

ASME SECTION II - CLASSIFICATION & SELECTION OF MATERIALS & THEIR USE IN CODE CONSTRUCTION

OBJECTIVE:

This two-day course provides an in-depth review of the materials which are acceptable to the ASME Boiler and Pressure Vessel (B&PV) Code, Sections I, III, IV and VIII and the B31 Piping Codes, B31.1 and B31.3. It will provide an understanding of the approaches to classification, the relationship of the materials to the various construction codes, and how the codes are organized and relate to the material sections of the various codes. It will examine special requirements and limitations, discuss corrosion concerns and their prevention and examine sources of equipment failure and how to avoid them. The practical examples used in the course will help the participants to learn more about the use of the Codes and will allow them to become familiar with the techniques used to gain the necessary information. Because of the need for class participation and interaction with the lecturer, the number of participants in this course will be limited. ****This class will be limited to 20 people****

CONTENTS: A two day course consisting of the following:

- **Classification of Materials:** - Metallic, Non-metallic, Ferrous, Non-ferrous, Wrought and Cast. The terminology used in the descriptions of materials (e.g., heat, lot, terms related to chemical analysis, steel ingots, castings, thermo-mechanical processing, etc) will be discussed. The unified numbering system for alloys will be covered and the participants will be introduced to the "Moen Index" - a book by the lecturer - to assist in understanding and simplifying the classification of materials for ASME Section II.
- **Material Requirements in Various Code Books:** The course will review the scope, acceptable materials and location of materials for the various Code books, e.g. Section I, III, IV, VIII & B31.1 and B31.3
- **Review of Section II and the stress and property tables of B31.1 & B31.3:** The course will review the structure of the four parts of Section II, the material tables of B31.1 and B31.3, and the structure of material specifications using examples to help participants become familiar with and use these documents.
- **Other Aspects:** The course will examine the basis of stress criteria found in Section II and the B31 Codes. It will examine specific statements in Section VIII with respect to various materials, limitations on materials in the B31 Codes, and the impact of environmental effects as discussed in Section III. It will also review the ASME Metals Handbook, discussion and recommendations on corrosion concerns and their prevention, as well as fundamental sources of equipment failure and how to avoid them.

WHO SHOULD ATTEND?

This course is excellent training for persons whose work activity requires them to review the material specifications in Section II and/or the B31 Codes. People involved with the purchase, inspection, approval and control of materials, as well as the use of the material information in design, and those whose jobs require them to review paperwork associated with materials and to apply the various requirements of the Codes and Standards would find this course to be very useful. This is particularly true for people involved in the above work in the nuclear industry. It will enhance their understanding of what is behind the various requirements and enable them to conform more readily to these requirements. The course will be useful to the individuals in the many disciplines that are required to understand and implement Code requirements. These individuals include designers, inspectors, purchasing agents, maintenance and operation personnel.