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	Normal Driving	Highway	Rain(Slippery Road)	High Speed		Correct Usage	Normal Driving on a highway during rain 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	Steering Wheel Vibrates too much	LDW function applies oscillating torque with very high torque(above limit)	Collision with other vehicle	High haptic feedback can affect the driver's ability to steer as intended. The driver could lose control of the vehicle and collide with another vehicle or road infrastructure	The LDW function applies too high an oscillating torque to the steering wheel	E3	According to functional safety standards, highway driving on wet roads Is E3	S3	Accident in highspeed would lead to serious injury	C3	Driver would have difficulty in controlling vehicle if the steering wheel vibration is too high in high speed condition	ASIL C	The oscillating steering torque from the lane departure warning function shall be limited
HA-002	Normal Driving	Country Road	Normal Conditions	High Speed		Incorrect Usage	Normal Driving on a country 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	Lane Keeping assistance function is always activated	Lane Keeping Assistance function is always activated	Collision with other vehicle	There is a possibilty that the driver let his/her both hands off from the steering wheel by misunderstanding vehicle is in autonomous driving mode	Collision with other vehicle or tram after LKA is deactivated	E2	Country road driving and misusing the system does not happen frequently	S3	Accident in highspeed would lead to serious injury	C3	Because driver's both hands are not on the wheels at high speeds, it would be hard to control the vehicle after driver recognizing the situation	ASIL B	The Lane keeping assistance function shall be time limited and the additional steering torque shall end after a given time intervall so that the driver cannot misuse the system for autonomous driving
HA-003	Normal Driving	Highway	Snowfall (degraded view)	Low speed		Correct Usage	Normal Driving on a highway during snowfall with low speed and correctly used system	Lane Departure Warning (LDW)	LDW function unexpectedly activated	Snowfall could create illusion of lane and LDW is unexpectedly activated	Collision with other vehicle	The driver is likely to be nervous when it's snowing. Driver could be surprised and lose control temporarily by unexpected vibration of wheel	Collision with other vehicle or tram	E2	a few times per year	S1	low speed in snowfall	C3	Road is slippery	QM	No needed , QM
HA-004	Normal Driving	Mountain Pass	Snowfall (degraded view)	Low speed		Correct Usage	Normal Driving on a mountain pass during snowfall with low speed and correctly used system	Lane Keeping Assistance (LKA)	LKA function detection is wrong	Snowfall could create illusion of lane and LKA detects incorrect lane line	Car comes off the road	Due to the illusion of snowfall, LKA could misunderstood target lane, side of the road	Car comes off the road or cliff	E1	most drivers try to avoid this situation	S3	Vehicle could fall from the cliff	C3	Road is slippery and the generated torque could be hard to overcom for some people	ASIL A	The LKA function shall be disabled in heavy snowfall weather