

**Clackamas Community College**  
Online Course/Outline Submission System

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**Section #1 General Course Information****Department:** Manufacturing: GIS

Submitter

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**Course Prefix and Number:** GIS - 286**# Credits:** 3

Contact hours

Lecture (# of hours):

Lec/lab (# of hours): 66

Lab (# of hours):

Total course hours: 66

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

**Course Title:** Remote Sensing

Course Description:

An introduction to the science of remote sensing. The course delves into the techniques used to acquire, interpret and process remotely sensed data. It covers interpretation of remotely sensed data, the use of remote sensing data in GIS and the understanding and application of LIDAR data. Hyperspectral remote sensing is covered as well as the process to transform and rectify remotely sensed raster data. The new use of Unmanned Aerial Vehicles(UAV) is covered. Students will get a hands on experience of UAV's as part of the remote sensing environment.

**Type of Course:** Career Technical Preparatory

Is this class challengeable?

**Yes**

Can this course be repeated for credit in a degree?

**No**

Is general education certification being sought at this time?

**No**

Does this course map to any general education outcome(s)?

**No**

Is this course part of an AAS or related certificate of completion?

**Yes****Name of degree(s) and/or certificate(s):** Manufacturing Programs

Are there prerequisites to this course?

**Yes****Pre-reqs:** GIS-201

Have you consulted with the appropriate chair if the pre-req is in another program?

**No**

Are there corequisites to this course?

**No**

Are there any requirements or recommendations for students taken this course?

**No**

Are there similar courses existing in other programs or disciplines at CCC?

**No**

Will this class use library resources?

**Yes**

Have you talked with a librarian regarding that impact?

**No**

Is there any other potential impact on another department?

**No**

Does this course belong on the Related Instruction list?

**No**

GRADING METHOD:

A-F or Pass/No Pass

**Audit: Yes**

When do you plan to offer this course?

**✓ Winter**

Is this course equivalent to another?

If yes, they must have the same description and outcomes.

**No**

Will this course appear in the college catalog?

**Yes**

Will this course appear in the schedule?

**Yes**

Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

1. understand how remote sensing data is acquired,
2. use remotely sensed data to perform data analysis,
3. understand LIDAR data and how to use it in a GIS,
4. know how the acquisition of remotely sensed data work with UAVs,
5. use a UAV to acquire data,
5. transform and rectify remotely sensed data,
6. create 3D data from remote sensing data,
7. understand Hyperspectral Remote Sensing,
8. know how to use Land Observation Satellite (Landsat) data.

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***This course does not include assessable General Education outcomes.***

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Major Topic Outline:

1. The History of aerial photography and remote sensing.
2. Acquisition of remote sensing data.
3. Geometry and photo measurements.
4. Orthophotography – why use it and how does it differ from photographs.
5. Transfer of Detail – from the camera to your computer.
6. Analyzing aerial photographs - principles and techniques.
7. Analyzing LIDAR data.
8. 3D remotely sensed data.
9. Raster analysis in GIS.
10. Remote sensing data from UAVs.
11. Hyperspectral Remote Sensing.
12. Land Observation Satellite (Landsat) data.

Does the content of this class relate to job skills in any of the following areas:

- |                                      |            |
|--------------------------------------|------------|
| 1. Increased energy efficiency       | <b>No</b>  |
| 2. Produce renewable energy          | <b>No</b>  |
| 3. Prevent environmental degradation | <b>No</b>  |
| 4. Clean up natural environment      | <b>No</b>  |
| 5. Supports green services           | <b>Yes</b> |

Percent of course: **30%**

First term to be offered:

**Next available term after approval**  
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