No	Date	Topic	Assignment	Read
1	29-Mar	Introduction to interconnection networks. Walk through of a simple network.		Chapters 1 & 2
2	31-Mar	Topology basics. Constraints and measures. Butterfly networks.	HW1: Topology	Chapters 3 & 4
3	5-Apr	Cube networks. Concentration and slicing.	Research Paper Assigned	Chapters 5 & 7
4	7-Apr	Non-blocking topologies.		Chapter 6
5	12-Apr	Topology overflow and wrapup. Routing basics and taxonomy.	HW2: Routing and Flow control	Chapters 8 & 9
6	14-Apr	Oblivious routing. Adaptive routing. Routing mechanics.		Chapters 10 & 11
7	19-Apr	Global adaptive routing.		Chapter 12
8	21-Apr	Flow control basics. Resources and allocation strategies. Circuit switching. Store and forward. Dropping flow control. Misrouting. Cut through. Wormhole flow control, Virtual channels.	HW3: Router architecture	
9	26-Apr	Deadlock and livelock. Principles of deadlock. Buffer deadlock and channel deadlock. Deadlock in cyclic networks. Inter-dimension deadlock. Avoiding deadlock with virtual channels. The turn model.		Chapter 14
10	28-Apr	Router microarchitecture. Basic router. Input buffers and buffer organization. Internal switch organization: crossbars, dimension-ordered, and multistage.	Project assignment	Chapter 16
11	3-May	Midterm exam, in class	Research Paper Due	
12	5-May	Router datapath components, router pipelining, router delay models.	Checkpoint 1	Chapter 17
13	10-May	Allocators. Arbiters. The allocation problem - allocating VCs to packets and bandwidth to flits. Bipartite matching. Naïve allocation. Separable allocators. Wavefront allocation.		Chapters 18 & 19
14	12-May	Network performance analysis. Analysis of networks with dropping flow control. Analysis of blocking. The effects of buffers. Simulation vs. analysis. The effect of traffic patterns. Load balance and route diversity.		Chapters 23-25
15	17-May	Reliability: Definition of Reliability and Availability. Failure mechanisms and fault models. Path diversity. Pragmatics and self-healing.	Checkpoint 2	Chapter 21
16	19-May	TBD		
17	24-May	Project Presentations		
18	26-May	Project Presentations		
19	31-May	Wrapup Lecture		
			Project due	