

Spring AY20 SY488A Course Syllabus

Week	Day	Date	Topic	Reading	HW
1	Mon	6-Jan-20	No Class	(STALLINGS) Course Website Ch. 1.2 - 1.3 3.1 Apx. A	Problem Set #1
1	Tues	7-Jan-20	MONDAY SCHEDULE		
1	Wed	8-Jan-20	Course Introduction / Communication Systems Overview		
1	Thur	9-Jan-20	Signals in Time & Frequency Lab 1: Part 1		
1	Fri	10-Jan-20	Fourier Analysis		
2	Mon	13-Jan-20	Fourier Analysis	Apx. A	Problem Set #2
2	Tues	14-Jan-20	No Class		
2	Wed	15-Jan-20	Bandwidth & Data Rate	3.1	
2	Thur	16-Jan-20	Lab 1: Part 2		
2	Fri	17-Jan-20	Tansmission Impairments: dB, Gain & Attenuation	Apx. 3A	
3	Mon	20-Jan-20	MLK Day	3.3 3.4	Problem Set #3
3	Tues	21-Jan-20	No Class		
3	Wed	22-Jan-20	Transmission Impairments: Attenuation, Delay, Noise, SNR		
3	Thur	23-Jan-20	Lab 1: Part 3		
3	Fri	24-Jan-20	Channel Capacity		
4	Mon	27-Jan-20	Transmission Media: Guided & Unguided	4.1 - 4.2	Problem Set #4 EMS Worksheet Free Space Loss Worksheet
4	Tues	28-Jan-20	No Class		
4	Wed	29-Jan-20	Propagation	4.3 - 4.4	
4	Thur	30-Jan-20	Antennas, Analog & Digital Data, Analog-to-Digital Conv.	4.2,3.2, 5.3	
4	Fri	31-Jan-20	Signal Encoding: Digital Data, Digital Signals (Shift Keying)	5.1	
5	Mon	3-Feb-20	Signal Encoding: Digital Data, Digital Signals (Shift Keying)	5.2	Problem Set #5 A/D Worksheet Line Coding Worksheet
5	Tues	4-Feb-20	No Class		
5	Wed	5-Feb-20	Signal Encoding: Digital Data, Digital Signals (Shift Keying)	5.2	
5	Thur	6-Feb-20	Lab 2: Part 1		
5	Fri	7-Feb-20	**CAPSTONE PROJECT INTRODUCTION**		
6	Mon	10-Feb-20	Signal Encoding: Digital Data, Digital Signals (Shift Keying)	5.2	Problem Set #6
6	Tues	11-Feb-20	No Class		
6	Wed	12-Feb-20	Electronic Warfare	Handout	
6	Thur	13-Feb-20	Lab 2: Part 2	Handout	
6	Fri	14-Feb-20	Electronic Warfare		
7	Mon	17-Feb-20	President's Day	6.1-6.5 6.6. 16.2	Problem Set #7
7	Tues	18-Feb-20	Lab 2: Part 3		
7	Wed	19-Feb-20	Error Detection		
7	Thur	20-Feb-20	Lab 2: Part 3		
7	Fri	21-Feb-20	Forward Error Correction		
8	Mon	24-Feb-20	Lab 3: Part 1	8.1 - 8.2, 8.6	Multiplexing & Multiple Access Worksheet
8	Tues	25-Feb-20	No Class		
8	Wed	26-Feb-20	Multiplexing & Multiple Access		
8	Thur	27-Feb-20	Lab 3: Part 2		
8	Fri	28-Feb-20	TBD		
9	Mon	2-Mar-20	Instructor Discretion		
9	Tues	3-Mar-20	No Class		

9	Wed	4-Mar-20	Review Day			None
9	Thur	5-Mar-20	**MIDTERM EXAM**			
9	Fri	6-Mar-20	Midterm review			
	Mon	9-Mar-20	Spring Break			None
	Tues	10-Mar-20	Spring Break			
	Wed	11-Mar-20	Spring Break			
	Thur	12-Mar-20	Spring Break			
	Fri	13-Mar-20	Spring Break			
10	Mon	16-Mar-20	Smart Phone Tech	Global System for Mobile Communication (GSM) 3G/UMTS Toward mobile broadband and personal Internet	Problem Set #8	
10	Tues	17-Mar-20	No Class			
10	Wed	18-Mar-20	GSM			
10	Thur	19-Mar-20	Class Project Intro			
10	Fri	20-Mar-20	GSM			
11	Mon	23-Mar-20	GSM	Investigating vulnerabilities in GSM security Let Me Answer That For You: Exploiting Broadcast Information in Cellular Networks Long Term Evolution Protocol Overview	Problem Set #9	
11	Tues	24-Mar-20	No Class			
11	Wed	25-Mar-20	GSM			
11	Thur	26-Mar-20	SDR 1			
11	Fri	27-Mar-20	LTE			
12	Mon	30-Mar-20	LTE	The LTE Network Architecture Vulnerability by Design in Mobile Network Security IEEE 802.11ax: The Sixth Generation of Wi-Fi	Problem Set #10	
12	Tues	31-Mar-20	No Class			
12	Wed	1-Apr-20	LTE			
12	Thur	2-Apr-20	SDR 2			
12	Fri	3-Apr-20	WiFi			
13	Mon	6-Apr-20	WiFi	Network Sharing in The Evolved Packet Core	Problem Set #11	
13	Tues	7-Apr-20	No Class			
13	Wed	8-Apr-20	PLMN			
13	Thur	9-Apr-20	Small Group Presentations			
13	Fri	10-Apr-20	Evolved Packet Core			
14	Mon	13-Apr-20	Mobile Logical Channels	LTE Tutorials: Logical Channels The Mandatory Registration of Prepaid SIM Card Users	Problem Set #12	
14	Tues	14-Apr-20	No Class			
14	Wed	15-Apr-20	Mobile Registration Procedures			
14	Thur	16-Apr-20	Small Group Presentations			

14	Fri	17-Apr-20	Mobile Protocols and Identifiers	Intro to SS7 Signaling	
15	Mon	20-Apr-20	Mobile Protocols and Identifiers	Mobile Identity Authentication	
15	Tues	21-Apr-20	No Class		
15	Wed	22-Apr-20	Mobile and Location-based Services		
15	Thur	23-Apr-20	Group Projects		
15	Fri	24-Apr-20	Group Projects		
16	Mon	27-Apr-20	Review		None
16	Tues	28-Apr-20	No Class		
16	Wed	29-Apr-20	Review and Study Day (No Class)		
16	Thur	30-Apr-20	Exam Day 1		
16	Fri	1-May-20	Exam Day 2		
16	Sat	2-May-20	Exam Day 3		
17	Mon	5-May-20	Exam Day 4		
17	Tues	6-May-20	Exam Day 5		
17	Wed	6-May-20	Exam Day 6		
17	Thur	7-May-20	Exam Day 7		

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