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Nota di contenuto	1 Initial Attempts on CAD/CAE Integration -- 2 Elements of Arroximation and Computational Geometry -- 3 Coons Interpolation as a Vehicle to Derive Isoparametric Elements -- 4 Gordon’s Transfinite Macroelements -- 5 Barnhill Interpolation and Relevant Isoparametric Elements -- 6 Bezier Interpolation and Relevant Isoparametric Elements -- 7: B-Splines Interpolation and Relevant Isoparametric Elements -- 8 Rational B-Spline (Nurbs-Based) Macroelements -- 9 Plate Bending Macroelements -- 10: Three-dimensional macroelements -- 11 Global Collocation Using Macroelements -- 12 Global Boundary Elements Using Macroelements -- 13 Mortality Issues -- 14 Global Review-Epilogue -- Appendix A: Green’s Theorem -- Appendix B: Numerical Integration -- Appendix C: Chebyshev Polynomials.

Sommario/riassunto

This self-contained book addresses the three most popular computational methods in CAE (finite elements, boundary elements, collocation methods) in a unified way, bridging the gap between CAD and CAE. It includes applications to a broad spectrum of engineering (benchmark) application problems, such as elasto-statics/dynamics and potential problems (thermal, acoustics, electrostatics). It also provides a large number of test cases, with full documentation of original sources, making it a valuable resource for any student or researcher in FEA-related areas. The book, which assumes readers have a basic knowledge of FEA, can be used as additional reading for engineering courses as well as for other interdepartmental MSc courses.