ST. XAVIER'S COLLEGE, MAPUSA GOA

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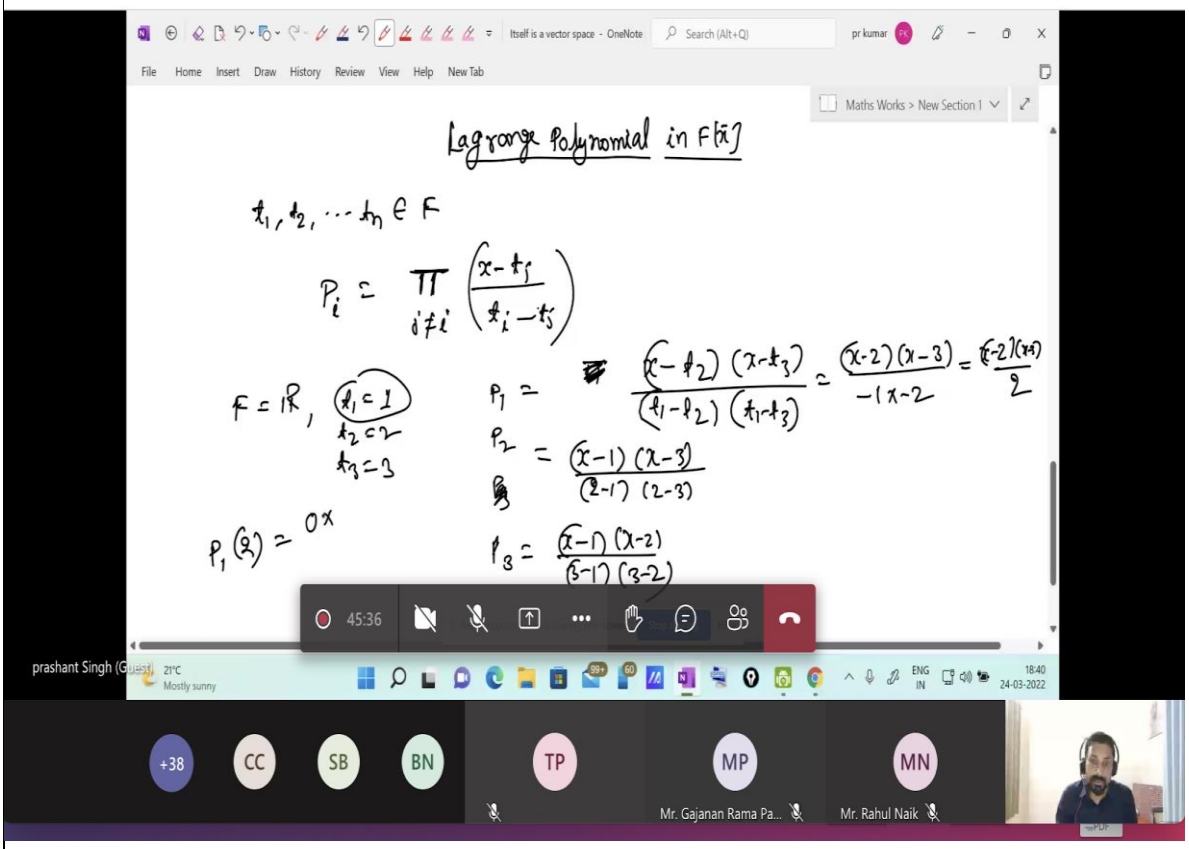
Awarded DBT STAR College Scheme

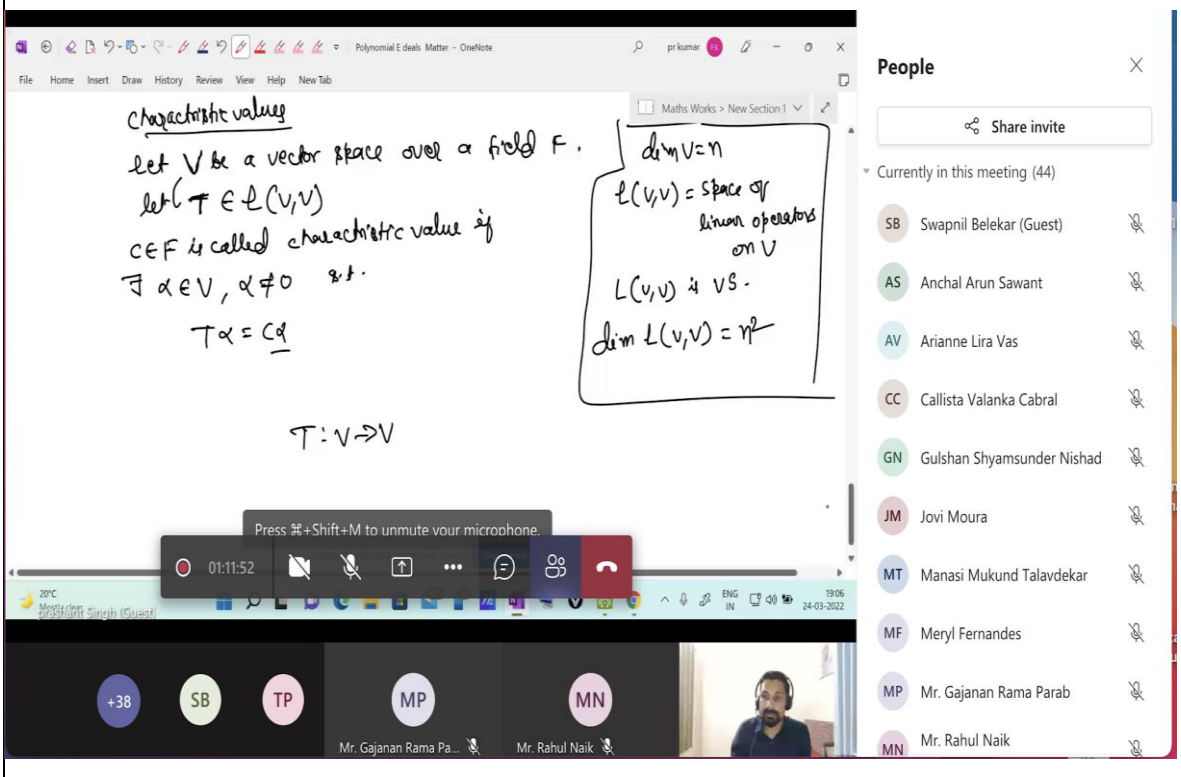
Nature of Event (Workshop, Guest Lecture, Add-on Course, Seminar, etc.)	Summer school
Name of Department	Mathematics
Faculty In-Charge	Mr. Rahul Naik
Stratum of Event (College, State, Regional, National)	State
Title of Event	Summer school on Linear Algebra
Date of Event	24 March 2022 to 26 March 2022
Venue	Online
Resource Person details	Mr. Prashant Kumar Singh Tata Institute of fundamental Research, Bangalore, Karnataka.
Objective/ Scope of Event	The objective of this program was to review and learn some advanced linear algebra concepts which would help participants in answering the entrance and other competitive examinations related to mathematics.
Particulars of Event	The Department of Mathematics, St. Xavier's College, Mapusa-Goa organized Summer School in Mathematics on the topic "Linear Algebra- Diagonalization of Matrices". The session started with recalling the basic concept of linear algebra namely vector spaces by the resource person. He then introduced the notion of Algebra over a field F, followed by showing the relation between Lagrange's polynomial and Kronecker delta function. He also introduced the notion of polynomial ideals. Sir then explained the concepts of elementary canonical form of a matrix, matrix representation of linear transformation, diagonalizable operator, similar matrices and algebraically closed field. The second session started with introduction of Independent subspaces by the resource person, followed by proving some important results. Concepts such as Invariant subspaces, Introduced linear operators and their matrix representations, Block matrices were beautifully explained following the proof of related theorems. In the third session the resource person started with proving results on diagonalizable operator. Sir discussed the concepts of Annihilating polynomials space, minimal polynomial and some very important results on similar matrices, characteristic and minimal polynomials and diagonalizable operator. At last he

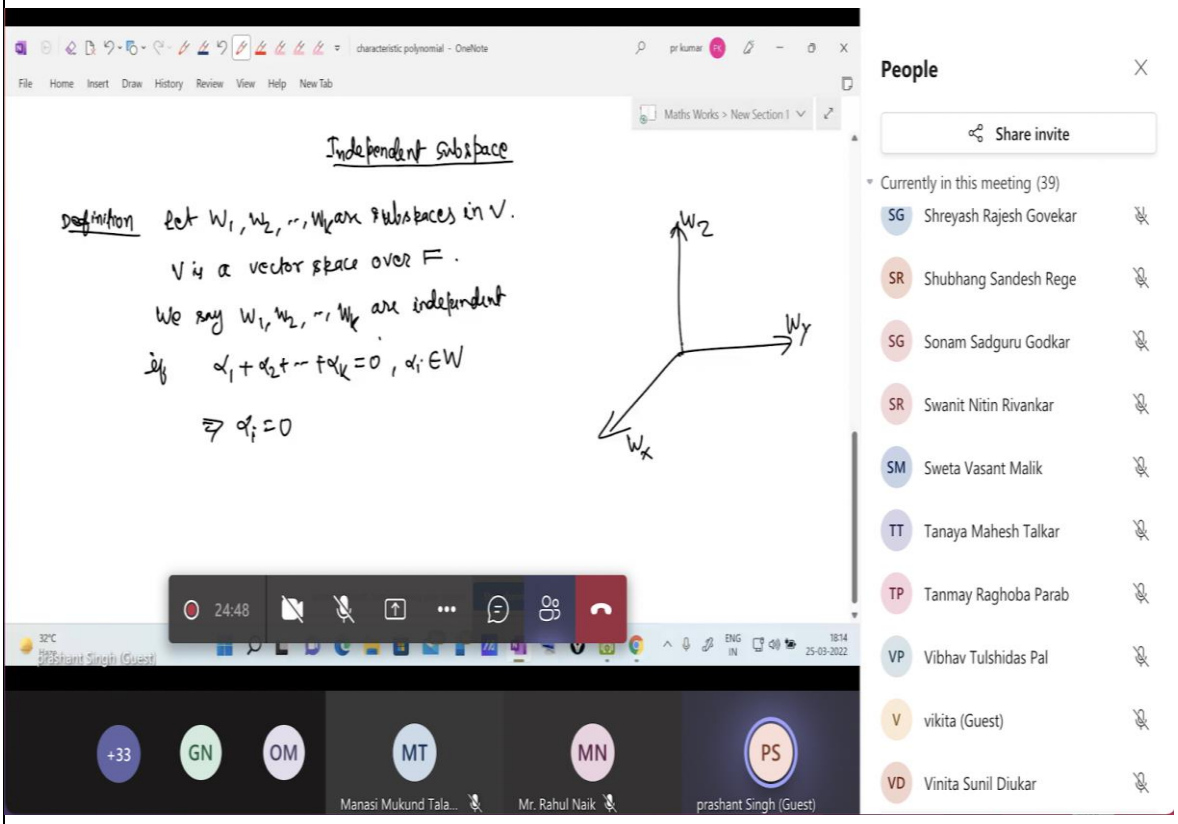
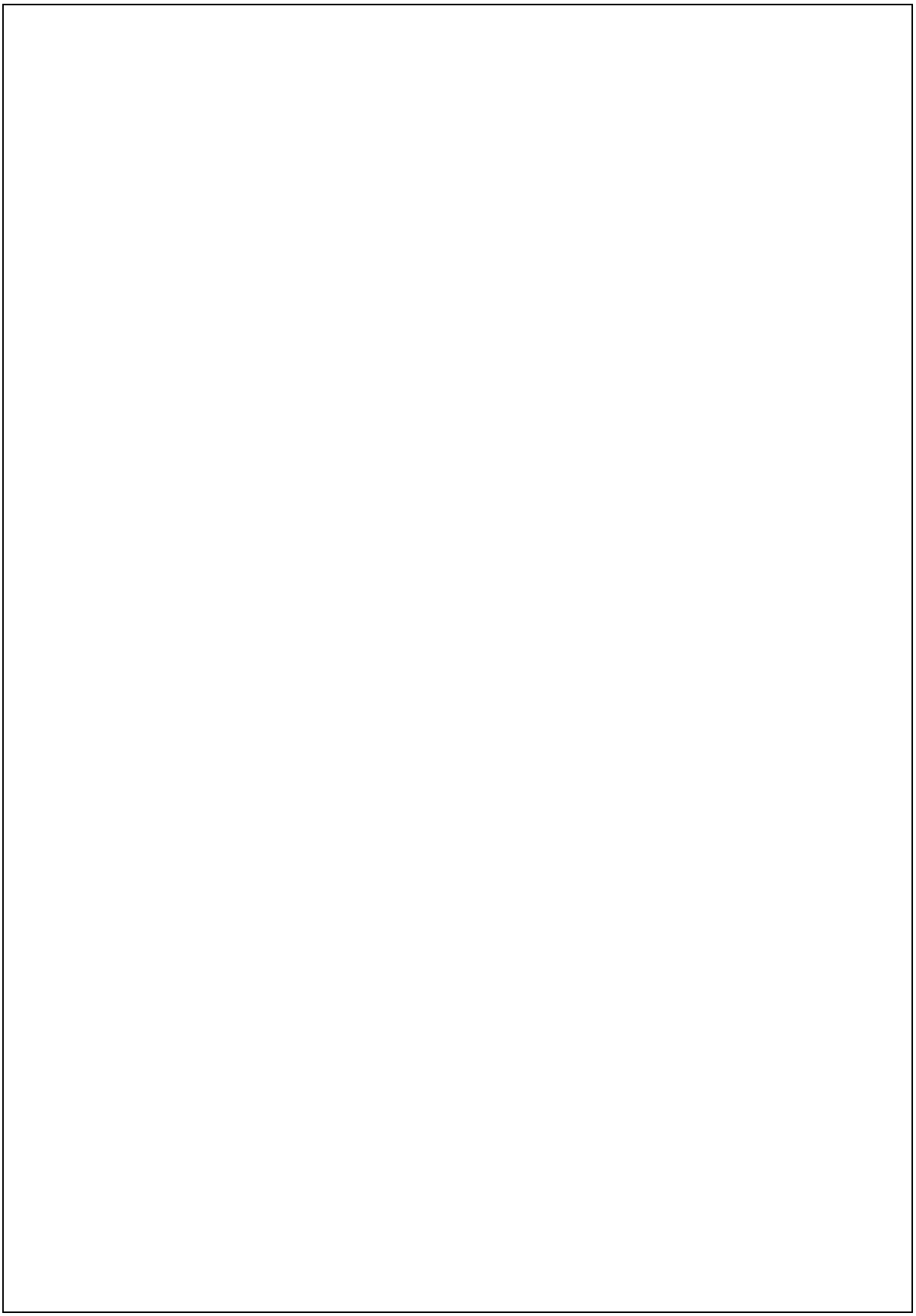
	introduced the notion of conductor of an element in vector subspace and proved that it is an ideal in F[x]. Using the notion of conductor, one can easily obtain results on simultaneous triangularization and diagonalization of classes of matrices.
Outcome of Event	Students will be able to find characteristic polynomial and minimal polynomial of a matrix , find eigen values and eigen vectors of a matrix, Perform diagonalization of matrices, Explain the significance of diagonalization of matrices, check if the linear operator is diagonalizable or not, find determinant of block triangular matrices and prove that similar matrices have same minimal polynomial.
Feedback	Participants appreciated the Lecture and it was very refreshing.

Total No. of Participants	33

Photographs






characteristic polynomial - OneNote
Maths Works > New Section 1
Independent subspace
Definition Let $W_1, W_2, \cdots, W_k$ are subspaces in V.
V is a vector space over F.
We say $W_1, W_2, \cdots, W_k$ are independent
if $\alpha_1 + \alpha_2 + \cdots + \alpha_k = 0$, $\alpha_i \in W$
$\Rightarrow \alpha_i = 0$
W_2
W_1
W_3
24:48
People
Share invite
Currently in this meeting (39)
Shreyash Rajesh Govekar
Shubhang Sandesh Rege
Sonam Sadguru Godkar
Swanit Nitin Rivankar
Sweta Vasant Malik
Tanaya Mahesh Talkar
Tanmay Raghoba Parab
Vibhav Tulshidas Pal
vikita (Guest)
Vinita Sunil Diukar
+33
Manasi Mukund Tala...
Mr. Rahul Naik
prashant Singh (Guest)

prashant Singh (Guest)
Mr. Rahul Naik
Swapnil Belekar (Guest)
Rohan Daivajna
Zen Lobo
Balakrishnan Nair
Mr. Gajanan Rama Parab
Shambhavi Avinash Manerikar
Sonam Sadguru Godkar
Omkar Daji Chavan
Mute
02:22:46
Balakrishnan Nair (G...
Mr. Rahul Naik
prashant Singh (Guest)