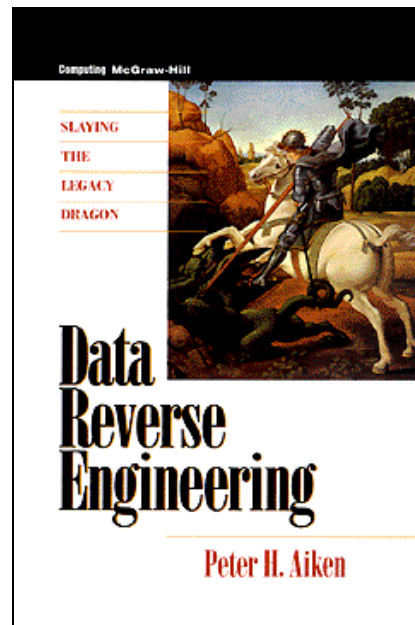


INFO 611 2003 Fall Syllabus



Course Title	Sect.	Ref. #	Time	Day(s)	Room	Building
Data Reengineering	902	13005	7-9:40 PM	Tues.	2123	Business

Prerequisite *Prerequisite: INFO 610 and INFO 630.*

Catalog Semester course. 3 lecture hours. 3 credits. (Offered Fall only!)

This course covers issues of reengineering of data from network and hierarchical and other database structures into relational database structures. The course covers a range of methods, tools and techniques for reverse engineering existing schemas and data structure definitions used as the basis for designing relational database structures. Appropriate case tools for data reengineering provide students with practical experience.



Instructor

Peter Aiken. I received my doctorate in Information Technology from the George Mason University, School of Information Technology and Engineering in 1989. The school used the following definition of information technology:

Information Technology is a discipline that encompasses the design, development, and application of hardware and software systems to facilitate human endeavors.

Contact

804.883.7594:home office

804.828.0174:vcu office

804.382.5957:cell phone

928.244.8194:efax

peter@datablueprint.com

<http://fast.to/peteraiken>

not my:Yesterday is history, tomorrow is a mystery and

quote:today is a gift - that's why it's called the Present.

logistics:Please note that on this message is likely to be coming to you from somewhere other than Richmond, VA as I travel supporting sponsored research for VCU & Data Blueprint.

- If you fax me any material please call and leave me a message so I can be certain to separate your fax from the others in the in-box.
- My office does not work very well so please don't call my office expecting to reach me. I get 5-10 call each hour asking, "Is this the MCV emergency room?" So I don't answer it. The VCU office phone rolls over to voice mail after three rings - you can always leave a message there for me. I check my messages regularly, especially when I'm traveling, and I will return your call.
- I spend about 50% of my research time working at my home office, please feel free to try to contact me there. At home I often hide from sales calls behind the answering machine. If you get the answering machine, press and hold any key on your touch-tone phone to by-pass the recorded message and please announce yourself. If I'm there, I'll pick up unless I'm attempting deep concentration. Regardless, please leave me a message - I will return your call.

Office Hours

My office hours are before my classes from 4:30 until 7:00 PM on Tuesdays and Thursdays and other times by appointment. Please call ahead to make an appointment to avoid standing in line or

otherwise missing me. In addition to my regularly scheduled office hours, I'll stick around as long as required after evening classes to answer any questions.

Schedule

My class schedule for the Fall 2003 semester is:

INFO 464 on Thursdays 7-9:40 PM

INFO 611 on Tuesdays 7-9:40 PM.

Definitions

Data Reengineering:

"The examination and alteration of the target system to reconstitute it in a new form." (The target system is the system to be reengineered.) Reengineering results from the coordination of forward and reverse engineering efforts [Chikofsky & Cross 1990].

Data Reverse Engineering:

The use of structured techniques to reconstitute the data assets of an existing system [Aiken 1996].

Supplemental

John Zachman "A framework for information systems architecture" *IBM Systems Journal* 26(3):276-292.

and others as assigned.

Attendance

You are responsible for all material discussed in class.

Grading

Grades will be determined by a combination of your class participation, your semester project results, and your grade(s) on one or more tests. The test grade(s) will be averaged with the project grade and the participation grade can positively influence that average.

Description

Data structures must be concretized before programs can be written. Organizational business requirements and corresponding practices are constantly evolving. Organizations continually face the problem of evolving their existing data structures to be responsive to organizational needs and competitive demands. Data reengineering is the process of first analyzing legacy data and then using the information gained from the analysis to implement the data in new forms that are more responsive to present and future business needs. This course describes the process of first reverse and then forward engineering data into forms that are both more responsive to current organizational needs and able to be useful to future organizational requirements. This involves adopting a

defensive posture and at the very least understanding the data in its most flexible and adaptable format. Only then can it be engineered to formats meeting current and future organizational needs. Quite often the process involves legacy information systems as well as Enterprise Information Systems such as: PeopleSoft™, SAP™, Baan™, Oracle™, and J D Edwards™. Regardless of the specific context of a exercise, data reengineering generally involves transforming data from one set of data structures to another. This could include flat files, hierarchical, network, or relational data structures on either end of the transformation. Of course once the new data structure has been developed, the legacy data must still be evolved in order to provide the organization with a functional system.

Objectives

To provide the opportunity to gain:

- 1) A deep understanding of the important concepts and techniques in data reengineering;
- 2) Practical experience in the development of a data reengineering application; and
- 3) Knowledge of the features and functionality of state of the art data reengineering software.

Texts

Aiken, P.H., *Data Reverse Engineering: Slaying the Legacy Dragon*. 1996, New York: McGraw-Hill. 394 pages (ISBN 0-07-000748-9). (TBP)

Finkelstein, C. and P.H. Aiken, *Building Corporate Portals Using XML*". 1999, New York: McGraw-Hill. 394 pages (ISBN 0-07-913705-9).

other assigned readings.

Supplemental

Elmasri, R. & Navathe, S. *Fundamentals of Database Systems* Addison-Wesley, 1994.

Inmon, B. *Data Architecture: The Information Paradigm* QED Technical Publishing Group, Boston, MA 1993.

Singh, H. *Data Warehousing: Concepts, Technologies, Implementations and Management*, Prentice-Hall 1997.

John Zachman "A framework for information systems architecture"
IBM Systems Journal 26(3):276-292.

Abate, R. Burk, J., and Aiken, P. *Achieving EAI with Service-Based Architectures* 2004. New York: John Wiley. 324 pages (ISBN: 0471415154). **(Not yet published!)**

and others as assigned.

Required Fine Print (Fall)

- Religion** Friday, September 5th is the deadline for students to provide advance written notification to instructors of intent to observe religious holidays
- Graduation** Friday, September 19th is the last day for degree candidates - to submit graduation applications to you advisers for degrees.
- Withdrawal** Friday, October 29th is the last day to withdraw from a course with a mark of "W".
- Disabilities** Students with special requirements must inform the instructor of these within the first two weeks of the semester. The University Office of Academic Support must also certify these requirements in order to receive special considerations.
- Weather** If classes are canceled due to inclement weather, any scheduled tests or assignment due dates will be automatically moved to the next regular class meeting. Please check the website at: <http://www.vcu.edu/weather/>
- Ethics** Students must abide with the University computing ethics policy.
- Holidays** "It is the policy of VCU to accord students, on an individual basis, the opportunity to observe their traditional religious holidays. Students desiring to observe a religious holiday of special importance must provide advance written notification to each instructor by the end of the second week of classes. Instructors are encouraged to avoid scheduling one-time only activities, which cannot be replicated, on these dates. Faculty members are expected to make reasonable accommodations to students who are absent because of religious observance through such strategies as providing alternative assignments or examinations or granting permission for audio or video recordings and the like."
- Honor Code** All submitted work is considered "pledged" according to the VCU Honor System. Cheating and plagiarism are unacceptable and will be handled in accordance with the Academic Integrity Policy as specified in the *VCU Resource Guide*. Except in those cases where teamwork has been expressly permitted all work must be done individually by each student.

Tentative Schedule

Week	Date	Chapters	Class Focus
1	8/26		<ul style="list-style-type: none"> • Course Overview • Reverse and Reengineering of Data
2	9/2		<ul style="list-style-type: none"> • Enterprise Data Architecture • Zachman Framework
	9/4		<p>Mandatory DAMACV Meeting 4-6:PM @ Dominion Virginia Power Innsbrook Technical Center 5000 Dominion Blvd. (See http://www.dom.com/contact/dir_itc.jsp for directions.)</p>
3	9/9	DRE 1 DRE 2 DRE 3 DRE 4 DRE 5	Data Reverse Engineering Strategies Definitions Organizational Data Issues Data Architectures Frequently Asked Questions
4	9/16	DRE 6 DRE 7 DRE 8 DRE 9	Project Initiation Activities (Part 1) Project Team Initiation Project Initiation Activities (Part 2) Target System Analysis
5	9/23		📅 📅 📅 📅 📅 📅 📅 – No Class Group Assignment!
6	9/30	XCP 2 XCP 4	Strategic Business Planning Modeling
7	10/7	DRE 12 DRE 13	Direct Outputs Indirect Outputs (Take home Mid-term!)
8/	10/14	XCP 12 XCP 13	XML as a Business Reengineering Portals and Reengineering
9	10/21	XCP 14	Quality
10	10/28		📅 📅 📅 📅 📅 📅 📅 – No Class Group Assignment!
11	11/4		📅 📅 📅 📅 📅 📅 📅 – No Class Group Assignment!
12	11/11	XCP 15 DRE 14 DRE 15 DRE 16	Central Role of Enterprise Portals Data Architecture Specifications Enterprise Integration Information Estimating DRE Projects
13	11/18	DRE 17 DRE 18	Evaluating Investment Opportunities CASE-Reengineering Symbiosis
14	11/25	DRE 19 DRE 20	Implications for Client/Server Architecture Development DRE Trends and Research
15	12/2	DRE 21	Reengineering's Indeterminate Results
16	12/9		Project Specific Lecture (Take home Final Exam)