

## Foundation Course in Linear Algebra, Real Analysis and Probability Theory

### Hour-wise Schedule form Monday to Saturday

#### Day 1 (28/06/2024)

<b>Time</b>	<b>Topics</b>
9:00 AM-9:30 AM (4105, CC2)	Registration of Participants
Session-0 9:30 AM-10:00 AM (4105, CC2)	Inaugural and Tea
Session-I 10:00 AM-10:55 AM (Board-Room, CC2) (SK)	Lecture: Linear Algebra (System of Linear Equations)
Session-II 11:00 AM – 11:55 AM (Board-Room, CC2) (SK/SJ)	Lecture: Real Analysis (Real Number System)
Session-III 12:00 PM-12:55 PM (Board-Room, CC2) (SJ)	Lecture: Probability Theory (Axiomatic Definition of Probability)
<b>01:00 PM – 03:00 PM</b>	<b>Lunch Break</b>
Session-IV 3:00 PM-3:40 PM (Board-Room, CC2) (SD)	Tutorial: Linear Algebra
Session-V 3:45 PM-4:25 PM (Board-Room, CC2) (SD/VU)	Tutorial: Real Analysis
<b>4:25-4:40 PM</b>	<b>Tea Break</b>
Session-VI 4:40 PM-5:20 PM (Board-Room, CC2) (VU)	Tutorial /Hands-On: Probability Theory

**Day 2 (29/06/2024)**

**(Board-Room, CC2)**

<b>Time</b>	<b>Topics</b>
Session-I 10:00 AM-10:55 AM (SK)	Lecture: Linear Algebra (Elementary Matrices & Row Reduced Echelon Form)
<b><i>10:55-11:05 AM</i></b>	<b><i>Tea Break</i></b>
Session-II 11:05 AM – 12:00 PM (SK/SJ)	Lecture: Real Analysis (Sequence and Their Convergence)
Session-III 12:05 PM-1:00 PM (SJ)	Lecture: Probability Theory (Conditional Probability and Bayes Theorem)
<b><i>01:00 PM – 03:00 PM</i></b>	<b><i>Lunch Break</i></b>
Session-IV 3:00 PM-3:40 PM (SD)	Tutorial: Linear Algebra
Session-V 3:45 PM-4:25 PM (SD/VU)	Tutorial: Real Analysis
<b><i>4:25-4:40 PM</i></b>	<b><i>Tea Break</i></b>
Session-VI 4:40 PM-5:20 PM (VU)	Tutorial /Hands-On: Probability Theory

**Day 3 (30/06/2024)**

**(Board-Room, CC2)**

<b>Time</b>	<b>Topics</b>
Session-I 10:00 AM-10:55 AM (SK)	Lecture: Linear Algebra (Vector Space & Its Properties)
<b><i>10:55-11:05 AM</i></b>	<b><i>Tea Break</i></b>
Session-II 11:05 AM – 12:00 PM (SK/SJ)	Lecture: Real Analysis (Cauchy Sequence & Subsequence)
Session-III 12:05 PM-1:00 PM (SJ)	Lecture: Probability Theory (Random Variable)
<b><i>01:00 PM – 03:00 PM</i></b>	<b><i>Lunch Break</i></b>
Session-IV 3:00 PM-3:40 PM (SD)	Tutorial: Linear Algebra
Session-V 3:45 PM-4:25 PM (SD/VU)	Tutorial: Real Analysis
<b><i>4:25-4:40 PM</i></b>	<b><i>Tea Break</i></b>
Session-VI 4:40 PM-5:20 PM (VU)	Tutorial /Hands-On: Probability Theory

**Day 4 (01/07/2024)**

**(Board-Room, CC2)**

<b>Time</b>	<b>Topics</b>
Session-I 10:00 AM-10:55 AM (SK)	Lecture: Linear Algebra (Basis and Dimension)
<b><i>10:55-11:05 AM</i></b>	<b><i>Tea Break</i></b>
Session-II 11:05 AM – 12:00 PM (SK/SJ)	Lecture: Real Analysis (Continuity)
Session-III 12:05 PM-1:00 PM (SJ)	Lecture: Probability Theory (Types of Random Variables)
<b><i>01:00 PM – 03:00 PM</i></b>	<b><i>Lunch Break</i></b>
Session-IV 3:00 PM-3:40 PM (SD)	Tutorial: Linear Algebra
Session-V 3:45 PM-4:25 PM (SD/VU)	Tutorial: Real Analysis
<b><i>4:25-4:40 PM</i></b>	<b><i>Tea Break</i></b>
Session-VI 4:40 PM-5:20 PM (VU)	Tutorial /Hands-On: Probability Theory

**Day 5 (02/07/2024)**

**(Board-Room, CC2)**

<b>Time</b>	<b>Topics</b>
Session-I 10:00 AM-10:55 AM (SK)	Lecture: Linear Algebra (Linear Transformation & Matrix Representation)
<b><i>10:55-11:05 AM</i></b>	<b><i>Tea Break</i></b>
Session-II 11:05 AM – 12:00 PM (SK/SJ)	Lecture: Real Analysis (Properties of Continuous Functions)
Session-III 12:05 PM-1:00 PM (SJ)	Lecture: Probability Theory (Function of Random Variables)
<b><i>01:00 PM – 03:00 PM</i></b>	<b><i>Lunch Break</i></b>
Session-IV 3:00 PM-3:40 PM (SD)	Tutorial: Linear Algebra
Session-V 3:45 PM-4:25 PM (SD/VU)	Tutorial: Real Analysis
<b><i>4:25-4:40 PM</i></b>	<b><i>Tea Break</i></b>
Session-VI 4:40 PM-5:20 PM (VU)	Tutorial /Hands-On: Probability Theory

**Day 6 (03/07/2024)**

**Visit to Sangam and HRI**

**Day 7 (04/07/2024)**

**(Board-Room, CC2)**

<b>Time</b>	<b>Topics</b>
Session-I 10:00 AM-10:55 AM (SK)	Lecture: Linear Algebra (Rank-Nullity Theorem)
<b><i>10:55-11:05 AM</i></b>	<b><i>Tea Break</i></b>
Session-II 11:05 AM – 12:00 PM (SK/SJ)	Lecture: Real Analysis (Differentiability)
Session-III 12:05 PM-1:00 PM (SJ)	Lecture: Probability Theory (Moments)
<b><i>01:00 PM – 03:00 PM</i></b>	<b><i>Lunch Break</i></b>
Session-IV 3:00 PM-3:40 PM (SD)	Tutorial: Linear Algebra
Session-V 3:45 PM-4:25 PM (SD/VU)	Tutorial: Real Analysis
<b><i>4:25-4:40 PM</i></b>	<b><i>Tea Break</i></b>
Session-VI 4:40 PM-5:20 PM (VU)	Tutorial /Hands-On: Probability Theory

**Day 8 (05/07/2024)**

**(Board-Room, CC2)**

<b>Time</b>	<b>Topics</b>
Session-I 10:00 AM-10:55 AM (SK)	Lecture: Linear Algebra (Eigen Values and Eigen Vectors)
<b><i>10:55-11:05 AM</i></b>	<b><i>Tea Break</i></b>
Session-II 11:05 AM – 12:00 PM (SK/SJ)	Lecture: Real Analysis (Mean Value Theorems)
Session-III 12:05 PM-1:00 PM (SJ)	Lecture: Probability Theory (Moment generating function and characteristic generating Function)
<b><i>01:00 PM – 03:00 PM</i></b>	<b><i>Lunch Break</i></b>
Session-IV 3:00 PM-3:40 PM (SD)	Tutorial: Linear Algebra
Session-V 3:45 PM-4:25 PM (SD/VU)	Tutorial: Real Analysis
<b><i>4:25-4:40 PM</i></b>	<b><i>Tea Break</i></b>
Session-VI 4:40 PM-5:20 PM (VU)	Tutorial /Hands-On: Probability Theory

**Day 9 (06/07/2024)**

**(Board-Room, CC2)**

<b>Time</b>	<b>Topics</b>
Session-I 10:00 AM-10:55 AM (SK)	Lecture: Linear Algebra (Diagonalizability)
<b><i>10:55-11:05 AM</i></b>	<b><i>Tea Break</i></b>
Session-II 11:05 AM – 12:00 PM (SK/SJ)	Lecture: Real Analysis (Local Extrema)
Session-III 12:05 PM-1:00 PM (SJ)	Lecture: Probability Theory (Special Discrete Distributions (Bernoulli/Binomial/Poisson/Geometric/Negative Geometric))
<b><i>01:00 PM – 03:00 PM</i></b>	<b><i>Lunch Break</i></b>
Session-IV 3:00 PM-3:40 PM (SD)	Tutorial: Linear Algebra
Session-V 3:45 PM-4:25 PM (SD/VU)	Tutorial: Real Analysis
<b><i>4:25-4:40 PM</i></b>	<b><i>Tea Break</i></b>
Session-VI 4:40 PM-5:20 PM (VU)	Tutorial /Hands-On: Probability Theory

**Day 10 (07/07/2024)**

**(Board-Room, CC2)**

<b>Time</b>	<b>Topics</b>
10:00-10:15 AM (SK)	Quiz 1: Linear Algebra
<b><i>10:15-10:30 AM</i></b>	<b><i>Break</i></b>
10:30 AM – 10:45 AM (SK)	Quiz 2: Real Analysis
<b><i>10:45-11:00 AM</i></b>	<b><i>Tea Break</i></b>
11:00 AM-11:15 AM (SJ)	Quiz 3: Probability Theory
11:15 AM- 12:00 PM	Discussion & Feedback
12:00 PM-12:30 PM	Prize Distribution & Valedictory Function

**List of Resource Persons:**

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**List of TAs**

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