RMU CIS zEnterprise Curriculum Year 2

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Introduction

The IBM mainframe was introduced over 50 years ago.

In 2012 RMU CIS re-introduced five zEnterprise courses based on legacy IBM mainframe technologies taught in the 1980-90s, e.g., COBOL, VSAM, z/OS, DB2 API, and CICS.

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Introduction

Many IBM Academic Initiative colleges and universities offer IBM Academic Initiative courses and have excellent instructors as well as technology support services.

RMU CIS resources may be more similar to other colleges and universities who face challenges of designing a zEnterprise curriculum with

- **Limited faculty experience**
- **Limited student qualifications limited resources**
- **Limited institutional technology support**
- **Limited opportunities to change the curriculum**

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Introduction

This paper shares lessons learned from implementing IBM zEnterprise mainframe technologies into the RMU CIS curriculum and a practical discussion of the following to help you implement zEnterprise concepts into your curriculum.

1. Reasons why your CS/IS/IT curriculum should introduce zEnterprise technologies

2. Specific curriculum strategies to implement zEnterprise technologies into your existing curriculum,

3. Suggestions to add new zEnterprise technologies in your curriculum

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WHY SHOULD CS/IS&IT PROGRAMS ADD zENTERPRISE COURSES OR CONTENT TO CURRICULUM?

1. Student Career and Salary Opportunities

2. Increased Fortune 500 zEnterprise Recruitment Opportunities

3. Parents often are more knowledgeable of zEnterprise Education than their High School Students

4. IBM zEnterprise Attracts Better Quality Students and Provides Alternative Career Opportunities for other Majors

5. IBM zEnterprise Concepts are the Foundation of ALL CS/IS/ IT Disciplines

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Student Career and Salary Opportunities

- Expected retirements of 100,000+ zEnterprise professionals and two million worldwide COBOL programmers over the next decade will create unprecedented career opportunities.

- Worldwide IBM zEnterprise systems account for 71% of all financial, insurance and banking transactions; 70% of wealth management services; 62% of major retailer transactions, and 64% of the state and federal governments transactions.

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Student Career and Salary Opportunities

While consumer-based IT markets may benefit from higher visibility, recognition, popularity, sales and profitability levels, recent employment data from the placement of RMU CIS students in zEnterprise careers in the Pittsburgh area as compared to other IT careers indicates a

- **35% higher starting salary,**
- **Additional sign-on bonuses by as much as 30%**
- **Multiple job offers**
- **Potential career tracks to six-figure salaries with ten years of experience.**

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Student Career and Salary Opportunities

The zEnterprise career opportunities in other zEnterprise markets are substantially greater. Recruiting high school students and career changers has been dominated by their perceptions of popular technologies, not by what may be better for our students.

- **IT salary data indicates that when one works with "small" computers, they tend to have "small" salaries.**
- **When one works with "large" computers, they tend to have "higher" salaries, increased responsibilities, and career opportunities.**
- **What are the long-term career and salary opportunities for a help desk technician, web designer, and network or server administrator for our students?**

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Increased Fortune 500 zEnterprise Recruitment Opportunities

In the movie "Fields of Dreams", Kevin Costner heard the whisper from the corn fields, "Build it and they will come." Well, the IBM Academic Initiative representatives may not be as good looking as Kevin Costner, but RMU CIS built a zEnterprise curriculum and Fortune 500 companies did come to recruit our CIS majors.

Unlike University Career Services recruiting events, zEnterprise recruiters directly visited the CS department were Vice Presidents, Directors, or Managers from Global and National Fortune 500 companies.

There was no question that RMU CIS's role in IBM zEnterprise brought recognition of a higher academic standard of excellence that provided benefits to all CIS students a small, regional, Information Systems program

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Other CIS Degrees Benefited from zEnterprise Recruiting

Qualified RMU students in degree areas such as

- **Security,**
  Data Analytics,
- **Project Management, and**
- **Application Programming.**

were also recruited by Fortune 500 companies because of the presence of a zEnterprise curriculum

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zEnterprise Education-First, Recruitment Model

- At the beginning of each session, zEnterprise recruiters were required to present to students a 1½ hour lecture on the application of zEnterprise Technologies as used in their organization.

- JP Morgan Chase Visa presented an excellent presentation on COBOL/CICS and Visa transaction processing.

- Compuware and CA Technologies presented the zEnterprise third-party software used in zEnterprise.
- The lecture was followed by internship and career presentations, and Q&A.

- zEnterprise Employers were invited to attend active classes, and interact with students and faculty in a classroom setting

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Parents are more knowledgeable of zEnterprise Education than their High School Students

- Many high school students would love an exciting new IT career in computer game programming, cool apps, HTML programming and Google Internet Searches for social trivia answers questions, and Facebook/Twitter.

- Other high school students would aspire to an "Abby" of NCIS, or "Garcia" of Criminal Minds, or any TV CSI investigator.

- One would be surprised how many parents, who work at Fortune 500 companies or with IBM customers, are very aware of the importance, prestige and career opportunities in zEnterprise transaction systems.

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IBM zEnterprise Attracts Better Quality Students and Provides Alternative Career Opportunities for other Majors

- During the last two years, the ability to "close" on scholar-quality, high school students, i.e., high GPA and SAT scores, has increased due to the presence of IBM zEnterprise curriculum.
- Once students and parents were made aware of zEnterprise career opportunities, RMU CIS was perceived to offer significant programs not available at other traditional, scholar universities.
- The prestige of IBM zEnterprise did make a recruitment difference.
- 39 undergraduate Business Majors have elected a CIS zEnterprise graduate courses through the integrated degree program.

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IBM zEnterprise Concepts are the Foundation of ALL CS/IS &IT Disciplines

- **You cannot teach CS/IS or IT without teaching IBM.** **The professor may elect not to give IBM the credit for their careers, but business computer technology would not exist without IBM.**

- **Some CS/IS &IT educators do not want to offer IBM zEnterprise education since it is "vendor specific." But, Microsoft, Oracle, Apple applications, programming, development tools and concepts are not vendor-specific.**

- **Core operating system function and virtual memory, computing technology ad parallelism, virtualization, SQL, relational databases, etc.**

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STRATEGIES TO IMPLEMENT IBM zENTERPRISE COURSE CONTENT INTO YOUR CS/IS & IT CURRICULUM

1. Improve your existing Operating System Courses - Introduce z/OS, zUnix or zLinux

2. Improve your Database Course - Use DB2

3. Modify your Mobile Application Development Course - Use IBM WorkLight

4. Improve your Java Courses - Use Java Enterprise Applications and IBM WebSphere

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LESSONS LEARNED FROM RMU zENTERPRISE YEAR 2

1. A COBOL programming course is not required to offer a zEnterprise Curriculum. However, COBOL may be preferred to Java by some zEnterprise employers because of the shortage of qualified COBOL candidate.

2. A zEnterprise Operating System (z/OS) course should be a course prerequisite for COBOL Application Programming or Java Application Programming Course.

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LESSONS LEARNED FROM RMU zENTERPRISE YEAR 2

3. An introductory programming language course is the only requirement for an embedded DB2 API Dynamic SQL Application.

4. Quality educational resources, text books, and test questions are limited for most zEnterprise topics.

5. Instructor-developed zEnterprise demonstration videos have been a success. While similar to instructor classroom demonstrations, the ability to repeat the videos to reinforce concepts is critical. Today's students will spend more time watching videos than reading text

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LESSONS LEARNED FROM RMU zENTERPRISE YEAR 2

6. Quality zEnterprise education research papers and workshops have been well-received by IACIS and ISECON Research Conferences.

7. When zEnterprise faculty members assist students to prepare for zEnterprise interviews and resumes, student's career success substantially increases.

8. The intrinsic security quality of an IBM mainframe improves the academic integrity of assignments. In addition, there are very few qualified zEnterprise students and assignments one may copy.

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LESSONS LEARNED FROM RMU zENTERPRISE YEAR 2

9. The uniqueness and demand of a quality zEnterprise program makes student retention a concern.

10. Written and oral communication skills are important in zEnterprise careers.

11. Business courses are valued in zEnterprise careers.

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RMU Developed Videos

Introduction to zOS and Processing Modes Part-1

http://youtu.be/iBsSiQCcRTY

Introduction to zOS and Processing Modes Part-2

http://youtu.be/TrVF5GjjmJY

Introduction to zOS and Processing Modes Part-3

http://youtu.be/PzrbdaGAtn8

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RMU Developed Videos

COBOL Application Development Part 1 - http://youtu.be/MiLlSz8hnOc

COBOL Application Development Part 2 – http://youtu.be/e_Fe_K_87G0

COBOL Application Development Part 3 and Debugging – http://youtu.be/fdUSq3LUVJs

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RMU Developed Videos

ISPF and COBOL –

http://youtu.be/ozXKLwRwuOo

CREATING A PARTITIONED DATA SET AND MEMBER -

http://youtu.be/44c5ld7z32k

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Thank You!

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