

# Commentary on candidate evidence

The candidate evidence has achieved the following marks for each section of this the project.

Please note: this commentary contains the equivalent of a full project response; however, this is not a complete project submitted by one candidate. We have taken the work of different candidates and pieced it together, to better exemplify a range of responses across the different sections of the project. As such, there is no exemplification of the last section, 'presentation'. Please refer to the marking instructions for information on this section.

## Candidate 3

### Outline (3 marks awarded)

Aims, objectives and methodology: The candidate's outline contains the aims of the project, project objectives and methodology, and relevant initial analysis.

**(2 marks)**

Outline specification and resources requirements: The candidate has provided some limited notes on key resources required, timings, and contacts. **(1 mark)**

### Research, analysis and specification (15 marks awarded)

Analysis of the problem or issue and identifying suitable factors to research: The candidate has identified all major sub-systems and the interaction between them with complete and detailed notes from relevant analysis, including formally referenced sources. **(5 marks)**

Research: The candidate has provided a detailed research strategy (titled 'Research Plan'), which includes the information required, how to find the information, and complete and detailed notes from relevant research, including formally referenced sources. **(5 marks)**

Specification: The candidate has produced a complete and detailed specification ('Specification 2') developed from the outline, covering all sub-systems including numerical values of all inputs and outputs. **(5 marks)**

### **Production and maintenance of a project plan (2 marks awarded)**

Project plan: The candidate has produced a project plan including a Gantt chart. Targets would be required to achieve further marks in this section. **(2 marks)**

Project plan maintenance and/or refinement: The candidate did not provide any evidence of changes or refinement to their plan. **(0 marks)**

### **Mathematical modelling and analysis (8 marks awarded)**

Mathematical modelling and analysis of a major 'electronics and control' sub-system: For the given 555 calculations, the candidate has applied mathematical modelling and analysis, using techniques appropriate to the level of the course for one mathematical analysis technique. Results are applied to the project solution, using realistic numerical values. To gain further marks, the candidate would have to include reflective commentary. **(2 marks)**

Mathematical modelling and analysis of a major 'mechanisms and structures' sub-system: The candidate has attempted one mathematical analysis technique, using realistic numerical values. **(2 marks)**

Mathematical modelling and analysis of **another** major 'electronics and control' **OR** 'mechanisms and structures' sub-system: The candidate has used two mathematical analyses, using a range of techniques appropriate to the level of the course. The results are applied to the project solution using realistic, justified numerical values, with some reflective commentary given. **(4 marks)**

### **Constructing and/or simulating a solution (10 marks awarded)**

Construction and/or simulation of a major 'electronics and control' sub-system: The candidate has simulated a major sub-system with names, values and function of some components annotated. They have provided a description of the purpose of the sub-system. **(3 marks)**

Construction and/or simulation of a major 'mechanisms and structures' sub-system: The candidate has simulated a major sub-system correctly, with names, values and function of most components correctly annotated. They have provided a description of the purpose of the sub-system. **(4 marks)**

Materials and components: The candidate has provided limited justification for their decisions on choice of materials and components. **(1 mark)**

Reflective commentary on construction and/or simulation: The candidate has provided detailed reflective commentary. **(2 marks)**

### **Evaluation (9 marks awarded)**

Evaluation of the solution: The candidate has produced a complete and detailed qualitative and quantitative evaluation of the solution with valid, relevant and clear conclusions. **(4 marks)**

Evaluation of the process: The candidate has made relevant and justified evaluative commentary on the development process and their own performance, referring to entries in the record of progress and detailed project plan. **(4 marks)**

Further developments: The candidate has provided a description of possible further developments. **(1 mark)**