Fujiyama Electronics Case Study - Due Week 7

[**Objective**](http://www.devryu.net/ec/crs/contentItem.learn?CourseID=4851115&47=2540214&dt=4%2F10%2F2011+9%3A10%3A43+AM&UnitNumber=0&COID=113&UPK=23752984&UDPK=127732278&UT=1#5) **|** [**Project Deliverables**](http://www.devryu.net/ec/crs/contentItem.learn?CourseID=4851115&47=2540214&dt=4%2F10%2F2011+9%3A10%3A43+AM&UnitNumber=0&COID=113&UPK=23752984&UDPK=127732278&UT=1#6) **|** [**Grading Rubrics**](http://www.devryu.net/ec/crs/contentItem.learn?CourseID=4851115&47=2540214&dt=4%2F10%2F2011+9%3A10%3A43+AM&UnitNumber=0&COID=113&UPK=23752984&UDPK=127732278&UT=1#7) **|** [**Best Practices**](http://www.devryu.net/ec/crs/contentItem.learn?CourseID=4851115&47=2540214&dt=4%2F10%2F2011+9%3A10%3A43+AM&UnitNumber=0&COID=113&UPK=23752984&UDPK=127732278&UT=1#8)

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| **Objective** |  |

This case study looks at the behavior of a circuit board process though the use of Control Charts. At least two Control Charts will need to be constructed, and from them you will asked to provide an assessment of you see. A [template](http://www.devryu.net/ec/courses/59552/CRS-BSOP326-4851115/week_7_case/xbarr_.xlsx) to facilitate the construction of the Control Charts has been provided. You are not required to use this template. A tutorial that outlines the steps for this case is located in Doc Sharing.

**Problem Statement**

Fujiyama Electronics, Inc. has had difficulties with circuit boards purchased from an outside supplier. Unacceptable variability occurs between two drilled holes that are supposed to be 5 cm apart on the circuit boards. Thirty samples of 4 boards each were taken from shipments from the supplier as shown in the data from the worksheet. Data in the work sheet below can also be accessed [here](http://www.devryu.net/ec/courses/59552/CRS-BSOP326-4851115/week_7_case/fujiyama_electronics_data.xlsx).

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| Fujiyama Electronics | | |  |  |  |
|  |  |  |  |  |  |
|  |  |  | Observations | |  |
| Sample |  | 1 | 2 | 3 | 4 |
|  |  |  |  |  |  |
| 1 |  | 4.92 | 4.26 | 4.94 | 4.29 |
| 2 |  | 4.65 | 5.54 | 5 | 5.42 |
| 3 |  | 5.77 | 5.26 | 4.76 | 4.79 |
| 4 |  | 6.25 | 4.88 | 5.66 | 4.44 |
| 5 |  | 5.27 | 5.41 | 6.02 | 4.91 |
| 6 |  | 5.22 | 5.38 | 5.08 | 4.65 |
| 7 |  | 5.47 | 4.68 | 4.56 | 4.7 |
| 8 |  | 5.71 | 4.54 | 4.17 | 4.87 |
| 9 |  | 5.24 | 5.58 | 4.72 | 5.41 |
| 10 |  | 4.42 | 5.18 | 4.79 | 4.73 |
| 11 |  | 5.14 | 4.26 | 4.71 | 5.48 |
| 12 |  | 4.92 | 5.78 | 5.5 | 5.05 |
| 13 |  | 5.79 | 3.83 | 4.3 | 4.78 |
| 14 |  | 4.92 | 4.8 | 4.75 | 5.59 |
| 15 |  | 5.68 | 5.74 | 4.65 | 5.2 |
| 16 |  | 5.43 | 4.81 | 5.27 | 4.96 |
| 17 |  | 4.79 | 6.04 | 4.47 | 5.18 |
| 18 |  | 4.43 | 5.08 | 3.69 | 6.43 |
| 19 |  | 6.35 | 5.95 | 6.29 | 5.89 |
| 20 |  | 5.03 | 4.66 | 5.25 | 4.46 |
| 21 |  | 6.32 | 6.09 | 5.57 | 5.91 |
| 22 |  | 4.3 | 5.47 | 4.27 | 4.34 |
| 23 |  | 6.07 | 4.97 | 5.51 | 5.02 |
| 24 |  | 5.11 | 4.9 | 5.91 | 4.66 |
| 25 |  | 4.5 | 5.24 | 4.86 | 4.35 |
| 26 |  | 4.91 | 4.79 | 5.74 | 5.03 |
| 27 |  | 4.65 | 4.71 | 4.81 | 5.32 |
| 28 |  | 4.7 | 5.5 | 6.04 | 4.3 |
| 29 |  | 5.87 | 5.3 | 5.78 | 5.07 |
| 30 |  | 4.41 | 4.75 | 4.95 | 5.11 |

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| **Project Deliverables** |  |

The student will submit the completed case study in word document paper by the end of class week 7 to their Dropbox. The paper is worth 50 points.

The student will complete and/or answer the following questions.

1. Calculate X-Bar-Bar, R-Bar, and associated control limits using the data in the table above.
2. Create X-Bar•R (Average & Range) Control Charts from the data in table above.
3. Discuss notable out-of-control conditions displayed in the completed X-Bar•R (Average & Range) Control Charts. Only consider points outside the Control Limits. Do not consider runs, set of points within certain zones, etc.
4. If the conditions you note could be defined as assignable conditions and they are removed from the process, what will happen to the X-Bar•R Control Chart?

(a) Remove the data related to the out-of-control points you observed from the origainal data and recalculate a new X-Bar-Bar, R-Bar, and associated control limits.  
(b) Create new X-Bar•R (Average & Range) Control Charts from your updated data.

1. Discuss how the two sets of Control Charts are different. What has changed?

The format of the case study should conform to the Publication Manual for the American Psychological Association (APA), 6th edition, for title page & text. Citations and references are not required. A basic APA tutorial can be found inWebliography and paper template can be found in Doc Sharing. The completed case study will be submitted to your Dropbox as a MS-Word document. All graphics and charts will be a part of the Word document and submitted as a file. Documents authored in other applications such as WordPerfect or MS-Works will not be accepted.

This project is to be accomplished individually, and will reflect the work of each student. All DeVry University policies are in effect including the plagiarism policy. Late papers will not be accepted without prior permission.

Submit your Fujiyama Case Study paper to the Dropbox located on the silver tab at the top of this page by the end of week 7. For instructions on how to use the **Dropbox**, read these [Step-by-Step Instructions](http://www.devryu.net/ec/Courses/13775/CRS-DVUO-2148869/SSO/hub2/sso.html?node=184) or watch this [Dropbox Tutorial](http://www.devryu.net/ec/Courses/13775/CRS-DVUO-2148869/SSO/hub2/sso.html?node=232).

See Syllabus/"Due Dates for Assignments & Exams" for due date information.

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| **Grading Rubrics** |  |

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| **First Control Chart (40 Percent)** | **Points Possible** | **Points Earned** | **Comments** |
| All calculations are correct. | **5** |  |  |
| X-Bar & R charts are presented and correct. | **5** |  |  |
| All conditions of importance discussed. | **10** |  |  |
| **Total** | **20** |  |  |
| **Second Control Chart (40 Percent)** | **Points Possible** | **Points Earned** | **Comments** |
| All calculations are correct. | **5** |  |  |
| X-Bar & R charts are presented and correct. | **5** |  |  |
| Differences between the two sets of Control Charts are thoroughly discussed. | **10** |  |  |
| **Total** | **20** |  |  |
| **Mechanics (20 Percent)** | **Points Possible** | **Points Earned** | **Comments**: |
| The paper, including the title page follow APA guidelines for format. (References and citations not required) | **2** |  |  |
| Sentences are complete, clear, and concise. | **2** |  |  |
| The paper is laid out with effective use of headings, font styles, and white space. | **2** |  |  |
| Rules of grammar, usage, and punctuation are followed. | **2** |  |  |
| Spelling is correct. | **2** |  |  |
| **Total** | **10** |  |  |
| **Total (100 Percent)** | **Points Possible** | **Points Earned** | **Comments:** |
|  | **50** |  |  |

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| **Best Practices** |  |

The following are the best practices in preparing this paper. Sample papers, using the APA format, are located in Doc Sharing. Other useful information has also been provide there, including APA paper template.

* **Cover Page** - Include who you prepared the paper for, who prepared, and date.
* **Body of Your Work** - Titles to identify different areas that you address. State the main ideas, state major points in each ideas, and supporting information. Break out each main idea you will use in the body of your paper. Show some type of division like separate sections that are labeled; separate group of paragraphs; or headers. You would include the information you found during your research and investigation.
* **Summary and Conclusion** - Summarizing is similar to paraphrasing but presents the gist of the material in fewer words than the original. An effective summary identifies the main ideas and major support points from the body of your work. Minor details are left out.   
  Additional hints on preparing the best possible project.
  + Apply a three step process of writing… Plan, Write, and Complete.
  + Prepare an outline of your research paper before you go forward.
  + Complete a first draft and then go back to edit, evaluate, and make any changes required.
  + Use visual communication if it will help clarify and support you work. Any materials that can be removed and not effect the clarity of your work is essentially fillers, and should be avoided. Fillers distract from the flow of you will and will most likely cause you to lose points.
* **References** - Not required for this case study.

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