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 (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 - Highway	EN06 - Rain (slippery road)	SD02 - High speed		IU01 - Correctly used	Normal driving on highway during rain (slippery road) with high speed and correctly used system.	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 Lane Departure Warning function applies an oscillating torque with very high torque (above limit.)	EV00 - Collision with other vehicle	High haptic feedback can affect driver's ability to steer as intended. The driver could lose control of the vehicle and collide with another vehicle or with road infrastructure.	The Lane Departure Warning function applies an oscillating torque with very high torque (above limit.)	E3 - Medium probability	Driving on highway in rain situation depends upon the nature of locality and this is not happen every time.	S3 - Life-threatening or fatal injuries	Collision at high speed could cause life-threatening injuries	C3 - Difficult to control or uncontrollable	Controlling vehicle running on high speed in slippery road is very difficult.	C	The vibrating torque of steering wheel should be reduced to acceptable range.
HA-002	OM03 - Normal driving	OS03 - Country Road	EN01 - Normal conditions	SD02 - High speed		IU02 - Incorrectly used	Normal driving on a country road during normal conditions with high speed and incorrectly used system.	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane	DV03 - Function always activated	Lane Keeping function is always activated	EV00 - Collision with other vehicle	The driver is misusing the lane keeping assistance function as an fully autonomous driving. So, he loose driving attention and therfore driver not able to react on critical situation.	Since LKA is always activated, Driver takes hand from the steering wheel.	E2 - Low probability	Driving on country road with high speed and misuse of system should not happen often.	S3 - Life-threatening or fatal injuries	Collision at high speed could cause life-threatening injuries	C3 - Difficult to control or uncontrollable	Since driver looses attention, driver will not be able to react in critical situation.	B	The functional time of the LKS should be reduced.
HA-003	OM03 - Normal driving	OS06 - Off Road	EN01 - Normal conditions	SD02 - High speed		IU01 - Correctly used	Normal driving on off road during normal condition with high speed and correctly used system.	Lane Departure Warning (LDW) function shall apply an oscillating steering torque to provide the driver with haptic feedback	DV12 - Sensor sensitivity is too high	The Lane Departure Warning function always activated as it is not able to find the lane.	EV00 - Collision with other vehicle	As LDW function will be activated all the time , The continuse oscillation of steering wheel can affect driver's ability to steer as intended. This results in collition with other vehicle.	When vehicle is on high speed, the oscillating torque on steering wheel would results in collition.	E2 - Low probability	Driving on off road happens only <1 % of average operating time of the vehicle	S3 - Life-threatening or fatal injuries	Collision at high speed on mountain road could cause life-threatening injuries	C3 - Difficult to control or uncontrollable	LDW function failed to identify lane on off road. So, random amplitude applied on steering wheel which is difficult to control on high speed.	B	The LDW function shall be turned off when driving on off road condition.
HA-004	OM03 - Normal driving	OS02 - City Road	EN01 - Normal conditions	SD02 - High speed		IU01 - Correctly used	Normal driving on city road during normal condition with high speed and correctly used system.	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane	DV02 - Function unexpectedly activated	Camera sensor is stopped working and LKA is activated randomly.	EV00 - Collision with other vehicle	The LKA will be activated randomly and random torque will be applied to the vehicle. This makes the driver to loose control, results in collition with other vehicle / road infrastructure.	The Lane Keeping Assistance started acting randomly when the camera sensor is not working	E2 - Low probability	Driving on city road with high speed will be only <1 % of average operating time of the vehicle	S3 - Life-threatening or fatal injuries	Collision at high speed could cause life-threatening injuries	C3 - Difficult to control or uncontrollable	Random torque applied on the vehicle makes the driver to loose control.	B	The LKA function shall be deactivated when the camera sensor stopped working and driver should be warned about the deactivation (car dashboard)