

Program Information Report

Fluid Power (CTFPOW)

Certificate

Program Effective Term: Fall 2017

High Skill Occupation High Wage Occupation

This program prepares students for entry level positions as a hydraulic technician. The program gives students an understanding of hydraulic and pneumatic system design including motion control, using electro-hydraulic proportional and servo valves. Students who complete the program may choose to take the Hydraulic Specialist or Technician Certification Examination through the Fluid Power Society.

Articulation:

Eastern Michigan University, BS degree.

Copies can be obtained from the Counseling Office, a program advisor, or from the Curriculum and Assessment Office Web site: <http://www.wccnet.edu/curriculum/articulation/levelone/colleges>.

Major/Area Requirements		(12 credits)
FLP 110	Fluid Power Fundamentals - II	2
FLP 214	Hydraulic Circuits and Controls	4
FLP 225	Fluid Power Motion Control	3
FLP 226	Pneumatics	3
Core Courses		(11 credits)
MEC 100	Materials and Processes	3
FLP 101	Fluid Power Fundamentals - I	2
MTT 102	Machining for Auto Applications	2
NCT 101	Introduction to Computerized Machining (CNC) - I	2
ROB 101	Robotics I - I	2
<i>Core courses must be taken before Major/Area Requirements.</i>		

Minimum Credits Required for the Program: 23

Notes:

This certificate can also lead to an associate degree in Mechatronics.

PROGRAM CHANGE OR DISCONTINUATION FORM

Effective Term: Fall 2016 ²⁰¹⁷

Program Code: CTFPOW Program Name: Fluid Power
 Division Code: ATP Department: Industrial Technology

Directions:

1. Attach the current program listing from the WCC catalog or Web site and indicate any changes to be made.
2. Draw lines through any text that should be deleted and write in additions. Extensive narrative changes can be included on a separate sheet.
3. Check the boxes below for each type of change being proposed. Changes to courses, discontinuing a course, or adding new courses as part of the proposed program change, must be approved separately using a Master Syllabus form, but should be submitted at the same time as the program change form.

Requested Changes:

<input type="checkbox"/> Review	<input type="checkbox"/> Program admission requirements
<input checked="" type="checkbox"/> Remove course(s): <u>BMG 241</u>	<input type="checkbox"/> Continuing eligibility requirements
<input type="checkbox"/> Add course(s): _____	<input type="checkbox"/> Program outcomes
<input type="checkbox"/> Program title (title was _____)	<input type="checkbox"/> Accreditation information
<input checked="" type="checkbox"/> Description	<input type="checkbox"/> Discontinuation (attach program discontinuation plan that includes transition of students and timetable for phasing out courses)
<input type="checkbox"/> Type of award	<input checked="" type="checkbox"/> Other <u>Footnote</u>
<input type="checkbox"/> Advisors	
<input type="checkbox"/> Articulation information	

Show all changes on the attached page from the catalog.

Rationale for proposed changes or discontinuation:
 BMG 241 is being inactivated by the Business Department and can no longer be used in the program.

Financial/staffing/equipment/space implications:
 None

List departments that have been consulted regarding their use of this program.
 None

Signatures:

Reviewer	Print Name	Signature	Date
Initiator	Jim POPOVICH		3/6/16
Department Chair	Tom Penird		3/22/2016
Division Dean/Administrator	Brandon Tucker		3/30/16
Vice President for Instruction	Michael Nealon		5/2/16

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Please submit completed form to the Office of Curriculum and Assessment (SC 257).

*logged 4/1/16 sjf
 done 9/19/16 MO*

Fluid Power (CTFPOW) Certificate

Description

This program prepares students for entry level positions as a hydraulic technician. The program gives students an understanding of hydraulic and pneumatic system design including motion control, using electro-hydraulic proportional and servo valves. Students will be prepared to take the Hydraulic Specialist or Technician Certification Examination through the Fluid Power Society.

Contact Information

Division: Adv Tech/Public Serv Careers
Department: Industrial Technology Dept
Advisors

James Popovich

Gary Schultz

*Who complete the program may
choose*

Requirements

Major/Area Requirements

Class	Title	Credits
<u>FLP 110</u>	Fluid Power Fundamentals - II	2
<u>FLP 214</u>	Hydraulic Circuits and Controls	4
<u>FLP 225</u>	Fluid Power Motion Control	3
<u>FLP 226</u>	Pneumatics	3
Total		12

Core Courses

Class	Title	Credits
<u>MEC 100</u>	Materials and Processes	3
<u>BMG 241</u>	Innovation: Process and Application	1
<u>FLP 101</u>	Fluid Power Fundamentals - I	2
<u>MTT 102</u>	Machining for Auto Applications	2
<u>NCT 101</u>	Introduction to Computerized Machining (CNC) - I	2
<u>ROB 101</u>	Robotics I - I	2
	Core courses must be taken before Major/Area Requirements.	0
Total		12- 11
Total Credits Required		24- 23

This certificate can also lead to an associate degree in Automation Technology.

Mechatronics

Program Information Report

CTFPOW

School of Advanced Manufacturing Systems

Whether your interest is in manufacturing or automation, the programs in the School of Advanced Manufacturing Systems will fit your needs. Maintain and troubleshoot the machines that make commercial goods by specializing in one or more aspects of the machining industry. Develop entry level or advanced skills in electronics, automation hydraulics or numerical controls.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or advance in their existing careers. The first level is the certificate, which can vary from nine to thirty-six credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level, an Associate in Applied Science, is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, an advanced certificate (if one exists) and General Education requirements.

Automation

Are you looking for a career as a hydraulic technician or an introduction to manufacturing engineering? Consider the field of automation.

Program Information Report

Fluid Power (CTFPOW)

Certificate

Program Effective Term: Fall 2015

High Skill Occupation High Wage Occupation

This program prepares students for entry level positions as a hydraulic technician. The program gives students an understanding of hydraulic and pneumatic system design including motion control, using electro-hydraulic proportional and servo valves. Students will be prepared to take the Hydraulic Specialist or Technician Certification Examination through the Fluid Power Society.

Articulation:

Eastern Michigan University, BS degree.

Copies can be obtained from the Counseling Office, a program advisor, or from the Curriculum and Assessment Office Web site: <http://www.wccnet.edu/departments/curriculum/articulation.php?levelone=colleges>.

Major/Area Requirements		
FLP 110	Fluid Power Fundamentals - II	2
FLP 214	Hydraulic Circuits and Controls	4
FLP 225	Fluid Power Motion Control	3
FLP 226	Pneumatics	3

Core Courses (12 credits)		
MEC 100	Materials and Processes	3
BMG 241	Innovation: Process and Application	1
FLP 101	Fluid Power Fundamentals - I	2
MTT 102	Machining for Auto Applications	2
NCT 101	Introduction to Computerized Machining (CNC) - I	2
ROB 101	Robotics I - I	2

Core courses must be taken before Major/Area Requirements.

Minimum Credits Required for the Program: 24

Notes:

This certificate can also lead to an associate degree in Automation Technology.

PROGRAM CHANGE OR DISCONTINUATION FORM

Program Code: **CTFLPW**
POW
 Division Code: **HAT** Program Name: **Fluid Power Certificate**
 Department: Industrial Technology (INTD)

Effective Term: Fall 2008

Directions:

1. Attach the current program listing from the WCC catalog or Web site and indicate any changes to be made.
2. Draw lines through any text that should be deleted and write in additions. Extensive narrative changes can be included on a separate sheet.
3. Check the boxes below for each type of change being proposed. Changes to courses, discontinuing a course, or adding new courses as part of the proposed program change, must be approved separately using a Master Syllabus form, but should be submitted at the same time as the program change form.

Requested Changes:

<input type="checkbox"/> Review	<input type="checkbox"/> Program admission requirements
<input checked="" type="checkbox"/> Remove course(s): <u>FLP 111</u>	<input type="checkbox"/> Continuing eligibility requirements
<input checked="" type="checkbox"/> Add course(s): <u>AMS103, BMG241, FLP101, FLP110, MIT102, NCT101, ROB101.</u>	<input type="checkbox"/> Program outcomes
<input type="checkbox"/> Program title (title was _____)	<input type="checkbox"/> Accreditation information
<input type="checkbox"/> Description	<input type="checkbox"/> Discontinuation (attach program discontinuation plan that includes transition of students and timetable for phasing out courses)
<input type="checkbox"/> Type of award	<input checked="" type="checkbox"/> Other <u>Required Core Courses (12 credits):</u>
<input type="checkbox"/> Advisors	<ul style="list-style-type: none"> • <u>AMS 103 3 credits</u> • <u>BMG 241 1 credit</u> • <u>FLP 101 2 credits</u> • <u>MIT 102 2 credits</u> • <u>NCT 101 2 credits</u> • <u>ROB 101 2 credits</u>
<input type="checkbox"/> Articulation information	

Show all changes on the attached page from the catalog.

Rationale for proposed changes or discontinuation:
 Provide students with core courses of basics skills common to all INTD certificate and degree programs.

Financial/staffing/equipment/space implications:
 None

List departments that have been consulted regarding their use of this program.
 Business and Computer Technologies Division – Rosemary Wilson, Dean
 Vocational Technologies Division, - Bruce Greene, Dean

Signatures:

Reviewer	Print Name	Signature	Date
Initiator	Tom Penird/ Gary Schultz		3/4/08
Department Chair	Tom Penird/ Gary Schultz		3/4/08
Division Dean/Administrator	Granville Lee		2/26/08
Vice President for Instruction	Roger Palay		3/13/08
President	Larry Whitworth		

Do not write in shaded area. Entered in: Banner _____ C&A Database 4/10 Log File 2/27/08 Board Approval _____

Please submit completed form to the Office of Curriculum and Assessment and email an electronic copy to sjohn@wccnet.edu for posting on the website.

Program Information Report

School of Advanced Manufacturing Systems

Automation

Fluid Power (CTFLPW)

Certificate

Program Effective Term: Fall 2008

This program prepares students for entry level positions as a hydraulic technician. The program gives students an understanding of hydraulic and pneumatic system design including motion control, using electro-hydraulic proportional and servo valves. Students will be prepared to take the Hydraulic Specialist or Technician Certification Examination through the Fluid Power Society.

Articulation:

Eastern Michigan University, BS degree

Copies can be obtained from the Counseling Office, a program advisor, or from the Curriculum and Assessment Office Web site: <http://www.wccnet.edu/departments/curriculum/articulation.php?levelone=colleges>.

Core Courses		(12 credits)
AMS 103	Materials and Processes	3
BMG 241	Innovation: Process and Application	1
FLP 101	Fluid Power Fundamentals - I	2
MTT 102	Machining for Auto Applications	2
NCT 101	Introduction to Computerized Machining (CNC) - I	2
ROB 101	Robotics I - I	2
*Core courses must be taken before Major/Area Requirements.		
Major/Area Requirements		(12 credits)
FLP 110	Fluid Power Fundamentals - II	2
FLP 214	Hydraulic Circuits and Controls	4
FLP 225	Fluid Power Motion Control	3
FLP 226	Pneumatics	3

Minimum Credits Required for the Program: 24

Notes:

This certificate can also lead to an associate degree in Automation Technology.

PROGRAM CHANGE FORM

Program Code: CVFLPA CTFLPW Program Name: Fluid Power Certificate

Effective Term: Fall 2004

Directions:

1. Attach the current program listing from the WCC catalog and indicate any changes to be made.
2. Draw lines through any text that should be deleted and write in additions. Extensive narrative changes can be included on a separate sheet.
3. Check the boxes below for each type of change being proposed. Changes to courses, discontinuing a course, or adding new courses as part of the proposed program change, must be approved separately using a Course Syllabus Form, but should be submitted at the same time as the program change form.

Requested Changes:

- | | |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Remove <u>FLP 213: Hydraulic Controls</u> course(s) | <input type="checkbox"/> Advisors |
| <input checked="" type="checkbox"/> Add <u>FLP 111: Fluid Power Fundamentals</u> course(s) | <input type="checkbox"/> Articulation information |
| <input checked="" type="checkbox"/> Total credits: Current credits <u>12</u> After changes <u>14</u> | <input checked="" type="checkbox"/> Program admission requirements |
| <input checked="" type="checkbox"/> Title (title was <u>Fluid Power Advanced Certificate</u>) | <input type="checkbox"/> Continuing eligibility requirements |
| <input checked="" type="checkbox"/> Description <u>Attached</u> | <input type="checkbox"/> Program outcomes |
| | Other _____ |

Show all changes on the attached page from the catalog.

Rationale for proposed changes:

Align with the restructure of the Robotics Technology to Automation Technology Degree Program..

Financial/staffing/equipment/space implications:

None

List departments that have been consulted regarding the use of this program.

Signatures:

Reviewer	Print Name	Signature	Date
Program Change Initiator	Gary Schultz	<i>Gary Schultz</i>	3/19/04
Department Chair	Gary Schultz	<i>Gary Schultz</i>	3/19/04
Division Dean/Administrator	Granville Lee	<i>Granville Lee</i>	3/28/04
Vice President for Instruction	Roger Palay	<i>Roger M. Palay</i>	4/5/04

RUL 4.1.04

Please submit completed form to the Office of Curriculum and Articulation Services.

Office of Curriculum & Articulation Services

Program Change Form 8-2003

MAY 06 2004

Access Program File 4/8

Log 4/8

Copied and Returned _____ Office of Curriculum & Articulation Services

Industrial and Engineering Technology

Fluid Power (CTFLPW) Certificate

'UNDER CONSTRUCTION'

Program Effective Term: Fall 2004

This program prepares you for entry level positions as a hydraulic technician. The program gives you an understanding of hydraulic and pneumatic system design including motion control, using electro-hydraulic proportional and servo valves. You will be prepared to take the Hydraulic Specialist or Technician certification examination through the Fluid Power Society.

Major/Area Requirements

(14 credits)

FLP 111	Fluid Power Fundamentals	4
FLP 214	Hydraulic Circuits and Controls	4
FLP 225	Fluid Power Motion Control	3
FLP 226	Pneumatics	3

Minimum Credits Required for the Program:

14

Notes:

This certificate can also lead to an associate degree in Automation Technology.

Program Approval Document

In

FLUID POWER

Prepared by

Washtenaw Community College

DATE

**WASHTENAW COMMUNITY COLLEGE
PROGRAM AUTHORIZATION FORM**

1. Program Title: FLUID POWER Program Code: FLPA
 2. Division: TECHNOLOGY 3. Department: _____ CIP Code: _____
 4. Type of Program: A.A. A.S. A.A.S. A.T.S.
 Advanced Certificate Mastery Certificate Achievement Certificate Certificate of Completion
 5. Will this program be Perkins funded? yes no 6. Effective Year: F 2000

7. Program Description (for Catalog, brochures, etc.): THIS PROGRAM IS AN EXTENSION OF THE "CERTIFICATE IN FLUID POWER" PROGRAM. STUDENTS COMPLETING THIS CERTIFICATE WILL HAVE AN UNDERSTANDING OF SYSTEM DESIGN INCLUDING MOTION CONTROL USING ELECTRO-HYDRAULIC PROPORTIONAL AND SERVO VALVES. STUDENTS WILL ALSO BE PREPARED TO TAKE THE "HYDRAULIC SPECIALIST" EXAM THROUGH THE FLUID POWER SOCIETY.

8. Advisors: GARY SCHULTZ, SIM POPOVICI

9. Admissions Criteria:	10. Criteria for Continuing Program Eligibility:
<u>SUCCESSFUL COMPLETION OF THE FLUID POWER CERTIFICATE</u>	

11. Attach a Program Approval Document [PAD], which includes the following:
- A. Program Description
 - B. Program Goals
 - C. Needs Assessment
 - D. Enrollment Projections
 - E. Program Cost Analysis
 - F. Course Descriptions
 - G. Analysis of Affected Instructional Units
 - H. Articulations
 - I. Licensure/Accreditation

Approval Recommended:	Print Name	Signature	Date
Program Initiator:			
Dept. Chair/Dir.:	<u>GARY SCHULTZ</u>		
Dean/Admin.:	<u>ROGER BORTOIA</u>		
VP, Instr/Stud Ser:	<u>GUY ALTIERI</u>		
President:	<u>LARRY WHITWORTH</u>		
Date of Board Approval:			

Available on disk

COURSE REQUIREMENTS FOR PROGRAM

Course	Title	Credit	Pre-requisites/Co-requisites
Minimum Credits Required:			

A. PROGRAM DESCRIPTION

B. PROGRAM GOALS

C. NEEDS ASSESSMENT

1. Employment Outlook
2. Expected Earnings/Wages
- 3.

D. ENROLLMENT PROJECTIONS

1. Estimated Number of Students per Year
2. Longevity of Program

E. PROGRAM COST ANALYSIS

1. Start-up Costs
2. Ongoing Costs of Operation

F. COURSE DESCRIPTIONS

G. ANALYSIS OF AFFECTED INSTRUCTIONAL UNITS AND CORE CURRICULUM

H. ARTICULATIONS

I. LICENSURE/ACCREDITATION (IF APPLICABLE)

**Washtenaw Community College
Program Change Request Form**

Program Code: FLPA Program Title: FLUID POWER

Effective Year: F 2000

1. Course Related Program Changes:

Course	Course Title	Elective Group (if applicable)	Credit	Sem	Change(s)
FLP 225	FLP MOTION CONTROL		4		Remove <input type="checkbox"/> Add <input checked="" type="checkbox"/> Change Title <input type="checkbox"/> <input type="checkbox"/> Change Credit (was: _____) <input type="checkbox"/> Shift in Sequence (was: _____)
ELE 224	INTRODUCTION TO PLC'S		4		Remove <input type="checkbox"/> Add <input checked="" type="checkbox"/> Change Title <input type="checkbox"/> <input type="checkbox"/> Change Credit (was: _____) <input type="checkbox"/> Shift in Sequence (was: _____)
ELE 254	PLC APPLICATIONS		4		Remove <input type="checkbox"/> Add <input checked="" type="checkbox"/> Change Title <input type="checkbox"/> <input type="checkbox"/> Change Credit (was: _____) <input type="checkbox"/> Shift in Sequence (was: _____)
PHY 110	APPLIED PHYSICS		4		Remove <input type="checkbox"/> Add <input checked="" type="checkbox"/> Change Title <input type="checkbox"/> <input type="checkbox"/> Change Credit (was: _____) <input type="checkbox"/> Shift in Sequence (was: _____)
					Remove <input type="checkbox"/> Add <input type="checkbox"/> Change Title <input type="checkbox"/> <input type="checkbox"/> Change Credit (was: _____) <input type="checkbox"/> Shift in Sequence (was: _____)
					Remove <input type="checkbox"/> Add <input type="checkbox"/> Change Title <input type="checkbox"/> <input type="checkbox"/> Change Credit (was: _____) <input type="checkbox"/> Shift in Sequence (was: _____)
					Remove <input type="checkbox"/> Add <input type="checkbox"/> Change Title <input type="checkbox"/> <input type="checkbox"/> Change Credit (was: _____) <input type="checkbox"/> Shift in Sequence (was: _____)
					Remove <input type="checkbox"/> Add <input type="checkbox"/> Change Title <input type="checkbox"/> <input type="checkbox"/> Change Credit (was: _____) <input type="checkbox"/> Shift in Sequence (was: _____)

2. Total Credit Hours for Program: Before Proposed Changes: 16 After Proposed Changes: _____

Non-Course Related Program Changes: (description, advisors, admission criteria, title, etc.)

4. Rationale for Proposed Changes:

5. Financial/Staffing/Equipment/Space Implications:

6. Has the department consulted with all departments that may be impacted? Yes No NA

7. Signatures:

Reviewer	Print Name	Signature	Date
Program Change Initiator:	GARY SCHULTZ		
Department Chair:			
Division Dean:			
VP. Instruction/Student Services:			

If significant changes are proposed, please attach a copy of the most recent program listing from the College Bulletin with changes marked on it. If courses are being changed as part of this proposal, course changes must be approved using the Course/Syllabus Approval Form.

Fluid Power (CVFLPA) Advanced Certificate

This program is a continuation of the Fluid Power Certificate program and prepares you for higher level positions as a hydraulic specialist. The program gives you an understanding of system design including motion control, using electro-hydraulic proportional and servo valves. You will also be prepared to take the "Hydraulic Specialist" certification examination through the Fluid Power Society.

**Technology Division
Industrial Technology Department**

Advisors: Jim Popovich, Gary Schultz

Program Admission Requirements:

Successful completion of the Fluid Power Certificate (CTFLPC)

Major/Area Requirements (11 Credits)

ELE 224	Introduction to PLC's	4
ELE 254	PLC Applications	4
FLP 225	Fluid Power Motion Control	3

Minimum Credits Required for the Program: 11

Footnotes:

Note: The following sequence of courses is recommended.

I	II
ELE 224	ELE 254
	FLP 225

**Fluid Power (FLPA)
Advanced Certificate**

This program is an extension of the "Certificate in Fluid Power" program. Students completing this certificate will have an understanding of system design including motion control using electro-hydraulic proportional and servo valves. Students will also be prepared to take the "Hydraulic Specialist" exam through the Fluid Power Society.

Advisors: Gary Schultz, Jim Popovich

Program Admission Requirements:
Successful completion of the Fluid Power Certificate.

Course Number Course Name Credits

Major/Area Requirements (16)

FLP 225	FLP Motion Control	4
ELE 224	Introduction to PLC's	4
ELE 254	PLC Applications	4
PHY 110	Applied Physics	4

Minimum Credits Required: **16**