

**SATUAN ACARA PERKULIAHAN**  
**SISTEM PERENCANAAN DAN PENGENDALIAN PRODUKSI**

Oleh :

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**PROGRAM STUDI PASCASARJANA**  
**DEPARTEMEN TEKNOLOGI INDUSTRI PERTANIAN**  
**FAKULTAS TEKNOLOGI PERTANIAN**  
**INSTITUT PERTANIAN BOGOR**  
**2016**

## Course Syllabus

### Planning and Production Control System

|   |  |                     |                                  |
|---|--|---------------------|----------------------------------|
| Course title  | Planning and Production Control System   |                     |                                  |
| Course code:<br>TIN614  | Credits:<br>3(3-0)   | Semester:<br>Ganjil | Compulsory/optional:<br>Optional |
| Coordinator's name  | Prof. Dr. Ir. Machfud,<br>MS   | Instructor's name   | Prof. Dr. Ir. Sukardi, MM        |
| Main reference<br>(Title, author, year)<br>(maximum 3 references) | <ol style="list-style-type: none"> <li>1. Tompkins A James, White A John, Bozer A Yavuz, and Tangchoco A M J. 2010. Facilities Planning: Fourth Edition. John Wiley Sons, Inc</li> <li>2. Kempf G Karl, Keskinocak Pinar, and Uzsoy Reha. 2011. Planning Production and Inventories in the Extended Enterprise. Springer</li> <li>3. Heizer and Render. 2001. Prinsip-prinsip Manajemen Operasi. Penerbit Salemba Empat</li> </ol>   |                     |                                  |
| Additional reference<br>(Supplemental materials)                  | <ol style="list-style-type: none"> <li>1. Machfud. 1999. Diktat Kuliah Perencanaan dan Pengendalian Produksi. IPB</li> <li>2. Deckro F Richard and Hebert E John. 2013. Goal Programming Approaches to Solving Linear: Decision Rule Based Aggregate Production Planning Models. IIE Transactions</li> <li>3. Jamalnia Abouzar and Soukhakian Ali Mohammad. 2009. A hybrid Fuzzy Goal Programming Approach with Different Goal Priorities to Aggregate Production Planning. Computers &amp; Industrial Engineering 56 (2009) 1474–1486</li> <li>4. Lan Yanfei, Liu Yankui, and Sun Gaoji. 2010. An Approximation-Based Approach for Fuzzy Multi-Period Production Planning Problem with Credibility Objective. Applied Mathematical Modelling 34 (2010) 3202–3215</li> </ol> |                     |                                  |
| Brief description   | Discuss comprehension, application and production planning and control design system, especially in the case of. Modeling and method that includes time series forecasting - especially ARIMA - planning and production scheduling, and material inventory control and products of agroindustry that are perishable, seasonal and probabilistic, is discussed in the perspective of supply chain system.   |                     |                                  |
| Prerequisite  | None.  |                     |                                  |
| Course outcome  | <ol style="list-style-type: none"> <li>A. Able to analysis and synthesis to solve problems in planning and production control in the Agroindustry</li> <li>B. Able to carry out the analysis and synthesis of the linkages (integration) sub-system / element system for planning and controlling the production system in the Agroindustry</li> <li>C. Able to analysis on forecasts techniques for production planning</li> <li>D. Able to analysis and synthesis to develop a model for production planning in Agroindustry</li> <li>E. Able to explain and analyze and solve problems in the production planning in Agroindustry</li> <li>F. Being able to analyze and develop a model to resolve the supply problems that are perishable</li> </ol>                     |                     |                                  |

|                                     |   |                            |                |   |               |
|-------------------------------------|---|----------------------------|----------------|---|---------------|
|                                     | <p>G. Able to perform analysis and develop models and techniques to solve the problem of production scheduling</p> <p>H. Able to analyze and integrate aspects of planning and production control in a single system</p> <p>I. Able to explain and resolve the problems of planning and production control in case</p>  |                            |                |   |               |
| Offered to                          | Study Program of Agroindustrial Technology-IPB and other study programs as elective course  |                            |                |   |               |
| Topics to be covered                | <ol style="list-style-type: none"> <li>1. Introduction to planning and production control system</li> <li>2. Forecasting</li> <li>3. Process Design and Capacity</li> <li>4. Stock</li> <li>5. Aggregate Planning</li> <li>6. Short-term Scheduling</li> <li>7. Project Scheduling</li> <li>8. Just In Time System</li> <li>9. Supply Chain Management</li> </ol> |                            |                |   |               |
| ATSP Student Outcomes               |   |                            |                |   |               |
| Percentage                          | Knowledge   | 45 %                       | Facility/media | x | White board   |
|                                     | Skill   | 40 %                       |                | x | LCD projector |
|                                     | Attitude  | 15 %                       |                | x | Computer      |
| Activity, contact hours (hour/week) | Lecture   | 3 hours/week               |                |   | Wifi          |
|                                     | Lab work  | -                          |                | x | Sound system  |
|                                     | Tutorial  | -                          |                |   | Courseware    |
|                                     | Others  | -                          |                |   | Other: ....   |
| Assessment                          | Assignment  | 30 % (paper)               |                |   |               |
|                                     | Examination   | 65 % (mid and final exams) |                |   |               |
|                                     | Quiz  | 5 %                        |                |   |               |

### JADWAL DAN MATERI PERKULIAHAN

| No. | Learning Outcomes  | Topics                      | Sub Topic  | Reference | Lecturer |
|-----|--|-----------------------------|--|-----------|----------|
| 1.  | Setelah mengikuti mata kuliah ini, mahasiswa memiliki gambaran umum mata kuliah sistem perencanaan dan pengendalian produksi, referensi yang digunakan serta kontrak perkuliahan   | Pendahuluan                 | <ul style="list-style-type: none"> <li>✓ Operasi dan Produktivitas</li> <li>✓ Peningkatan produktivitas</li> </ul>   | 1,2       | Machfud  |
| 2.  | Setelah mengikuti mata kuliah ini, mahasiswa mampu memahami dan menggunakan tools forecasting  | Peramalan                   | <ul style="list-style-type: none"> <li>✓ Metode Single and Double Moving Average</li> </ul>  | 1,2,3     | Machfud  |
| 3.  |  |                             | <ul style="list-style-type: none"> <li>✓ Metode Exponential</li> <li>✓ Metode Pegells</li> <li>✓ Metode ARIMA</li> </ul>   |           |          |
| 4.  | Setelah mengikuti mata kuliah ini, mahasiswa mampu untuk:<br>(1) Mengidentifikasi atau mendefinisikan fokus proses, fokus berulang dan fokus produk<br>(2) Mendeskripsikan atau menjelaskan : lean production, isu kapasitas, analisis titik impas, pertimbangan keuangan, rekayasa proses ulang | Desain Proses dan Kapasitas | <ul style="list-style-type: none"> <li>✓ Tiga strategi proses</li> </ul>   | 1,2       | Machfud  |
| 5.  |  |                             | <ul style="list-style-type: none"> <li>✓ Kapasitas</li> <li>✓ Analisis Titik Impas</li> </ul>  |           |          |
| 6.  | Setelah mengikuti perkuliahan ini, mahasiswa mampu untuk memahami dan menggunakan formula pengendalian sediaan dalam berbagai kasus  | Persediaan                  | <ul style="list-style-type: none"> <li>✓ Analisis ABC</li> </ul>   | 1,2       | Machfud  |
| 7.  |  |                             | <ul style="list-style-type: none"> <li>✓ Penghitungan siklus</li> <li>✓ Biaya penahanan, pemesanan dan pemasangan</li> <li>✓ Permintaan independen dan dependen</li> <li>✓ Fungsi-fungsi persediaan</li> </ul> |           |          |

| <i>Midterm Exams</i> |  |                           |  |     |         |     |  |                           |   |   |         |     |  |                    |  |     |         |     |     |  |                     |  |   |         |     |
|----------------------|--|---------------------------|--|-----|---------|-----|--|---------------------------|---|---|---------|-----|--|--------------------|--|-----|---------|-----|-----|--|---------------------|--|---|---------|-----|
| 8.                   | Setelah mengikuti mata kuliah ini mahasiswa mampu memahami dan menggunakan tools untuk melakukan perencanaan agregat   | Perencanaan Agregat       | <ul style="list-style-type: none"> <li>✓ Metode tabel</li> <li>✓ Metode Parametrik</li> <li>✓ Metode Linier Programming</li> </ul>                   | 1,2 | Machfud |     |  |                           |   |   |         |     |  |                    |  |     |         |     |     |  |                     |  |   |         |     |
| 9.                   |  |                           |  |     |         | 10. | Mengidentifikasi atau mendefinisikan :<br>(1) Diagram Gantt, penugasan, mengurutkan aturan dan aturan Johnson<br>(2) Mendeskripsikan atau menjelaskan permulaan penjadwalan, mengurutkan dan penjadwalan   | Penjadwalan Jangka Pendek | <ul style="list-style-type: none"> <li>✓ Penjadwalan</li> <li>✓ Diagram Gantt</li> <li>✓ Penugasan</li> <li>✓ Pengurutan</li> </ul> | 1 | Sukardi | 11. | Setelah mengikuti kuliah ini, mahasiswa mampu<br>(1) Mengidentifikasi atau mendefinisikan : aktivitas, kejadian, jalur kritis dan aktivitas kejadian<br>(2) Mendeskripsikan atau menjelaskan : CPM, PERT dan kasus pada proyek | Penjadwalan Proyek | <ul style="list-style-type: none"> <li>✓ Pengertian penjadwalan proyek</li> <li>✓ CPM</li> <li>✓ PERT</li> <li>✓ Kasus penjadwalan proyek</li> </ul> | 1,2 | Sukardi | 12. | 13. | Setelah mengikuti perkuliahan ini mahasiswa mampu :<br>(1) Mengidentifikasi atau mendefinisikan kanban dan variabilitas<br>(2) Mendeskripsikan atau menjelaskan falsafah Just in time, sistem tarik-dorong | Sistem Just in time | <ul style="list-style-type: none"> <li>✓ Article Review I</li> </ul> | 1 | Sukardi | 14. |
| 10.                  | Mengidentifikasi atau mendefinisikan :<br>(1) Diagram Gantt, penugasan, mengurutkan aturan dan aturan Johnson<br>(2) Mendeskripsikan atau menjelaskan permulaan penjadwalan, mengurutkan dan penjadwalan                       | Penjadwalan Jangka Pendek | <ul style="list-style-type: none"> <li>✓ Penjadwalan</li> <li>✓ Diagram Gantt</li> <li>✓ Penugasan</li> <li>✓ Pengurutan</li> </ul>                  | 1   | Sukardi |     |  |                           |   |   |         |     |  |                    |  |     |         |     |     |  |                     |  |   |         |     |
| 11.                  | Setelah mengikuti kuliah ini, mahasiswa mampu<br>(1) Mengidentifikasi atau mendefinisikan : aktivitas, kejadian, jalur kritis dan aktivitas kejadian<br>(2) Mendeskripsikan atau menjelaskan : CPM, PERT dan kasus pada proyek | Penjadwalan Proyek        | <ul style="list-style-type: none"> <li>✓ Pengertian penjadwalan proyek</li> <li>✓ CPM</li> <li>✓ PERT</li> <li>✓ Kasus penjadwalan proyek</li> </ul> | 1,2 | Sukardi |     |  |                           |   |   |         |     |  |                    |  |     |         |     |     |  |                     |  |   |         |     |
| 12.                  |  |                           |  |     |         | 13. | Setelah mengikuti perkuliahan ini mahasiswa mampu :<br>(1) Mengidentifikasi atau mendefinisikan kanban dan variabilitas<br>(2) Mendeskripsikan atau menjelaskan falsafah Just in time, sistem tarik-dorong | Sistem Just in time       | <ul style="list-style-type: none"> <li>✓ Article Review I</li> </ul>  | 1 | Sukardi | 14. | Setelah mengikuto perkuliahan  | Manajemen          | <ul style="list-style-type: none"> <li>✓ Article Review II</li> </ul>  | 1   | Sukardi |     |     |  |                     |  |   |         |     |
| 13.                  | Setelah mengikuti perkuliahan ini mahasiswa mampu :<br>(1) Mengidentifikasi atau mendefinisikan kanban dan variabilitas<br>(2) Mendeskripsikan atau menjelaskan falsafah Just in time, sistem tarik-dorong                     | Sistem Just in time       | <ul style="list-style-type: none"> <li>✓ Article Review I</li> </ul>   | 1   | Sukardi |     |  |                           |   |   |         |     |  |                    |  |     |         |     |     |  |                     |  |   |         |     |
| 14.                  | Setelah mengikuto perkuliahan  | Manajemen                 | <ul style="list-style-type: none"> <li>✓ Article Review II</li> </ul>  | 1   | Sukardi |     |  |                           |   |   |         |     |  |                    |  |     |         |     |     |  |                     |  |   |         |     |

|                    |   |              |  |  |  |
|--------------------|---|--------------|--|--|--|
|                    | ini, mahasiswa mampu :<br>(1) Mengidentifikasi atau mendefinisikan SCM, pembelian, manajemen bahan baku, e-corporate, keiretsu<br>(2) Mendeskripsikan atau menjelaskan strategi pembelian, pendekatan-pendekatan atas negosiasi | Rantai Pasok |  |  |  |
| <i>Final Exams</i> |   |              |  |  |  |

MAIN REFERENCE:

1. Tompkins A James, White A John, Bozer A Yavuz, and Tangchoco A M J. Facilities Planning: Fourth Edition. John Wiley Sons, Inc
2. Kempf G Karl, Keskinocak Pinar, and Uzsoy Reha. 2011. Planning Production and Inventories in the Extended Enterprise. Springer
3. Heizer and Render. 2001. Prinsip-prinsip Manajemen Operasi. Penerbit Salemba Empat