Guest lectures:

Academic Year	s. no	Name and Designation	Top ic	Date
2020 -21	1	MrVenkat Ram, Data Analyst, IBM, Hyderabad.	The Power of Data Analytics using Python	23 rd May,2021
	2	Prof. S Durga Bhavani, Associate Professor, Universityof Hyderabad	Applications of LinearAlgebra In Computer Science	23 rd May,2021
	3	Mr. K. Raju, Sr. DataAnalyst ,IBM, Hyderabad.	Harnessing the power of Data Analytics Using Python	18 th July,2020
	4	Dr. P. Aparna, Asst. Professor, VNRVJIET,Hyd	Webinar onBasicsof Matlab	22th July,2020
	5	Dr. V. Kiran, Assistant Professor in Osmania University	Webinar on Curvature	18 th December, 2020
	6	Dr. V. Kiran, Assistant Professor in OsmaniaUniversity	Webinar on Envelope	19 th December, 2020
	7	Mr. Naveen Kumar, Principal Analyst, Juxt-Smart Mandate,Medeva.io	Webinar on Role of Visualization	12 th January 2021
	8	Dr.Venugopal, Principal Analyst, Juxt- Smart Mandate,Medeva.io	Webinar on DataScience- Trends Applications	12 th January 2021
	9	Dr.Saroj M Revankar, Associate Professor, Stanley College of Engineering & Technology	Webinar On Applications of LinearAlgebra	18 th January, 2021
	10	Mr. Sreekanth Reddy Soudary, Senoir Consulting Manager Data Analytics, Wipro Limited.	Webinar on AI- Dataand Insights	18 th January, 2021
	11	Dr N. Pothanna, Assistant Professor,Department of Humanities and Sciences, in VNR Vignan Jyoti Institute of Technology	Webinar on Application of VectorCalculus	21st January, 2021
	12	Dr. P. Aparna, Asst.Professor, VNR VJIET,Hyd	Webinar on Application of first orderDifferential Equation	21st January, 2021

<u>2020-21</u>

Power of Data Analytics Using Python

This webinar was organised on Power of Data Analytics Using Python on 23-05-2020, for the faculty members from various colleges.

The resource Person Mr Venkat Ram, Data Analyst, IBM, Hyderabad.

Mr Venkat Ram explained the practical applications of data, Data Science and statistics in day to day life and provided good information about data recording for the purpose of analysis and gave real life examples. Through the example he explained about: Data Analytics, Data Science, turn data into data products, Types of Analytics, life cycle of Data Science / Data Analytics, Skill sets required for Data Analytics, applications Python, features and applications of Python, objects & basic packages of Python, descriptive Statistics in Python, practical examples using Python.





Webinar on Applications of Linear Algebra in Computer Science

The Department of Mathematics and Statistics conducted the webinar on "Applications of Linear Algebra in Computer Science" on 23rd May 2020, under DBT Star College scheme for teaching faculties. Prof. S Durga Bhavani, Associate Professor, University of Hyderabad, was the resource person.

The speaker of the session explained how Linear Algebra is applied to Graph Theory, Image processing, Computer games, Optimization, Web Search ,Cryptography and Coding with examples in brief.

Prof. S Durga Bhavani Mam also gave many applications of Linear Algebra in Computer Science like from simple circuit solving to large web engine algorithms, and how linear algebra is used in generation and formation of computer coding schemes .

And many more examples were explained briefly.304 Participants attended from various institutions.







<u>A Brief report on Harnessing the power of Data Analytics Using Python for undergraduatestudents</u> <u>- 18th July, 2020</u>.

Organized by Department of Mathematics and Statistics, Bhavan's Vivekananda college of science, humanities and commerce, Sainikpuri, Sec-bad.

Resource person: Mr. K.Raju - Sr. Data analyst, IBM,

No. of students participated: 255

The course content delivered in the webinar is as follows: The impact of recent technology in Data Science in the living environment was discussed in this session. The Speaker of the Session Mr.K. Raju spoke on "Introduction to Data Science". He discussed the basic concepts used in the technology relating with best suitable real life examples which are essential for the understanding of technology. He projected a clear understanding of the importance of intelligent robots and future problems in the real world. He inspired the audience by lively interacting on topics such as new trends in applying Data-driven, Machine Learning approaches for business decisions and incorporation of Artificial Intelligence, Big Data, and Machine Learning

applications. He discussed about analyzing structured and unstructured data using different tools and techniques, developing an understanding of descriptive and predictive Analytics, building models for day-to-day applicability, forecasting to take proactive business decisions, using data concepts to represent data for easy understanding. He emphasized on Business Analytics career opportunities in India and global market and gaining practical mastery over applications of machine learning through a hands-on project using Python. He projected on comprehending the theoretical concepts and relating to the practical aspects of Artificial Intelligence. He insisted on modeling algorithms for deep learning, clustering, and recommendation systems. Also the feedback about the session was collected from all the participants to improve the sessions that will be conducted in future.





BASICS OF MATLAB

The Department of Mathematics and Statistics organized an online National Webinar on **'Basics of Matlab**'' on 22/7/2020 from 10:00 am to 11:30 am under DBT Star scheme. Dr. P. Aparna, Asst. professor, VNRVJIET,Hyd. was the resource person. 532 students from Telangana, Andhra Pradesh, Tamil Nadu, Kerala and Rajasthan had participated and were provided with the online certificate also.The webinar provided the basic information on Applications of Matlab, Books on Matlab, Getting started with Matlab, using Matlab for plotting and visualization of 2D and 3D graphs.

The webinar started with the welcoming and introduction of the resource person followed by a slideshow of a ppt. prepared by our resource person. Students learnt that Matlab stands for Matrix Laboratory and is a software package used for high performance numerical computations and visualization. Under Applications of Matlab , students got to know that Matlab can be used for finding solutions of O.D.E's, P.D.E's, system of linear equations, Curve tracing, Curve fitting, finding the roots of polynomials, operations on matrices like addition, multiplication, rank, inverse of a matrix etc.

The webinar gave a brief idea about the programming in Matlab which was very enriching.





Curvature

The faculty of Department of Mathematics and Statistics of Bhavan's Vivekananda College organized a webinar on "Curvature" on 18 december, 2020 which was held from 2:30 PM to 3:30 PM. The webinar was conducted to have a brief rebound on "Curvature" under DBT-Star college Scheme.

The speaker of the session was Dr. V. Kiran, Assistant Professor in Osmania University.

The Welcome Address was delivered by G. S. Mini, and by prof Y. Ahsok, Principal, BVC

Course Content

The basic ideas on Curvature were discussed in this Session.

The speaker Dr. V. Kiran has given a brief explanation on the definition of Curvature from Differential Calculus. He mentioned that an important property of a curve is its curvature. Curvature plays an important role in laying tracks, roads etc. Curvature of curve is a measure of rate of change of blindness. He explained about

6Angle of Curvature. Radius of Curvature. Length of Curvature

- a. Cartesian Equation
- b. Paramedic Equation
- c. Polar equation.

Centre of curvature.

Based on the above topics he explained Derivations and Problems.

The first year students of B.Sc have this topic in semester 1. This webinar was aimed at benefiting them. 142 Students have attended this webinar.



Envelope and Evolute

The faculty of Department of Mathematics and Statistics of Bhavan's Vivekananda College organized a webinar on "Envelope and Evolute" on 19 December, 2020 which was held from 2:30 PM to 3:30 PM. The webinar was conducted to have a brief glance on "Envelope and Evolute" under DBT-Star college Scheme.

The speaker of the session was Dr. V. Kiran, Assistant Professor in Osmania University.

The Welcome Address was delivered by G. S. Mini, and by prof Y. Ahsok, Principal, BVC. COURSE CONTENT:

The basic ideas on envelopes were discussed in this session.

The speaker of the session " Dr.V.Kiran" has given a brief explanation on the definitions of envelope and evolute from Differential calculus

Envelope, in mathematics, a curve that is tangential to each one of a family of curves ina plane or, in three dimensions, a surface that is tangent to each one of a family of surfaces. For example, two parallel lines are the **envelope** of the family of circles of the same adius having centres on a straight line.

Evolute, a curve which is the locus of the centres of curvature of another curve.

He also explained the other topics like : Relation between envelope and evolute :Thatis **to** say that when the center **of** curvature **of** each point on a curve is drawn, the resultant shape will be the **evolute of** that curve. The **evolute of** a circle is therefore a single point at its center. Equivalently, an **evolute** is the **envelope of** the normals **to** a curve.

Observation of each and every problem which is discussed in the session. The first year students of B.Sc have this topic in semester 1. This webinar was attended by 97 Students.



Data Science - Role of Visualisation

A Webinar on 'Data Science – Role of Visualisation' was conducted on 12th January 2021, on the platform of Teams, for the students of Bhavan's Vivekananda College.

The Guest, Mr Naveen Kumar, Principal Analyst, Juxt Smart Mandate, Medivia.io, started the webinar with the explanation of the word Visualisation. He further pontificated the importance of it in the designing process.

The session continued, with the explanation of Data Visualisation and how they are connected to Data Science. He briefly stated that communication of data in a visual manner, or turning raw data into insights that can be easily interpreted. Then he showed the importance of creating a portfolio in order to have a prosperous career in the field of data science.

The presentation was also fascinating as it explained the use of data visualisation in the form of images, diagrams or animations and how visualisation can put their message easily and make sure that the receiver understands it completely.

The next rhetorical question that Mr Naveen Kumar asked us was "Why is Data Visualisation?" Which was answered in the slide by stating that it is the practice of

translating information into a visual context, such as a map, diagram or graph, to make data easily interpretable, enabling us to observe trends, patterns and outliers in large data sets. Moreover, he explained how data must be visualised in order for conclusions to be made.

The program concluded by Mr Naveen Kumar showing us further considerations of data visualisation which was a list of things one should check before finalising their data visualisation.





Data Science – Trends and Applications

A Webinar on 'Data Science – Trends and Applications', was conducted on 12th January 2021, on the platform of Teams, for the students of Bhavan's Vivekananda College.

The Guest, Mr.M.Venugopal Rao, Data Scientist & General Manager, Juxt Smart Mandate, Medivia.io, started the webinar with the explanation of the word Data Science. He moved on to describe the rising importance of data and that data has become a key and integral part of society.

The seminar continued, with the explanation of various new technologies and how they are connected to Big Data. Mr.M.Venugopal, soon explained the trends and facts of how data science is growing to be one of the most demanding jobs in the future.

The presentation was also fascinating as it explained the use of data, in various services like Amazon Go, Google Assistant and many of Mr.M.Venugopal's own endeavours.

The program proceeded, with explaining how one can get exposure, in the field of Data Science, by participating in Kaggle Competitions, attending MeetUps, Reading Online Blogs, among many others. This was a very useful part of the session as it helped the students, by providing a way to approach the subject.

The program reached its final conclusion, where Mr. M. Venugopal emphasised the importance of statistics in the field of Data Science, and also that a knowledge of multiple subjects is required for understanding Data. He emphasised again, the overarching effects of demand and necessity of handling data in the growing world.





Applications of Linear Algebra

Department of Mathematics and Statistics Organised a webinar for undergraduate students on "Applications of Linear Algebra" on 18-01-2021, under DBT Star College scheme.

Dr.Saroj M Revankar, Associate Professor, Stanley College of Engineering & Technology, was the resource person Dr. Saroj explained the graphical view of Linearly independent & Linearly dependent vectors. She explored the concepts such as product of vectors, multiplication of matrices with their geometrical interpretation.

The use of linear combinations in neural networks was explained with different examples. The significance of matrices as pixel matrices in Image processing was discussed in brief. Solving systems of linear equations as solutions for various problems in different fields was explained with examples. The process of coding and decoding, concepts of cipher text, using inverse of matrices was explained with examples. Overall the importance of Linear Algebra in various emerging fields like Artificial Intelligence, Data Science etc. was explained with good examples.

Mrs. G S Mini, Officiating HOD Dept of Mathematics & Statistics and other faculty members of the department, 67 students of III year BSc Physical Sciences(MPCs,MSCs&MECs) were present for the webinar.



AI-Data and Insights

This webinar was organised on 18-01-2021, to create awareness about the ML(Machine Learning)- Supervised and Unsupervised learning, role of AI(Artificial Intelligence)-data and Insights in current technology.

Resource Person Mr Sreekanth Reddy Soudary, Senior Consulting Manager, Data Anlytics, Wipro Limited.

Mr Sreekanth Reddy Soudary explained the practical applications of data and statistics in day to day life and gave a good information on how data recorded and used for the purpose of analysis and gave examples on usage of data in flipkart like how flipkart is using data analytics and algorithm to help the burgeoning number of sellers get better insight into their business during the festive season. And also gave an example on airlines regarding route distance, altitudes, aircraft type, weight, weather etc. And also gave an example in booking of travel services such as Ola, Uber etc.

Also have a good explanation on ML (Machine Learning)- Supervised learning, Unsupervised learning and clear cut information on how supervised learning is the task of learning a function that maps an input to an output pairs and how unsupervised learning is a machine learning technique.

Briefed us about what actually AI(Artificial Intelligence) is all about and what are its most popular programming languages, and also explained about AI neural networks. How can AI be relatable to statistics and data, and also summarised the topic how one can explore the ocean of statistics in various sectors for analysing the data and organizing it in apt form.



Application of First Order Differential Equations

A webinar was conducted by the Department of Mathematics and Statistics on 21st January, 2021, between 2 P.M. to 3 P.M. on the topic, "Application of First OrderDifferential Equations" in order to familiarise students with the real time applications of first order differential equations.

The Webinar started with the introduction of Dr.P.Aparna, Senior Assistant Professor of the Department of Humanities and Sciences, in VNR Vignana Jyothi Institute, by Mrs.G.Mini, the Head of the Mathematics and Statistics Department. It was followed by the welcome address by Mrs. Santi Rohit Rao, faculty of the Department of Mathematics.

The Webinar transitioned to the explanation and discussion of various topics related to first order differential equations by Dr.P.Aparna. Her presentation and talks started with the introduction of Orthogonal Trajectories, which was explained in detail along with examples.

This was followed by the explanation of Kirchhoff Laws, which is applicable in the use of circuit boards and general circuitry. This was continued with a brief about the usage and importance of differential equations in tumour growth and cancer studies. Newton's Law of Cooling was also explained, in terms of differential equations. The final topic was about the application of first order differential equations to determine the compound interest, which is widely used by banks.

The Webinar concluded with the vote of thanks given by Mrs. Santi Rohit Rao, afterwhich the staff members collected the student's feedback on the webinar.



"Vector Calculus and its applications"

A Webinar was conducted by the department of Mathematics and Statistics on 21st

January, 2021, between 3 P.M. to 3:50 P.M. on the topic "Vector Calculus and itsapplications'. This was done in order to familiarise students with the meaning of Vector Calculus and its applications through real time examples.

The Webinar started by the Introduction of Dr N. Pothanna, Assistant Professor of the Department of Humanities and Sciences, in VNR Vignana Jyothi Institute, by Mrs GS Mini (HOD of Mathematics and Statistics) in the presence of other faculty members and students.

It was followed by the welcome address to students by Dr N. Pothanna. He further proceeded by introducing students to Vector Calculus. Dr N. Pothanna's presentation started with a brief explanation on topics like The Greens Theorem, The Divergence Theorem, Line Integrals and Surface Integrals.

He let the students know more about the applications of Vector calculus in various vector fields. The students were asked to give their feedback on the webinar through filling a form.



