2)

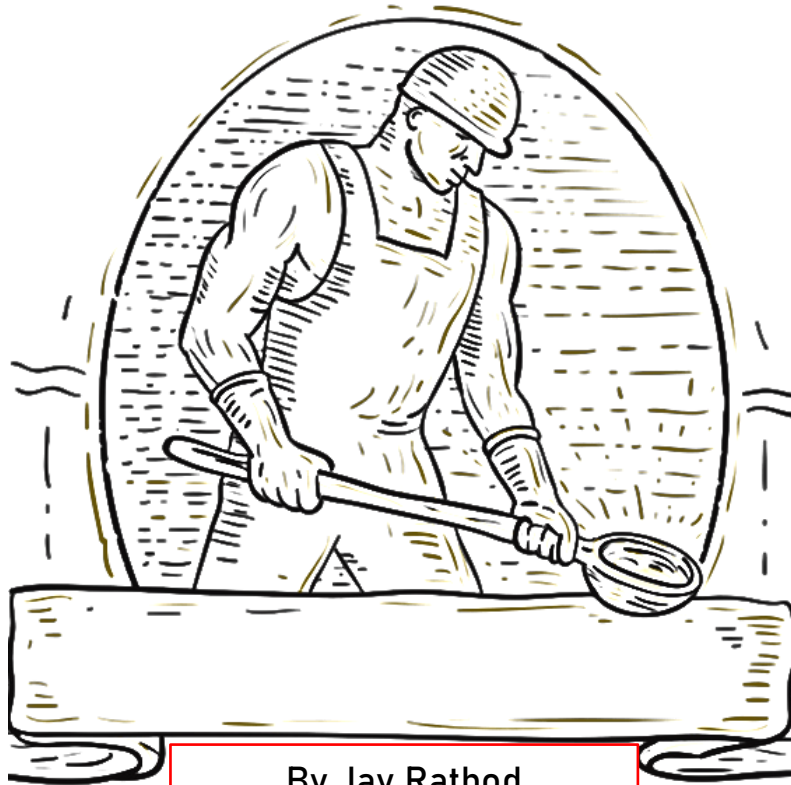
[https://www.energy.gov/sites/default/files/2013/11/f4/energyuseinselectedmetalcasting\\_5\\_28\\_04.pdf](https://www.energy.gov/sites/default/files/2013/11/f4/energyuseinselectedmetalcasting_5_28_04.pdf)



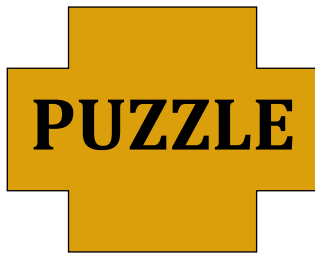
# CREATIVE CORNER



By Sindham Venkatesh



By Jay Rathod



# METALLURGY WORD SEARCH

## Metals & Alloys

A M P M Y N L E G H F E W D Y N K L G M I W P J  
S H K K E C E N P I P U Q U O G W C F U S V S B  
L N T E H L E W J G N Q Y E D S C Y Z Z S R E M  
L W H M I R T O V H G V L C W D V U V S A U Z F  
B G E O G L S N A S J T P K P L D Y K N J F W E  
Q X H A H S N H U P O G Z B P X A S L R H X K Y  
B X G W C I O F G E V J D M U S Y H C Z P C D O  
D H L B A X B D S E F E I P F M S V O R P Q W S  
I K Y Y R A R J Z D J W Q V Y K P A U B G G O F  
E L D X B I A T F S U X F F H I R G R T X J G L  
A G E T O A C U N T P A S S I A X J Y B S A P H  
K I T O N P W R G E O N N A K U L B U W L O T T  
E L V H S Q O O R E G F N F Z H A N P U F L X M  
Q Z E I T I L L O L U I S X T G C C M K P C C L  
F P L E E T S S S E L N I A T S Q I N N C I P Z  
H A L F E O Z E T J N A H N P X N U M S R Z S M  
Y L H P L M I H J D Z S Z V X I I F O O S Y R L  
R D S H J U E D T I H I Y Q U E K Q J F Z V F J  
E V V Z O S L P I D N V L M B O T Q F P D D Q L  
P A Q X Q W O H P C B F P T F C Q P H X M E S V  
P B P S E N N Z S Q Y E E G I Q U H K B I A V P  
O F Y J K I S H X I M F R O E U N K J W U M Y E  
C K S B T X S W J C B L J D H I Q T G A W L K Q  
U K A J K F Q F L H S M G N O R I T S A C Z Q Y

Answers:

- High Speed Steel
- Tin
- Cast Iron
- Low Carbon Steel
- Stainless Steel
- Copper
- Aluminum
- Brass
- Zinc
- High Carbon Steel



## POEM

अधकार को दूर कर जो प्रकाश फैला दे।  
बुझी हुई आश में विश्वास जो जगा दे।।

जब लगे नामुमकिन कोई भी चीज।  
उसे मुमकिन बनाने की राह जो दिखा दे वो है  
शिक्षा।।

हो जो कोई असभ्य, उसे सभ्यता का पाठ पढ़ा दे।  
अज्ञानी के मन में, जो ज्ञान का दीप जला दे।।

हर दर्द की दवा जो बता दे.. वो है शिक्षा।  
वस्तु की सही उपयोगिता जो समझाए।।

दुर्गम मार्ग को सरल जो बनाए।  
चकाचौंध और वास्तविकता में अन्तर जो दिखाए।।

जो ना होगा शिक्षित समाज हमारा।  
मुश्किल हो जाएगा सबका गुजारा।।

इसानियत और पशुता के बीच का अन्तर है शिक्षा।  
शांति, सुकून और खुशियों का जन्तर है शिक्षा।।

भेदभाव, छुआछुत और अधविश्वास दूर भगाने का  
मन्तर है शिक्षा।  
जहाँ भी जली शिक्षा की चिंगारी, नकारात्मकता वहा  
से हारी।।

जिस समाज में हों शिक्षित सभी नर-नारी।  
सफलता-समृद्धि खुद बने उनके पुजारी।।

इसलिए आओ शिक्षा का महत्व समझे हम।  
आओ पूरे मानव समाज को शिक्षित करें हम।।

Author – Jyoti Singh Dev

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# FOUNDRY



## METALLURGY DEPARTMENT

