

# CE 281: SYSTEMS ANALYSIS OF RESOURCES DEVELOPMENT

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## In Workflow

1. CE Committee Chair (fogarty@csus.edu)
2. CE Chair (fellb@csus.edu)
3. ECS College Committee Chair (figgess@csus.edu)
4. ECS Dean (kevan@csus.edu)
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8. Dean of Graduate (cnewsome@skymail.csus.edu)
9. Catalog Editor (torsetj@csus.edu)
10. Registrar's Office (w lindsey@csus.edu)
11. PeopleSoft (PeopleSoft@csus.edu)

## Approval Path

1. Thu, 17 Sep 2020 21:41:43 GMT  
Julie Fogarty (fogarty): Approved for CE Committee Chair
2. Fri, 18 Sep 2020 15:27:44 GMT  
Benjamin Fell (fellb): Approved for CE Chair
3. Fri, 16 Oct 2020 17:56:43 GMT  
Gareth Figgess (figgess): Approved for ECS College Committee Chair
4. Mon, 19 Oct 2020 15:52:19 GMT  
Kevan Shafizadeh (kevan): Approved for ECS Dean

Date Submitted: Thu, 17 Sep 2020 21:35:00 GMT

## Viewing: CE 281 : Systems Analysis of Resources Development

Formerly known as: CE 250

Last edit: Thu, 17 Sep 2020 21:34:59 GMT

Changes proposed by: Julie Fogarty (218645519)

### Contact(s):

Name (First Last)	Email	Phone 999-999-9999
Ben Fell	fellb@csus.edu	916-278-8139

### Catalog Title:

Systems Analysis of Resources Development

### Class Schedule Title:

Systm Analy Resource Devl

### Academic Group: (College)

ECS - Engineering & Computer Science

### Academic Organization: (Department)

Civil Engineering

### Will this course be offered through the College of Continuing Education (CCE)?

No

### Catalog Year Effective:

Fall 2021 (2021/2022 Catalog)

### Subject Area: (prefix)

CE - Civil Engineering

### Catalog Number: (course number)

281

**Course ID: (For administrative use only.)**

107606

**Units:**

3

**In what term(s) will this course typically be offered?**

Spring term only - even years

**Does this course require a room for its final exam?**

Yes, final exam requires a room

**Does this course replace an existing experimental course?**

No

**This course complies with the credit hour policy:**

Yes

**Justification for course proposal:**

Graduate CE courses are being renumbered to clarify course topic areas to help students plan their path to graduation and be consistent with the undergraduate CE course numbers. Prerequisites numbers (not courses) are being changed to reflect course number changes that occurred in the undergraduate program in 2019-2020.

**Course Description: (Not to exceed 80 words and language should conform to catalog copy.)**

Investigation of resource planning using the 'systems approach'. Objectives of resource development; basic economic and technologic concepts, and economic factors affecting system design. Consideration of evaluation, institutional constraints, and uncertainty in water resources systems. Familiarization with modern computer techniques. Applications of concepts to air and land resources.

**Are one or more field trips required with this course?**

No

**Fee Course?**

No

**Is this course designated as Service Learning?**

No

**Does this course require safety training?**

No

**Does this course require personal protective equipment (PPE)?**

No

**Does this course have prerequisites?**

Yes

**Prerequisite:**

Graduate status or instructor permission.

**Prerequisites Enforced at Registration?**

Yes

**Does this course have corequisites?**

No

**Graded:**

Letter

**Approval required for enrollment?**

No Approval Required

**Course Component(s) and Classification(s):**

Seminar

**Seminar Classification**

CS#05 - Seminar (K-factor=1 WTU per unit)

**Seminar Units**

3

**Is this a paired course?**

No

**Is this course crosslisted?**

No

**Can this course be repeated for credit?**

No

**Can the course be taken for credit more than once during the same term?**

No

**Description of the Expected Learning Outcomes: Describe outcomes using the following format: 'Students will be able to: 1), 2), etc.'**

- 1) Analyze water resources, environmental and transportation problems using a system approach;
- 2) Formulate resource allocation problems using economic methodologies and factors;
- 3) Explain the underlying concepts and methodologies of optimization algorithms;
- 4) Solve problems using the LINDO optimization software package.

**Attach a list of the required/recommended course readings and activities:**

CE 281\_Syllabus.docx

**Assessment Strategies: A description of the assessment strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers) which will be used by the instructor to determine the extent to which students have achieved the learning outcomes noted above.**

Homework (ELO 1-4)

Exams (ELO 1-3)

Project/Presentation (ELO 4)

**Is this course required in a degree program (major, minor, graduate degree, certificate?)**

No

**Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer)?**

No

**Will there be any departments affected by this proposed course?**

Yes

**Indicate which department(s) will be affected by the proposed course:****Department(s)**

Civil Engineering

**I/we as the author(s) of this course proposal agree to provide a new or updated accessibility checklist to the Dean's office prior to the semester when this course is taught utilizing the changes proposed here.**

I/we agree

**University Learning Goals****Graduate (Masters) Learning Goals:**

Critical thinking/analysis

Disciplinary knowledge

**Is this course required as part of a teaching credential program, a single subject, or multiple subject waiver program (e.g., Liberal Studies, Biology) or other school personnel preparation program (e.g., School of Nursing)?**

No

**Is this a Graduate Writing Intensive (GWI) course?**

No

Key: 572