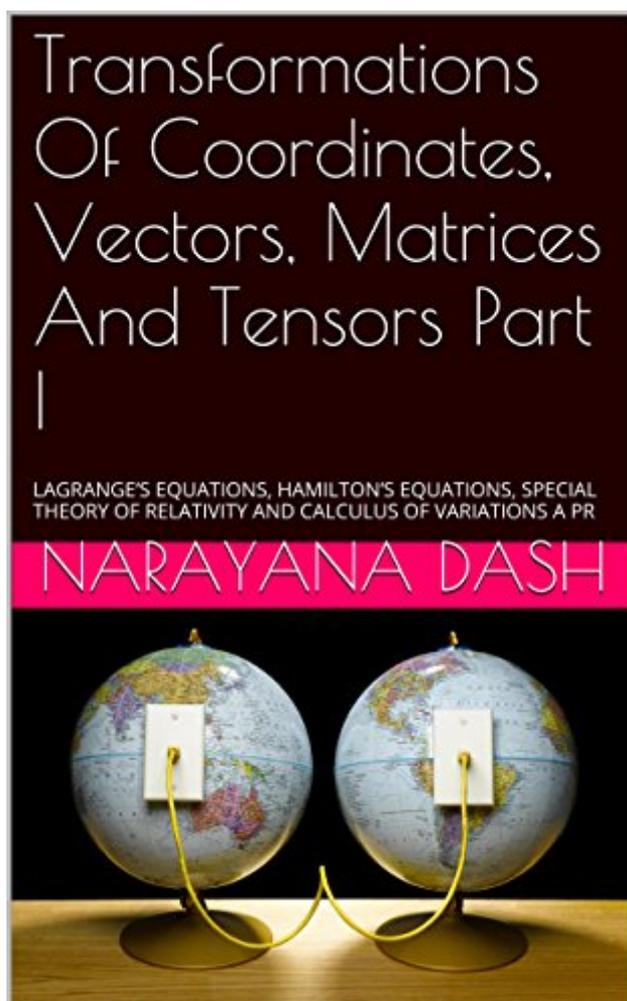## The book was found

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Transformations Of Coordinates, Vectors, Matrices And Tensors Part I

LAGRANGE'S EQUATIONS, HAMILTON'S EQUATIONS, SPECIAL THEORY OF RELATIVITY AND CALCULUS OF VARIATIONS A PR

NARAYANA DASH

Synopsis

The book contains fundamentals of transformations of coordinates, introduces different orthogonal coordinate systems and their transformations. Transformations of coordinates are fundamental to the understanding of vectors, tensors, coordinate geometry, mechanics, electromagnetics, quantum mechanics and theory of relativity. An interesting example from conic sections is included..Most of the problems are either solved or with suggestions sufficient for self study. The book is with an intention to build confidence in the student along with laying ground work.This book is planned to branch away to different directions, one, tensors and another , mechanics, which shall include Maxwellâ ™s equations in electrodynamics and equations of special and general relativity and some equations of quantum mechanics. Still in another direction it would lead to calculus of variation and differential equations in Mathematics. Variational techniques are demonstrated in generalized coordinates to derive Eulerâ ™s equations, Lagrangeâ ™s equation, Hamiltonâ ™s equations, which are applied to various branches of Physics such as mechanics, electromagnetism, optics, wave physics, quantum mechanics and relativity. The book Matrices and Determinants and the book Vector Spaces and Linear Spaces by the same author are appended for a complete preparatory for quantum mechanics.The next volume is planned to include transformations of vectors, matrices, dyadic and tensors , scattering, spherical and cylindrical harmonics, elliptic integrals, virial theorem, Cayley- Klein Parameters, Coriolis force,Lagrangeâ ™s and Poissonâ ™s brackets, action angle variables, Hamilton â " Jacobi theory for a preparatory course for study of special theory of relativity and general theory of relativity, field theory and classical and quantum mechanics launched from the same platform of mathematics.Mistakes in the book, and viewing problems may be mailed to the author at nyn_3@rediffmail.com and shall be received with gratitude. Suggestions for improvement are also most cordially invited. The author is completely at your disposal for any help in understanding the theory or any of the problems for free; but a weekâ ™s time is required for response. The book has been verified with a good preview with e-ink paper-white. Please report any viewing problems at once.Sincerely,narayanadash, 08-12-2014

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