UHTC Materials for Hypersonic Applications: Compositions, Manufacturing Processes, and Testing

Topic	Approximate	Instructor
	time	
Hypersonic TPS materials	1.5h	Rod Trice
The Mach 5+ environment		
UHTC compounds		
CMC types		
o C/C		
o UHTC-CMC		
o SiC/SiC		
Principles of materials selection		
Trajectories and materials		
selection	0.5h	Mark Opeka
Integrated UHTC-CMC		
approaches		
Manufacturing methods		
Emphasis on UHTC-CMCs	1.5h	Rod Trice
Introduction to materials testing of		
hypersonic materials		
Materials selection for vehicle	0.5h	Mark Opeka
design and aerodynamics		
Static testing		
 High-temp property 		
measurement	4 1-	Jaha Caharinaana
Dynamic and environmental	1h	John Schmisseur
testing		
 Wind tunnels, arc jet 		
testing, etc.		
Introduction to UCAH		