



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET, DAN TEKNOLOGI
UNIVERSITAS NEGERI YOGYAKARTA
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
Kampus Karangmalang Yogyakarta 55281
Telepon (0274) 565411 Pesawat 217, (0274) 565411 (TU), fax. (0274) 548203
Laman : fmipa.uny.ac.id, E-mail : Surel_fmipa@uny.ac.id

KEPUTUSAN DEKAN FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
Nomor : B/3.7/UN.34.13/HK.03/2022

TENTANG

TUGAS MENGAJAR DAN MENGUJI DOSEN
SEMESTER GENAP TAHUN AKADEMIK 2021/2022

DEKAN FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM

- Menimbang : bahwa untuk pelaksanaan tugas pendidikan dan pengajaran pada semester Genap tahun Akademik 2021/2022, perlu menetapkan Keputusan Dekan tentang **Tugas Mengajar dan Menguji Dosen Mata semester Genap tahun Akademik 2021/2022**;
- Mengingat :
1. Undang-undang nomor 12 tahun 2012 tentang Pendidikan Tinggi (Lembaran Negara Republik Indonesia Tahun 2012 Nomor 158, Tambahan Lembaran Negara Republik Indonesia Nomor 5336);
 2. Peraturan Pemerintah Nomor 4 Tahun 2014 tentang Penyelenggaraan Pendidikan Tinggi dan Pengelolaan Perguruan Tinggi (Lembaran Negara Republik Indonesia Tahun 2014 Nomor 16, Tambahan Lembaran Negara Republik Indonesia Nomor 5500);
 3. Peraturan Menteri Riset, Teknologi, dan Pendidikan Tinggi Nomor 35 Tahun 2017 tentang Statuta Universitas Negeri Yogyakarta;
 4. Peraturan Menristek Dikti Nomor 2 Tahun 2019 tentang OTK Universitas Negeri Yogyakarta;
 5. Keputusan Rektor Universitas Negeri Yogyakarta Nomor 1 Tahun 2019 tentang Peraturan Akademik Universitas Negeri Yogyakarta;
 6. Keputusan Menteri Pendidikan dan Kebudayaan Republik Indonesia Nomor 5723/MPK/RHS/KP/2021 tentang Pengangkatan Rektor Universitas Negeri Yogyakarta Periode Tahun 2021-2025 ;
 7. Keputusan Rektor Universitas Negeri Yogyakarta Nomor 1.27/UN34/IX/2019 tentang Pemberhentian dan Pengangkatan Dekan Fakultas di Universitas Negeri Yogyakarta;
 8. SK Rektor Nomor 2.7/UN34/VIII/2020 Tanggal 7 Agustus 2020 tentang Pemindahan Program Magister dan Doktor Bidang Ilmu Monodisipliner dari Pascasarjana ke Jurusan ke Fakultas Tahap Pertama;

MEMUTUSKAN :

- Menetapkan : KEPUTUSAN DEKAN TENTANG TUGAS MENGAJAR DAN MENGUJI DOSEN SEMESTER GENAP TAHUN AKADEMIK 2021/2022
- KESATU : Dosen yang namanya sebagaimana dimaksud dalam Lampiran merupakan dosen tetap Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Negeri Yogyakarta yang diserahkan Tugas Mengajar dan Menguji pada Semester Genap tahun Akademik 2021/2022;

- KEDUA : Dosen yang namanya tersebut sebagaimana dimaksud dalam diktum kesatu mengampu dan menguji mata kuliah program studi masing-masing sebagaimana dimaksud dalam Lampiran;
- KETIGA : Biaya yang diperlukan dengan adanya keputusan ini dibebankan pada anggaran DIPA – BLU Fakultas Matematika dan Ilmu Pengetahuan Alam Tahun 2022;
- KEEMPAT : Keputusan ini berlaku pada tanggal 31 Januari 2022 sampai dengan 8 Juni 2022;

TEMBUSAN Keputusan Dekan ini disampaikan kepada :

1. Rektor UNY;
2. Kepala Biro UNY;
3. Para Wakil Dekan Di FMIPA UNY;
4. Para Koorprodi di FMIPA UNY
5. Koordinator. Tata Usaha di FMIPA
6. Para Sub Koordinator. Di FMIPA UNY;
7. Bendahara Gaji FMIPA UNY;
8. Kepala KPKN di Yogyakarta;
9. Yang bersangkutan untuk diketahui dan dilaksanakan;

Ditetapkan di Yogyakarta

Pada tanggal, 31 Januari 2022

DEKAN FAKULTAS MATEMATIKA DAN ILMU
PENGETAHUAN ALAM



Prof. Dr. Ariswan, M.Si

NIP. 19590914 198803 1 0037

Lampiran SK Dekan FMIPA UNY

Nomor : B/3.7/UN34.13/HK.03/2022

Tanggal : 31 Januari 2022

DAFTAR TUGAS MENGAJAR DAN MENGUJI DOSEN
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM - UNIVERSITAS NEGERI YOGYAKARTA
SEMESTER GENAP TAHUN AKADEMIK 2021/2022

Nama : Prof. Dr. Hari Sutrisno, M.Si.
 NIP : 196704071992031002
 Pangkat : Pembina Utama Muda
 Golongan : IV/c
 Jabatan : Guru Besar
 NPWP : 25.301.586.1-542.000

No	Kode MK	Mata Kuliah	SKS Matakuliah	Sem	Prodi	Rombel	Jenis	SKS Rombel	Beban Mengajar	Jumlah Peserta	Keterangan
1	MKK6309	Kimia Anorganik Non Logam	3	2	PEND. KIMIA - S1	C	Teori	2	1,00	51	TIM
	KIM6409	Kimia Anorganik Non Logam	4	2	PEND. KIMIA - S1	A	Teori	4			
2	KIM6210	Kristalokimia	2	6	KIMIA - S1	B	Teori	2	2,00	30	
3	KIM6242	Kimia Anorganik Zat Padat	2	6	KIMIA - S1	B/E/F	Teori	2	2,00	15	
4	KIM6210	Kristalokimia	2	6	KIMIA - S1	E	Teori	2	2,00	33	
	KMA6210	Kristalokimia	2	6	KIMIA - S1	B/E/F	Teori	2			
5	IPA8207	Kajian Kimia dalam Sistem kehidupan	2	2	PENDIDIKAN SAINS S2	B	Teori	2	1,00	19	TIM
6	MPK8218	Topik Spesial dalam Ilmu Kimia	2	1	PENDIDIKAN KIMIA - S2	Pend. Kimia A/B	Teori	2	1,00	10	TIM
	MPK8218	Topik Spesial dalam Ilmu Kimia	2	1	PENDIDIKAN KIMIA - S2	Pend. Kimia C	Teori	2			
7	PPS8304	Metodologi Penelitian Pendidikan	3	1	PENDIDIKAN KIMIA - S2	Pend. Kimia A	Teori	3	1,50	25	TIM
	PPS8304	Metodologi Penelitian Pendidikan	3	1	PENDIDIKAN KIMIA - S2	Pend. Kimia C	Teori	3			
8	MPK9208	Topik Khusus dalam Kimia Anorganik dan Kimia Fisik	2	1	PENDIDIKAN KIMIA - S3	KIMIA S3	Teori	2	1,00	1	TIM
Jumlah Beban Mengajar									11,50 SKS		



Dekan

Prof. Dr. Ariswan, M.Si.

NIP. 195909141988031003



UNIVERSITAS NEGERI YOGYAKARTA
**FAKULTAS MATEMATIKA DAN ILMU
 PENGETAHUAN ALAM**

**DAFTAR HADIR KULIAH
 SEMESTER TAHUN AJARAN 2021/2022**

Program Studi : KIMIA - S1
 Kelas : E
 Jumlah Peserta : 32

Nama Dosen : Prof. Dr. Hari Sutrisno, M.Si.
 Mata Kuliah : KIM6210 - Kristalokimia

No.	No. Mhs.	Nama Mahasiswa	Tanggal															Ket.	
			02/02	09/02	16/02	23/02	02/03	09/03	16/03	23/03	30/03	06/04	13/04	20/04	27/04	11/05	18/05		25/05
1	19307141025	Rafaela Nur Maria Indrati	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
2	19307141026	Frederico Yohanes Weruin	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
3	19307141027	Tri Juni Nugroho Susanto	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
4	19307141028	Mifta Fajarwati	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
5	19307141029	Winda Fatmasari Ayu Styaningsih	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
6	19307141030	Azmi Aufadina	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
7	19307141031	Vico Indra Wuri Wulandari	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
8	19307141032	Indana Sulistyaningrum	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
9	19307141033	Nurul Hidayah	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
10	19307141034	Wahyu Tjakraningtyas	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
11	19307141035	Yoga Febriadi	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
12	19307141036	Herlandita Rona Anggraeni	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
13	19307141037	Taneza Ajeng Setyani	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
14	19307141038	Sekar Ayuning Tyas	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
15	19307141039	Rizal Fanani	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
16	19307141040	Shintananda Salsabila Amelia Putri	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
17	19307141042	Rizka Fitri Alifiya	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
18	19307141044	Jihan Aniqoh	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
19	19307141046	Dwi Nurul Fajriah	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
20	19307141047	Edwin Puja Winata	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
Jumlah Mahasiswa yang hadir			32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
Tanda tangan (paraf) dosen pengajar																			



UNIVERSITAS NEGERI YOGYAKARTA
**FAKULTAS MATEMATIKA DAN ILMU
 PENGETAHUAN ALAM**

**DAFTAR HADIR KULIAH
 SEMESTER TAHUN AJARAN 2021/2022**

Program Studi : KIMIA - S1
 Kelas : E
 Jumlah Peserta : 32

Nama Dosen : Prof. Dr. Hari Sutrisno, M.Si.
 Mata Kuliah : KIM6210 - Kristalokimia

No.	No. Mhs.	Nama Mahasiswa	Tanggal																Ket.
			02/02	09/02	16/02	23/02	02/03	09/03	16/03	23/03	30/03	06/04	13/04	20/04	27/04	11/05	18/05	25/05	
21	19307141048	Tito Kevin Sinaga	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
22	19307144014	Daniel Bima Aji Wijayanto	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
23	19307144015	Dyah Widiarni Purwestri	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
24	19307144016	Aflah Lana Qistina Salsabila	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
25	19307144018	Arti Rimasani	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
26	19307144019	Rima Nurkhadijah Mamonto	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
27	19307144020	Renanda Ghassani Putri	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
28	19307144021	Elang Seta Wiratama	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
29	19307144022	Larasati Nurcahya Berliani D.	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
30	19307144023	Nadhiya Yuslikha Nuriansari	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
31	19307144024	Arsya Cahya Saputra	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
32	19307144025	Shofia Dewi Fortuna	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
Jumlah Mahasiswa yang hadir			32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
Tanda tangan (paraf) dosen pengajar																			



UNIVERSITAS NEGERI YOGYAKARTA
**FAKULTAS MATEMATIKA DAN ILMU
 PENGETAHUAN ALAM**

**MONITORING KEGIATAN MENGAJAR DOSEN
 SEMESTER TAHUN AJARAN 2021/2022
 FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM UNY**

Program Studi : KIMIA - S1
 Kelas : E
 Nama Dosen : Prof. Dr. Hari Sutrisno, M.Si.
 Mata Kuliah : KIM6210 - Kristalokimia

No.	Pertemuan Ke	Hari/Tanggal	Materi Yang diajarkan	Jam		Jml Mhsw	Paraf Dosen	Paraf Mhsw	Keterangan
				Masuk	Keluar				
1	1	Rabu, 2 Februari 2022	Pendahuluan	13:40:00	15:20:00	32			
2	2	Rabu, 9 Februari 2022	Pertumbuhan Kristal	13:40:00	15:20:00	32			
3	3	Rabu, 16 Februari 2022	Struktur Nyata Molekul	13:40:00	15:20:00	32			
4	4	Rabu, 23 Februari 2022	Simetri Molekul	13:40:00	15:20:00	32			
5	5	Rabu, 2 Maret 2022	Grup Molekul	13:40:00	15:20:00	32			
6	6	Rabu, 9 Maret 2022	Simetri Kristal	13:40:00	15:20:00	32			
7	7	Rabu, 16 Maret 2022	Grup Kristal	13:40:00	15:20:00	32			
8	8	Rabu, 23 Maret 2022	Grup Makroskopik	13:40:00	15:20:00	32			
9	9	Rabu, 30 Maret 2022	Grup Aksial	13:40:00	15:20:00	32			
10	10	Rabu, 6 April 2022	Ujian Tengah Semester	13:40:00	15:20:00	32			
11	11	Rabu, 13 April 2022	XRD	13:40:00	15:20:00	32			
12	12	Rabu, 20 April 2022	XRD	13:40:00	15:20:00	32			
13	13	Rabu, 27 April 2022	-	13:40:00	15:20:00	32			
14	14	Rabu, 11 Mei 2022	Analisis Struktur	13:40:00	15:20:00	32			
15	15	Rabu, 18 Mei 2022	Analisis Struktur Kubik	13:40:00	15:20:00	32			
16	16	Rabu, 25 Mei 2022	Analisis Struktur Heksagonal	13:40:00	15:20:00	32			

Yogyakarta,

Mengetahui,
 Ketua Jurusan

(.....)



UNIVERSITAS NEGERI YOGYAKARTA
**FAKULTAS MATEMATIKA DAN ILMU
 PENGETAHUAN ALAM**

**DAFTAR HADIR KULIAH
 SEMESTER TAHUN AJARAN 2021/2022**

Program Studi : KIMIA - S1
 Kelas : B/E/F
 Jumlah Peserta : 1

Nama Dosen : Prof. Dr. Hari Sutrisno, M.Si.
 Mata Kuliah : KMA6210 - Kristalokimia

No.	No. Mhs.	Nama Mahasiswa	Tanggal																Ket.
			02/02	09/02	16/02	23/02	02/03	09/03	16/03	23/03	30/03	06/04	13/04	20/04	27/04	11/05	18/05	25/05	
1	18307141066	Tuti Maryuni	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	
Jumlah Mahasiswa yang hadir			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Tanda tangan (paraf) dosen pengajar																			



UNIVERSITAS NEGERI YOGYAKARTA
**FAKULTAS MATEMATIKA DAN ILMU
 PENGETAHUAN ALAM**

**MONITORING KEGIATAN MENGAJAR DOSEN
 SEMESTER TAHUN AJARAN 2021/2022
 FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM UNY**

Program Studi : KIMIA - S1
 Kelas : B/E/F
 Nama Dosen : Prof. Dr. Hari Sutrisno, M.Si.
 Mata Kuliah : KMA6210 - Kristalokimia

No.	Pertemuan Ke	Hari/Tanggal	Materi Yang diajarkan	Jam		Jml Mhsw	Paraf Dosen	Paraf Mhsw	Keterangan
				Masuk	Keluar				
1	1	Rabu, 2 Februari 2022	Pendahuluan	13:40:00	15:20:00	1			
2	2	Rabu, 9 Februari 2022	Pertumbuhan Kristal	13:40:00	15:20:00	1			
3	3	Rabu, 16 Februari 2022	Struktur Nyata Molekul	13:40:00	15:20:00	1			
4	4	Rabu, 23 Februari 2022	Simetri Molekul	13:40:00	15:20:00	1			
5	5	Rabu, 2 Maret 2022	Grup Molekul	13:40:00	15:20:00	1			
6	6	Rabu, 9 Maret 2022	Simetri Kristal	13:40:00	15:20:00	1			
7	7	Rabu, 16 Maret 2022	Grup Kristal	13:40:00	15:20:00	1			
8	8	Rabu, 23 Maret 2022	Grup Makroskopik	13:40:00	15:20:00	1			
9	9	Rabu, 30 Maret 2022	Grup Aksial	13:40:00	15:20:00	1			
10	10	Rabu, 6 April 2022	Ujian Tengah Semester	13:40:00	15:20:00	1			
11	11	Rabu, 13 April 2022	XRD	13:40:00	15:20:00	1			
12	12	Rabu, 20 April 2022	XRD	13:40:00	15:20:00	1			
13	13	Rabu, 27 April 2022	-	13:40:00	15:20:00	1			
14	14	Rabu, 11 Mei 2022	Analisis Struktur	13:40:00	15:20:00	1			
15	15	Rabu, 18 Mei 2022	Analisis Struktur Kubik	13:40:00	15:20:00	1			
16	16	Rabu, 25 Mei 2022	Analisis Struktur Heksagonal	13:40:00	15:20:00	1			

Yogyakarta,

Mengetahui,
 Ketua Jurusan

(.....)

FORM PENILAIAN**KELAS Reguler****SEMESTER Gasal TAHUN 2022**

PROGRAM STUDI : KIMIA - S1
PENGAMPU : Prof. Dr. Hari Sutrisno M.Si.
JUMLAH PESERTA : 32
KELAS : E

NO	NIM	NAMA	NILAI [HURUF]
1	19307141025	Rafaela Nur Maria Indrati	B
2	19307141026	Frederico Yohanes Weruin	C
3	19307141027	Tri Juni Nugroho Susanto	A-
4	19307141028	Mifta Fajarwati	B+
5	19307141029	Winda Fatmasari Ayu Styaningsih	A-
6	19307141030	Azmi Aufadina	B+
7	19307141031	Vico Indra Wuri Wulandari	B
8	19307141032	Indana Sulistyaningrum	A-
9	19307141033	Nurul Hidayah	B+
10	19307141034	Wahyu Tjakraningtyas	B
11	19307141035	Yoga Febriadi	B+
12	19307141036	Herlandita Rona Anggraeni	B
13	19307141037	TANEZA AJENG SETYANI	B
14	19307141038	Sekar Ayuning Tyas	B+
15	19307141039	Rizal Fanani	B
16	19307141040	Shintananda Salsabila Amelia Putri	B
17	19307141042	Rizka Fitri Alifiya	B
18	19307141044	Jihan Aniqoh	B+
19	19307141046	Dwi Nurul Fajriah	B
20	19307141047	Edwin Puja Winata	B
21	19307141048	Tito Kevin Sinaga	B
22	19307144014	Daniel Bima Aji Wijayanto	B-
23	19307144015	Dyah Widiarni Purwestri	B+
24	19307144016	Aflah Lana Qistina Salsabila	B
25	19307144018	Arti Rimasani	B
26	19307144019	Rima Nurkhadijah Mamonto	B
27	19307144020	Renanda Ghassani Putri	B
28	19307144021	Elang Seta Wiratama	C
29	19307144022	Larasati Nurcahya Berliani D.	B
30	19307144023	Nadhiya Yuslikha Nuriansari	B-
31	19307144024	Arsya Cahya Saputra	B
32	19307144025	Shofia Dewi Fortuna	B-

Rekap Nilai : A = , B = , C = , D = , E/K =

Yogyakarta ,

Dosen/Koord. Team Penguji :

(.....)



UNIVERSITAS NEGERI YOGYAKARTA
FACULTY MATHEMATICS AND NATURALE SCIENCE
BACHELOR OF EDUCATION IN CHEMISTRY

SEMESTER LEARNING PLAN (SLP)

COURSE	CODE	COURSE GROUP	CREDIT UNIT (sks)	SEM.	DEVELOPMENT DATE
Crystallochemistry	KIM 6210	Course in Bachelor of Education in Chemistry	2	6	May 29, 2020
Authorization	Course Lecturer			Head of Study Program	
	Prof. Dr. Hari Sutrisno, M.Si.			Dr. Retno Arioningrum, M.Si	
Learning Outcomes (LO) – Study Program					
Program Learning Outcomes (PLO)	Attitude and Value	PLO1. Demonstrate religious attitudes and human values			
	Work Ability	PLO2. Able to follow the development of science and technology as a supporter of lifelong learning			
	Knowledge Assignment	PLO3. Having an independent attitude, being able to adapt and be responsible for completing tasks PLO4. Communicate ideas or ideas verbally or in writing			

	Authority and Responsibility	PL05. Having the ability to innovate in chemical research techniques
	CLO - Course Outcomes	
Course Outcomes	CLO1	Demonstrate an awareness of responsible and ethical conducts as well integrity in the context of their profession and obligations to society
	CLO2	Demonstrate knowledge of advanced theories and methods of chemistry
	CLO3	Demonstrate proficiency in analyzing, applying, and solving engineering problems using the acquired chemical methods.
	CLO4	Demonstrate the problem solving ability in understand, extract and analyze engineering problems and reorganize the knowledge in chemistry forms for specific purposes
	CLO5	Ability to convey ideas on chemistry knowledge clearly and effectively in both written and spoken forms. In addition, ability to work collaboratively as part of a team undertaking a range of different team roles
	CLO6	Demonstrate the awareness of contemporary issues in Inorganic chemistry and the ability to respond the challenges
	CLO7	Ability to pursue independent study and demonstrate the awareness for lifelong learning and professional development
Short description of the course	Crystallochemistry courses are courses for students of Bachelor of Education in Chemistry with descriptions including: chemical structure description, symmetry and molecular groups, chemical bonds and lattice energy, molecular structures 1(compounds of the main group elements) and 2 (transition metal compounds), crystal gratings, symmetry and groups crystals, X-ray diffraction instruments and determination of simple crystal structures. This course aims to enable students to understand the structure and grid contained in molecular compounds 1 and 2.	
Learning Materials / Subjects	Subjects include: 1. Description of chemical structure 2. Theory of repulsion of valence electron pairs	

	<ul style="list-style-type: none"> 3. Symmetry and molecular groups 4. Chemical bonds and lattice energy 5. Atom size size 6. Symmetry and crystal groups 7. Molecular structure 1: compounds of the main group elements 8. Molecular structure 2: transition metal compounds 9. Structure of nonmetal elements 10. X-ray diffractometer 11. Determination of simple crystal structure 	
References	Primary	
	P1. Muller, U., (2006). <i>Inorganic Structural Chemistry, second edition</i> . West Sussex: John Wiley & Sons Ltd P2. Huheey, J. E., Keiter, E. A. & Keiter, R. L. (1993). <i>Inorganic Chemistry: Principle of Structure and Reactivity</i> . New York : Harper Collins College Publisher. P3. Li, W. K., Zhou, G. D. & Wai Mak, T. C. (2008). <i>Advanced Structural Inorganic Chemistry</i> . New York: Oxford Science Publication P4. Miessler, G. L. & Tarr, D. A. (2009). <i>Inorganic Chemistry, third edition</i> . New Delhi: Pearson Education .	
	Support	
	S1. West, A. R. (1989). <i>Solid State Chemistry and Its Applications</i> . Singapore: John Wiley & Sons Ltd. S2. Journal Inorganic Chemistry	
Instructional Media	Software	Hardware
	File dan Powerpoint	Laptop Board and stationery Projector
Team-Teaching	-	
Prerequisite Course	-	

LEARNING ACTIVITIES

week	Sub-CLO	Indicator	Criteria & Form of Assessment	Learning Method (Estimated Time)	Learning Materials (Library)	Quality of Assessment (%)
1	Describe chemical structure and symmetry	<ol style="list-style-type: none"> Students can describe chemical structures Students are able to explain the symmetry of a chemical compound 	Assessment Criteria: logic and meaningfulness Form of assessment: Observation with the class Observation rubric	<i>Direct Instruction</i> 2 x 50 minute	P1, P2, P3	2%
2-3	Analyze polymorphism and the phase of transition from chemical compounds	Students are able to analyze the polymorphism and transition phase of various chemical compounds	Assessment Criteria: logic and meaningfulness Form of assessment: Observation with the class Observation rubric	<i>Direct Instruction</i> 4 x 50 minute	P1, P2	2%
4-5	Analyzing chemical bonds and lattice energy contained in chemical compounds	Students are able to analyze chemical bonds and lattice energy that occur in various chemical compounds	Assessment Criteria: logic and meaningfulness Form of assessment: Observation with the class Observation rubric	<i>Direct Instruction</i> 2 x 50 minute	P1, P4	2%

6-7	Explain atomic size effects	<ol style="list-style-type: none"> 1. Students are able to explain the definition of atomic size effects 2. Students can explain the factors that influence the size effect of an atom 	<p>Assessment Criteria: logic and meaningfulness</p> <p>Form of assessment: Observation with the class</p> <p>Observation rubric</p>	<p><i>Direct Instruction</i></p> <p>2 x 50 minute</p>	P1, P3, P4	2%
8	Midterm Exam					40%
9-10	Analyze the molecular structure in group 1: compounds of the main group elements	Students are able to analyze group theory contained in the compounds of the main group elements	<p>Assessment Criteria: logic and meaningfulness</p> <p>Form of assessment: Observation with the class</p> <p>Observation rubric</p>	<p>Direct Instruction</p> <p>Individual task</p> <p>6 x 50 minute</p>	P1, P2, P3	2%
11-12	Analyzing the molecular structure of group 2: transition metal compounds	Students are able to analyze group theory contained in the compounds of the main group elements	<p>Assessment Criteria: logic and meaningfulness</p> <p>Form of assessment: Observation with the class</p> <p>Observation rubric</p>	<p>Direct Instruction</p> <p>Individual task</p> <p>4 x 50 minute</p>	P1, P3	2%
13	Analyze the structure of nonmetal elements	<ol style="list-style-type: none"> 1. Students are able to analyze chemical structures not metals 2. Students are able to analyze group theory and lattice found in non-metal compounds 	<p>Assessment Criteria: logic and meaningfulness</p> <p>Form of assessment: Observation with the class</p> <p>Observation rubric</p>	<p>Direct Instruction</p> <p>Individual task</p> <p>4x 50 minute</p>	P1, P3, S1	4%

14-15	Analyze structures like diamonds	<ol style="list-style-type: none"> 1. Students are able to analyze chemical structures not metals 2. Students are able to analyze group theory and lattice found in non-metal compounds 	<p>Assessment Criteria: logic and meaningfulness</p> <p>Form of assessment: Observation with the class</p> <p>Observation rubric</p>	<p>Direct Instruction</p> <p>Individual task</p> <p>4 x 50 minute</p>	P1, S1	4%
16	Final Exams					40%

ASSESSMENT WEIGHT

No	CLO	Object of assessment	Valuation Techniques	Quality
1	CLO 3	The independent task of writing and / or listening skills	Assignment	15%
2	CLO 5 dan 7	Structured tasks are reading and / or writing skills	Assignment	15%
3	CLO 3, 4	Speaking ability and presentation skills journal analysis (Skills)	Speaking ability	10%
4	CLO 1 dan 2	Attitude and Value	Observation of Attitude	10%
5	CLO 3, 5 dan 6	Midterm Exam	Written Test	25%
6	CLO 3; 6; dan 7.1	Final Exam	Written Test	25%
Jumlah				100%

PLO AND CLO MAPPING

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5
CLO1	√				
CLO2		√			
CLO3			√		
CLO4			√		
CLO5		√			√
CLO6				√	√
CLO7				√	

Knowing,
Head of Study Program

Dr. Retno Arianingrum, M.Si
NIP

Yogyakarta, April 18, 2020
Course Lecturer

Prof. Dr. Hari Sutrisno, M.Si
NIP 196704071992031002

ANALYSIS OF ACHIEVEMENT CLO / PLO

Study Program : Bachelor of Education in Chemistry

Course : Crystallochemistry

Code: MKA6210

Credit Unit (sks) : 2 (Teory)

Semester : 6

Prerequisite Course : -

Course Lecturer : Prof. Dr. Hari Sutrisno, M.Si

A. TABLE OF OF ACHIEVEMENT CLO

Task/ Exam	CLO 1	CLO 2	CLO 3	CLO 4	CLO 5	CLO 6	CLO 7
Structured Tasks 1					78	75	
Structured Tasks 2				84			85
Independent task 1							
Independent task 2							
Keterampilan			80				
Sikap	85	86					
Midterm Exam				72			
Final Exam				78			
AVERAGE	85	86	80	76	74,5	71	82

B. TABLE OF OF ACHIEVEMENT PLO

	CLO 1	CLO 2	CLO 3	CLO 4	CLO 5	CLO 6	CLO 7	AVERAGE
PLO 1	85							85
PLO 2		86						86
PLO 3			80	76				78

