INSTRUCTIONS:
Fill out the hazard analysis and risk assessment below.
HA-001 should be for the lane departure warning function as discussed in the lecture.
HA-002 should be for the lane keeping assistance function as discussed in the lecture.
Then come up with your own situations and hazards for the lane assistance system. Fill in the HA-003 and HA-004 rows.
When finished, export your spreadsheet as a pdf file so that a reviewer can easily see your work.

Hazard ID	Situational Analysis							Hazard Identification						Hazardous Event Classification						Determination of ASIL and Safety Goals	
	Operational Mode	Operational Scenario	Environmental Details	Situation Details	Other Details (optional)	Item Usage =G11.V15(function)/Item Usage (function)	Situation Description	Function	Deviation	Deviation Details	Hazardous Event (resulting effect)	Event Details	Hazardous Event Description	Exposure (of situation)	Rationale (for exposure)	Severity (of potential harm)	Rationale (for severity)	Controllability (of hazardous event)	Rationale (for controllability)	ASIL Determination	Safety Goal
HA-001	OM03 Normal Driving	OS04 on a highway	EN06 raining (slippery road)	SD02 with high speed		IU01 correctly used	Normal driving on a highway during rain with high speed and system is correctly used.	Lane Departure Warning (LDW) function shall apply an oscillating steering torque to provide the driver with haptic feedback	DV04 Actor effect is too much	The LDW function applies an oscillating torque with very high torque (above limit)	EV00 Collision with other vehicle	A high haptic feedback can effect the driver's capability to steer as intended. The driver could loose control of the vehicle and collide with another vehicle or with road infrastructure.	The LDW function applies too high an oscillating torque to the steering wheel (above limit).	E3 Medium Probability	Driving on highways when it rains happened quite often (once a month or more).	S3 Life threatening or fatal injuries	driver is going high speed	C3 Difficult to control	The steering wheel oscillates extremely hard at rainy condition a vehicle accident would not be controllable.	ASIL C	The oscillating steering torque from the LDW function shall be limited.
HA-002	OM03 Normal Driving	OS03 on country road	EN01 normal conditions	SD02 with high speed		IU02 incorrectly used	Normal driving on a country road under normal conditions with high speed and system is NOT correctly used.	Lane Keeping Assistance (LKA) function shall apply the steering in order to stay in ego lane	DV03 Function is always activated	The LKA function is always on and has no time limit - always providing a torque to the steering.	EV00 Collision with other vehicle	An always-on LKA function can be misused for autonomous driving by the driver when having his hands off the wheel. This could lead to dangerous situations in which the driver could lose control and collide with other vehicles.	The LKA function provides no time limit of usage and could therefore misused for autonomous driving.	E2 Medium Probability	Driving on a country round under normal conditions will not happened so often (few times a year).	S3 Life threatening or fatal injuries	driver is going high speed	C3 Difficult to control	The drivers hands are not on the wheel at high speed a vehicle accident would not be controllable.	ASIL B	The LKA function shall be time limited and the additional torque shall end after a given time interval so that the driver cannot misuse the systems for autonomous driving.
HA-003	OM03 Normal Driving	OS02 on a city road	EN07 Snow (slippery road)	SD01 with low speed		IU01 correctly used	Normal driving on a city road at snow conditions with low speed and system is correctly used.	Lane Departure Warning (LDW) function shall apply an oscillating steering torque to provide the driver with haptic feedback.	DV02 Function unexpectedly activated	The LDW function applies an oscillating steering torque = haptic feedback if the lane is NOT departed.	EV00 Collision with other vehicle	The driver could loose control of the vehicle by unexpectedly getting haptic feedback = oscillating steering torque. The driver could collide with another vehicle or with road infrastructure.	The LDW function applies an oscillating torque to the steering wheel unexpectedly.	E2 Medium Probability	Driving on city roads when it snows will not happened so often (few times a year).	S1 Light and moderate injuries	driver is igoing low speed	C3 Difficult to control	The steering wheel unexpectedly oscillates at snow conditions. Therefore, a vehicle accident would not be controllable.	QM	The LDW function shall be only active for lane departure situations else the LDW function shall be inactive.
HA-004	OM03 Normal Driving	OS04 on a highway	EN06 raining (slippery road)	SD02 with high speed		IU01 correctly used	Normal driving on a highway during rain with high speed and system is correctly used.	Lane Keeping Assistance (LKA) function shall apply the steering in order to stay in ego lane	DV12 Actor effect is wrong	The LKA function provides a wrong torque for steering.	EV00 Collision with other vehicle	A wrong LKA steering torque can effect the vehicle's behavior badly. The driver could loose control of the vehicle and collide with another vehicle, therefore.	The LKA function applies a wrong steering torque.	E3 Medium Probability	Driving on highways when it rains happened quite often (once a month or more).	S3 Life threatening or fatal injuries	driver is going high speed	C3 Difficult to control	Getting a wrong steering torque at rainy conditions and high speed could lead to uncontrollable behavior of the vehicle which would lead to an accident.	ASIL C	The steering torque of the LKA function shall be tested if correctly applied.