Syllabus

Course Numbers:	PPT 101-001 (Lecture) PPT 102-100 (Lab) PPT 102-101 (Lab) PPT 102-102 (Lab)
Course Name:	Fundamentals of Processing Technology Lecture and Lab
Semester:	Fall 2019
Credits:	Lecture: 4, Lab: 1
Class Meetings:	B036: MTWR 1:50-2:50 pm
Lab Meetings:	Section 100: A062: M 3:00-5:00 Section 101: A062: Th 8:00-10:00 Section 102: A062: Th 3:00-5:00
Instructor:	Andrew D. Sullivan
Phone:	247-3047
Email:	Andrew.Sullivan3@msubillings.edu
Faculty Website:	http://www.msubillings.edu/cotfaculty/sullivan/
Office:	A061 – Tech Building
Office Hours:	See attached schedule

Required Texts and Material:

There are no required textbooks to purchase. Required materials will be posted on D2L.

Course Description:

Introduces the student to the fundamentals of process/refinery technology. Areas covered are the mechanics of fluids, hydrocarbons, gases, heat, and chemistry. The student realizes how each plays a significant role in the refining distillation process.

Course Goals and Objectives:

The student will become familiar with different process plant equipment, controls, and systems. Upon completion of this course, students will be able to:

1. Describe an Operator's roles and responsibilities related to safety, environment, and industry expectations. Be able to develop a support sound plans to respond to various scenarios in a process plant.
2. Describe process technologies including major equipment types and functions.
3. Analyze processes and identify the scientific principles that underlie operation.

4. Apply knowledge of operations, instrumentation, and process control to predict operations, identify unexpected performance, and conduct troubleshooting.

Misconduct:

Academic or personal misconduct will be managed per the procedures outlined in the MSU Billings Student Policies & Procedures Handbook.

Be careful about cheating and plagiarism. Sending a classmate your electronic files is a risk. Excel and Visio are examples. I have seen several times where the same file gets handed in by two students. Copying answers in online homework is another area to watch.

Exhibit professional behavior. It is important that we provide a campus conducive to academic development. Repeated disruptive behavior will be documented and result in final grade reductions up to 10% per occurrence depending on severity.

Cell Phones and Electronic Devices:

Electronic devices including phones, computers, and tablets are distracting to the class and not allowed. Silenced phones are allowed if you politely step out of the room to take a call.

Access, Assistance, and Advocacy:

Your success in a positive, supportive, and enjoyable learning environment is my primary objective and the University's. Please let me know if there are barriers that I can help to address. We have one of the strongest support networks of any university to help. A summary of services is listed below. You can work with them directly or involve me as you prefer.

- Academic Support Center. The City College branch is open M-F 9-5. Resources include tutoring and a writing center. Drop-in and by appointment. 247-3022.
- Disability Support Services (DSS). MSU Billings is committed to providing equal access. Please meet with me to discuss ways to ensure your full participation if you anticipate barriers. DSS will help us (247-3029, Tech Building A011).
- TRIO/Student Support Services. Support for low income, first generation, and disabled students enrolled in a 4 year program (or 2+2 at City College). 657-2162
- Native American Achievement Center. Advocacy and assistance for American Indian students. 657-2144
- Student Health Services. Student Health Services provides medical care, mental health counseling, wellness services and education, and violence advocacy and prevention services. Located above the Academic Support Center at City College. Open M:11-2, T:9-

12, W:11-2, and Th:1-5. Students can use Health Services even if they waive the student health insurance plan. 657-2153

- Veterans Services. For assistance activating your VA Educational Benefits, getting access to VA assistance for tutors, or even joining the veteran student organization contact the VA Representative in the Military and Veterans Success Center, Dawn Githens, at 657-2982. For assistance on the posting of your VA Educational benefits please contact Renee Haefer in the Business Services office at 657-1707.
- Veterans Upward Bound. Assistance for veterans from admission to graduation. 657-2075

Safety:

Some hazards can't be eliminated in a process plant or laboratory setting and must be managed to prevent serious injury. A discussion of hazards and how to mitigate them will be part of every lab and will include safely equipment checks, personal protective equipment requirements, and training. Student responsibilities include:

- Be fully engaged so you understand the hazards and are prepared to manage them.
- Be in a suitable physical and mental state to perform safely and determine if you are prepared to engage in an activity.
- Wear all required PPE for the activity. Safety glasses are always required in the lab. No open-toe shoes are allowed in the lab.
- Perform safely and professionally. Horseplay gets people hurt.
- Follow all laboratory rules and procedures. No food or drinks in the lab is an example.

Failure to follow safety rules may result in a written warning, a failing grade for the assignment or course, or loss of laboratory privileges to protect other students. MSUB is not responsible for injury resulting from failure to follow rules or procedures.

Academic Issues and Grading:

1. Late work is not accepted.
2. Final lecture grades will be calculated per the following scoring criteria:

Tests (average of 3 evenly split)	60%
Weekly Homework Assignments	40%

3. Final lab grades will be calculated according to the following scoring criteria:

Average of individual lab grades	100%

4. Grade Scale:

Grade	Percentage	GPA
A	93 - 100	4.0

A-	90 - 93	3.7
B+	87 - 90	3.3
B	83 - 87	3.0
B-	80 - 83	2.7
C+	77 - 80	2.3
C	73 - 77	2.0
C-	70 - 73	1.7
D+	67 - 70	1.3
D	63 - 67	1.0
D-	60 - 63	0.7
F	0 - 60	0.0

Course Outline:

The following plan is a guideline that will be adjusted to meet the needs of the class.

Week	Day	Class	Lab	Lab	Class Plan / Notes	Lab
1	Wed 09/04/19	1			Welcome to PPT / Syllabus	
	Thu 09/05/19	2		1	Intro to Becoming an Operator	Lab 1: PPT Lab Orientation / Tools Intro
2	Mon 09/09/19	3	1		What is Process Plant Technology?	Lab 1: PPT Lab Orientation / Tools Intro
	Tue 09/10/19	4			Flaring / Compression Fittings	
	Wed 09/11/19	5			Tubing Bending / Hand Threading	
	Thu 09/12/19	6		2	Threaded Pipe Fabrication / Fittings	Lab 2: Valves / Valve Tools / Sight Glass
3	Mon 09/16/19	7	2		Valves	Lab 2: Valves / Valve Tools / Sight Glass
	Tue 09/17/19	8			Valves	
	Wed 09/18/19	9			Valves	
	Thu 09/19/19	10		3	Valves	Lab 3: Tubing Flaring / Hand Threading
4	Mon 09/23/19	11	3		Valves	Lab 3: Tubing Flaring / Hand Threading
	Tue 09/24/19	12			Process Plant Science	
	Wed 09/25/19	13			Process Plant Science	
	Thu 09/26/19	14		4	Process Plant Science	Lab 4: Operating the Threading Machine
5	Mon 09/30/19	15	4		Process Plant Science	Lab 4: Operating the Threading Machine
	Tue 10/01/19	16			Heat Transfer	
	Wed 10/02/19	17			Heat Transfer	
	Thu 10/03/19	18		5	Test #1	Lab 5: Build a piping system
6	Mon 10/07/19	19	5		Pumps (types and how they work)	Lab 5: Build a piping system
	Tue 10/08/19	20			Pumps (types and how they work)	
	Wed 10/09/19	21			Pumps (sealing systems)	
	Thu 10/10/19	22		6	Pumps (sealing systems)	Lab 6: Conoco Tanks
7	Mon 10/14/19	23	6		Pumps (sealing systems)	Lab 6: Conoco Tanks
	Tue 10/15/19	24			Pump Operation & Troubleshooting	

	Wed 10/16/19	25			Pump Operation & Troubleshooting	
	Thu 10/17/19	26		7	Compressors	Lab 7: Tubing Bending
8	Mon 10/21/19	27	7		Turbines	Lab 7: Tubing Bending
	Tue 10/22/19	28			Filters and Other Equipment	
	Wed 10/23/19	29			Distillation	
	Thu 10/24/19	30		8	Distillation	Lab 8: Valve Walkthrough
9	Mon 10/28/19	31	8		Distillation	Lab 8: Valve Walkthrough
	Tue 10/29/19	32			Distillation	
	Wed 10/30/19	33			Large Distillation Unit Walk Through	
	Thu 10/31/19	34		9	Test #2	Lab 9: Visible Pump Flow Curve
10	Mon 11/04/19	35	9		Cooling Towers (Registration Starts)	Lab 9: Visible Pump Flow Curve
	Tue 11/05/19	36			Cooling Towers	
	Wed 11/06/19	37			Cooling Towers	
	Thu 11/07/19	38		10	Furnaces	Lab 10: Large Distillation Unit
11	Mon 11/11/19				Veterans Day NO CLASSES	
	Tue 11/12/19	39			Furnaces	
	Wed 11/13/19	40			Furnaces	
	Thu 11/14/19	41		11	Instruments	Lab 11: Miniature Distillation Plant
12	Mon 11/18/19	42	10		Instruments	Lab 10: Large Distillation Unit
	Tue 11/19/19	43			Instruments	
	Wed 11/20/19	44			Instruments	
	Thu 11/21/19	45		12	Tanks	Lab 12: Cooling Tower
13	Mon 11/25/19	46	11		Tanks	Lab 11: Miniature Distillation Plant
	Tue 11/26/19	47			Tanks	
	Wed 11/27/19				Thanksgiving Holiday NO CLASSES	
	Thu 11/28/19				Thanksgiving Holiday NO CLASSES	
14	Mon 12/02/19	48	12		Exchangers	Lab 12: Cooling Tower
	Tue 12/03/19	49			Exchangers	
	Wed 12/04/19	50			Exchangers	
	Thu 12/05/19	51		13	Exchangers	Lab 13: Furnace Simulation
15	Mon 12/09/19				Final Exam. 1-3 pm.	

Fall 2019 Andy's Schedule

	Mon	Tue	Wed	Thu	Fri
8:00-9:00	PPT 211-001 Advanced Operations 8:00–9:00 – B036		PPT 211-001 Advanced Operations 8:00–9:00 – B036	PPT 102-101 Intro to PPT Lab 8:00-10:00 – A062	
9:00-10:00	Office Hours	PPT 212-101 Advanced Ops Lab 9:10-11:10 – A062	Office Hours		Office Hours
10:00-11:00	PPT 225-001 Troubleshooting 10:20-11:20 – B036		PPT 225-001 Troubleshooting 10:20-11:20 – B036	Office Hours	
11:00-12:00		PPT 151-001 PPT Safety I 11:30-12:30 – B036	PPT 130-001 Diagrams 11:30-12:30 – B012	PPT 151-001 PPT Safety I 11:30-12:30 – B036	
12:00-1:00					
1:00-2:00	CSCI 181 Web Design 12:40-1:40 – B056	CSCI 181 Web Design 12:40-1:40 – B056	CSCI 181 Web Design 12:40-1:40 – B056	CSCI 181 Web Design 12:40-1:40 – B056	CSCI 181 Web Design 12:40-1:40 – B056
2:00-3:00	PPT 101-001 Intro to Proc Tech 1:50-2:50 – B036	PPT 101-001 Intro to Proc Tech 1:50-2:50 – B036	PPT 101-001 Intro to Proc Tech 1:50-2:50 – B036	PPT 101-001 Intro to Proc Tech 1:50-2:50 – B036	
3:00-4:00	PPT 102-100 Intro to PPT Lab 3:00-5:00 – A062	Office Hours	PPT 212-100 Advanced Ops Lab 3:00-5:00 – A062	PPT 102-102 Intro to PPT Lab 3:00-5:00 – A062	Office Hours
4:00-5:00					