



# Karnataka State Council for Science and Technology

(An autonomous organisation under the Dept. of Science & Technology, Govt. of Karnataka)

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**Dr. U T Vijay**  
Executive Secretary

24th April, 2023

Ref: 7.1.01/SPP/33

To,  
The Principal,  
Alva's Institute of Engineering and Technology,  
Shobavana Campus, Mijar,  
Moodbidri - 574 225.

Dear Sir/Madam,

Sub : Sanction of Student Project - 46th Series: Year 2022-2023

**Project Proposal Reference No. : 46S\_BE\_3764**

Ref : Project Proposal entitled **INVESTIGATION ON EFFECT OF CASTING MOULD ON MECHANICAL PROPERTIES OF AL ALLOYS**

We are pleased to inform that your student project proposal referred above, has been approved by the Council under "Student Project Programme - 46th Series". The project details are as below:

<b>Student(s)</b>	Mr. TEJAS GOWDA M	<b>Department</b>	MECHANICAL ENGINEERING
	Mr. SRISHAIL S		
	Mr. AJAY KUMAR J		
<b>Guide(s)</b>	Dr. SATYANARAYAN	<b>Sanctioned Amount (in Rs.)</b>	8,000.00

## Instructions:

- The project should be performed based on the objectives of the proposal submitted.
- Any changes in the project title, objectives or students team is liable for rejection of the project and your institution shall return the sanctioned funds to KSCST.
- Please quote your project reference number printed above in all your future correspondences.
- After completing the project, 2 to 3 page write-up (synopsis) needs to be uploaded on to the following Google Forms link <https://forms.gle/nWTaJjvrvzp3Wmvt6>. The synopsis should include following:
  - Project Reference Number
  - Title of the project
  - Name of the College & Department
  - Name of the students & Guide(s)
  - Keywords
  - Introduction / background (with specific reference to the project, work done earlier, etc) - about 20 lines
  - Objectives (about 10 lines)

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**46S\_BE\_3764**

- 8) Methodology ( about 20 lines on materials, methods, details of work carried out, including drawings, diagrams etc)
- 9) Results and Conclusions (about 20 lines with specific reference to work carried out)
- 10) Scope for future work (about 20 lines).
- e) In case of incompeted projects, the sanctioned amount shall be returned to KSCST.
- f) The sanctioned amount will be transferred by NEFT to the bank account provided by the College/Institute.
- g) The sponsored projects evaluation will be held in the Nodal Centre/Online Mode and the details of the same will be intimated shortly by email / Website announcement.
- h) After completion of the project, soft copy of the project report duly signed by the Principal, the HoD, Guide(s) and student(s) shall be uploaded in the following Google Forms Link <https://forms.gle/YWz56TrGg7fnSQgc7>. The report should be prepared in the format prescribed by the university.

Please visit our website for further announcements / information and for any clarifications please email to [spp@kscst.org.in](mailto:spp@kscst.org.in)

Thanking you and with best regards,

Yours sincerely,



(U T Vijay)

Copy to:

- 1) The HoD  
MECHANICAL ENGINEERING  
ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY, MOODBIDRI
- 2) Dr. SATYANARAYAN  
MECHANICAL ENGINEERING  
ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY, MOODBIDRI
- 3) THE ACCOUNTS OFFICER  
KSCST, BENGALURU



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**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,  
BELAGAVI 590018**



**A project report on**

**“INVESTIGATION ON EFFECT OF CASTING MOULDS ON  
MECHANICAL PROPERTIES OF ALUMINIUM ALLOY”**

**Submitted in partial fulfillment of the requirements for the degree of**

**BACHELOR OF ENGINEERING**

**in**

**MECHANICAL ENGINEERING**

**By,**

**AJAY KUMAR J**

**4AL19ME003**

**SRISHAIL S**

**4AL19ME028**

**TEJAS GOWDA**

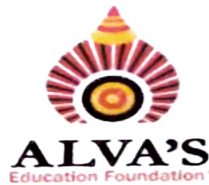
**4AL19ME029**

**Under the Guidance of**

**Dr. Satyanarayan**

**Senior Associate Professor & Head**

**Department of Mechanical Engineering**



**Department of Mechanical Engineering**

**ALVAS INSTITUTE OF ENGINEERING AND  
TECHNOLOGY**

**MOODBIDRI-574225, KARNATAKA**

**2022 – 2023**



# ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

Mijar, Moodbidri, D.K. -574225 – Karnataka



ALVA'S  
Education Foundation

DEPARTMENT OF MECHANICAL ENGINEERING

## CERTIFICATE

Certified that the project work entitled “**Investigation on Effect of Casting Moulds on Mechanical Properties of Aluminium Alloy**” is a bona fide work carried out by

AJAY KUMAR J

4AL19ME003


SRISHAIL S

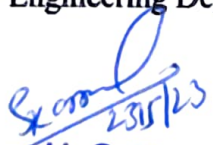
4AL19ME028


TEJAS GOWDA M

4AL19ME029

Are bonafide student of mechanical engineering, Alva's Institute of Engineering and Technology in partial fulfillment for the award of BACHELOR OF ENGINEERING in MECHANICAL ENGINEERING of the VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI during the year 2022–2023. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

  
Dr. Satyanarayan  
Project Guide

  
H.O.D.  
Dr. Satyanarayan  
Dept. Of Mechanical Engineering  
Head of the Department  
Alva's Institute of Engg. & Technology  
Mijar, MOOBBIDRI - 574 225

  
Dr. Peter Fernandes  
Principal  
Alva's Institute of Engg. & Technology,  
Mijar. MOOBBIDRI - 574 225, D.K

## ABSTRACT

Aluminium alloys have gained significant popularity in the manufacturing industry due to their unique properties, such as light weight, high strength, and corrosion resistance. One of the most commonly used methods for manufacturing aluminium alloys is casting. However, the mechanical properties of the final product are highly influenced by the type of casting mould used. This research highlights the effect of casting moulds on the mechanical properties of aluminium alloys. Three different casting metallic moulds namely Aluminium, Mild Steel, Copper and Sand mould are used to cast aluminium alloy. Further, alloy cooled in moulds were subjected for microstructural study and mechanical properties. The study also suggests that the microstructure of the alloy has a significant impact on the mechanical properties. The results showed that the mechanical properties such as hardness and wear properties are significantly affected by the type of casting mould used. Alloy cooled in Aluminium and Sand moulds exhibited higher micro-hardness (end to end) compared to alloy cooled in copper and mild steel moulds. Even an average VHN (randomly taken) for Al alloy cooled in Aluminium mould showed higher Vickers Hardness Number (VHN). In turn effect of wear properties on alloy cooled in moulds are also investigated. The findings of this study are useful in the manufacturing industry to produce high-quality aluminium alloys with improved mechanical properties.

**Key words:** Aluminium; Aluminium alloy; Cooling moulds ; Vickers Hardness Test (VHN), Wear test.