Bossier Parish Community College
Master Syllabus

Course Prefix and Number: OGPT 245 **Credit Hours:** 2-1-3

Course Title: Pumps and Pump Applications

Course Prerequisite: MATH 102 And TEED 153 Or OGPT 153

Textbook: TPC Pumps. ISBN: 730738 and TPC Pumps Installation and Maintenance. ISBN: 840844.

Other materials used as reference materials: Gas Compression (additional handout); Amatrol Lab References Books and Manuals; LabVolt Lab Reference Books and Manuals; Simtronics Simulation Software.

Course Description: Study of types of pumps, compressors, and drivers and their common applications and range of operations; evaluation and selection of pumps and compressors and their drivers for long-term efficient operations; unit and station configuration including multiple trains in series and/or parallel operations; integration with upstream and downstream process equipment, local and remote control systems, and facilities utilities; key auxiliary systems including monitoring equipment, heat exchangers, lube and seal systems, and fuel/power systems; and major design, installation, operating, troubleshooting, and maintenance considerations.

Learning Outcomes:
At the end of the course, the student will:

A. demonstrate familiarization with symbols and terminology used to design, develop, and analyze pumps and compressor systems;
B. determine and measure forces and energy transmitted through systems;
C. described hydraulic and gas compressibility issues;
D. know flow characteristics and applications;
E. know prime movers (power systems) used in the process; and
F. know series and parallel applications and compatibility issues.

To achieve the learning outcomes, the student will or will be able to:
(The letter designations at the end of each statement refer to the learning outcome(s).)

1. define terminology and measurement used in fluid transfer and gas compression (B);
2. describe how hydraulic transmission of force and energy is accomplished (E);
3. describe how gas transmission of force and energy is accomplished (B);
4. describe the operation at the suction side and discharge side of a pump and compressor (F);
5. list the different types of pumps and compressors (D);
6. describe how control of hydraulic energy in pumps is accomplished (C);
7. describe how control of gas compression energy is accomplished (C);

8. identify check valves, accumulators, and cylinders, prime movers, pumps, compressor units (A);
9. identify directional values and explain the difference between single stage or multi stage pumps and compressors (E);
10. draw the symbol and explain operation of "flow control" in fluid and gas movement (A);
11. explain the uses of pressure control valves, pumps, and hydraulic motors (F);
12. describe hydraulic fluids, reservoirs, coolers, and filters (E);
13. describe gas cooler, mist extractor, volume accumulators, side loading and additional processes used in gas compression (C); and
14. describe and identify the external support system used in the pumps and compression process (F).

Course Requirements: Complete all homework assignments, lecture tests, and final exam.

Course Grading Scale:

90 – 100 = A
80 – 89 = B
70 – 79 = C
60 – 69 = D
0 – 59 = F

Attendance Policy: The college attendance policy is available at http://www.bpcc.edu/catalog/current/academicpolicies.html

Course Fees: This course is accompanied with an additional non-refundable fee for supplemental materials, laboratory supplies, software licenses, certification exams, and/or clinical fees.

Nondiscrimination Statement: Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

COORDINATOR FOR SECTION 504 AND ADA
Angie Cao, Student and Disability Services Specialist
Disability Services, F-254
6220 East Texas Street
Bossier City, LA 71111
Phone: 318-678-6511
Email: acao@bpcc.edu
Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.

Equity/Compliance Coordinator
Teri Bashara, Director of Human Resources
Human Resources Office, A-105

6220 East Texas Street
Bossier City, LA 71111
Phone: 318-678-6056
Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.

Revised: 8/9/2018