KSCST

Karnataka State Council for Science and Technology
(An autonomous organisation under the Dept. of Science & Technology, Govt. of Karnataka)
Indian Institute of Science Campus, Bengaluru – 560 012
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Email: office.kscst@iisc.ac.in, office@kscst.org.in • **Website:** www.kscst.iisc.ernet.in, www.kscst.org.in

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:

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

Instructions:

a) The project should be performed based on the objectives of the proposal submitted.
b) 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.
c) Please quote your project reference number printed above in all your future correspondences.
d) 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/nWTaJjvrwzp3Wmvt6. The synopsis should include following:
   1) Project Reference Number
   2) Title of the project
   3) Name of the College & Department
   4) Name of the students & Guide(s)
   5) Keywords
   6) Introduction / background (with specific reference to the project, work done earlier, etc) - about 20 lines
   7) Objectives (about 10 lines)

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Mijar, MOODBIDRI - 574 225, D.K

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 studetn(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

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.

23/5/23

Dr. Satyanarayan
Project Guide

23/5/23

H.O.D
Dept. Of Mechanical Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

Dr. Satyanarayan
Head of the Department

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Mijar, MOODBIDRI - 574 225, D.K

Dr. Peter Fernandes
Principal

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 exhbhited 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.