

## Engineering Cultures 2054

### Master Course Schedule Fall 2013

Module	Date	Topic	Reading & Assignment Due Date
<b>What images challenge engineers?</b>  <b>(both within engineering and beyond)</b>	(1) Monday 8/26	A course about you!: What images of engineering challenge/influence you?	Review General Syllabus "Introduction to Engineering Cultures" (Downey) 9p
	Wednesday 8/28	Dominant images of engineering among engineers: rational problem solver, no politics; normative holism?, global engineer?	"The Political Pleasures of Engineering" (Brody) 7p "Trial and Error in Washington" (Florman) 1p "What is Global Engineering Education For?" (Downey) 4p
	Friday 8/30	<i>Readings discussion: requirements, dominant images of engineering &amp; engineers</i>	
<b>Engineers for Great Britain</b>	(2) Monday 9/2	A profession to rise above manual labor Practical training for collective improvement	"Britain and European Education" (Morice) 5p "Education or Training?" (Buchanan) 5p
	Wednesday 9/4	Practical training for collective improvement (cont.) Technical higher education falls short	"Lives of the Engineers: George Stephenson" (Smiles) 18p "The Public Schools and Industry" (Ward) 15p <b>Threaded discussion #1 due 5:00pm, Thursday 9/5</b>
	Friday 9/6	<i>Readings discussion, Britain: new individual; profession above manual labor, collective improvement</i>	<b>Homework #1 due in recitation</b>
	(3) Monday 9/9	Continuing ambiguities, struggle for status	"Engineering Our Future" (Finniston, selections) 48p "Engineering Technician Standard" (Engineering Council) 7p "Chartered and Incorporated Engineer Standard" (Engineering Council) 17p
<b>Engineers for France</b>	Wednesday 9/11	To control territory Adding collective advancement	"The Making of the French Engineer" (pp98-106) (Crawford) 9p "From Technical Corps to Technocratic Power" (Belhoste/Chatzis) 13p <b>Threaded discussion #2 due 5:00pm, Thursday 9/12</b>
	Friday 9/13	<i>Readings discussion, Britain: Finniston; 3yr/4yr; France: serving perfection; collective advancement</i>	
	(4) Monday 9/16	Competing for general technical education Multiplying specific education	"The French Technologists" (Kranakis) 18p "Future Progress of the Human Mind" (Condorcet) 8p
	Wednesday 9/18	Ambiguities of innovation	"Why the French Like Nuclear Energy" (Fullerton) 5p "How Globalization Challenges France" (Gordon/Meunier) 2p "Questioning a Tradition: A French Way of Excellence" (Beraud) 7p <b>Threaded discussion #3 due 5:00pm, Thursday 9/19</b>
	Friday 9/20	<i>Readings discussion: France: social order; center over periphery; struggles with Bologna</i>	
<b>Engineers for Germany</b>	(5) Monday 9/23	Partial men for economic development Emancipating <i>geist</i> at higher technical institutes	"Long Quest for Professional Identity" (Gispén) 23p "Engineering Education in Germany" (Kennedy) 4p
	Wednesday 9/25	Adding higher machine-building institutes Expanding access	"Technology" [Engineers and National Socialism] (Hughes) 14 "Adolf Hitler Speech of April 12, 1921" 5p "Testimony of Crematorium Engineers" 2p <b>Threaded discussion #4 due 5:00pm, Thursday 9/26</b>
	Friday 9/27	<i>Readings discussion, Germany: partial men; scientific technology; two types of schools; Exam review</i>	<b>Reflections 1 assignment due in recitation</b>
	(6) Monday 9/30	"The situation is confusing": positioning engineers within Europe	"The New Europe" (Reid) 6p "Measuring the Cost of Quality: German Engineering at the Crossroads" (Legg) 4p "Daimler-Chrysler: A Cultural Mismatch?" (Dutta) 8p "Engineering Education in West Germany in View of the Future European Market" (Zerna) 4p "The Bologna Declaration" 3p
<b>Wednesday October 2: Exam #1: Introduction, Engineers for Great Britain, Engineers for France, Engineers for Germany</b>			

<b>Engineers for the United States</b>	Friday 10/4	<i>Recitation: independent study</i>	
	(7) Monday 10/7	Multiple pathways, multiple visions Emergence of the CE	“The Engineer in 19 <sup>th</sup> -Century America” (Reynolds) 20p “Turn of the Century” (Surowiecki) 5p
	Wednesday 10/9	Guest Presentation, Dr. Bevelee Watford, Associate Dean, Academic Affairs Director, Center for the Enhancement of Engineering Diversity	<b>Threaded discussion #5 due 5:00pm, Thursday 10/10</b>
	Friday 10/11	<i>Readings and class discussion, U.S: multiple visions; Watford’s trajectory</i>	<b>Homework #2 due in recitation</b>
	(8) Monday 10/14	Re-forming for industry: Case study of a land grant institute <a href="https://globalhub.org/resources/34">https://globalhub.org/resources/34</a>	Morrill Land Grant Act (6p) "Early History - The First Black Students at Virginia Tech" (Wallenstein) 5p “Early History at Virginia Tech Asians and Asian-Americans at Virginia Tech: The Early Years, 1920-1950” (Wallenstein) 4p
	Wednesday 10/16	ME and other disciplines Engineers for corporate industry <a href="https://globalhub.org/resources/57">https://globalhub.org/resources/57</a>	“Emergence of the professional engineer” (Noble) 17p “Principles of Scientific Management” (Taylor) 15p
	Friday 10/18	Fall Break—no class	
	(9)Monday 10/21	Separating design and manufacturing	“Charles F. Kettering and the Copper-Cooled Engine” (Leslie) 25p
	Wednesday 10/23	Recent reform movement #1: overcoming dominant images of gender and race	“The Engineering Student Pipeline” (Bowen) 2p “Findings & Recommendations” (Task Force on the Engineering Student Pipeline) 2p “The Case for Minority Engineering Programs” (Landis) 5p <b>Threaded discussion #6 due 5:00pm, Thursday 10/24</b>
	Friday 10/25	<i>Readings discussion, U.S. stabilization in schools; low cost, mass use; tension between design and manufacturing; differences among engineers; pipeline image of gender and race</i>	<b>Homework #3 due in recitation</b>
	(10)Monday 10/28	Recent reform movement #2: innovation through integrated learning	Engineering Education: Innovation Through Integration” (Bordogna, Fromm and Ernst) 6p “Criteria for Accrediting Engineering Programs” (ABET) 4p
	Wednesday 10/30	Recent reform movement #3: the global engineer	“It’s a Flat World, after All” (Friedman) 9p “Defining, Developing, and Assessing Global Competence in Engineers (Lohmann et al.) 10p “Location, Knowledge and Desire” (Downey) 25p <b>Threaded discussion #7 due 5:00pm, Thursday 10/31</b>
	Friday 11/1	<i>Readings discussion, U.S.: making flexible engineers; making global engineers; Exam prep</i>	
<b>(11) Monday, November 4: Exam #2: Engineers for the U.S.</b>			
<b>!!! Note: online homework #4a due 5pm Tuesday, November 5 (important—no preparation) !!!</b>			

<b>Engineers for Korea</b>  <b>(with a brief introduction to Japan)</b>  <b>Note: be sure to read book chapters before class; different style (to be updated by mid-October)</b>	Wednesday 11/6	<i>Mini-Dragons: Korea (video in class)</i>	
	Friday 11/8	<i>Recitation: independent study</i>	
	(12)Monday 11/11	What are Korean engineers for? Five Koreas without Korean engineers	<i>Engineers for Korea</i> (Chs 1-2) (Han/Downey) (Library pdf or through Amazon)
	Wednesday 11/13	What are Japanese engineers for?: join civilization; serve a hierarchical empire; export strength; new 'individual'	"Avoiding Inferiority: Global Engineering Education in Japan" (Downey/Wada) 20p <b>Threaded discussion #8 due 5:00pm, Thursday 11/14</b>
	Friday 11/15	<i>Readings discussion, Korea: Joseon, empire, colonized, occupied, war; Japan: shogunate, civilization, empire, export strength</i>	
	(13)Monday 11/18	Japan, continued Technical workers for light industry	"Working in Japan: An Insider's Guide for Engineers" (Honda) 5p <i>Engineers for Korea</i> (Ch 3) (Han/Downey)
	Wednesday 11/20	Engineers for heavy industry	<i>Engineers for Korea</i> (Ch 4) (Han/Downey) <b>Threaded discussion #9 due 5:00pm, Thursday 11/21</b>
	Friday 11/22	<i>Recitation: independent study</i>	
	(14)Monday 12/2	Scientist-engineers for international competitiveness	<i>Engineers for Korea</i> (Ch 5) (Han/Downey)
	Wednesday 12/4	Crisis for engineers?	<i>Engineers for Korea</i> (Chs 6-7) (Han/Downey) <b>Threaded discussion #10 due 5:00pm, Thursday 12/5</b>
Friday 12/6	<i>Readings discussion, Korea: from elite workers for the state to employees; attempts to advance engineering as profession; participation by women</i>	<b>Reflections 2 assignment due in recitation</b> <b>Online homework #4b due by 11:59pm, Sunday 12/8</b>	
<b>Engineering as Problem Definition and Solution</b>	(15)Monday 12/9	Location, knowledge, and desire: engineering as problem definition and solution	"PDS: Engineering as Problem Definition and Solution" (Downey) 16p
<b>Wednesday December 11: Labor Day</b> (view <a href="http://www.history.com/topics/labor-day/videos-history-of-labor-day">http://www.history.com/topics/labor-day/videos-history-of-labor-day</a> ) (3 min)			
<b>Tuesday, December 17, 3:25PM-5:25PM Exam #3: Engineers for Korea (and Japan); Engineering as Problem Definition and Solution</b> <b>Location: our classroom</b>			