

Academic Calender July-Dec 2016

Lesson Plan

Week	Dates	Days	Lecture Schedule	List of Holidays
1st	20/07/2016-23/07/2016	4	Total Days: 100	List of Holidays
2nd	25/07/2016-30/07/2016	6	Holidays : 08	Sem. Break:11 oct.-16oct.2016
3rd	01/08/2016-06/08/2016	6	Total Teaching Days: 92	Aug. 15: Independence day
4th	08/08/2016-13/08/2016	6		Aug. 25: Janmashtami
5th	16/08/2016-20/08/2016	5		Sep. 12: Id-ul-Zuha
6th	22/08/2016-27/08/2016	5		Oct. 02: M.Gandhi B'Day
7th	29/08/2016-03/09/2016	6		Oct. 11: Dussehra
8th	05/09/2016-10/09/2016	6		Oct. 12: Muharram
9th	13/09/2016-17/09/2016	5		Oct. 30: Diwali
10th	19/09/2016-24/09/2016	6		Oct. 14: Guru Nanak B'Day
11th	26/09/2016-01/10/2016	6		
12th	03/10/2016-08/10/2016	6		
13th	10/10/2016-15/10/2016	1		
14th	17/10/2016-22/10/2016	6		
15th	24/10/2016-29/10/2016	6		
16th	31/10/2016-05/11/2016	6		
17th	07/11/2016-12/11/2016	6		

Department : Mathematics
Course : B.Sc. (Hons.) Maths
Semester : V
Subject : Metric Space (MAPC-311)
Teacher : Kanika Khatter

Teaching Schedule (July-Dec. 2016)

Number of Class/Week: 5 Theory+1 Tutorial

Week	Topics	Remarks
1st	<ul style="list-style-type: none"> ★ Definition of metric space ★ Examples of metric space <ul style="list-style-type: none"> ● Euclidean metric on \mathbb{R}, \mathbb{R}^2, \mathbb{C} ● discrete metric and some other known metrics ★ Metric Subspaces and Superspaces 	<p><i>Micheál Ó Searcóid</i></p> <p>Section- 1.1 till 1.1.17</p>
2nd	<ul style="list-style-type: none"> ★ Isometries ★ Metrics on Products ★ Metric and norms on linear spaces 	Section- 1.4, 1.6 and 1.7

Week	Topics	Remarks
3rd	<ul style="list-style-type: none"> ★ Diameter ★ Distances from points to sets ★ Isolated Points ★ Accumulation Points ★ Related theorems and examples 	Section- 2.1- 2.3, 2.5 and 2.6
4th	<ul style="list-style-type: none"> ★ Boundary Points and Boundary ★ Closure and Interior ★ All related proofs and questions 	Section- 3.1, 3.6 and 3.7 Assignment: 1
5th	<ul style="list-style-type: none"> ★ Open and Closed Sets ★ Dense Subsets and Topologies <ul style="list-style-type: none"> ● Topologies on subspaces and superspaces ★ Cantor's Intersection Theorem 	Section- 4.1- 4.4 and 4.7 Test:1st
6th	<ul style="list-style-type: none"> ★ Open and Closed Balls <ul style="list-style-type: none"> ● Balls in subspaces and products ● Related Theorems and examples 	Section- 5.1- 5.3
7th	<ul style="list-style-type: none"> ★ Convergence <ul style="list-style-type: none"> ● Criteria for convergence ● Limits ● Convergence in Subspaces and Superspaces ● Convergence in Products ● Convergence Criteria for Interior and Closure ★ Cauchy sequence 	Section- 6.1-6.2, 6.4-6.7,6.8
8th	<ul style="list-style-type: none"> ★ Boundedness <ul style="list-style-type: none"> ● Criteria for Boundedness and Related Results ● Convergence and Boundedness ★ Uniform and Pointwise Convergence ★ Totally Bounded Sets 	Assignment: 3 Section- 7.1, 7.4, 7.6-7.8
9th	<ul style="list-style-type: none"> ★ Continuity ★ Global Continuity ★ Continuity of compositions ★ All other related results 	Section- 8.1- 8.3, 8.5, 8.8-8.10
10th	<ul style="list-style-type: none"> ★ uniform continuity ★ Lipschitz Functions ★ Strong Contractions 	Section- 9.1 (upto 9.1.3), 9.2 (Theorem 9.2.1 with first 2 criteria) 9.4,9.9
11th	<ul style="list-style-type: none"> ★ Completeness <ul style="list-style-type: none"> ● Complete Subsets ★ Contraction mapping theorem 	Section- 10.2 (only Cauchy Criteria), 10.3,10.8
12th	<ul style="list-style-type: none"> ★ Baire's category theorem ★ Connectedness ★ Connected Subsets ★ Connectedness and Continuity 	Test: 2nd Section- 10.10,11.1-11.4
13th	<ul style="list-style-type: none"> ★ Connected components ★ Totally Disconnected metric spaces ★ Paths 	Assignment: 3 Sections 11.5- 11.7
14th	<ul style="list-style-type: none"> ★ Pathwise connectedness ★ Compactness <ul style="list-style-type: none"> ● Criteria for compactness ★ Examples and theorems 	Section- 11.8,12.1

Week	Topics	Remarks
15th	<ul style="list-style-type: none"> ★ Compact Subsets ★ Examples and theorems 	Sections- 12.2
16th	<ul style="list-style-type: none"> ★ Compactness and continuity ★ Unions and intersections of compact subsets ★ Examples and Theorems 	Test:3 Sections- 12.3, 12.4
17th	<ul style="list-style-type: none"> ★ Compactness of Products ★ Related Results and examples 	Sections- 12.5

Available Time Slots for Discussion:

Monday 10.30-12.30

Tuesday 10.30-12.30