





# **Heavy Automotive**

Study area information for apprentices

## **Dress requirements / PPE when attending TAFE**

NO T-SHIRTS ALLOWED, 100% COTTON POLOS ACCEPTED.









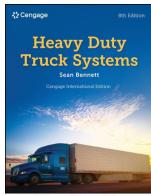
**Clear Safety Glasses** Meets AS/NZS 1337.1:2010

Steel/Composite Cap Boots

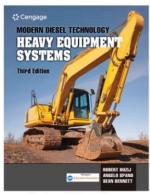
100% Cotton Long/Short Sleeve Shirt Long Shirt Mandatory When Welding

100% Cotton Long Pants

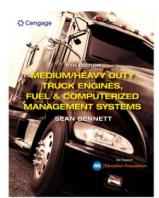
## **Mandatory textbooks**



7th or 8th edition



3rd or 4th edition



6th edition

**AUR31120** Heavy Commercial Vehicle Mechanical Technology



AUR31220 Mobile Plant Technology





MEM31419
Fixed and Moile Plant Mechanic









## **Stationery**

- Leaver arch file
- A4 lined paper for taking notes
- Blue or black pens
- **Pencils**
- Eraser
- Calculator

### **Equipment/tools**

On the first day of attendance apprentices will be advised of any specific tools or equipment they will require.

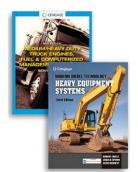
#### **Textbooks**

Textbooks <u>need to be obtained</u> before commencing Training.

Textbooks are **NOT** available for purchase at TAFE

WHEN PLACING AN ORDER IF THE BUNDLE IS SOLD OUT BE SURE TO PLACE A BACKORDER

Textbooks are available from both Cengage directly and Boffins Books. Physical or eBook is acceptable. Personal Tablets or Laptops are required to view the eBook in the classroom.

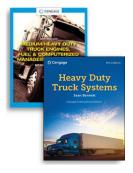


#### Cengage

https://au.cengage.com/s?q=9780170289511 10% discount code: WOW10

#### **Boffins Books**

https://www.boffinsbooks.com.au/books/9780170289511/



#### Cengage

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#### **Boffins Books**

https://www.boffinsbooks.com.au/books/9780170478854/

Pre-reading for each unit are on the following pages

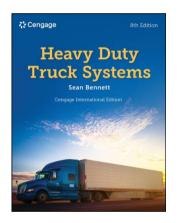






## Pre-reading

Apprentices are expected to review the listed chapters to familiarise themselves with these concepts and prepare for class discussions and practical sessions.



Heavy Duty Truck Systems (7th Edition)	AURETR112	AURETR125	AURETR129	AURETU103	AURETU104	AURHTB002	AURHTB101	AURHTD102	AURHTD103	AURHTJ103	AURHTQ102	AURHTQ103	AURHTX101	AURHTX103	AURHTX104	AURTTA006	AURTTA104	AURTTB004	AURTTB101	AURTTK001
02. Shop Safety and Operations																				
03. Tools and Fasteners																				✓
04. Maintenance Programs																	<b>✓</b>			
05. Fundamentals of Electricity	<b>√</b>																			
07. Batteries		✓																		
08. Charging Systems			✓																	
09. Cranking Systems																				
13. Hydraulics																✓				
14. Clutches															✓					
15. Standard Transmissions													<b>√</b>							
16. Standard Transmission Servicing													<b>√</b>							
17. Torque Converters														<b>√</b>						
18. Automatic Transmissions														✓						
19. Automatic Transmission Maintenance														<b>✓</b>						
21. Electronically Controlled Automatic Transmissions (ECATs)														<b>√</b>						
22. Driveshaft Assemblies												✓								
23. Heavy-Duty Truck Axles											✓									
24. Heavy-Duty Truck Axle Service and Repair											✓									
25. Steering and Alignment								<b>√</b>												
26. Suspension Systems									✓											
27. Wheels and Tires										✓										
28. Truck Brake Systems						<b>✓</b>	<b>√</b>											<b>√</b>	<b>√</b>	
29. Hydraulic Brakes and Air-Over-Hydraulic Brake Systems						<b>✓</b>												<b>√</b>	✓	
30. ABS and EBS							<b>✓</b>													
31. Air Brake Servicing							<b>✓</b>													
35. Heavy-Duty Heating, Ventilation, and Air Conditioning Systems				<b>√</b>	<b>√</b>															

## Pre-reading

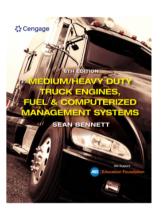
Apprentices are expected to review the listed chapters to familiarise themselves with these concepts and prepare for class discussions and practical sessions.



Modern Diesel Technology: Heavy Equipment Systems (3rd Edition)	AURHTJ103	AURHTQ103	AURKTA005	AURKTA111	AURKTB101	AURKTD101	AURKTD102	AURKTR101	AURKTX101	AURTTA006	AURTTB101	AURTTX106	MEM13015	MEM27009	MEM27013	MEM27014	MEM27015	MEM27017
1. Safety						<b>√</b>	<b>✓</b>						<b>√</b>	✓				
3. Introduction to Hydraulics				✓			✓			✓				✓				<b>✓</b>
4. Hydraulic System Components				✓						✓								✓
5. Hydraulic Symbols and Schematics				✓						✓								✓
6. Hydraulic System Maintenance and Diagnostics				<b>✓</b>						<b>√</b>								✓
7. Hydraulic Brakes					>						<b>✓</b>			✓				
8. Spring-Applied, Hydraulically Released Brakes					>						<b>✓</b>			✓				
9. Air-over-Hydraulic Brake Systems					<b>&gt;</b>						<b>✓</b>							
10. Introduction to Powertrains																	✓	
11. Powershift Transmissions									✓							✓		
12. Hydrostatic Drive Systems and Hydraulic Retarder Systems												<b>&gt;</b>						
13. Driveline Systems		✓															✓	
14. Heavy-Duty Axles																	✓	
15. Final Drives																	✓	
16. Steering Systems							<b>✓</b>								<b>&lt;</b>			
17. Tracks, Tires, and Rim and Ground-Engaging Equipment	✓		✓															
18. Suspension Systems						<b>✓</b>												
19. Machine and Equipment Electronics								<b>✓</b>										

## Pre-reading

Apprentices are expected to review the listed chapters to familiarise themselves with these concepts and prepare for class discussions and practical sessions.



Medium/Heavy Duty Truck Engines, Fuel & Computerized (6th Edition)	AURETR112	AURETR124	AURETR132	AURHTE102	AURHTF102	AURHTZ101	AURTTA104	AURTTA118	AURTTC103	AURTTF102	AURTTF105	AURTTK102	MEM12023	MEM13015	MEM18001	MEM18055	MEM27001	MEM27002	MEM27004	MEM27009	MEM27010	MEM27015	MEM27016	MEM27019	MEM27020	MEM27023
Chapter 02. Hand and Shop Tools, Precision Tools, and Units of Measurement												<b>√</b>	✓		<b>√</b>											
Chapter 03. Personal and Safety Awareness														1		✓						1				
Chapter 04. Engine Basics				✓												✓		✓				✓			1	
Chapter 05. History of the Heat Engine																<b>√</b>						✓				
Chapter 06. Power				✓												✓		✓				✓			✓	
Chapter 07. Engine Powertrain Components				✓												<b>√</b>						✓			1	
Chapter 08. Engine Feedback Assembly				✓												✓						✓			<b>√</b>	
Chapter 09. Engine Housing Components				<b>√</b>												<b>√</b>						✓			1	
Chapter 10. Engine Lubrication Systems				✓												✓			✓			✓			<b>√</b>	
Chapter 11. Engine Cooling Systems									✓								✓								1	
Chapter 12. Engine Breathing											<b>√</b>														✓	
Chapter 13. Engine Retarders																				✓						
Chapter 14. Servicing and Maintenance							✓									✓						✓				
Chapter 15. Engine Removal, Disassembly, Cleaning, Inspection, and Reassembly Guidelines																✓						✓				
Chapter 16. Diesel Engine Run-In and Performance Testing																✓						✓				
Chapter 17. Chemistry and Combustion					✓													✓						✓		
Chapter 18. Diesel Fuel Characteristics					✓					✓								✓						✓		
Chapter 19. Fuel Subsystems					✓					✓								✓						✓		
Chapter 20. Fuel Injection Basics and Governor Principles					✓													✓						✓		
Chapter 21. Injector Nozzles					✓					✓								✓						✓		
Chapter 22. Port-Helix Metering Injection Pumps					✓													✓						✓		
Chapter 23. Inlet-Metering Rotary Distributor Pumps					✓																			✓		
Chapter 24. Sleeve-Metering Rotary Distributor Pumps					✓													✓						✓		
Chapter 25. Single-Actuator EUI Systems					✓													✓						✓		
Chapter 26. Dual-Actuator EUI Systems					✓																			✓		
Chapter 27. HEUI Fuel Systems					✓													✓						✓		
Chapter 28. Electronic Unit Pump (EUP) Systems														$\perp$				✓						✓		
Chapter 29. Cummins HPI-TP					✓													✓						✓		
Chapter 30. Common Rail Systems					✓													✓						✓		
Chapter 31. Amplified Common Rail Systems																		✓						✓		
Chapter 32. Review of Electrical and Electronics Fundamentals	1	✓	✓																		✓		✓			✓
Chapter 33. Vehicle Computer Systems		✓																✓					✓			
Chapter 34. ESTs and SISs														$\perp$									✓			
Chapter 35. Electrical Wiring, Connector, and Terminal Repair	✓																									✓
Chapter 36. Multiplexing	✓																									✓
Chapter 39. High Voltage Electricity	✓																									
Chapter 49. Emissions Management						✓																				
Chapter 52. Troubleshooting and Diagnostics								✓																		