

# *Technology Education Program*

Rhode Island College  
Feinstein School of Education and Human Development  
Department of Educational Studies

*Spring 2009*

## **Course Syllabus**

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### **I COURSE TITLE: TECH 327-01 Construction Technology (3 Credits)**

**CLASS HOURS: Tuesday – Thursday 7:00 – 8:50**

*Communication Devices:* Out of courtesy for other students and the instructor, please silence and put out of sight all communication devices (phones and pagers, etc.) during class time so that we may learn and work together without interruption.

### **II PREREQUISITES: TECH 200, TECH 202, TECH 205**

### **III CATALOG DESCRIPTION:** This is an introduction to skills, knowledge, environments, and people of the construction industry. A laboratory component is required for students to plan, design, and build a structure.

### **IV TEXT:** Willis H. Wagner and Howard Bud Smith (2008): *Modern Carpentry*. Tinley Park, IL.: Goodheart Willcox Co. **ISBN:** 978-1-59070-648-0

A good resource is: GoodHeart Wilcox Building Trades instructional DVD's, Framing, Roofing, Siding. Also Refer to *Architectural Design*. (G.W. 1996)

A portfolio is required for handouts and additional work sheets.

### **V CLASS ATTENDANCE POLICY:**

Students should attend all class meetings and are responsible for all class work and assignments. At the beginning of each semester, instructors will distribute a syllabus, which may include attendance and/or class participation as a component of the course grade. Students who are absent must take the initiative to determine from the instructor what course work can be made up. Students who are absent on the day of an examination should make every effort to call the instructor (or department office) before the scheduled test.

....All students who incur or anticipate an extended absence (five or more consecutive days or more) should call the Office of Student Life at 456 - 8061, so that notice (not an excuse) may be sent to instructors. (p. 38 RIC Student Handbook)

- The policy of this class is that after the third absence the final grade will be dropped one letter grade.
- Six absences from this class will result in a final grade of (F).
- Absences are considered excused **only** when official documentation of the nature of the absence is supplied by the student. (i.e. attending physician's notice, court documents, obituaries, field trip memo)
- All exams and quizzes will be taken at the scheduled time. . Make-up exams and quizzes may not be provided unless proper documentation is presented..

### **VI COURSE RATIONALE:**

The Construction curriculum includes the technical skills of on-site framing, carpentry, finish carpentry, cabinetmaking, drywall hanging and finishing, plastic laminating, residential plumbing, painting, floor finishing as well as other tasks required to build a house.

## VII LABORATORY EXPERIENCES AND HOURS:

Although lecture is the main method of instruction for this class, there will be a number of activities, which will require a few hours of outside work. Open lab times will be posted. The regularly scheduled class period will be reserved for lectures, demonstrations and other activities.

## VIII Course Objectives:

Upon satisfactorily completing this course, the student will be able to:

1. Define the term "Construction systems".
2. Identify several construction Techniques
3. Apply major organizational operations to design, production, operation, control, and analysis functions.
4. Organize and operate a model construction system.
5. Analyze the duties of production and management areas in a construction enterprise.
6. Describe the secondary construction processes.
7. Identify and use a variety of materials to produce a structure
8. Identify major components of structures.

## IX TENTATIVE TOPIC OUTLINE

### Preparing to Build

1. Building Materials
2. The Carpenter's Workplace
3. Plans, Specifications, and Codes
4. Hand Tools
5. Power Tools
6. Building Layout

### Footings, Foundations, and Framing

7. Footings and Foundations
8. Floor Framing
9. Wall and Ceiling Framing
10. Roof Framing
11. Framing with Steel

### Closing In

12. Roofing Materials and Methods
13. Windows and Exterior Doors
14. Exterior Wall Finish

### Finishing

15. Thermal and Sound Insulation
16. Interior Wall and Ceiling Finish
17. Finish Flooring
18. Stair Construction
19. Doors and Interior Trim
20. Cabinetry

### Special Construction

22. Chimneys and Fireplaces
23. Post-and-Beam Construction
24. Systems-Built Housing
25. Passive Solar Construction
26. Remodeling, Renovating, and Repairing
27. Building Decks and Porches

### Mechanical Systems

28. Electrical Wiring
29. Plumbing Systems
30. Heating, Ventilation, and Air Conditioning

### Scaffolds and Careers

31. Scaffolds and Ladders
32. Carpentry—A Career Path
21. Painting, Finishing, and Decorating

## X METHODS OF INSTRUCTION:

Instructional strategies to reinforce content will include:

- Lecture
- Individual reports
- Individual projects
- Laboratory demonstrations
- Group interaction /Seminar
- Discussion / Question and Answer

## XI EVALUATION:

### Technological Enterprise Final Grades

<u>Design Sketch Portfolio</u>	10%
<u>Concrete Project</u>	10%
<u>Green Construction Presentation</u>	10%
<u>Activity (group)</u>	20%
<u>Home Model</u>	30%
<u>Quiz</u>	10%
<u>Final Exam</u>	10%
	<b>100%</b>

Final course grades are assigned on the basis of total points earned from exams, projects and attendance (class participation). All points earned during the semester will be totaled and a percentage will be determined from the points earned. The final grade will be determined from the following percentages:

#### Grade Scale:

A	100% - 96%	C+	79% - 76%
A-	95% - 91%	C	75% - 71%
B +	90% - 86%	C-	70%
B	85% - 81%	D	69% - 60%
B-	80	F	59% or less

#### BEHAVIOR WHICH WILL IMPACT FINAL GRADES:

- ALL WORK MUST BE ORIGINAL. USE OF MATERIALS FROM OTHER CLASSES IS STRICTLY PROHIBITED.
- ABUSE OF EQUIPMENT WILL FORCE THE IMMEDIATE REMOVAL OF THE OFFENDING STUDENT. THE ATTENDANCE POLICY FOR THIS CLASS WILL BE STRICTLY ENFORCED. DEDUCTIONS WILL BE MADE ACCORDINGLY.

### XIII *Relationship to Feinstein School and Professional Development*

This course is designed to introduce students to Manufacturing systems. The study of Manufacturing systems and technology, innovation, invention, and inventors will create awareness of the significant efforts and impacts technology has had in shaping society. This class taken in conjunction with the other core technology education classes provides an overview of the development, societal impacts, and future implications of Manufacturing systems. Coursework is designed to address human abilities to integrate resources to solve social-technical problems. An understanding of present events can be developed through the study of past movements and inventors from other cultures.

Students will reflect on, analyze, select, and implement new and contemporary methods, activities, and curricula related to the use of manufacturing processes and systems. Students will be introduced to technological principles and cross-curricular opportunities to solve problems related to innovation and invention in the scientific and technological realms. Students will be prepared to teach manufacturing processes and systems to others, including the historical development of technology using strategies appropriate for pre-service teachers. Participants in this course shall benefit from a consistent best practice scenarios and the intentional use of models which overtly identify global attitudes and diverse populations in the technology education classroom. This technology education course is grounded in FSHEd's Conceptual Framework and the PAR Model advocated by Rhode Island College.

Standards Achieved:

#### *Standards for Technological Literacy*

##### **The Nature of Technology**

Standard 1: Students will develop an understanding of the characteristics and scope of technology.

Standard 2: Students will develop an understanding of the core concepts of technology.

Standard 3: Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.

##### **Technology and Society**

Standard 4: Students will develop an understanding of the cultural, social, economic, and political effects of technology.

Standard 6: Students will develop an understanding of the role of society in the development and use of technology.

Standard 7: Students will develop an understanding of the influence of technology on history.

### **Design**

Standard 8: Students will develop an understanding of the attributes of design.

Standard 9: Students will develop an understanding of engineering design.

### **Abilities for a Technological World**

Standard 11: Students will develop abilities to apply the design process.

Standard 12: Students will develop abilities to use and maintain technological products and systems.

Standard 13: Students will develop abilities to assess the impact of products and systems.

### **The Designed World**

Standard 19: Students will develop an understanding of and be able to select and use manufacturing technologies.

### ***RIBTS:***

**STANDARD 1:** Teachers create learning experience using a broad base of general knowledge that reflects an understanding of the nature of the world in which we live.

**STANDARD 2:** Teachers create learning experiences that reflect an understanding of the central concepts, structures, and tools of inquiry of the disciplines they teach.

**STANDARD 4:** Teachers create instructional opportunities that reflect a respect for the diversity of learners and an understanding of how students differ.

**STANDARD 5:** Teachers create instructional opportunities to encourage students' development of critical thinking, problem solving, and performance skills.

**STANDARD 8:** Teachers use effective communication as the vehicle through which students explore, conjecture, discuss, and investigate new ideas.

<p><b>TECH 328</b>  <b>Manufacturing Systems</b>  <b>Tentative Schedule</b>  <b>Tuesday &amp; Thursday 7:00 – 9:00</b></p>
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Date	Topic	Readings/Handouts
<i>January</i>		
20-22	Intro to Construction Literacy Standards Beginning Teachers Standards Construction & Tech Ed.	Syllabus STL/ITEA RIBTS pg. 17-59
27 -29	Materials, Prints, and Hand Tools	Handout Chptr. 18 349-376
<i>February</i>		
3 - 5	Preparing to Build Topography, Codes, Zoning, Permits	pp. 73 - 149
10 – 12	Footing and Wall Framing	pp. 169 - 253
17-19	Roof Framing, Steel Framing	pp. 253 - 329
24-26	Roofing, Windows, and Doors	pp. 343 - 435
<i>March</i>		
3 - 5	Quiz 1 / Green Presentation Assignment	pp. 485 - 597
10- 12	<i>Spring Recess</i>	
17 - 19	Presentations / No Class 19th	pp. 597 - 677
24- 26	Special Construction <i>Quiz 2</i>	pp. 705 - 777
31 / April 2	Special Construction	pp. 777 - 803
7 - 9	Electrical Systems	pp. 821 - 843
14 - 16	Mechanical Systems Quiz 3	pp. 843 - 871
21 - 23	Careers Scaffolds Models Due	pp. 821- 871
28 - 30	Make up Week / Lecture	<i>TBA</i>
May 5 <sup>th</sup>	Final Exam	During Scheduled class time