

TECHNICAL CLUB : MICRO-ELECTRONICS & EMBEDDED SYSTEMS

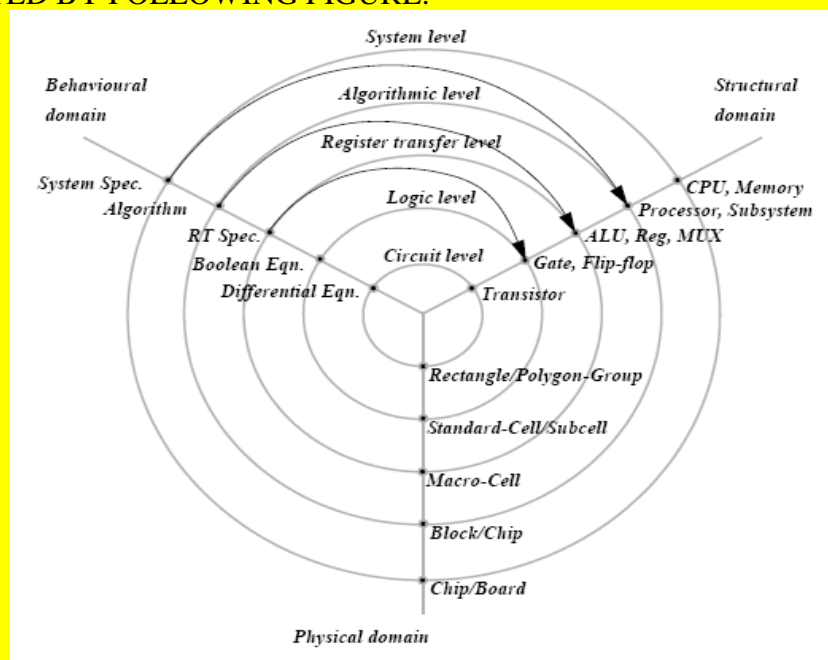
CORE DISCIPLINE : ELECTRONICS & COMMUNICATION ENGINEERING

MENTOR : MRS. JYOTI SHARMA, ASSISTANT PROFESSOR, ECE

CO-MENTOR : MR. PUNEET SHARMA, ASSISTANT PROFESSOR, ECE

TECHNICAL BACKGROUND AND UTILITY OF CLUB

MICROELECTRONICS IS THE AREA OF TECHNOLOGY ASSOCIATED WITH THE DESIGN AND FABRICATION OF ELECTRONIC DEVICES/SYSTEMS OR SUBSYSTEMS USING EXTREMELY SMALL COMPONENTS - INTEGRATED CIRCUITS (IC'S). THESE ARE EXTREMELY SMALL ELECTRONIC CIRCUITS PERFORMING INTENDED FUNCTIONS BUILT ON SEMICONDUCTING SUBSTRATE. THE RAPID ADVANCES IN THE NUMBER OF TRANSISTORS PER CHIP HAVE LED TO INTEGRATED CIRCUITS WITH CONTINUOUSLY INCREASING CAPABILITY AND PERFORMANCE. ADVANCES IN INTEGRATED CIRCUITS HAVE ALLOWED THE DEVELOPMENT OF THE TECHNOLOGIES SUCH AS THE DESKTOP PC, IPHONE AND MICROELECTROMECHANICAL SYSTEMS (MEMS) ETC. THESE ARE FABRICATED USING VERY LARGE SCALE INTEGRATION (VLSI) TECHNOLOGY. VLSI IS THE PROCESS OF CREATING INTEGRATED CIRCUITS BY COMBINING THOUSANDS OF TRANSISTORS INTO A SINGLE CHIP. THE DOMAINS AND ABSTRACTIONS OF INTEGRATED CIRCUITS DESIGN AND FABRICATION ARE REPRESENTED BY FOLLOWING FIGURE:

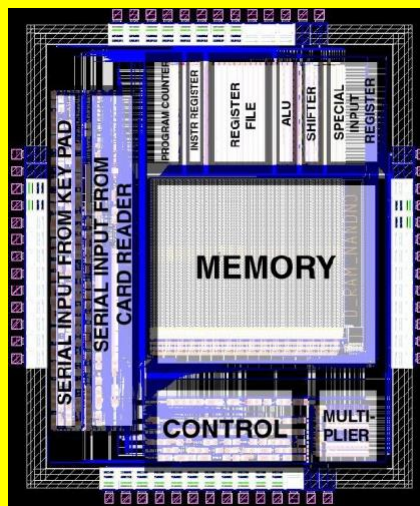
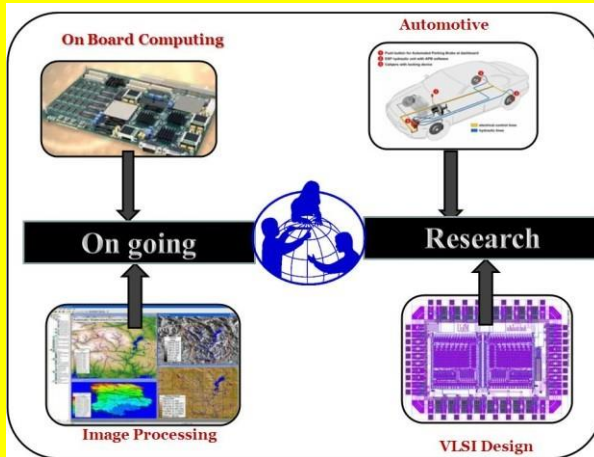


AN EMBEDDED SYSTEM IS A COMPUTER SYSTEM DESIGNED TO PERFORM ONE OR A FEW DEDICATED FUNCTIONS OFTEN WITH REAL-TIME COMPUTING CONSTRAINTS. EMBEDDED SYSTEMS ARE CONTROLLED BY ONE OR MORE MAIN PROCESSING CORES THAT ARE TYPICALLY EITHER MICROCONTROLLERS OR DIGITAL SIGNAL PROCESSORS (DSP).

MICROELECTRONICS AND EMBEDDED SYSTEMS HAVING APPLICATIONS IN ALL WALKS OF LIFE SUCH AS TELEVISION, DIGITAL CAMERA, I PHONES, WASHING MACHINE AND AUTOMOTIVES AND SO ON. FPGA BASED RECONFIGURABLE COMPUTING AND NANOSCALE CIRCUIT DESIGN ARE THE LATEST TRENDS OF THIS TECHNOLOGY. PRINCIPAL AREAS/DOMAINS OF VLSI AND EMBEDDED SYSTEM TECHNOLOGY ARE: MATERIALS RESEARCH FOR VLSI, CIRCUIT SIMULATION FOR DESIGN OF MODERN VLSI CIRCUITS, MIXED SIGNAL VLSI DESIGN, ASYNCHRONOUS SYSTEMS, NETWORKING, MEMS AND BIO-MEMS, SYSTEM ON CHIP DESIGN AND NETWORK ON CHIP DESIGN.

ACTIVITIES TO BE CONSIDERED UNDER THE CLUB :

- THE ACTIVITIES OF THE CLUB HAVE BEEN WELL FORMULATED TO DEVELOP INTEREST AND COMPETENCE OF THE STUDENTS IN THE RELATED TECHNOLOGIES WITH EMPHASIS ON APPLICATION ASPECTS OF THE CONCEPTS. THE CLUB ENVISAGES THE MICROELECTRONICS AND EMBEDDED SYSTEM STUDY IN FOLLOWING BROAD ACTIVITIES CONSIDERING THE PROCESS OF DESIGNING, MODELING, SIMULATION, CIRCUIT FABRICATION AND EVALUATION.
- LEARNING THROUGH TECHNICAL MAGAZINES AND JOURNALS
- DESIGNING OF VLSI & EMBEDDED SYSTEMS THROUGH SOFTWARE SIMULATION OF THE DESIGN AND THEIR PERFORMANCE EVALUATION
- HANDS ON WORKSHOPS ON LATEST EDA TOOLS
- PAPER WRITING AND PRESENTATION
- QUIZ AND DISCUSSION ON CLUB THEME AND RELATED TOPICS
- INTERACTION WITH EMINENT INDUSTRIAL AND ACADEMIC EXPERTS IN THE DOMAIN OF CLUB THEME AND ARRANGING EXPERT LECTURES
- INDUSTRIAL AND INSTITUTIONAL TOURS
- CONSIDERING INDUSTRIAL R & D PROJECTS IN THE DOMAIN OF CLUB THEME



SOME IMAGES OF TECHNOLOGICAL DEVELOPMENT IN THE CLUBS DOMAIN