

SUBJECT NO-MT41009, SUBJECT NAME- COMPUTER APPLICATIONS IN METALLURGICAL
PROCESSES

LTP- 3-0-0,CRD- 3

SYLLABUS :-

Prerequisite - Nil
Solution of linear, non-linear algebraic equations, ordinary differential equations and related metallurgical problems. Transport phenomena based Modeling: model formulation based on heat, mass and momentum transfer, governing equations and boundary conditions. Numerical solution of differential equations, process related numerical problems. Stress Analysis. Mesoscopic Modeling: CA based modeling, Monte Carlo Simulation, application to metallurgical processes. Classical Molecular Dynamics Modeling and its applications in materials. Optimization and control. Elements of modern artificial intelligence (AI) related techniques. Introduction to Genetic Algorithm and Artificial Neural Nets. Text Books: 1. S. Yip (Ed.): Handbook of Materials Modeling, Springer, 2005. 2. Santosh K. Gupta: Numerical Methods for Engineers, New Age International (P) Limited, New Delhi, 1998.