

Additive Manufacturing Laboratory (AML) user fees:

Cost recovery: These costs are only for using AML facilities and do not include characterization/processing work carried out in CART/cleanroom facilities of MRF. Costs for those have to be provided separately as per standard rates.

1. **Senior Design Projects = \$3,000** per project for 2 semesters (includes only stainless steel powders, other powders have to be provided by the department, supervisor, student, company sponsoring the senior design project) – this will include the AML technical support for pre-processing and post-processing of powders, substrates, actual depositions etc.
Breakdown of costs = 20 hrs technician time per semester = $20 \times \$50 = \1000 (total for 2 semesters = \$2000)
Stainless steel powders = $20 \text{ lbs} \times \$25/\text{lb} = \500 , Substrates + grinding + cutting + cleaning = \$500
Total = \$3000 for the entire project (2 semesters)

More detailed senior design projects, involving extensive use of the AML facility, and those projects sponsored by an external company, will require case by case discussion with AML/MRF staff and director for budgeting the required amount and could exceed the \$3000 minimum.

2. **Semester course using AML facilities:**
 - a. 3 hrs lab per week + 2 hrs preparation, technician costs = $50 \times 5 = \$250/\text{week} = \3500 per semester (based on 14-week semester) - **will be waived for departments that are contributing towards the technical staff support for AML**
 - b. Supplies for pre-processing, processing and post-processing (substrate preparation, powders, wire EDM cutting, milling etc.) = **\$1500 per semester**

Total costs per course per semester = \$5,000 (\$1500 per semester for departments contributing to the AML technical staff support)

3. Graduate research projects:

- a. Technician rate = **\$50 per hour (to be billed as per usage)**
- b. Powders to be provided by the graduate student/supervisor.

Supplies for pre-processing and post-processing of AM prepared samples = \$1000 per semester of project

4. External industry (for-profit) projects (only for the AML component of project):

- a. Technician rate = **\$150 per hour (to be billed as per usage)**
- b. Powders to be provided by the company.
- c. AML equipment usage and supplies for, pre-processing, post-processing of AM prepared samples = **\$6000 for project of 6 months duration** (will be multiplied for longer duration projects). Breakdown shown below:
 - i. AML equipment use for 6 months = \$3000
 - ii. Pre-processing and post-processing of samples = \$3000