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## 2004 EPE Bul IPI: Courseware Structure for Online Electrical Engineering Courses

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## COURSEWARE STRUCTURE FOR ONLINE ELECTRICAL ENGINEERING COURSES

BY

\*A. ADĂSCĂLIȚEI, \*\*C. DUMITRESCU and \*R. A. BRAȘOVEANU

**Abstract.** This paper presents courseware structure for online electrical engineering courses. This paper presents how to teach using the web, components of a course website, and the structure of the instructional process. These learning environments will improve student performance in engineering courses offered at Technical University Iași and Maritime University Constanța, Romania.

**Keywords:** Course Website Components, Web-based Teaching, Interactive Learning, Engineering Education.

### 1. Using the Web to Teach

The following definitions may help clarify the use of the Web for teaching. *Web-supported course*– Any face-to-face course that uses a course website, including: *Web-enhanced course*– A face-to-face course that includes a course website as a supplemental resource but does not require students to access materials or participate in activities via the course website; *Web-required course*– A face-to-face course that requires students to access materials and/or participate in activities via the course website; *Web-exchange course*– A face-to-face course that requires students to satisfy a specified number of contact hours via the course website

### 2. Planning the Components of a Web-supported Course Website

In order to enhance your face-to-face course by using the Web, there are two major uses: to make course content available to students and for online activities.

As in all courses, the quality of the instructional planning maximizes the learning for all students. In the Web environment, the components of a course website, which enhance teaching and learning and save time by being posted for students to access online, are especially valuable.

At the most basic level, instructors can post content and announcements at a course website. However, course planning usually begins with a course map – an outline of topics, weeks, objectives, activities, assignments, and assessments to show alignment of course components with each other in a weekly calendar

format. Planning also includes the purposeful design of activities to create a student learning community – supportive student groups in a course that develop with the students’ active access, pursuit, generation, and evaluation of information and learning in their discussion, chats, and e-mail communications.

### 3. Course Website Components

Course content is aligned with curriculum standards, objectives, assignments, assessments.

- *Course Syllabus.* The course contains a syllabus and supporting documents. The course includes items such as: course title; correct course semester; course description; course contact and credit hours; course prerequisites; course objectives; course assignment; course test schedule; required course materials; grading criteria; testing information; library resources; any on-campus requirements; work ethics information.

- *Staff Information.* The course contains staff information: instructor name; appropriate picture (optional); e-mail address; telephone and fax numbers; office hours

- *Student Information.* The course contains a student orientation and explains: how to get started; technical equipment requirements; technology competency requirements; browser recommendations; drop deadlines; format for assignments; requirements for chat room and/or e-mail; instructor response time; troubleshooting advice.

- *Course Calendar* – Due dates for readings, activities, assignments, quizzes, and exams

- *Assignments and Activities*, including directions and due dates. Course assignments

- are designed: to be interactive and requires students to interact with: each other and their instructor via e-mail, chat room, and/or discussion board; and to address a variety of learning styles through: written assignments; reading activities; discussions; simulations; case studies; and

- give students the opportunity to engage in critical and abstract thinking. Students are challenged to complete one or more of the following: solve problems; apply concepts in context; complete practical applications.

- *Course Documents* – Additional documents for reference or study or answers to frequently asked questions. Course document section includes a variety of learning media. Includes course content delivered through media such as: PowerPoint presentations; Short lectures in audio or video format; links to resources on websites; CD-ROM materials.

- *Lectures* – Notes and audio to highlight key concepts of course content  
Caution: For face-to-face classes with web-enhancement, faculty may wish to include required assignments, even if minor, for extra points to be turned in at

the scheduled class times or other incentives to maintain class attendance.

- *Communication Tools* – Areas for sending and receiving e-mail, participating in group or class discussions about particular issues, keeping electronic journals, completing “dry or simulated lab” exercises to prepare for “wet or real lab” experiences, or engaging in chat sessions. Many students are able and willing to participate more fully online than in face-to-face classes, especially when discussion assignments require each student to post a comment or the results of a brief assignment and to reply to a comment or question from other students.

- *Student Tools* – Areas for using a digital drop box to send and receive completed papers, homepages, or personal profiles of students, and access to grades.

- *Assessment Tools*– Areas for quizzes, exams, and surveys; online grade books; and assessment statistics. Course assignments are designed to be interactive and requires students to interact with: each other and their instructor via e-mail, chat room, and/or discussion board. The course structure includes adequate and appropriate methods and procedures to measure student mastery of course competencies. Assessments include a variety of the following: online or proctored testing; standardized tests; projects; demonstrations; presentations; case studies.

#### **4. Instructional Process**

The instructor interacts routinely with students. Initiates contact on the first day of class; daily through drop-add period; at least three times per week thereafter. The instructor monitors student activity adequately: contacts students who are having difficulties; checks course statistics to note frequency of student login. The instructor provides adequate student support, responds to student e-mails promptly, provides substantive and timely responses to assignments and tests. The instructor is accessible to students, maintains office hours at different times of the day to be accessible to working students, posts lack of availability when sick or travelling, informs students of weekend e-mail policy.

The student stays in contact with instructor, demonstrates class attendance by various means as directed by online instructor which may include e-mails, submitting work, chat rooms, and/or discussion boards. The instructor incorporates work ethics into course instruction, advises students of the work ethics topic of the week and utilizes activities related to the topic. Instructor ensures student participation by requiring e-mail or other online method of confirmation such as discussion board. The instructor ensures that the course is qualitatively consistent with same traditional course, strives toward consistency between traditional and online courses.

\*“Gh. Asachi” Technical University, Faculty of Electrical Engineering and

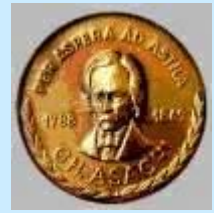
*Department for Teacher Education (DPPD), Iași, Romania;*  
*\*\*Maritime University, Faculty of Naval Electromechanical Engineering,*  
*Constanța, Romania.*

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2. Adăscăliței A., *Contributions to the improvement of the multimedia systems in the didactic process of knowledge transfer and assimilation in the subject domain of Fundamentals of Electrical Engineering (Electromagnetic Compatibility) (in Romanian)*. Universitatea Tehnică „Gh. Asachi” Iași, Ianuarie 2001.

### *STRUCTURA UNUI CURS ONLINE PENTRU INGINERI ELECTRICIENI* *(Rezumat)*

*Acest articol prezintă structura tipică a cursurilor online pentru ingineri. Sunt prezentate metodele de predare pe web, componentele unui curs online, și modul de desfășurare a procesului de instruire. Aceste medii de instruire interactivă vor contribui la creșterea calității procesului de instruire a studenților din cadrul Universității Tehnice "Gh. Asachi" Iași și a Universității Maritime Constanța, Romania.*



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A. ADĂSCĂLIȚEI, C. DUMITRESCU and \*R. A. BRAȘOVEANU

3-rd international conference on electrical and power engineering  
EPE 2004, October 7-8, 2004, IASI – ROMANIA

# Abstract.



- **This paper presents courseware structure for online electrical engineering courses. This paper presents how to teach using the web, components of a course website, and the structure of the instructional process. These learning environments will improve student performance in engineering courses offered at Technical University Iași and Maritime University Constanța, Romania.**
- **Keywords: Course Website Components, Web-based Teaching, Interactive Learning, Engineering Education.**



# Using the Web to Teach



- **The use of the Web for teaching. *Web-supported course*— Any face-to-face course that uses a course website, including:**
- ***Web-enhanced course*— A face-to-face course that includes a course website as a supplemental resource but does not require students to access materials or participate in activities via the course website;**
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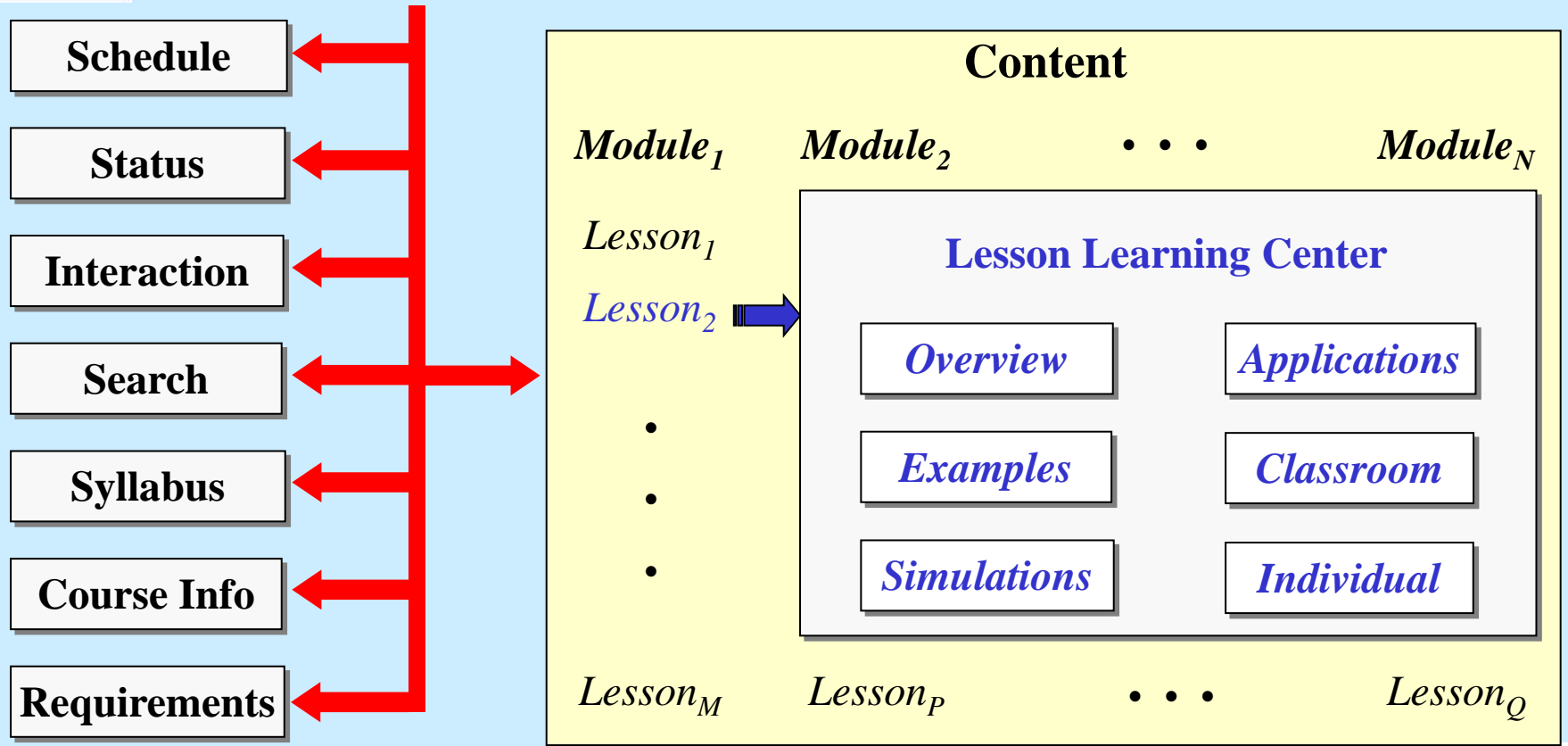




# WEBSITE ORGANIZATION



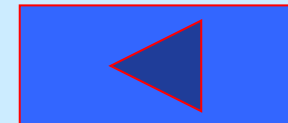
## Course News



# Components of a Web-supported Course Website *Course Syllabus*.



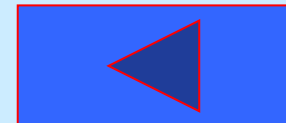
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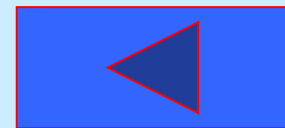
*Staff Information.* The course contains staff information: instructor name; appropriate picture (optional); e-mail address; telephone and fax numbers; office hours



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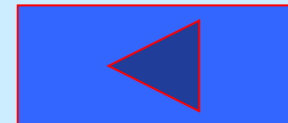
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# Components of a Web-supported Course Website



- *Course Calendar* – Due dates for readings, activities, assignments, quizzes, and exams

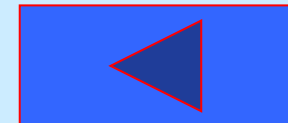


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***Assignments and Activities***, including directions and due dates. Course assignments

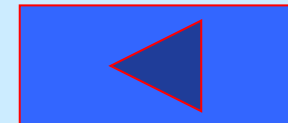
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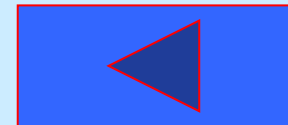
- **Assessment Tools**– Areas for quizzes, exams, and surveys; online grade books; and assessment statistics. Course assignments are designed to be interactive and requires students to interact with: each other and their instructor via e-mail, chat room, and/or discussion board. The course structure includes adequate and appropriate methods and procedures to measure student mastery of course competencies. Assessments include a variety of the following: online or proctored testing; standardized tests; projects; demonstrations; presentations; case studies.



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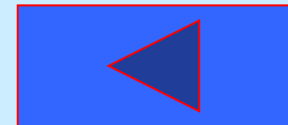




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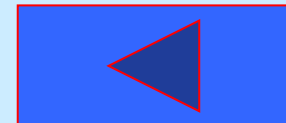
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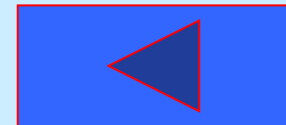
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# Conclusions: Instructional Process



**Instructor interacts routinely with students. Initiates contact on the: first day of class; daily through drop-add period; at least three times per week thereafter. The instructor monitors student activity adequately: contacts students who are having difficulties; checks course statistics to note frequency of student login. The instructor provides adequate student support, responds to student e-mails promptly, provides substantive and timely responses to assignments and tests. The instructor is accessible to students, maintains office hours at different times of the day to be accessible to working students, posts lack of availability when sick or travelling, informs students of weekend e-mail policy.**



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