

3ME4-22 : MATERIALS TESTING LAB

- 1 (a) Study of various crystals structures through models BCC, FCC, HCP, tetrahedral and octahedral voids. Material identification of, say, 50 common items kept in a box.- <https://youtu.be/BxCnDJSE1ck>
- 2 Specimen preparation for metallographic examination /micro structural examination-cutting, grinding, polishing, etching. -1. <https://youtu.be/UuHofNW40Yw> 2. <https://youtu.be/YpCiPwZINqs>
- 3 Comparative study of microstructures of different given specimens (mild steel, gray C.I., brass, copper etc.) - <https://youtu.be/25kJdIdcoFk>
- 4 Heat treatment experiments such as annealing, normalizing, quenching, case hardening and comparison of hardness before and after. - <https://youtu.be/xPOfrp4BQPA>
- 5 Study of Microstructure and hardness of steel at different rates of cooling. Microstructure examination of white cast iron. - <https://youtu.be/xPOfrp4BQPA>
- 6 To perform Tensile/Compressive/Shear/torsion test on a given material and to determine its various mechanical properties under tensile/compression/Shear/torsional loading-
https://youtu.be/h1tPDTrk1_I 2. <https://youtu.be/wEDumU8dHg0>
- 7 To determine Rockwell/ Vickers/Brinell hardness of a given material - <https://youtu.be/HBeldkXwmII>
- 8 To perform Impact test on a given material and to determine its resilience. -
<https://youtu.be/ultQploYjTU>
- 9 To study and perform Fatigue test on a given material and to determine fatigue strength of the material - <https://youtu.be/ywDsB3umK2Y>
- 10 To perform Bending test and to determine the Young's Modulus of Elasticity via deflection of beam. -
<https://youtu.be/iUhfstf10rk>
- 11 Creep testing on creep testing machine- https://youtu.be/BB_-eMroybM