National Chiayi University Syllabus
Department of Wood products science and furniture engineering,
Spring Semester,
Academic Year 2010

Course:	Modifying woods	**Credit:**	**Hours:**
Class:		☐ **Required,** ☐ Elective	
Instructor:	Chen, Po-Jang	**E-mail:** bjchen@mail.ncyu.edu.tw	
Office:	A02-213	**Office Hours: Wednesday 9~10 AM**	

I. Course Description:

Through physics or mechanics treatment or combined both of treatments to improved wood properties.

II. Teaching Objectives:

To improve the wood properties to serve our lives, Knowing well to the wood properties, environmental effects and utilizations of wood are necessary. In additions, how to modifying wood by non-poison and sustainable ways were concerned.

III. Class Schedule(~day, periods?~?)

Week	Date	Topic/Activity	Reading/Assignment
1	/	Class rules and notices	
2		Purposes and definition of modifying wood	
3		Advantages of solid wood	
4		Defects of solid wood	
5		Effects of wood utilization with environment and wood properties	
6		Modifying theories	
7		a. Dimensional of stability: PEG treated wood (Polyethylene Glycol), coating, heating treated wood etc.	
8		b. Chemical treated wood: fire resistance, worms resistance, rot resistance etc.	
9		c. Improved the specific gravity: particleboard, WPC, resin impregnation etc.	
10		d. Eliminated or separated wood defects: plywood, wood core plywood, fiberboard, glulam, particleboard, etc.	
11		e. Changing grain of woods: plywood, LVL, glulam etc.	

12	f. Changing the chemical properties of solid wood: heat-treated woods, ammonia (aq.) treated woods etc.
13	g. Improved color of solid woods: bleaching, dyeing etc.
14	Modifying woods at present time: Composite wood by gluing
15	Compressed wood (Staypak)
16	Heat-treated wood (Stayb wood)
17	Special treated wood (Impregnated wood)
18	Final assignment

IV. Evaluation：

Attendance and assignment : 30% ; Midterm assignment : 30% ; Final assignment : 40%

V. References：

1、蔡金木(1974)，木材加工學講義，台大

2、徐成霖(1984)，木材加工技術，p：13－25

3、王松永(1984)，商用木材，p：26－27

4、王松永，(1984)，林產學，p：174－182

5、王松永，(1985)，木材物理學，p：67－83

6、島地謙，須藤彰司，原田浩(1976)，木材之組織，森北出版社，日本

7、小野和雄(1973)，改良木材實驗書，農業圖書株式會社，日本

8、Handbook of Wood and Wood-Based Materials for Engineers，Architects，Builders(1989)，Forest Products Laboratory，Forest Service，U.S.Department of Agriculture.

9、Franz F.P. Kollmann，Edward W. Kuenzi，Alfred J. Stamm(1975)，Principles of Wood Science and Technology (II) Wood Based Materials，pp.94，Springer varlag.

10、Kollmann，F.F.P.，E.W. kuenzi，A.J. stamm(1975)，Principles of wood science and technology (II) Wood Based Materials，pp.143-145，Springer varlag.

11、Stamm，A.J.(1964)，Wood and Cellulose Science，pp.346-353，Ronald Press.

Single space、Times New Roman、12 pt.