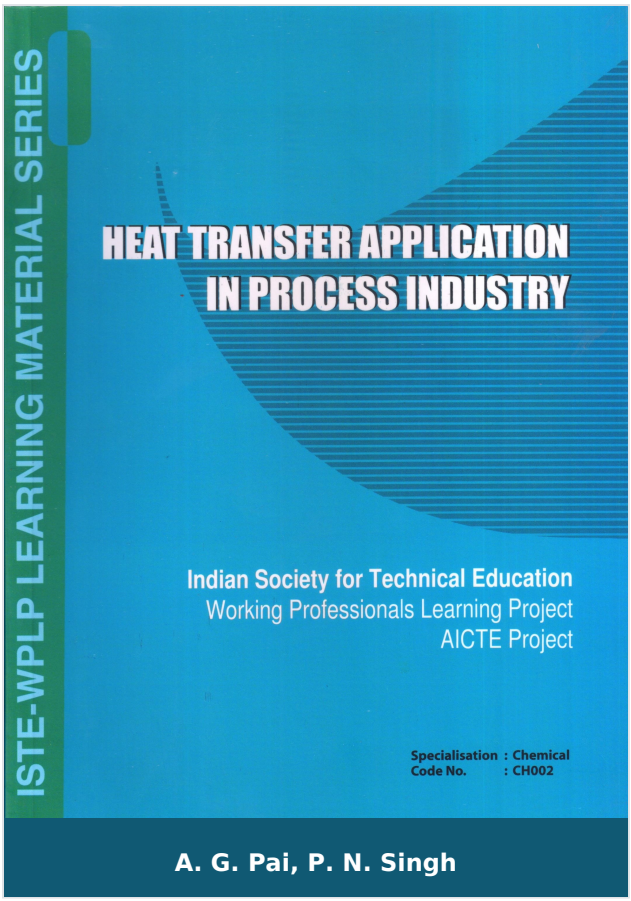


Heat Transfer Application in Process Industry

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Product Description

Heat transmission is very common and familiarly occurs in our daily life, so much that we tend to accept the process for granted and only think of its glaring manifestations and effects. We use our physical intuition to interpret thermal phenomena, and our reactions to hot and cod substances or the environment becomes voluntary. However, when heat transmission is considered from a quantitative point of view, it becomes quite clear that mechanism of heat transfer and their operations in a given system are not so trivial. Though there is evidence of use of fire by cave men about half a million years ago, yet only in relatively recent times the people have understood that heat is a form of energy in transit and that temperature is a measure of that energy present in a body. The importance of intelligent and judicious use of heat energy has been understood only recently when people have realized that source of heat energy such as coal, gas, and oil are not sufficient to sustain the economic development of the modern society.

Energy saved is energy generated. Process industries being leading consumers of heat energy, it is imperative on the part of the Managers of Process industries, to take all possible steps to minimize the wasteful use of this scarce resource. The text is intended to provide a good understanding of the basic concepts of heat transfer and enhance the skills of the operators and engineers running not only process industries using heat transfer equipment. It is targeted towards the working professionals who area diploma holders in engineering and graduates in science/engineering manning process industries. Emphasizing focuses upon, the ability to run heat transfer equipments efficiently, by bringing heat loss to unavoidable level.

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P. N. Singh

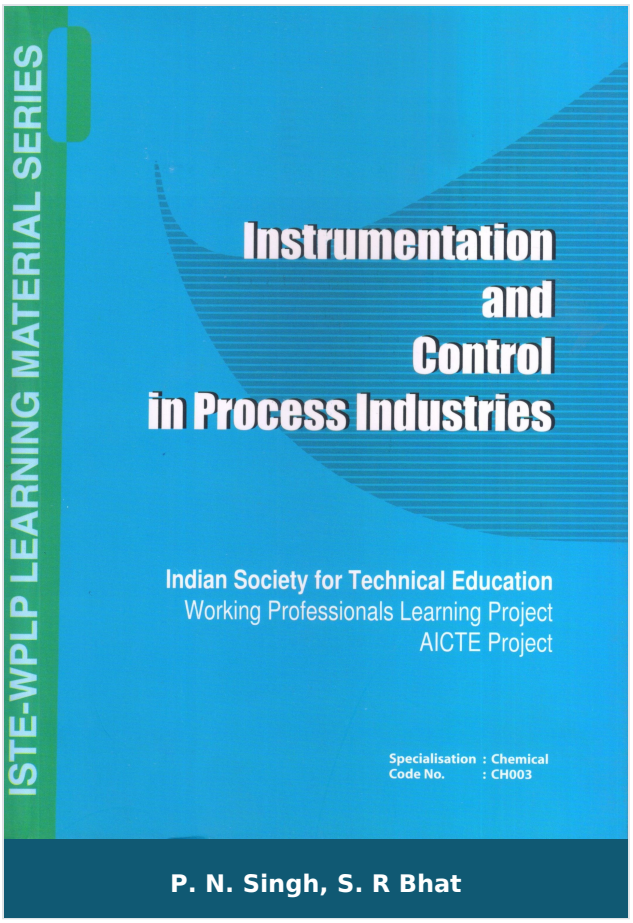
Dr. P. N. Singh is the Director (Retired), National Institute of Technology Karnataka, Surathkal. He is basically a Chemical Engineer and has over decades of experience in teaching and research related to processes industries. The coauthor, Mr. S. R. Bhat, is presently working as Group General Manager (Instrumentation) at Mangalore Refinery and Petrochemicals Limited, Mangalore. He graduate in Chemical Engineering from Indian Institute of Technology, Chennai. Atomic Research centre, for seven years. Later he worked for Humphreys and Glasgow Consultants, for three years. He ha also worked for Uhde India Limited, for seven years. For the last sixteen years, he has been working for Mangalore Refinery and Petrochemicals in various capacities. He has introduced many

innovative ideas in running the process plants, particularly in the areas of instrumentation and control.

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Instrumentation And Control in Process Industries

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Product Description

Many case studies related to instruments and controllers in operating plants are covered. Chapter-1 covers the basic principle of control, various technical terms used in control, classification of control system, rudimentary knowledge on pneumatic, hydraulic and electronic controllers.

It is expected that by the end of covering these topics, people will be well familiar with technical jargons used by control engineers, why should there be automation, why process industries keep on investing very substantial amount to the extent of 20 to 30% of their plant outlay on instrumentation and control. Chapter 2- present a brief description of various types of instruments used in various industries.

Chapter-3 lays emphasis on dynamic behavior of process measuring instruments and other peripherals, response of open loop and closed loop systems, stability, controller tuning, estimation of transfer functions and system parameters in operational plants, determining optimum controller setting for best operation of plants and few case studies. Chapter 4- covers the scheme of operations and strategies to be followed while introducing controllers in plants.

It is expected that by the end of covering these topics, operating personnel will know theoretical basis of many operations on controllers that are being carried in plants, how some emergency measures are to be taken when the behavior of plant operations are not satisfactory.

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