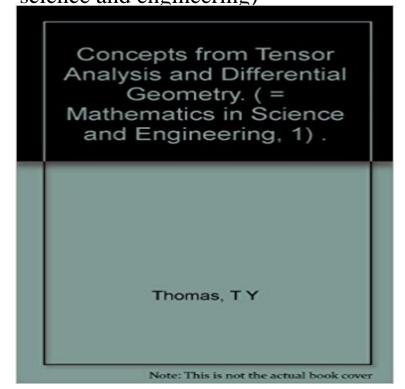
Concepts from tensor analysis and differential geometry (Mathematics in science and engineering)



Concepts from Tensor Analysis and Differential Geometry discusses coordinate manifolds, scalars, vectors, and tensors. The book explains some interesting formal properties of a skew-symmetric tensor and the curl of a vector in a coordinate manifold of three dimensions. It also explains Riemann spaces, affinely connected spaces, normal coordinates, and the general theory of extension. The book explores differential invariants. transformation groups, Euclidean metric space, and the Frenet formulae. The text describes curves in space, surfaces in space, mixed surfaces, space tensors, including the formulae of Gaus and Weingarten. It presents the equations of two scalars K and Q which can be defined over a regular surface S in a three dimensional Riemannian space R. In the equation, the scalar K, which is an intrinsic differential invariant of the surface S, is known as the total or Gaussian curvature and the scalar U is the mean curvature of the surface. The book also tackles families of parallel surfaces, developable surfaces, asymptotic lines, and orthogonal ennuples. The text is intended for a one-semester course for graduate students of pure mathematics, of applied mathematics covering subjects such as the theory of relativity, fluid mechanics, elasticity, and plasticity theory.

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