

National Chiayi University Syllabus
Department of Forest Product and Furniture Engineering,
Fall Semester,
Academic Year 2010

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| Course: Wood Adhesion | Credit: 2 | Hours: 2 |
| Class: Junior | Required | |
| Instructor: Yiren Wang | E-mail: woody | |
| Office: A02-224 | Office Hours: | |

I. Course Description:

This course will cover the topics such as bonding mechanism, factors which affect bonding quality, design of bonding joints, properties and applications of adhesives which are commonly used in wood industry, testing methods of adhesive and bonding qualities of wood products.

II. Teaching Objectives:

The objective of this course is to develop basic understanding of bonding mechanism, factors which affect the bonding quality, design of bonding joints and manufacture of wood adhesives commonly used in wood industry, and testing methods of adhesive and bonding qualities of wood products.

III. Class Schedule (Monday, periods 1&2)

| Week | Date | Topic/Activity | Reading/Assignment |
|-------------|-------------|--|---------------------------|
| 1 | | Introduction | |
| | | Bonding and mechanical joints | |
| 2 | | Advantages and disadvantages of bonding | |
| 3 | | Bonding theories | |
| | | Five-link theory | |
| 4 | | Wood factors | |
| 5 | | Adhesive factors | |
| 6 | | Bonding process | |
| 7 | | Composition of adhesives | |
| 8 | | PF | |
| 9 | | Midterm | |
| 10 | | PF | |
| 11 | | RF | |
| 12 | | UF | |
| 13 | | MF | |
| 14 | | Thermoplastic resins | |
| 15 | | Elastomeric adhesives | |
| 16 | | Elastomeric adhesives | |
| 17 | | Testing of adhesives and bonding qualities | |
| 18 | | Final | |

IV. Evaluation :

Quizzes: 30%

Midterm: 35%

Final: 35%

V. References :

- 1.鄒茂雄，1984，木材膠合實務，淑馨出版社。
- 2.陳嘉明，1996，木材膠合劑，國立編譯館。
- 3.劉正字等，1993，木材膠合技術及應用，林產工業叢書第 14，中華民國林產事業協會。
- 4.Bandel, A. 1995. Gluing wood. Italian Center for Technical Assistance to Chair and Furniture Manufactures(CATAS), Italy.
- 5.Kollmann, F.F.P., E.W.Kuenzi, and A. J. Stamm, 1975. Principles of Wood Science and Technology vol. II -Wood Based Materials. Chapter 1.
- 6.Blomquist, R. F., A.W.Christansen, R.H.Gillespie, and G.E.Myers,1981. Adhesive Bonding of Wood and Other Structural Materials. Clark C. Heritage Memorial Series on Wood, vol. III, Pennsylvania State University.
- 7.Koch, G.S., F.Klareich, and B.Exstrum,1987. Adhesives for the Composite Wood Panel Industry. Noyes Data Corporation. New Jersey, U.S.A.

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