MSE-485 Metallurgical Plants and Quality Control (3 CH)

Pre-requisites: None

 Course Objectives

1.   This subject will provide students with an introduction to the major theories and model of quality management pertaining to metallurgical plants.

Course Contents

2.   Metallurgical plant location, factors affecting location, plant layout, product and process layout analysis, layout comparisons, types of pollutants and their treatment, overview of environmental impacts of iron and steel making, hot rolling, forging, cold rolling, annealing and tempering, coating and plating plants, Environmental friendly metallurgical plants, occupational health and safety impacts of metallurgical plants. Fundamentals of statistics and analysis techniques, probability distributions, AQL, AOQL, L TPD, attributes sampling, variable sampling, selection of proper sampling plan, Reliability and maintainability. Inspection of different types of materials and products for evaluation of quality reliability of flaw detection by non-destructive inspection, Introduction to standards for testing of materials like ASTM, BS, JIS and ISO, Pakistan Standards, Quality assurance for final products, measures for quality control.

Course Outcome

3.   On successful completion of this subject,
   a. Have the basic understanding for the layout of the metallurgical plant
   b. Basic understand for the site selection and material selection
   c. Apply empirical evidence and evaluate quality management concepts, principle, tools and techniques.
   d. Critically evaluate major theories and models of organizational problems
   e. Ability to Analyze the impact of quality management practices on organizational performance.

Suggested Books:

1. T. Jones, Steel Industry and The Environment: Technical and Management Issues, International Iron and Steel Institute, (2000)
2. Metals Handbook Vol. 17th, Non-destructive Testing and Quality Control, American Society for Metals USA, (2005)

3. M. Nurse, B. Sharon, Metallurgical Plant Makers of The World, Metal Bulletin Books, 4thEdition,(1997)