

國立臺灣大學材料科學與工程學系 112 學年第 1 學期

MSE 7049 / 527 M1150 金屬材料特論

MSE 7049 / 527 M1150 Special Topics on Metallic Materials

授課教師：薛人愷

主要授課班級：材料系研究所 (選修)

主要參考書：

- G. Humpston and D.M. Jacobson, Principles of Brazing, ASM International, 2005.
- G. Humpston and D.M. Jacobson, Principles of Soldering and Brazing, ASM International, 1993. (NTU Lib. TS610/H85/1993)
- M. Schwartz, Brazing, 2nd ed., ASM International, 2003.
- M. Schwartz, Brazing - For the Engineering Technologist, Chapman & Hall, New York, 1995. (NDHU Lib. TT267/S39z/1995)
- ASM Handbook Vol. 6, Welding, brazing, and soldering, 10th ed., ASM International, 1990. (NTU Lib. Reference TA459/M43/1990)
- T.B. Massalski, Binary Alloy Phase Diagrams, ASM International, 1990. (NTU Lib. Reference TN690/B528/1990)
- P. Villars, A. Prince and H. Okamoto, Handbook of Ternary Alloy Phase Diagrams, ASM International, 1995. (NTU Lib. Reference TN690/V493/1995)
- W.F. Smith, Structure and Properties of Engineering Alloys, McGraw-Hill, 1993. (NTU lib.TA483/S643/1993)
- ASM Handbook Vol. 1, Properties and Selection: Irons, Steels, and High Performance Alloys, 10th ed., ASM International, 1990. (NTU Lib. Reference TA459/M43/1990)
- ASM Handbook Vol. 2, Properties and Selection: Non Ferrous Alloys and Special Purpose Materials, 10th ed., ASM International, 1990. (NTU Lib. Reference TA459/M43/1990)
- R.W. Cahn, P. Hassen, E.J. Kramer, Materials Science and Technology, Volume 8 Structure and Properties of Nonferrous Alloys, VCH Publishers Inc., 1996.
- D. Brandon and W.D. Kaplan, Joining Processes - An Introduction, John Wiley and Sons, New York, 1997.

評量標準:

期中考試 (50%)、期末考試 (50%)

課程內容:

The purpose of this course is focused on special topics on metallic materials, especially for brazing and related knowledge.

課程預定進度:

	Date	Content
1	Sep 4	Course Introduction and Introduction to Joining
2	Sep 11	Introduction to Brazing
3	Sep 18	Binary Alloy Phase Diagrams
4	Sep 25	Ternary Alloy Phase Diagrams-(I)
5	Oct 2	Ternary Alloy Phase Diagrams-(II)
6	Oct 9	Holiday, no class
7	Oct 16	Brazeability of Engineering Materials (I)
8	Oct 23	Brazeability of Engineering Materials (II)
9	Oct 30	Midterm Examination (one week delay)
10	Nov 6	Brazing Filler Metals (I)
11	Nov 13	Brazing Filler Metals (II)
12	Nov 20	Brazing Filler Metals (III)
13	Nov 27	Brazing Filler Metals (IV)
14	Dec 4	Fixturing, Tooling, Stopoffs, Parting Agents, Surface Preparation, Surface Cleaning, and Repair (I)
15	Dec 11	Fixturing, Tooling, Stopoffs, Parting Agents, Surface Preparation, Surface Cleaning, and Repair (II)
16	Dec 18	Final Examination