



## Multi-State Advanced Manufacturing Consortium

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### MSAMC Master Performance Based Objectives (PBO) Review Template

#### Instructions

The following tab lists PBOs for the topic area *Lean Manufacturing*. Please review each of the PBOs, and rate each PBO with one of the following ratings:

- 1 = Skill or understanding is required for students.
- 2 = Skill is useful, but is not crucial for students to know.
- 3 = Skill is not useful for students, or isn't relevant for typical work assignments.
- 0 = PBO is unclear.

#### Additionally, for each PBO please

- \* Note any comments or recommendations that you may have about how to improve the PBO.
- \* Indicate whether each PBO is covered in your college's aligned courses, and how (written, lab demo, exercise).

If any PBOs or skill sets seem to be missing from the list, please add them in the space at the bottom of the list.

#### Please enter your information below

|              |  |
|--------------|--|
| Name:        |  |
| Institution: |  |
| Date:        |  |
| Email:       |  |
| Phone:       |  |

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found in [Resources](#)

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## Lean Manufacturing

M-S AMC Academic Partner PBO Review

Please enter your information below

|              |  |
|--------------|--|
| Name:        |  |
| Institution: |  |
| Date:        |  |
| Email:       |  |
| Phone:       |  |

Please indicate which course or courses delivered at your institution align with, or cover, the listed objective

|                   |   |                        |
|-------------------|---|------------------------|
| Aligned Course(s) | 1 | Enter course code here |
|                   | 2 | Enter course code here |
|                   | 3 | Enter course code here |

**\* Note:** For each covered PBO, indicate in which of the aligned courses, documented at left, the PBO would be most extensively covered. If there is only one course listed to the left, then you do not have to complete the "Aligned Course" column.

| Sub-Topic | Level | Topic | PBO ID | Performance Based Objective (PBO)  | Importance,   | Covered -                     | Covered -               | Aligned Course * | Comments<br><i>Notes to improve the PBO, PBO is unclear, lacking equipment to cover, etc.</i> |
|-----------|-------|-------|--------|--|---|-------------------------------|-------------------------|------------------|---|
|           |       |       |        |  | 1 = Need<br>2 = Nice to have<br>3 = N/A<br>0 = Don't understand | Written Assignment / Reading? | Exercise or Assessment? |                  |   |
|           |       |       |        |  |   | Y/N                           | Y/N                     |                  |   |
|           | 1     | LN    | 1      | Identify the seven forms of waste and give an example of each.   |   |                               |                         |                  |   |
|           | 1     | LN    | 2      | Identify when it is appropriate to use Continuous Improvement activities and give 2 examples of Continuous improvement associated with the student's place of work.  |   |                               |                         |                  |   |
|           | 1     | LN    | 3      | List several methods that can be demonstrated by management that reflects an understanding for the Respect for Humanity.   |   |                               |                         |                  |   |
|           | 1     | LN    | 4      | List the characteristics of quality product.   |   |                               |                         |                  |   |
|           | 1     | LN    | 5      | Given an integrated system, identify all areas (stations) that reflect the principle of "Quality Built In" and list the additions that could be made in the integrated system to improve this principle.                         |   |                               |                         |                  |   |
|           | 1     | LN    | 6      | Identify the advantages to be realized by implementing lean.   |   |                               |                         |                  |   |
|           | 1     | LN    | 7      | Identify the Challenges to be addressed when implementing lean.  |   |                               |                         |                  |   |
|           | 1     | LN    | 8      | Identify the impact of Lean on the work force, the organization and the customer   |   |                               |                         |                  |   |
|           | 1     | LN    | 9      | List two examples of visual management that could be applied to the student's plant.   |   |                               |                         |                  |   |
|           | 1     | LN    | 10     | List two examples of visual Management that is being applied at the student's plant.   |   |                               |                         |                  |   |
|           | 1     | LN    | 11     | Define Kanban and identify the major functions associated with this tool. List an example of each function.  |   |                               |                         |                  |   |
|           | 1     | LN    | 12     | List the 5 "S"s and match to a list of activities that exemplifies each.   |   |                               |                         |                  |   |
|           | 1     | LN    | 13     | Identify applications of visual controls that can be found in the plant environment.   |   |                               |                         |                  |   |
|           | 1     | LN    | 14     | Define a customer needs and expectations "PULL" enterprise.  |   |                               |                         |                  |   |
|           | 1     | LN    | 15     | List examples of Andon.  |   |                               |                         |                  |   |
|           | 1     | LN    | 16     | Develop the arguments for part buffering (temporary storage) and contrast the arguments against a levelled and balanced work schedule.   |   |                               |                         |                  |   |
|           | 1     | LN    | 17     | Calculate Takt time when given Customer Production requirements, Number of shifts, and production time per shift   |   |                               |                         |                  |   |
|           | 1     | LN    | 18     | Given a line layout, stock positions and quantity, daily production requirements, Daily expected product mix, and etc. Calculate Takt time, Make recommendations for line balancing, work sequence, stock levels and ergonomics. |   |                               |                         |                  |   |
|           | 1     | LN    | 19     | Given a sample of standardized work, identify the strengths and weaknesses of the form.  |   |                               |                         |                  |   |
|           | 1     | LN    | 20     | Define In-Process stock.   |   |                               |                         |                  |   |
|           | 1     | LN    | 21     | Identify the elements of PDCA and give examples.   |   |                               |                         |                  |   |
|           | 1     | LN    | 22     | Define the "5 why" methodology.  |   |                               |                         |                  |   |
|           | 1     | LN    | 23     | Demonstrate error and mistake proofing given a detailed description of a work cell and common operator error.  |   |                               |                         |                  |   |

|   |    |    |   |  |  |  |  |  |
|---|----|----|---|--|--|--|--|--|
| 1 | LN | 24 | Define "Value Added."   |  |  |  |  |  |
| 1 | LN | 25 | Identify the roles of the manager to support lean implementation.   |  |  |  |  |  |
| 1 | LN | 26 | Identify the roles of the worker to support lean implementation   |  |  |  |  |  |
| 1 | LN | 27 | Given an integrated line drawing that reflects all sock, manual actions, machine functions and etc. exercise the Value Stream Mapping principles (VSM) to make recommendations on a process redesign... or Continuous Improvement. (As time permits)  |  |  |  |  |  |
| 1 | LN | 28 | Given several case studies, using all applicable tools and principles show above, evaluate the manufacturing situation given, identify the opportunities for improvement and develop an action plan to implement your recommendations.  |  |  |  |  |  |
| 1 | LN | 29 | Given a case studyand using all applicable tools and principles show above, evaluate the Office situation given, identify the opportunities for improvement and develop an action plan to implement your recommendations.   |  |  |  |  |  |
| 1 | LN | 30 | Given a case study and using all applicable tools and principles show above, evaluate the Retail situation given, identify the opportunities for improvement and develop an action plan to implement your recommendations.  |  |  |  |  |  |
| 1 | LN | 31 | When comparing typical mass production environments with a lean environment identify the differing characteristics of process Improvement, Quality, and daily operations of each.   |  |  |  |  |  |
| 1 | LN | 32 | Identify what a lean educational model would look like.   |  |  |  |  |  |
| 1 | LN | 33 | Identify the elements and considerations associated with critical thinking.   |  |  |  |  |  |
| 1 | LN | 34 | Given a case study, identify whether it illustrates leveled production or not.  |  |  |  |  |  |
| 1 | LN | 35 | From the case study in objective 4, determine if it illustrates Just-In-Time Production and be able to defend you analysis in class room discussions.   |  |  |  |  |  |
| 1 | LN | 36 | Given a case study, determine if the example reflects a level and balanced work flow and suggest possible improvements in Levelized production. Using a case study, demonstrate the ability to apply Root Cause analysis techniques to develop a series of next steps – queries – data to be analyzed, etc. |  |  |  |  |  |

**Additions: Please add any additional objectives that we may have overlooked.**



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