Assignment Web Similarity Analysis

Generated on 2025-03-23 00:26:06

Executive Summary

Overall Web Similarity Score: 20%

Assessment: Low overall similarity. Some matches are related to standard control systems concepts and terminology, while a few instances of potential code or equation reuse require further investigation.

Conclusion: While the presence of common control systems terminology and the use of standard tools like MATLAB/Simulink do not necessarily indicate plagiarism, the similar phrasing around "State-Space" and "Control Design", and particularly the overlap in Simulink model descriptions with the Chegg source, warrants a closer look. The instructor should examine the actual Simulink models for structural similarities and the MATLAB code for any copied segments. The equations and derivations should also be checked for potential uncited reuse. If the Simulink models and MATLAB code are significantly similar to online resources without attribution, it is likely plagiarism. If the student developed these independently but used similar online resources as guidance, they should cite them properly.

Web Sources Analyzed

Source URL	Similarity Score
https://ctms.engin.umich.edu/CTMS/index.php?example=Introduction&section=ControlStateSpace	33.87%
https://www.chegg.com/homework-help/questions-and-answers/question-1-1-build-simulink-model-system-given-fig-q1-wn-1-rad-sec-zeta-02-06-12-r-s-step--q125242597	29.25%
https://people.uncw.edu/hermanr/mat361/simulink/FirstOrder.pdf	1.72%
https://www.vssut.ac.in/lecture_notes/lecture1450172554.pdf	1.14%

Detailed Content Matches

Match 1 - Similar Content (70%)

Assignment: State-Space
Source: https://ctms.engin.umich.edu/CTMS/index.php?example=Introduction&section;=ControlStateSpace
Source Text: Introduction: State-Space Methods for Controller Design

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Match 2 - Exact Match (90%)

Assignment: Simulink
Source: https://ctms.engin.umich.edu/CTMS/index.php?example=Introduction&section;=ControlStateSpace
Source Text: Control Tutorials for MATLAB and Simulink

Match 3 - Exact Match (90%)

Assignment: Simulink
Source: https://www.chegg.com/homework-help/questions-and-answers/question-1-1-build-simulink-model-system-given-fig-q1-wn-1-rad-sec-zeta-02-06-12-r-s-step--q125242597
Source Text: Build a SIMULINK® model

Match 4 - Similar Content (70%)

Assignment: Control System Design
Source: https://ctms.engin.umich.edu/CTMS/index.php?example=Introduction&section;=ControlStateSpace
Source Text: State-Space Methods for Controller Design

Match 5 - Similar Content (60%)

Assignment: Speed Response
Source: https://www.chegg.com/homework-help/questions-and-answers/question-1-1-build-simulink-model-system-given-fig-q1-wn-1-rad-sec-zeta-02-06-12-r-s-step--q125242597
Source Text: step reference speed

Match 6 - Common Knowledge (100%)

Assignment: ■■/■■
Source: None
Source Text: None

Match 7 - Similar Content (70%)

Assignment: Position Control
Source: https://ctms.engin.umich.edu/CTMS/index.php?example=Introduction&section;=ControlStateSpace
Source Text: MOTOR POSITION

Full Assignment with Highlighted Plagiarism

Sections highlighted in yellow with red text indicate potential plagiarism.

EE5351: CONTROL SYSTEM DESIGN
LABORATORY 01

NAME

: BANDARA KMTON

REG.NO.

: EG/2021/4432

GROUP NO.

: CE 07

DATE

: 20/01/2024

Summative Laboratory Form
Semester
Module Code
Module Name
Lab Number
Lab Name
Lab Conducted Date
Report Submission Date

05
EE5351
Control Systems Design
01
Laboratory Session 1
2024.11.05
2025.01.24

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Figure 4: Simulink for simplified version

Source: https://www.chegg.com/homework-help/questions-and-answers/question-1-1-build-simulink-model-system-given-fig-q1-wn-1-rad-sec-zeta-02-06-12-r-s-step--q125242597

Figure 5: Combination of the Simulink for 2,4,5,6,7 Questions

Source: https://www.chegg.com/homework-help/questions-and-answers/question-1-1-build-simulink-model-system-given-fig-q1-wn-1-rad-sec-zeta-02-06-12-r-s-step--q125242597

Figure 6: Speed Response given by the Model that had created

Figure 7: The graph given by state space model and Simulink Model

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Figure 8: Time Domain Response

Figure 9: Time Domain Response (Kp= 1)

Figure 10: Time Domain Response (Kp= 1.25)

Figure 11: Time Domain Response (Kp= 1.50)

Figure 12: Time Domain Response (Kp= 1.75)

Figure 13: Time Domain Response(Kp= 2.00)

6

6

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10

11

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12

12

13

1

OBSERVATIONS

Q1)

I.

II.

■■

■■

=

■■ ■■ +■■ ■■■+■■

■

1

■■

=

■■ ■■

■

2

■■

=

■■■

■

3

■■

=

■■■ ■■

■■ ■■

■

4

Considering the above equations Speed Control Given as:

■■ (■)

■■ (■)

=

=

=

■■

[■■■ ■(■■ +■■ ■]+■■ ■■]

0.042

[2.09×10−5 ■(8.4+1.16×10−3 ■)+0.042×0.042]

0.042

2.424×10−8 ■ 2 +1.756×10−4 ■+1.764×10−3

Considering the above equations Position Control Given as:

Source: https://ctms.engin.umich.edu/CTMS/index.php?example=Introduction&section;=ControlStateSpace

■■ (■)

■■ (■)

=

=

■■

■[■■■ ■(■■ +■■ ■]+■■ ■■]

0.042

2.424×10−8 ■ 3 +1.756×10−4 ■2 +1.764×10−3 ■

III.

Figure 1:MathLAB code for the Speed Response

Figure 2: Graph For the Speed Response When input Voltage

as 3V

Figure 3:Simulink for Speed Response

Source: https://www.chegg.com/homework-help/questions-and-answers/question-1-1-build-simulink-model-system-given-fig-q1-wn-1-rad-sec-zeta-02-06-12-r-s-step--q125242597

IV.

Speed Control Given as:

■■ (■)

■■ (■)

=

=

■■

[■■■ ■(■■]+■■ ■■]

0.042

1.756×10−4 ■+1.764×10−3

Position Control Given as:

Source: https://ctms.engin.umich.edu/CTMS/index.php?example=Introduction&section;=ControlStateSpace

■■ (■)

■■ (■)

=

=

■■

■[■■■ ■(■■]+■■ ■■]

0.042

1.756×10−4 ■2 +1.764×10−3 ■

V.

Figure 4: Simulink for simplified version

Source: https://www.chegg.com/homework-help/questions-and-answers/question-1-1-build-simulink-model-system-given-fig-q1-wn-1-rad-sec-zeta-02-06-12-r-s-step--q125242597

VI.

Considering the equations given above:

■

■

– (■ ■) ■■ – (■■) ■■ + ■■

■■

■

=

■

– (■ ■) ■■ – 0 × ■■ + 0 × ■■

■■

■■

=

0× ■■ + 1 × ■■ + 0 × ■■

=

– ■■

■

[■■

■

■

(■■■■■)

■

■■■

■

■

■

– ■■

■

1

] (■■■) + (■■) ■■

■

0

0

(■■■■■)

=

–7241.38 –36.21 ■■

[

] (■)+(862.07

)■■

0

■

2009.57

0

■■

=

[0 1] × (■■■) + 0 × ■■

■

VII.

■

=

■■■

■

Considering the simplified version

■■

=

0 × ■■ + ■■ + 0 × ■■

■■

■

=

0 × ■■ – (■ ■ ■■) ■■ + (■

■■

=

0× ■■ + 1 × ■■ + 0 × ■■

■

=

0

1

0

■■

) + (■■) ■■

[0 – (■■■■)] (■

■

■■■ ■■

■ ■

(■■■)

■

■ ■

■ ■■

■ ■■

(■■■)

=

0

[

0

■■

=

■■

[0 1] × (■

) + 0 × ■■

■

■

■■
) ■■
■■ ■■

1
0
] (■■) + (239.23
)■■
–10.05 ■■
■

VIII.

Figure 5: Combination of the Simulink for 2,4,5,6,7 Questions

Source: https://www.chegg.com/homework-help/questions-and-answers/question-1-1-build-simulink-model-system-given-fig-q1-wn-1-rad-sec-zeta-02-06-12-r-s-step--q125242597

Q2)
i.

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Figure 7: The graph given by state space model and Simulink Model

Source: https://www.chegg.com/homework-help/questions-and-answers/question-1-1-build-simulink-model-system-given-fig-q1-wn-1-rad-sec-zeta-02-06-12-r-s-step--q125242597

i.

Comparing the graphs there can be error as 10 .
So considering the error the reasons can be achieved by the models value was get by running the rotor so there can be a error that has negligible . not only that but also considering the assumption that the rotor and the modelspace there can be done the errors doing in the the simulate of the equations. As well as when running of the software which can be also happened the errors as can be stucked etc.

Q3)
1.

Figure 8: Time Domain Response

2.

Steady State Error:

1 – 0.938

:

0.062

3. When Kp= 1
Steady State Error
Overshoot

:

1 – 0.938

:

1.335−0.938

:

42.32%

0.938

:

0.062

× 100%

Figure 9: Time Domain Response (Kp= 1)

When Kp= 1.25
Steady State Error
Overshoot

:
:

1 − 1.012

:

35.77%

:

1.374−1.012
× 100%
1.012

Figure 10: Time Domain Response (Kp= 1.25)

0.012

When Kp= 1.50
Steady State Error
Overshoot

:

1 − 1.009

:

1.405−1.009
× 100%
1.009

:

: 0.009

39.246%

Figure 11: Time Domain Response (Kp= 1.50)

When Kp= 1.75

Steady State Error
Overshoot

:

:

1 – 0.9603

:

50.16%

:

1.442–0.9603
× 100%
0.9603

Figure 12: Time Domain Response (Kp= 1.75)

0.039

When Kp= 2.00
Steady State Error
Overshoot

:

1 – 0.9633

:

1.466–0.9633
× 100%
0.966

:

: 0.0367

52.18%

Figure 13: Time Domain Response(Kp= 2.00)

2

REFERENCES

[1 “GREEKFOGGREEK,” [Online]. Available:
] https://www.geeksforgeeks.org/proportional-controller-in-control-system/.
[2 “Control Tutorials,” [Online]. Available:
] https://ctms.engin.umich.edu/CTMS/index.php?example=Introduction&section;=Contro
lPID.

Analysis Methodology

Web Similarity Analysis Method: This report analyzes the similarity between a student assignment and web content using multiple approaches:

1. **Basic similarity analysis** using TF-IDF vectorization and cosine similarity metrics to calculate statistical similarity between texts.
2. **Advanced semantic analysis** using Google's Gemini AI to identify conceptual similarities, common phrases, and potential plagiarism patterns.
3. **Source verification** by analyzing multiple sources to distinguish between common knowledge and unique content.

Interpretation Guide:

- 0-15%: Very low similarity - Likely original content
- 16-30%: Low similarity - Contains common phrases but largely original
- 31-50%: Moderate similarity - May contain some paraphrased content
- 51-70%: High similarity - Contains substantial similar content
- 71-100%: Very high similarity - Significant portions may be unoriginal

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Disclaimer: This automated similarity analysis provides an approximation of content similarity against web sources. Results should be interpreted by a human reviewer for context-appropriate assessment. Common knowledge, standard phrases, and coincidental matches may be flagged and require human judgment.