



Heavy Duty Equipment Technician Apprenticeship Level 3 – HDT3

Trades Training

Program Outline

PROGRAM IMPLEMENTATION DATE: September 2003
OUTLINE EFFECTIVE DATE: April 2019
PROGRAM OUTLINE REVIEW DATE: September 2024

GENERAL PROGRAM DESCRIPTION:

This 6-week program delivers the technical training required for Level 3 of the four-level Heavy Duty Equipment Technician Apprenticeship program. Apprentices will develop knowledge and practical skills related to describing power transfer systems and diagnosing and repairing clutches, manual transmissions, automated systems, automatic transmissions and torque converters, power shift transmissions, drivelines and drive axles, final drives, driveline retarders, winches and power take-offs and transfer cases. This program includes classroom theory, demonstrations and practical hands-on training in a heavy-duty mechanic shop setting. Safe work practices related to the heavy-duty equipment trade are reinforced throughout the program.

Credential Granted: Upon successful completion of the 6-week Level 3 Heavy Duty Equipment Technician (Heavy Duty Equipment Mechanic) program, students receive:

- Level 3 Technical Training credit of the Heavy Duty Equipment Technician Apprenticeship program from the Industry Training Authority.

Delivery: This program is delivered face to face as a block intake.

Time for this program: 6 weeks

Typical Structure of Instructional Hours:

Instructional Activity	Duration
Theory based training (approximately per day)	50%
Practical shop floor training (approximately per day)	50%
Trades Contact Hours	28 hr/wk

Practicum Hours (if applicable):

Type of Practicum	Duration
On-the-job Experience	N/A
Formal Work Experience	N/A
Other	N/A
Total	

Program Outline Author or Contact:

Robert Makkreel, RSE

Signature

APPROVAL SIGNATURES:

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Department Head Signature

Dean Signature

EDCO

Valid from: April 2019 – September 2024

Education Council Approval Date

PROGRAM PREREQUISITES AND TRANSFER CREDIT:

Prerequisites: Sponsored Heavy Duty Equipment Technician apprentice who has successfully completed Level 2 Heavy Duty Equipment Technician technical training.

Flexible Assessment (FA):

Credit can be awarded for this program through FA Yes No

Prior Learning Credit: Apprentices that have extensive work experience in a trade (in BC or elsewhere) but have never been certified must apply through the Industry Training Authority (ITA) to challenge the certification for advanced placement in a program. Refer to the ITA website (<http://www.itabc.ca/apply-apprenticeship/challenging-exams>) for details regarding the challenge procedure. Trade specific requirements can be found for each trade in the Trades Program Profiles on the ITA website.

Prior Course Number: N/A

Textbooks and Required Resources:

Textbook selection varies by instructor and may change from year to year. At the Program Outline Effective Date the following textbooks were in use (most current edition):

HD Tech-Level 3: COTR Custom Package 2016 (+BC Module). Queen's Printer.

Please see the instructor's syllabus or check COTR's online text calculator

http://www.cotr.bc.ca/bookstore/cotr_web.asp?IDNumber=164 for a complete list of the currently required textbooks.

PROGRAM DESIGN:

Apprenticeship programs cover the general area competencies (GAC) for the program as sourced from curriculum documents provided by Industry Training Authority (ITA). The Technical Training Topics are listed under the Technical Training Content section of this document, and related competencies are listed under the Program Competencies section. College of the Rockies is accredited by ITA to deliver apprenticeship programs.

TECHNICAL TRAINING CONTENT:

Powertrains

HDET 301	• Describe Power Transfer Systems
HDET 302	• Diagnose and Repair Clutches
HDET 303	• Diagnose and Repair Manual Transmissions
HDET 304	• Diagnose and Repair Automated Systems
HDET 305	• Diagnose and Repair Automatic Transmissions and Torque Converters
HDET 306	• Diagnose and Repair Power Shift Transmissions
HDET 307	• Diagnose and Repair Drivelines
HDET 308	• Diagnose and Repair Drive Axles
HDET 309	• Diagnose and Repair Final Drives
HDET 310	• Diagnose and Repair Driveline Retarders
HDET 311	• Diagnose and Repair Winches
HDET 312	• Diagnose and Repair Power Take-offs and Transfer Cases

PROGRAM COMPETENCIES:

Upon the successful completion of this program, students will be able to:

- describe power transfer systems;
- diagnose and repair clutches;
- diagnose and repair manual transmissions;
- diagnose and repair automated systems;
- diagnose and repair automatic transmissions and torque converters;
- diagnose and repair power shift transmissions;
- diagnose and repair drivelines;
- diagnose and repair drive axles;
- diagnose and repair final drives;

- diagnose and repair driveline retarders;
- diagnose and repair winches; and
- diagnose and repair power take-offs and transfer cases.

EVALUATION AND ASSESSMENT:

Assignments	% Of Total Grade
Theory	50%
Practical	<u>50%</u>
Total	100%

Passing Grade – Final overall Mark minimum 70%

Note: When the apprentice completes the program the instructor will report evaluation results to the Industry Training Authority.

HEAVY DUTY EQUIPMENT TECHNICIAN APPRENTICESHIP LEVEL 3			
COTR COURSE	SUBJECT COMPETENCIES	THEORY WEIGHTING	PRACTICAL WEIGHTING
	Powertrains		
HDET 301	<ul style="list-style-type: none"> • Describe Power Transfer Systems 	6%	0%
HDET 302	<ul style="list-style-type: none"> • Diagnose and Repair Clutches 	9%	10%
HDET 303	<ul style="list-style-type: none"> • Diagnose and Repair Manual Transmissions 	11%	10%
HDET 304	<ul style="list-style-type: none"> • Diagnose and Repair Automated Systems 	8%	5%
HDET 305	<ul style="list-style-type: none"> • Diagnose and Repair Automatic Transmissions and Torque Converters 	12%	15%
HDET 306	<ul style="list-style-type: none"> • Diagnose and Repair Power Shift Transmissions 	12%	15%
HDET 307	<ul style="list-style-type: none"> • Diagnose and Repair Drivelines 	8%	5%
HDET 308	<ul style="list-style-type: none"> • Diagnose and Repair Drive Axles 	12%	10%
HDET 309	<ul style="list-style-type: none"> • Diagnose and Repair Final Drives 	8%	15%
HDET 310	<ul style="list-style-type: none"> • Diagnose and Repair Driveline Retarders 	5%	5%
HDET 311	<ul style="list-style-type: none"> • Diagnose and Repair Winches 	5%	5%
HDET 312	<ul style="list-style-type: none"> • Diagnose and Repair Power Take-offs and Transfer Cases 	4%	5%
	Total	100%	100%

In-school theory / practical subject competency weighting	50%	50%
Final in-school percentage score	IN-SCHOOL %	

In-school Percentage Score Combined theory and practical subject competency multiplied by	80%
Standard Level Exam Percentage Score The exam score is multiplied by	20%
Final Percentage Score	FINAL%

STUDENT RESPONSIBILITY:

Students are expected to follow all College Policies and Practices as outlined in the program handout package. Mastery of trade specific techniques and methods necessary to a given trade requires significant supervised practice. As a result, regular attendance is necessary for success in this program. Students are expected to follow Policy 2.6.2 – "***Vocational Student Withdrawals as a Result of Absence***".

WorkSafeBC regulations apply to all trades programs. Students are expected to follow all safe work practices and have high regard for the safety of others as well as of themselves. Students are responsible to wear personal protective equipment (PPE) as directed. At a minimum, students must provide and wear approved safety footwear and eyewear at all times in the shop. Additional PPE may be required for specific tasks. Students are expected to wear clothing suitable for working safely in the shop.

The shop attendant is also the first aid attendant for the building. Students may only work in the shop during assigned times. If an incident occurs, no matter how minor, it must be reported to the shop attendant immediately.

INDUSTRY SITE VISITS:

There may be off-site field trips organized in the program as opportunity or resources are available during this program. Students **ARE REQUIRED** to arrange their own transportation for such field trips. Students are expected to follow all college policies and procedures when participating in off-campus activities.

STUDENTS MUST PROVIDE THEIR OWN:

- safety glasses
- coveralls (high-vis preferred)
- leather steel-toed boots
- pens, pencils, coloured pencils, paper
- calculator
- Reference Manuals (as listed on front page)

EXAM POLICY:

Students must attend all required scheduled exams that make up a final grade at the appointed time and place.

Individual instructors may accommodate for illness or personal crisis. Additional accommodation will not be made unless a written request is sent to and approved by the appropriate Department Head prior to the scheduled exam.

Any student who misses a scheduled exam without approval will be given a grade of "0" for the exam.

PROGRAM GRADE:

Program grades are assigned as follows:

COM	Completed to defined standard $\geq 70\%$
NCG	No Credit Granted $< 70\%$

Successful completion of the in-school training is defined as a final score of 70% or greater. (ITA website)

ACADEMIC POLICIES:

See www.cotr.bc.ca/policies for general college policies related to course activities, including grade appeals, cheating and plagiarism.

PROGRAM CHANGES:

Information contained in program outlines is correct at the time of publication. Content of the program is revised on an ongoing basis to ensure relevance to changing educational, employment, and marketing needs. The instructor endeavours to provide notice of changes to students as soon as possible. The instructor reserves the right to add material to programs.