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Nota di contenuto	1. Part I Dynamics of Structures. Introduction -- 2. SDOF Systems -- 3. Methods of Solution of the Equation of Motion -- 4. MDOF Systems -- 5. Energy Dissipation -- 6. Damping on Structures -- 7. Distributed Mass and Elasticity Systems -- 8. Generalized SDOF Systems -- 9. Part II Introduction to Earthquake Engineering. Seismology and Earthquakes -- 10. Major Seismic Events that Occurred in Italy and in the World -- 11. Seismic Hazard Analysis -- 12. Earthquake Prediction -- 13. Seismic Input -- 14. Opensignal -- 15. Methods of Analysis -- 16. Part III Seismic Design of Buildings. Brief Introduction to SAP2000 -- 17. Modeling of Structures in Seismic Zone -- 18. Seismic Modelling of Infill Walls -- 19. Capacity Design -- 20. Passive Energy Dissipating

Systems -- 21. Tuned-Mass Dampers -- 22. Base Isolation -- 23. Masonry Structures -- 24. Fundamentals of Probability and Statistics -- 25. Glossary.

Sommario/riassunto

This work is an elementary but comprehensive textbook which provides the latest updates in the fields of Earthquake Engineering, Dynamics of Structures, Seismology and Seismic Design, introducing relevant new topics to the fields such as the Neodeterministic method. Its main purpose is to illustrate the application of energy methods and the analysis in the frequency domain with the corresponding visualization in the Gauss-Argant plan. However, emphasis is also given to the applications of numerical methods for the solution of the equation of motion and to the ground motion selection to be used in time history analysis of structures. As supplementary materials, this book provides “OPENSIGNAL", a rare and unique software for ground motion selection and processing that can be used by professionals to select the correct earthquake records that would run in the nonlinear analysis. The book contains clear illustrations and figures to describe the subject in an intuitive way. It uses simple language and terminology and the math is limited only to cases where it is essential to understand the physical meaning of the system. Therefore, it is suitable also for those readers who approach these subjects for the first time and who only have a basic understanding of mathematics (linear algebra) and static analysis of structures.