System z

Academic Initiative

Columbus State University
TSYS

ibm.com/university/systemz

Don Resnik (resnik@us.ibm.com)
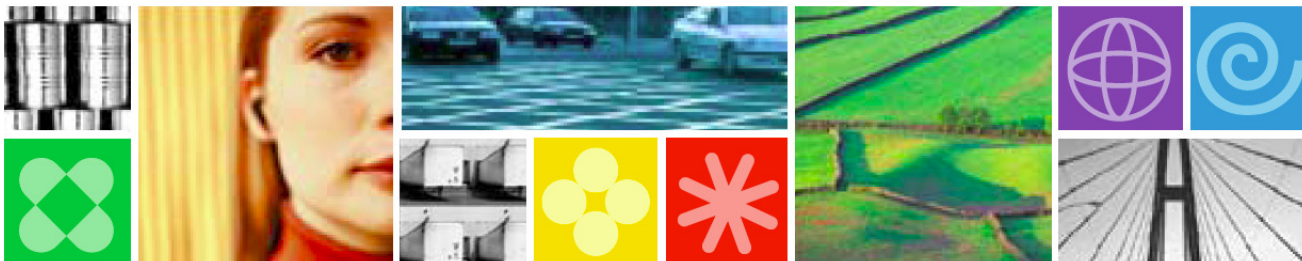
The IBM Academic Initiative – building mainframe skills

Five years of …..

EXAMPLES

Examples are happening every day with students getting jobs and clients building their next generation of mainframe skills.

CONNECTIONS

Connections are happening between educators teaching the mainframe and clients running mainframes.

GROWTH

The program and school enrollment **grew** as the community evangelized with educators the need for enterprise skills.

OUTREACH

The mainframe community (ambassadors) **communicated** the program to educators worldwide – roundtables, meetings, calls, etc.

INVESTMENT

IBM **invested** five years ago to develop more mainframe skills for our clients – *System z Academic Initiative.*

1.   2.   3.   4.   5.

Member schools world wide in System z Academic Initiative

Growing Academic Initiative

- Schools in Program
- Students Taught

24, 70, 213, 408, 537, 643
10,000, 27,000, 44,000, 50,000
294

YE2003 YE2004 YE2005 YE2006 YE2007 YE2008 YE2009
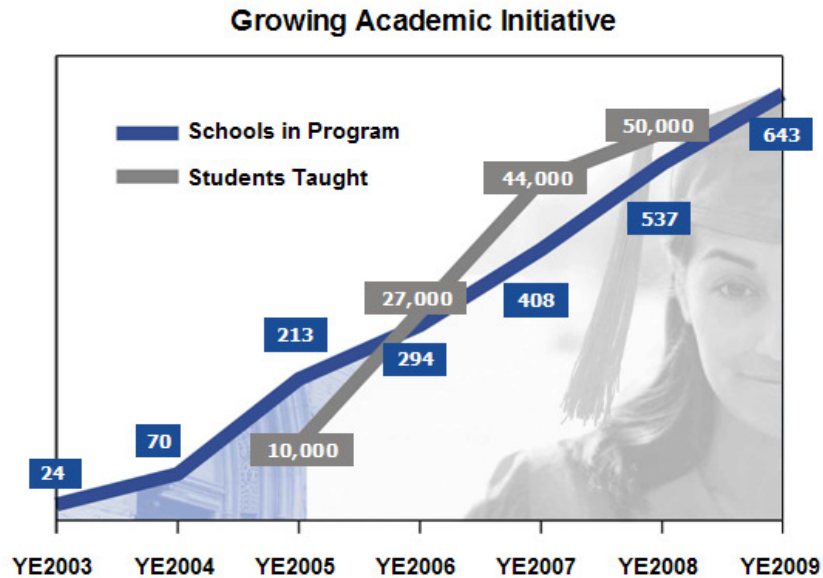
- **643 Participating Schools** – >50,000 students attended mainframe education, reaching students in 61 countries

- **Participation continues to increase - +20% in 2009**
  - 45% North America
  - 24% Europe, Middle East, and Africa
  - 16% Latin America
  - 15% Asia/Pacific

- **Wide variety of schools in the program** - *Different level of participation*

- **All programs are unique** - Designed to provide flexibility to the school to meet their requirements and capabilities

System z Academic Initiative Program

Access to mainframes worldwide for teaching (no fee)

44 Courses and z/OS Mastery Exams

to validate z knowledge

z Skills Help Desk

to assist the community - Z*skills@us.ibm.com*

2009 - 4,688 inquiries
2,658 Course downloads
1,619 contest questions
411 general questions - +59%

Student Mainframe Contests

to generate interest

Five years, 15 countries and spreading WW

Professor education, relationships
Roundtables on Campus

to get industry input - 45
Expanding worldwide

Syracuse University Student Writes to his Professor

From: mbbutler@syr.edu [mbbutler@syr.edu]
Sent: Thursday, February 18, 2010 11:21 PM
To: David Dischiave

Subject: Thank you!!

Professor Dischiave,

I don't even know where to start. You have prepared me far beyond any other candidate for the internship and even the full-time job equivalent! No one at my table at the reception knew anything about mainframe technologies. I threw around the word Z/OS a few times and understood when a manager was talking about LPARs (I know he was expecting us to be clueless and get a reaction). Each manager that works with mainframe technology that came to my table made it clear that they need more young mainframe people! Exactly what you have told us came out of their mouths! The technology is so important and the people who know it are retiring soon! Honestly, I am so excited to go to the interviews all day tomorrow so I can push for the mainframe part of the job again! We get to request our top three choices of areas of IT to work in (Distributed Systems Administration, Computer Support, Network and Telecom, Data Center, or Mainframe)- my number ONE will be mainframe (of course, Data Center is up there as well)! Because of you, I'm more marketable than the rest and I stand out as a prepared, knowledgeable, and motivated student!

Thank you!!!!!!!!!!

Best regards,
Matt

Opportunities to develop mainframe skills

- List of schools teaching the mainframe   **ibm.com**/university/systemz

- Enterprise Computing Community   ecc.marist.edu/

- z/OS® Certificate Program   idcp.org/learnzos

- Community Resources   **ibm.com**/systems/z/advantages/newtosystemz/

- z Skills Help Desk   zskills@us.ibm.com

Growing number of connections between industry and Academic Initiative schools teaching mainframe

(Examples of hiring mainframe skills or partnerships)

School	Companies
Columbus State GA	TSYS
University of Arkansas	Wal-mart, Tyson Foods, Dillards, JP Hunt, DataTronics, Baldor, Conoco Phillips
Illinois State University	John Deere, Caterpillar, Country Financial, Citigroup, Schwab, Anheuser-Busch
North Carolina Central University	Bank of America, MetLife, SAS, Chubb
Anna University India	Infosys, Satyam, Tata, and IBM
Marist College	Aetna, Citigroup, Progressive, Travelers
Ryerson University	RBC
Syracuse University	JPMC
University of South Carolina	BlueCross BlueShield
Arizona State University	Schwab
Columbus State CC	Nationwide
Cleveland State CC	Antares

Backup Slides

Companies joined IBM on campus to start or extend mainframe education

Customers and Partners: 3M, AAA, ACS, ADP, Aetna, AEP, Aflac, Alexan, Alticor, America First Credit Union (AFCU), American Express, American Greeting, Amerisure Insurance, Antares Management Solutions, Assurant Health, ASU, Auto Owners Insurance, Avnet, Bank of America, Beth Israel Deaconess Medical Center, Blue Cross Blue Shield of Alabama, Blue Cross Blue Shield of Michigan, Blue Cross Blue Shield of MN, Blue Cross Blue Shield of Montana, Blue Cross Blue Shield of NC, BMC Software, Boston University, Brown Bros Harriman, Case Western Reserve University, CA, Centers for Medicare and Medicaid Services (CMS), Charles Schwab, Citigroup, City of Cleveland - Cleveland Airport Systems, City of Houston, CIGNA, Coca Cola Enterprises, Colonial Bank, Commonwealth of Massachusetts EMC, Compass Bank, County of El Dorado, DaimlerChrysler, Department of Technology Services, DHI Computing, DHL, Drummond Company, Exxon Mobil, Federal Reserve, Fidelity Investments, First Merrit Bank, Ford Motor Company, Forrester, Franchise Tax Board, Freescale Semiconductor, Genuine Parts Company, Genworth Financial, Georgia Dept of Labor, Georgia Pacific, Global Crossing, GuideOne Insurance Company, Hannaford, Health Net Inc., Internal Revenue Service (IRS), ISO, Jack Henry, JP Morgan Chase Credit Card Services, JPMorganChase, LL Bean, Lowe's, Mainline Information Systems, Marriott, Mayer Electric Supply Company, Mayo Clinic, Medco, Meijer, Merrill Lynch, Methodist Hospital, MetLife, Motion Industries, MSI, National City Corporation, Nationwide, Principle Financial Group, Progress Energy, Progressive Insurance, Regions Financial Corporation, Safeway, Salt Lake County, Salt River Project, Schwab, Sears, Sine Nomine Associates, Sirius Computer Solution, Social Security Administration (SSA), Software AG, Software Assurance Working Group, Southern Company, State Auto, State Employees' Credit Union, State of CA, State of GA Dept of Driver Services, State of Minnesota, State of Montana, State of NC - ITS, State of Utah, State Street, SunTrust, Technology Resources Company, Temple-Inland, Texas Instruments, Texas State University, The Hartford, TMSA, Travelers Insurance Company, Trinity Information Services, United Health Group, University of Michigan Hospitals, UPS, US Bank, Verizon, Verizon Data Services, Vicom Infinity, VSP, Wachovia, Wellington-Royce Corporation, Wells Fargo, Westfield Group, Workers Compensation Fund, Zions Bankcorp

Businesses with mainframes should join

How educators get started

- **Educators join the initiative at: ibm.com/university/systemz**

643
Schools

Download Course Materials

44 courses

Request access to mainframes

Hubs that provide
remote access
world wide

Attend faculty education

Professor seminars,
education coupons

IBM System z courses

Mainframe courses available:

Foundational principles
- Intro to the Mainframe: z/OS Basics*
- Intro to the Mainframe: Networking*
- Intro to the Mainframe: Security*
- Intro to the Mainframe: Large Scale Commercial Computing

Operating systems
- Linux on System z
- Introduction to z/VM®
- Introduction to z/VSE Basics
- UNIX® System Services (Module)

User interfaces
- ISPF: z/OS Basic Interfaces

Storage management
- VSAM

Programming languages
- Assembler
- COBOL
- JCL

Other
- z/OS Advanced Topics*
- **z/OS Emerging Technologies***
- **z/OS Installation**

Tivoli security, systems, network, and storage management courses
- IBM Tivoli License Compliance Manager for z/OS 4.2 Implementation
- IBM Tivoli System Automation for z/OS 3.1 Introduction and Operations
- IBM Tivoli System Automation for z/OS 3.1 Implementation and Administration
- IBM Tivoli Workload Scheduler 8.2 for zOS Scheduler's Workshop

Information, data and transaction management
- Enterprise Server Data Management
- DB2 for z/OS Fundamentals
- DB2 Family Fundamentals (Cross product)
- DB2 SQL Workshop (Cross product)
- DB2 for z/OS Database Admin Workshop, Part 1
- DB2 for z/OS Database Admin Workshop, Part 2
- DB2 Programming Workshop for z/OS
- **DB2 for z/OS Application Development**
- **DB2 for z/OS Query Optimization and Performance Tuning**
- **Intro to IMS***
- An Introduction to IMS (Textbook reference)
- Transaction Management

Application development
- WebSphere Application Server for z/OS
- Intro to IBM WebSphere Developer for z (Web based)
- WebSphere MQ for z/OS System Administration
- **Developing COBOL with IBM Rational Developer for System z**

Diagnosis
- z/OS RAS and Diagnostics*

eLearning resources:
- Interactive e-Learning Module: *z/OS Basics*
- **Flash Demo: Introduction to Rational Developer for System z**
- **Develop a batch DB2 for z/OS COBOL application using RDz**
- **Developing and debugging a COBOL DB2 application**
- **Editing record-oriented programs with the System z LPEX editor**
- *Learn about your future in Large Systems*
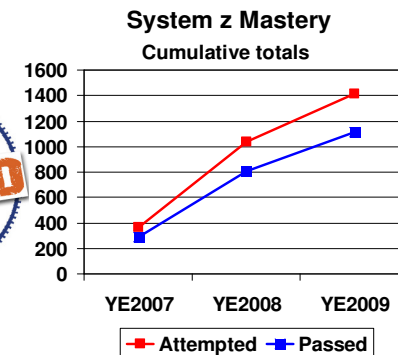- *Careers in Mainframes*

*available in audio version

Measuring and Validating Mainframe Knowledge

IBM System z entry level for z/OS System Programmer Mastery

- *Introduction to the Mainframe: z/OS Basics*

- Worldwide proctored exam (Thomson Prometric)

- Results recorded in IBM certification database
  - **Student Opportunity System qualification criteria**

- Industry feedback: Valuable measurement of 'Entry Level Criteria'

- 1,409 Attempts (78.9% success rate)
  36% increase in 2009
  10 new countries participated in 2009
  28 countries in total

- 2010 WW **no cost** academic offering announcement in March

THOMSON
PROMETRIC

PASSED

System z Mastery
Cumulative totals

	YE2007	YE2008	YE2009

Legend: Attempted (red), Passed (blue)

ibm.com/certify/mastery_tests/ovrZ01.shtml
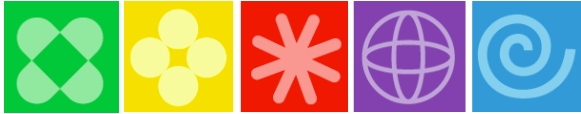
Global - Master the Mainframe Contests

- **Five years, 15 countries and spreading worldwide**
  - **No experience necessary**
  - **Three levels of challenges
    Prizes: T- shirts, iPods, Laptops, XBox360, Wii, Sony PSP, Nintendo DS, HDTVs, trips**

- **2009 U.S./Canada contest**
  - **3,000 students from 425 schools**
  - **300% increase in registration since 2005**

- WW **Contests in 2009**
  - **Australia**
  - **Russia (new)**
  - **US and Canada**
  - **United Kingdom**
  - **Taiwan (new)**
  - **Brazil**

Ocoee High School
2008 IBM Master the Mainframe Contest
Part 1 winners

- **2010 targets:**
  US/Canada, UK, Brazil, Australia, Taiwan, Russia, France (new), Netherlands (new), Mexico (new), India (new), Germany (new)

Location	Contests	Students	Schools	
Brazil	2007	2011	390	
	2008 2009	3287 2008	400	390
BeNeLux	2007	76	9	
Nordics	2007	147	11	
Thailand	2007	960	40	
UK	2006	725	40	
	2007	676	59	
	2008 2009	876 1132	64	70
North America	2005	750	85	
	2006	1085	177	
	2007	1750	325	
	2008 2009	1879 3004	325	425
Australia	2008	450	31	
	2009	315	29	
Taiwan	2009	560	44	
Russia	2009	269	41	
Totals	**15**	**21,960**	**2,955**	

ibm.com/university/contest

System z hubs provide remote access for teaching the mainframe

- **Marist College NY –** z/OS hub

- **University of Arkansas -** zOS, zLinux, Databases, CICS, SAP

- **Unicamp Brazil** – z/OS, z/VM, and Linux

- **Leipzig Germany – z890**

- **Syracuse University NY**

- **IBM TX** – Customized software stacks

- **NC A&T** – z/VM and Linux

- **China Universities (6 Systems)**

Remote access to System z from Marist College NY

- **173 schools are using the System z via the internet**

- **419 faculty**

- **3,459 active student accounts**

Marist College System z Staff

Schools WW Accessing System z at Marist College

South Central Tech. College
Humber College
Northeastern Illinois University
Marist College
Texas State Technical College
Fox Valley Technical College
Metropolitan Community College
Malone College
Dutchess Community College
University of Hawaii
Vilnius Gediminas Technical University
Westchester Comm. College
Skagit Valley College
Bloomsburg University
California University of Pennsylvania
Cheyney University
Clarion University
East Stroudsburg University
Edinboro University
Indiana University of Pennsylvania
Kutztown University
Lock Haven University of Pennsylvania
Mansfield University
Millersville University
Shippensburg University
Slippery Rock University
West Chester Univ of PA
Laval University Quebec Canada
University of Arkansas
Indiana State University
Trevecca Nazarene University
Griffith University Australia
NJIT
Polytechnic University of Turin
Frederick Community College
Fairleigh Dickinson University

Oslo University College
St Ambrose University
IBM Corporate University
DePaul University
OSDL
Bauman Moscow State Technical University
University IBM Svenska AB(KTH) Sweden
Ateneo de Manila University
University of Toledo
North Carolina Central Univ.
Clarkson
Clarke College
Asia Pacific College
University Sains Malaysia
Cincinnati State
Czech Technical University
Columbus State University (Georgia)
Georgian College Toronto
Northeastern University
Mohawk College
University of Toledo
Marquette University
Ryerson University Canada
Columbia University
Illinois Central College
Northern Arizona University
Dominican University
Syracuse University
Gardner-Webb University
Illinois State University
New York Institute of Technology
Southern Polytechnic State Univ
CeGEP DE THETFORD
St Lawrence College Ontario
Southern University
Loyola College
Maryville University

University of Houston-Downtown
Long Island University
West Virginia University
North Carolina State Univ.
Tecnologico De Monterrey College
Houston Community College
West Texas A&M University
Seton Hall University
Widener University
Pace University
Purdue University
Eastern Illinois University
University of Delaware
Radford University
Central Missouri State University
Georgia Tech
Utah Valley State College
San Jacinto College
School of Information Technology, KMUTT
Seneca College
University of South Carolina
Prince Georges Community College
Estrella Mountain Community College
City University of New York
University of Valencia
University of Alabama Birmingham
Minnesota State University
National Hispanic University
University of Houston Victoria
Yildiz Technical Univ. Turkey
University of Western Ontario
San Francisco State University
San Jacinto College - Central
Massachusetts Institute of Technology
Universidade Tuiuti Do Parana
University of Bristol
North Carolina A&T State University

University of Texas at Arlington
University of Maryland
Indian Hills Community College
Prince of Songkla University in Thailand
University of the Philippines
Humbolt University Germany
Northern Illinois University
University of Nebraska at Omaha
University of Denver
Shenkar University
Loras College
Devry University
SUNY New Paltz
Tecnologico De Estudios Superiores De Monterrey
University of Montana-Helena
Georgian College of Applied Arts and Technology
George Mason University
San Jose State University
Le Moyne College
Hutson-Tillotson University
KBU International College
Instituto Politecnico Nacional in Mexico
Lakeland Community College
Collin College
Tel Aviv Yaffo in Israel
Dakota State University
Kongu Engineering College in India
Brigham Young University - Idaho
University of Texas at Dallas
Cambridge International College (Australia)
Columbus State Community College (OHIO)
Coburg University of Applied Sciences, Germany
Salt Lake Community College
Boston University's Metropolitan College
Combiatore Institute of Technology
RCC Institute of Technology
Stevens Institute of Technology

University of Arkansas – System z Student & Faculty Accounts over last 2 academic years

Number of faculty	Number of courses	Number of students
471	91	1941

Number of International universities – 59 in 28 countries

Number of USA universities – 155 located in 36 states

IBM Destination z - Mainframe Community

Academic partners

Bauman Moscow State Technical
University Russia
Cegep de Thetford, Quebec, Canada
Estrella Mountain Community College
Fox Valley Technical College
Houston Community College
Huston-Tillotson University
Illinois State University
Marist College
Minnesota State University, Mankato
Montclair State University
Prince George's Community College
Republic Polytechnic, Singapore
Rochester Institute of Technology
Syracuse University
University of Alabama at Birmingham
University of Arkansas
University of Maryland Eastern Shore
University of South Carolina
University of Valencia, Spain

2009 Enterprise Computing Scholarship winners

Sandeep Basnet, Illinois State University
(Greg Zaubi Memorial Scholarship Winner)
Scott Wetter, Marist College
Min Jiang, Illinois State University
Niranjan Sharma, Illinois State University
Wenbo Zhang, Syracuse University
Deep Shah, Syracuse University
Shiyuan Chen, Syracuse University

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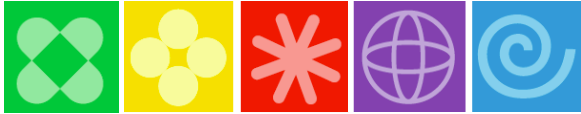
VELOCITY
SOFTWARE

Z JOURNAL

IBM DESTINATION Z

Community - SHARE

- **AI focus at SHARE**
  - Increase program awareness
  - Key to driving educator & student attendance
  - Build relationships, make academic/customer connections
  - 13+ Universities, 250+ students

- **Sessions**

  - *zNextGen Project Opening and Keynote*
  - *Head of the Class: Professors' Perspectives on Mainframe Education*
  - *Mastering System z - Entry Level Systems Programmer Mastery test*
  - *Virtualization and Open Systems Pave the Way to System z*

- **Professors prominently highlighted at SHARE**
  - SHARE*news* Daily
  - System z keynote presentation, *Empowering the Next Generation to Support the Mainframe's Leading Role in Enterprise Architecture*
  - Press Release: *Next Generation of Enterprise IT Professionals on the Rise at SHARE*

- **2010**
  - Academic / Industry session

ECC Industry and Academic Partners

AAFES

ACM

Aetna

Amdahl Corporation

Anheuser-Busch

Automated Software Tools Corp.

Bank of America

BB&T Bank

BBVA Compass Bank

Blue Line Planning

BMC Software

BOL

Boscovs, LLC

Broadridge

CA, Inc.

Capgemini

Cegep Thetford

CGI-Canada

Chubb

Citigroup

Citigroup Technology, Inc.

Clabby Analytics

Cleveland institute of electronics

Clipper Group Partner

Comcast

Computers & Publishing, Inc.

Compuware

Credit Suisse

CSC

Datacenter Pulse (EU)

Deputy CIO for Strategic & Governance, State of NY

DTCC

Dynamic Research and Evaluation

eBusinessware

EDS

EMC

Experian

Fatwax, Ltd

Federal Government

Foot Locker

GDIT (Gen. Dynamics Info Tech)

Generali

GHG Corporation

Goldman Sachs & Co.

GT Software

HMS

HSBC Bank

IBM

Infobrella, Inc

Interskill Learning

IR-Application Services

JPMorgan Chase

JT Packard

la Caixa

Leviton Network Solutions

Longpela Expertise

Mayo Clinic

Medco

MetLife

Micro Focus

Morgan Stanley

NEON

NRECA

NYS CIO and Dir of Office Tech

NYS Judiciary

Phoenix Software International

Pi-GmbH

Power Management Concepts

Progressive

Red Hat

Regions Bank

SAS Institute, Inc.

Select Business Solutions

Shands HealthCare

Standard Bank of South Africa

State Farm Insurance

State of Oregon – ODOT

State Offices of NY

Sterling Commerce

Supervalu

Syntel Ltd (India)

System z/mainframe Technologies & Solutions

The Clipper Group

The Trainer's Friend, Inc.

TNINC

Travelers

Trilobyte Systems

UBS

USAA

Vanguard Integrity Professionals

Verizon

Vicom Infinity, Inc.

Vinvew

Wachovia

Walsh Construction

WinterGreen Research

WU Wien

YearUp

ZIVIT-Germany

Academy of Humanities and Economics in Lodz

Baruch College

CUNY

Bauman Moscow State Technical University

Binghamton University

Cal State University of Long Beach

Collin College

Columbia-Green Comm. College

Cuyahoga Community College

DeVry University

Eastern Illinois University

Illinois State University

Lakeland College

Leipzig University / Tuebingen university

Lewis University

Marist College

Metro Community College

Mills College

Monroe College

North Carolina Central University

Northern Illinois University

OCM Boces

Pace University

Palm Beach Community College

Rochester Institute of Technology

Rutgers Univ

Ryerson University

San Jacinto College

San Jose State University

Southern University

Stevens Institute of Technology

Suffolk University

SUNY Upstate Medical University

SUNY, New Paltz

Syracuse Central School District

Syracuse University

Tongji University

Universidad Distrital University

University of Arkansas

West Texas A&M University ACM Student Chapter

Westchester Community College

Widener University

Survey Results – Enterprise Systems Roundtables

	Strongly Required	Required	Not Required
Application development	33.33%	52.33%	16.33%
Architecture	33.33%	62.33%	4.34%
Assembler	18.43%	46.37%	35.20%
Capacity planning	38.00%	39.67%	22.33%
CICS	40.96%	43.67%	15.37%
COBOL	34.14%	38.35%	27.51%
DB2	36.60%	44.50%	18.90%
Disaster recovery	6.67%	53.33%	40.00%
IMS	11.60%	28.40%	60.00%
Linux	24.33%	42.73%	32.94%
Messaging Queuing	27.00%	68.33%	4.67%
Networking	37.33%	43.07%	19.60%
Performance management	26.33%	52.33%	21.33%
	Strongly Required	Required	Not Required
Security	36.03%	46.67%	17.30%
Storage	38.00%	57.33%	4.67%
SOA	26.33%	58.00%	15.67%
System Administration	32.00%	41.67%	26.33%
VSAM	16.67%	57.00%	26.33%
WebSphere/Web Development	16.33%	59.00%	24.67%
z/OS (ISPF, TSO, JCL)	69.54%	24.23%	6.23%
z/VM	18.63%	33.17%	48.20%
z/VSE	4.67%	44.00%	51.33%

Growing trend in academia - Enterprise
(watch this space with IBM System z)

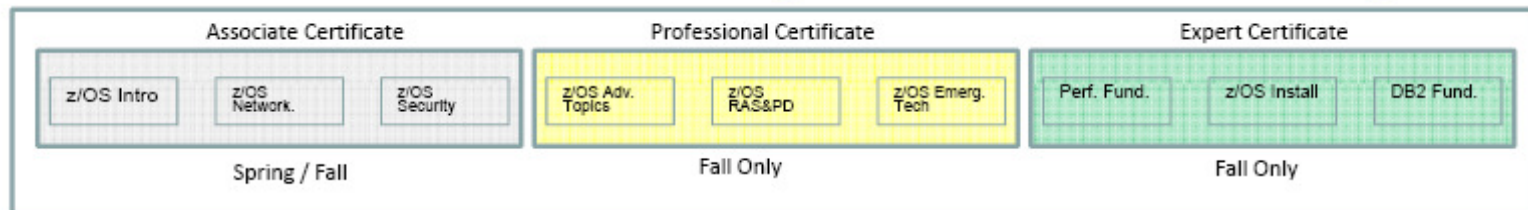- Enterprise Computing Community – National Science Foundation grant

Syracuse University	Enterprise Technologies
DeVry University	Enterprise Systems Specialization Track
Stevens Institute NJ	Enterprise Systems Graduate Program
Marist College NY	Large Systems education and ECC
Illinois State University	Enterprise Computing Systems Curriculum
Penn State University	Enterprise Systems Architecture
Rochester Institute of Technology	Enterprise Systems Architecture
University of South Carolina	Center for Enterprise Systems Management
University of Arkansas	Director of Enterprise Systems – David Douglas

- Growing popularity in Historical Black Colleges and Universities

  – **North Carolina Central University, University of MD East Shore, NC A&T, Southern University LA**
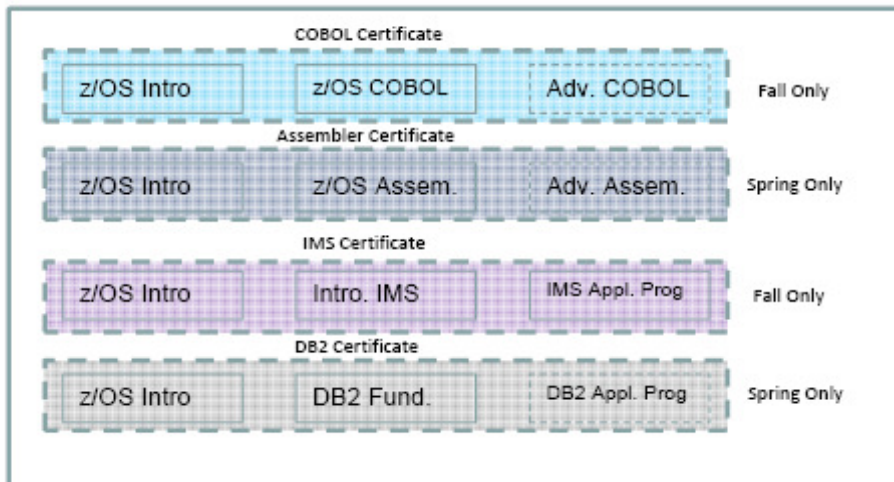
www.idcp.org/learnzos.html

z/OS Certificate Program – Marist College

Associate Certificate			Professional Certificate			Expert Certificate		
z/OS Intro	z/OS Network.	z/OS Security	z/OS Adv. Topics	z/OS RAS&PD	z/OS Emerg. Tech	Perf. Fund.	z/OS Install	DB2 Fund.
Spring / Fall			Fall Only			Fall Only		

System Programming Track

Application Programming Tracks

COBOL Certificate

z/OS Intro	z/OS COBOL	Adv. COBOL	Fall Only

Assembler Certificate

z/OS Intro	z/OS Assem.	Adv. Assem.	Spring Only

IMS Certificate

z/OS Intro	Intro. IMS	IMS Appl. Prog	Fall Only

DB2 Certificate

z/OS Intro	DB2 Fund.	DB2 Appl. Prog	Spring Only

- Certificates: 7
- Unique Courses: 16

CERTIFICATE IN MFA
Mainframe Administration

"25 of the top 25 WW banks run on z."

"9 of the top 10 global life/health insurance providers run on z."

"71% of Fortune Global 500 are System z clients."

"64% of Fortune 500 (US) are System z clients."

"2/3 of business transactions for US retail banks run directly on mainframes."

"80% of world's corporate data resides or originates on mainframes."

"23 of the top 25 US retailers run on z."

"A mainframe averages decades between server outages."

"A single z series server can run thousands of virtual Linux servers."

Evaluation exam for full scholarships for a Certificate in MFA will be held at the University of Denver, Sturm Hall #251 on December 16th from 6 - 8 PM.

For more information call Samantha Houck(303) 871.2458 or visit http://cs.du.edu/mfa/

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System z10

IBM

Fox Valley Technical COLLEGE
Knowledge That Works

Get Ahead with Mainframe Programming Classes

FVTC is a member of the IBM Academic Initiative

Advantages:
- 53% of mainframe workers have 20+ years of experience and are near retirement! 60% of mainframe capacity shipped today comprises of "new workloads," including Linux, IBM WebSphere, SAP and other leading enterprise business applications
- Weekend classes to fit your schedule (Fridays 5-9 p.m. & Saturdays 8 a.m.-4 p.m.)
- Meets only seven weekends throughout the winter/spring semester
- Four classes available (prerequisites apply); take all four to earn an 11-credit certificate in Mainframe Programming
- Classes are offered in a blended format, meaning you'll learn in the traditional classroom setting along with self-paced study. (Blackboard will be used as a central online communication location for class information.)

Classes start in the winter/spring semester only, so register today!
To register for any of these classes, visit www.fvtc.edu.

For both new and experienced programmers

These classes are a combination of structured classroom time on specific Friday evenings and all-day Saturday sessions in addition to Web-enhanced instruction.

Operating Systems and Data Management
January 10-February 15, 2008
Meetings: 5:00-9:00 p.m.
 Fridays, 1/18 and 2/8;
 8:00 a.m.-4:00 p.m. Saturdays, 1/19 and 2/9
Location: Appleton Campus
Class Number: 90274
- Learn z/OS basics, TSO/E, basics of the end-user interface ISPF, ISPF utilities, principles and techniques of Job Control Language, memory management, working with datasets including VSAM files, batch processing and JES

Computer Programming COBOL I
February 18-March 28, 2008
Meetings: 5:00-9:00 p.m.
 Fridays, 2/22 and 3/7;
 8:00 a.m.-4:00 p.m. Saturdays, 2/23 and 3/8
Location: Appleton Campus
Class Number: 90184
- Learn to write programs in the COBOL language using structured programming techniques. Introducing report design and control break processing
- Understand how to avoid and correct programming errors

COBOL 2 using CICS
March 31-May 16, 2008
Meetings: 5:00-9:00 p.m.
 Fridays, 4/4, 4/18 and 5/9;
 8:00 a.m.-4:00 p.m. Saturdays, 4/5 and 4/19
Location: Appleton Campus
Class Number: 90185
- Learn more advance programming techniques in COBOL programs including table handling and file maintenance
- Learn the concepts of online programming using CICS/VS commands in COBOL programs, debugging techniques, task control and data management

Structured Query Language SQL
January 10 – May 16, 2008
Meetings: Offered both in the classroom and fully online Call 996-2952 for more information.
Location: Appleton Campus
Class Number: Varies depending on section
- Learn relational concepts and theory while writing interactive SQL code to create, load, manipulate and query relational tables
- Explore the concepts of fourth-generation languages, end-user computing and prototyping

Take all four classes to earn a certificate in Mainframe Programming in just one semester!

Rose Guthrie • (920) 996-2952 • e-mail: guthrier@fvtc.edu

Introduction To Enterprise Servers

- **Objectives**
    - To be able to explain the benefits of a z Series in an appropriate computing environment
        - RAS, Parallel Sysplex, consolidation, TCO, etc.
    - To be operational proficient working in the TSO/ISPF environment
        - Create PDSs, members, copy/edit, etc.
    - To be able to develop knowledge and skills to develop illustrative applications
        - Cobol, JCL, VSAM, DB2
    - To be able to explain the benefits of zLinux in an appropriate computing environment
    - To be operational proficient working with zLinux
    - To be able to develop data driven open source Web applications
        - Linux, Apache, MySQL(& DB2), PHP

China - Partner Universities with Academic Initiative

LOGO	FULL NAME & LOCATION	LOGO	FULL NAME & LOCATION
	Peking University *Beijing (Education Center)*		**Tongji University** *Shanghai (Education Center)*
	Huazhong University of Science and Technology *Wuhan (Education Center)*		**South China University of Technology** *Guangzhou (Education Center)*
	University of Electronic Science and Technology *Chengdu (Education Center)*		**Dalian Jiaotong University** *Dalian (Education Center)*
	Sichuan University *Chengdu*		**Dalian University of Technology** *Dalian*
	Chongqing University *Chongqing (New)*		**Southeast University** *Nanjing (New)*
	Shenzhen University *Shenzhen (New)*		**Yunnan University** *Kunming (New)*
	Northeast University *Shenyang (New)*		

International Exchange on IBM Mainframe University Program

Curriculum

Specialty

Course Develop

Class Teaching

Certificate

Mainframe Foundation Overview
z/OS Overview (JCL, VSAM, TSO)

Mainframe Assemble Language

COBOL Language Programming	PL1 Language Programming

CICS Application Programming

DB2 Application & Programming	IMS Application & Programming

System Administration Overview
System Administration Skills (JES, Utility, REXX, CList, JCL)

CICS Management
DBA

System Administration (RACF)

Storage Management

Professional Certificate Application Programmer

Professional Certificate System Programmer (DBA)

Professional Certificate System Programmer (SA)

Professional Certificate System Programmer (SM)

28

AP examples

- Singapore
  - Republic of Polytechnic
    RHEL/zLinux and z/VM course module in 2009 Semesters.
    Collaboration between IBM-RP is being reviewed with Citigroup, willing to be industry sponsor for recruitment and professional training

- Thailand
  - KMUTT
    Teaching the following courses...
    ES2000: Linux on zSeries   Full semester; slides with speaker notes, labs, tests
    ES2001: Introduction to z/VM Full semester; slides with speaker notes, labs, tests
  - Sripatum university
    Interested in teaching z/OS in computer science course. Still in preliminary discussion stage.
  - Khon Kaen University
    Another target university, in North of Thailand. Waiting for chance to present zAI program.

- Malaysia
  - KBU
    T3 conducts 4Q08. Faculty staff using remote access to Marist College to develop Faculty skills.
    Plan to offer z/OS course to students in 2009 semester
    Working on recruitment program with IBM Malaysia and customers

- Philippines
  - University of Philippines
    Teaching COBOL Programming
  - Asia Pacific College
    Teaching COBOL Programming
  - Mapua Institute of Technology
    Interested in teaching z course. Philippines customer may want to donate their old 9672 mainframe to university but still in discussion stage.

Italy examples

Sapienza Università di Roma

- *2006/2007 – Seminar - First level degree - 70 students*
- *2007/2008 - Full formal course 12 x 2 hours + 12 x 2 hours labs - 25 students*
- *2008/2009 - Full formal course 12 x 2 hours + 12 x 2 hours labs - 40 students*
- *2009/2010 - Full formal course 12 x 2 hours + 12 x 2 hours labs - starting*

Università di Catania

- *2005/2006 – Science of Information – Full formal course - 170 students*
- *2006/2007 – Full formal course 12 x 2 hours - 120 students*
- *2007/2008 – Full formal course – 60 students.*
- *2008/2009 - Full formal Course – 60 Students – Credits Doubled - Examinations*
- *2009/2010 - Full formal Course – 60 Students – Credits Doubled (planned for March 2010)*

Politecnico di Bari

- *2005/2006 – Engineering and Electronics - Seminar - 90 students*
- *2007 UniBari buys System z9 BC*

Università di Palermo

- *2005/2006 – Institute of Engineering – Full formal course – Master degree – 70 students*
- *2006/2007 – Institute of Engineering – Full formal course – Master degree – 96 students*
- *2007/2008 – Institute of Engineering – Full formal course – Master degree – 50 students*
- *2008/2009 – Institute of Engineering – Full formal course – Master degree – 70 students*
- *2009/2010 - Institute of Engineering – Full formal course – Master degree – 70 students (planned 11/09)*

Seconda Università di Napoli

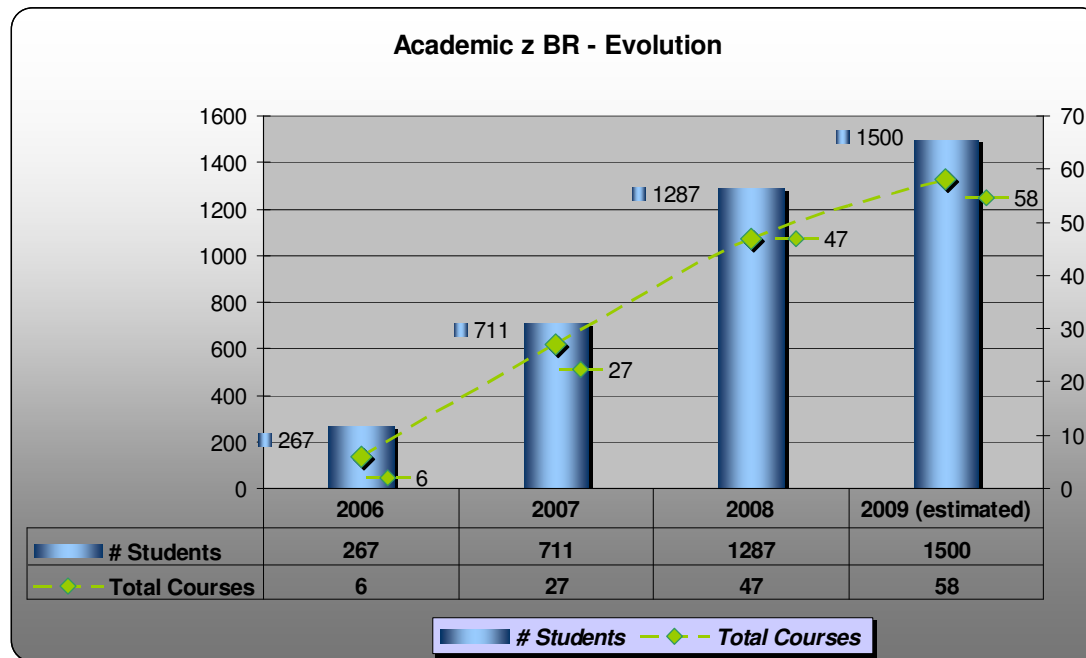- *2006/2007 – Seminar - First level degree - 25 students*

Almost 1,000 Students!

Germany - Academic Initiative for System z, Status 12/2009

1. IT Akademie Bayern - Ausbildungsprogramm
2. Humbold Universität Berlin und TU Berlin - Mainframe Summit
4. Hochschule Bochum - Sommerseminar
5. Technische Universität Chemnitz - Online-Praktika
6. Fachhochschule Coburg - Lehrveranstaltung
7. Fachhochschule Darmstadt - Online-Praktika u. Gastvorträge
8. Technische Universität Darmstadt - Vorlesung
9. Technische Universität Dresden - Lehrveranstaltungen
10. Universität Duisburg-Essen – Lehrveranstaltung
11. Hochschule Esslingen - Vorlesung
12. Universität Hamburg – Hanseatic Mainframe Summit
13. Fachhochschule Köln - Seminar
14. Universität Leipzig - Vorlesungen u. Online-Praktika
15. Fachhochschule Lüneburg - Online-Praktika
16. Berufsakademie Mannheim - Vorlesung
17. Technische Universität München – Ringvorlesung
18. Universität Münster - Vorlesung u. Praktika
19. Fachhochschule Schmalkalden - Online-Praktika
20. Fachhochschule Stuttgart - Online-Praktika
21. Hochschule der Medien Stuttgart - Vorlesung
22. Universität Tübingen - Vorlesungen u. Online-Praktika
… more to come (i.e.: Universität Karlsruhe as #23)

System z Academic Initiative Brazil - Results

- Students Trained, Deployed Courses, Schools Connected and zLectures

  - 3295 students and 50 teachers trained, through 116 courses in 50 institutions since August 2006.

  - 104 System z Lectures in universities and schools for 8685 students, since 2006.

  - 10 Post Graduation Mainframe Classes – UniverCidade (RJ), FIAP (SP), UniCeub and Faculdade Alvorada (DF)

  - More than 100 students hired in IBM, partners and customers.

Academic z BR - Evolution

	2006	2007	2008	2009 (estimated)
# Students	267	711	1287	1500
Total Courses	6	27	47	58

Legend: # Students — Total Courses

Summary

- *IBM continues to <u>invest</u> in developing more mainframe skills for the community*

- *The mainframe community (ambassadors) continues <u>outreach</u> to educators world wide*

- *The number of schools and the program continues to <u>grow</u>*

- *IBM Clients are <u>connecting</u> with System z Academic Initiative member schools*

- *There are frequent <u>examples</u> of hiring and investment in mainframe skills*

Important web sites and contacts

- **Academic Initiative for the Mainframe**
  - ibm.com/**university/systemz**

- **z/OS Entry Level Mastery Exam & DB**
  - ibm.com/**certify/mastery_tests/ovrZ01.shtml**

- **Courses and training**
  - ibm.com/**systems/z/about/charter/skills.html**

- **For assistance, contact:**
  - **zskills@us.ibm.com**
  - **Don Resnik, resnik@us.ibm.com**
  - **Kathy Pfeiffer, pfeiff@us.ibm.com**