



Directorate of Outcome
Outcome Report(Event/Activity Organized @ AUH)

1. General Information

Date: 11/5/2022

Event Type: Webinar/Guest Lecture

Event Title: Simulation and its applications

Event Theme: Awareness in Mathematical tools

Venue: Online

Web/Video Link/MS Team Link of the Event:

<https://teams.microsoft.com/l/meetup-join/19%3athli2e4LZdAa1hl-Aiw1GAkyLFdLrQpM2vszf-Xnrcw1%40thread.tacv2/1652233138472?context=%7b%22Tid%22%3a%228d46a076-d093-416d-a57b-8692cde13bf8%22%2c%22Oid%22%3a%22a72f5671-2606-46fa-8e95-d4e620066c82%22%7d>

Organized by: Department of Mathematics, Amity School of Applied Sciences

In collaboration with: NA

Event Level: National

Student Participation*: No. of Students from AUH (Course wise):- 49

Faculty Participation*: No. of Faculty Members from AUH (Deptt. wise):- 12

Participation from outside AUH*: No. of Students & Faculty Members- 16

Event Coordinator(s) with designation:

Dr Atul Thakur, Director: Convenor

Dr Sudeshna Ghosh, Associate Professor: Member

Dr Sunita Kumawat, Associate Professor: Member

Dr Sarika Jain, Assistant Professor: Member

Dr Vijay Kumar Yadav, Assistant Professor: Member

Dr Amit Sharma, Assistant Professor: Member

Dr Dimple Singh, Assistant Professor: Member

Dr Kamal Kumar, Assistant Professor: Member

Dr Reeta Bhardwaj, Assistant Professor: Member

Dr Navneet Lal Sharma, Assistant Professor: Member

Details of Expert/Speaker/Resource Person/Judge:

SN	Country Name	Expert Name	Organization Name	Designation	Specialization	Contact No.	E-mail Id	CV of Expert (Yes/No)	Major Areas where Amity can Collaborate with expert	Recommended by
1	India	Dr Nitin Gupta	IIT Kharagpur	Associate Professor	Mathematics	9800113480	Nitin.gupta@maths.iitk.ac.in	Yes	Simulations	Dr Atul Thakur
2										

Criteria of Inviting Resource Person/Judge/Speaker/Judge (Write a paragraph): He is an eminent professor in the field of mathematics at IIT Kharagpur and published several research papers in his area of research. He has many funded projects ongoing and completed. He can help interested faculties to write funded project and research papers in collaboration.

Were the guest known in advance and if yes, from what previous interaction (Write a paragraph)?
Yes. The guest was known to ASAS director Dr Atul Thakur.

2. Outcome of the Event with Time Lines (Proposed/Achieved)

Envisaged Outcome	Tangible/Intangible	Achieved/Proposed	Target date & responsibilities	Details of outcome
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		(if proposed)	
1. Outcome related to Academia Connect			
a) Collaborations for Research Papers / Conference Papers/ Book Chapter etc.	Tangible		Interested in collaboration with faculties having same area of research
b) Collaborations & MOU for Research Guidance [PhD, PG & UG (summer training, Dissertation)] & Projects/Use of Instruments etc.	NA		
c) Collaboration for Funded Projects	Tangible		Ready to Guide faculties for funded projects writing.
2. Outcome related to Industry Connect			
a) Placement	NA		
b) Collaborations for Research Papers	NA		
c) Collaborations & MOU for Research Guidance [PhD, PG & UG (summer training, Dissertation)] & Projects/Use of Instruments	NA		
d) Collaboration for Funded Projects	NA		
3. Outcome related to Society Outreach			
a) Benefit to society in terms of Health & Hygiene	NA		
b) Benefit to society in terms of Education	NA		
4. Outcome related to Students Learning & Grooming			
5. Any other			
This event helped participants to gain knowledge in the field of statistics which include expectation, variance of random numbers.			

3. Event Report along with glimpses of the event (Photographs)

3.1 General Introduction of the Event: The event was organised by department of mathematics and the speaker was an eminent professor of mathematics from IIT Kharagpur. He delivered a lecturer on Simulation and its application. In this webinar he discussed about Monte Carlo Simulation, Probability integral transform, Generating Pseudo random number etc. This event helped participants to gain knowledge in the field of statistics which include expectation, variance of random numbers.

3.2 Inspiration & Objectives of the Event: The inspiration and objective behind this event was to gain knowledge in the field of simulation and statistics.

3.3 Brief about the address/talk of speakers: The speaker talked about the application of simulations and also given some idea about collaborative work.

3.4 'Take Homes' for the Guest and Attendees : In depth knowledge of Simulations.

3.5 Future plan for utilizing the contacts developed with the Invited Guests: For active collaboration in his area of research.

3.6 Budget of the Event(Budget Sanctioned, Total Expenditure & Revenue Generated): NA

3.7 Details of Awards if Any:

Awardee Details	Award / Position / Recognition Secured	Title of Innovation/ Start-up Secured the Award / Recognition	Award/Recognition/ Achievement Received for

3.8 Photographs with caption

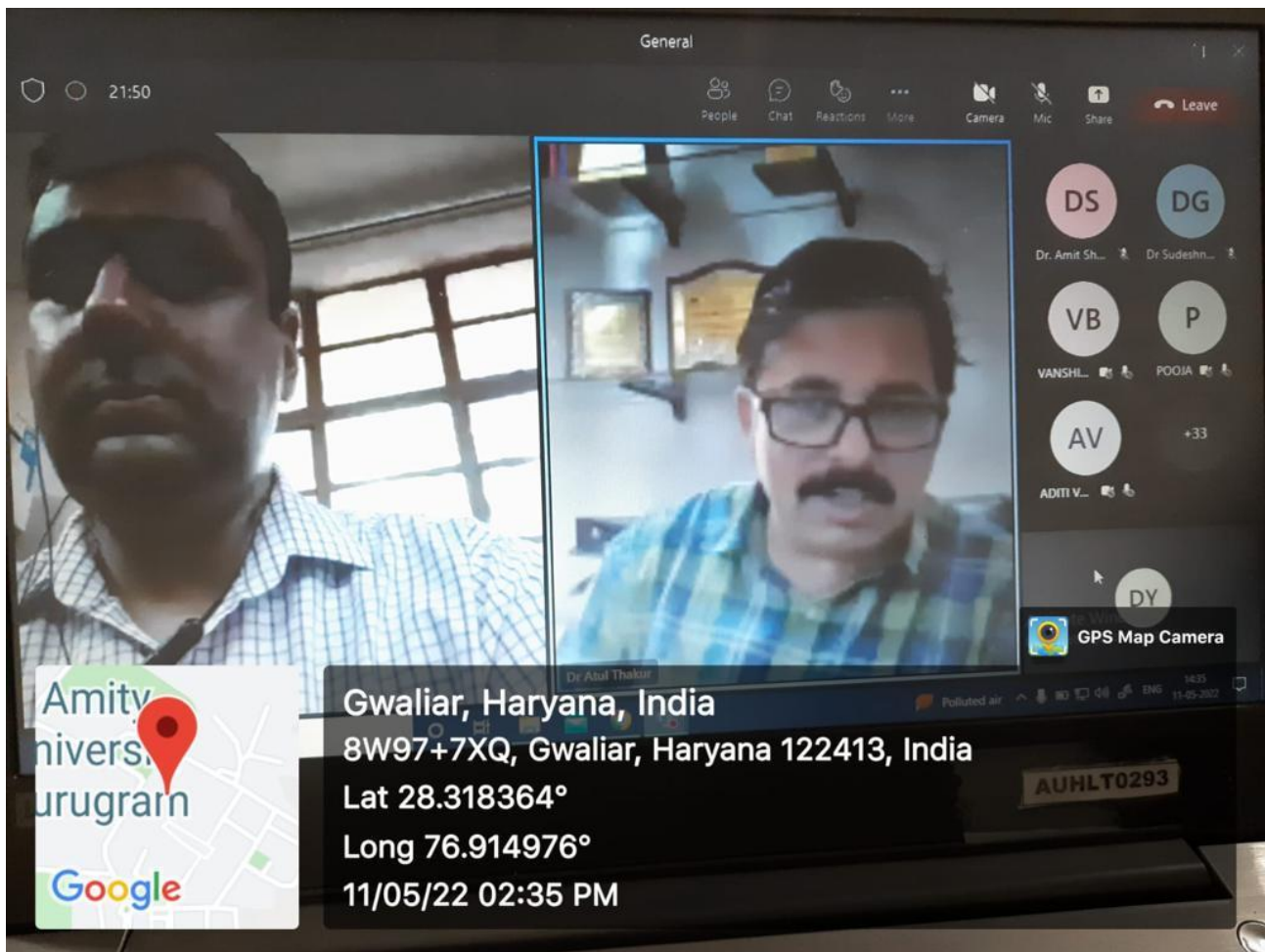


Fig 1: Introduction of the Guest speaker by Director Dr Atul Thakur

request control

Camera Mic Share Leave

Estimate π

Throw dart randomly at square of radius $1/2$. Then

$$\frac{\text{circle area}}{\text{square area}} = \frac{\pi(1/2)^2}{1} = \frac{\pi}{4}$$

this is the probability that a dart will land in circle. Generate independent $U(0, 1)$ variate $(U_{11}, U_{12}), (U_{21}, U_{22}), \dots$. These pairs will fall randomly on the square. If, for pair i , it happens that

$$\left(U_{i1} - \frac{1}{2}\right)^2 + \left(U_{i2} - \frac{1}{2}\right)^2 \leq \frac{1}{4}, \quad (1)$$

then the pair will also fall within the circle.

Simulation 7 / 15

Amity University Gurugram

Gwaliar, Haryana, India

8W97+7XQ, Amity University Gurugram, Gwaliar, Haryana 122413, India

Lat 28.318396°

Long 76.914903°

11/05/22 02:53 PM

Nitin Gupta (Guest)

DT +46

Dr Atul Tha...

DY

Activate Windows

GPS Map Camera

39°C Haze

14:53 11-05-2022

Fig 2: Guest Speaker (Dr Nitin Gupta) delivering talk

General

01:07:17

Request control

People Chat Reactions More

Camera Mic Share

Participants

Type a name

Share invite

Presenters (11)

DY Dr. Vijay Kumar Yadav

DT Dr. Atul Thakur

Dr. Navneet Lal Sharma

DG Dr. Sudeshna Ghosh

DS Dr. Armit Sharma

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GPS Map Camera

Monte Carlo Integration

Let us want to estimate

$$I = \int_a^b f(x) dx = (b-a) \int_0^1 f(a+(b-a)u) du$$

Suppose

$$\hat{I}_n = \frac{b-a}{n} \sum_{i=1}^n f(a+(b-a)U_i),$$

where $U_i \sim U(0,1)$ variates. Note that

$$E(\hat{I}_n) = I, \forall n.$$

i.e., \hat{I}_n is an unbiased estimator of I .

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Fig 3: Question answer session by participant

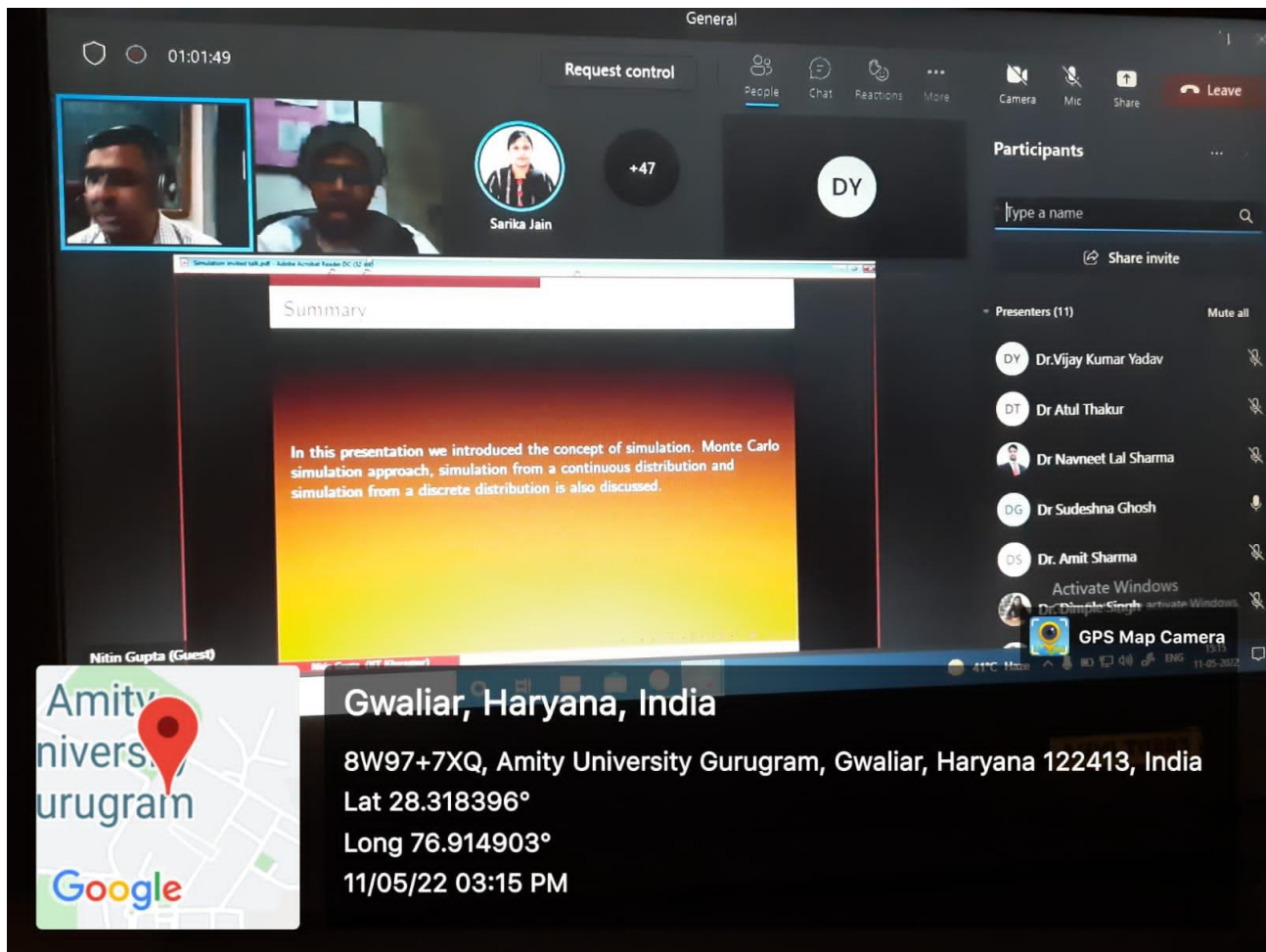


Fig 4: Vote of thanks

3.9 Scanned copy of attendance sheets

3.10 Few Scanned feedback forms of participants: NA

Meeting
Summary

Total Number of Participants	77
Meeting Title	General
Meeting Start Time	5/11/2022, 2:14:13 PM
Meeting End Time	5/11/2022, 3:21:54 PM
Meeting Id	d4194074-c963-43d9-96c9-f9df24c989b5


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53	Nitin Kharat (Guest)	
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74	Nitin Kharat (Guest)	
75	Ganesh Ravindra More	
76	sindhuja	
77	Dr.P.GOMATHISUNDARI	

Atul Thakur

Prof. Atul Thakur

Name & Signature of the Event Coordinator



Dr. Supreet

Outcome Coordinator, ASAS

Atul Thakur



Prof. Atul Thakur

Head of Institute, ASAS