

## ME 1038: Design for Manufacturing and Assembly

Summer Term, 2004

As of 06/09/04

- Content:** Global manufacturing; design for assembly; Materials selection; DFM for manufacturing processes; cost estimating for manufacturing.
- Textbook:** *Introduction to Manufacturing Processes*, by John A. Schey, Third Edition, McGraw Hill, 2000
- References:** George Boothroyd and Peter Dewhurst, *Product Design for Assembly*, Boothroyd Dewhurst Inc., 1987.
- Instructor:** H.Y.Shadow Huang, PhD.  
534 Benedum Hall  
Phone: 624-3091  
E-mail: shuang@engr.pitt.edu  
Office hours W 2:00 – 4:00 pm
- Homework:** Assigned and collected periodically as shown in the schedule below.
- Individual Paper:** Students will prepare a paper on some aspect of global manufacturing.
- DFA Problem:** Students will complete a Design for Assembly problem.
- Team Project:** Students will work in teams to complete a design for manufacturing project. The output will be a poster and a report describing the results of the project.
- In class quiz:** In class quizzes are assigned periodically.
- Exams:** One exam as shown on the schedule below.
- Grading:**
- |                   |      |
|-------------------|------|
| Homework          | 25%  |
| Global Mfg. paper | 10%  |
| DFA Problem       | 5 %  |
| In class quiz     | 15%  |
| Exam              | 20%  |
| Team Project      | 25%. |

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| <b><u>WEEK of</u></b> | <b><u>TOPIC</u></b>  | <b><u>READING</u></b> | <b><u>HOMEWORK</u></b>               | <b><u>Due Date</u></b>      |
|-----------------------|--|-----------------------|--------------------------------------|-----------------------------|
| 05/05/04              | Introduction<br>DFA Qualitative  | Chs. 1,2              | Global mfg. paper assigned           | <b>06/23/04</b>             |
| 05/12/04              | DFA Quantitative<br>Service attributes   | Ch. 4                 | DFA Problem<br>4A-3,7; 4C-1, 2, 7, 9 | <b>06/23/04</b><br>05/26/04 |
| 05/19/04              | Guest lecture  | TBA                   | TBA                                  | TBA                         |
| 05/26/04              | Plastic Deformation  | Ch. 8                 | 8A-2,4,5,6,7                         | 06/02/04                    |
| <del>06/02/04</del>   | <del>Heat Treatment</del>  | <del>Chs. 5,6;</del>  | <del>6A 8; 6B 2, 4, 5, 7</del>       | <del>06/09/04</del>         |
|                       | <del>Material Selection</del>  |                       |                                      |                             |
|                       | <del>Castings</del>  | <del>Ch. 7</del>      | <del>7A 1,3,6,12</del>               | <del>06/09/04</del>         |
| 06/09/04              | Engineering Materials<br>Solidification  | Chs. 5,6;             | 6A-8; 6B-2, 4, 5, 7                  | 06/16/04                    |
| 06/16/04              | Castings   | Ch. 7                 | 7A-1,3,6,12                          | 06/30/04                    |
|                       | Bulk Deformation   | Ch. 9                 | 9A-1,3,5,6                           | 06/30/04                    |
|                       | Sheet-metal Working  | Ch. 10                | 10A-1,2,3,4                          | 06/30/04                    |
| 06/23/04              | <b>Global Manufacturing Paper Due on Wednesday June 23, 2004 at the start of class</b>     |                       |                                      |                             |
|                       | <b>DFA Problem Due on Wednesday June 23, 2004 at the start of class</b>                    |                       |                                      |                             |
|                       | Polymers & Plastics  | Ch. 13                | 13A-1,5,6                            | 07/07/04                    |
|                       | Processing of Plastics   | Ch. 14                | 14A-3,6,7                            | 07/07/04                    |
|                       | Machining  | Ch. 16                |                                      |                             |
| 06/30/04              | Machining  | Ch. 16                | 16A-2,3,8<br>16A-12,13,15,16         | 07/14/04<br>07/14/04        |
|                       | Nontrad. Machining   | Ch. 17                |                                      |                             |
|                       | <b>Team Project Assigned</b>   |                       |                                      | <b>08/04/04</b>             |
| 07/07/04              | Nontrad. Machining   | Ch. 17                | 17A-1,2,3,5,6                        | 07/21/04                    |
|                       | Joining  | Ch. 18                |                                      |                             |
|                       | Surface Treatments   | Ch. 19                |                                      |                             |
| 07/14/04              | Project  |                       |                                      | 08/04/04                    |
|                       | <b><u>Exam Review on Wednesday July 14, 2004, from 4 to 6:30 pm</u></b>                    |                       |                                      |                             |
| 07/21/04              | <b><u>Exam on Wednesday July 21, 2004</u></b>  |                       |                                      |                             |
| 07/28/04              | Project  |                       |                                      |                             |
| 08/04/04              | <b><u>Team Project reports and posters due on Wednesday, August 4, 2004 by 5:00 pm</u></b> |                       |                                      |                             |