



Bangladesh University of Business and Technology (BUBT)

COURSE OUTLINE

Program: B.Sc Engg. in CSE

Course Code: CSE 313

**Course Title: Mathematical Analysis for
Computer Science**

Semester: Summer- 2020 Intake:38

Course Teacher: Adeeba Anis, Lecturer, Dept. of CSE, BUBT

Month	Week	Lecture	Topics	Chapter	Remarks
Aug 06-12, 2020	1	1	Introduction, recurrence relation and solution and different notations, Iterative method	Knuth Ch-01	
		2	proof by mathematical induction, Recurrent Problems-1: Tower of Hanoi, Recurrent Problems-2: Lines in the plane	”	
Aug 13-19, 2020	2	3	Recurrent Problems-3: Josephus Problem, Sums-1: Notations	Knuth Ch-01,02	
		4	Sums-1: Sums to Recurrences, Sums-2: Recurrence to sum	Knuth Ch-02	
					Quiz-1
Aug 20-26, 2020	3	5	Sums-3: Manipulations sums, Sum-4: Multiple sums	”	
		6	Sums-5: General Methods-1	”	
Aug 27- Sep 02, 2020	4	7	Sums-6: General Methods-2, Sums-7: General Methods-3	”	
		8	Sums-8: General Methods-4	”	
					Quiz-2
Sep 03-09, 2020	5	9	Integer Functions-1: Floor, Ceiling,	Knuth Ch-04	
		10	Integer Functions-2: Floor Ceiling Recurrence	”	
Sep 10-16, 2020	6	11	Integer Functions-3: Mod: Binary Operation	”	
		12	Integer Functions-4: Floor Ceiling Sums	”	
					Class Test
Sep 17-23, 2020	7	13	Integer Functions-4: Floor Ceiling Sums (continued.)	”	
		14	Review class for Mid-Term Examination		
Sep 25-Oct 03			Mid-term Examination		
Oct 07-13, 2020	8	15	Number Theory-1: Divisibility, Primes, Factorial Factor, Number Theory-2: Relative Prime	Knuth Ch-05	
		16	Number Theory-3: Factorial factors, relative primality	”	
Oct 14-20, 2020	9	17	Number Theory-3: Congruence Relations, Application of Congruence Relations.	”	
					Quiz-3
		18	Introduction to probability theory: sample space and events, probability defined on events,	Ross Ch-01	
Oct 21-27, 2020	10	19	Introduction to probability theory: conditional probability, independent events	”	
		20	Introduction to probability theory: Bayes	Ross Ch-	

			formula, Introduction to random variables	01,02	
					Quiz-4
Oct 28-Nov 03, 2020	1 1	21	Discrete random variable	Ross Ch-02	
		22	Continuous random variable	”	
					Class Test
Nov 04-13, 2020	1 2	23	Markov chain, stochastic process	Ross Ch-04	
		24	Chapman-Kolmogorov equations	”	
Nov 15-23, 2020			Semester Final Examination		
Nov 30, 2020			Final Result Publication		
1st Dec- 11 Dec 2020			Registration for Fall 2020-2021		
2nd Dec 2020			Commencement of Classes of Fall 2020-2021		

Text Book:

1. Concrete Mathematics, 2nd Edition, by Ronald L. Graham, Donald E. Knuth & Oren Patashnik
2. Introduction to Probability Models, 9th Edition, by Sheldon M. Ross

Reference Books:

1. Mathematical Recurrence Relations, by Kiran R. Desai
2. An Introduction to Probability and Statistics, 3rd Edition, by Vijay K. Rohatgi, A. K. Md. Ehsanes Saleh

Adeeba Anis

Signature of Course Teacher