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INSE 6210 Total Quality Methodologies in Engineering Project Proposal

''Improving Online Education Quality for higher education institutions Using DMAIC Principals.''

Submitted By:

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PROJECT CHARTER

Project Title:
Improving Online Education Quality for higher education institutions Using DMAIC Principals.

Goal:
It is to Define, Measure, Analyze, Improve and Control the main drawbacks of online education system by eliminating the main reasons of students' dropouts and the loss of millions of dollars revenue to the Education institutions. Our project mainly revolves around improving the quality of remotely education fashion being adopted by the Universities during the pandemic, using a target process of 6 Sigma to provide a quality level of at most 3.4 defects per million opportunities.

Objectives:
• Improving the efficiency of Instructors with proper training on software and tools required for the classes to coup up with technical glitches. • Optimization in the quality of the education by introducing a seamless and smooth flow of education. • Increase the revenue generated by the education systems by millions of dollars by mitigating the core reasons due to which the number of students' dropouts increases.

Core Teams Members:	
Name	Role
Huma Maryam	Six Sigma Quality Manager
Ayman Al-Qadi	Project Manager
Ramya Gali	Quality Engineer
Mian Basit	Business Analyst

Milestones
• Training Providers and Training schedules get finalized. • Adhering to planned training timelines. • Final assessments.

Budget
Our estimated budget is 100 thousand US Dollars.

Signature
To be signed on hardcopy of this document

Problem Statement:

Currently, with a growing number of courses offered online, there is significant interest in online education. However, the major concerns are centering on the quality of education provided by instructors online owing to lack of prior training, less competency in the efficient use of softwares, study environment, and adaptability which can be addressed with the application of Six Sigma in this field.

It is no doubt that the majority of the academic advisors and instructors are professional in delivering online lectures and information's. However, there are many cases where students were not satisfied with the quality of services they are receiving. In most of the educational institutions, prior training is not provided to instructors on how to conduct online classes for effective results and inferior knowledge in utilizing the connecting devices and information sharing tools with Students. This is exaggerated with lack of proper agenda and prior preparation which leads to the middle of session dropouts and reduced turnouts in classes, in turn, solving such an issue could have a considerable impact on students' academic performance, and overall impact on the reputation of educational institutions and providers in the long run.

The calculation of a Sigma level is based on the number of defects per million opportunities (DPMO). Educational institutions can unlock the quality performance of their processes with a few simple pieces of information:

1. The number of units produced
2. The number of defect opportunities per unit
3. The number of defects

DPMO is equal to the number of defects times 1,000,000. This number is divided by the number of defect opportunities per unit, times the number of units. Once we have calculated defects per million opportunities, we can use a conversion table or a spreadsheet formula to turn DPMO into the Sigma.

= (5/(20* 1)) * 1M= 250,000

Target Process Sigma: 3.4 defects per million

Business case:

The COVID-19 has resulted in educational institutions shut all across the world and being forced to find alternatives to face-to-face instruction, as a result, online teaching and learning have been used by teachers and students on an unprecedented scale. Globally, billions of Students are out of the classroom. As a result, education has changed dramatically, with the distinctive rise of e-learning, whereby teaching is undertaken remotely and on digital platforms. Research suggests that a good online learning experience has been shown to increase retention of information, and take less time, which that implies e-learning is going to stay here for a long time, therefore, this project is worth implementing now.

While some believe that the unplanned and rapid move to online learning with no training, insufficient bandwidth, and little preparation, will result in a poor user experience that is unconducive to sustained growth. In absence of such projects will have a considerable negative impact on students learning curve and financial consequences on educational institutions. By improving the learning experience of students, there will be an increase in student turn out which can, in turn, increase the annual income of educational institutions.

Project Scope:

We will focus on improving the experience and quality of education provided online to the students. These quality aspects can be improved by utilizing DMAIC principles, that is, mandate hands-on training to academic faculty members on effective instruction and hands-on training on tools used for connecting with students online, develop tools or mechanisms to receive timely feedback from students to generate metrics-based, and to design programs as per students interest, convenience and benefit and continuous assessment to improve the quality. The target is to improve the online education experience for students, productive classes, ability to address technical glitches encountered by instructors during the classes, effective usage of available/supporting tools.

Project Justification: The goal of this project is to. This will.	
Process Specifications & Requirements: • • •	**Project Success Criteria:** • • •

Project Plan Summary

Online education is becoming more popular during this tough time of the pandemic. Universities were subjected to this type of distance learning in order to keep everyone safe. However, the quality of the teaching system is not meeting the same face-to-face standards. That's why our group main plan is to enhance this quality issue by applying a quality improvement methodology called; DMAIC method (Define, Measure, Analyze, Improve, and Control) to demonstrate how DMAIC methodology can be used to continuously improve the quality of academic online teaching systems at Concordia University.

In the **Define** phase; the goals and the parameters must be distinguished and described. A process map and a cause-effect diagram will be formed to understand the effect of input variables on the output.

In the **measure** phase, we calculate all related process measurements, like students learning efficiency in the virtual classroom. and to know which input or inputs have the greatest effect on the outputs are also vital.

In the **Analyze** phase, the fishbone diagram is a generally used strategy to classify the root causes and their effects to identify the causes for poor quality in online education.

In the **improvement** phase, the causes for failure or poor quality must be identified with a solution that will reduce defects in the whole process. and eventually will increase the quality standards in the online educational system.

The **control** phase requires maintaining the improvement results obtained from the Six Sigma process for sustainability and durability.

Projected Time Frame

Process	Duration	Start Date	Finish
Define	8 Days	25-09-2021	03-10-2021
Measure	14 Days	04-10-2021	18-10-2021
Analyze	6 Days	20-10-2021	26-10-2021
Improve	14 Days	28-10-2021	12-11-2021
Control	4 Days	13-11-2021	17-11-2021

Team roles and responsibilities

• Executive Summary	Ayman Qadi & Huma Maryam
• Introduction	Mian Basit & Ramya Gali
• Methodology	
Define	Huma Maryam & Ramya Gali
Measure	Ayman Qadi & Mian Basit
Analyze	Ayman Qadi & Ramya Gali
Improve	Huma Maryam & Mian Basit
Control	Ayman Qadi & Huma Maryam
• Conclusion	Huma Maryam & Ramya Gali
• References	Mian Basit & Ayman Qadi
• Report Formatting	Ayman Qadi
• Presentation Slides	Ramya Gali & Mian Basit

References:

https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/

https://www.villanovau.com/resources/six-sigma/calculating-your-baseline-sigma/

https://journals.sagepub.com/doi/full/10.1177/0047239520934018