A First Course in Iron and Steelmaking

The Series in Metallurgy and Materials Science was initiated during the Diamond Jubilee of the Indian Institute of Metals (IIM). In the last decade the progress in the study and development of metallurgy and materials science, their applications, as well as the techniques for processing and characterizing them has been rapid and extensive. With the help of an expert editorial panel of international and national scientists, the series aims to make this information available to a wide spectrum of readers. This book is the fourth textbook in the series.

According to the author, the requirements for a text of this kind are: it should be concise and contemporary, less descriptive, based on fundamentals and sufficiently quantitative. This is because courses on extractive metallurgy, mineral processing, fuels, furnaces and refractories have been dispensed with to accommodate newer subjects related to structure, properties and processing of different kinds of emerging and functional materials such as refractories, polymers and composites. A First Course in Iron and Steelmaking is a textbook catering to undergraduate metallurgical engineering students that fulfils all these criteria. The author's experience is in more than a dozen domestic steel and refractory industries has added flavour and value to the concepts presented in the book.

The distinguishing features of this textbook are:

- It is a comprehensive book featuring the status of the Indian iron and steel industry, the processes followed in extraction, the traditional, contemporary as well as those expected to be followed in the future.
- Each process has been described with their advantages and disadvantages cited.
- Contains a large number of numerical worked examples as well as exercises.
- Exercises are structured to help students in developing their understanding of fundamental concepts through self-study.
- Includes appropriate figures, diagrams and tables close to the point of reference.
- Excellent resource material has been provided in each chapter to assist readers to study the subject in greater detail.

Professor Dipak Mazumdar is internationally recognized in the area of steel education and research. He has been teaching ‘Process modelling’ and ‘Iron and steelmaking’ at the Indian Institute of Technology, Kanpur for nearly three decades. He has written chapters in books, over a hundred papers in peer reviewed journals and contributed three books. He is well known for numerous seminal contributions in the area of ladle metallurgy steelmaking, tundish metallurgy and continuous casting. Professor Mazumdar is a Fellow of the Indian National Academy of Engineering and currently holds the distinguished Ministry of Steel Chair Professorship at IIT Kanpur. In addition, he works as a consultant for more than a dozen steel and refractory industries in the country.