ENGINEERING

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ABSTRACTS

Fault Tolerant Computing. David D. Chesak, Saint Joseph's College, Rensselaer, Indiana 47978.——In the past 20 years, computing systems that have capabilities of self correction for certain types of hardware and software failures have reached a fair degree of sophistication. This paper surveys the presentations given at this year's International Symposium on Fault Tolerant Computing Systems.

Engineering Aspects of Heavy Duty, On and Off Highway, Trailers. Donald T. Chesak and David D. Chesak, Saint Joseph's College, Rensselaer, Indiana 47978.——This presentation covers design requirements of trailers for special hauling and configurations. State and federal regulations as well as customer specifications greatly influence the configuration of these vehicles. Some aspects of quality control will be covered.

PC-SIG: A Communications Systems Laboratory. Bruce Mueller, Bruce A. Black and David R. Voltmer, Rose-Hulman Institute of Technology, Terre Haute, Indiana 47803.——Traditional communications systems emphasize mathematical representation of signals and spectra. Many insights can be lost as students become preoccupied with the manipulation of mathematical functions rather than experimentation with actual signals and spectra. To enhance student learning, we at Rose-Hulman have implemented PC-SIG, an interactive software-based communications laboratory and graphics package. Students are able to learn by experimentation about time-frequency relations, filtering, and sampling. Since many students already own a PC or have access to one, PC-SIG enables them to investigate communications systems with expensive, dedicated equipment. The versatility of PC-SIG encourages students to test modulation schemes, noise analysis, and filter designs on their own. Future plans include integrating PC-SIG into a more complete package which collects real data via bus-controlled laboratory equipment.

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The NASA Technology Utilization Program. John M. Ulrich, Indianapolis Center for Advanced Research, Indianapolis, Indiana 46704.——ARAC is one of seven NASA Industrial Applications Centers in the United States. It is located in Indianapolis, and is operated by the staff at the Indianapolis Center for Advanced Research (ICFAR). Its mandate to "broadly disseminate the technologies developed by NASA (and others) in the space program" came from then President John F. Kennedy in 1958.

This paper will present a few of the many accomplishments of the NASA/IAC program and, in particular, those of ARAC here in Indiana. Viewgraphs will be used to illustrate these accomplishments. The availability of NASA technology and how it is transferred, i.e., the methodology, will be discussed.