Southeast Missouri State University  
School of University Studies  

Department(s): Industrial and Engineering Technology  
Course No. IU321  
Title of Course: Creative Problem Solving  
Revision: ____ New: X  
Course Proposer: Wendy Cooper  
Date: February 20, 2014  

Category(ies): Behavioral Systems; Written Expression; Oral Expression (this course will be adapted to online as well)  

I. Descriptions and Credit Hours of Course:  

Course enhances creative thinking and problem solving to achieve creative solutions. Includes exposure to idea generation and problem solving processes. (3)  

II. Prerequisite(s): Junior/Senior-Level Status  

III. Purposes or Objectives of the Course:  

1. Identify and examine key concepts related to creative problem solving (CPS).  
2. Assess personal growth and comprehension of key principles regarding creativity, creative thinking, and creative problem solving through written inquiry entries and/or discussion forums.  
3. Analyze and assess the effects of intrinsic and extrinsic environmental motivators and the impact on creative potential.  
4. Analyze the impact play and humor has on creative thinking and innovation.  
5. Examine new ways to think about problems and change by identifying and applying creative problem solving models and divergent thinking techniques to individual and/or team-based challenges.  
6. Evaluate and discuss findings of research related to creativity in the workplace.  
7. Assess the strengths and weaknesses of team-based problem solving in addition to the impact of interpersonal communication when creative solutions are required.  
8. Research and assess the creative characteristics and processes of various innovative people and companies.  

IV. Student Learning Outcomes:  
During the semester, students will learn the following information as it relates to creativity, creative thinking, and problem solving:
1. Students will be able to identify and examine key concepts related to creative problem solving (CPS).

2. Students will be able to identify and apply creative problem solving models and divergent thinking techniques to individual and/or team-based challenges.

3. Students will be able to evaluate and discuss findings of research related to creativity in the workplace.

V. Expectations of Students:
A. Participation in problem-solving activities while showing regard for others

B. Students are expected to conduct necessary research to fulfill classroom assignments using online resources, the textbook, handouts and the library.

VI. Course Outline:

<table>
<thead>
<tr>
<th>Unit 1: Communication &amp; Creativity</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Learning the fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>b. Assessing one’s personality using typology indicators</td>
<td>3</td>
</tr>
<tr>
<td>c. Evaluating Multiple Intelligences Theory</td>
<td>3</td>
</tr>
<tr>
<td>d. Effective teamwork practices</td>
<td>3</td>
</tr>
<tr>
<td>e. Building leadership skills</td>
<td>4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit 2: Creative Techniques</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Diverging processes: rules for session, definition</td>
<td>3</td>
</tr>
<tr>
<td>b. Converging processes: rules for session, definition</td>
<td>3</td>
</tr>
<tr>
<td>c. Understanding corporate creativity</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit 3: Formal CPS Approaches</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Applying creativity to complex problems</td>
<td>4</td>
</tr>
<tr>
<td>b. Identifying, developing, implementing, and evaluating alternative problem-solving strategies for a particular context</td>
<td>4</td>
</tr>
<tr>
<td>c. Assessing one’s own problem-solving process</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit 4: Applying CPS to Innovative Practices</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Understanding innovators/inventions throughout history</td>
<td>4</td>
</tr>
<tr>
<td>b. Using system models with creativity</td>
<td>4</td>
</tr>
</tbody>
</table>

VII. Textbook(s) and Course Materials:

VIII. Basis of Student Evaluation:
**Skills Practices:** Each student will be asked to complete skill practices using various tools and techniques. These skill practices are designed to help the student value, understand, practice with feedback, and master various tools and techniques necessary in understanding creativity.

Skill practices may include minimum of five of the following activities:

- Walt Disney CORE Worksheet
- Ind. 4 step cps process or Motivational Display
- Fishbone Diagram
- Desert Survival Simulation Activity
- Egg-Drop Activity
- Multiple Intelligences Activity
- Storyboarding
- Keirsey Temperament Sorter
- Reading/Writing Assignments from 101 CPS Techniques text

1. **Creative Thinking Presentation (60 pts.)** For this presentation, students will be in groups of two or three. Each group will choose a creative thinking technique to teach and demonstrate to the class, and then lead the class in participating in that technique.

2. **Innovation Project (140 pts.)** This is the final project for the course and will take about the last month of the semester to complete. Students will be in groups of 4 or 5 and will design an innovative solution to a specific challenge by using a creative problem solving model and creative thinking techniques. Each group will present their concept to the class, complete with a mock-up of their solution.

3. **Quiz (10 pts. total):** During the semester, we will have one quiz, which will assess knowledge of the course syllabus and expectations of the class.

4. **Midterm/Final Examination (250 pts. total):** The midterm and final examination will test your comprehension of all materials covered in lecture, text readings and during skill practices up to the time of the test. Various styles of questions will be used to assess student understanding, possibly including: multiple choice, true/false, fill-in-the-blank, short answer, and matching questions.

**Student Assessment/Instructor Feedback and Turn-around Time:** Because this course is designed to help students improve their knowledge, skill, and personal characteristics, all three will be used in evaluation and grading.

The student assessments will determine the degree to which a student is accomplishing the course objectives. Written examinations and a quiz, creative homework activities, team and individual problem solving sessions, and in-class activities will be used to assess each student’s progress.

The instructor will observe and assess the degree to which the objectives have been met, including the student’s individual preparation and participation during all activities, along
with written and/or verbal evaluation from the student’s peers during group activities. All grades will be entered online with comments from the instructor, as well as the rubric details.

Scoring rubrics and guidelines for grading will be given out prior to all assignments at the beginning of the semester. Grading standards are as follows:

<table>
<thead>
<tr>
<th>Activity Weight</th>
<th>Point Value</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tests &amp; Quiz</td>
<td>260</td>
<td>50%</td>
</tr>
<tr>
<td>Skill Practices</td>
<td>*60</td>
<td>9%</td>
</tr>
<tr>
<td>(Listing of activities in skill practices description area of syllabus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Projects/Presentations</td>
<td>200</td>
<td>41%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>520</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

*Point value is estimated and may vary depending on class progression.*
This course introduces students to a broad approach in studying key aspects of and formal techniques in creative problem solving, which are applicable to any field of endeavor or interest. It is designed to enhance an individual’s creative thinking and problem solving skills in which the circumstances require unique and creative solutions. Students will be exposed to individual and team-based idea generation methods, along with a variety of formal problem solving processes, which can be applied immediately to personal or professional challenges in the student’s life.

IV. US 3
Purposes or Objectives of the Course:

1. Identify and examine key concepts related to creative problem solving (CPS). US Objective 2
2. Assess personal growth and comprehension of key principles regarding creativity, creative thinking, and creative problem solving through written inquiry entries and/or discussion forums. US Objective 2
3. Analyze and assess the effects of intrinsic and extrinsic environmental motivators and the impact on creative potential. US Objective 2
4. Analyze the impact play and humor has on creative thinking and innovation.
5. Examine new ways to think about problems and change by identifying and applying creative problem solving models and divergent thinking techniques to individual and/or team-based challenges. US Objectives 1 and 2
6. Evaluate and discuss findings of research related to creativity in the workplace. US Objectives 1, 3 an 6
7. Assess the strengths and weaknesses of team-based problem solving in addition to the impact of interpersonal communication when creative solutions are required. US Objective 6
8. Research and assess the creative characteristics and processes of various innovative people and companies. US Objectives 2 and 6

US 4

Student Learning Outcomes:
During the semester, students will learn the following information as it relates to creativity, creative thinking, and problem solving:

1. Identify and examine key concepts related to creative problem solving (CPS). US Objective 2
2. Identify and apply creative problem solving models and divergent thinking techniques to individual and/or team-based challenges. **US Objective 6**

3. Evaluate and discuss findings of research related to creativity in the workplace. **US Objective 3**

**US 5: Course Outline**

**Unit 1: Communication & Creativity**
- Objectives 1 and 3
  - a. Learning the fundamentals
  - b. Assessing one’s personality using typology indicators
  - c. Evaluating Multiple Intelligences Theory
  - d. Effective teamwork practices

**Unit 2: Creative Techniques**
- **US Objectives 1 and 2**
  - a. Diverging processes: rules for session, definition
  - b. Converging processes: rules for session, definition
  - c. Understanding corporate creativity

**Unit 3: Formal CPS Approaches**
- **US Objectives 1 and 2**
  - a. Applying creativity to complex problems
  - b. Identifying, developing, implementing, and evaluating alternative problem-solving strategies for a particular context
  - c. Assessing one’s own problem-solving process

**Unit 4: Applying CPS to Innovative Practices**
- **US Objectives 2 and 6**
  - a. Understanding innovators/inventions throughout history
  - b. Using system models with creativity

**US 6. Justification for Inclusion in the University Studies Program:**

**US Objective 1: Demonstrate the ability to locate and gather information**
**Emphasis: Significant**

**A. Content:** Students will evaluate and discuss findings of research related to creativity in the workplace and will research and assess the creative characteristics and processes of various innovative people and companies.

**B. Teaching Strategies:** Information will be distributed via Powerpoint presentations and readings
C. Student Assignments:
• Study Questions will be assigned that address material covered in lectures;
• Creative Thinking Presentation
• Research will also contribute to the Final Innovation Project

D. Student Evaluation: Because this course is designed to help students improve their knowledge, skill, and personal characteristics, all three will be used in evaluation and grading. Written examinations and quizzes, creative homework activities, team and individual problem solving sessions, and in-class activities will be used to assess each student’s progress.

The instructor will observe and assess the degree to which the objectives have been met, including the student’s individual preparation and participation during all activities, along with written and/or verbal evaluation from the student’s peers during group activities. All grades will be entered into Moodle with comments from the instructor, as well as the rubric details. Scoring rubrics and guidelines for grading will be given out prior to all assignments at the beginning of the semester.

Objective 2: Demonstrate capabilities for critical thinking, reasoning and analyzing. Emphasis: Significant

A. Content: Students will identify and examine key concepts related to creative problem solving (CPS); assess personal growth and comprehension of key principles regarding creativity, creative thinking, and creative problem solving through written inquiry entries and/or discussion forums; analyze and assess the effects of intrinsic and extrinsic environmental motivators and the impact on creative potential; analyze the impact play and humor has on creative thinking and innovation; examine new ways to think about problems and change by identifying and applying creative problem solving models and divergent thinking techniques to individual and/or team-based challenges; and assess the strengths and weaknesses of team-based problem solving in addition to the impact of interpersonal communication when creative solutions are required.

B. Teaching Strategies:
• Skills Practices: Each student will be asked to complete skill practices using various tools and techniques. These skill practices are designed to help the student value, understand, practice with feedback, and master various tools and techniques necessary in understanding creativity.

Skill practices may include the following activities*:
- Walt Disney CORE Worksheet
- Ind. 4 step cps process or Motivational Display
- Fishbone Diagram
- Desert Survival Simulation Activity
- Egg-Drop Activity
- Multiple Intelligences Activity
C. Student Assignments:

• **Innovation Project (140 pts.)** This is the final project for the course and will take about the last month of the semester to complete. Students will be in groups of 4 or 5 and will design an innovative solution to a specific challenge by using a creative problem solving model and creative thinking techniques. Each group will present their concept to the class, complete with a mock-up of their solution.

D. Student Evaluation: The instructor will observe and assess the degree to which the objectives have been met, including the student’s individual preparation and participation during all activities, along with written and/or verbal evaluation from the student’s peers during group activities. All grades will be entered into Moodle with comments from the instructor, as well as the rubric details. Scoring rubrics and guidelines for grading will be given out prior to all assignments at the beginning of the semester.

### Objective 3: Demonstrate effective communication skills.
**Emphasis: Significant**

A. **Content:** Students will valuate and discuss findings of research related to creativity in the workplace.

B. **Teaching Strategies:** Information will be distributed via Powerpoint presentations and readings

C. **Student Assignments:**

• **Creative Thinking Presentation (60 pts.)** For this presentation, students will be in groups of two or three. Each group will choose a creative thinking technique to teach and demonstrate to the class, and then lead the class in participating in that technique.

D. **Student Evaluation:** The instructor will observe and assess the degree to which the objectives have been met, including the student’s individual preparation and participation during all activities, along with written and/or verbal evaluation from the student’s peers during group activities. All grades will be entered into Moodle with comments from the instructor, as well as the rubric details. Scoring rubrics and guidelines for grading will be given out prior to all assignments at the beginning of the semester.

### Objective 4: Demonstrate an understanding of human experiences and the ability to
relate them to the present.
Emphasis: Not emphasized

Objective 5: Demonstrate an understanding of various cultures and their inter-relationships.
Emphasis: Not emphasized

Objective 6: Demonstrate the ability to integrate the breadth and diversity of knowledge and experience.
Emphasis: Significant

A. Content: Students will examine new ways to think about problems and change by identifying and applying creative problem solving models and divergent thinking techniques to individual and/or team-based challenges; and assess the strengths and weaknesses of team-based problem solving in addition to the impact of interpersonal communication when creative solutions are required.

B. Teaching Strategies:

• Information will be distributed via Powerpoint presentations and readings

• Skills Practices: Each student will be asked to complete skill practices using various tools and techniques. These skill practices are designed to help the student value, understand, practice with feedback, and master various tools and techniques necessary in understanding creativity.

C. Student Assignments:

1. Creative Thinking Presentation (60 pts.) For this presentation, students will be in groups of two or three. Each group will choose a creative thinking technique to teach and demonstrate to the class, and then lead the class in participating in that technique.

Innovation Project (140 pts.) This is the final project for the course and will take about the last month of the semester to complete. Students will be in groups of 4 or 5 and will design an innovative solution to a specific challenge by using a creative problem solving model and creative thinking techniques. Each group will present their concept to the class, complete with a mock-up of their solution.

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D. Student Evaluation:

**Quiz (10 pts. total):** During the semester, we will have 1 quiz, which will assess knowledge of the course syllabus and expectations of the class.

**Midterm/Final Examination (250 pts. total):** The midterm and final examination will test your comprehension of all materials covered in lecture, text readings and during skill practices up to the time of the test. Various styles of questions will be used to assess student understanding, possibly including: multiple choice, true/false, fill-in-the-blank, short answer, and matching questions.

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**Objective 7: Demonstrate the ability to make informed, intelligent value decisions.**
**Emphasis: Not emphasized**

**Objective 8: Demonstrate the ability to make informed, sensitive aesthetic responses.**
**Emphasis: Not emphasized**

**US 7. Background:**
Instructor should be familiar with The Creative Process and Creative Problem Solving as written in the accompanying textbook for the course. Instructor should work to attain certification through the Creative Problem Solving Institute and be able to administer Myers-Briggs personality typing tests.

**US 8. Class Size:** 20
Objective 9: Demonstrate the ability to function responsibly in one's natural, social and political environment.
Emphasis requires that students demonstrate an understanding of their responsibilities as members of society. This should include critical discussion and analysis of global issues, based on written authorities and standards relevant to the theme of the course.
Approved by US Council 11/26/2012