**Costing Information**

Referenced from **ENGR-4710 – Manufacturing Processes and Systems I** Fall 2013 syllabus

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| **Process Charges (Including overhead, consumables, and labor)** |
| CNC Machining |  | $65.00 | /hr |  |  |
| Abrasive Water-Jet Cutting | $75.00 | /hr |  |  |
| Laser Cutting | $60.00 | /hr |  |  |
| Conventional Machining | $50.00 | /hr |  |  |
| Plastic Injection Molding | $45.00 | /hr |  |  |
| Vacuum Forming |  | $45.00 | /hr |  |  |
| Robotics and Assembly | $60.00 | /hr |  |  |
| Metal Forming |  | $45.00 | /hr |  |  |
| Plastics Joining |  | $30.00 | /hr |  |  |
| Rapid Prototyping |  |  |  |  |  |
|  | ZCorp Printer |  | $5.00 | /in3 |  |  |
|  | Dimension Printer |  | $10.00 | /in3 |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| **Tooling/Hardware** |  |  |  |  |  |
| Robot End Effectors |  | $250.00 | ea |  |  |
| Robotic Fixture |  | $300.00 | ea |  |  |
| Machining Fixture/Jig | $400.00 | ea |  |  |
| Forming Die |  | $1,500.00 | ea |  |  |
| Progressive Die |  | $2,500.00 | ea |  |  |
| Specialty Machine |  | $2,500.00 | ea |  |  |
| PIM (including pins and support plates) |  |  |  |
|  | 9"x8" usable area |  | $1,900.00 | ea |  |  |
|  | 3"x3" usable area |  | $650.00 | ea |  |  |
| Vacuum Forming Tool | $1,000.00 | ea |  |  |
|  |  |  |  |  |  |  |
| **Materials/Supplies** |  |  |  |  |  |
| Aluminum |  | $5.00 | /lb |  |  |
| Cold Rolled Steel |  |  | $1.50 | /lb |  |  |
| Brass/Copper |  | $6.00 | /lb |  |  |
| Plastic |  |  |  |  |  |  |
|  | Engineered (nylon, PC, etc…) | $5.00 | /lb |  |  |
|  | Consumer (PP, PE, etc…) | $1.20 | /lb |  |  |
| Miscellaneous Supplies |  |  |  |  |
|  | As priced from industrial supplier such as MSC Industrial |