

## Option 2—Two 2-Carnegie Unit Courses

This curriculum consists of two 2-credit courses, which should be completed in the following sequence:

1. **Metal Fabrication I—Course Code: 993206**
2. **Metal Fabrication II—Course Code: 993207**

### Course Description: Metal Fabrication I

Metal Fabrication I content includes orientation and leadership, basic safety, math, measuring tools and instruments, blueprints, hand and power tools, lathe theory and operation, milling machine theory and operation, drill press and band saw, and introduction to welding. Safety is emphasized in each unit and every activity.

### Course Description: Metal Fabrication II

Metal Fabrication II includes grinding theory and operations, advanced precision machining techniques, and an emphasis on welding processes. Welding topics include employability skills, safety, basic oxy-fuel cutting, PAC, GMAW, FCAW, GTAW, and SMAW. The course should be taken after the student has successfully passed Fabrication I.

### Metal Fabrication I—Course Code: 993206

Unit	Unit Name	Hours
1	Orientation	3
2	Fundamentals of Student Organizations	4.5
3	Employability Skills	7.5
4	Communication Skills	7.5
5	Basic Safety	20
6	Introduction to Construction Math	20
7	Hand and Power Tools	22.5
8	Introduction to Construction Drawing	15
9	Introduction to Materials Handling	7.5
10	Lathe Theory and Operation	60
11	Milling Machine Theory and Operation	30
12	Drill Press and Band Saw Theory and Operation	20
13	Introduction to Welding	30
Total		247.5

**Metal Fabrication II—Course Code: 993207**

Unit	Unit Name	Hours
14	Orientation, Advanced Leadership, and Employability Skills	7.5
15	Basic Safety	7.5
16	Advanced Lathe Operation	60
17	Advanced Milling Operation	40
18	Introduction to Shielded Metal Arc Welding (SMAW)	25
19	Shielded Metal Arc Welding (SMAW)	20
20	Gas Metal Arc Welding (GMAW) and Flux Core Arc Welding (FCAW)	30
21	Introduction to Gas Tungsten Arc Welding (GTAW)	20
22	Basic Oxy-fuel Cutting and Plasma Arc Cutting (PAC)	20
23	Grinding Theory and Operation	10
24	Computerized Numerical Control	10
Total		250