

	INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS) FAKULTAS SAINS DAN ANALITIKA DATA FACULTY OF SCIENCE AND DATA ANALYTICS DEPARTEMEN KIMIA DEPARTMENT OF CHEMISTRY					Kode Dokumen
RENCANA PEMBELAJARAN SEMESTER TEACHING AND LEARNING PLAN						
Mata Kuliah (MK)/Course	Kode/Code	Rumpun MK/Course Group	BOBOT (sks)/Credits		SEMESTER	Tanggal Penyusunan Compilation Date
KIMIA 1	SK 224102	Umum/General	3	1	I	24 Agustus 2022 24 August 2022
OTORISASI / PENGESAHAN AUTHORIZATION / LEGALIZATION	Dosen Pengembang RPS TLP Development Lecturer		Koordinator RMK Course Group Coordinator		Ka PRODI Head of Study Program	
	Tim Dosen Kimia 1 Teaching Staff of Chemistry 1		Zjahra Vianita Nugraheni, M.Si.		Prof. Dr. rer. nat. Fredy Kurniawan, M. Si	
Capaian Pembelajaran Learning Outcomes (LO)	CPL-PRODI yang dibebankan pada MK PLO Charged to The Course					
	A.1 (CPL 1) A.1 (PLO 1)	Memiliki moral, etika, tanggung jawab dan kepribadian yang baik di dalam menyelesaikan tugasnya Able to report his/her own work in a good and discipline manners				
	B.3 (CPL 5) B.3 (PLO 5)	Bertanggungjawab pada pekerjaan sendiri dan dapat diberi tanggung jawab atas pencapaian hasil kerja organisasi Able to take responsibility for his/her own work and to give the responsibility of the achievement of anorganization				
	D.1 (CPL 8) D.1 (PLO 8)	Mampu mengaplikasikan pola pikir kimia dan memanfaatkan IPTEK pada bidangnya dalam menyelesaikan masalah yang dihadapi Able to apply a chemistry mindset and utilize science and technology in their field and overcome problems that are faced				
	Capaian Pembelajaran Mata Kuliah (CPMK) Course Learning Outcomes (CLO)					
	CPMK 1 CLO 1	Mahasiswa mampu menggunakan prinsip-prinsip dasar ilmu kimia sebagai dasar dalam mempelajari ilmu yang berkaitan dengan kimia.				

		Supporting: 1. Oxtoby, D.W., Gillis, H.P. and Campion, A., 2012. <i>Principles of Modern Chemistry</i>, 7th edition, Brooks/Cole. 2. Chang, R. and Goldsby, K., 2012. <i>Chemistry</i>, 11th edition, McGraw-Hill, USA. 3. Goldberg, D. E., 2007. <i>Fundamental of Chemistry</i>, 4th edition, McGraw-Hill Companies.					
Dosen Pengampu Lecturer		Tim dosen Kimia 1 <i>Team of Chemistry 1</i>					
Matakuliah syarat Pre-Requisite Courses		Tidak ada prasyarat <i>Not required</i>					
Mg Ke- Week	Kemampuan akhir tiap tahapan belajar (Sub-CPMK) <i>Sub-Course Learning Outcome</i>	Penilaian / Assesment		Bentuk Pembelajaran/ <i>Learning Design</i> ; Metode Pembelajaran/ <i>Learning Method</i> ; Penugasan Mahasiswa/ <i>Student Assignment</i> [Estimasi Waktu] [Estimated Time]		Materi Pembelajaran <i>Learning Material</i> [Pustaka] [Reference]	Bobot Penilaian <i>Assesment Compositi on</i> (%)
		Indikator <i>Indicator</i>	Kriteria & Teknik <i>Criteria and Technique</i>				
(1)	(2)	(3)	(4)	Tatap Muka <i>Face-to-face Class</i> (5)	Daring <i>Online Class</i> (6)	(7)	(8)
1	Mahasiswa mampu menjelaskan prinsip-prinsip dasar kimia, meliputi Konsep Dasar Kimia <i>The students should be able to explain the fundamental principles of</i>	• Ketepatan dalam menjelaskan konsep dasar kimia • <i>Accuracy in explaining the basic concepts of chemistry</i> • Ketepatan dalam perhitungan (rumus)		Kuliah Tatap Muka <i>Lecture</i> [TM: 1x(2x50')] [TM: 1x(1x50')] [BM: 1x(3x60')] [PT: 1x(3x60')] [OM: 1x(2x50')] [OM: 1x(1x50')] [SL: 1x(3x60')]		• Kontrak Kuliah • Proses analisis materi (unsur, senyawa, sifat fisika, sifat kimia) • Hukum-hukum dasar penggabungan unsur (Proust, Lavoisier, Dalton) • <i>Course</i>	3

	<i>chemistry, including the basic concepts of chemistry</i>	dan satuan) pada contoh yang relevan • <i>Accuracy in the calculation (formulas and units) of relevant examples</i>		<i>[SA: 1×(3×60')]</i>		<i>agreement</i> • <i>Material analysis process (elements, compounds, physical properties, chemical properties) Laws of chemical combination (Proust, Lavoisier, Dalton)</i>	
2	Mahasiswa mampu menjelaskan prinsip-prinsip dasar kimia, meliputi Model dan Struktur Atom <i>The students should be able to explain the fundamental principles of chemistry including atom structures and models.</i>	• Ketepatan dalam menjelaskan konsep • <i>Accuracy in explaining concept of atomic structures</i> • Ketepatan dalam perhitungan • <i>Accuracy in calculation</i>		Kuliah Tatap Muka <i>Lecture</i> <i>[TM: 1×(2×50')]</i> <i>[TM: 1×(1×50')]</i> <i>[BM: 1×(3×60')]</i> <i>[PT: 1×(3×60')]</i> <i>[OM: 1×(2×50')]</i> <i>[OM: 1×(1×50')]</i> <i>[SL: 1×(3×60')]</i> <i>[SA: 1×(3×60')]</i>		• Perkembangan model dan struktur atom • Percobaan-percobaan yang mendasarinya (Dalton, Thompson, Rutherford, Bohr dan Spektrum Atom Hidrogen) • <i>The development of atom structures and model</i> • <i>The underlying experiments (Dalton, Thompson, Rutherford, Bohr and The Atomic</i>	3

						<i>Spectrum of Hydrogen)</i>	
3	Mahasiswa mampu menjelaskan prinsip-prinsip dasar kimia, meliputi Konfigurasi Elektron <i>The students should be able to explain the fundamental principles of chemistry, including electron configurations</i>	Ketepatan dalam menjelaskan konsep <i>Accuracy in explaining the concepts</i>	Teknik/Technique: <i>Team base project (non-test)</i> Kegiatan Pra Praktikum / <i>Pre lab activities</i>	Kuliah Tatap Muka <i>Lecture</i> [TM: 1x(2x50')] [TM: 1x(1x50')] [BM: 1x(3x60')] [PT: 1x(3x60')] [OM: 1x(2x50')] [OM: 1x(1x50')] [SL: 1x(3x60')] [SA: 1x(3x60')] Pre Laboratory activities [1x(1x170')]		• Konfigurasi elektron suatu unsur dan ion • Sistem Periodik Unsur • Sifat periodisitas unsur • <i>Electron configurations of elements and ions</i> • <i>Periodic system of elements</i> • <i>The periodicity of elements</i>	4.7
4	Mahasiswa mampu menjelaskan prinsip-prinsip dasar kimia, meliputi Konsep Mol, Stoikhiometri dan Sifat Koligatif Larutan <i>The students should be able to explain the fundamental principles of chemistry, including chemical solutions, concentrations, and colligative properties</i>	Ketepatan perhitungan yang berkaitan dengan konsentrasi larutan, stoikhiometri dan sifat koligatif larutan. <i>Accuracy of calculation related to the concentration of a solute, stoichiometry in chemical reactions and colligative properties</i>	Teknik/Technique: Kuis/Quiz (Test) <i>Team base project (non-test)</i> Topik 1: Oksidasi Hidrogen <i>Topic 1: Density measurement of</i>	Kuliah Tatap Muka <i>Lecture</i> [TM: 1x(2x50')] [TM: 1x(1x50')] [BM: 1x(3x60')] [PT: 1x(3x60')] [OM: 1x(2x50')] [OM: 1x(1x50')] [SL: 1x(3x60')] [SA: 1x(3x60')]		• Perhitungan konsep mol • Rumus empiris dan rumus molekul • Satuan Konsentrasi (M, N, %, m, F, ppm, ppb) • Stoikhiometri dalam Larutan • Standarisasi • <i>Mole concept's</i>	4.7

			<i>solid and liquid matter</i>	Laboratory activities [1×(1×170')]		<i>calculation</i> • Empirical and molecular formula • Concentration units (M, N, %, m, F, ppm, ppb) • Stoichiometry in solution • Standardization	
5	Mahasiswa mampu menjelaskan prinsip-prinsip dasar kimia, meliputi Ikatan Kimia <i>The students should be able to explain the fundamental principles of chemistry, including chemical bonds</i>	• Ketepatan dalam menjelaskan konsep • Accuracy in explaining the concepts of chemical bond • Ketepatan dalam menjelaskan dan membedakan jenis ikatan kimia • Accuracy in explaining the different kind of chemical bonds	Teknik/Technique: <i>Team base project (non-tes)</i> Topik 2: Stoikiometri : Hukum Kekekalan Massa Topic 2: Stoichiometry: The Law of Mass Conservation	Kuliah Tatap Muka Lecture [TM: 1×(2×50')] [TM: 1×(1×50')] [BM: 1×(3×60')] [PT: 1×(3×60')] [OM: 1×(2×50')] [OM: 1×(1×50')] [SL: 1×(3×60')] [SA: 1×(3×60')] Laboratory activities [1×(1×170')]		• Ikatan ionik, kovalen dan kovalen polar, momen dipol, ikatan logam, ikatan hidrogen, dan ikatan Van der Waals • Struktur dan bentuk geometri molekul (struktur Lewis, dan hibridisasi) • Ionic bond, Polar covalent and covalent bonds, dipole moment, metal bonds, hydrogen bonds, and Van der Waals bonds	4.7

						• <i>Molecular structures and geometrics (Lewis structures and hybridization)</i>	
6	Mahasiswa mampu menjelaskan prinsip-prinsip dasar kimia meliputi Wujud Zat dan Perubahan Fasa <i>The students should be able to explain the fundamental principles of chemistry, including the state of matters and phase transformations</i>	• Ketepatan dalam menjelaskan konsep • <i>Accuracy in explaining the concepts</i> • Ketepatan dalam perhitungan • <i>Accuracy in the calculation</i>	Teknik/Technique: <i>Team base project (non-tes)</i> Topik 3: Pemisahan Campuran <i>Topic 3: Separation of mixture</i>	Kuliah Tatap Muka <i>Lecture</i> [TM: 1×(2×50')] [TM: 1×(1×50')] [BM: 1×(3×60')] [PT: 1×(3×60')] [OM: 1×(2×50')] [OM: 1×(1×50')] [SL: 1×(3×60')] [SA: 1×(3×60')] Laboratory activities [1×(1×170')]		• Wujud Gas (Hukum-hukum gas dan sifat fisiknya) • Wujud Cair (sifat fisik cairan: tekanan uap, titik didih, tegangan permukaan, viskositas) • Sifat Koligatif Larutan • <i>Gaseous state (Gas laws and its physical properties)</i> • <i>Liquid state (Liquid physical properties: vapor pressure, boiling point, surface tension, viscosity)</i> • <i>Colligative Properties of</i>	4.8

						<i>Solution</i>	
7	Mahasiswa mampu menjelaskan prinsip-prinsip dasar kimia meliputi Wujud Zat dan Perubahan Fasa <i>The students should be able to explain the fundamental principles of chemistry, including the state of matters and phase transformations.</i>	• Ketepatan dalam menjelaskan konsep • <i>Accuracy in explaining the concepts</i> • Ketepatan dalam perhitungan • <i>Accuracy in the calculation</i>	Teknik/Technique: Tugas/Assignment (non-test) <i>Team base project (non-test)</i> Topik 4: Uji pH Oksida <i>Topic 4: Chemical equilibrium and buffer</i>	Kuliah Tatap Muka <i>Lecture</i> [TM: 1x(2x50')] [TM: 1x(1x50')] [BM: 1x(3x60')] [PT: 1x(3x60')] [OM: 1x(2x50')] [OM: 1x(1x50')] [SL: 1x(3x60')] [SA: 1x(3x60')] Laboratory activities [1x(1x170')]		• Wujud Padat (kisi Kristal, kubus sederhana simple cube, kubus berpusat muka face centered cube, kubus berpusat badan body centered cube, indeks Miller, persamaan Bragg) • <i>Solid-state (Crystal lattice, simple cube, face-centered cube, body-centered cube, Miller index, Bragg's equation)</i>	4.7
8	Evaluasi Tengah Semester / Mid-Semester Examination						20
9	Mahasiswa mampu menjelaskan prinsip-prinsip dasar kimia, meliputi Keseimbangan Ionik dalam Larutan <i>The students should be able to explain the fundamental principles of chemistry,</i>	• Ketepatan dalam konsep • <i>Accuracy in explaining the concepts</i> • Ketepatan dalam perhitungan • <i>Accuracy in the calculation</i>	Teknik/Technique: <i>Team base project (non-test)</i> Topik 5: Pengaruh Konsentrasi	Kuliah Tatap Muka <i>Lecture</i> [TM: 1x(2x50')] [TM: 1x(1x50')] [BM: 1x(3x60')] [PT: 1x(3x60')] [OM: 1x(2x50')]		• Teori Asam Basa (Teori Arrhenius, Brønsted-Lowry, Teori Lewis) • Derajat ionisasi dan tetapan ionisasi • Kekuatan Asam Basa • Keseimbangan asam-basa lemah • <i>Acid-base theory</i>	5

	including ionic equilibrium in substances		Terhadap Laju Reaksi Topic 5: Effect of concentration in reaction rate	[OM: 1×(1×50')] [SL: 1×(3×60')] [SA: 1×(3×60')] Laboratory activities [1×(1×170')]		(Arrhenius, Bronsted- Lowry theory, Lewis theory) • Degree of ionization and ionization constant • Acid-base strength • Weak acid-base equilibrium	
10	Mahasiswa mampu menjelaskan prinsip-prinsip dasar kimia, meliputi Kestimbangan Ionik dalam Larutan The students should be able to explain the fundamental principles of chemistry, including ionic equilibrium in substances	• Ketepatan dalam konsep • Accuracy in explaining the concepts • Ketepatan dalam perhitungan • Accuracy in the calculation	Teknik/Technique: Team base project (non-test) Topik 6: Termodinamika Topic 6: Thermodynamics	Kuliah Tatap Muka Lecture [TM: 1×(2×50')] [TM: 1×(1×50')] [BM: 1×(3×60')] [PT: 1×(3×60')] [OM: 1×(2×50')] [OM: 1×(1×50')] [SL: 1×(3×60')] [SA: 1×(3×60')] Laboratory activities [1×(1×170')]		• Kestimbangan ionik antara zat padat dan larutan • Sistem Buffer • Kelarutan • Ionic equilibrium between solid and liquid • Buffer system Solubility	5
11	Mahasiswa mampu menjelaskan prinsip-prinsip dasar ilmu kimia meliputi,	• Ketepatan dalam konsep • Accuracy in explaining the concepts	Teknik/Technique: Team base project (non-test)	Kuliah Tatap Muka Lecture		• Konsep termodinamika (prinsip, keadaan dan proses)	4.7

	Termodinamika Kimia dan Termokimia <i>The students should be able to explain the fundamental principles of chemistry including chemical thermodynamics and thermochemistry</i>	• Ketepatan dalam perhitungan • Accuracy in the calculation	Topik 7: Pengendapan (Ksp) Topic 7: Precipitation (Ksp)	[TM: 1×(2×50')] [TM: 1×(1×50')] [BM: 1×(3×60')] [PT: 1×(3×60')] [OM: 1×(2×50')] [OM: 1×(1×50')] [SL: 1×(3×60')] [SA: 1×(3×60')] Laboratory activities [1×(1×170')]		• Hukum I Termodinamika: energi dalam, kerja dan kalor • Kapasitas panas, kalorimetri dan entalpi • Hukum II Termodinamika dan spontanitas • Termokimia serta penggunaannya untuk menjelaskan kespontanan reaksi kimia • Perhitungan yang berkaitan dengan aplikasi mesin Carnot • <i>Thermodynamic concepts (principles, states, and processes)</i> • <i>First Law of Thermodynamics: internal energy, work, and heat</i> • <i>Heat capacity, calorimetry, and enthalpy</i> • <i>The second law of</i>	
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						<i>thermodynamics and spontaneity</i> • <i>Thermochemistry and its use to explain the spontaneity of chemical reactions</i> • <i>Calculations related to the Application of Carnot engine</i>	
12	Mahasiswa mampu menjelaskan prinsip-prinsip dasar kimia, meliputi Kestimbangan Kimia <i>The students should be able to explain the fundamental principles of chemistry, including chemical equilibrium</i>	• Ketepatan dalam konsep • <i>Accuracy in explaining the concepts</i> • Ketepatan dalam perhitungan • <i>Accuracy in the calculation</i>	Teknik/Technique: <i>Team base project (non-test)</i> Ujian Akhir Praktikum (test) <i>Post lab activities (Test)</i>	Kuliah Tatap Muka <i>Lecture</i> [TM: 1x(2x50')] [TM: 1x(1x50')] [BM: 1x(3x60')] [PT: 1x(3x60')] [OM: 1x(2x50')] [OM: 1x(1x50')] [SL: 1x(3x60')] [SA: 1x(3x60')] Post Laboratory activities [1x(1x170')]		• Konsep Kestimbangan Kimia dan Tetapan Kestimbangan (Quotient reaksi, tetapan kesetimbangan K_p dan K_c) • Asas Le Chatelier • Faktor-faktor yang mempengaruhi kesetimbangan kimia • <i>Concept of chemical equilibrium and equilibrium constant (Reaction Quotient, the equilibrium</i>	4.7

						<i>constant, K_p and K_c)</i> • <i>Le Chatelier's principles</i> • <i>Factors that affect chemical equilibrium</i>	
13	Mahasiswa mampu menjelaskan prinsip-prinsip dasar ilmu kimia meliputi Kinetika Kimia <i>The students should be able to explain the fundamental principles of chemistry, including chemical kinetics</i>	• Ketepatan dalam konsep • <i>Accuracy in explaining the concepts</i> • Ketepatan dalam perhitungan • <i>Accuracy in the calculation</i>	Teknik/Technique: <i>Team base project (non-test)</i>	Kuliah Tatap Muka <i>Lecture</i> [TM: 1x(2x50')] [TM: 1x(1x50')] [BM: 1x(3x60')] [PT: 1x(3x60')] [OM: 1x(2x50')] [OM: 1x(1x50')] [SL: 1x(3x60')] [SA: 1x(3x60')]		• Konsep kinetika kimia • Laju dalam reaksi kimia • Penentuan laju reaksi, orde dan konstanta laju reaksi • Pengaruh suhu pada laju reaksi • Reaksi elementer • Katalis • <i>The concept of chemical kinetics</i> • <i>Rate of chemical reactions</i> • <i>Determination of reaction rates, orders, and rate constants</i> • <i>Effect of temperature on</i>	3

						<i>reaction rates</i>	
14	Mahasiswa mampu menjelaskan prinsip-prinsip dasar ilmu kimia meliputi Elektrokimia <i>The students should be able to explain the fundamental principles of chemistry, including electrochemistry</i>	• Ketepatan dalam konsep • <i>Accuracy in explaining the concepts</i> • Ketepatan dalam perhitungan • <i>Accuracy in the calculation</i>	Teknik/Technique: <i>Team base project</i> (non-test) Kuis/Quiz (test)	Kuliah Tatap Muka <i>Lecture</i> [TM: 1x(2x50')] [TM: 1x(1x50')] [BM: 1x(3x60')] [PT: 1x(3x60')] [OM: 1x(2x50')] [OM: 1x(1x50')] [SL: 1x(3x60')] [SA: 1x(3x60')]		• Konsep reaksi redoks • Sel elektrokimia (elektroda dan larutan elektrolit dalam sel elektrokimia) • Pengaruh konsentrasi dan persamaan Nerst • Penggunaan konsep elektrokimia untuk aplikasi sel volta (baterai dan Fuel Cells) serta elektrolisis • Korosi dan pencegahan korosi • <i>The concept of the redox reaction</i> • <i>Electrochemical cells (electrodes and electrolyte solutions in electrochemical cells)</i> • <i>Effect of</i>	3

						<i>concentration and Nernst equation</i> • <i>Use of electrochemical concepts for voltaic cell applications (batteries and Fuel Cells) and electrolysis</i> • <i>Corrosion and corrosion prevention</i>	
15-16	Evaluasi Akhir Semester / <i>Final Semester Examination</i>						25

Catatan:

1. **Capaian Pembelajaran Lulusan PRODI (CPL-PRODI)** adalah kemampuan yang dimiliki oleh setiap lulusan PRODI yang merupakan internalisasi dari sikap, penguasaan pengetahuan dan ketrampilan sesuai dengan jenjang prodinya yang diperoleh melalui proses pembelajaran.
2. **CPL yang dibebankan pada mata kuliah** adalah beberapa capaian pembelajaran lulusan program studi (CPL-PRODI) yang digunakan untuk pembentukan/pengembangan sebuah mata kuliah yang terdiri dari aspek sikap, ketrampilan umum, ketrampilan khusus dan pengetahuan.
3. **CP Mata kuliah (CPMK)** adalah kemampuan yang dijabarkan secara spesifik dari CPL yang dibebankan pada mata kuliah, dan bersifat spesifik terhadap bahan kajian atau materi pembelajaran mata kuliah tersebut.
4. **Sub-CP Mata kuliah (Sub-CPMK)** adalah kemampuan yang dijabarkan secara spesifik dari CPMK yang dapat diukur atau diamati dan merupakan kemampuan akhir yang direncanakan pada tiap tahap pembelajaran, dan bersifat spesifik terhadap materi pembelajaran mata kuliah tersebut.
5. **Indikator penilaian** kemampuan dalam proses maupun hasil belajar mahasiswa adalah pernyataan spesifik dan terukur yang mengidentifikasi kemampuan atau kinerja hasil belajar mahasiswa yang disertai bukti-bukti.
6. **Kriteria Penilaian** adalah patokan yang digunakan sebagai ukuran atau tolok ukur ketercapaian pembelajaran dalam penilaian berdasarkan indikator-indikator yang telah ditetapkan. Kriteria penilaian merupakan pedoman bagi penilai agar penilaian konsisten dan tidak bias. Kriteria dapat berupa kuantitatif ataupun kualitatif.
7. **Bentuk penilaian:** tes dan non-tes.
8. **Bentuk pembelajaran:** Kuliah, Responsi, Tutorial, Seminar atau yang setara, Praktikum, Praktik Studio, Praktik Bengkel, Praktik Lapangan, Penelitian, Pengabdian Kepada Masyarakat dan/atau bentuk pembelajaran lain yang setara.

9. **Metode Pembelajaran:** Small Group Discussion, Role-Play and Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, dan metode lainnya yang setara.
10. **Materi Pembelajaran** adalah rincian atau uraian dari bahan kajian yg dapat disajikan dalam bentuk beberapa pokok dan sub-pokok bahasan.
11. **Bobot penilaian** adalah prosentasi penilaian terhadap setiap pencapaian sub-CPMK yang besarnya proposional dengan tingkat kesulitan pencapaian sub-CPMK tsb., dan totalnya 100%.
12. **TM**=Tatap Muka, **PT**=Penugasan terstruktur, **BM**=Belajar mandiri

Note:

1. **Learning Outcomes of Study Program (LO)** is the ability possessed by every graduate of the study program which is the internalization of attitudes, mastery of knowledge and skills in accordance with the level of study program obtained through the learning proces.
2. **PLO Charged to The Course** is some of the learning outcomes of study program graduates (PLO) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
3. **Course Learning Outcome (CLO)** is the ability that is described specifically from the PLO that is charged to the course and is specific to the study material or learning material of the course.
4. **Sub-CLO** is the ability that is specifically described from the CLO that can be measured or observed and is the final ability that is planned at each stage of learning and is specific to the learning material of the course.
5. **Indicator** is the ability in the process and student learning outcomes is a specific and measurable statement that identifies the ability or performance of student learning outcomes accompanied by evidence
6. **Criteria** is a benchmark that is used as a measure or benchmark for learning achievement in an assessment based on predetermined indicators. Assessment criteria are guidelines for assessors so that the assessment is consistent and unbiased. Criteria can be either quantitative or qualitative.
7. **Assesment Design:** test and non-test.
8. **Learning Design:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning
9. **Learning Method:** Small Group Discussion, Role-Play and Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent method.
10. **Learning Material** are details or descriptions of study materials that can be presented in the form of several main points and sub-topics.
11. **Assesment Composition** is the percentage of assessment of each achievement of the sub-CLO which is proportional to the level of difficulty of achieving the sub-CLO, and the total is 100%

OM=Offline Meeting, **SA**=Structured Assesment, **SL**=Self Learning