

Titolo del Corso: Metodologie di analisi e ottimizzazione energetica

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Settore scientifico disciplinare: ING-IND/09 Sistemi per l'energia e l'ambiente

Dipartimento di afferenza: Dipartimento di Ingegneria Meccanica, Chimica e dei Materiali

Programma:

	frontal lesson	practice exercise
Thermodynamics – review of the fundamentals Basic concepts, First Law, Mass and Energy balance for a system and a control region, Second Law, Reversibility and Irreversibility, Entropy production	3	
Exergy Analysis Classification of forms of energy, the concept of exergy, System-Environment equilibrium, Exergy associated with work, heat transfer and stream of matter, Exergy balance of a closed system and a control region, chemical exergy. Application to a cogeneration plant	4	5
Thermoeconomic analysis and evaluation Fundamentals of thermoeconomics, exergy costing, aggregation level for applying exergy costing, cost rates and auxiliary relations, fuel and product average costs, costing of exergy loss and irreversibility, Relative cost difference and exergo-economic factor. Application to a cogeneration plant	4	4

Modalità didattica: Lezioni frontali ed esercitazioni

Ore: 20

Modalità d'esame: Discussione di un elaborato progettuale