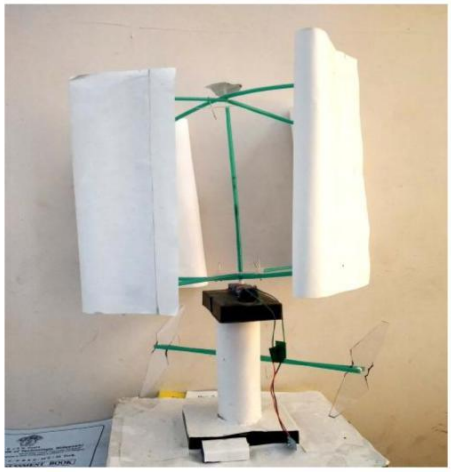
Innovations by the Faculty in Teaching and Learning

S.N.	Details
1	Wind energy conversion models by Prof.B.M.Dodamani and Prof.Jagadeesh A.
2	Perpetual Motion Machine-I teaching model by Prof. B.M.Dodamani and Prof. K.G.Ambli
3	3D Graphics learning models by Prof.D.N.Inamdar, Prof. T.S.Vandali and Prof.G.V.Chiniwalar
4	Elements of Mechanical Engineering course learning charts by Prof.Jagadeesh A and Prof. B.M.Dodamani
5	Oscillating cylinder mechanism and slider crank mechanism learning model by Prof.S.B.Awade
6	Mini relevant project models by Prof.Jagadeesh A.
7	IC Engine Cut sections in the Energy Conversion Laboratory
8	Assembly parts display boards by Prof. G.V.Chiniwalar
9	Couplings models in the Design Laboratory
10	Orifice meter calibration learning model by Prof. Ramesh Nyamagoud
11	Kinematics Animation Learning Models by Prof.M.I.Tanodi
12	Material Science Heat Treatment Charts by Prof.K.G.Ambli
13	Teaching PPTs (Maintained with respective course coordinator)
14	Online learning materials in the Institute website URL: http://hsit.ac.in/E-LEARNING/MECHANICAL%20ENGINEERING/
15	Whats App communication with the help of semester wise/ division wise students groups Information's ➢ Assignment questions ➢ IA Schemes ➢ Notes ➢ Class room slides ➢ Notices ➢ Any other specific information

Photograph of the model: Wind mill model



Prepared by: Prof. B M Dodamani and Prof. Jagadeesh A

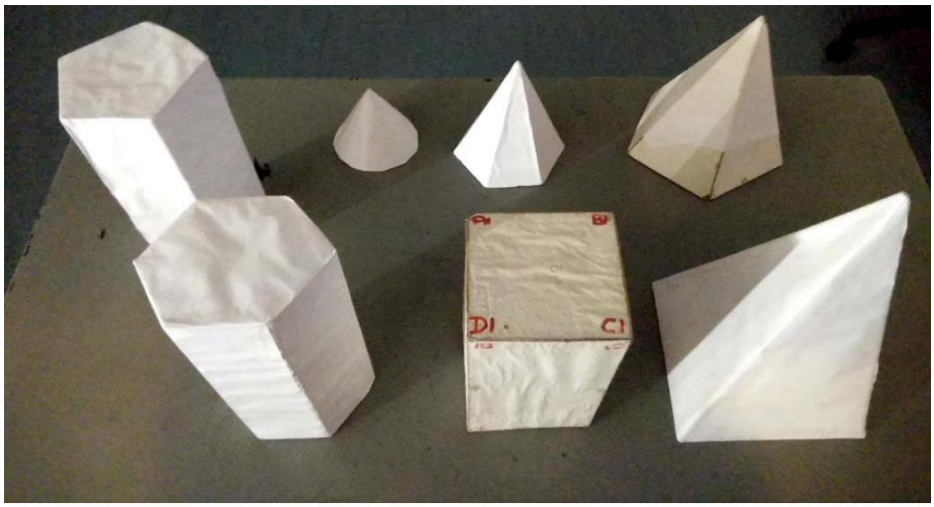
Brief Description of the Model: This wind mill model is used to demonstrate the students how the wind mill works to generate electrical energy. What are the different parts of these wind turbine and different materials used to design the blades, height of wind mill analysis all the different parameters are studied using these models for the students. Although what are the potential wind energy conversion places in Karnataka and in India can also be discussing. This model is relevant to subject Elements of Mechanical Engineering (18ME15)

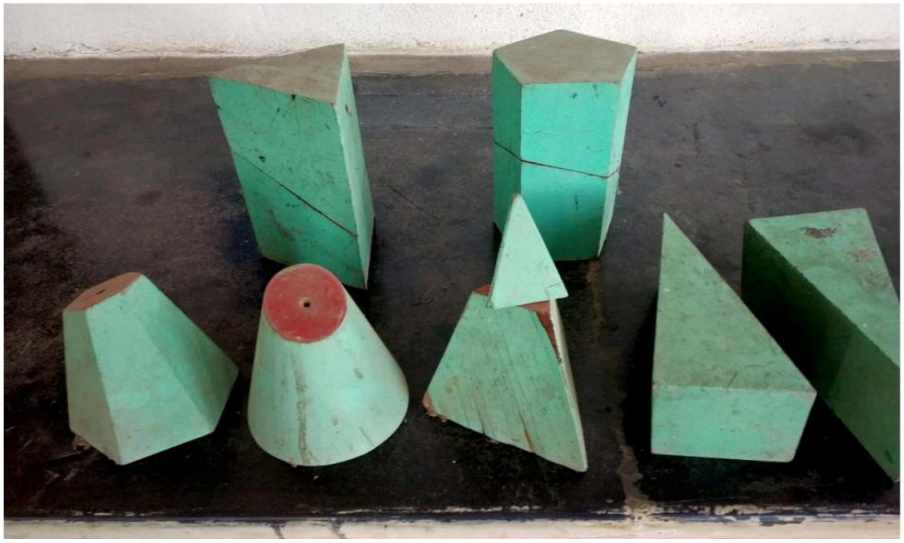
Photograph of the model: Perpetual Motion Machine-I

Prepared by: Prof. K G Ambli

Brief Description of the Model: A perpetual motion machine (PMM) is a hypothetical Machine that can do work indefinitely without an energy source. This kind of machine is impossible, as it would violate the first or second law of thermodynamics. Thus, machines that extract energy from finite sources will not operate indefinitely, because they are driven by the energy stored in the source, which will eventually be exhausted. A common example is devices powered by ocean currents, whose energy is ultimately derived from the Sun, which itself will eventually burn out. This model was prepared to give the concept of PMM-I kind and how it works. As it violates the First and second law of thermodynamics there is no machine which continuously gives output without any input. This model is most relevant in the subject Basic and Applied Thermodynamics

Photograph of the model: 3D Graphics learning models

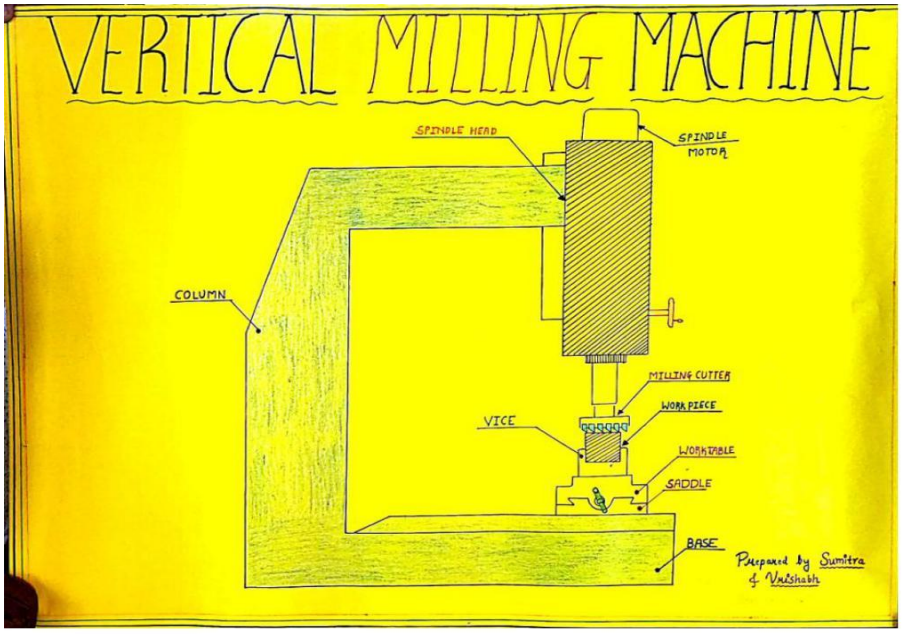


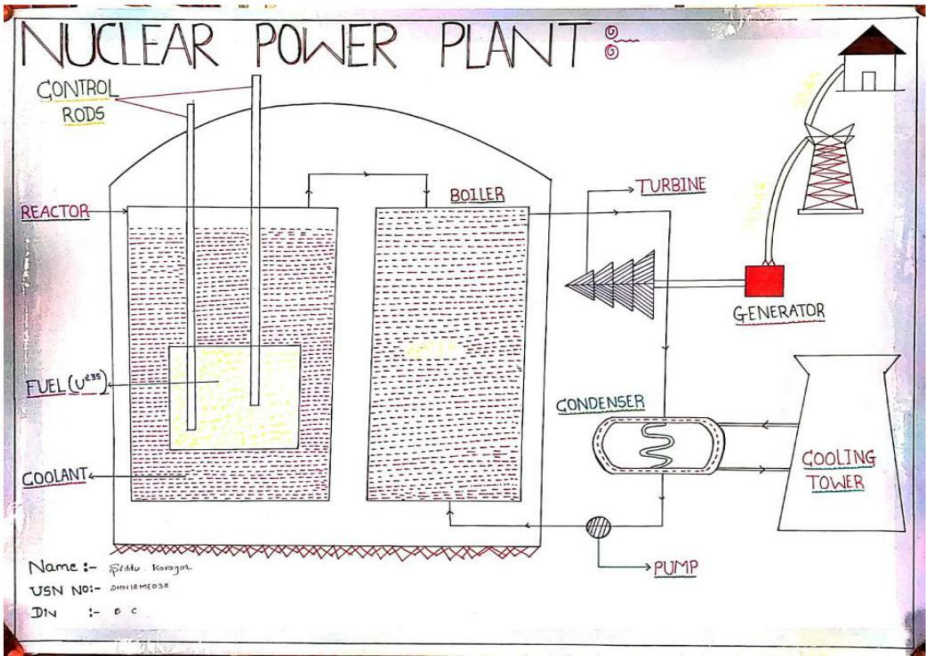


Prepared by: Prof. D N Inamdar, Prof. T S Vandali &Prof. G V Chiniwalar

Brief Description of the Model: These models are used to demonstrate different orientations of solids and their representations in various views. These models are relevant to Engineering Graphics

Photograph of the model: Elements of Mechanical Engineering course learning charts





Prepared by: Students of 1st semester C&D Division

Brief Description of the Model: These charts are used to explain how the Nuclear power plant and Vertical milling machine works for better understanding of students. These charts are relevant to Elements of Mechanical Engineering subject (18ME15)

Photograph of the model: Slider Crank Mechanism

Prepared by: Prof. S B Awade

Brief Description of the Model: This model is single slider crank chain. It consists of one sliding pair and three turning pair .It found in reciprocating steam engine mechanism. This mechanism converts rotary motion in to reciprocating motion.

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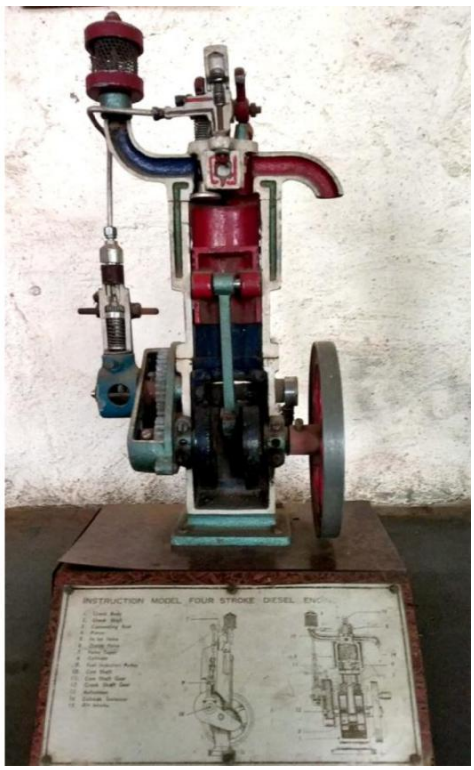
Photograph of the model: "Tree climbing cycle" Project model

Prepared by: Prof. Jagadeesh A

Brief Description of the Model: The Model gives the brief idea about the project, parts and its working. Further it ignites the young minds to do more future improvements in the available model and their by meeting the demand of the needy masses.

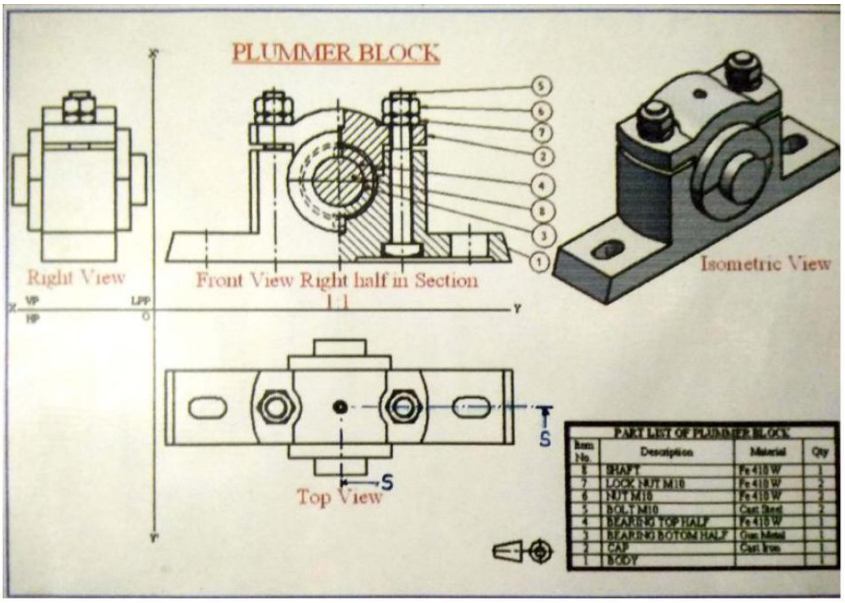
Photograph of the model: Sectional view of 4 stroke Diesel and Petrol Engine model

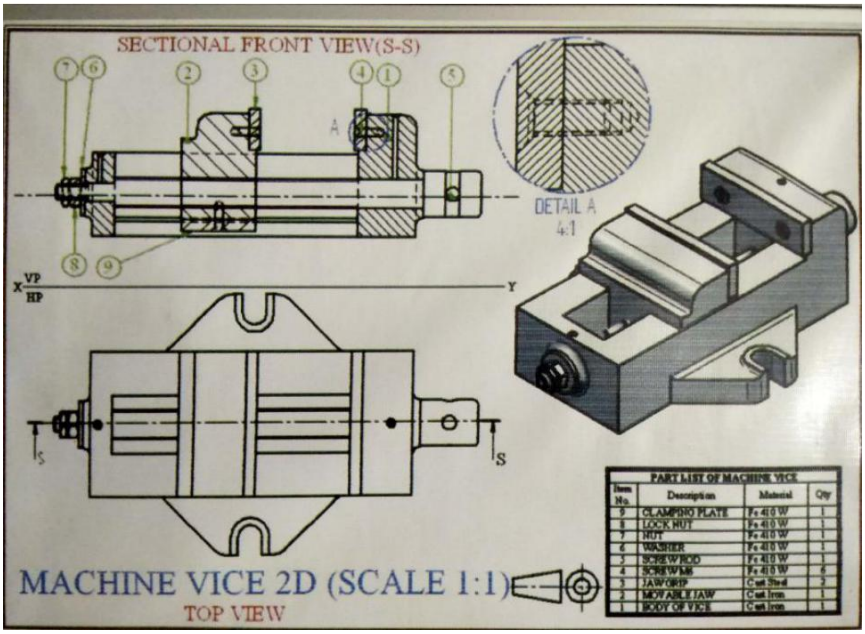


Brief Description of the Model: The sectional view of 4 stroke Diesel and petrol Engine models are used in Energy conversion Engg lab for better understanding of working principle of different strokes. Models are available in Energy conversion Engg Laboratory of Mechanical Engineering department

Available at: Energy Lab

Photograph of the model: Assembly parts display boards





Prepared by: Prof. G V Chiniwalar

Brief Description of the Model: These charts are used to demonstrate different views such as Top view, Side view and front view for better understanding of subjects, these charts shows Different views of Plummer block and Machine vice

Photograph of the model: Coupling & Gyroscope model in Design Lab

Brief Description of the Model: These Coupling and Gyroscope models are used in Design lab which are helpful for students to get better understanding of the concepts. These models are available in Design Lab

Available at: Design Lab

Photograph of the model: Design and Calibration of Orifice meter

Fig.1 Photographic view of orificemeter

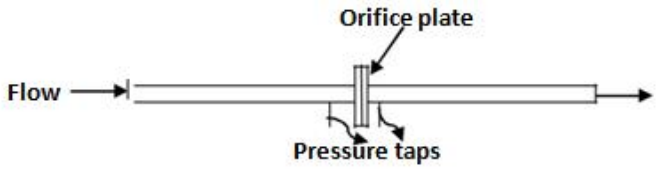


Fig.2 Schematic view of orificemeter

Prepared by: Prof. Ramesh V Nyamagoud

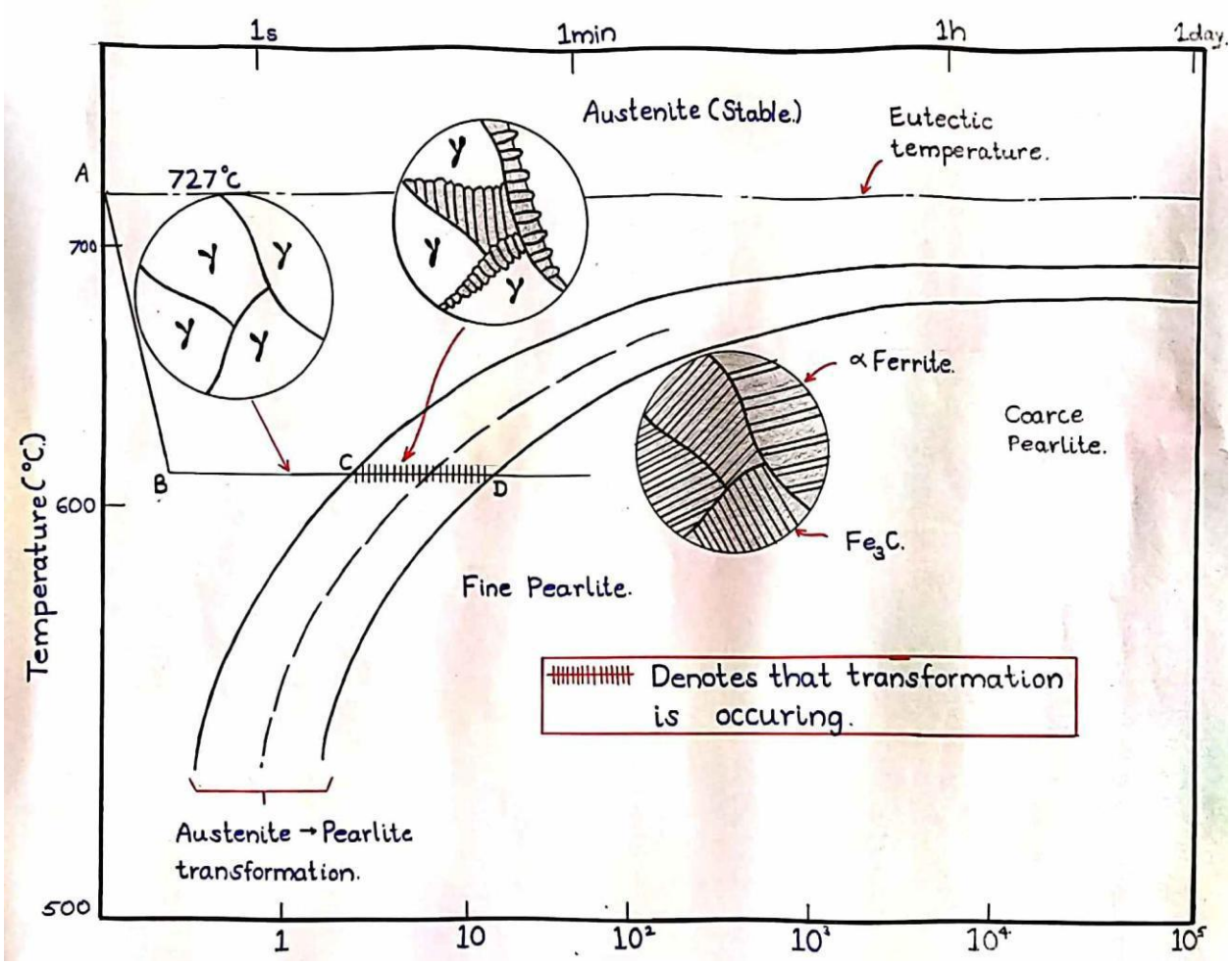
Brief Description of the Model: Orifice is a circular plate made up of GI plate of thickness 0.46mm which has a circular sharp edged hole called orifice with dia 2mm.The orificemeter having inlet diameter of 4.7mm is made with acrylic material The fabricated orificemeter is calibrated with water. In which the inlet of the water from the pipe is connected to the inlet of the orifice pipe of dia 4.7mm with reducer and nozzle, one pressure tap of 8mm distance from the orifice plate is connected to inlet pipe, another pressure tap of 3mm distance from orifice plate is connected to the outlet side. The pressure taps of both inlet and outlet are connected to the simple U-tube mercury manometer. In the inlet side, flow is controlled using a gate valve. With no flow condition it is ensured that there is no deflection in the manometer by removing air bubbles. Then the gate value is opened gradually till the required deflection in the manometer. The stop watch is used to measure the time required to collect the 1000cc of water. This procedure is repeated for different deflection. For every deflection, the collecting time is recorded. By using the data of deflection and time required to collect the 1000cc of water. The actual and theoretical discharges are calculated and C_d is evaluated. The calibration curve for the orifice meter is drawn for coefficient of discharge vs. *Re* which is shown in fig.3 The C_d value for the orificemeter is increasing with *Re*. Repeat the experiment 2-3 times to find out the errors in the reading and take the average values for the calculation.

Photograph of the model: Kinematics Animation Learning Model **(**Seed collecting Model)

Prepared by: Prof. Mahantesh Tanodi

Brief Description of the Model: This Seed collecting Model is used to demonstrate the students how the Kinematic pairs work in order to do a required work or transfer required motion from one link to another. Students can get brief idea about Links, Pairs, Mechanism, Structure, relative motions, Constrained Motions.

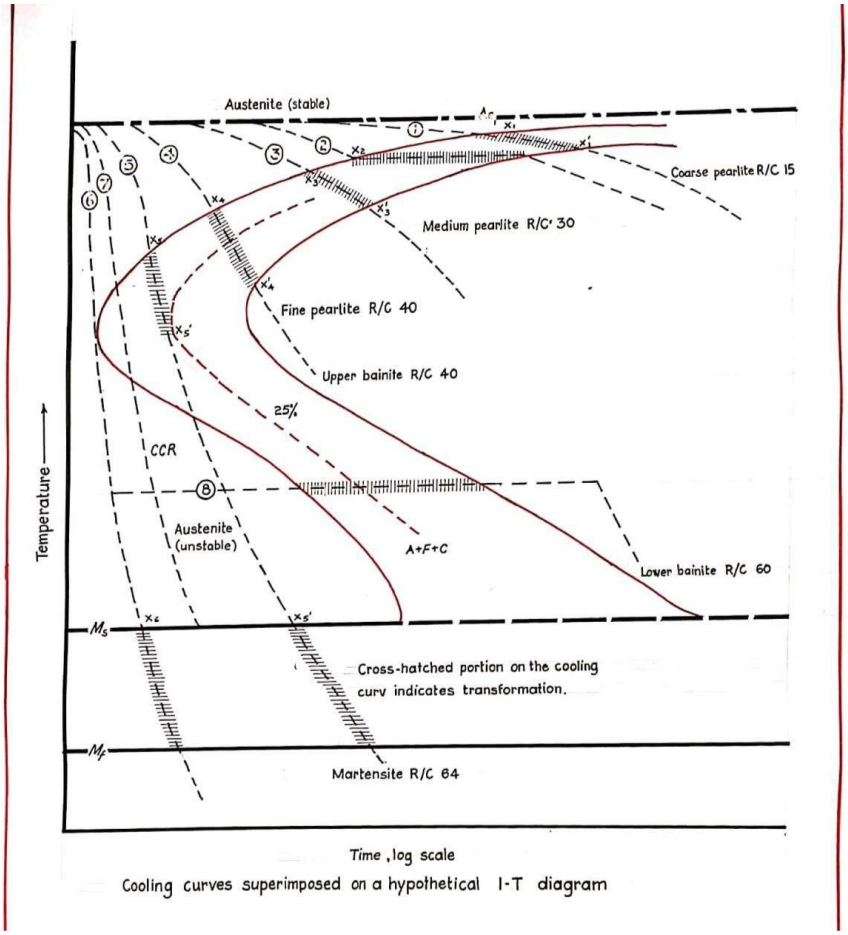
Photograph of the model: TTT diagram.



Prepared by: Prof. K. G. Ambli

Brief Description of the Model: TTT diagram stands for “time-temperature-Transformation” diagram. It is also called isothermal transformation diagram TTT diagrams give the kinetics of isothermal transformations

Photograph of the model: CCT diagram.



Prepared by: Prof. K. G. Ambli

Brief Description of the Model: A continuous cooling transformation (CCT) phase diagram is often used when heat treating steel. These diagrams are used to represent which types of phase changes will occur in a material as it is cooled at different rates. These diagrams are often more useful than time-temperature-transformation diagrams because it is more convenient to cool materials at a certain rate (temperature-variable cooling), than to cool quickly and hold at a certain temperature (isothermal cooling).