

Micro credit course on
GENERALIZED AND QUADRATIC EIGENVALUE PROBLEMS
Department of Mathematics
IIT Kharagpur

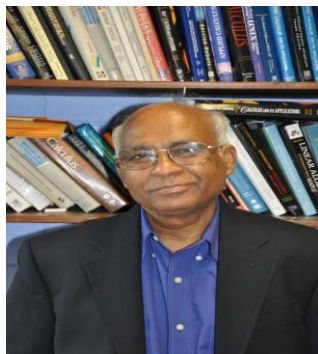
Speaker: Prof. Biswa Nath Datta, IEEE Fellow, Northern Illinois University, USA

Date	Time	Venue
14/02/2017	4:00 – 6:00 pm	BR Seth Seminar Hall Department of Mathematics
15/02/2017	4:00 – 6:00 pm	BR Seth Seminar Hall Department of Mathematics
16/02/2017	4:00 – 6:00 pm	BR Seth Seminar Hall Department of Mathematics
21/02/2017	4:00 – 6:00 pm	BR Seth Seminar Hall Department of Mathematics
22/02/2017	4:00 – 6:00 pm	BR Seth Seminar Hall Department of Mathematics
23/02/2017	4:00 – 6:00 pm	BR Seth Seminar Hall Department of Mathematics

Last date of registration (through ERP): February 10, 2017

Objective: Generalized and quadratic eigenvalue problems are of paramount interest to engineers and scientists due to its applications in many areas of science and engineering, in particular, systems and control. In this course the main objective is to address efficient numerical methods for solving such problems. The accuracy, stability and scalability of these numerical algorithms will be discussed. Finally some open problems in this area will also be emphasized.

Content of the course: Definition and applications of generalized eigenvalue problems, Eigenvalue and eigenvector structure and regularity of generalized eigenvalue problem, QZ algorithm, Symmetric positive definite generalized eigenvalue problem, Applications to problems arising in vibrations of structures and decoupling and model reduction. Introduction to quadratic eigenvalue problems and its applications, Linearization techniques for quadratic matrix polynomials, Sensitivity and backward error analysis for identifying optimal linearization.



Bio of the Speaker

Prof. Biswa Nath Datta is a Distinguished Research Professor in Northern Illinois University, USA. He is also a Fellow of IEEE and recipient of Fulbright-Nehru Distinguished Chair Award. He has held several visiting positions in many prestigious universities around the world including University of California San Diego, Universite' du Littoral, Calais, University of Athens, University of Adelaide, Federal University of Rio de Janeiro, Hong Kong Polytechnic University, National University of Singapore, University of Bielefeld, IIT Bombay, IISc Bangalore, IIT Kharagpur to name a few. He is well known for his pioneering contributions in the area of vibration and control. He has authored many research papers with great impact and two books in the area of Numerical Linear Algebra and Control Theory.