

## **ME/MSE 487 A/BElectronic Packaging Lab** Winter 2011 (1 credit)

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**Time & Place** T / Th 2:30 – 5:20 MEB 134

**Text Book** Lab Handouts

Course website <http://courses.washington.edu/mengr487/>

### **Laboratory Descriptions**

- Lab 1 Dissection of Electronic Packaging  
Investigate the structure and function of electronic packaging.
- Lab 2 Processing of Electronic Packaging  
Assemble a simple 2<sup>nd</sup> level package (die in package mounted to PCB).
- Lab 3 Reliability Testing of Electronic Packaging  
View the effects of temperature and moisture on plastic encapsulated packaging and solder joints.

### **Laboratory Grading**

Lab Reports: 150 pts ( 50 pts each)  
Attendance: 40 pts ( 5 pts each)  
190 pts Total

### **Laboratory Schedule**

<b>Week</b>	<b>Subject</b>	<b>Lab</b>
1	Introduction	
2	Grind/Polish & Examine chip 1	1
3	Grind/Polish & Examine chip 2	1
4	Die Attach ( <b>LAB 1 DUE</b> )	2
5	Wire Bonding, Encapsulation & Testing	2/3
6	Soldering & Testing	2/3
7	Testing ( <b>LAB 2 DUE</b> )	3
8	Testing	3
9	Grind/Polish and Microscope	3
10	<b>LAB 3 DUE</b>	

### **Lab Report Format**

#### **Abstract (5 points)**

The abstract is a summary of your report and should be the last thing you write. It should not be very detailed and should only provide a brief description of each section of your report.

- Purpose- What was the purpose of the experiment (normally 1 sentence)
- Experimental Procedure: Briefly describe the experimental setup used in the lab (1-2 sentences)
- Results: Give the results of the experiment such as identification of unknowns. If you have numeric results include them. (1-3 sentences)
- Conclusions: What you concluded from your results. (1-2 sentences)

### **Introduction (5 pts)**

The introduction should give background information about the concepts that will be utilized in the lab as well as provide the purpose for the current study. Equations that will be used in your analysis should be provided in this section and should coincide with the background information that it comes from. In many cases diagrams work well for explaining concepts.

### **Experimental Procedures (5 pts)**

In the experimental procedures section you need to provide a detailed step by step description of the how you performed the experiment. From a good procedures section, the reader should be able to reproduce your experiment exactly, so include all the details you can. Include diagrams when possible.

### **Results and Discussions (20 pts)**

In the results section you should include only your final results and calculations, no raw data. If possible compare your results to literature values or expected results and provide a detailed error analysis. Present your results in either tables or figures so that they can be easily found. Do not present results without discussing them. Sample calculations should be put in the appendices. You should not have to spend too much time discussing your methods for obtaining the results. If you provide a good introduction, you can just refer to equations in the introduction (i.e. Using equation 1...).

### **Conclusions (5 pts)**

Your conclusions should include any significant results or trends from your experiment. Remember that your conclusions should only come from your results and discussion section, so if you don't mention it there don't mention it in your conclusions. Your conclusions should be put in a numbered list, with the most important conclusions first.

### **References (5 points)**

References must be cited in the text anytime you use information from that source. If it is a long section you can place the reference number at the end of the section. References should be numbered in order of citation in the text. See the website below for the style you should be using for your references (check under the references section).

[http://www.mrs.org/s\\_mrs/doc.asp?CID=2006&DID=85270](http://www.mrs.org/s_mrs/doc.asp?CID=2006&DID=85270)

### **Questions (5 pts)**

All questions at the back of the lab handout need to be answered and those answers shall be placed on a separate page at the end of the report.