Abstracts of Books and Reviews (2004)

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Introduction of probability and statistics, Yoshihiko Nomura: Corona Publishing Co. LTD. 2004

Fundamental issues on probabilities and statistics are described. It starts from explaining such fundamental concepts as permutations and combinations, conditional probability, Bayes' theorem, mean, and variance. Then, it introduces some fundamental probability distributions such as the Binomial distribution, the Poisson distribution, the normal distribution, the chi-square distribution, Student's t distribution, the Fisher's F distribution. Based on these probabilistic subjects, some important statistical subjects are described such as the unbiased estimation, the interval estimation, the tests of hypotheses, and the curve fitting and correlation. As for the test, there are described procedures of testing such statistical values as the population mean, the difference of means, the ratios of variances, and the analysis of variance including one factor and two factor experiments.

Problems in Control Engineering, Norihiko Kato: Japan Society of Mechanical Engineers, pp.63-92 and 119-130, June, 2004

This book is written for the exercise of the control engineering. In chapter 8, the state space representation of dynamic system is introduced. The solution of state equation, the relation to the transfer function and the connection of the systems are described. In chapter 9, coordinate transformation and the meaning are explained. Because the representation of the system is not unique, we can transform the system to analyze easily. In chapter 10, to design control system, controllability and observability are introduced and the examine methods of them are shown. Structure of the system is discussed and the canonical decomposition is described. As appendix, the formulae of the linear algebra and the ordinary differential equation are summarized.

Jet Flow Engineering - Fundamentals and Application –, Toshihiko SHAKOUCHI: Morikita Shuppan Co., 2004.

This book shows the fundamentals of jet flow, for example, flow characteristics and flow structure of various kinds of jet flows and the practical industrial applications. The contents are as follows.

Ⅰ. Fundamentals of Jet Flow Engineering

1.Fluid Dynamics of Jet Flow 2.Computational Fluid Dynamics for Jet Flow 3.Free and Wall Jet Flows 4.Attached Jet Flow 5.Impinging Jet Flow 6.Stability of Jet Flow and Oscillatory Phenomena 7.Mixing and Diffusion of Jet Flow and Their Control

Ⅱ. Application of Jet Flow Engineering

8. Application of Impinging Jet Flow 9.Application of Mixing and Diffusion of Jet Flow 10.High Speed Liquid Jet Flow 11.Multiphase Jet Flow, Buoyant and Plume Jet Flows, and Gas-Liquid Two-Phase Jet Flow 12.Multiphase Jet Flow, Gas-Solid Two-Phase Jet Flow