

Kode Mata Kuliah	KI2151 / 4 SKS	
Penyelenggara	105 - Kimia / FMIPA	
Kategori	Kuliah	
	Bahasa Indonesia	English
Nama Mata Kuliah	Kimia Organik I	Organic Chemistry I
Bahan Kajian	<ol style="list-style-type: none"> 1. Struktur (ikatan kimia, konsep resonansi, konsep asam-basa, gugus fungsi, kerangka karbon, konformasi dan stereokimia) 2. Sifat-sifat fisik dan kimia serta kegunaan senyawa hidrokarbon (alkana, alkena, alkuna), alkil halida, alkohol, eter dan benzena 3. Reaksi-reaksi dasar kimia organik, di antaranya reaksi halogenasi alkana, reaksi substitusi nukleofilik, eliminasi, reaksi redoks, sikloadisi Diels-Alder, dan reaksi substitusi elektrofilik pada benzena dan turunannya 4. Pengenalan cara-cara identifikasi senyawa organik sederhana secara spektroskopi (Infra merah, UV-Vis, dan NMR), dan spektroskopi massa 5. Pengenalan teknik dasar pemisahan dan pemurnian zat cair dan zat padat (distilasi, sublimasi dan berbagai teknik kromatografi) 6. Pengenalan teknik dasar isolasi senyawa organik secara ekstraksi dari bahan alam dan karakterisasinya. 7. Pengenalan teknik reaksi sederhana (reaksi substitusi nukleofilik, reaksi eliminasi, reaksi adisi, reaksi Diels-Alder) dan karakterisasinya. 8. Mempelajari sifat dan kereaktifan senyawa organik berdasarkan gugus fungsinya melalui uji 	<ol style="list-style-type: none"> 1. Structure (chemical bonding, resonance concept, acid-base concept, functional groups, carbon framework, conformation and stereochemistry) 2. Physical and chemical properties, as well as the applications of hydrocarbons (alkanes, alkenes, alkynes), alkyl halides, alcohols, ethers, and benzene 3. The fundamental reactions of organic chemistry, including halogenation of alkanes, nucleophilic substitution reactions, elimination reactions, redox reactions, Diels-Alder cyclization, and electrophilic substitution reactions on benzene and its derivatives 4. Introduction to the methods of identifying simple organic compounds through spectroscopic techniques (infrared, UV-Vis, and NMR spectroscopy), and mass spectrometry 5. Introduction to basic techniques for separating and purifying liquid and solid substances (distillation, sublimation, and various chromatography techniques) 6. Introducing the fundamental techniques of isolating organic compounds through extraction from natural sources and characterizing them. 7. Introduction to basic reaction techniques (nucleophilic substitution reactions, elimination reactions, addition reactions, Diels-Alder reactions) and their characterization.

kualitatif senyawa hidrokarbon, alkohol dan fenol.

8. Learn about the properties and reactivity of organic compounds based on their functional groups through qualitative tests for hydrocarbons, alcohols, and phenols.

Capaian Pembelajaran Mata Kuliah (CPMK)

1. Mampu menjelaskan sifat fisik senyawa organik melalui penggambaran struktur molekul, struktur resonansi, konformasi, dan/atau stereokimianya.
2. Mampu menjelaskan sifat kimia senyawa organik melalui penggambaran skema dan mekanisme reaksi-reaksi dasar dalam kimia organik yang meliputi reaksi radikal, substitusi nukleofilik, eliminasi, sikloadisi Diels-Alder, substitusi elektrophilik dan nukleofilik pada aromatik.
3. Mampu menentukan struktur senyawa organik sederhana secara spektroskopi (Infra merah, UV-Vis, NMR), dan spektroskopi massa.
4. Mampu melakukan teknik dasar pemisahan dan pemurnian zat cair dan zat padat (distilasi, sublimasi dan berbagai teknik kromatografi)
5. Mampu melakukan teknik dasar ekstraksi untuk isolasi senyawa organik dari bahan alam dan karakterisasinya.
6. Mampu melakukan reaksi sederhana (reaksi substitusi nukleofilik, reaksi eliminasi, reaksi adisi, reaksi Diels-Alder, dan reaksi esterifikasi)
7. Mampu mengidentifikasi sifat dan kereaktifan senyawa organik berdasarkan gugus fungsinya melalui uji kualitatif senyawa hidrokarbon, alkohol dan fenol.
8. Mampu menyampaikan hasil eksperimen dan/atau hasil penelusuran literatur secara tulisan dan/atau lisan dengan mengedepankan etika dan kejujuran.

1. Capable of explaining the physical properties of organic compounds through the representation of molecular structure, resonance structure, conformations, and/or stereochemistry.
2. Capable of explaining the chemical properties of organic compounds through describing schemes and mechanisms of basic reactions in organic chemistry which include radical reactions, nucleophilic substitution, elimination, Diels-Alder cycloaddition, electrophilic and nucleophilic substitution in aromatics.
3. Capable of determining the structural configuration of simple organic compounds through spectroscopic methods (infrared, UV-vis, and NMR spectroscopy), and mass spectrometry.
4. Capable of performing basic separation and purification techniques for both liquid and solid materials (distillation, sublimation, and various forms of chromatography)
5. Capable of performing basic extraction techniques for the isolation of organic compounds from natural materials and their characterization.
6. Capable of performing simple reactions (nucleophilic substitution reactions, elimination reactions, addition reactions, Diels-Alder reactions, and esterification reactions).
7. Capable of identifying the nature and reactivity of organic compounds based on their functional groups through qualitative tests for hydrocarbons, alcohols, and phenols.

8. Capable of conveying the findings of experiments and/or literature reviews in written and/or oral form by prioritizing ethics and honesty.

Metode Pembelajaran	Ceramah Tutorial Diskusi, presentasi kelompok Praktikum	Lecture Tutorials Discussions, group presentations Practicum
Modalitas Pembelajaran	Luring Sinkron Daring Asinkron Praktikum di laboratorium	Synchronous Offline Asynchronous Online Practicum in the laboratory
Jenis Nilai	ABCDE	
Metode Penilaian	<p>Nilai Akhir = $75\% \times ((\text{UTS (45\%)} + \text{UAS (45\%)} + \text{Tugas dan Kuis (10\%)}) + 25\% \times ((80\% \times \text{nilai rerata praktikum mingguan}) + 20\% \times \text{nilai ujian praktikum}))$ INDEKS NILAI: $75 \geq A$; $75 < AB \leq 68$; $68 < B \leq 60$; $60 < BC \leq 55$; $55 < C \leq 50$; $50 < D \leq 45$; $45 < E$ Tidak ada ujian susulan. UTS bisa dilaksanakan lebih dari 1 kali. Tugas yang terlambat dikumpulkan tidak akan dinilai. Kuis akan diadakan minimal setiap tiga minggu sekali. Setelah 15 menit kuliah berlangsung tidak diperbolehkan mengikuti kuliah. Untuk mengikuti ujian, minimal kehadiran 80%. Kelulusan praktikum salah satunya ditentukan dari kehadiran minimal 80% dan nilai total praktikum minimal 55.</p>	<p>Final Grade = $75\% \times ((\text{UTS (45\%)} + \text{UAS (45\%)} + \text{Assignments and Quizzes (10\%)}) + 25\% \times ((80\% \times \text{average weekly practicum grade}) + 20\% \times \text{practicum exam grade}))$ INDEX GRADE: $75 \geq A$; $75 < AB \leq 68$; $68 < B \leq 60$; $60 < BC \leq 55$; $55 < C \leq 50$; $50 < D \leq 45$; $45 < E$ There are no follow-up exams. UTS can be carried out more than once. Assignments submitted late will not be graded. Quizzes will be held at least once every three weeks. After 15 minutes of lectures, you are not allowed to attend the lecture. To take the exam, minimum attendance is 80%. Practicum graduation is determined by a minimum attendance of 80% and a minimum total practicum score of 55.</p>

Catatan Tambahan