



TOPIC	An Overview of Functional Safety for Automotive
ORGANIZERS	Student Leadership Council and Faculty of ACIT Institute
AREA	Automotive Systems & Electronics, Functional Safety, Hardware and Software Development for Embedded Systems
SPEAKER	Jody J. Nelson, Managing Partner of kVA
DATE	Friday November 20, 2015
TIME	3-4PM (EST)
VENUE	McNair Hall, Lecture Room 4, North Carolina A&T State University, UTSA and SIPI will be joining through video-conferencing
FEES	No Charge

SYNOPSIS

The complexity of both hardware and software has increased significantly in automotive over the past decade. This is apparent even in the compact passenger car market segment where the presence of electronic control units (ECU) has nearly tripled. In today’s luxury vehicles, software can reach 100 million lines of code and are only projected to increase. Without preventive measures, the risk of safety critical system malfunction becomes unacceptably too high. The functional safety standard ISO 26262, published as the first edition in 2011, provides crucial safety-related requirements for passenger vehicles. This presentation will provide an overview of the ISO 26262 standard beginning with the functional safety management and will walk through the critical aspects of system, hardware and software development. Prior to entering into the development phases of the ISO 26262 standard, the presentation will describe how automotive manufacturers conduct the required hazard analysis and risk assessment (HARA) at the vehicle level. The HARA is the key analysis used to identify potential risks and develop the highest level safety requirements to mitigate these identified risks. Throughout development, various safety analysis are required including qualitative and quantitative analysis. This presentation will briefly identify and discuss the various prescribed safety analysis techniques. Attendees of the seminar will become more familiar with the rugged processes required to develop safe passenger vehicles.

ABOUT THE SPEAKER



Jody J. Nelson received the B.S. and M.S. degrees in electrical engineering from the University of Wisconsin, Madison, in 2000 and 2002, respectively. His emphasis was on power electronics and was a member of the Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC). From 2002 until 2009 he worked for Daimler AG in Stuttgart, Germany and Troy, Michigan. At Daimler he began his career in the electromagnetic compatibility (EMC) research department and later in the EMC development department working on production hybrid and electric vehicles. He later moved to the electric motor control department where he focused on software development, diagnostics, high voltage safety, torque security and control board development for electric powertrains. In 2010 he co-founded kVA, a U.S. based company dedicated to improving functional safety in the automotive and industrial segments through consulting, assessments and training on ISO 26262 and IEC 61508.