

COURSE CONTENT

Course Code	DR2013
Course Title	Furniture Design I
Pre-requisites	NIL
No of AUs	3
Contact Hours	39 total contact hours (2 hours lecture and 1 hour seminar weekly)

Course Aims

This intermediary practice-based studio course will introduce you to both traditional and modern techniques of wooden joinery, which you will then apply in processes of constructing small furniture in regarding to anthropometrical, structural, cultural, economical and aesthetic considerations. This practice enables you to develop skillsets such as the use of industrial fittings for flat pack ability, basic conventional joineries as well as knowledge of selecting and dressing timber. These fundamental skills and knowledge are a prerequisite for Furniture Design II.

Intended Learning Outcomes (ILO)

By the end of the course, you should be able to:

1. Identify the relationship between material properties, customary lifestyle and furniture.
2. Use joinery techniques required to create the interplay between vertical and horizontal planes.
3. Apply basic hands-on skills and mechanical usage to balance beauty, utility and transportability of furniture in your practice.
4. Present the conceptual development and embodiment of furniture design.
5. Constructively critique concepts and techniques employed by peers in their furniture design practice.

Course Content

Material property

An introduction into types of sawn and the property of natural timber and synthetic wood (plywood and MDF). Through lectures and visiting a local saw mill you will be able to select and utilise materials according to structural, decorative and economical considerations.

Dressing and cutting timber

An introduction to uniforming the thickness, width and length of wooden boards. You will learn how to use the electric hand saw, band saw, industrial planer, thickness sander and table saw to replicate wooden boards before doing joinery.

Traditional joinery

An exploration of conventional joineries to construct non-flat pack furniture. These joining methods include dovetail, butterfly and wedge, mortise & tenon. You will learn how to apply the combination of traditional hand-tools, power-tools and industrial machineries in order to demonstrate various ways of joining vertical and horizontal planes with the regard of utility, beauty and economy.

The use of jigs

In order to achieve the precision of replicated joints, you will learn both the customisation and usage of jigs.

Modern joinery

An introduction to modern joineries to construct knock-down furniture. These joining methods include butt and mitre joints. You will learn how to demonstrate methods of assembling and disassembling vertical and horizontal planes with the use of industrial fittings. This introduction will let you explore how to create furniture with regard to economical transportation and production.

Class assignments

Four major assignments explore the making and usage of joints for structural, economical, remedial and aesthetic purposes. These will be developed through lectures, field trip, tutorials, class exercises and peer/instructor feedback sessions.

Assessment (includes both continuous and summative assessment)

Component	ILO Tested	Programme LO	Weighting	Team/ Individual
Continuous Assessment - Dovetail & butterfly joints; - Wedge, mortise & rectangular tenon; - Wedge, mortise & cylindrical tenon; - Butt and mitre joints joined by industrial fittings; and - Document trial, error, solution and feedback that occurred during conceptual development and embodiment.	1,2,3	--	40	Individual
The Major Project: Develop and fabricate two portable low-raised seats (non flat packable & flat packable versions) informed by customary living lifestyle.	1,2,3,4	--	40	Individual
Continuous Assessment: Participation	5	--	20	Individual
Total			100%	

Reading and References

Referential artists:

George Nakashima, Sam Maloof, Wharton Esherick, Arthur Espenet Carpenter, Wendell Castle, Hans J. Wegner and James Krenov.

Textbooks:

- Berliner Nancy, 1996, *Beyond the Screen: Chinese Furniture of the 16th and 17th Centuries*, Museum of Fine Arts, Boston, U.S.A.
- Cranz Galen, 1998, *The Chair: Rethinking Culture, Body and Design*, W.W. Norton & Company, Inc., New York, U.S.A.
- Dormer Peter, 1987, *The new furniture trends + traditions*, Theme and Hudson Ltd., London, U.K.
- Johnson Huge, 1976, *The International book of Wood*, Simon and Schuster., New York, U.S.A.
- Krenov James, 1981, *Worker in Wood*, Van Nostrand Reinhold Company., New York, U.S.A.
- Nakashima George, 1981, *The Soul of The Tree, A Woodworker's Reflections*, Harper & Row., New York, U.S.A.
- Seike Kiyosi, 1977, *The Art of Japanese Joinery*, Weatherhill., Colorado, U.S.A.
- Thompson Rob, 2011, *The Manufacturing Guides: Product and Furniture Design*, Theme and Hudson Ltd., New York, U.S.A.

Recommended catalogue:

- Nakashima George, Maloof Sam, Esherick Wharton, et al., *Woodenworks: Furniture Objects by Five Contemporary Craftsmen*, exhibition catalogue, (Minneapolis: Smithsonian Institution/Minnesota Museum of Art, 1972)

Course Policies and Student Responsibilities**(1) General**

You are expected to complete all assigned readings, activities, assignments, attend all classes punctually and complete all scheduled assignments by due dates. You are expected to take responsibility to follow up with assignments and course related announcements. You are expected to participate in all project critiques, class discussions and activities.

(2) Punctuality

You are expected to be punctual for all classes. If you are more than 30 minutes late, you will be deemed as absent and will not be able to sign on the attendance register.

(3) Absenteeism

In-class activities make up a significant portion of your course grade. Absence from class without a valid reason will affect your participation grade. Valid reasons include falling sick supported by a medical certificate and participation in NTU's approved activities supported by an excuse letter from the relevant bodies. There will be no make-up opportunities for in-class activities.

Academic Integrity

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the [academic integrity website](#) for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Planned Weekly Schedule*

*Subject to adjustment by instructor according to the teaching situation, students' progress, public holidays and unforeseeable circumstances. A revised schedule will be issued to students at the start of the semester.

Week	Lectures/ field trip	course LO	Practical activities/ assignments/ critiques
1	1st Lecture: - Course introduction; - Briefing on the Major Project; and - The anatomy of wood including the property of wood; types of sawn; and wooden shrinkage and expansion.	1,2, 3, 5	1st WORKSHOP: Dovetail joint #1 (selecting and sawing timber).
2	2nd Lecture: An investigation into the relationship between joint's ratio and the width and the thickness of wooden board.	1,2, 3, 5	2nd WORKSHOP: Dovetail joint #2 (dressing wood, marking, cutting, chiselling, gluing and joining). Practice: doing dovetail joint
3	Field trip: Visit local sawmill to observe the sequence of stages in sawing, stacking and drying timber.	1, 2, 3, 5	Practice: doing dovetail joint
4	3rd Lecture: An exploration of planar transition. You will examine ways of creating interplay between vertical and horizontal planes in regarding to remedial, structural, decorative and economical considerations.	1, 2, 3, 5	3rd WORKSHOP: Butterfly joint #1 (cutting key) *Submitting dovetail joint
5	Nil	1,2, 3, 5	4th WORKSHOP: Butterfly joint #2 (cutting recess by hand tools and power tools)

6	Nil	1,2, 3, 5	5th WORKSHOP: - Butterfly joint #3 (remedial purpose); and - Wedge, Mortise and Tenon #1 (by hand tools & power tools)
7	Nil	1, 2, 3, 4, 5	1st CRIT: - Presenting the latest design outcome of the Major Project; and - Receiving feedback; *Submitting the Mid Term Report (E-Journal)
8	Nil	1, 2, 3, 5	6th WORKSHOP: - Wedge, rectangular Mortise and Tenon #2 (by hand-tools, jigs and table saw); and - Basic woodturning (turning cylindrical tenon). *Submitting two assignments: 1) two butterfly joints (flat & convex keys); and 2) two joints (wedge, mortise and tenon)
9	Nil	1, 2, 3, 5	7th WORKSHOP: practice making jigs, cutting square or rectangular tenon and turning cylindrical tenon.
10	Nil	1, 2, 3, 5	8th WORKSHOP: - modern joinery (using three types of industrial fittings from Germany); and - Equalising width and length of MDF by table saw. *Submitting three assignments: 1) one joint made of two Wedge + Mortise + square OR rectangular Tenon (relied on two jigs and table saw); 2) one joint made of one Wedge + Mortise + cylindrical Tenon (relied on lathe); and 3) two customised jigs for cutting the shoulders of square OR rectangular Tenon.
11	Nil	1,2, 3, 5	Undertaking the major project or assignment (modern joinery) *Submitting two assignments: 1) butt joint (joined by Minifix 15 Connector Housings & Connecting

			bolts); and 2) mitre joint (joined by Minifix 15 Connector Housings & Minifix GV Mitre-Joint Connecting bolts).
12	Nil	1,2, 3, 5	Undertaking the major project
13	Nil	1, 2, 3, 4, 5	2nd CRIT: - The Final Presentation; and - Receiving feedback.
14	Nil	1, 2, 3, 4, 5	*Submitting the final design outcomes *Exhibiting the final design outcomes *Submitting the final report (E-Journal)