

# Iskandar Hack Curriculum Vita

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## GENERAL INFORMATION

### Education

M.S. Engineering, May 1989  
Purdue University, West Lafayette

B.S. Electrical Engineering Technology, May 1984  
Purdue University at Fort Wayne, Indiana

### Professional Experience

#### Education

Fall 1996-Present: Indiana Purdue University at Fort Wayne (IPFW)  
Associate Professor of Computer and Electrical Engineering Technology  
Specialty Areas: Digital Electronics, Advanced Digital System Design,  
Digital Signal Processing, Computer Programming Languages, and  
Embedded Microprocessor Systems (Hardware and Software)

August 1997 – May 1989 Universiti Tenaga Nasional  
Visiting Associate Professor  
Contract position from Indiana University - Purdue University, Indianapolis

Special Areas: Digital Electronics, C Programming

April 1996 – August 1997 Institut Teknologi Tun Hussein Onn  
Skill Instructor/Lecturer  
Special Areas: Microprocessors, Computer Engineering, Digital Electronics,  
and Computer Architecture.

Fall 1989-Spring 1995: IPFW, Assistant Professor (EET)

Fall 1984-August 1989: IPFW, Visiting Instructor (EET)

## **Professional / Industrial**

May 1995 – April 1996 – Indiana Microelectronics Center – West Virginia High Tech Consortium

Lead design engineer and consultant on alcohol breathalyzer interlock system. This system used three microprocessors, and several custom digital logic devices that I either designed or supervised the design of. System currently in production and is being implemented in several states.

May 1994 - August 1994 and May 1993-August 1993 - Indiana Microelectronics Center

Develop ASIC (Application Specific Integrated Circuits) Systems from existing discrete logic systems. I was also responsible for installation of Novell Computer Network for the center.

May 1992-August 1992 - Indiana Microelectronics Center

Learn ASIC technology in order to assist with IMC mission of technology transfer to both industry and academia.

May 1988-August 1988 - General Electric Aircraft Electronic Controls Division

Port existing drawings into automated test equipment software.

May 1987-August 1987 - Navistar International Corp.

Wrote Data Acquisition and Digital Signal Processing Software for advance analysis of truck chassis.

May 1986-August 1986 - Magnavox Government and Industrial Electronics Company, Analyze and Modify Pressure Leak Detection System

May 1985-August 1985 - Magnavox Government and Industrial Electronics Company, Install and Write Application Software for Hewlett Packard HP-1000 Mini-Computer System. The system interfaced with the existing ATE test computers on the factory floor.

## **Licenses, Registrations, and/or Certificates**

1. Licenses: FCC General Class Radiotelephone License
2. Registrations: Professional Engineer,  
Indiana License #PE19500056  
January 1995

## **Awards and Honors**

School of Engineering and Technology, IPFW, Faculty Service Award, May 1993

## **Academic, Professional, Scholarly Memberships**

Tau Alpha PI National Honorary Society, 1993 - Present

American Society for Engineering Education (ASEE) 1984 - Present  
Institute of Electrical and Electronic Engineer (IEEE) 1984 - Present  
-IEEE Computer Society  
-IEEE Signal Processing Society  
-IEEE Education Society

## **TEACHING**

### **Contributions to Course and Curriculum Development**

1. Major modifications to Advanced Microprocessor Course – EET 305  
This course has been updated to emphasize handheld applications developed in C++ for devices such as a Palm Pilot or Pocket PC. Much of the emphases is on developing the desktop conduit, along with interfacing the handheld device to external circuitry.
  
2. Developed Course - Advanced Digital Circuits - EET 346  
This course was developed in cooperation with Indiana Microelectronics Center and a faculty member from West Lafayette. The course emphasizes the basics of Application Specific Integrated Circuits (ASICs) devices, along with use of Field Programmable Gate Arrays (FPGAs). The course was offered for the first time at IPFW in the fall of 1993, and at West Lafayette in spring 1994. I was the primary individual responsible for the development of this course.
  
2. Investigated the feasibility of a Biomedical Engineering Technology Course for the EET Program. Thus far I have met with a number of alumni that are employed in the biomedical field, and have visited Owens Technical College. Owens Technical College has had a two-year BMET program for a number of years. The course will help prepare graduates to work in the biomedical field. Currently Calumet and Indianapolis have such courses. The course was offered in the Fall 1994 semester.
  
3. Worked with the Mechanical Engineering Technology Department to develop the Computer Integrated Manufacturing Technology (CIMT) program. This program is currently in place and has graduated their first class. I represented the Electrical Engineering Technology Department on the initial curriculum committee for the CIMT degree program.
  
4. Developed Course - Digital Systems EET 492  
This course was one of the first technology level Digital Signal Processing courses in the state. At the time it was initially offered the only other school in the state that was offering such a course was Purdue at Calumet. This course was first offered here in Fort Wayne in Spring 1989 with on two students. This initial offering was to develop the course. The course was then offered in Spring 1990, with 13 students. It has been offered several times since, primarily as an independent study course. It is currently being offered. Purdue University at Calumet offered their first DSP course at the

same time. At the time this course was developed there were also very few schools nationally offering such a course. Nikola Sorak from Purdue Calumet developed his course at the same time, and we discussed the two courses a great number of times during this period. About two years ago Purdue University at West Lafayette has started offering a similar course, and their course will be required for all four year graduates under their new proposed curriculum.

#### Paper published in proceedings

"The Development of an FPGA Platform for Teaching Advanced Digital Circuits", ASEE National Annual Conference in Edmonton, AB, Canada in June 2001. This paper was co-authored with James Haberly, BMT Microelectronics Center. The paper was peer reviewed prior to inclusion in the proceedings.

"The Use of FPGA's in Teaching Advanced Digital Circuits" ,ASEE National Annual Conference in Edmonton, AB, Canada in June 1994. This paper was co-authored with Gerald Michael, Indiana Microelectronics Center. The paper was peer reviewed prior to inclusion in the proceedings.

"Laboratory Simulation: A Step Forward?" to the Indiana/Illinois Section Conference held in at Parks College of St. Louis University, Cakota, IL in March 1994. The paper was peer reviewed prior to inclusion in the proceedings.

#### Manual, such as laboratory or instructor manual

"Advanced Digital Circuits Laboratory Manual"

This manual is used in EET 346 and was co-authored by Jim Haberly from Indiana Microelectronics Center. The manual was also given out at The National Science Foundation sponsored Faculty Enhancement Workshop on Field Programmable Gate Arrays in the Curriculum, held in Knoxville, TN August 1993. This manual is currently being revised and updated.

#### Seminars and/or workshops led

A faculty enhancement workshop "The Use of Field Programmable Gate Arrays in the Curriculum". This workshop is was held in May 1994 at the IPFW campus. Indiana Microelectronics Center co-sponsored this workshop. The goal of the workshop was to introduce faculty from the State of Indiana to the use of FPGA's in their course work using digital logic. This workshop used material that I've developed from EET 346. The workshop was attended by five faculty from different schools in the state.

"Digital Signal Processing: A Hands On Workshop", held at Indiana Microelectronics Center, April 1994. This workshop was designed to train engineers in industry on the basics of DSP. This workshop was developed

in conjunction with IMC at the request of their clients. Six practicing engineers attended this workshop.

"Introduction to Internet", Southwest Allen Community Schools, February 1995. This workshop was developed to introduce teachers from the district to using the internet. There were two sections of the workshop, and six teachers attended each section. This workshop was repeated later that year.

Course coordinator for the following courses:

EET 114	Introduction to Microcomputers
EET 205	Introduction to Microprocessors
EET 346	Advanced Digital Circuits
EET 375	Microcontroller Systems
EET 492	Digital Systems

#### Paper in conference proceedings

"Design and Implementation of an ASIC Controller for Full-Digital Parallel Control of Robot Manipulators," R. Hack, J. Haberly, W. Odisho, P. Lin presented at the 1994 IEEE-IAS Annual Conference, October 2-7, 1994, Denver, CO.

This conference focused on the use of new technology in industrial applications. The primary audience of the conference was practicing engineers, although academia was well represented.

Article for Engineering Design News titled "Evaluation of Digital Filters using System" This article dealt with a method of evaluating different types of digital filters quickly using a new software product on the market. This article was published in the May 1994 issue. Engineering Design News is monthly periodical for design engineers in industry, and has a very wide readership.

#### Offices Held in Academic, Professional, and Scholarly Societies

Director of Northeast Indiana Regional Science and Engineering Fair  
January 1993 – May 1996

East Area Chairman, Region 4, Institute of Electrical and Electronic Engineers  
January 1995 – May 1996

Chairman of Fort Wayne Section of Institute of Electrical and Electronic Engineers  
July 1993 - July 1994

Member of the Northeastern Indiana Engineers' Week Committee  
Jan. - Feb 1994

General Chair of the Northeastern Indiana Engineers' Week Committee

Jan. - Feb 1994