E2 202 Random Processes

Term: August 2025

Instructors: Anurag Kumar and Rajesh Sundaresan

Lecture Plan (Actual sequence may vary)

Lec.	Date	Topic	Instructor
1	05 August 2025	1.1 Introduction, axioms of probability	RS
2	07 August 2025	Continuity of probability	RS
3	09 August 2025*	1.2 Random variables	RS
4	12 August 2025	Cumulative distribution functions	RS
5	14 August 2025	Independence	RS
	19 August 2025	Tutorial instead of class	
6	21 August 2025	Expectation	RS
7	26 August 2025	Densities, change of variables, examples	RS
8	28 August 2024	1.3 Random processes	RS
9	02 September 2025	Finite-dim distributions	RS
10	04 September 2025	1.4 Convergence of random sequences	RS
11	09 September 2025	1.5 Laws of large numbers	RS
12	11 September 2025	Central limit theorem	RS
13	16 September 2025	2.1 and 2.2 Conditional Ind. and Markov property	AK
14	18 September 2025	2.3 Strong Markov property	AK
15	23 September 2025	2.4 Hitting times and recurrence	AK
16	25 September 2025	2.5 Communicating classes and class properties	AK
17	30 September 2025	2.6 Positive recurrence and invariant measure	AK
	02 October 2025	Gandhi Jayanti - Holiday	
18	07 October 2025	2.7 Transience, theorems, examples	AK
19	09 October 2025	3.1 and 3.2 Renewal processes, Elem. Renewal Theorem	AK
20	14 October 2025	3.3 Renewal Reward Processes	AK
21	16 October 2025	3.4 The Poisson Process	AK
22	21 October 2025	3.4 The Poisson Process (continued)	AK
23	23 October 2025	4.1 and 4.2 Transition Prob. Functions, Sojourn times	AK
24	28 October 2025	4.3 Structure of a Pure Jump CTMC	AK
25	30 October 2025	4.4 Regular CTMC	AK
26	04 November 2025	4.5 and 4.6 Communicating Classes, Recurrence	AK
27	06 November 2025	4.6 Recurrence and Positivity	AK
28	11 November 2025	4.7 Birth Death Processes	AK
29	13 November 2025	4.8 Forward and Backward Equations	AK

*Saturday. This class is in lieu of the class on 19 August 2025.