

Lampiran 4 Rencana Pembelajaran Semester (RPS) Mata Kuliah Teknik Peramalan

|                               |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                 |             |              |              |                  |
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|                               |                                         | INSTITUT TEKNOLOGI SEPULUH NOPEMBER                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                 |             |              | Kode Dokumen |                  |
|                               |                                         | FAKULTAS VOKASI                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                 |             |              |              |                  |
|                               |                                         | PROGRAM STUDI ANALITIKA LOGISTIK                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |             |              |              |                  |
| RENCANA PEMBELAJARAN SEMESTER |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                 |             |              |              |                  |
| MATA KULIAH (MK)              |                                         | KODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Rumpun MK        |                 | BOBOT (sks) |              | SEMESTER     | Tgl Penyusunan   |
| TEKNIK PERAMALAN              |                                         | VA231418                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Teknik Analitika |                 | T = 2       | P = 1        | 5            | 6 September 2023 |
| OTORISASI                     |                                         | Pengembang RPS                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                  | Koordinator RMK |             | Ketua PRODI  |              |                  |
|                               |                                         | Mike P, Zakiatul W                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  | Mike P          |             | Wahyu Wibowo |              |                  |
| Capaian Pembelajaran (CP)     | CPL-PRODI yang dibebankan pada MK       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                 |             |              |              |                  |
|                               | CPL-2                                   | Mampu mengkaji kasus penerapan ilmu pengetahuan dan teknologi di bidang (keahlian prodi) sesuai standar kompetensi kerja, serta mampu mengambil keputusan secara tepat dari hasil kerja sendiri maupun kerja kelompok dalam bentuk laporan tugas akhir atau bentuk kegiatan pembelajaran lain yang luarannya setara dengan tugas akhir melalui pemikiran logis, kritis, inovatif, bermutu dan terukur dengan mempertimbangkan kesehatan, keselamatan, keamanan, dan lingkungan. |                  |                 |             |              |              |                  |
|                               | CPL-4                                   | Mampu menerapkan metode statistika ke dalam prosedur untuk menyelesaikan masalah bisnis dengan memperhatikan faktor keselamatan, industri, ekonomi, sosial, baik secara manual maupun dengan bantuan perangkat komputer                                                                                                                                                                                                                                                         |                  |                 |             |              |              |                  |
|                               | CPL-6                                   | Mampu meningkatkan kinerja logistik dalam rantai pasok melalui pengujian, pengumpulan data pengukuran obyek kerja, analisis dan pengelolaan serta interpretasi data sesuai prosedur dan standar;                                                                                                                                                                                                                                                                                |                  |                 |             |              |              |                  |
|                               | CPL-7                                   | Mampu mengkomunikasikan hasil analisis data bidang logistik baik secara lisan maupun tertulis                                                                                                                                                                                                                                                                                                                                                                                   |                  |                 |             |              |              |                  |
|                               | Capaian Pembelajaran Mata Kuliah (CPMK) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                 |             |              |              |                  |
|                               | CPMK-1                                  | Mampu menjelaskan konsep dasar metode peramalan dan mampu membuat peramalan dengan model trend linear maupun non linear, Rata-rata bergerak, dan variasi kalender beserta aplikasinya                                                                                                                                                                                                                                                                                           |                  |                 |             |              |              |                  |
|                               | CPMK-2                                  | Mampu mengolah dan menganalisis data time series dengan menggunakan metode pemulusan dan dekomposisi                                                                                                                                                                                                                                                                                                                                                                            |                  |                 |             |              |              |                  |
|                               | CPMK-3                                  | Mampu menjelaskan konsep dasar metode ARIMA dan mampu identifikasi model AR dan MA                                                                                                                                                                                                                                                                                                                                                                                              |                  |                 |             |              |              |                  |
|                               | CPMK-4                                  | Mampu membentuk model ARIMA, menguji model dan memilih model terbaik dari data real time series.                                                                                                                                                                                                                                                                                                                                                                                |                  |                 |             |              |              |                  |

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |       |       |       |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
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|                                          | CPMK-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Mampu membentuk model ARIMA musiman atau model multilikatif dari data real time series serta mampu melakukan evaluasi model dan memilih model terbaiknya.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |       |       |       |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
|                                          | CPMK-6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Mampu membentuk model Peramalan Multivariate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |       |       |       |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Matrik CPL – CPMK</b> <table><tr><td>CPMK</td><td>CPL-1</td><td>CPL-2</td><td>CPL-3</td><td>CPL-4</td><td>CPL-5</td><td>CPL-6</td><td>CPL-7</td><td>CPL-8</td><td>CPL-9</td></tr><tr><td>CPMK-1</td><td></td><td>V</td><td></td><td>V</td><td></td><td></td><td>V</td><td></td><td></td></tr><tr><td>CPMK-2</td><td></td><td>V</td><td></td><td>V</td><td></td><td></td><td>V</td><td></td><td></td></tr><tr><td>CPMK-3</td><td></td><td>V</td><td></td><td>V</td><td></td><td>V</td><td>V</td><td></td><td></td></tr><tr><td>CPMK-4</td><td></td><td>V</td><td></td><td>V</td><td></td><td>V</td><td>V</td><td></td><td></td></tr><tr><td>CPMK-5</td><td></td><td>V</td><td></td><td>V</td><td></td><td>V</td><td>V</td><td></td><td></td></tr><tr><td>CPMK-6</td><td></td><td>V</td><td></td><td>V</td><td></td><td>V</td><td>V</td><td></td><td></td></tr></table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |       |       |       |       |       |  |  | CPMK | CPL-1 | CPL-2 | CPL-3 | CPL-4 | CPL-5 | CPL-6 | CPL-7 | CPL-8 | CPL-9 | CPMK-1 |  | V |  | V |  |  | V |  |  | CPMK-2 |  | V |  | V |  |  | V |  |  | CPMK-3 |  | V |  | V |  | V | V |  |  | CPMK-4 |  | V |  | V |  | V | V |  |  | CPMK-5 |  | V |  | V |  | V | V |  |  | CPMK-6 |  | V |  | V |  | V | V |  |  |
| CPMK                                     | CPL-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CPL-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | CPL-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | CPL-4 | CPL-5 | CPL-6 | CPL-7 | CPL-8 | CPL-9 |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
| CPMK-1                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | V     |       |       | V     |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
| CPMK-2                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | V     |       |       | V     |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
| CPMK-3                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | V     |       | V     | V     |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
| CPMK-4                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | V     |       | V     | V     |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
| CPMK-5                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | V     |       | V     | V     |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
| CPMK-6                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | V     |       | V     | V     |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
| <b>Deskripsi Singkat MK</b>              | Matakuliah ini memberikan pengetahuan, keterampilan dan kemampuan kepada mahasiswa tentang peramalan bisnis yang mencakup berbagai metode peramalan yang umum digunakan untuk menyusun perencanaan dan pengambilan keputusan bisnis, meliputi model time series (trend, moving average, smoothing exponential, dekomposisi, arima, sarima, dan fungsi transfer serta model VAR). Metode pembelajaran dari matakuliah ini terdiri dari kuliah/responsi dan praktikum. Praktikum merupakan pendalaman/responsi atas materi perkuliahan dalam bentuk latihan di kelas dan penugasan individu maupun kelompok |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |       |       |       |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
| <b>Bahan Kajian: Materi Pembelajaran</b> | 1. Konsep dasar peramalan, pemodelan Tren Analisis, Rata-rata brtgerak dan Variasi Kalender , Ukuran Statistik dan nilai tingkat kesalahan model,<br>2. Metode Pemulusan ( 1 dan 2 parameter) dan metode Dekomposisi<br>3. Konsep Dasar pemodelan ARIMA (kestasioneran data dan identifikasi model AR dan MA)<br>4. Membentuk model ARIMA ( Estimasi, pengujian dan pemilihan model)<br>5. Membentuk model ARIMA musiman, model multiplikatif dan model model intervensi dan model outlier<br>6. Membentuk model fungsi transfer dan VAR                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |       |       |       |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
| <b>Pustaka</b>                           | <b>Utama :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <div>[1]. Cryer, D.J. and Chan, K. “Time Series Analysis: with Applications in R”, 2nd Edition. Springer. USA. 2005</div> <div>[2]. Wei, W. W. S. Time Series Analysis: Univariate and Multivariate Methods, 2nd Edition. Pearson. USA.2006</div> <div>[3]. Makridakis, S., Wheelwright, S.C., and McGee, V. E. Metode dan Aplikasi Peramalan: Jilid 1, Erlangga, Jakarta. 1988</div> <div><b>Pendukung :</b></div> <div>[4]. Bowerman, B. L., O’Connell, R., and Koehler, A. “Forecasting, Time Series and Regression”. Thomson, Brooks Cale. 2005</div> <div>[5]. Hanke, J.E. and Wichern, D. W. Business Forecasting, 9th Edition, Pearson International Edition. 2008</div> <div>[6]. Manual Minitab dan SAS Users Guide.</div> |       |       |       |       |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
| <b>Dosen Pengampu</b>                    | Mike P, Zakiatul W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |       |       |       |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |
| <b>Matakuliah syarat</b>                 | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |       |       |       |       |       |  |  |      |       |       |       |       |       |       |       |       |       |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |  |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |        |  |   |  |   |  |   |   |  |  |

| 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)                 |
| 1-2    | 1. Mampu menjelaskan konsep dasar metode peramalan dan mampu membuat peramalan dengan model trend linear maupun non linear, Rata-rata bergerak, dan variasi kalender beserta aplikasinya | <p>Ketepatan menjelaskan konsep data metode peramalan meliputi:</p> <ol style="list-style-type: none"> <li>1. Kesamaan dan perbedaan analisis time series dengan metode statistika kausal, khususnya analisis regresi.</li> <li>2. Model peramalan dengan analisis trend linear</li> <li>3. Penerapan metode analisis trend non linear untuk peramalan</li> <li>4. Penerapan metode rata-rata bergerak untuk menghitung nilai ramalan</li> <li>5. Penggunaan variabel dummy untuk memodelkan data <i>time series</i> yang berpola musiman atau gabungan trend dan musiman</li> <li>6. Penggunaan variabel dummy untuk memodelkan data <i>time series</i> karena adanya intervensi kejadian tertentu serta adanya variasi kalender</li> </ol> | Observasi di kelas/Keaktifan, Tugas, Modul | <p>BP1 : Kuliah</p> <p>Tatap Muka [2 x 2 x 50"]</p> <p>MP1 : PBL</p> <p>BM [ 2 x 2 x 60"]</p> <p>PT [2 x 2 x 60"]</p> <p>BP 2 : Praktikum</p> <p>[1 x 2 x 170"]</p> | Ceramah, Diskusi, latihan, problem based learning | <ul style="list-style-type: none"> <li>• Pendahuluan/ Ruang ingkup [1] – [6]</li> <li>• Analisis trend [4]</li> <li>• Metode Moving Average tunggal dan ganda [1] Bab 3</li> <li>[3] Bab 4</li> <li>• Regresi Dummy Variabel dan model Variasi Kalender [3] Bab 8</li> <li>[4] Bab 6</li> </ul> | 14%/14%             |

|              |                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                      |                                             |                                                                                                                                                  |                                                                       |                                                                                                                                                                                                                                |           |
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| <b>3– 4</b>  | 2. Mampu mengolah dan menganalisis data time series dengan menggunakan metode pemulusan dan dekomposisi | Ketepatan mengolah dan menganalisis data time series dengan metode pemulusan dan dekomposisi                                                                                                                                                                                                                                                                                         | Observasi di kelas/Keaktifan, Tugas, Test 1 | BP1 : Kuliah<br>Tatap Muka [2 x 2 x 50")<br>MP1 : PBL<br><br>BM [ 2 x 2 x 60"]<br><br>PT [2 x 2 x 60"]<br><br>BP 2 : Praktikum<br>[1 x 2 x 170"] | Ceramah,<br>Diskusi, latihan,<br>Praktikum,<br>problem based learning | Metode Pemulusan Serta Dekomposisi model<br><br><b>[1] Bab 3, 4</b><br><b>[3] Bab 5</b><br><b>[4] Bab 7</b>                                                                                                                    | 14%/28%   |
| <b>5 – 7</b> | 3. Mampu menjelaskan konsep dasar metode ARIMA dan mampu identifikasi model AR dan MA                   | Ketepatan menjelaskan konsep dasasar metode ARIMA dan mengidentifikasi model AR dan MA, meliputi :<br><br>1. Menghitung dan menjelaskan konsep ACF/ PACF<br>2. Identifikasi model AR dan Model MA<br>3. Identifikasi model gabungan antara mdoel AR dan MA atau model ARMA<br>4. Estimasi parameter model peramalan menggunakan metode kuadrat terkecil, MLE atau pendekatan matriks | Observasi di kelas/Keaktifan, Tugas, Test 1 | BP1 : Kuliah<br>Tatap Muka [2 x 2 x 50")<br>MP1 : PBL<br><br>BM [ 2 x 2 x 60"]<br><br>PT [2 x 2 x 60"]<br><br>BP 2 : Praktikum<br>[1 x 2 x 170"] | Ceramah,<br>Diskusi, latihan,<br>Praktikum,<br>problem based learning | Kestasioneran data, ACF, PACF, Model AR dan model MA<br><br><b>[1] Bab 8</b><br><b>[2] Bab 1-5</b><br><b>[3] Bab 9</b><br><b>[4] Bab 1-9</b><br>Model ARIMA Box-Jenkins untuk pola data yang stasioner<br><br><b>[1] Bab 8</b> | 20% / 48% |

|              |                                                                                                                                                                   |                                                                                                                                                                                                                                             |                                             |                                                                                                                                            |                                                              |                                                                                                                                                    |         |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|              |                                                                                                                                                                   |                                                                                                                                                                                                                                             |                                             |                                                                                                                                            |                                                              | <b>[2] Bab 1-7</b><br><b>[3] Bab 9</b><br><b>[4] Bab 1-9</b>                                                                                       |         |
| <b>8</b>     | <b>Evaluasi Tengah Semester / Ujian Tengan Semester</b>                                                                                                           |                                                                                                                                                                                                                                             |                                             |                                                                                                                                            |                                                              |                                                                                                                                                    |         |
| <b>9</b>     | <b>5.</b> Mampu membentuk model ARIMA, menguji model dan memilih model terbaik dari data real time series.                                                        | Ketepatan membentuk model ARIMA dan memilih model yang terbaik, meliputi : <ol style="list-style-type: none"> <li>1. Identifikasi stasioneritas data dan mean dan varians</li> <li>2. Pemilihan model berdasarkan kriteria error</li> </ol> | Observasi di kelas/Keaktifan, Tugas, Test 2 | BP1 : Kuliah Tatap Muka [2 x 1 x 50")<br>MP1 : PBL<br><br>BM [ 2 x 1 x 60"]<br><br>PT [2 x 1 x 60"]<br><br>BP 2 : Praktikum [1 x 1 x 170"] | Ceramah, Diskusi, latihan, Praktikum, problem based learning | Model ARIMA Box-Jenkins untuk pola data yang non-stasioner<br><br><b>[1] Bab 8</b><br><b>[2] Bab 1-7</b><br><b>[3] Bab 9</b><br><b>[4] Bab 1-9</b> | 15%/63% |
| <b>10-11</b> | <b>6.</b> Mampu membentuk model ARIMA musiman atau model multilikatif dari data real time series serta mampu melkukan evaluasi model dan memilih model terbaiknya | Ketepatan membentuk model ARIMA musiman atau model multiplikatif, serta melakukan evaluasi mod                                                                                                                                              | Observasi di kelas/Keaktifan, Tugas, Test 2 | BP1 : Kuliah Tatap Muka [2 x 2 x 50")<br>MP1 : PBL<br><br>BM [ 2 x 2 x 60"]                                                                | Ceramah, Diskusi, latihan, Praktikum, problem based learning | odel ARIMA Box-Jenkins stasioner untuk pola data musiman<br><br><b>[1] Bab 8</b><br><b>[2] Bab 1-7</b>                                             | 12%/75% |

|                |                                                       |                                                                                                                                                                                                                                                                                               |                                             |                                                                                                                                                      |                                                                       |                                                                                                                                                                                                                                                                                                |          |
|----------------|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|                |                                                       |                                                                                                                                                                                                                                                                                               |                                             | PT [2 x 2 x 60"]<br><br>BP 2 : Praktikum<br>[1 x 2 x 170"]                                                                                           |                                                                       | <b>[3] Bab 9</b><br><b>[4] Bab 1-9</b>                                                                                                                                                                                                                                                         |          |
| <b>12 - 15</b> | 7. Mampu membentuk model Peramalan Multivariate       | Ketepatan membentuk model peramalan multivariate meliputi<br>1. Model fungsi transfer<br>1. Model Intervensi ARIMA<br>2. Deteksi outlier dan penambahan komponen outlier untuk pemodelan ARIMA<br>3. Identifikasi order model VAR berdasarkan MACF dan MPACF<br>4. Pemodelan VAR dan validasi | Observasi di kelas/Keaktifan, Tugas, Test 2 | BP1 : Kuliah<br><br>Tatap Muka [2 x 2 x 50")<br>MP1 : PBL<br><br>BM [ 2 x 2 x 60"]<br><br>PT [2 x 2 x 60"]<br><br>BP 2 : Praktikum<br>[1 x 2 x 170"] | Ceramah,<br>Diskusi, latihan,<br>Praktikum,<br>problem based learning | Model ARIMA dengan Model Intervensi, deteksi outlier dan model fungsi transfer<br><br><b>[1] Bab 8</b><br><b>[2] Bab 1-7</b><br><b>[3] Bab 9</b><br><b>[4] Bab 1-9</b><br><br>Model Vektor Autoregresi<br><br><b>[1] Bab 8</b><br><b>[2] Bab 1-7</b><br><b>[3] Bab 9</b><br><b>[4] Bab 1-9</b> | 25%/100% |
| <b>16</b>      | <b>Evaluasi Akhir Semester / Ujian Akhir Semester</b> |                                                                                                                                                                                                                                                                                               |                                             |                                                                                                                                                      |                                                                       |                                                                                                                                                                                                                                                                                                |          |
|                |                                                       |                                                                                                                                                                                                                                                                                               |                                             |                                                                                                                                                      |                                                                       |                                                                                                                                                                                                                                                                                                |          |