

**Course Syllabus**  
**Revised 8/30/2004**

**Course Number and Title:** EDIT797 Performance Based Design  
3 Credit Hours – Fall 2004  
www.pcd-innovations.com/EDIT797-Fall2004

**Instructor:** Gary J. Dickelman  
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**Office:** TBD      **Office Hours:** SR - SS (FOTR hours)

**Textbooks**  
**Required:**

Dickelman, Gary (2003), [\*EPSS revisited: a lifecycle for developing performance centered systems\*](#). Silver Spring, MD: International Society for Performance Improvement; ISBN 1890289-15-9 (available in the bookstore for purchase shortly).

**Not required, but recommended:**

Excerpts that are assigned during the class will be made available to students at no cost:

Cooper, Alan (1999) [\*The inmates are running the asylum: why high tech products drive us crazy and how to restore the sanity\*](#). Indianapolis,IN:SAMS (ISBN: 0672316498 )

Gery, Gloria (1991), [\*Electronic performance support systems: How and why to remake the workplace through strategic application of technology\*](#). Tolland,MA: Gery Associates; ISBN: 0964622300.

Norman, Donald A. (1988) [\*The design of everyday things\*](#). New York,NY:Doubleday ISBN: 0385267746 (Paperback re-issue March 1990)

\_\_\_\_\_ (1993), [\*Things that make us smart: defending human attributes in the age of the machine\*](#). Reading, MA: Addison-Wesley Publishing Company

\_\_\_\_\_ (1998), [\*The invisible computer: why good products can fail, the personal computer is so complex and information appliances are the solution\*](#). Cambridge, MA: MIT Press

Rossett, Allison (1999), [\*First things fast: a handbook for performance analysis\*](#). San Francisco, CA: Jossey-Bass/Pfeiffer; ISBN: 0787944386

**Course Description:** EDIT797 is a practical introduction to the business imperative and development lifecycle for creating, implementing, and evaluating performance-centered systems. The course distinguishes the characteristics and development methods of performance-centered systems from those of *machine, data, human, and user-centered* system. The course provides complete expositions and protocol for analysis, design, development, implementation, and evaluation of performance-centered systems within a dynamic, innovative and exciting real-world framework.

**Objectives:** Upon completion of this course, participants will be able to:

1. Articulate the business imperative for performance-centered design.
2. Define performance-centered systems and distinguish them from machine, data, human, and user-centered system;
3. Articulate attributes and behaviors of performance-centered systems;
4. Analyze business performance gaps and determine how they can be filled with performance centered system techniques;
5. Design, develop, and implement performance-centered systems and system components using PCD protocol;
6. Conduct performance-centered system evaluations;
7. Use a commercial software package to create performance-centered system components.

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**Learning Modes:** Lecture, demonstrations, interactive discussions, on-line collaboration, asynchronous reviews, and cooperative learning.

**Course Format:** This course will be conducted as a graduate-level seminar and laboratory course. Participation in all learning events is expected; practical performance-centered system development work is mandatory to successfully achieve the course objectives. Participants will construct a knowledge base of readings, course notes, PCD protocol, and sample modules.

**Evaluation:** Course grades will be based on the following:

|                         |                   |
|-------------------------|-------------------|
| Interaction evaluation: | 50 points         |
| PCD Projects:           | 300 points        |
| Research paper:         | <u>150 points</u> |
| TOTAL 500 points        |                   |

**How the Objectives will be evaluated:**

The general means by which the objectives are evaluated are as follows:

1. Define, delineate, and describe the concepts stated in the objective through your class interactions (assignments and participation);
2. Elaborate on the concepts of the objectives in the research paper through application, discussion, and/or evaluation of PCD; and
3. Demonstrate your ability to apply the concepts of the objectives in your PCD project to a measurable performance outcome in some business or organizational context.

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|---|---|
| 1. Articulate and actively apply the business imperative for performance-centered design:   | Throughout the course you must demonstrate that you approach performance problems from the perspective of their business imperatives. Besides merely stating the business imperative, it must be reflected in all aspects of the PCD lifecycle, starting with analysis. The business focus of each course component - your interactions (aka participation and assignments), research paper, and PCD project - are the means of evaluating mastery of this objective. |
| 2. Define performance-centered systems and distinguish them from machine-, data-, human-, and user-centered system;                                   | Mastery of this objective is demonstrated through analysis and design activities throughout the course. How you approach a performance problem and bridge performance gaps with proposed solutions demonstrate your understanding of the distinctions between the various types of systems listed in the objective. There are numerous opportunities - and requirements - to demonstrate mastery of this objective in each course component.                          |
| 3. Articulate attributes and behaviors of performance-centered systems and determine which are appropriate for specific real-world business problems; | You must be able to list the primary attributes and behaviors of performance centered systems and apply those that are appropriate to specific problems. Mastery is demonstrated via a minimalist approach to PCD ("just enough" attributes and behaviors to measurably fill the performance gaps).   |
| 4. Analyze business performance gaps and determine how they can be filled with performance centered system techniques;                                | Mastery of analysis techniques must be reflected in each of the three primary components of PCD: Business Process, Human Diversity, and Information. Business gaps must be analyzed for all three components.   |

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|  |   |
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| 5. Design, develop, and implement performance-centered systems using PCD protocol;                 | The opportunities for actual implementation of a performance centered system or component is likely not possible during the course, so you must at least address implementation via description and discussion in course interactions, the research paper, and implementation <i>planning</i> in your PCD project. On the other hand, design and development - according to the PCD lifecycle - must be clearly demonstrated in all three components of the course. |
| 6. Conduct performance-centered system evaluations;  | Mastery of this objective is demonstrated via reviews of existing systems (e.g., by visiting web sites and/or conducting contextual interviews) and reporting on them in your assignments. Evaluation can form the basis for your research paper and/or PCD project if you so choose. At the very least, you will conduct a real PCD evaluation as part of your PCD project.  |
| 7. Use a commercially available software package to create performance-centered system components. | There are a variety of PCD tools commercially available for evaluation purposes. You will be made aware of them and will be required to use one or more in your assignments and PCD project. Mastery is based on proper application of the tool to meet the performance need and satisfy design criteria.   |

### Grading Criteria:

A: 450 – 500

B: 400 – 449

C: 300 - 399

### Evaluation Criteria:

Evaluation is criterion-referenced. Must demonstrate mastery of PCD process, which means having the ability to develop a compelling business case and produce real-world systems, job aids, and components. Must demonstrate the ability to design and create systems and components that support business or organizational performance through human performance by exhibiting the following characteristics at a minimum:

- supports performers through best business practices;
- establishes or aids in establishing goals;
- represents and facilitates the proper flow of work;
- minimizes cognitive burden (e.g., translation);
- provides access to supporting resources;
- manages knowledge; and
- stretches the PCD paradigm.

*Interaction evaluation* refers to the instructor's evaluation of the quality of a student's interactions during the semester, including on-line discussions, graded assignments, or other items designated specifically for evaluation.

**Guidelines for Research Paper:** The research paper will be a reasonably scholarly work, consisting of 1500 – 4000 words, referencing the works of at least three (3) leaders from fields and practices that comprise PCD, prepared according to the standards of the Graduate School of Education. The paper must address a relevant PCD issue in any or all categories *business performance, cognitive science, and technology infrastructure*. Note: Although not formally part of the course evaluation criteria, those individuals whose papers make a sound contribution to the PCD literature will be given the opportunity to have their papers published.

Here are some topics for you to *consider* for the research paper (**but please do not restrict yourself to just these!**):

- Performance-centered design for systems that support customer service representatives (i.e., call center professionals who must retrieve on-line reference material relevant to the business domain and the customer's question while on the telephone talking with customers)

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- Performance-centered systems design techniques for any specific vertical industry
- Supporting user workflow in transaction-based, data-centric systems
- Techniques for creating on-line representations of business tasks
- The proper use of metaphor in performance-centered systems
- The role of affordance in performance-centered design
- Designing performance-centered usability evaluations
- The role of knowledge management in PCD (...and/or vice-versa)
- Performance-centered design considerations for browser-based applications (e.g., how do they differ from conventional GUI development)
- Performance-centered design for highly dynamic work environments
- Techniques for providing alternate views of data, information, and knowledge in performance-centered systems
- Performance-centered design issues for information appliances
- Designing passive constraints in performance-centered systems
- Employing reusable knowledge objects in performance-centered design
- Designing for human diversity in PCD
- Organizational barriers to developing and implementing performance-centered systems
- Techniques for determining the appropriateness of PCD for business and human performance gaps in organizations
- Reachability of hypermedia (data, knowledge, information, reference) content in performance-centered systems
- The use of visual displays in performance-centered systems
- The roles of media types in PCD
- Quantitative and qualitative returns on investment for PCD

### *Authors to consider for resources:*

Alan Cooper  
Donald Norman  
Roger Shank  
Duane Degler  
Gary Dickelman  
Lisa Battle  
Jakob Nielsen  
Brenda Laurel  
Gloria Gery  
Jonathan Grudin  
Larry Constantine  
Lucy Lockwood  
Geoffrey Moore  
Tom Landauer  
John Casti  
Edward Tufte  
Allison Rossett  
Barry Raybould  
Stanley Malcolm  
Marc Rosenberg  
Ashok Banerji  
Ara Shirinian  
Erik Dickelman  
Duncan J. Watts  
Peter G. W. Keen  
Kathleen Sindell  
Len Weinreich

...and, of course, check out the Books sections of [www.epsscentral.info](http://www.epsscentral.info).

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**Guidelines for PCD Project:** By engaging PCD principles to create critical performance-centered system components in a course projects, the student must demonstrate abilities in key phases of the performance-centered systems development lifecycle (analysis, design, development, implementation, and evaluation). Students may work in groups and submit projects as a group. Group projects must have prior approval. The main criterion for group projects is that each group member's contribution is well-defined.

### **Format for Project Proposal**

#### **A. Project Name**

#### **B. Project Objective**

What do you intend to show, prove, or develop? Which elements of the PCD process are the focus of the project? What is the purpose, who is the customer, and what is critical to success?

#### **C. Project Deliverable**

Is the result going to be a working system? - a prototype? - a design specification? - an evaluation? Be specific.

#### **D. Project Team**

Are you going to work alone or in a group? If the latter, who are the members and what roles will each person play?

#### **E. Business Problem and Business Needs**

State the business problem or organizational problem around which your project focuses. This should be a real problem that has measurable performance gaps - in business/organization and human terms. State specifically how you expect the PCD activities to contribute to filling the performance gaps.

#### **F. Project Plan Outline**

Delineate how your project will proceed from its onset to its conclusion. How will you measure progress (i.e., what are the interim deliverables and what are the review and approval processes)? When will you engage each element or subelement of the PCD process? How? If yours is a team project, what are the roles and responsibilities of each team member with respect to the project tasks and outcomes?

#### **G. Presentation Proposal**

How will you present your results? Who will do what (if a team)? What would be the suggested evaluation criteria to fairly assess your expertise?

### **Student Evaluation of the Course**

Toward the end of the course, Brenda Mueller will distribute an evaluation for the course. It will be proctored by a student.