

**Asian Institute of Technology**  
School of Engineering and Technology

**AT76.21    *Data Modeling for Geospatial Information 1(1-0)*    Semester: January**

---

**Course Objective:** This course imparts knowledge about Data Modeling for Geospatial Information. It also aims to prepare students for more in-depth training in understanding what model and modeling is, what object orientation and UML is, how to describe UML diagram, and what ISO and OGC standard is.

**Learning Outcomes:**

The students on the completion of this course would be able to:

1. Identify and communicate concepts of data model and modeling.
2. Understand object orientation and UML, UML diagram.
3. Distinguish and evaluate Spatial and Temporal Schema, Application Schema, Metadata Schema, etc.
4. Develop understanding of international standards such as ISO.

**Pre-requisite:** None

**Course Outline:**

- I. Introduction
  1. Data model and modeling
  2. Standards and ISO
  3. UML
  4. UML Diagram
  
- II. Schema
  1. Spatial Schema
  2. Temporal Schema
  3. Application Schema
  
- III. Spatial Reference
  1. Spatial Reference
  2. Quality Assessment
  3. Metadata

**Learning Resources:**

**Text Books:** No designated textbook, but class notes and handouts will be provided.

---

School Recommendation: \_\_\_\_\_

ADRC Approval: 10 April, 2019

Academic Senate Approval: 24 April, 2019

## Reference Books:

*Martin Fowler:*

UML Distilled: A Brief Guide to the Standard Object Modeling Language, Addison-Wesley Professional, MT, 2003.

*David Arctur, Michael Zeiler:*

Designing Geodatabases: Case Studies in GIS Data Modeling, ESRI, CA, 2004.

## Teaching and Learning Methods:

Teaching and learning methods include lectures, class discussions, and brief hands-on exercises on the UML and data modeling of geospatial information to understand the basic knowledge and skills.

## Time Distribution and Study Load:

Lecture: 15 hours

Assignment: 15 hours

Self-study: 45 hours

## Evaluation Scheme:

Assignment: 50%

Final exams (closed book): 50%

An "A" would be awarded if a student can demonstrate the knowledge and technique learned in the class by explaining UML and data modeling of geospatial information through assignments and examinations. A "B" would be awarded if a student shows an overall understanding of all give topics, a "C" would be given if a student meets below average expectation on both knowledge acquired and application skills. A "D" would be given if a student does not meet basis expectations in understanding the topics and issues presented in course.

**Instructor:** Dr. Hiroyuki Miyazaki

---

School Recommendation: \_\_\_\_\_

ADRC Approval: 10 April, 2019

Academic Senate Approval: 24 April, 2019