

# MSE 489, *Materials Selection for Sustainability*, Fall 2020

Prof. John R. Abelson

Date	Topic
Aug 25	Course Introduction, Objectives, Resources
27	Ashby, <i>Materials and the Environment</i> , Chs. 1 & 2
Sept 1	Problem definition and the Term Project ..... <i>Term project assigned (4 Deliverables)</i>
3	<u>Small groups</u> : Sustainable development 5-step assessment
8	Ch. 9, Selection..... <i>HW 1 assigned (Selection)</i>
10	Shape factors; shaping processes
15	Hybrid materials
17	CES software ..... <b>HW 1 due</b>
22	Economics
24	Ch. 3, Life cycle ..... <b>Deliverable 1 due</b>
29	The zero net energy home ..... <i>HW 2 assigned (ZEROS)</i>
Oct 1	ZEROS building energy software
6	Heat flow and heat pumps
8	<u>Small groups</u> : ZEROS reports ..... <b>HW 2 due</b>
13	Ch. 4, End of first life
15	Critical metals and recycling ..... <b>Deliverable 2 due</b>
20	Ch. 6 & 7: Eco-data & Eco-audits..... <i>HW 3 assigned (LCA)</i>
22	Design with CES
27	Ch. 8, Case studies
29	Ch. 10, Eco-informed selection ..... <b>HW 3 due</b>
Nov 3	The 2050 calculator
5	Ch. 5, Legislation and Policy ..... <b>Deliverable 3 due</b>
10	Ch. 11, Sustainability
12	<u>Small groups</u> : <b>Feedback on Deliverables 1-3</b>
17	Photovoltaic cells and modules
19	Chs. 12 & 13..... <b>Deliverable 4 due</b>
	<i>Thanksgiving break</i>
Dec 1	Synopsis & Ch. 14, Future options
3	Student presentations I
8	Student presentations II
10	<i>Term over</i> ..... <b>Paper due</b>