**ENGR 1620 *INTRODUCTION TO ENGINEERING***

**Text**: (DL) Engineering Design – A Project-based Introduction, Dym and Little, John Wiley and Sons, Inc., 2009 (ISBN 0-978—0-470-22596-7)

(M) The New Way Things Work, David Macauley, Houghton Mifflin,1998 (ISBN: 0-395-93847-3)

**Supplementary Texts:** (UE) Product Design and Development, Karl T. Ulrich and Steven D. Eppinger, Library Reserve

**Instructor:** David L. Green, dlg9s@virginia.edu

(M) Mondays - Lecture

(W) Wednesdays - Team Workshop

(F) Fridays - Team Presentations

**Table 1: Schedule for Fall 2013**

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| --- | --- | --- | --- | --- |
| **Date**  | **No.**  | **Topic/Event**  | **Reading Assignment**  | **Deadlines**  |
| Aug 28 (W)  | 1  | Introduction to ENGR 1620 Conceptual Design Team Assignments (Artifact Assignment)  | DL: Ch. 1  |  |
| 30 (F)  | 2  | What is Engineering? Presentation and Discussion of Design Examples | DL: Ch. 2  |  |
| Sept 2 (M)  | 3  | Intro to Engineering Challenge Project: Design of Youth Football Helmets- Problem Background |  |  |
| 4 (W)  | 4  | Problem Definition/ Creativity/ Internal and External Searching | DL: 3.5, 5.2.1, 5.2.2UE Ch. 6 pp. 115-118 |  |
| **6 (F)**  | 5  | Concussions and Traumatic Brain Injury (TBI) |  | **Artifact Report****External Visitor: Jeff Barth**  |
| 9 (M)  | 6  | Product Planning & Specifications  | DL: 3.2, 3.4, 4.2UE Chs. 3-5 |  |
| 11 (W)  | 7  | Concept Generation (Conceptual Design Milestone Assignment)  | DL: 5.1, 5.2.4 5.3, 5.4 UE Ch. 6 |  |
| 13 (F)  | 8  | Team Workshop  |  |  |
| 16 (M)  | 9  | Concept Selection – Screening and Scoring | DL: 5.5, 5.8 |  |
| 18 (W)  | 10  | Team Workshop  |  |  |
| **20 (F)**  | 11  | Challenge Concept Presentations  |  |  |
| **23 (M)**  | 12  | Challenge Concept Presentations/Discussion  |  | **Conceptual Design**  |
| 25 (W)  | 13  | Challenge Concept Selection Problem Decomposition  | UE Ch. 6 pp. 112-114 | **Concept Selection**  |
| 27 (F) | 14 | Engineering Design Team Assignments Way It Works Example/Assignments Technical Drawing | DL: 6.4 |  |
| 30(M)  | 15  | Project/Design Management  | DL: Ch. 7  |  |
| Oct 2 (W)  | 16  | Team Workshop  |  |  |
| 4 (F)  | 17  | The Way It Works (2-3 teams)  |  |  |
| 7 (M) |  | Overview: Materials and Manufacturing | Handout |  |
| 9 (W)  | 18  | Team Workshop  |  |  |
| 11 (F)  | 19  | The Way It Works (2-3 teams)  |  |  |
| 14 (M)  | 20 | Reading Holiday |  |  |
| 16 (W)  | 21  | Team Workshop  |  |  |
| 18 (F)  | 22  | EDT Progress Reports  |  |  |
| **21 (M)**  | 23  | Review: Open-ended Problem Solving/ Proof-of-Concept  | DL: 5.6 UE Ch. 8 | **Preliminary Design**  |
| 23 (W)  | 24  | Team Workshop  |  |  |
| 25 (F)  | 25  | The Way It Works (2-3 teams)  |  |  |
| 28 (M)  | 26  | Failure in Engineering  |  |  |
| 30 (W)  | 27  | Team Workshop  |  |  |
| **Nov 1 (F)**  | 28  | EDT Progress Reports  |  |  |
| 4 (M)  | 29  | Ethics/ Design Safety & Product Liability  | DL: Ch. 9 Handout  |  |
| 6 (W)  | 30  | Team Workshop [*Reflection*]  |  |  |
| 8 (F)  | 31  | The Way It Works (2-3 teams)  |  |  |
| 11 (M)  | 32  | Product Development and Production/ Economics  | DL: Ch. 8 UE Ch. 13 |  |
| 13 (W)  | 33  | Team Workshop  |  |  |
| 15 (F)  | 34  | The Way It Works (2-3 teams)  |  |  |
| 18 (M)  | 35  | Effective Communication/ Final Design Report Assignment  | DL: 6.1,6.2,6.3  |  |
| 20 (W) |  | Team Workshop |  |  |
| 22 (F) |  | Prototype Demo |  |  |
| 25 (M) | 36 | EDT Progress Reports |  |  |
| 27 (W)  | 37  | Thanksgiving Break  |  |  |
| 29 (F)  | 38  | Thanksgiving Break |  |  |
| Dec 2 (M)  | 39  | Prototype Demo |  |  |
| 4 (W)  | 40  | Prototype Demo |  |  |
| 6 (F)  | 41  | Prototype Demo |  | **Final Prototype** |
| 13 (F) | 42 | Group Presentations |  | **Final Design Report** |