### M-Focus Arena Student Simulation Competition Rules

# GENERAL RULES

The intent of this competition is to have students work as an engineering team to develop a working solution to a real-world case study problem. Although you may seek advice on the use of the software, the actual simulation and proposed solution should be the original work of the student team.

You may contact

Ms. Sunisa Warichwattana sunisa@m-focus.co.th 02-513-9892x127 or

Mr. Wicha Phramrit wicha@m-focus.co.th 02-513-9892x153

at M-Focus Co., Ltd. if you have general questions about the competition or the materials provided in the kit. They can be reached by e-mail above. All emails should have a subject line “***Arena Competition Questions <team name>.”*** While there is an extensive amount of data and information about the problem in the materials, it is not comprehensive and some information may be missing. As in the real world, you will be required to make educated assumptions about the operation and document those assumptions in your report.

# ARENA SOFTWARE DOWNLOAD

1. Go to <https://www.arenasimulation.com/simulation-software-download>
2. Click “Download a Free Trial” to register your request. Enter your information and press “Submit” button to register. **Wait for email**.
3. Open the received email, select “Download Arena 64 bit” or “Download Arena 32-bit”. Allow time to perform the download and install Arena.

# REPORT FORMAT

The format for the report must meet the following minimum requirements:

* Font size of no less than 12-point (English); 14-point (Thai)
* Margins: 1 inch for the top and bottom and 1.25 inches for the left and right
* Formal reports are strictly limited to five pages, not including the title page. You should be able to sum up the problem and clearly state your recommendations to the group in five pages or less.
* Additional material may be submitted as an appendix of no more than five pages. The judges are not required to review any supplemental material, and you may not reference this material in the main report.
* You are encouraged to use graphical representations of problems and solutions when possible.
* The title page should follow the structure listed below:

Project Title

University Name: Team Member and Advisor Names

Team Name

Requested by and Submitted to

Client’s Name

Date

All submitted material will become the property of M-Focus and Rockwell Automation.

# Written Report Recommendations

Effectively communicating your solutions to decision makers is very important if you want all your hard work and analysis to be used. Here are some hints for the report:

* Less is more. Get to the point! Just like we want our operations to be efficient, we also want our reports to be efficient. Summarize the key details and convey the decision-making process supporting your recommendation. Long-winded and unorganized reports are not effective.
* Tables, graphs and figures are helpful, but comparing scenarios and corresponding results can be confusing. Make it easy for the reader to understand the results of your study.
* Do not go into detail on how you coded your model in Arena in your report. Consider your audience. Key decision makers, such as the operations managers and company executives, do not need to know that you assigned six product-type attributes to your entities.
* It is valuable to comment your code in your Arena model and make it easy for an engineering associate to understand, but leave these details out of your report.

# MODEL AND REPORT

The final submission should contain:

* Written formal report
* Arena simulation model with animation

Your report should consist of the sections outlined below. Failure to include the requested sections and information may result in deductions from the report score.

# Executive Summary

The executive summary gives the reader a brief problem overview and provides essential conclusions and recommendations. This section must include a high-level summary of the results from the problem analysis.

# Current Condition

Provide some background on the project.

# Analysis

This section describes how you applied Arena simulation software and other Industrial Engineering techniques to the problem. At a high level, tell about the models you created, but do not explain the Arena code you wrote. Describe the assumptions that you had to make as well as any constraints. Use this section to establish that your analysis is sound and your Arena model is valuable to the decision makers.

Convince the audience that your model is valid and verified. The use of tables, graphs and figures is appropriate for this section.

# Conclusion and Recommendations

Define your recommendations to meet the problem objectives. This section should include more detail than the executive summary. Use your analysis to support the recommendations. Provide feedback on any further analysis that you feel might improve the performance of the system. Be creative and impressive!

# Implementation Plan

This section includes your suggestions regarding how the management team might implement your plan.

# Arena Simulation Model

Please submit only one version of your Arena model. If you have separate files for your baseline and scenarios, please select only one version to submit. We will not be testing all the scenarios in your model. We will check it to ensure that the logic makes sense and we will review the animation. It is your responsibility to ensure that your model will run on M-Focus laptop computers running Windows 10; we suggest that you test your model on a different computer other than the development computer before submitting it. M-Focus personnel will not spend time debugging contest models in order to make them run.

Don’t forget to include animation in your model! Please see the Arena Example models for methods of animating a model. Additionally, Arena 15.0 includes the Arena Visual Designer tool for building data dashboards and animation in 3D. These are excellent presentation tools for demonstrating the impact of your proposed changes.

If you want to include more information about why you chose a certain method of modeling, put the commentary in your model window.

# Modeling Assistance

Have you ever heard of the Arena Smarts files? Use these small concept models to learn more about advanced modeling techniques. They are found in the Smarts folder when you install Arena. Useful example SMARTs topics include reading data in from external files, basic concepts such as using station sets and manipulating queues.

# CONTEST SUBMISSION

**Submissions via email must arrive at M-Focus on or before 6:00pm Monday January 16, 2017. Any entries arriving after this date will not be considered. Three finalist teams will be announced on Wednesday January 18. Finalist teams are required to present their work on Tuesday January 24 between 1:30-4:00pm at the SIMMOD 2017 conference in Pattaya.**

Submission instructions:

1. Use WinZip to compress your files. The naming convention for your compressed file must start with “Arena” and include your team name. For example, “Arena TeamName.zip”
2. Please send to wicha@m-focus.co.th
3. If you do not follow the instructions above, we will not be able to judge your entry.

# JUDGING

A representative group from the Arena community will judge the Arena student simulation competition. The determination of the three finalists will be made solely on the final report described above and the submitted simulation model.

Judging will be based on the following criteria:

* Analysis of the problem
* Logic of the solution
* Quality of the recommendations
* Application of Industrial Engineering tools
* Validity of assumptions
* Quality of the report (initial judging)
* Quality of the presentation (final judging)

For the top three finalist teams, presentation materials must be submitted before the final judging. The final judging will take place at the conference, and the results will be announced at the conference. The top team will receive 15,000 Baht. Second place will receive 10,000 Baht and Third place will receive 7,000 Baht.

Good Luck and HAVE FUN!