# 10th Dec

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## Part A: Automation Conceptual Design

#### Topic 1. Product Design (Total: 10 Marks)

The initial calculations for the product have been completed well and seem to give reasonable values for the requirements of your design.

It’s good some external components have been selected however more information should be given to highlight how they suit your design based on the dynamic calculations.

It would have been nice to see some attention given to the structural calculations within your design (eg. how it can be held in place during operation).

Some more detail/explanation should be given for how the torque is transferred throughout the design, especially with the couplings.

The exploded view seems to be missing some annotation for the referencing to a bill of materials which would have been useful to see for all components in the design.

#### Topic 2. Automated Workcell Design (Total: 15 Marks)

It’s good seeing an attempt made at highlighting each of the robot operations, however it seems that some of the ones chosen are unsuitable for the required assembly operation.

It would have been useful to see a flow matrix that has corresponded to the requirements of the workcell.

It’s good to see your robot parameters identified, however, it would have been even better to see some additional detail in the supporting calculations as to why these parameters are required.

The graspability/stability analysis seems to be mostly correct however adding in some more robust methodology for how you came to your values would have been useful (eg. using the contact surface area, moments from the centre of mass).

Perhaps utilising the graspability/stability analysis would have been useful to optimise your work cell based on analysing a few assembly processes.

Most workcell constraints have been identified, however, it would have been useful to see what the total expected cycle time of the workcell is.

Perhaps highlighting some robot movement optimisation could have been useful based on the constraints discussed before.

#### Topic 3. Automation Support Systems - (Total: 15 Marks)

Most of the workcell has been developed well, however, perhaps it would have been useful to see a general overview of the grippers utilised throughout.

It’s good seeing robots available in-market being identified, however, it would have been useful to give a comparison between the robot specifications and your required parameters.

The stiffness analysis is good and helps understand why the robot is suitable for the process it is used for, however, perhaps more details/scenarios would have been useful to get a fuller appreciation.

The end-effectors chosen seem to be suitable for their assembly processes however it would have been nice to see a discussion of one in much greater detail.

Most sensors seem suitable for your design, however, more sensors may be required to have your workcell functioning effectively.

It’s good to see some the key parameters of your support systems highlighted for your design and it is useful to see how they meet your requirements.

It would’ve been useful to see a flexible fixture included into your design to give a more flexible workcell for any future design changes.

#### Topic 4. Robotic Simulation - RoboDK (Total: 10 marks total)

Most components seem to have been integrated into your simulation section of the report based on what you have shown from your design, however, a few of the support systems seem to be missing.

It seems that many components are missing from your simulation video design to give a full workcell and should’ve been incorporated to show your conceptual design within the simulation.

The overall simulation quality is reasonable, however it would’ve been better to also include additional components within the workcell working.

## Part B: Research-Focused Investigation

#### Topic 5. Literature Review (Total: 10 marks)

The literature review doesn’t seem to be very relevant to the research topic highlighted and should be redone with better focus around your topic.

Reasonable criticism has been given for the literature review however more detail should be included to give a thorough evaluation of the literature.

Some basic key theories have been identified from the literature but perhaps there could be more detailed/specific theories that could be utilised here?

It would’ve been also useful to see the key theories developed further to better fit to your research topic.

Most of the literature chosen seems to be fairly old/outdated, finding any newer research to build upon (or highlighting the lack of It’s presence) would’ve been useful to see.

#### Topic 6. Methodology (Including alignment to Industry 4.0 and Factory-in-a-box) (Total: 15 Marks)

The methodology seems to be largely well done but some areas need to be extended much further to highlight a fully effective way of completing your research.

This section seems to be reasonably innovative but perhaps there could be a more efficient method utilised to give a more concise and to-the-point analysis.

There seems to be some consideration given to industry 4.0 within the methodology, but perhaps much more context could be given to the research to better fit it to this technology.

It’s good to see the research being adapted to the factory-in-a-box setting however it would’ve been useful to see how it can be used to improve your original workcell design.

Overall, the methodology seems to be reasonable, however much more effort needs to have been put into this section to bring it to a much higher standard.

#### Topic 7. Results (Total: 15 Marks)

The analysis of the results is of a good standard but perhaps a few more details within the evaluation would’ve been useful to closely link your results to your conclusions.

Its’ good to see some comparison given between your project and previous literature but perhaps giving some more details about the previous literature would’ve been useful

The results shown have been supported by research reasonably well but it would’ve been useful to see more novel insights made into what impact the results may have.

#### Topic 8. Quality of Supporting Evidence (Total: 10 Marks)

Most annotations throughout are clear, however they may benefit from having more description throughout to give a better understanding.

Most of the CAD modelling is of a good quality throughout, but perhaps adding in some post-processing/colouring would bring it to a higher standard.

Some tables and figures have been labelled logically throughout the report, however some seem to be in the wrong place based on what is being discussed.