

**Programme for ``Teachers training programme in Mathematics'' (2 - 5 November, 2023)**

**Program Day- I (02-11-2023) (Thursday)**

<b>9:30-10:00 AM</b>	<b>Inauguration</b>	
<b>10:00-11:00</b>	Tarakanta Nayak	<b>The Rational Fixed Point Theorem and its Applications</b>
<b>11:00-11:30</b>	Tea	
<b>11:30-12:30</b>	Kamal Lochan Patra	<b>Diagonalization of matrices and beyond</b>
<b>12.30 - 1.00</b>	Participant	
<b>1.00 - 2.30</b>	Lunch	
<b>2.30 - 3.30</b>	Brundaban Sahu	<b>Group Actions and some applications</b>
<b>3:30-4:00</b>	Tea	
<b>4:00-4:20</b>	Participant 1	
<b>4.20 - 4.40</b>	Participant 2	
<b>4.40 - 5.00</b>	Participant 3	

**Day-II (03/11/2023) (Friday)**

<b>10:00-11:00</b>	Kamal Lochan Patra	<b>Diagonalization of matrices and beyond</b>
<b>11:00-11:30</b>	Tea	
<b>11:30-12:30</b>	Tarakanta Nayak	<b>The Rational Fixed Point Theorem and its Applications</b>

12.30 - 12.50	Participant 4	
1.00 - 2.30	Lunch	
2.30 - 3.30	Brundaban Sahu	<b>Group Actions and some applications</b>
3:30-4:00	Tea	
4:00- 5.00	Binod Kumar Sahoo	<b>Example of infinite simple groups</b>

### Program Day- III (04-11-2023) (Saturday)

10:00-11:00	Akash Ashirbad Panda	<b>An Introduction to Stochastic Process</b>
11:00-11:30	Tea	
11:30-12:30	Swadhinanand Pattanayak	TBA
12.30 - 12.50	Participant 8	
1.00 - 2.30	Lunch	
2.30 - 3.30	Kotyada Srinivas	<b>Euler's totient function and its applications</b>
3:30-4:00	Tea	
4:00- 5.00	Sudhir Pujahari	<b>The mysterious primes</b>

**Day IV (05/11/2023) (Sunday)**

10:00-11:00	Akash Ashirbad Panda	<b>An Introduction to Stochastic Process</b>
11:00-11:30	Tea	
11:30-11:50	Participant 12	
11.50 - 12.10	Participant 13	
12.10 - 12.30	Participant 14	
12.30 - 12.50	Participant 15	
1.00 - 2.30	Lunch	

**List of speakers:**

Tarakanta Nayak

Akash Ashirbad Panda

Kamal Lochan Patra

Swadeenananda Pattanayak

Sudhir Pujahari

Binod Kumar Sahoo

Brundaban Sahu

Kotyada Srinivas

(15 participants)

**Speaker: Tarakanta Nayak**

**Title: The Rational Fixed Point Theorem and its Applications**

**Abstract: The multiplier of a fixed point  $z$  of a rational map  $R$  is defined as  $|R'(z)|$ . The Rational Fixed Point Theorem is a statement relating the multipliers of all the fixed points of a rational map. Its proof using residues and applications to polynomials are to be discussed.**

Speaker: Akash Ashirbad Panda

**Title: An Introduction to Stochastic Process**

**Speaker: Kamal Lochan Patra**

**Title: Diagonalization of matrices and beyond.**

**Abstract: We will discuss the necessary and sufficient conditions for diagonalization of square matrices. We will also discuss about the generalized eigenvectors associated with square matrices and their usefulness for the study of non diagonalizable matrices.**

**Speaker: Sudhir Pujahari**

**Title: The mysterious primes**

**Abstract: In this talk, we will see some recent developments in the theory of prime numbers.**

**Speaker: Binod Kamar Sahoo**

**Title: Examples of infinite simple groups**

**Abstract: Recall that a group is said to be "simple" if it has no nontrivial proper normal subgroup. Some examples of finite simple groups are: the groups of prime order, the alternating groups defined on at least five symbols. In this talk, we shall discuss some examples of infinite simple groups.**

**Speaker: Brundaban Sahu**

**Title: Group Actions and some applications.**

**Abstract: We shall discuss group actions with many examples. We shall give some applications in Group Theory and Number Theory.**

**Speaker: Kotyada Srinivas**

**Title: Euler's totient function and its applications.**

**Abstract: The Euler totient function, denoted by  $\phi(n)$ , counts the number of positive integers up to  $n$  which are relatively prime to  $n$ . We shall discuss some interesting properties of this function by invoking combinatorial, number theoretic and algebraic arguments and also see its importance in communication technology.**

