

# ABOUT THE PROGRAMME

The programme B. Tech. in Metallurgical and Materials Engineering is a four-year bachelor's degree in technology, offered by Department of Metallurgical and Materials Engineering at Amal Jyothi College of Engineering, Kanjirappally, Kottayam, with an emphasis on materials for developing industrial sectors such as energy, environment, production, etc.

The programme is truly interdisciplinary and combines knowledge from chemistry, physics, and mathematics merged with the principles of mechanical and chemical engineering.

The curriculum is designed to make the students capable of taking up the present and upcoming challenges in the field of materials science and engineering. In addition to the robust technical foundation, the curriculum also ensures the overall development of students, especially in communication, project management, and time management, organizational, and computing skills.



## Contact Us

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# METALLOGRAPHY & MATERIAL TESTING LABORATORY



**METALLURGICAL &  
MATERIALS ENGINEERING**



**AMAL JYOTHI  
COLLEGE OF ENGINEERING**



## STRAIN RATE CONTROLLED UNIVERSAL TESTING MACHINE (UNITEK 9400, FIE PVT. LTD.)

INTERNAL	Rs100/Sample
EXTERNAL	Rs200/Sample

Data entry with numeric keyboard of test parameters (Speeds, rupture, % peak, pre load, modulus data, test data and specimen data)

Optional windows based software available for- Online graph on PC; Data analysis, Statistics, Point tracing superimposing graphs to compare with standard, zooming graph etc.

Printer port for printer interface with- Graph and result print-out, Test Certificate print-out, Batch certificate print-out, Simple statistics print-out.

## OPTICAL METALLURGICAL MICROSCOPE

NIM - 110, QS metrology with image analyzer for microstructural analysis

WITHOUT SAMPLE PREPARATION	Rs100/3 Images
WITH SAMPLE PREPARATION	Rs250/3 Images



## HARDNESS TESTING MACHINES

Vicker's hardness testing machine (VM -50, FIE Pvt. Ltd.)



INTERNAL	Rs50/Sample
EXTERNAL	Rs100/Sample

Test loads : 5, 10, 20, 30, 50 (1 Kgf - optional)  
Magnification of optical measuring device : 70X (140X - optional)  
Maximum test height (mm) : 230  
Scale least count (mm) : 0.001

Rockwell hardness testing machine (TRB - 250) (Fine manufacturing industries)

Maximum test height: 290 mm  
Depth of throat: 148 mm



## START- OF- ART WELDING CENTRE

Software assisted MIG welding machine (MinArc MIG - 2530, Kemppi)

SMAW welding machine (master 2500 MLS, kemppi)

TIG welding machine  
MMA welding unit

INTERNAL	Rs150/Sample*
EXTERNAL	Rs300/Sample*

\*As per Sample size price varies



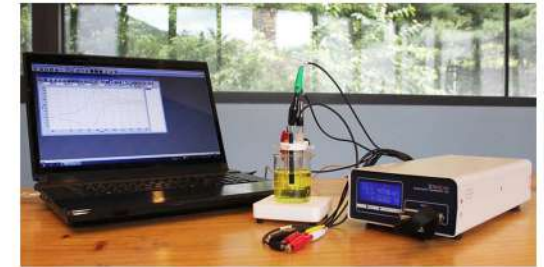
## HEAT TREATMENT FURNACES



Muffle Furnace for heat treatment up to 1400°C & Hot Air Oven Thermostatic

INTERNAL	Rs100/1Hour
EXTERNAL	Rs200/1Hour

## ELECTROCHEMICAL CORROSION ANALYSIS



Electrochemical workstation: Model: Zive Sp1

- Open circuit potential monitoring
- Electrochemical impedance spectroscopy
- Polarization tests (Linear and PDP)

**RATE**  
Rs 400/  
Sample

- Electrochemical impedance spectroscopy with fitting and analysis packages
- Cyclic voltammetry

**RATE**  
Rs 500/  
Sample