LOYALIST COLLEGE

Course Outline

School of Applied Sciences, Skills and Technology

Program Code	Program Description	Program Year	Program Semester
MPFP	Motive Power Fundamentals	1	2
MPTN	Motive Power Technician - Service and Management	1	2

Academic Year: 2016-17 **Term :** Winter 2017

Course Name: Suspension, Steering, Brakes 1

Course Code: AMST 1024 **Credit Value:** 3

Faculty	Email	Office	Phone	Comments
Andrew McMahon	amcmahon@loyalistc.on.ca	3T9 - Skills Center		3T4 / 2T14
Chris Sherry	csherry@loyalistc.on.ca			
Troy Bartlett				
Steve Cook	scook@loyalistc.on.ca	Skills Center 3T9	613 969 1913Ext.2564	
Jeff Shields	jshields@loyalistc.on.ca			

Classroom Instruction	Lab/ Workshops/ Fieldwork	Field Placement/ Work Placement	Clinical Placement	Small Group Tutorial	Independent Learning	Total
28	14	0	0	0	0	42

Prerequisites/Corequisites/Equivalent Courses

PR/CO/EQ	Course Code	Course Name	Conditions
PR	AMST 1001	Basic Automotive Skills	with a minimum grade of 50
CO	N/A		
EQ	N/A		

This Course is A Prerequisite For:

Course Code	Course Name
AMST 2004	Suspension, Steering, Brakes 2

1. Calendar Description

Students demonstrate a basic working knowledge of the construction, operating principles, testing and servicing of suspension, steering and hydraulic and air brake systems.

2. Course Learning Outcomes: Upon successful completion of the course, the student will be able to

1 Suspension Systems: explain the fundamental theories, characteristics and applications relative to suspension systems according to principles of physics.

Dean/Chair Approval: **Date:** 5/11/2017

2 Frame, Suspension and Steering Types: the ability to identify and explain types, and the construction of frames, steering and suspension components according to maunufacturer's standards.
3 Steering and Suspension Principles of Operation: the ability to explain the operation of suspension and steering systems and components according to principles of physics.
4 Suspension/Steering System Inspection and Testing: ability to inspect and test suspension and steering systems and components according to manufacturers' recommendations.
5 Tires and Rims: the ability to explain, test, repair and service tires and wheels in according to manufacturers' recommendations.
6 Hydraulic and Air Brake Fundamentals: the ability to explain, identify, inspect and service brake systems and components in according to manufacturers' recommendations.

3. Essential Employability Skills Outcomes: This course will contribute to the achievement of the following essential employability skills

Taught	Assessed	Essential Employability Skill
[x]	[x]	1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.
[x]	[x]	2. Respond to written, spoken, or visual messages in a manner that ensures effective communication.
[ ]	[ ]	3. Execute mathematical operations accurately.
[x]	[x]	4. Apply a systematic approach to solve problems.
[ ]	[ ]	5. Use a variety of thinking skills to anticipate and solve problems.
[x]	[ ]	6. Locate, select, organize, and document information using appropriate technology and information systems.
[ ]	[ ]	7. Analyze, evaluate, and apply relevant information from a variety of sources.
[ ]	[ ]	8. Show respect for the diverse opinions, values, belief systems, and contribution of others.
[ ]	[ ]	9. Interact with others in groups or team in ways that contribute to effective working relationships and the achievement of goals.
[ ]	[ ]	10. Manage the use of time and other resources to complete projects.
[ ]	[ ]	11. Take responsibility for one's own actions, decisions, and consequences.

4. General Education:

This course is not identified as a General Education course.

5. Prior Learning Assessment and Recognition:

Students may apply to receive credit by demonstrating achievement of the course learning outcomes through previous life

Challenge Exam - Written	Challenge Exam - Oral	Portfolio	Skills Demonstration
[x]	[ ]	[x]	[x]

and work experiences.
This course is eligible for challenge through the following method(s) indicated

PLAR	PLAR Advising 613-969-1913, ext. 2100 plar@loyalistc.on.ca

6. Required Texts, Materials, Resources or Technical Materials Required

Modern Automotive Technology
8th edition
James E. Duffy
ISBN: 978-1-61960-370-7
This is the same text that was required in Semeter 1

7. Evaluation: Students will demonstrate learning in the following ways

Course Learning Outcomes/Essential Employability Skills	Evaluation Type(s)	Weighting
Suspension Systems: explain the fundamental theories, characteristics and applications relative to suspension systems according to principles of physics.	Research Activity Practical Application	15
Frame, Suspension and Steering Types: the ability to identify and explain types, and the construction of frames, steering and suspension components according to maunufacturer's standards.	Research Activity Practical Application	15
Steering and Suspension Principles of Operation: the ability to explain the operation of suspension and steering systems and components according to principles of physics.	Research Activity Practical Application	15
Suspension/Steering System Inspection and Testing: ability to inspect and test suspension and steering systems and components according to manufacturers' recommendations.	Research Activity Practical Application	15
Tires and Rims: the ability to explain, test, repair and service tires and wheels in according to manufacturers' recommendations.	Research Activity Practical Application	10
Hydraulic and Air Brake Fundamentals: the ability to explain, identify, inspect and service brake systems and components in according to manufacturers' recommendations.	Research Activity Practical Application	15

Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.	Practical Application	5
Respond to written, spoken, or visual messages in a manner that ensures effective communication.	Practical Application	5
Apply a systematic approach to solve problems.	Practical Application	5

8. Other:

Loyalist College has a Violence Prevention policy:

All College members have a responsibility to foster a climate of respect and safety, free from violent behavior and harassment.
- Violence (e.g. physical violence, threatening actions or harassment) is not, in any way, acceptable behavior.
- Weapons or replicas of weapons are not permitted on Loyalist College property.
- Unacceptable behavior will result in disciplinary action or appropriate sanctions.
- More information can be found in the "Student Manual".This document was prepared in accordance with AOP 204: Course Outlines and AOP 224: Evaluation and Student Performance. For more information please see the policy section at www.loyalistcollege.com.

Attendance:

Attendance contributes to student success. Students are encouraged to make all efforts to attend all classes and arrive at each class on time. If a student is late arriving, they should enter with minimal disruption. If a student needs to leave a class early, they should leave with minimal disruption. Loyalist College recognizes that as adult learners, students will make individual decisions regarding attending classes. Loyalist College expects that students understand and accept that there may be consequences resulting from their decision not to attend or to arrive late. Students are advised to review their individual course outlines and program manuals to be aware of faculty attendance expectation and inform faculty of known absences as required.

-Excerpt from AOP 209 Student Code of Conduct – Positive Learning & Living Environment

In the fall of 2014 all courses will have a minimum passing grade of 50%. Please refer to the program manual for exceptions. Please note a 60% GPA is required for graduation from all programs.

9. Curriculum, Delivery, Learning Plan and Learning Outcomes:

Course Learning Outcomes/Essential Employability Skills	Related Elements of Performance	Learning Activities/Resources
Suspension Systems: explain the fundamental theories, characteristics and applications relative to suspension systems according to principles of physics.	know the definitions and applications for the following terms; Hooke's law Center of gravity Sprung and Unsprung weight Characteristic and applications for materials used within suspension systems	Class Discussion Research assignment Practical assignment
Frame, Suspension and Steering Types: the ability to identify and explain types, and the construction of frames, steering and suspension components according to maunufacturer's standards.	Identify various frame types and explain their construction and application Identify a variety of suspension types and components Disassemble, inspect, test, and assemble suspension system	Class Discussion Research assignment Practical assignment

	components and sub-assemblies with the prescribed tools and equipment	
Steering and Suspension Principles of Operation: the ability to explain the operation of suspension and steering systems and components according to principles of physics.	Identify steering and suspension system components Describe the construction of steerign and suspension system components Explain the operation of steering and suspension system components Disassemble, inspect, test, assemble steering system components and sub-assemblies using prescribed tools and equipment	Class Discussion Research assignment Practical assignment
Suspension/Steering System Inspection and Testing: ability to inspect and test suspension and steering systems and components according to manufacturers' recommendations.	Inspect and test suspension and steering systems as prescribed by the manufacturer and in compliance with provincial and federal laws	Class Discussion Research assignment Practical assignment
Tires and Rims: the ability to explain, test, repair and service tires and wheels in according to manufacturers' recommendations.	Fundamentals and construction of radial tires and rims Diagnose, inspect, test and repair wheels and tire assemblies using prescribed tools and equipment	Class Discussion Research assignment Practical assignment
Hydraulic and Air Brake Fundamentals: the ability to explain, identify, inspect and service brake systems and components in according to manufacturers' recommendations.	Fundamentals of braking system assemblies Describe the construction of hydraulic brake system components Inspect and test hydraulic brake system components using prescribed tools and equipment	Class Discussion Research assignment Practical assignment
Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.	Communicate effectively within the classroom and lab environment with professors and peers using appropriate terminology	Practical applicatio
Respond to written, spoken, or visual messages in a manner that ensures effective communication.	Use written and spoken instructions to perform a variety of tasks	Practical applicatio
Apply a systematic approach to solve problems.	Use knowledge of systems to apply to diagnostics and arrive at appropriate conclusions	Practical applicatio
Locate, select, organize, and document information using appropriate technology and information systems.	Locate information using database systems Select appropriate information for selected tasks Document relevant information	Practical applicatio