

### **Seminars/Workshops/Training Programs Organized 2021-22**

S.No.	Nature of program	Date	Title of Program	Number of beneficiaries
1	5DAY National FDP	14to 18 Feb ,2022	RECENT TRENDS IN MATHEMATICS	190
2	Value added course	Schedule I (Session 1-10): Saturday, 27-Nov to 18-Dec 2021 Schedule II (Session 11-15): Thursday, 17-Feb to 26-Feb-2022	Data Analytics with R & Tableau'	UNP - United Network of Professionals 50

**Nature of Beneficiaries:** Faculty from UG and PG Colleges , Research Scholars and PG students.

**Number of Beneficiaries:190**

5 Day National level Faculty Development Program on “RECENT TRENDS IN MATHEMATICS ” conducted by Department of Mathematics and Statistics, BVC

The aim of this FDP is Bringing experts together to share their knowledge and novel ideas on different topics of mathematics. To Provide opportunities for teachers and researchers to learn about current research status and methods in the mathematical sciences.

The number of participants enrolled for FDP was 853.The sessions were handled by esteemed speakers from reputed institutions across the country and alumni of Bhavan's Vivekananda College.

#### **REPORT:**

##### **Day 1 Session 1 - Inaugural Session**

The program began with college prayer. Mrs P. Krishnaveni, Coordinator of the FDP has given a brief introduction about the FDP. Mrs G. S. Mini, Head, Department of Mathematics and Statistics addressed the gathering and expressed the main objective of the FDP. Prof. Y .Ashok, Principal, BVC, Air Commodore (Retd) J.L.N. Sastry VSM ,Vice Chairman, BVB , Dr. K .Anuradha, Co-ordinator DBT-STAR college scheme,Head Department of Microbiology,

Guest of Honor Prof. N. Kishan Head, Department of Mathematics, UCS, Osmania University. And Chief guest Prof. V. Kannan ,Head, Department of Mathematics, SRM University AP, Andhra Pradesh addressed the gathering.

In Session 2 Prof. V. Kannan, Head, Department of Mathematics, SRM University AP , has given the Keynote address for the FDP.

Session 3 Dr. P. Aparna, Associate Professor, VNRVJIET, Telangana, spoke about the real life applications of Linear Algebra.

In Session 4 Prof. J V Ramanamurthy, NIT, Warangal, Telangana discussed the finite differences and matrix methods for ODEs.

Day 2: Session 1& 2

Dr P Anuradha Kameshwari, Associate Professor, Andhra University gave her presentation based on Modular Arithmetic and Finite field Arithmetic, Cryptosystems and Cryptanalysis

3<sup>Rd</sup> Session : Dr. B.S.R.V. Prasad, Assistant Professor Senior (Grade-II), VIT, Vellore on the topic Modelling the role of supplementary Food Resources in Enhancing the Biocontrol Efficiency of Natural Enemies

Session 4 by

Prof. J V Ramanamurthy, Department of Mathematics, NIT, Warangal, Sir discussed about Homotopy Analysis Method (HAM).

Day 3

Session 1 by Prof. K.Raghava Rao KL University, AP and the topic is Innovation and Intellectual property rights for the academic community

Session 2 by Prof. Natesan Srinivasan, Department of Mathematics, IIT, Guwahati, has given a wonderful presentation on Numerical Methods for First-Order ODEs(IVPs).

Session 3 by Mr. Srikanth Bandi , Director, SB Art Studio , Hyderabad and his talk is about Art Fusion-Drawing a stress Reliever.

4<sup>th</sup> session of the day was led by Dr. Phani Kumar, Assistant Professor (Grade-II), VIT - AP University, on the topic Mathematical Modelling and its applications.

Day 4 was started with the topic Numerical solutions of some two-point Boundary value problems by finite element method with cubic splines by Prof. Kasi Viswanadham, NIT Warangal, Telangana

Session 2 was handled by a

Prof. Natesan Srinivasan,IIT Guwahati, sir has discussed about Numerical Stability and Error Analysis.

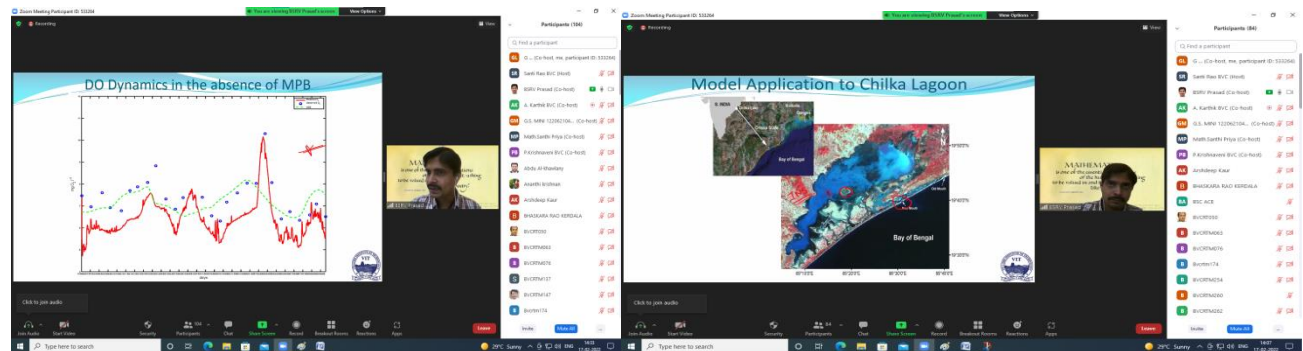
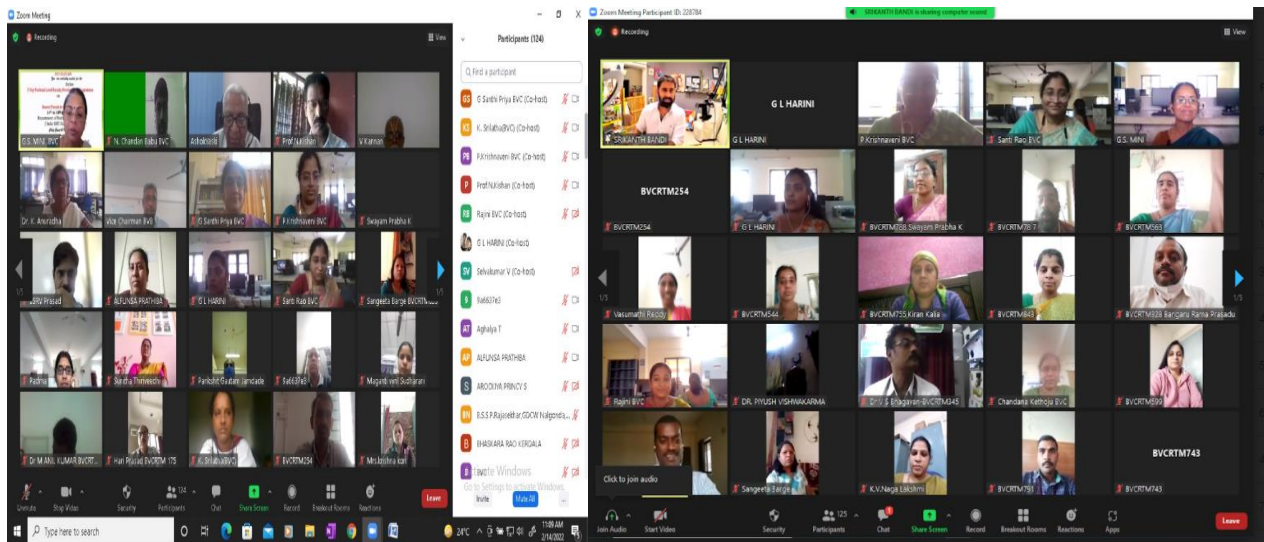
The resource person for Session 3 is Dr. B.S.R.V. Prasad, Assistant Professor Senior (Grade-II), Vellore Institute of Technology, Vellore sir as discussed

about Modelling of Biogeochemical Cycles of Lagoon Ecosystems , A Case for Chilka Lake, India.

5<sup>th</sup> Day Session 1 was led by Prof. Srinivasa Rao Ch IITM, Tamilnadu

On the topic Solutions of Systems of Linear Ordinary Differential Equations and Exponential of a Matrix

Session2: Valedictory



## Resource Persons:

1. **Dr. Saptarshi Das, Ph.D.**  
**IIT- Bombay, Univ. of Vienna**  
**Energy & AI Industry leader,**  
**11 Patents, 15+ publications**  
**Data Science R & D Manager, Shell,**  
**UNP Foundation Member**
2. **Amar Vajjhala**  
**Osmania University, IIT-Bombay, NYU**  
**Adjunct Instructor - New York University**  
**Co-founder, Workeave Tech,**  
**Ex-VP Nomura/Lehman Brothers**

**UNP Founding Member / Director**

**3. Vivek Kalyanarangan**

**BTech, WBUT**

**Data Science Leader, Financial Services**

**Technical lead, IDfy**

**UNP Founding Member**

**4. Sayan Sen**

**BTech, WBUT**

**Data Science Leader, Financial Services**

**AVP, HSBC Bank,**

**UNP Founding Member**

**5. Palash Pal**

**Data Scientist**

**3 Research Papers**

**UNP Academic Program Manager**

**Duration: 30 Hours**

**Session 1: 27th November 2021 to 20th December 2021**

**Session 2: 17th March 2022 to 26th March 2022**

**Day 1: 27<sup>th</sup> Nov, 2021**

The inaugural session of the UNP Data Analytics Course commenced on the platform of Zoom. The two hour session started at 7:00 p.m.

The first session started with an interaction about future goals and plans

i.e., about professional careers and higher studies.

There were polls conducted at regular intervals highlighting the importance of analytics in the real world.

The session moved on to Mr. Amarendra, who gave a brief explanation about the UNP DA course and its outcomes.

This was followed by a Q and A session where students actively and enthusiastically interacted with the speakers and gained insights.

The programme transitioned to Mr. Saptarshi who briefed the attendees about R Programming language, its benefits and gave an overview of the R-Studio interface.

He also demonstrated the basic operations in R, i.e. assigning values to the variables, passing comments, printing vectors, matrixes, lists, and arrays and finding classes of data.

The session concluded with the feedback from attendees.

### **Day 2:30<sup>th</sup> Nov, 2021**

The session started with Mr.Amarendra, who gave a brief explanation about data science and analytics and their applications in the real world.

The programme transitioned to Mr.Saptarshi who briefed the attendees about predictive modelling, various regression models and a brief overview about neural network.

The session concluded with Mr.Palash sir explaining about the Capstone Group Project #1.

### **Day 3 : 2<sup>nd</sup> December, 2021**

The session started with Mr.Amarendra, who introduced the teams for capstone project and explained about it.

The programme continued with Mr.Vivek who displayed various functions and operations that can be performed on R-Studio.

The session concluded with Mr.Palash sir explaining about multiple datasets of the project and also briefed about the assignment for the students.

### **Day 5: 7<sup>th</sup> December, 2021**

The session unfolded with a discussion about the concept of decision trees. The concept was explained in depth through examples and a case study where the respective data was classified into attributes accordingly. Many important definitions such as discussions about entropy were also held.

### **Day 6 : 9<sup>th</sup> December, 2021**

In this session of the UNP Data Analytics course conducted on Zoom, Mr. Amarendra asked the teams about their project's current status (Capstone Project). Many teams discussed about the problems they were facing while doing the project and their doubts were clarified during the session. The session lasted for a period of two hours

### **Day 7 : 11<sup>th</sup> December, 2021**

The day unfolded with teams presenting their projects and explaining them to everyone. All the lecturers judged their presentation and gave their valuable inputs to every team on how they can improve the efficiency of their mode; tell them about the mistakes they have committed and what else they could have done to make the overall presentation better. The judges were very impressed by the performance of the students and their team work considering this was the first time they were building models. Other participants were also given the opportunity to present their views on the performance of teams through a

feedback form where they were asked to rate the performance of the teams. The session ended with all the lecturers addressing students on various topics and encouraging them to work hard and build their skills

### **Day 8 : 14<sup>th</sup> December, 2021**

The class was conducted in the evening, starting from 7 PM. The session was conducted on Zoom and lasted for three hours. It was the second day of group project presentations. The session began with group 4 presenting, followed by group 7 and 8. All the lecturers and instructors gave students valuable feedback to students on their presentations. Amar sir also spoke about how these groups learned from previous presentations and did a good job. After all the three groups completed presenting, a feedback form was shared in the chat which was filled by everyone present in the meeting. The audience was asked to rate every team's performance in the feedback form. Regular teaching resumed after this. At the end of the session, the students were asked to fill out their attendance forms.

### **Day 9: 15<sup>th</sup> December**

The class was conducted in the evening, starting from 7 PM. The session was conducted on Zoom and lasted for three hours. The second Capstone Project was announced in this session. The instructors gave students details about the project. The students were informed that this project would be an individual project which they have to submit by 23<sup>rd</sup> December. There were 4 datasets:

1. Shampoo Sales Dataset
2. Min Daily Temperatures Dataset
3. 3-Monthly Sunspot Dataset
4. Daily Female Birth Dataset

Each student was assigned one dataset among the ones mentioned above.

### **Day 10 : 18<sup>th</sup> December**

The class was conducted in the evening, starting from 7 PM. The session was conducted on Zoom and lasted for three hours. The session began with discussions about the project assigned to students. Students asked their doubts and discussed any problem or challenge they were facing while doing their second project.

### **Day 11 : 17/03/2022**

The meeting started at 7:10 PM and ended at 8:35 PM.

The number of students joined was 32.

The meeting started with the introduction of the new faculty Sovan Nayak. He gave a quick introduction about himself. The class started with descriptive analytics. They gave an introduction and explained the advantages of learning it.

They described about the top business intelligence software like Tableau and Power BI.

Installation and various features of Tableau were discussed. Then, a dataset was taken from excel and imported to Tableau. The dataset was explained and the various attributes and datatype of the attributes were discussed.

It was an interactive session in which students were asked to do tasks with them.

They started by explaining data filtering and using the calculation field. Students were given a small assignment and a time of 5 minutes to complete it.

After that, data visualization in Tableau was started using a data set. Various charts like bar charts, line charts, map charts, pie charts and scatter charts were discussed and various fields like labels, size, details and colors are shown.

#### **Day 12: 19/03/2022**

The meeting started at 7:10 PM and ended at 9:00 PM.

The number of students joined was 20.

The Institute has provided the links to install the Power BI for the students. The class started with an introduction to the PowerBI user interface. They discussed the various options that students can use. The three types of views were told. Faculty Sovan sir then showed various ways to get excel data into BI. They explored the data transformation using queries. The sort options datatype changing were discussed. The students were taught to apply relations between two datasets. Then they moved to data visualization. They explored the bar charts using a filter with priority, top n. The students were given an assignment to complete on bar chart in the class and the doubts were clarified. The DAX function LOOKUP was explained and students were given assignments. Then formatting of a given chart was explored. The visual format of x and y-axis, gridlines and data labels and in a general format including properties, effects, header icons and more were discussed. A quick introduction to Capstone Project 3 was given.

#### **Day 13 : 22/03/2022**

The meeting started at 7:05 PM and ended at 9:00 PM.

The number of students joined was 25.

The class started with creating columns using custom columns in transform data. Then data visualization was explored using pie charts, tables, combo charts and cards. Conditional formatting for the values in tables was shown. The students were given a small assignment for 10 minutes and the solutions were provided. The next topic discussed was slicer and the various settings were shown. The sync slicer was shown to use same slicers for different pages. New measures creations using various functions such as sum, sumx, average and so on were shown. Various Dax functions related to dates were discussed. The sample dashboards that were already created were shown. Some tips were given to students to create their own dashboards.

Capstone project-3 details were shared with the students. The details related to teams and projects were given.

#### **Day 14 : 24/03/2022**

The meeting started at 7:05 PM and ended at 9:00 PM.

The number of students joined was 18.

The class was started by the faculty Sovan Nayak of UNP with a new dataset in Power BI. He started by explaining the various text functions such as concatenate, left, right, upper, lower and so on. The logical functions were explored like if and or. 'If' functions using various filters were shown. Create new tables using calculate table using various filters from the existing tables. Then students were given an

assignment to do 4 activities. The various queries of the students were solved. The topic slicer settings was discussed

**Day 15 : 26/03/2022**

The meet started at 7:05 PM and ended at 9:00 PM.

The number of students joined was 10.

The class was started by the UNP faculty Sovan Nayak in Power BI with advanced text functions. The advanced text functions to find and obtain certain characters were discussed. The students were taught how to get characters between two delimiters using transform data. The text functions such as mid and right using find functions. Students were given assignment and the doubts were solved by Sovan Nayak sir. The tips and tricks related to Power Bi were explored. The Regression analysis was started as next topic. The scatter plot was shown and adding a trend line for a given plot was shown.

The various stages of a Power Bi project are discussed starting with how to ingest data, then client requirements and common queries was discussed. The final phases were shown such as how to publish data and what happens after that was explored.

The Capstone project 3 reviews were started. Each group's progress was checked and all the doubts of the groups were cleared.

