

1. Record Nr.	UNINA9910153209003321
Autore	Blair Thomas H.
Titolo	Energy production systems engineering // Thomas H. Blair
Pubbl/distr/stampa	[Hoboken, New Jersey] : , : John Wiley & Sons, , 2017 [Piscataway, New Jersey] : , : IEEE Xplore, , [2017]
ISBN	1-119-23803-X 1-119-23802-1 1-119-23804-8
Descrizione fisica	1 online resource (835 pages) : illustrations, charts, tables
Collana	IEEE press series on power engineering IEEE series on power engineering
Disciplina	620.001171
Soggetti	Systems engineering Force and energy Power (Mechanics) Power resources
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Electrical Safety -- Basic Thermal Cycles -- Boilers and Steam Generators -- Fossil Fuels and The Basic Combustion Process -- Hydraulic Turbines -- Nuclear Power -- Conveyors -- FANS -- Pumps -- Condenser Cooling System -- Steam Turbines -- Gas Turbines -- Reciprocating Engines -- Electrical System -- Transformers and Reactors -- Generators -- Motors -- Variable Frequency Drive Systems -- Switchgear -- Battery/Vital Bus Systems -- Ground System -- Electrical System Protection and Coordination -- Control Systems -- Instruments and Meters -- Valves and Actuators -- Emission Control Systems -- Water Treatment -- Solar and Wind Energy -- Annexes.
Sommario/riassunto	Energy Production Systems Engineering presents IEEE, Electrical Apparatus Service Association (EASA), and International Electrotechnical Commission (IEC) standards of engineering systems and equipment in utility electric generation stations. Electrical engineers that practice in the energy industry must understand the specific characteristics of electrical and mechanical equipment commonly applied to energy

production and conversion processes, including the mechanical and chemical processes involved, in order to design, operate and maintain electrical systems that support and enable these processes. To aid this understanding, Energy Production Systems Engineering describes the equipment and systems found in various types of utility electric generation stations. This information is accompanied by examples and practice problems. It also addresses common issues of electrical safety that arise in electric generation stations. . Introduces fundamental safety requirements from NFPA70 (National Electrical Code), NFPA70E (Electrical Safety in the Workplace), and IEEE C2 (National Electrical Safety Code) . Provides methods for measuring radioactivity and exposure limits. Includes IEEE, American Petroleum Institute (API), and National Electrical Manufacturers Association (NEMA) standards for motor applications. Introduces the IEEE C37 series of standards, which describe the proper selections and applications of switchgear. Describes how to use IEEE 80 to calculate the touch and step potential of a ground grid design. Shows how to perform cable pulling tension calculations . Explains fundamental thermodynamic calculations utilized for heat balance in steam plants. Introduces renewable technologies such as wind and solar power There are several different types of energy production systems or electric power systems, which supply, transmit, and use power in different ways. Each system utilizes different equipment and has its own set of standards to follow in order for the system to be operated safely and reliably. This book enables engineers and students to acquire through study the pragmatic knowledge and skills in the field that could take years to acquire through experience alone.
