

|                                                                                   |                                                                                                                             |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----|-----------|----------------------------------|-----------------------|------|--------|--------|--------|--------|--------|--------|--------|
|  | <b>Universitas Negeri Surabaya</b><br><b>Fakultas Matematika dan Ilmu Pengetahuan Alam</b><br><b>Program Studi S2 Kimia</b> |                                                                                                                                                                                                                                                            |                         |     |           |                                  | Kode Dokumen          |      |        |        |        |        |        |        |        |
|                                                                                   | <b>RENCANA PEMBELAJARAN SEMESTER</b>                                                                                        |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
| <b>MATA KULIAH (MK)</b>                                                           | <b>KODE</b>                                                                                                                 | <b>Rumpun MK</b>                                                                                                                                                                                                                                           | <b>BOBOT (sks)</b>      |     |           | <b>SEMESTER</b>                  | <b>Tgl Penyusunan</b> |      |        |        |        |        |        |        |        |
| Kimia Organik Fisik                                                               | 4710202017                                                                                                                  | Mata Kuliah Wajib Program Studi                                                                                                                                                                                                                            | T=2                     | P=0 | ECTS=4.48 | 1                                | 11 Desember 2025      |      |        |        |        |        |        |        |        |
| <b>OTORISASI</b>                                                                  | <b>Pengembang RPS</b>                                                                                                       |                                                                                                                                                                                                                                                            | <b>Koordinator RMK</b>  |     |           | <b>Koordinator Program Studi</b> |                       |      |        |        |        |        |        |        |        |
|                                                                                   | Prof. Dr. Suyatno, M.Si                                                                                                     |                                                                                                                                                                                                                                                            | Prof. Dr. Suyatno, M.Si |     |           | NUNIEK HERDYASTUTI               |                       |      |        |        |        |        |        |        |        |
| <b>Model Pembelajaran</b>                                                         | Project Based Learning                                                                                                      |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
| <b>Capaian Pembelajaran (CP)</b>                                                  | <b>CPL-PRODI yang dibebankan pada MK</b>                                                                                    |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
|                                                                                   | <b>Capaian Pembelajaran Mata Kuliah (CPMK)</b>                                                                              |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
|                                                                                   | <b>CPMK - 1</b>                                                                                                             | Memahami sifat intramolekul senyawa organik serta faktor yang mempengaruhinya                                                                                                                                                                              |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
|                                                                                   | <b>CPMK - 2</b>                                                                                                             | Memahami pengaruh sifat listrik, sterik dan ikatan hidrogen terhadap kereaktifan senyawa organik                                                                                                                                                           |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
|                                                                                   | <b>CPMK - 3</b>                                                                                                             | Menerapkan persamaan Hammett dan persamaan Taft untuk menjelaskan kereaktifan senyawa organik                                                                                                                                                              |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
|                                                                                   | <b>CPMK - 4</b>                                                                                                             | Memahami mekanisme reaksi substitusi senyawa organik                                                                                                                                                                                                       |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
|                                                                                   | <b>CPMK - 5</b>                                                                                                             | Memahami mekanisme reaksi eliminasi senyawa organik                                                                                                                                                                                                        |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
|                                                                                   | <b>CPMK - 6</b>                                                                                                             | Memahami mekanisme reaksi adisi senyawa organik                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
|                                                                                   | <b>CPMK - 7</b>                                                                                                             | Memahami mekanisme reaksi kondensasi senyawa organik                                                                                                                                                                                                       |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
|                                                                                   | <b>CPMK - 8</b>                                                                                                             | Memahami mekanisme reaksi penataan ulang senyawa organik                                                                                                                                                                                                   |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
|                                                                                   | <b>Matrik CPL - CPMK</b>                                                                                                    |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
|                                                                                   |                                                                                                                             | <table border="1"> <tr><td>CPMK</td></tr> <tr><td>CPMK-1</td></tr> <tr><td>CPMK-2</td></tr> <tr><td>CPMK-3</td></tr> <tr><td>CPMK-4</td></tr> <tr><td>CPMK-5</td></tr> <tr><td>CPMK-6</td></tr> <tr><td>CPMK-7</td></tr> <tr><td>CPMK-8</td></tr> </table> |                         |     |           |                                  |                       | CPMK | CPMK-1 | CPMK-2 | CPMK-3 | CPMK-4 | CPMK-5 | CPMK-6 | CPMK-7 |
| CPMK                                                                              |                                                                                                                             |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
| CPMK-1                                                                            |                                                                                                                             |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
| CPMK-2                                                                            |                                                                                                                             |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
| CPMK-3                                                                            |                                                                                                                             |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
| CPMK-4                                                                            |                                                                                                                             |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
| CPMK-5                                                                            |                                                                                                                             |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
| CPMK-6                                                                            |                                                                                                                             |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
| CPMK-7                                                                            |                                                                                                                             |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
| CPMK-8                                                                            |                                                                                                                             |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
| <b>Matrik CPMK pada Kemampuan akhir tiap tahapan belajar (Sub-CPMK)</b>           |                                                                                                                             |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |
|                                                                                   |                                                                                                                             |                                                                                                                                                                                                                                                            |                         |     |           |                                  |                       |      |        |        |        |        |        |        |        |

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|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                  | <table><tr><td rowspan="2">CPMK</td><td colspan="16">Minggu Ke</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td></tr><tr><td>CPMK-1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CPMK-2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CPMK-3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CPMK-4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CPMK-5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CPMK-6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CPMK-7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CPMK-8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | CPMK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Minggu Ke                                                                        |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | CPMK-1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CPMK-2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CPMK-3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CPMK-4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CPMK-5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CPMK-6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CPMK-7 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | CPMK-8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CPMK                 | Minggu Ke                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| CPMK-1               |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CPMK-2               |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CPMK-3               |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CPMK-4               |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CPMK-5               |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CPMK-6               |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CPMK-7               |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CPMK-8               |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Deskripsi Singkat MK | Mata kuliah ini mengkaji tentang Energi ikatan, panjang ikatan dan momen dipol dalam senyawa organik dan faktor-faktor yang mempengaruhi, efek yang mempengaruhi kereaktifan seyawa organik, persamaan Hammett dan persamaan taft, mekanisme reaksi substitusi nukleofilik, reaksi substitusi elektrofilik, reaksi eliminasi, reaksi adisi elktetrofilik, reaksi adisi nukelofilik, reaksi kondensasi dan reaksi penataan ulang. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Pustaka              | Utama :                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1. 1. Ismono, Suyatno, Tukiran (2018). Kimia Organik Lanjut: Mekanisme Reaksi Organik. Surabaya: Unesa University Press<br>2. 2. Smith, M.B. and March, J. (2007) March's Advanced Organic Chemistry, Reaction, Mechanism, and Structure, 6th edition, New York: Jonh Wiley and Son, Inc<br>3. 3. Smith, J.G. (2011). Organic Chemistry. New York: Mc Graw-Hill Companies, Inc.<br>4. 4. Fessenden RJ and JS. Fessenden (1994) Kimia Organik Jilid 1 dan 2, Edisi ketiga, Alih bahasa Oleh A Hadyana Pudjaatmaka, Jakarta: Erlangga.<br>5. Solomon, T.W.G. & Fryhle, C.B. (2011). Organic Chemistry. New York: John Wiley & Sons, Inc |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                      | Pendukung :                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1. Robert V, Hoffman, 2004, Organic Chemistry, an Intermediate Text, Second Adition, Canada, John Wiley and Sons. Inc. Publications<br>2. Carey, F.A. ( 2000. ). Organic Chemistry                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Dosen Pengampu       | Prof. Dr. Suyatno, M.Si.<br>Prof. Dr. Tukiran, M.Si.<br>Dr. Ratih Dewi Saputri, S.Si., M.Si.                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mg Ke-               | Kemampuan akhir tiap tahapan belajar (Sub-CPMK)                                                                                                                                                                                                                                                                                                                                                                                  | Penilaian                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Bantuk Pembelajaran, Metode Pembelajaran, Penugasan Mahasiswa, [ Estimasi Waktu] |                 | Materi Pembelajaran [ Pustaka ]                                                                                                                                                                                                                                                                                                                     | Bobot Penilaian (%) |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                  | Indikator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Kriteria & Bentuk                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Luring (offline)                                                                 | Daring (online) |                                                                                                                                                                                                                                                                                                                                                     |                     |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (1)                  | (2)                                                                                                                                                                                                                                                                                                                                                                                                                              | (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | (4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | (5)                                                                              | (6)             | (7)                                                                                                                                                                                                                                                                                                                                                 | (8)                 |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1                    | Mampu menganalisis besarnya energi ikatan, panjang ikatan dan momen dipol dalam senyawa organik dan faktor-faktor yang mempengaruhi                                                                                                                                                                                                                                                                                              | 1.1. Menentukan energi ikatan dalam senyawa organik<br>2.2. Menentukan panjang ikatan dalam senyawa organik                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Kriteria:<br>tes uraian 25% sedangkan penilaian sumatif dan kinerja 75%<br><br>Bentuk Penilaian :<br>Aktifitas Partisipasif                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Metode: Tanya Jawab dan diskusi 2x50 menit                                       |                 | Materi: energi ikatan dan panjang ikatan<br>Pustaka: 1. Ismono, Suyatno, Tukiran (2018). Kimia Organik Lanjut: Mekanisme Reaksi Organik. Surabaya: Unesa University Press<br><br>Materi: energi ikatan<br>Pustaka: Robert V, Hoffman, 2004, Organic Chemistry, an Intermediate Text, Second Adition, Canada, John Wiley and Sons. Inc. Publications | 5%                  |   |   |    |    |    |    |    |    |    |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|   |                                                                                                                                     |                                                                                                                                                                                                                                                                   |                                                                                                                                                             |                                                                                                  |                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |
|---|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 2 | Mampu menganalisis besarnya energi ikatan, panjang ikatan dan momen dipol dalam senyawa organik dan faktor-faktor yang mempengaruhi | <p>1. Menentukan momen dipol dalam senyawa organik</p> <p>2. Menganalisis faktor yang mempengaruhi besarnya energi ikatan, panjang ikatan dan momen dipol dalam senyawa organik</p>                                                                               | <p><b>Kriteria:</b><br/>tes uraian 25% sedangkan penilaian sumatif dan kinerja 75%</p> <p><b>Bentuk Penilaian :</b><br/>Aktifitas<br/>Partisipatif, Tes</p> | Metode: Diskusi, tanya jawab, problem solving, dan penugasan<br>Model: case method<br>2x50 menit | Metode: Diskusi, tanya jawab, problem solving, dan penugasan<br>Model: case method<br>2x50 menit | <p><b>Materi:</b> energi ikatan dan panjang ikatan</p> <p><b>Pustaka:</b> 1. Ismono, Suyatno, Tukiran (2018). <i>Kimia Organik Lanjut: Mekanisme Reaksi Organik</i>. Surabaya: Unesa University Press</p> <p><b>Materi:</b> energi ikatan</p> <p><b>Pustaka:</b> Robert V, Hoffman, 2004, <i>Organic Chemistry, an Intermediate Text, Second Edition</i>, Canada, John Wiley and Sons. Inc. Publications</p>                                                                      | 10% |
| 3 | Mampu menganalisis faktor-faktor yang mempengaruhi kereaktifan senyawa organik                                                      | <p>1.1. Menjelaskan pengaruh efek induksi terhadap kereaktifan senyawa organik</p> <p>2.2. Menjelaskan pengaruh efek resonansi terhadap kereaktifan senyawa organik</p> <p>3.3. Menjelaskan pengaruh efek hiperkonjugasi terhadap kereaktifan senyawa organik</p> | <p><b>Kriteria:</b><br/>tes uraian 25% sedangkan penilaian sumatif dan kinerja 75%</p> <p><b>Bentuk Penilaian :</b><br/>Aktifitas<br/>Partisipatif, Tes</p> | Metode: Diskusi, tanya jawab, problem solving, penugasan<br>2 x 50 menit                         | Metode: Diskusi, tanya jawab, problem solving, penugasan<br>2 x 50 menit                         | <p><b>Materi:</b> kereaktifan senyawa yang ditinjau dari efek induksi, resonansi, dan hiperkonjugasi</p> <p><b>Pustaka:</b> 2. Smith, M.B. and March, J. (2007) <i>March's Advanced Organic Chemistry, Reaction, Mechanism, and Structure, 6th edition</i>, New York: John Wiley and Son, Inc</p> <p><b>Materi:</b> kereaktifan senyawa yang ditinjau dari efek induksi, resonansi, dan hiperkonjugasi</p> <p><b>Pustaka:</b> Carey, F.A. ( 2000. ). <i>Organic Chemistry</i></p> | 5%  |

|   |                                                                                           |                                                                                                                                                                            |                                                                                                                                                         |                                                                                |                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |
|---|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 4 | Mampu menganalisis faktor-faktor yang mempengaruhi kereaktifan senyawa organik            | <p>1. Menjelaskan pengaruh efek sterik terhadap kereaktifan senyawa organik</p> <p>2. Menjelaskan pengaruh ikatan hidrogen terhadap kereaktifan senyawa organik</p>        | <p><b>Kriteria:</b><br/>tes uraian 25% sedangkan penilaian sumatif dan kinerja 75%</p> <p><b>Bentuk Penilaian :</b><br/>Aktifitas Partisipatif, Tes</p> | Model: case method<br>2 x 50 menit                                             | Model: case method<br>2 x 50 menit                                             | <p><b>Materi:</b><br/>kereaktifan senyawa yang ditinjau dari efek induksi, resonansi, dan hiperkonjugasi</p> <p><b>Pustaka:</b> 2. Smith, M.B. and March, J. (2007) <i>March's Advanced Organic Chemistry, Reaction, Mechanism, and Structure, 6th edition, New York: John Wiley and Son, Inc</i></p> <hr/> <p><b>Materi:</b><br/>kereaktifan senyawa yang ditinjau dari efek induksi, resonansi, dan hiperkonjugasi</p> <p><b>Pustaka:</b><br/>Carey, F.A. (2000. ). <i>Organic Chemistry</i></p> | 10% |
| 5 | Mampu menerapkan persamaan Hammett dan Taft untuk menjelaskan kereaktifan senyawa organik | <p>1.1. Menerapkan persamaan Hammett untuk menjelaskan kereaktifan senyawa organik</p> <p>2.2. Menerapkan persamaan Taft untuk menjelaskan kereaktifan senyawa organik</p> | <p><b>Kriteria:</b><br/>tes uraian 25% sedangkan penilaian sumatif dan kinerja 75%</p> <p><b>Bentuk Penilaian :</b><br/>Aktifitas Partisipatif</p>      | Metode: Diskusi, tanya jawab, problem solving, penugasan<br>Model: case method | Metode: Diskusi, tanya jawab, problem solving, penugasan<br>Model: case method | <p><b>Materi:</b><br/>Hammett and Taft equation</p> <p><b>Pustaka:</b> 1. Ismono, Suyatno, Tukiran (2018). <i>Kimia Organik Lanjut: Mekanisme Reaksi Organik. Surabaya: Unesa University Press</i></p> <hr/> <p><b>Materi:</b><br/>Hammett and Taft equation</p> <p><b>Pustaka:</b> 2. Smith, M.B. and March, J. (2007) <i>March's Advanced Organic Chemistry, Reaction, Mechanism, and Structure, 6th edition, New York: John Wiley and Son, Inc</i></p>                                          | 10% |

|   |                                                                                           |                                                                                                                                                |                                                                                                                                                         |                                                         |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                     |     |
|---|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 6 | Mampu memahami mekanisme reaksi substitusi nukleofilik dan reaksi substitusi elektrofilik | <p>1.1. Menjelaskan mekanisme reaksi substitusi nukleofilik SN-1 dan SN-2</p> <p>2.2. Menjelaskan mekanisme reaksi substitusi elektrofilik</p> | <p><b>Kriteria:</b><br/>tes uraian 25% sedangkan penilaian sumatif dan kinerja 75%</p> <p><b>Bentuk Penilaian :</b><br/>Aktifitas Partisipatif, Tes</p> | Metode:Diskusi, tanya jawab, problem solving, penugasan | Metode:Diskusi, tanya jawab, problem solving, penugasan | <p><b>Materi:</b><br/>substitusi elektrofilik dan nukleofilik</p> <p><b>Pustaka:</b> 4. Fessenden RJ and JS. Fessenden (1994) Kimia Organik Jilid 1 dan 2, Edisi ketiga, Alih bahasa Oleh A Hadyana Pudjaatmaka, Jakarta: Erlangga.</p> <p><b>Materi:</b> reaksi SN1, SN2, E1, dan E2</p> <p><b>Pustaka:</b> Solomon, T.W.G. &amp; Fryhle, C.B. (2011). Organic Chemistry. New York: John Wiley &amp; Sons, Inc</p> | 5%  |
| 7 | Mampu memahami mekanisme reaksi substitusi nukleofilik dan reaksi substitusi elektrofilik | <p>1.1. Menjelaskan mekanisme reaksi substitusi nukleofilik SN-1 dan SN-2</p> <p>2.2. Menjelaskan mekanisme reaksi substitusi elektrofilik</p> | <p><b>Kriteria:</b><br/>tes uraian 25% sedangkan penilaian sumatif dan kinerja 75%</p> <p><b>Bentuk Penilaian :</b><br/>Aktifitas Partisipatif, Tes</p> | Model: case method                                      | Model: case method                                      | <p><b>Materi:</b><br/>substitusi elektrofilik dan nukleofilik</p> <p><b>Pustaka:</b> 4. Fessenden RJ and JS. Fessenden (1994) Kimia Organik Jilid 1 dan 2, Edisi ketiga, Alih bahasa Oleh A Hadyana Pudjaatmaka, Jakarta: Erlangga.</p> <p><b>Materi:</b> reaksi SN1, SN2, E1, dan E2</p> <p><b>Pustaka:</b> Solomon, T.W.G. &amp; Fryhle, C.B. (2011). Organic Chemistry. New York: John Wiley &amp; Sons, Inc</p> | 10% |

|   |                                                                                 |            |                                                                                                                                                                 |                                                                                                            |                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |
|---|---------------------------------------------------------------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 8 | Ujian Tengah Semester untuk menilai ketercapaian Kemampuan Akhir dari TM 1 sd 7 | MATERI 1-7 | <p><b>Kriteria:</b><br/>Didasarkan pada rubrik penilaian yang telah dibuat oleh dosen pengampu.</p> <p><b>Bentuk Penilaian :</b><br/>Aktifitas Partisipatif</p> | <p>Metode: Diskusi, tanya jawab, problem solving, penugasan</p> <p>Model: case method<br/>2 x 50 menit</p> | <p>Metode: Diskusi, tanya jawab, problem solving, penugasan</p> <p>Model: case method<br/>2 x 50 menit</p> | <p><b>Materi:</b> materi 1-7</p> <p><b>Pustaka:</b> 2. Smith, M.B. and March, J. (2007) <i>March's Advanced Organic Chemistry, Reaction, Mechanism, and Structure, 6th edition, New York: John Wiley and Son, Inc</i></p> <hr/> <p><b>Materi:</b> materi 1-7</p> <p><b>Pustaka:</b> 3. Smith, J.G. (2011). <i>Organic Chemistry. New York: McGraw-Hill Companies, Inc.</i></p> <hr/> <p><b>Materi:</b> materi 1-7</p> <p><b>Pustaka:</b> 4. Fessenden RJ and JS. Fessenden (1994) <i>Kimia Organik Jilid 1 dan 2, Edisi ketiga, Alih bahasa Oleh A Hadyana Pudjaatmaka, Jakarta: Erlangga.</i></p> <hr/> <p><b>Materi:</b> materi 1-7</p> <p><b>Pustaka:</b> Robert V, Hoffman, 2004, <i>Organic Chemistry, an Intermediate Text, Second Edition, Canada, John Wiley and Sons. Inc. Publications</i></p> | 0% |
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|----|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 9  | Mampu memahami mekanisme reaksi eliminasi dan reaksi bersaing antara reaksi substitusi nukleofilik dan reaksi eliminasi | <p>1. Menjelaskan mekanisme reaksi eliminasi E-1 dan E-2</p> <p>2. Menganalisis reaksi bersaing antara reaksi substitusi nukleofilik dan reaksi eliminasi</p> | <p><b>Kriteria:</b><br/>tes uraian 25% sedangkan penilaian sumatif dan kinerja 75%</p> <p><b>Bentuk Penilaian :</b><br/>Aktifitas Partisipatif</p> | <p>Metode: Diskusi, tanya jawab, problem solving, penugasan</p> <p>Model: case method 2X50 menit</p> | <p>Metode: Diskusi, tanya jawab, problem solving, penugasan</p> <p>Model: case method</p> | <p><b>Materi:</b> reaksi lanjutan substitusi dan eliminasi</p> <p><b>Pustaka:</b> 4. Fessenden RJ and JS. Fessenden (1994) Kimia Organik Jilid 1 dan 2, Edisi ketiga, Alih bahasa Oleh A Hadyana Pudjaatmaka, Jakarta: Erlangga.</p> <p><b>Materi:</b> SN dan Eliminasi</p> <p><b>Pustaka:</b> Robert V, Hoffman, 2004, Organic Chemistry, an Intermediate Text, Second Edition, Canada, John Wiley and Sons. Inc. Publications</p> | 10% |
| 10 | Mampu memahami mekanisme reaksi adisi elektrofilik dan reaksi adisi nukleofilik                                         | <p>1. Menjelaskan mekanisme reaksi adisi elektrofilik</p> <p>2. Menjelaskan mekanisme reaksi adisi nukleofilik</p>                                            | <p><b>Kriteria:</b><br/>tes uraian 25% sedangkan penilaian sumatif dan kinerja 75%</p> <p><b>Bentuk Penilaian :</b><br/>Aktifitas Partisipatif</p> | <p>Metode: Diskusi, tanya jawab, problem solving, penugasan</p>                                      | <p>Metode: Diskusi, tanya jawab, problem solving, penugasan</p>                           | <p><b>Materi:</b> adisi elektrofilik dan adisi nukleofilik</p> <p><b>Pustaka:</b> 1. Ismono, Suyatno, Tukiran (2018). Kimia Organik Lanjut: Mekanisme Reaksi Organik. Surabaya: Unesa University Press</p> <p><b>Materi:</b> adisi</p> <p><b>Pustaka:</b> 2. Smith, M.B. and March, J. (2007) March's Advanced Organic Chemistry, Reaction, Mechanism, and Structure, 6th edition, New York: John Wiley and Son, Inc</p>            | 5%  |

|    |                                                                                 |                                                                                                                                                                                                                                           |                                                                                                                                                         |                                                                                                        |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                        |     |
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| 11 | Mampu memahami mekanisme reaksi adisi elektrofilik dan reaksi adisi nukleofilik | <p>1. Menjelaskan mekanisme reaksi adisi elektrofilik</p> <p>2. Menjelaskan mekanisme reaksi adisi nukleofilik</p>                                                                                                                        | <p><b>Kriteria:</b><br/>tes uraian 25% sedangkan penilaian sumatif dan kinerja 75%</p> <p><b>Bentuk Penilaian :</b><br/>Aktifitas Partisipatif, Tes</p> | Metode: Diskusi, tanya jawab, problem solving, penugasan                                               | Metode: Diskusi, tanya jawab, problem solving, penugasan                                               | <p><b>Materi:</b> adisi elektrofilik dan adisi nukleofilik</p> <p><b>Pustaka:</b> 1. Ismono, Suyatno, Tukiran (2018). <i>Kimia Organik Lanjut: Mekanisme Reaksi Organik</i>. Surabaya: Unesa University Press</p> <p><b>Materi:</b> adisi</p> <p><b>Pustaka:</b> 2. Smith, M.B. and March, J. (2007) <i>March's Advanced Organic Chemistry, Reaction, Mechanism, and Structure, 6th edition</i>, New York: John Wiley and Son, Inc</p> | 10% |
| 12 | Mampu memahami mekanisme reaksi kondensasi senyawa organik                      | <p>1.1. Menjelaskan mekanisme reaksi kondensasi aldol</p> <p>2.2. Menjelaskan mekanisme reaksi kondensasi Claisen</p> <p>3.3. Menjelaskan mekanisme reaksi kondensasi Knoevenagel</p> <p>4.4. Menjelaskan mekanisme reaksi Cannizzaro</p> | <p><b>Kriteria:</b><br/>tes uraian 25% sedangkan penilaian sumatif dan kinerja 75%</p> <p><b>Bentuk Penilaian :</b><br/>Tes</p>                         | <p>Metode: Diskusi, tanya jawab, problem solving, penugasan</p> <p>Model: case method 2 x 50 menit</p> | <p>Metode: Diskusi, tanya jawab, problem solving, penugasan</p> <p>Model: case method 2 x 50 menit</p> | <p><b>Materi:</b> macam-macam reaksi kondensasi</p> <p><b>Pustaka:</b> 3. Smith, J.G. (2011). <i>Organic Chemistry</i>. New York: McGraw-Hill Companies, Inc.</p> <p><b>Materi:</b> jenis reaksi kondensasi</p> <p><b>Pustaka:</b> Solomon, T.W.G. &amp; Fryhle, C.B. (2011). <i>Organic Chemistry</i>. New York: John Wiley &amp; Sons, Inc</p>                                                                                       | 5%  |

|    |                                                                |                                                                                                                                                                                                                                           |                                                                                                                                 |                                                                                                           |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |
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| 13 | Mampu memahami mekanisme reaksi kondensasi senyawa organik     | <p>1.1. Menjelaskan mekanisme reaksi kondensasi aldol</p> <p>2.2. Menjelaskan mekanisme reaksi kondensasi Claisen</p> <p>3.3. Menjelaskan mekanisme reaksi kondensasi Knoevenagel</p> <p>4.4. Menjelaskan mekanisme reaksi Cannizzaro</p> | <p><b>Kriteria:</b><br/>tes uraian 25% sedangkan penilaian sumatif dan kinerja 75%</p> <p><b>Bentuk Penilaian :</b><br/>Tes</p> | <p>Metode:Diskusi, tanya jawab, problem solving, penugasan</p> <p>Model: case method<br/>2 x 50 menit</p> | <p>Metode:Diskusi, tanya jawab, problem solving, penugasan</p> <p>Model: case method<br/>2 x 50 menit</p> | <p><b>Materi:</b><br/>macam-macam reaksi kondensasi</p> <p><b>Pustaka:</b> 3. Smith, J.G. (2011). <i>Organic Chemistry</i>. New York: Mc Graw-Hill Companies, Inc.</p> <hr/> <p><b>Materi:</b> jenis reaksi kondensasi</p> <p><b>Pustaka:</b> Solomon, T.W.G. &amp; Fryhle, C.B. (2011). <i>Organic Chemistry</i>. New York: John Wiley &amp; Sons, Inc</p>                                                                                                                                       | 5% |
| 14 | Mampu memahami mekanisme reaksi penataan ulang senyawa organik | <p>1. Menjelaskan mekanisme reaksi penataan ulang pada atom karbon tuna elektron (karbokation)</p> <p>2. Menjelaskan mekanisme reaksi penataan ulang pada atom nitrogen tuna elektron</p>                                                 | <p><b>Kriteria:</b><br/>tes uraian 25% sedangkan penilaian sumatif dan kinerja 75%</p> <p><b>Bentuk Penilaian :</b><br/>Tes</p> | <p>Metode:Diskusi, tanya jawab, problem solving, penugasan</p> <p>Model: case method<br/>2 x 50 menit</p> | <p>Metode:Diskusi, tanya jawab, problem solving, penugasan</p> <p>Model: case method<br/>2 x 50 menit</p> | <p><b>Materi:</b><br/>mekanisme reaksi penataan ulang pada atom karbon tuna elektron (karbokation)</p> <p><b>Pustaka:</b> 3. Smith, J.G. (2011). <i>Organic Chemistry</i>. New York: Mc Graw-Hill Companies, Inc.</p> <hr/> <p><b>Materi:</b><br/>Mekanisme reaksi penataan ulang pada atom karbon tuna elektron (karbokation)</p> <p><b>Pustaka:</b> Robert V, Hoffman, 2004, <i>Organic Chemistry, an Intermediate Text, Second Edition</i>, Canada, John Wiley and Sons. Inc. Publications</p> | 5% |

|    |                                                                |                                                                                                                                                                                           |                                                                                                                                                                 |                                                                                                            |                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |
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| 15 | Mampu memahami mekanisme reaksi penataan ulang senyawa organik | <p>1. Menjelaskan mekanisme reaksi penataan ulang pada atom karbon tuna elektron (karbokation)</p> <p>2. Menjelaskan mekanisme reaksi penataan ulang pada atom nitrogen tuna elektron</p> | <p><b>Kriteria:</b><br/>tes uraian 25%<br/>sedangkan penilaian sumatif dan kinerja 75%</p> <p><b>Bentuk Penilaian :</b><br/>Aktifitas<br/>Partisipasif, Tes</p> | <p>Metode: Diskusi, tanya jawab, problem solving, penugasan</p> <p>Model: case method<br/>2 x 50 menit</p> | <p>Metode: Diskusi, tanya jawab, problem solving, penugasan</p> <p>Model: case method<br/>2 x 50 menit</p> | <p><b>Materi:</b><br/>mekanisme reaksi penataan ulang pada atom karbon tuna elektron (karbokation)</p> <p><b>Pustaka:</b> 3.<br/><i>Smith, J.G. (2011). Organic Chemistry. New York: McGraw-Hill Companies, Inc.</i></p> <hr/> <p><b>Materi:</b><br/>Mekanisme reaksi penataan ulang pada atom karbon tuna elektron (karbokation)</p> <p><b>Pustaka:</b><br/><i>Robert V, Hoffman, 2004, Organic Chemistry, an Intermediate Text, Second Edition, Canada, John Wiley and Sons. Inc. Publications</i></p> | 5% |
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|----|---------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 16 | Ujian Akhir Semester untuk menilai ketercapaian Kemampuan Akhir dari TM 9 sd 15 | MATERI 9-15 | <b>Kriteria:</b><br>Didasarkan pada rubrik penilaian yang telah dibuat oleh dosen pengampu.<br><br><b>Bentuk Penilaian :</b><br>Tes |  |  | <b>Materi:</b> materi 9-15<br><b>Pustaka:</b> 2. Smith, M.B. and March, J. (2007) <i>March's Advanced Organic Chemistry, Reaction, Mechanism, and Structure, 6th edition, New York: Jonh Wiley and Son, Inc</i><br><hr/> <b>Materi:</b> materi 9-15<br><b>Pustaka:</b> 3. Smith, J.G. (2011). <i>Organic Chemistry. New York: Mc Graw-Hill Companies, Inc.</i><br><hr/> <b>Materi:</b> materi 9-15<br><b>Pustaka:</b> Carey, F.A. ( 2000. ). <i>Organic Chemistry</i><br><hr/> <b>Materi:</b> materi 9-15<br><b>Pustaka:</b> 1. Ismono, Suyatno, Tukiran (2018). <i>Kimia Organik Lanjut: Mekanisme Reaksi Organik. Surabaya: Unesa University Press</i><br><hr/> <b>Materi:</b> materi 9-15<br><b>Pustaka:</b> 4. Fessenden RJ and JS. Fessenden (1994) <i>Kimia Organik Jilid 1 dan 2, Edisi ketiga, Alih bahasa Oleh A Hadyana Pudjaatmaka, Jakarta: Erlangga.</i> | 0% |
|----|---------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|

**Rekap Persentase Evaluasi : Project Based Learning**

| No | Evaluasi               | Persentase |
|----|------------------------|------------|
| 1. | Aktifitas Partisipasif | 57.5%      |
| 2. | Tes                    | 42.5%      |
|    |                        | 100%       |

#### 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 studinya 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-CPMK 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 & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, dan metode lainnya yg 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.

RPS ini telah divalidasi pada tanggal 22 April 2025

Koordinator Program Studi S2  
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