

ADVANCED MICROCOMPUTER TECHNIQUES: FAULT-TOLERANT MICROCOMPUTER SYSTEMS

The material presented in this memorandum has been drawn from lecture notes prepared for a vacation school organised by the Institution of Electrical Engineers. Much of their content stems from research on redundant system design carried out as part of the Division's work on safety related applications of microprocessors.

The memorandum introduces the need for fault tolerance in a number of potential applications of microcomputers, and describes the basic tools of fault-tolerant design. The application of these tools to systems requiring various levels of reliability, availability and safety is discussed, where necessary at sufficient depth to highlight problems of a philosophical or practical nature. A final section is devoted to certain relevant aspects of fault-tolerant design.