

INDUSTRIAL TECHNOLOGY DEPARTMENT

No.	Name	Credit	Grade	Length	Pre-Requisite	Instructor Approval	College Credit Available	Fee
01041 S1	Companion Animal Science	0.5	9-12	Semester	No	No	No	No
0199S2	Veterinary Science	0.5	9-12	Semester	No	No	No	No
0104Y	College Credit Animal Science	1.0	10-12	Year	Comp. ANS/Vet Science	Yes	Yes-4	Yes-for college credit
0102Y	Ag Leadership	1.0	9-12	Year	No	Yes	Yes-3	Yes-for college credit
0108S1	College Credit Horticulture 1	0.5	10-12	S	No	Yes	Yes-4	Yes- for college credit
0109S2	College Credit Horticulture 2	0.5	10-12	S	No	Yes	Yes-4	Yes- for college credit
1603Y	Industrial Technology	1.0	9	Year	No	No	No	Yes
0911Y	Beginning Automotive Technology	1.0	10-12	Year	Industrial Tech	No	No	Yes
0912AY	Advanced Automotive Technology	2.0	11-12	Year-Double Period	Beg Auto Tech pass with C	No	Yes	Yes
0901S1	Automotive Survival Strategies	0.5	9-12	Semester	No other Auto class taken	No	No	Yes
1634S2	Heavy Equipment Mechanics	0.5	11-12	Semester	Beg Auto Tech	No	No	Yes
2412S1	Manufacturing Tech 1	0.5	10-12	Semester	No	No	No	Yes
2412S2	Manufacturing Tech 2	0.5	10-12	Semester	Mfg Tech 1	No	No	Yes
2414Y	Manufacturing Tech 3	1.0	11-12	Year	Mfg Tech 2	No	No	Yes
2414AY	Manufacturing Tech 4	2.0	12	Year-Double Period	Manufacturing Tech 3	No	Yes	Yes
0702Y	Engineering Drafting	1.0	9-12	Year	No	No	Yes	Yes
0703Y	Architectural Drafting	1.0	10-12	Year	No	No	Yes	Yes
0702AY	Advanced Engineering Drafting	1.0	11-12	Year	Engineering Drafting	No	Yes	Yes
1613Y	Career Woodworking 1	1.0	10-12	Year	Ind Tech	No	No	Yes
16132Y	Career Woodworking 2	1.0	11-12	Year	CW 1	No	No	Yes
16133Y	Career Woodworking 3	1.0	11-12	Year	CW 1 & 2	Yes	No	Yes

COLLEGE CREDIT ANIMAL SCIENCE

The study of beef and dairy cattle, sheep, goats, horses, and swine and their industries will be covered.
Grades 10-12

4 Credits to Linn-Benton Community College will be awarded to students completing this class with a B or better and paying the required LBCC fee.

Objectives	Techniques
<ul style="list-style-type: none"> ○ Beef and Dairy Cattle ○ Sheep and Goats ○ Swine ○ Horses ○ Identify Breeds of Livestock ○ Use Vocabulary ○ Comprehend Uses ○ Practice Industry Standards ○ Understand Basic Livestock Diseases ○ Evaluate different species of livestock. ○ Evaluate Dairy Foods ○ Assess different types of Meat 	<ul style="list-style-type: none"> ○ Laboratory ○ Lecture ○ Reports ○ Research Papers- 2 ○ Field Trips ○ Tests- Maximum 5 ○ Quizzes ○ Daily Work

COMPANION ANIMAL SCIENCE

General Animal Knowledge related to pets will be discussed throughout the semester. Dogs, Cats, Rabbits, Guinea Pigs, Hamsters, Reptiles, Fish, Birds, and Horses will be discussed in length.
Grades 9-12

Objectives	Techniques
<ul style="list-style-type: none"> ○ Identify Breeds of Companion Animals ○ Use Vocabulary ○ Comprehend Uses ○ Practice Industry Standards ○ Understand Basic Pet Diseases 	<ul style="list-style-type: none"> ○ Reports ○ Lecture ○ Research Papers- 2 ○ Quizzes ○ Field Trips ○ Daily Work

VETERINARY SCIENCE

The anatomy of different animal species will be discussed. Projects surrounding the process of entering college in the animal sciences, applying for vet school, and owning different species of animals.
Grades 9-12

Objectives	Techniques
<ul style="list-style-type: none"> ○ Demonstrate an understanding of the animal body. ○ Investigate Animal Behavior ○ Examine Animal Intelligence ○ Learn Skeletal System of Different Species ○ Evaluate Animal Respiratory ○ Study Animal Reproduction ○ Practice Dissection and Necropsy Skills 	<ul style="list-style-type: none"> ○ Laboratory ○ Lecture ○ Reports ○ Research Papers- 2 ○ Tests- Maximum 5 ○ Quizzes ○ Daily Work

AG LEADERSHIP

This class is designed for students who are active members of the Sandy FFA. The basis of this class are surrounding FFA Career Development Events. Grades 9-12

3 Credits to Linn-Benton Community College will be awarded to those students completing this class with a B or better and pay the required LBCC fee.

Objectives	Techniques
<ul style="list-style-type: none"> ○ Practice Leadership ○ Prepare for Public Speaking ○ Demonstrate Soil Judging Techniques ○ Apply Agricultural Sales Techniques ○ Develop Marketing Plans ○ Practice Parliamentary Procedures Skills ○ Study Agricultural Issues ○ Practice Journalism Skills ○ Students will study the following areas, Food Science, Dairy Foods, and Meats. ○ Evaluate different Livestock Species and Horses. 	<ul style="list-style-type: none"> ○ Lecture ○ Teaching Others ○ Reports and Presentations will be developed. ○ Public Presentations ○ Research Papers- 2 ○ Tests- Maximum 5 ○ Quizzes ○ Field Trips ○ Daily Work

INDUSTRIAL TECHNOLOGY

An introductory class based around the Career Technology classes of Sandy High School including Automotive, Drafting, Metals, and Woodworking.

Objectives	Techniques
<ul style="list-style-type: none"> ○ Comprehend the Importance of Shop Safety ○ Competently use Measuring Tools ○ Understand the use of Hand Tools ○ Develop Basic Computer Skills ○ Prepare for different Careers and after high school opportunities. 	<ul style="list-style-type: none"> ○ Projects ○ Laboratory ○ Lectures ○ Tests ○ Quizzes

**COLLEGE CREDIT
HORTICULTURE 1**

The first semester of CC Hort is dedicated towards the study of Soil Science and meets the College Credit Requirements of Crop and Soil Science 205- Soils: Sustainable Ecosystems.

4 Credits to Linn-Benton Community College will be awarded to those students completing this class with a B or better and pay the required LBCC fee.

Objectives	Techniques
<ul style="list-style-type: none"> ○ Understand the Basics of Soil Science ○ Recognize the types of Soil ○ Comprehend Erosion ○ Determine Soil Particle Make-Up ○ Identify Soil Horizons ○ Knowledge of Soil Mapping ○ Comprehend Land Use Laws ○ Study Water Quality ○ Be familiar with Soil Nutrients ○ Basic Greenhouse Management ○ Greenhouse Media 	<ul style="list-style-type: none"> ○ Lecture ○ Laboratory ○ Hands On ○ Reports ○ Tests-3 ○ Quizzes ○ Daily Work

**COLLEGE CREDIT
HORTICULTURE 2**

The second semester of CC Hort is dedicated towards the study of Crop Science and meets the College Credit Requirements of Crop and Soil Science 200- Crop Production.

4 Credits to Linn-Benton Community College will be awarded to those students completing this class with a B or better and pay the required LBCC fee.

Objectives	Techniques
<ul style="list-style-type: none"> ○ Understand the Basics of Crop Production ○ Identify common plants and weeds. ○ Practice Management of Floral Crops ○ Have a knowledge of Indoor and Outdoor Crop Growing Techniques ○ Identify Plant Anatomy and Physiology ○ Perform Management of Food Crops 	<ul style="list-style-type: none"> ○ Managing Greenhouse ○ Lecture ○ Labs ○ Hands-On ○ Reports ○ Tests-3 ○ Quizzes ○ Daily work

COLLEGE CREDIT ADVANCED AUTOMOTIVE TECHNOLOGY

The continued study of automotive skills aligned with ASE task areas relevant to the automotive repair industries will be covered.

Grades 11-12

6 Credits to Mt. Hood Community College will be awarded to students completing this class with a B or better.

Objectives	Techniques
<ul style="list-style-type: none"> ○ Safety ○ Tools and Equipment ○ Drive Train ○ Clutch removal and installation ○ Automatic Transmission and Transaxle ○ Manual Transmission and Transaxle ○ Four wheel Drive ○ Transfer cases ○ Drivelines and Universal Joints ○ Axles ○ Brake systems, resurfacing, replacing ○ Suspension and Steering ○ Engine Tuning ○ Advanced Electrical systems ○ Exhaust systems ○ Vehicle accessories ○ Automotive Careers ○ Career Employment Skills ○ Customer Relations 	<ul style="list-style-type: none"> ○ Laboratory ○ Lecture ○ Reports ○ Research Papers ○ Field Trips ○ Tests- Maximum ○ Quizzes

BEGINNING AUTOMOTIVE TECHNOLOGY

The study of basic automotive skills aligned with ASE task areas relevant to the automotive repair industries will be covered.

Grades 10-12

2 Credits to Mt. Hood Community College will be awarded to students completing this class with a B or better.

Objectives	Techniques
<ul style="list-style-type: none"> ○ Safety ○ Tools and equipment ○ Fasteners ○ Intro To Automotives ○ Engine Principles ○ Engine Bottom End Construction ○ Engine Top End Construction ○ Engine Cooling System ○ Engine Lubrication System ○ Basic Electrical ○ Ignition and Starting Systems ○ Charging System ○ Combustible Fuels ○ Fuel delivery System ○ Engine Performance ○ Tires ○ Shop Management ○ Service Records ○ Locating service Information 	<ul style="list-style-type: none"> ○ Reports ○ Lecture ○ Research Papers ○ Tests ○ Quizzes ○ Field Trips ○ Laboratory

AUTOMOTIVE SURVIVAL SKILLS

This course is designed to study automotive function, safety, service, and maintenance for personal enrichment.
Grades 9-12

Objectives	Techniques
<ul style="list-style-type: none"> ○ Safety ○ Tools and Equipment ○ Introduction to Automobiles ○ Engine Fundamentals ○ Service: oil, cooling ○ Electrical ○ Drive train ○ Tire: changing and repair ○ Winter weather driving 	<ul style="list-style-type: none"> ○ Laboratory ○ Lecture ○ Reports ○ Research Papers- 2 ○ Field Trips ○ Tests- Maximum 5 ○ Quizzes

HEAVY EQUIPMENT MECHANICS

This Course is designed to offer students knowledge and skills in the areas of industrial, farming, and construction equipment repair
Grades 10-12

Objectives	Techniques
<ul style="list-style-type: none"> ○ Shop Safety ○ Tools and Equipment ○ Definition of Heavy Equipment ○ Diesel Power ○ Hydraulics ○ Logistics ○ Track Equipment ○ Equipment operation ○ Equipment Repair and Maintenance 	<ul style="list-style-type: none"> ○ Reports ○ Lecture ○ Research Papers- 2 ○ Quizzes ○ Field Trips ○ Laboratory

COLLEGE CREDIT ENGINEERING DRAFTING

Course teaches problem solving skills using a design development process. Models of the product solutions are created, analyzed and communicated using solid modeling computer design software.
Grades 9-12

Students who complete class with a B or better will earn 3 Credits from Mount Hood Community College.

Objectives	Techniques
<ul style="list-style-type: none"> ○ Career Opportunities ○ Design Process ○ Portfolio Development ○ Sketching and Visualization ○ Geometric Relationships ○ Model Creation ○ Model Assembly ○ Model Analysis ○ Model Documentation ○ Product Presentation ○ Marketing 	<ul style="list-style-type: none"> ○ Lecture ○ Participation in Teams ○ Presentations ○ Hands-on Projects ○ Field Trips ○ Computer Modeling ○ Quizzes ○ Tests

**COLLEGE CREDIT ADVANCED
ENGINEERING DRAFTING**

This course is a continuation of Engineering Drafting. Emphasis will be placed on the next level of techniques and procedures used in industry. Student teams will solve problems of their choosing from real-life situations. Grades 10-12

Students who complete class with a B or better will earn 6 Credits from Mount Hood Community College.

Objectives	Techniques
<ul style="list-style-type: none"> ○ Advanced Skills in AutoCAD, Inventor, Revit and 3DS Max Software. ○ Layout, edit, display, store, retrieve and plot Engineering Drawings ○ Specific Projects in Architectural, Mechanical and Civil Engineering ○ Involvement in Skills Competitions. ○ Development of a Capstone Project in student's major field of study. 	<ul style="list-style-type: none"> ○ Participation in Teams ○ Brainstorming, Problem Solving ○ Research of current patents and regulations ○ Hands-on Projects ○ Field Trips ○ Computer Modeling ○ Quizzes ○ Tests

**COLLEGE CREDIT
ARCHITECTURAL DESIGN**

This course will allow students to construct a 3D house model using AutoDesk Revit Software. Students will use this model to create a set of residential plans suitable for submission to the building department. Grades 10-12

Students who complete class with a B or better will earn 3 Credits from Mount Hood Community College.

Objectives	Techniques
<ul style="list-style-type: none"> ○ Revit Architecture Procedures ○ Building Codes ○ Construction Techniques ○ Material Estimation ○ Calculating Structural Member size. ○ Materials ○ Development of Plot, Foundation, Floor, Elevation, Roof and Structural Drawings. ○ Model Rendering using 3DS Max 	<ul style="list-style-type: none"> ○ Lecture ○ Computer Model Construction ○ Presentations ○ Hands-on Projects ○ Field Trips ○ Research ○ Quizzes ○ Tests

CAREER WOODWORKING 1

The hands-on study of various industries which utilize wood as their medium in manufacturing and construction.

Grades 10-12

Objectives	Techniques
<ul style="list-style-type: none"> ○ Hand tool safety ○ Power tool safety ○ Measurement ○ Industry language ○ Vocabulary ○ Species identification ○ Various methods of wood joinery ○ Project design ○ Problem solving 	<ul style="list-style-type: none"> ○ Safety tests-written ○ Safety tests-performance ○ Laboratory ○ Lecture ○ Projects ○ Inventor- design program ○ Quizzes

CAREER WOODWORKING 2

The advanced hands-on study of industries including cabinetry, manufacturing, and construction.

Grades 11-12

Objectives	Techniques
<ul style="list-style-type: none"> ○ Hand tool safety ○ Power tool safety ○ Measurement ○ Industry language ○ Vocabulary ○ Industry practices ○ Beginning cabinetry ○ Beginning carpentry ○ Project design ○ Problem solving ○ Workplace skills 	<ul style="list-style-type: none"> ○ Safety tests-written ○ Safety tests-performance ○ Laboratory ○ Lecture ○ Projects ○ Product manufacturing processes ○ Inventor- design program ○ Quizzes ○ Resume writing

CAREER WOODWORKING 3

A more advanced study of wood utilizing industries designed for students with a proven knowledge of safety and personal initiative.

Grades 11 & 12

Objectives	Techniques
<ul style="list-style-type: none"> ○ Hand tool safety ○ Power tool safety ○ Universal Systems Model ○ Manufacturing systems ○ Cabinetry ○ Carpentry ○ Product design ○ Problem solving ○ Quality control ○ Marketing ○ Advertising ○ Interview skills 	<ul style="list-style-type: none"> ○ Safety tests-written ○ Safety tests-performance ○ Laboratory ○ Lecture ○ Projects ○ Product manufacturing processes ○ Inventor- design program ○ Quizzes

MANUFACTURING TECHNOLOGY 1

Manufacturing Tech 1 is the entry-level and pre-requisite class in the Manufacturing course of study. Students will complete projects and participate in classroom learning that will open the world of metalworking and manufacturing. Grades 10-12

Objectives	Techniques
<ul style="list-style-type: none"> ○ Shop Safety ○ Print Reading and Drawing ○ Measuring Systems ○ Vocabulary ○ Layout ○ Sheet Metal ○ Shielded Metal Arc Welding ○ Oxy-Fuel Welding & Cutting ○ Lathe ○ Mill ○ Bench Work ○ Foundry 	<ul style="list-style-type: none"> ○ Hands on Shop Projects ○ Lecture ○ Reports ○ Research Paper ○ Tests- Maximum 5 ○ Quizzes

MANUFACTURING TECHNOLOGY 2

Manufacturing Tech 2 builds on previous knowledge and skills. Projects and Theory will increase a students understanding of manufacturing equipment and processes. Grades 10-12

Objectives	Techniques
<ul style="list-style-type: none"> ○ Shop Safety ○ Vocabulary ○ Gas Metal Arc Welding ○ Flux Core Arc Welding ○ Welding Prints and Drawings ○ Lathe ○ Milling Machine ○ Foundry ○ Metalurgy 	<ul style="list-style-type: none"> ○ Hands-on Shop Projects ○ Lecture ○ Reports ○ Research Paper ○ Tests- Maximum 5 ○ Quizzes

MANUFACTURING TECHNOLOGY 4

Manufacturing Tech 4 is a double period class. It is also blocked to a third period of Technical Writing. This Course will satisfy graduation requirements for your English elective. Grade 12

4 credits to Mt Hood Community Collage will be awarded to those who complete MFG4 with a B or Better

Objectives	Techniques-
<ul style="list-style-type: none"> ○ Shop Safety ○ Gas Tungsten Arc Welding ○ Fabrication Principals ○ CNC Processes ○ 3D Solid Modeling 	<ul style="list-style-type: none"> ○ Hands-on Shop Projects ○ Lecture ○ Reports ○ Research Paper ○ Tests- Maximum 5 ○ Quizzes

MANUFACTURING TECHNOLOGY 3

Project Lead the Way (CAM)

<http://www.pltw.org/>

Manufacturing Tech 3 will focus on the integration of computer technology and the manufacturing industry. Many Computer Aided Manufacturing processes and principals will be covered. Grade 11-12

Objectives	Techniques
<ul style="list-style-type: none"> ○ Shop Safety ○ 3D Solid Modeling ○ CAM Software ○ Machine Code (G&M) ○ CNC Milling Machine ○ Machining Cells ○ Robotic Mfg Processes ○ Hydraulics ○ Simple Machines 	<ul style="list-style-type: none"> ○ Hands-on Shop Projects ○ Lecture ○ Reports ○ Research Paper ○ Tests- Maximum 5 ○ Quizzes