



**Department of Mathematics
Bharathiar University
Coimbatore - 641 046**

DST-PURSE PHASE-II Sponsored

WEBINAR ON

ALGEBRA AND ANALYSIS

24th to 27th November 2020

Google meet link: <http://meet.google.com/dbv-gxeu-uqu>

24th November 2020

Dr. M. Marudai

Former Professor

Bharathidasan University

11.15 AM to 12.45 PM

Lecture 1

Basic Topology

3.15 PM to 4.45 PM

Lecture 2

Basic Topology

25th November 2020

Dr. G.P. Youvaraj

Former Director

Ramanujam Institute, University of Madras

11.15 AM to 12.45 PM

Lecture 3

Uniform Convergence

3.15 PM to 4.45 PM

Lecture 4

An Introduction to Hilbert Spaces

26th November 2020

Dr. K. Selvakumar

Associate Professor

Manonmaniam Sundaranar University

11.15 AM to 12.45 PM

Lecture 5

Group Theory

3.15 PM to 4.45 PM

Lecture 6

Group Theory

27th November 2020

Dr. A.V. Jayanthan

Professor

IIT Madras

11.15 AM to 12.45 PM

Lecture 7

Module Theory

3.15 PM to 4.45 PM

Lecture 8

Module Theory

For contact: 0422-2428415 Email: mathsbu@gmail.com

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WEBINAR ON ALGEBRA AND ANALYSIS

November 24-27, 2020
Department of Mathematics
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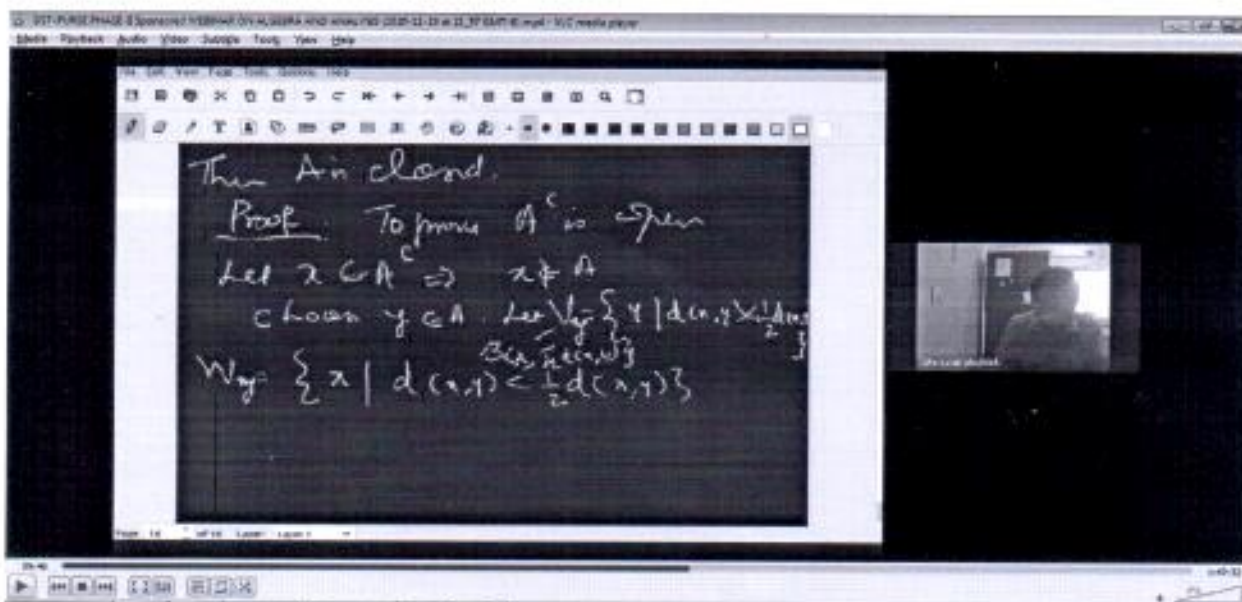
Report of the Webinar –Algebra and Analysis 2020

The department of Mathematics organized a four day national webinar on Algebra and Analysis from November 24-27, 2020 (11 am to 5 p.m.), for PG Students of mathematics. Through this webinar we mainly aimed to provide the students with right content and context for globally infused mathematics curriculum and showing the students how the world consists of situations, events and phenomena that could be sorted out using the right mathematics tools. The webinar was coordinated by Dr.S. Narayanamoorthy, Assistant Professor, Department of Mathematics. The technical works like preparation of Google form for Data collection, Design of certificates, feedback etc. are hereby appreciated. Prof. S. Saravanan, HoD, Department of Mathematics was the Convener of the programme. We circulated the invitation and messages in What's app and mail. On an average of 70 members participated in the webinar on each day. The webinar was the great opportunity for the participants including our students to enrich the knowledge in the present situation. Besides this an appreciation letter was also sent to each Resource person. It was a new experience to our students as well as faculties. The webinar was a great success.

Day-wise Events

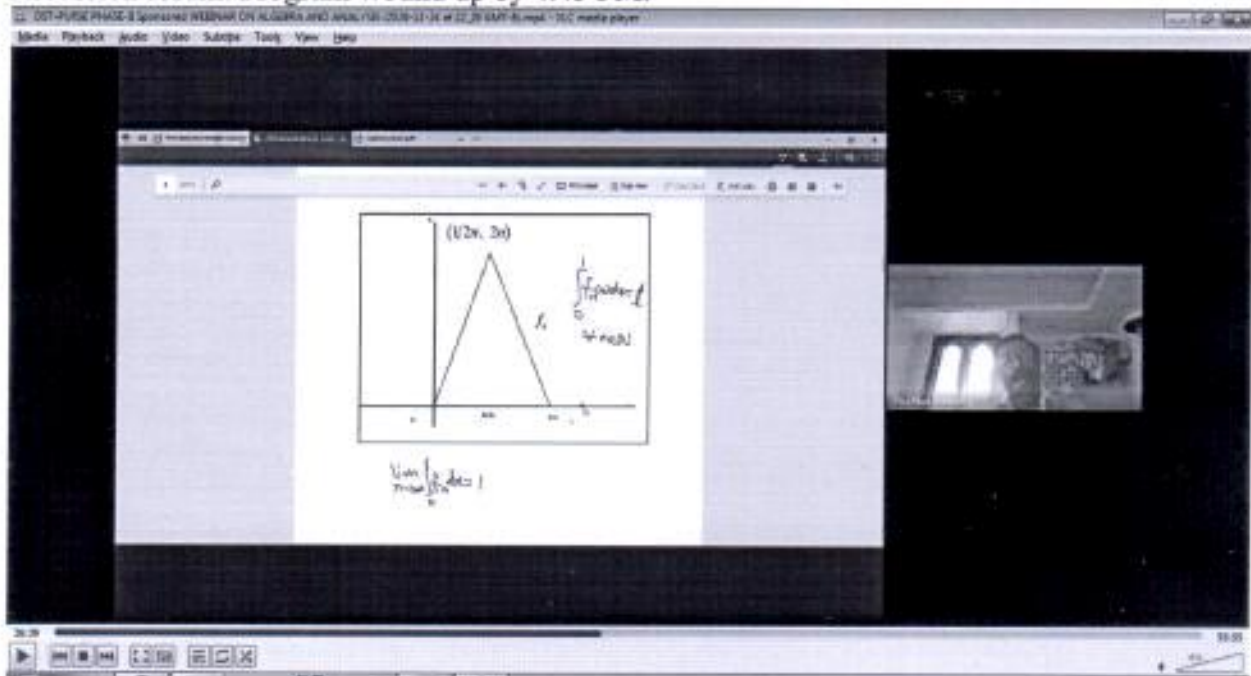
Day 1 : Lecture 1 and 2 (24.11.2020)

First day of the programme was started at 11 am. The session was taken by the resource person *Dr. M. Marudai*, Former Professor, Bharathidasan University and he handled the topic: "Basic Topology." He discussed about the basic concepts of sets and its properties. Queries from the participants were answered by the resource person in the discussion forum. Program wound up by 4.45 PM.



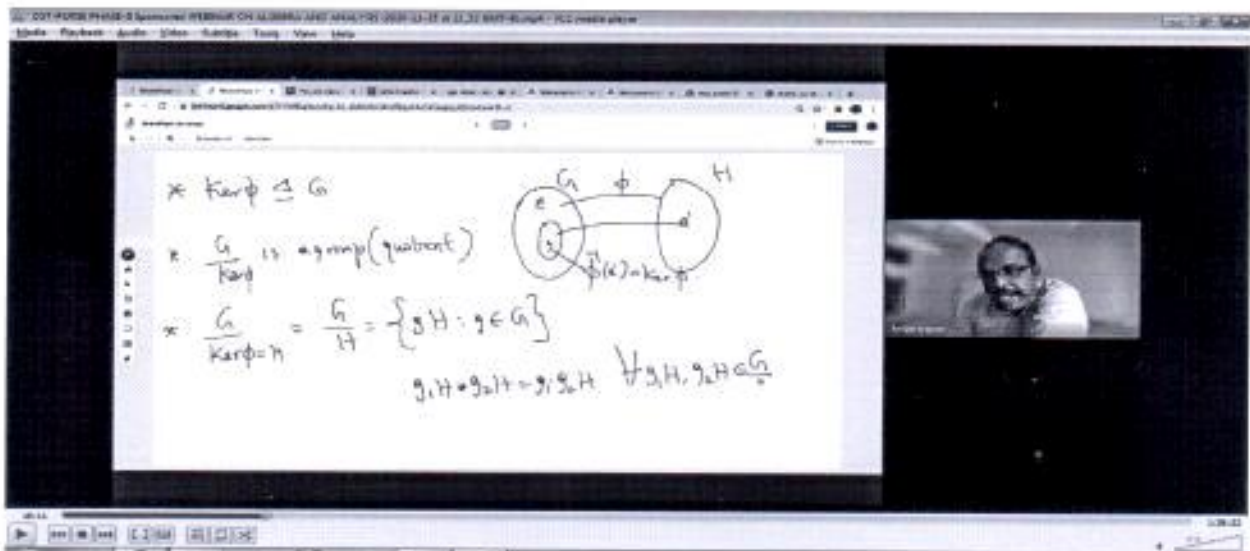
Day 2 : Lecture 3 and 4 (25.11.2020)

Second day of the programme was started at 11 am. The session was taken by the resource person *Dr. G.P. Youvaraj*, Former Director, Ramanujam Institute, University of Madras and He handled the topic: "Uniform Convergence and An Introduction to Hilbert Spaces" He discussed about the history of algebra, mathematical symbols, Abstract algebra, Modern Algebra etc. He also told that algebra includes everything from elementary equation solving to the study of abstractions such as groups, rings and fields. More than 70 participants attended the session. Queries from the participants were answered by the resource person in the discussion forum. Program wound up by 4.45 PM.



Day 3 : Lecture 5 and 6 (26.11.2020)

Third day of the programme was started at 11 am. The session was taken by the resource person *Dr. K. Selvakumar*, Associate Professor, Manonmaniam Sundaranar University, Tirunelveli and he handled the topic of "Group Theory" He discussed about the group theory and its application. More than 70 participants attended the session. Queries from the participants were answered by the resource person in the discussion forum. Program wound up by 4.45 PM.



Day 4 : Lecture 7 and 8 (27.11.2020)

Fourth day of the programme was started at 11 am. The session was taken by the resource person *Dr. A.V. Jayanthan*, Professor, IIT Madras and has handled the topic "Module Theory." He briefly explained the module theory and clearly explained the difference between group theory and module theory. More than 70 participants attended the session. Queries from the participants were answered by the resource person in the discussion forum. Program wound up by 4.45 PM.

$f(1) = k \Rightarrow f(n) = nk$

Given a gp hom $f: \mathbb{Z} \rightarrow \mathbb{Z}$, $\exists k$ s.t $f(n) = nk \forall n \in \mathbb{Z}$

Is f an \mathbb{Z} -module homomorphism

If $m \in \mathbb{Z}$ & $r \in \mathbb{Z}$ $f(mr) = mrk = r(nk) = rf(r)$

$\Rightarrow f$ is a module homomorphism.

④ R, M for $a \in R$ $\psi: M \rightarrow M$

$\psi(m) = am$

$\psi(m_1 + m_2) = a(m_1 + m_2) = am_1 + am_2 = \psi(m_1) + \psi(m_2)$

$\psi(\gamma m) = a(\gamma m) = \gamma(am) = \gamma\psi(m)$