ENGR 152 – EXPLORATIONS IN ENGINEERING
Course Syllabus

Text: INTRODUCTION TO ENGINEERING, 3rd Ed., Paul H. Wright, John Wiley & Sons,

Schedule for Spring 2006

January
Lesson 1
Media: On-site instructional session
Time: @ Louisa County HS (Thurs. Jan. 19th, 2:45 – 3:15 p.m.)
@ Nelson County HS (Fri. Jan. 20th, 1:45 – 2:45 p.m.)
@ Green County HS (Mon. Jan. 23rd, 1:45 – 2:45 p.m.)
@ Orange County HS (Wed. Jan. 25th, 1:45 – 2:45 p.m.)
Topic: Questions & Answers

Lesson 2
Media: Through UVA’s Blackboard System (http://uvaonline.org)
Time: Students should complete this lecture between
    Wed. Jan. 25th, 9 a.m. and Sun. Jan. 29th, 4 p.m.
Topic: Course introduction
Assignment: Artifact Assignment given, PW Ch. 1

Lesson 3
Media: Through Horizon Wimba (http://208.185.32.63/)
Time: Mon. Jan. 30th, 1:50 – 3:00 p.m.
Topic: Definitions – Engineering and Design
Reading: PW, Ch. 2.1, 2.2 plus SR

February
Lesson 5
Media: Through Horizon Wimba (http://208.185.32.63/)
Time: Mon. Feb. 6th, 1:50 – 3:00 p.m.
Topic: Engineering Fields
Reading: PW, Ch. 2.3-2.12

Lesson 6
Media: Through UVA’s Blackboard System (http://uvaonline.org)
Time: Tues. Feb. 7th, 9 a.m. – Fri. Feb. 10th, 4 p.m.
Topic: Career Paths
Assignment: Artifact Assignment due
Reading: PW, Ch. 2.13-2.27

Lesson 7
Media: Through Horizon Wimba (http://208.185.32.63/)
Time: Mon. Feb. 13th, 1:50 – 3:00 p.m.
Topic: Team formation and performance
Lesson 8  
Media: Through UVA’s Blackboard System (http://uvaonline.org)  
Time: Available Tues. Feb. 14th, 9 a.m. – Fri. Feb. 17th, 4 p.m.  
Topic: Introduce case study problem 3 – teams  
Assignment: Problem Def’n and Spec’s Report (given)  
Reading: PW, Ch. 5.1

Lesson 9  
Media: Through Horizon Wimba (http://208.185.32.63/)  
Time: Mon. February 20th, 1:50 – 3:00 p.m.  
Topic: Engineering Method – overview  
Reading: PW, pp. 111-113

Lesson 10  
Media: Through UVA’s Blackboard System (http://uvaonline.org)  
Time: Available Tues. Feb. 21st, 9 a.m. – Fri. Feb. 24th, 4 p.m.  
Topic: External and internal searching  
Reading: PW, Ch. 5.2-5.3

Lesson 11  
Media: Through Horizon Wimba (http://208.185.32.63/)  
Time: Mon. Feb. 27th, 1:50 – 3:00 p.m.  
Topic: Reverse Engineering – the mind’s eye of the engr. designer

Lesson 12  
Media: Through UVA’s Blackboard System (http://uvaonline.org)  
Time: Available Tues. Feb. 28th, 9 a.m. - Fri. Mar. 3rd, 4 p.m.  
Topic: Reverse engineering case study  
Assignment: Problem Definition and Requirements Report due

March  
Lesson 13  
Media: Through UVA’s Blackboard System (http://uvaonline.org)  
Time: Mon. Mar. 6th, 9 a.m. – Wed. Mar. 8th, noon  
Assignment: Conceptual Design assignment (given)  
Topic: Technical drawing and communication

Lesson 14  
Media: Through UVA’s Blackboard System (http://uvaonline.org)  
Time: Available Wed. Mar. 8th, noon - Fri. Mar. 10th, 4 p.m.  
Topic: Introduce Conceptual Design / Learning & creative thought  
Reading: PW, 4.6-4.16

Lesson 15  
Media: Through Horizon Wimba (http://208.185.32.63/)  
Time: Mon. Mar. 13th, 1:50 – 3:00 p.m.  
Topic: Conceptual design (concept classification and organization)  
Reading: PW, 6.5-6.13
| Lesson 16 | Media: Through UVA’s Blackboard System (http://uvaonline.org) | Time: Available Tues. Mar. 14th, 9 a.m. – Fri. Mar 17th, 4 p.m. | Topic: Excel Primer I |
| Lesson 17 | Media: Through Horizon Wimba (http://208.185.32.63/) | Time: Mon. March 20th, 1:50 – 3:00 p.m. | Topic: Concept selection – Decision matrices |
| Lesson 17 | Reading: PW, 5.4-5.5 |
| Lesson 18 | Assignment: Conceptual Design Report (due) |
| Lesson 19 | Media: Through Horizon Wimba (http://208.185.32.63/) | Time: Mon. March 27th, 1:50 – 3:00 p.m. | Topic: Analysis – selection and design |
| Lesson 19 | Assignment: Preliminary Design assignment (given) |
| Lesson 20 | Reading: PW, Ch. 7 |
| April | Lesson 21 | Media: On-site instructional session | Time: @ Orange County HS (Mon. April 3rd, 1:45 – 2:45 p.m.) |
| April | Lesson 21 | @ Louisa County HS (Wed. April 5th, 1:45 – 2:45 p.m.) | @ Nelson County HS (Mon. April 17th, 1:45 – 2:45 p.m.) |
| April | Lesson 21 | @ Greene County HS (Wed. April 19th, 1:45 – 2:45 p.m.) | Topic: Portrait of an Engineer |
| Lesson 22 | Media: Through UVA’s Blackboard System (http://uvaonline.org) | Time: Available Tues. April 4th, 9 a.m. – Fri. April 14th, 4 p.m. | Topic: Learning from failure – Challenger case study |
| Lesson 22 | Assignment: Preliminary Design Report (due) |
| Lesson 23 | Media: Through Horizon Wimba (http://208.185.32.63/) | Time: Mon. April 16th, 1:50 – 3:00 p.m. | Topic: Prototype design and testing / proof of concept |
| Lesson 24 | Media: Through UVA’s Blackboard System (http://uvaonline.org) | Time: Available Tues. April 11th, 9 a.m. – Fri. April 21st, 4 p.m. | Topic: Economic analysis |
| Lesson 24 | Assignment: Final Presentation and Report assignments (given) |
Lesson 25  
Media: Through Horizon Wimba (http://208.185.32.63/)  
Time: Mon. April 24th, 1:50 – 3:00 p.m.  
Topic: Professional engineering practice  
Reading: PW, Ch. 3

Lesson 26  
Media: Through UVA’s Blackboard System (http://uvaonline.org)  
Time: Available Tues. April 25th, 9 a.m. – Fri. April 28th, 4 p.m.  
Topic: Safety and product liability

May  
Lesson 27  
Media: Through Horizon Wimba (http://208.185.32.63/)  
Time: Mon. May 1st, 1:50 – 3:00 p.m. (Horizon Wimba)  
Topic: Team Final Presentations

Lesson 28  
Media: Through UVA’s Blackboard System (http://uvaonline.org)  
Time: Available Tues. May 2nd, 9 a.m. - Sun. May 7th, 4 p.m.  
Topic: Review and reflection

Lesson 29  
Media: On-site instructional session  
Time: Friday May 5th, 1:30 – 3:00 p.m. at UVA  
Topic: Demonstration of final working prototypes at UVA  
Assignment: Final Design Report

1 Blackboard course content  
While the content of the lectures housed on UVA’s Blackboard course management system will be available all semester, each lecture includes interactive student content that students must complete during the time window shown on this syllabus.

1 Assigned Reading  
Reading assignments are to be completed by the class date on which the assignment appears. SR = supplemental reading.

2 Team Project  
Design a device to help elderly individuals with a challenging task.

Table of Assignment Schedule

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Value</th>
<th>Type</th>
<th>Date of Assignment</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artifact Assignment</td>
<td>5%</td>
<td>Individual</td>
<td>Jan 25 (W)</td>
<td>Feb 10 (F)</td>
</tr>
<tr>
<td>Prob Defn and Reqts</td>
<td>15%</td>
<td>Team</td>
<td>Feb 14 (T)</td>
<td>Mar 3 (F)</td>
</tr>
<tr>
<td>Conceptual Design</td>
<td>20%</td>
<td>Team</td>
<td>Mar 6 (M)</td>
<td>Mar 24 (F)</td>
</tr>
<tr>
<td>Preliminary Design</td>
<td>20%</td>
<td>Team</td>
<td>Mar 27 (M)</td>
<td>Apr 14 (F)</td>
</tr>
<tr>
<td>Final Presentation</td>
<td>15%</td>
<td>Team/Individual</td>
<td>Apr 11 (T)</td>
<td>May 1 (M)</td>
</tr>
<tr>
<td>Final Design Report</td>
<td>20%</td>
<td>Team</td>
<td>Apr 11 (T)</td>
<td>May 5 (F)</td>
</tr>
<tr>
<td>Participation</td>
<td>5%</td>
<td>Individual</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>
Schedule Notes

Semester Start
UVA January 18th

Spring Breaks
UVA March 6-10
Greene April 3-7
Nelson April 3-7
Louisa April 17-21
Orange April 17-21

Final Exams
UVA May 4-12

Class Sessions
Blackboard Sessions 14
Horizon Wimba 12
Live 3
Total 29