PROGRAM STUDI MAGISTER TEKNIK GEOMATIKA
MASTER OF GEOMATICS ENGINEERING

BUKU PEDOMAN MATA KULIAH

COURSE MODULE HANDBOOK

KONVERSI DATA SPASIAL

SPATIAL DATA CONVERSION

DEPARTEMEN TEKNIK GEOMATIKA
Fakultas Teknik Sipil, Perencanaan, dan Kebumian

DEPARTMENT OF GEOMATICS ENGINEERING
Faculty of Civil Engineering, Planning, and Geo Engineering

INSTITUT TEKNOLOGI SEPULUH NOPEMBER

MATA KULIAH PILIHAN
(*ELECTIVE COURSE*)

Konversi Data Spasial / *Spatial Data Conversion*

Nama modul *Module name*	**Konversi Data Spasial** *Spatial Data Conversion*
Tingkatan *Module level*	Pasca Sarjana (S2) *Master Degree*
Kode *Code*	RM185909
Mata kuliah *Course*	Konversi Data Spasial *Spatial Data Conversion*
Semester *Semester*	III (tiga) atau IV (empat) *III (three) or IV (four)*
Penanggung jawab mata kuliah *Person responsible for the module*	Lalu Muhamad Jaelani
Dosen *Lecturer*	Lalu Muhamad Jaelani
Bahasa *Language*	Bahasa Indonesia dan Bahasa Inggris *Indonesian and English*
Relasi pada kurikulum *Relation to curriculum*	Mata kuliah wajib untuk Program Master Teknik Geomatika *Compulsory Courses for Master of Geomatics Engineering*
Tipe pertemuan, jam tatap muka *Type of teaching, contact hours*	Kuliah, 1.67 jam x 16 minggu per semester *Lecture, 1.67 hours x 16 weeks per semester*
Beban belajar *Workload*	Kuliah: 1.67 jam x 14 minggu = 23.38 jam Penugasan terstruktur: 4 jam x 14 minggu= 56 jam Kegiatan mandiri: 4 jam x 14 minggu = 56 jam Ujian: 1.67 jam x 2 kali = 3.34 jam Total = 138.72 jam *Lecture: 1.67 hours x 14 weeks = 23.38 hours* *Structured exercises and assignments: 4 hours x 14 weeks = 56 hours* *Independent activities: 4 hours x 14 weeks = 56 hours* *Exam: 1.67 hours x 2 time = 3.34 hours* *Total = 138.72 hours*
Kredit *Credits*	2 SKS *2 credits*
Persyaratan sesuai dengan peraturan ujian *Requirements according to*	Minimum 80% kehadiran untuk mengikuti ujian tertulis *Minimum 80% attendance in this course in order to take*

theexamination regulations	*the exams*
Deskripsi Mata Kuliah *Description of Course*	Pada mata kuliah ini mahasiswa mempelajari konsep-konsep umum: konsep dasar data spasial, transformasi data spasial, sistem koordinat, sistem proyeksi, dan pemecahan masalah konversi data spasial. Pemahaman konsep dasar meliputi pengertian referensi ellipsoid, ellipsoid geometrik, dan sistem koordinat. Mempelajari proyeksi peta yang mencakup berbagai transformasi koordinat, dan proyeksi. Memahami faktor skala peta, transformasi sudut pada proyeksi konformasi, serta konvergensi meridian. Memahami Konversi Data Spasial, Hubungan Konversi Data Spasial dengan disiplin ilmu lain, Konversi Data Spasial dalam kaitannya dengan Sistem Informasi Geografis, Konversi Data Spasial Tingkat Lanjut di tingkat nasional dan internasional, serta peran dan fungsi Konversi Data Spasial dalam Sistem Informasi Manajemen (SIM). Siswa juga akan melaporkan hasil percobaan dan analisis baik secara tertulis maupun lisan. Mahasiswa juga diharapkan mampu bekerja secara mandiri maupun dalam tim. *In this course, students learn about general concepts: basic concepts of spatial data, spatial data transformation, coordinate system, projection system, and spatial data conversion problem-solving. Understanding of basic concepts including the definition of ellipsoid reference, geometric ellipsoid, and coordinate system. Learning about map projection that includes various coordinate transformations, and projections. Understanding the map scale factor, angular transformation on conformational projection, as well as meridian convergence. Understanding Spatial Data Conversion, Spatial Data Conversion relation with other disciplines, Spatial Data Conversion in relation with Geographic Information System, Advance Spatial Data Conversion at a national and international level, and also role and function of Spatial Data Conversion in Management Information System (SIM). Students will also report the result of the experiments and analysis both in writing and orally. Students are also expected to be able to work independently and in teams.*
Capaian Pembelajaran / *Course Learning Outcomes*	1. Mempelajari konsep umum: konsep dasar data spasial, transformasi data spasial, sistem koordinat, sistem proyeksi, pemecahan masalah konversi data spasial. Pemahaman konsep dasar yang meliputi pengertian ellipsoid referensi, ellipsoid geometri, dan

	sistem koordinat. 2. Definisi Konversi Data Spasial, Konversi Data Spasial terkait dengan disiplin ilmu lainnya, Konversi Data Spasial terkait Sistem Informasi Geografis, Konversi Data Spasial Tingkat Lanjut di tingkat nasional dan internasional, peran dan fungsi Konversi Data Spasial dalam Sistem Informasi Manajeme (SIM). 3. Praktek Konversi Data Spasial, Konversi Data Spasial terkait dengan disiplin ilmu lainnya, Konversi Data Spasial terkait Sistem Informasi Geografis, Konversi Data Spasial Tingkat Lanjut di tingkat nasional dan internasional, peran dan fungsi Konversi Data Spasial dalam Sistem Informasi Manajeme (SIM). 4. Melaporkan hasil eksperimen dan analitis secara tertulis dan lisan, serta mampu bekerja secara mandiri maupun dalam tim.
Module objectives/ Course learning outcomes	1. *To learn about general concepts: basic concepts of spatial data, spatial data transformation, coordinate system, projection system, spatial data conversion problem-solving. Understanding of basic concepts that include the definition of the reference ellipsoid, geometric ellipsoid, and coordinate system.* 2. *The definition of Spatial Data Conversion, Spatial Data Conversion related to other disciplinary, Spatial Data Conversion related to Geographic Information System, Advance Spatial Data Conversion at the national and international level, role and function of Spatial Data Conversion in Information System Management (ISM).* 3. *Practicing of Spatial Data Conversion, Spatial Data Conversion related to other disciplinary, Spatial Data Conversion related to Geographic Information System, Advance Spatial Data Conversion at the national and international level, role and function of Spatial Data Conversion in Information System Management (ISM).* 4. *To report experimental results and analytical in writing and orally, and able to work independently and in teams.*
CPMK dan hubungan dengan CPL Prodi *Learning outcomes and their corresponding to PLOs*	

	PLO.1	PLO.2	PLO.3	PLO.4	PLO.5	PLO.6	PLO.7	PLO.8	PLO.9	PLO.10	PLO.11	PLO.12
CLO.1		✓										
CLO.2		✓					✓					
CLO.3		✓					✓					
CLO.4							✓		✓			

Mata kuliah wajib prasyarat *Mandatory prerequisites*	-
Pokok Bahasan *Content*	1. Mempelajari konsep umum: konsep dasar data spasial, transformasi data spasial, sistem koordinat, sistem proyeksi, pemecahan masalah konversi data spasial. Pemahaman konsep dasar yang meliputi pengertian ellipsoid referensi, ellipsoid geometri, dan sistem koordinat. 2. Mempelajari proyeksi peta pada berbagai transformasi dan proyeksi koordinat, faktor skala, transformasi sudut pada proyeksi konformasi, dan konvergensi meridian. 3. Pengertian Konversi Data Spasial, Konversi Data Spasial terkait dengan disiplin ilmu lainnya, Konversi Data Spasial terkait Sistem Informasi Geografis, Konversi Data Spasial Tingkat Lanjut di tingkat nasional dan internasional, peran dan fungsi Konversi Data Spasial dalam Manajemen Sistem Informasi (ISM). 4. Melaporkan hasil eksperimen dan analitis secara tertulis dan lisan, serta mampu bekerja secara mandiri maupun dalam tim. *1. To learn about general concepts: basic concepts of spatial data, spatial data transformation, coordinate system, projection system, spatial data conversion problem solving. Understanding of basic concepts that include the definition of reference ellipsoid, geometric ellipsoid, and coordinate system.* *2. To study map projection in various coordinate transformations and projections, scale factor, angular transformation on conformational projection, and meridian convergence.* *3. The definition of Spatial Data Conversion, Spatial Data Conversion related to other disciplinary, Spatial Data Conversion related to Geographic Information System, Advance Spatial Data Conversion at national and international level, role and function of Spatial Data Conversion in Information System Management (ISM).* 4. *To report experimental results and analytical in writing and orally, and able to work independently and in teams.*

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<tr><td>Pembelajaran dan Persyaratan Ujian
Study and examination requirements and forms of examination</td><td>
<table>
<tr><th>Rencana Evaluasi</th><th>Bobot
Weight</th></tr>
<tr><td>Membaca dan Presentasi Artikel Ilmiah
Reading and Present Scientific Articles</td><td>15%</td></tr>
<tr><td>Praktek Konversi Data
Data Convertion Practice</td><td>20%</td></tr>
<tr><td>Kuis
Cognitive Quiz</td><td>25%</td></tr>
<tr><td>Tugas besar
Final Project</td><td>40%</td></tr>
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<tr><td>Media yang digunakan
Media employed</td><td>Media pengajaran secara klasik dengan papan tulis dan presentasi power point
Classical teaching tools with white board and power point presentation</td></tr>
<tr><td>Daftar Pustaka
Reading list</td><td>1. Jonathan Williams, Geographic Information From Space, Processing and Applications of Geocoded Satellite Images, Wiley-Praxis Series in Remote Sensing, Chichester, 1995.
2. Lillesand-Kiefer, Remote Sensing and Image Interpretation, John Wiley & Sons, 1979
3. Shrestha, D.P., Remote Sensing Techniques And Digital Image Processing, International Institute for Aerospace Survey and Earth Sciences, 1994</td></tr>
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