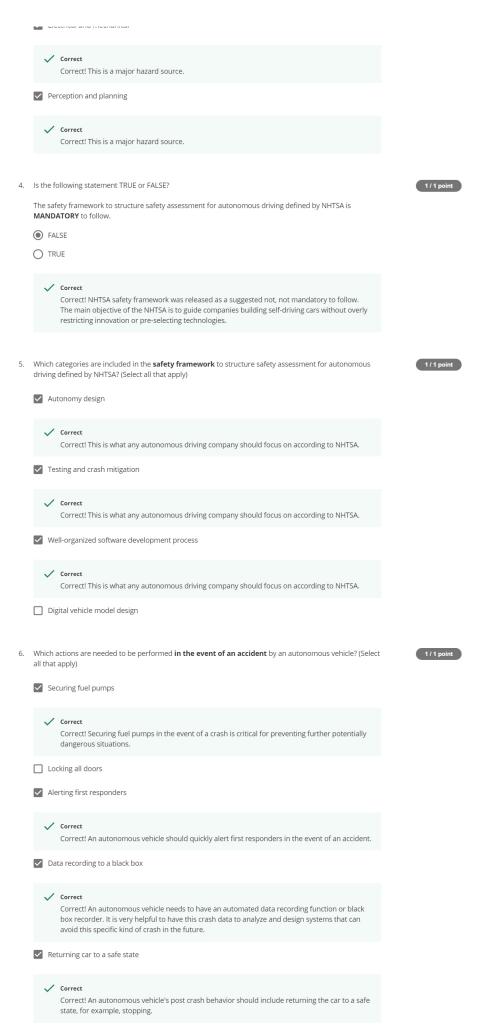
GRADE 100%

Module 3: Graded Quiz

LATEST SUBMISSION GRADE 100%

Flectrical and mechanical

1.	Which from the below options is the most ACCURATE and COMPLETE definition of risk in terms of self-driving vehicles?	1 / 1 point
	Risk is any exposure to possible loss or injury	
	Risk is a probability or threat of damage, injury, liability, loss, or any other negative occurrence that is caused by external or internal factors	
	Risk is a probability that an event occurs combined with the severity of the harm that the event can cause	
	Risk is a condition in which there is a possibility of an adverse deviation from the desired or expected outcome	
	O None of the above	
	 Correct Correct! Any autonomous driving team should focus on the most likely and the most severe events first. 	
2.	Which of the following are major components of an autonomous driving system? (Select all that apply)	1/1 point
	☐ Adaptation	
	Configuration	
	✓ Planning	
	Correct Correct! This aspect of the autonomous driving system is extremely important. A mistake in this components can lead to failures and crashes.	
	✓ Control	
	Correct Correct! This aspect of the autonomous driving system is extremely important. A mistake in this components can lead to failures and crashes.	
	✓ Perception	
	Correct Correct! This aspect of the autonomous driving system is extremely important. A mistake in this components can lead to failures and crashes.	
3.	What are the most common categories of autonomous vehicle hazard sources ? (Select all that apply)	1 / 1 point
5.	✓ Malicious software	17 1 point
	✓ Correct	
	Correct! This is a major hazard source.	
	✓ Driver inattention	
	✓ Correct Correct! This is a major hazard source.	
	✓ Hardware and software	
	✓ Correct Correct! This is a major hazard source.	



7.	What are the most common accident scenarios? (Select all that apply) Intersection	1/1 point
	Correct Correct All the correct accident scenarios from this question account for over 84% of all crashes.	
	✓ Lane change	
	Correct Correct All the correct accident scenarios from this question account for over 84% of all crashes.	
	Crosswalk	
	Rollover	
	✓ Road departure	
	Correct Correct! All the correct accident scenarios from this question account for over 84% of all crashes.	
	Rear-end	
	Correct Correct! All the correct accident scenarios from this question account for over 84% of all crashes.	
8.	What kind of safety system is described by the following definition? This system can be analyzed to define quantifiable safety performance based on critical assessment of various scenarios. Data driven safety Test driven safety Analytical safety None of the above	1/1 point
	Correct Correct! Analytical safety can provide strong guidance on which aspects of a system are the biggest contributors to overall safety.	
9.	According to the report by Rand Corporation, autonomous driving of 8.8 billion miles is required to demonstrate human-level fatality rate of an autonomous vehicle fleet using a 95% Confidence Interval. How many years is required to perform this testing with a fleet of 100 vehicles running 24 hours a day, 7 days a week at an average of 25 miles per hour? Your answer should be an integer.	1/1 point
	400	
	Correct Correct!	
	8,800,000,000 miles / 100 vehicles = 88,000,000 miles per vehicle 88,000,000 miles / 25 miles per hr = 3,520,000 hrs per vehicle	
	24 hours * 365 days = 8,760 hrs in a year	
	3,520,000 hrs / 8,760 hrs in a year = 401.8 years	
	It would take at least 400 years to validate the required level of safety with a fleet of 100 vehicles traveling 24x7. That's why testing is being done today on thousands of vehicles simultaneously.	
10.	Given that an autonomous vehicle failure has happened and based on this tree, what is the probability that the failure happened because of Vehicle Control Algorithm Failure OR Inadequate Car Drivers? Please give your answer with the precision of 3 decimal places.	1/1 point
	Please use this probabilistic fault tree for your computation:	
	Probabilistic Fault Tree.png	

0.000

15.	Which of the following standards defines functional safety terms and activities for electrical and electronic systems within motor vehicles?
	O ISO/TC 204
	O ISO 39001
	O ISO/PAS 21448
	O None of the above
	✓ Correct
	Correct! The ISO 26262 standard defines functional safety terms and activities for electrical and electronic systems within motor vehicles, and as such addresses the hardware and software hazards that can affect autonomous vehicle safety.

1/1 point