INTRODUCTION

Engineers, social scientists, and managers frequently bring people and technology together to address complex problematic situations in an equitable way that benefits people and the environment. Multiple systems concepts and methods have been developed to address these situations, and typical courses in systems focus on a relatively small portion of the rich assortment of available approaches to addressing systems problems. This course introduces students to multiple systems concepts and methods via readings and class lecture. The students then apply these concepts and methods on team-based projects. The course will emphasize critical thinking about how the concepts and methods are applicable to the problematic situations of the projects and how well the project teams were able to perform the required activities.

This document contains basic information about the SYS 530 class, including contact information for the instructor. The distribution of reading material, project assignments, etc. uses Purdue's Blackboard site. Students must register for SYS 530 to access the class page on Blackboard.

All material needed for class should be available; if you find this is not the case, please e-mail the instructor. Any information given in class will supersede information given in this document.

Meeting Times and Location
Tuesday, Thursday 1:30 – 2:45 pm
WANG 2555

Instructor
Dr. C. Robert Kenley
Associate Professor of Engineering Practice, School of Industrial Engineering
Office: GRIS 370 Phone: + 1 765 494 5160 E-mail: kenley@purdue.edu
Web Page: http://web.ics.purdue.edu/~ckenley/
Webex Conferencing: https://purdue.webex.com/meet/ckenley
Office Hours: You have two options to request a meeting with Professor Kenley.

1. For a more seamless meeting request interaction, create an Exchange meeting request by accessing your purdue.edu account via a browser at https://outlook.office365.com or via the Outlook desktop application, which has Meeting Planning and Scheduling Assistant capabilities
2. Check the calendar link at Professor Kenley's web site, type up and send an e-mail that suggests a couple of times to meet, and wait for an e-mail response from Professor Kenley

Teaching Assistant
Srinivasa Rao Sharma
Master's Student, Industrial Engineering
Office: Grissom At-Large Phone: +1 765 775 9409 E-mail: sharm370@purdue.edu
Office hours: Please contact via e-mail to ask a question or to set up a phone or Webex appointment at https://purdue-student.webex.com/join/sharm370

SYLLABUS

Course Outcomes

There are five key learning outcomes for this course:

1. Learning about group project team formation, operation, and evaluation
2. Learning and applying a collection of functionalist systems methods in a team environment
3. Learning and applying an interpretive systems method in a team environment
4. Learning and applying critical systems heuristics and soft systems methodology in a team environment
5. Developing written and oral communication products to present results

Course Goals

This course has two major goals:

1. Introduce multiple systems concepts and methods via readings, class lecture, reflective writing assignments, and selected projects
2. Emphasize critical thinking about the concepts and methods
    a. How they relate to each other
    b. How they might be applied individually and in combination

Prerequisites

Graduate students and undergraduate students with Upper Division standing from all majors are welcome.

Course Topics

Table 1 shows the nominal course topics that cover the system concepts and methods. This is subject to change.

Table 1. Course Topics

High-Level Topics	Detailed Topics	Modules	Dates
1. Introduction	1.1. Course Introduction	1	14-Jan
	1.2. Systems Thinking		
2. Groups	2.1. General Group Methods	2	16-Jan
	2.2. Group Projects in Online Learning		
	2.3. Project Team Formation		
	2.4. Project Team Peer Evaluation		
3. Holism and Systems Practice	3.1. Applied Systems Thinking	3	21-Jan
	3.2. The Systems Language		
	3.3. System Modeling Concepts		
4. Functionalist Methods	4.1. Concept Generation	4, 5	23-Jan, 28-Jan
	4.2. Concept Selection	5	28-Jan
5. Interpretive Systems	5.1. The Viable System Model Applied to For-Profit and Not-For-Profit Organizations	6	18-Feb
	5.2. The Viable System Model Applied to Education and Healthcare	7	20-Feb
6. Soft Systems	6.1. Soft Systems Methodology	8	3-Mar
	6.2. Critical Systems Heuristics	9	5-Mar

There is a Microsoft Excel Calendar File posted to Blackboard that serves as a master schedule for all class sessions and assignments that is updated regularly.

Policies

Academic Integrity

Academic integrity is one of the highest values that Purdue University holds.
Individuals are encouraged to alert university officials to potential breaches of this value by either emailing integrity@purdue.edu or by calling 765-494-8778. While information may be submitted anonymously, the more information that is submitted provides the greatest opportunity for the university to investigate the concern.

Purdue's Honor Pledge was developed by students to advance a supportive environment that promotes academic integrity and excellence. It is intended that this pledge inspires Boilermakers of all generations to stay "on track" to themselves and their University.

As a Boilermaker pursuing academic excellence,
I pledge to be honest and true in all that I do.
Accountable together – We are Purdue.

Assignments and Projects

The course format is that of a reading / lecture / projects. An Excel file that shows the reading assignments for the lectures is posted to Blackboard. Check Blackboard often, as the schedule and assignments will change as the semester progresses. Access to Blackboard is restricted to students currently enrolled in the course.

Team Exercises and Projects
Students will complete three team exercises and three team projects during the semester. These exercises and projects will provide students with the opportunities to practice applying some of the concepts and methods encountered during the semester. Exercises and project will require students to submit team reports, team briefings, and individual peer evaluations of team members. The project assignment descriptions will be available from Blackboard.

The project teams will be formed the second week of the semester and a team charter will be required that will lay out the norms for operating the team and an initial schedule for how the team will complete the three exercises and the three projects. It is advisable to do some of the activities toward completing the exercises and projects in parallel. ***Project teams have found that they need to meet at least twice per week to be successful.***

The first project will provide practice applying the functionalist systems methods to pre-defined, instructor-supplied problem situation of a single provider of a single-system, technology-based product or service that meets the needs of a segment of society in a manner that is equitable for the principal stakeholders.

The second and third projects are proposed by students who will seek out community partners to sponsor the projects, and they will be approved by the instructor. The second project will apply an interpretive systems approach to the situation of a community partner/sponsor who is part of a single large, complex organizational system that meets multiple needs of society in a manner that is equitable for the principal stakeholders. In the third project, the team will apply Soft Systems Methodology and Critical Systems Heuristics to a problematic situation identified jointly by the team and the community partner/sponsor based on the results of applying the interpretive systems approach and guidelines from the instructor. The situation should include multiple participants who have different needs that must be accommodated to meet a societal need in a manner that is equitable for the principal stakeholders.

Course Materials
The is no required book for this course. There will be readings from journal articles, online texts, and other sources. These readings can be accessed either as files posted on the Blackboard site or via the links provided.

Guidelines for Readings and Lectures
During each class period, the instructor will lecture on the assigned reading material. The timing of these readings appears in the Excel file on Blackboard. Students are expected to read the assigned material, review the questions on the readings and lecture, prepare any artifacts requested along with the questions, and otherwise prepare for lecture sessions BEFORE the class period.

Most of the lectures should focus on assisting the entire class to bring themselves to a level at which they can evaluate the topics. This evaluation may include how the topics relate to previous class lectures, how and where they fit into the universe of systems concepts and methods, how

the topics may improve systems thinking, and the practicality of the topics. Keep in mind that not everyone will share the same point of view.

After the lecture has concluded, students will have several days to complete a 10-question quiz, submit any requested artifacts, and write a short a reflection that describes an actual or proposed application of the techniques, ideas, or theories from the reading to a research topic or an application problem beyond what was presented in the readings.

Missed or Late Work

The instructor will not accept late work.

In extreme circumstances, the instructor might accept late work with an appropriate penalty to the score. These circumstances most likely would be those that lead to a student filing to receive a grade of Incomplete in the class. For late homework to be considered for grading, the student must provide the instructor a written request with justification as to why the circumstance is extreme.

Course Grades

Because this course will be a reading / lecture / project class, grades will be based on your ability to critically read and understand the readings, to write short summaries on the readings and topics covered, and to complete projects during the semester that make use of the topics and methods presented in the course.

There will be a numerical score for each assignment. The exercises and projects involve groups using the concepts and methods with no single correct answer, so the grading of the course will account for this. If students have a concern about a grade on their work, they should bring it to the attention of the teaching assistant or instructor. Requests for reconsideration / regrading must be made within one week of when the work is returned to students.

Computation of final course grades will use the following distribution of weights:

Assignment	Due Date	Weight	Prerequisite Modules	Team or Individual Score	Evaluators
CATME Team Maker Survey	21-Jan	2%	2	Individual	Instructors
Module 1 Quiz	21-Jan	1%	1	Individual	Instructors
Module 1 Reflection	21-Jan	1%	1	Individual	Instructors
Module 2 Quiz	21-Jan	1%	2	Individual	Instructors
Module 2 Artifacts and Reflection	21-Jan	2%	2	Individual	Instructors
Module 3 Quiz	28-Jan	1%	3	Individual	Instructors
Module 3 Artifacts and Reflection	28-Jan	2%	3	Individual	Instructors
Module 4 Quiz	28-Jan	1%	4	Individual	Instructors
Module 4 Artifacts and Reflection	28-Jan	2%	4	Individual	Instructors
Team Charter	30-Jan	5%	2	Team	Instructors
Team Exercise 1	4-Feb	2%	4	Team	Instructors
Module 5 Quiz	4-Feb	1%	5	Individual	Instructors
Module 5 Reflection	4-Feb	1%	5	Individual	Instructors
Concept Generation Report	11-Feb	6%	4, 5	Team	Instructors
Team Exercise 2	18-Feb	2%	5	Team	Instructors
Team Exercise 3	20-Feb	2%	5	Team	Instructors
Concept Selection Report	25-Feb	6%	5	Team	Instructors
Module 6 Quiz	27-Feb	1%	6	Individual	Instructors
Module 6 Artifacts and Reflection	27-Feb	2%	6	Individual	Instructors
Module 7 Quiz	27-Feb	1%	7	Individual	Instructors
Module 7 Reflection	27-Feb	1%	7	Individual	Instructors
Functionalist Peer Evaluation Inputs on Rest of Team	27-Feb	3%	4, 5, 2	Individual	Instructors
Functionalist Peer Evaluation Result	27-Feb	5%	4, 5, 2	Individual	Peers
Module 8 Quiz	10-Mar	1%	8	Individual	Instructors
Module 8 Artifacts and Reflection	10-Mar	2%	8	Individual	Instructors
Module 9 Quiz	10-Mar	1%	9	Individual	Instructors
Module 9 Artifacts and Reflection	10-Mar	2%	9	Individual	Instructors
Interpretive Systems Report	26-Mar	12%	6,7	Team	Instructors
Soft Systems Project Presentation	1-May	6%	8, 9	Team	Instructors
Soft Systems Project Report	4-May	12%	8, 9	Team	Instructors
Interpretive & Soft Systems Peer Evaluation Inputs	6-May	3%	6, 7, 8, 9, 2	Individual	Instructors
Interpretive & Soft Systems Peer Evaluation Result	6-May	10%	6, 7, 8, 9, 2	Individual	Peers
Total		100%			
Course Evaluation	3-May	1%		Individual	Instructors
Total with Course Eval		101%			

53% of the weighting is allocated to team results.
15% of the weighting is allocated to peer evaluation of individuals.
32% of the weighting is allocated to individual results.

Final letter grades for the course will use the table below. The total numerical score will be rounded to the nearest integer percent.

Numerical to letter conversion for final grades							
Score	Grade	Score	Grade	Score	Grade	Score	Grade
98 to 100%	A+	88 to 89%	B+	78 to 79%	C+	68 to 69%	D+
93 to 97%	A	83 to 87%	B	73 to 77%	C	63 to 67%	D
90 to 92%	A-	80 to 82%	B-	70 to 72%	C-	60 to 62%	D-

A total score of 59% or lower will always fail.

Attendance
The University Regulations Handbook reads: "Students are expected to be present for every meeting of the classes in which they are enrolled." If you must miss a class, you are responsible for the reading material, lecture, assignments, and/or announcements made.

Campus Emergencies
In the event of a major campus emergency, course requirements, deadlines, and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. Information about these changes will be available from the public website for this course, Blackboard, or via e-mail.