



# UKKU

(ANNUAL NEWS LETTER OF METALLURGICAL ENGINEERING DEPARTMENT  
GOVERNMENT POLYTECHNIC::VISAKHAPATNAM)

Issue: 2022 Year

## Editorial Report

It is my pleasure to release the annual newsletter “UKKU” of the department of Metallurgical Engineering, Government Polytechnic, Visakhapatnam on behalf staff and students of the department. “UKKU” is the name of the ancient high quality steel which was predominantly used by our ancestors for the construction of various monuments in our country. Our newsletter was named after that high quality steel. This newsletter contains various projects done by the students as a part of partial fulfillment for award of their diplomas, expert lectures, events, and workshops conducted by the department. It also contains various student achievements in curricular and co-curricular events and competitions including campus placements.

I hope this newsletter will be useful for all the new joiner in the department to understand the activities of the department and to motivate them in involving various curricular and co-curricular activities.



**Dr. K. Ratna Kumar**  
Editor & Head of the Department  
Department of Metallurgical Engineering  
Government Polytechnic Visakhapatnam

## Industrial Visit to Right NDT Training & Consultancy Services, Visakhapatnam

An Industrial visit to Right NDT Training & Consultancy Services, Visakhapatnam was conducted for faculty and students of department of Metallurgical Engineering on 14<sup>th</sup> February 2022.



Students learned practical aspects of various NDT techniques used in industry to evaluate soundness of the weld joints and metal castings. Staff and four seven students from Metallurgical Engineering department were visited this industry.

## Expert Lecture on Recent Developments in Metal Joining

Prof. K. Srinivasa Rao, Chairman, Board of studies, Department of Metallurgical Engineering, Andhra University, Visakhapatnam delivered an expert lecture on “Recent Developments in Metal Joining” at IIPC Seminar hall in Government



Polytechnic, Visakhapatnam on 19<sup>th</sup> February 2022.



He explained about various advanced technologies used in metal joining such as Micro joining, Ultrasonic welding, Friction stir welding, Lead free solder etc., Staff and seventy five students from Metallurgical Engineering department were attended this expert lecture.

### **Industrial Visit to Synergies Casting Limited, VSEZ, Duvvada, Visakhapatnam**

An Industrial visit to Synergies Casting Limited, VSEZ, Duvvada, Visakhapatnam was conducted for faculty and students of department of Metallurgical Engineering on 12<sup>th</sup> March 2022.



Students learned about production of Aluminum alloy wheels used in automobiles. Staff and forty students from Metallurgical Engineering department were visited this industry.

### **Expert Lecture on Principles of Corrosion Engineering**

Prof. K. Srinivasa Rao, Chairman, Board of studies, Department of Metallurgical Engineering, Andhra University, Visakhapatnam delivered an expert lecture on "Principles of Corrosion Engineering" at IIPC Seminar hall in Government Polytechnic, Visakhapatnam on 19<sup>th</sup> March 2022.



He explained about basic principles of corrosion, Types of corrosion and their prevention methods. Staff and seventy students from Metallurgical Engineering department were attended this expert lecture.

### **Industrial Visit to Sri Amma Industries, Visakhapatnam**

An Industrial visit to Sri Amma Industries, Kancharapalem, Visakhapatnam was conducted for faculty and students of



# VVKV

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department of Metallurgical Engineering on 05<sup>th</sup> September 2022.



Students learned about the melting of cast iron using Cupola furnace and also various metal forming techniques. Staff and sixty students from Metallurgical Engineering department were visited this industry.

### Expert Talk on Personality Development for a Successful Career

Er. Ch.V.Somayajulu, DGM (T & DC), Visakhapatnam Steel plant delivered an expert lecture on “Career opportunities for diploma passed out students” at IIPC Seminar hall in Government Polytechnic, Visakhapatnam on 30<sup>th</sup> October 2022.



He discussed about job potential and higher education opportunities for diploma students in Metallurgical Engineering. Staff and One hundred students from Metallurgical Engineering department were attended this expert lecture.

### POLYTECH FEST

A Regional Polytech fest was conducted for all students at Government Polytechnic Visakhapatnam in the month of August 2020.

In this event all Government and Private Polytechnic college students in Visakhapatnam region are participated in different events conducted by the Government polytechnic, Visakhapatnam.

To issue an certificates for all the students who are participated in the event and also receive the medals for the merit ones and also provide the cash price for the best event.



### TEACHER'S DAY CELEBRATIONS

On the occasion of Teacher's Day the Principal Sri D. Phaneendra Prasad



celebrated the Birthday of Dr. Sarvepalli Radhakrishnan on 5<sup>th</sup> September 2020. He said that Teachers' Day is not just a day of festivities; it's a moment of reflection, gratitude, and celebration of the noble profession of teaching.



## STUDENT PROJECTS IN 2022

### A Project on “Evaluation of Mould Hardness and Shear Strength by Varying Moisture Content and Preheating Time”

was submitted by the following final year Metallurgical Engineering students: M. Abhilash, A.Teja, B. Diwakar, Ch. Anjali, Ch. Apoorva, D.V.R.M.Krishna, A. Srikanth, G.Pavani, K.Harshavardhan, M.Navya, N.Sai Sudheer Yadav, P.Teja, and S.Karthik Under the guidance of Sri B.V.V. PRASAD, Lecturer in Metallurgical Engineering.

#### Abstract:

This project work was conducted in order to investigate the effect of moisture content and preheating time on moulding properties

such as hardness and green shear strength in order to optimize the properties of mould. Green sand is used as mould material and Bentonite clay used as a binder. All the result obtained show that the sand properties were affected by the quantity of moisture content and pre heating time. The moisture content has the effect on the sand properties at varying quantity of moisture, pre heating time, sand and fixed amount of clay. The higher value of green strength show that the mould produced would have more resistance to wear and external pressure. Increase in permeability number show that Bentonite clay moulds are better venting out evolved gas, therefore, when hot molten metal are poured into the mould such defect as blow and holes would be eliminated. Green sand is found to be suitable for use as foundry moulding sand. The moulding mixture of Bentonite clay and Green sand with appropriate water content is suitable for ferrous and non-ferrous alloy casting of component parts. By our study we try to optimize the mould properties such as hardness and shear strength by controlling the moisture content and pre heating time.

### A Project on “Study on Flash & Fire Points, Cloud & Pour Points of Fuels with respect to Viscosity”

was submitted by the final year Metallurgical Engineering students: A. Chanikya, A. Monika, B. Jagadeesh, Ch. Ramji, D. Lowkya, G. Meenakshi, S.Chanukya, M.Pravallika, M.Vaibhav, S.Charan, V.Prudhvi, K.Karthikeya

Under the guidance of Er. N. Rupa Rani, Lecturer in Metallurgical Engineering.



## **Abstract:**

This project work was conducted in order to know the effect of viscosity on the flash and fire points of given oils using red wood viscometer and Cleveland's apparatus. To know the effect of viscosity on the cloud and pour points of given oils using cloud and pour point apparatus and to study the relation between flash & fire points and cloud & pour points of various fuels with their viscosity

## **A Project on "Experimental Study of Mechanical Properties of Weld Joints"**

was submitted by the final year Metallurgical Engineering students: A. Pavan Kumar, B. Bhanu Teja, D. Tulasi Rao, D. Adhi Lakshmi, M. Meghana, V. Guru Charan, V. Karthik, and V. Naveen

Under the guidance of Er. K.Venkatesam, Lecturer in Metallurgical Engineering.

## **A Project on "Optimization of Mould Properties Through the Control of Moisture Content and Preheating Time"**

was submitted by the final year Metallurgical Engineering students: U. Varun Raj, R. C Mouli, A P Chandra Sekhar, G. Murali, K. Chinna, and L. Geeta Vani

Under the guidance of Er. A. Eswara Rao, Lecturer in Metallurgical Engineering.

## **STUDENT ACHIVEMENTS**

### **Campus Placements in 2022**

05 students of final year diploma in Metallurgical Engineering got placement in the following industries:

1. Sundaram Alloys Ltd, Visakhapatnam: 01 Student was selected with CTC 2.0 Lakhs
2. Synergies Castings Ltd, Visakhapatnam: 01 Student was selected with CTC 1.8 Lakhs
3. Vasantha Toolcrafts Pvt. Ltd, Hyderabad: 01 Student was selected with CTC 2.2 Lakhs
4. Sarada Ferro-Alloys Ltd, Vizianagaram: 01 Student was selected with CTC 2.0 Lakhs
5. Indian Postal Service, Branch Post Master, Visakhapatnam: 01 Students was selected with CTC 2.0 Lakhs

Department congratulating the students who got placement in various sectors and wishing them for all round growth in their future careers.

### **Higher Education Opportunities in 2022**

30 students of final year diploma in Metallurgical Engineering got second year B.Tech admission through APECET 2022 conducted by Department of Higher Education, Andhra Pradesh.

It was proud to our department that our students got state level 2, 3, 4, 5, 7, 8 and 9 ranks in Metallurgical Engineering stream of APECET2022

Department Congratulates our final year students who are rank holders in



Metallurgical Engineering stream of APECET2022 for their achievement and wishing them to be success in their future endeavors.

### BEST PROJECT IN METALLURGICAL ENGINEERING IN STATE LEVEL POLYTECH FEST – 2022

Our Third year students in Metallurgical Engineering A. Pavan Kumar, A. Poorna, S. Karthik, and P. Teja won the title of the best project in Metallurgical Engineering at state level in POLYTECH FEST – 2022 conducted at Government Polytechnic, Vijayawada by the Department of Technical Education, Andhra Pradesh. This project was done by the students under the guidance of Sri B V V Prasad, Lecturer in Metallurgical Engineering and Dr. K. Ratna Kumar, Head of Metallurgical Engineering section.



They won Rs. 25000 as cash prize and received award from the AP State Home Minister Smt. T. Vanitha, AP State Irrigation Minister Sri J. Ramesh, and Director of Technical Education Smt. C. Naga Rani, IAS.

**GOVT POLYTECHNIC VSKP**  
**Metallurgical Engineering**

**Title:** Effective Utilization of Steel Scrap to Produce Automobile Engine Block

**Raw Materials:**

- Steel Scrap
- Limestone
- Pig Iron
- Coke

**CUPOLA FURNACE**

**Advantages:**

- Cheaper Steel Scrap Can be Converted into useful Automobile Engine Block
- Less Cost of Production

**Project By :**  
A. Purma - 19009 - MET - 002  
A. Pavan - 19009 - MET - 005  
P. Teja - 19009 - MET - 041  
S. Karthik - 19009 - MET - 047

**Guided By :** B.V.V. Prasad

Their Project is “Effective Utilization of Steel scrap to Produce Automobile Engine Block”.

### టిక్ షెస్ట్ లో విశాఖ జిల్లాకు రెండు అవార్డులు



మంత్రులు చేతుల మీదుగా నగదు బహుమతి లండుకుంట్ల గ్రేట్ విద్యార్థులు

బహుమతి లండుకుంట్ల పాలిటెక్నిక్ విద్యార్థులు

• ప్రథమ బహుమతి బోడవరం పాలిటెక్నిక్ కళాశాల కైవసం

టీటీ లక్ష్మణరావు, అధ్యక్షుడు ప్రధమ మార్గదర్శక కర్మలో ఎన్.కుంభదేవ్, ఎన్.లోకేశ్ అనందవర్మ, టి.హనుక రూపొందించిన ఈ ప్రాజెక్టుకు రూ-25 వేల నగదు బహుమతి లభించింది. పాలిటెక్నిక్ కాలేజీ మెటల్స్ విభాగం విద్యార్థులు రూపొందించిన ఆటోమొబైల్ ఇంజన్ బ్లాక్స్ ఉత్పత్తి చేయడానికి స్టీల్ స్కాప్ ను ప్రభావవంతంగా ఉపయోగించడం అనే ప్రాజెక్టుకు రూ-25 వేల నగదు బహుమతి గెలుపకుం ది. అట్లా మనవరమూర్తి, ఎ.వ్యాజ్, ఎన్.కార్తీక్, పి.రీతి దీని రూపొందించారు. విజేతలను రాష్ట్రచోం శాఖ మంత్రి తానేటి వసీత్, గృహనిర్మాణ శాఖ మంత్రి జోగి రమేష్, టెక్నికల్ ఎడ్యుకేషన్ కమిషనర్ సి.నాగ రాజ్ బహుమతులు ప్రధానం చేశారు. ప్రీన్స్ పాల్ డాక్టర్ తె.వెంకటరమణ పాల్గొన్నారు.

Department congratulating the above students for their well-deserved success and wishing them to get more accolades in their future.



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## DEPARTMENT VISION AND MISSION

### VISION:

Striving continuously in pursuit of excellence in imparting knowledge with skills in Metallurgical Engineering at diploma level to improve the opportunities in employment and higher learning.

### MISSION:

M1: Use of technology enhanced tools and techniques by motivated and qualified faculty for enhancement of knowledge, understanding of principles, concepts and latest trends in Metallurgical engineering.

M2: Modernization of workshops and laboratories as per the curriculum specified by the State Board of Technical Education, Andhra Pradesh.

M3: Conduct of laboratories, guest lectures, industrial visits and industrial training for better understanding of critical concepts of Metallurgical Engineering.

M4: Provide opportunities for developing multidisciplinary skills, communication skills, professional attitude and ethics.

## PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

**PEO1:** Fundamental knowledge of mathematics, Basic sciences and basic interdisciplinary engineering to apply day to day challenges in the field of Metallurgical engineering.

**PEO2:** Knowledge in the principles, concepts, and techniques in Metallurgical engineering area to solve contemporary issues.

**PEO3:** Applications of the principles, concepts, and techniques in Metallurgical engineering area to solve contemporary issues and gain on hand experience.

**PEO4 :** Effective Communication on activities regarding Planning, designing, manufacturing, and servicing functions with engineering community.

### Editorial Board:

1. Dr. K.Ratna Kumar

2. Sri A.Eswara Rao

3. Sri B V V Prasad