## **BEng Rubric – Project Planning Report**

## **Project Overview – 10%**

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| --- | --- |
| **Level** | **Criteria** |
| 0 | Section missing, or unable to meet the next rubric level. |
| Unsatisfactory | Overview provides a very limited understanding of the project with little to no added value from the supervisor provided project description. Project diagram may be very high-level, unclear, or missing entirely. |
| Pass | Student provides an overview of the main project aim along with a diagram that shows consideration of the main system components (hardware and/or software) or processes and how these are interconnected. |

**Pass requirement must be met before any elements below can be included.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Project overview makes use of **suitable** references to support the **engineering context** of the project (e.g. use of academic papers for key concepts that will be applied). | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

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| --- | --- | --- | --- | --- | --- |
| ++ | Project overview makes use of **suitable** references to support the **commercial context** of the project (e.g. using market data to show consumer demand). | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

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| --- | --- | --- | --- | --- | --- |
| ++ | The aim **clearly and concisely** sets out what the project must **achieve** and the **importance** of the work. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

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| --- | --- | --- | --- | --- | --- |
| ++ | The project diagram makes good use of **stylistic features** (colour, font styles, groupings, shapes, etc) to intuitively **separate sub-systems and components** within the overall project. Use of styles are **consistent**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Project diagram demonstrates complete understanding of **critical component level design requirements** (for example a MCU block might include peripheral/memory/clock needs, software routines may include API, algorithm, limitations, data type, execution time requirements). | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

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| --- | --- | --- | --- | --- | --- |
| ++ | The project diagram **clearly shows**, and where necessary **explains**, **dependency** between parts. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

## **Specification – 10%**

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| --- | --- |
| **Level** | **Criteria** |
| 0 | Section missing, or unable to meet the next rubric level. |
| Unsatisfactory | Provided specification is very limited and shows little to no expansion on the original project description. Specification points given may be poorly defined or unclear. |
| Pass | Student provides a list of relevant requirements for the final project deliverable that can be used to measure the success of the project. |

**Pass requirement must be met before any elements below can be included.**

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| --- | --- | --- | --- | --- | --- |
| + | Student splits specification points into a range of **priority levels** or uses a priority ordered list. Specification requirements over the main aim are given as potential “**stretch goals**”. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

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| --- | --- | --- | --- | --- | --- |
| + | Specification points are **grouped** in a suitable way for the project (for example splitting hardware and software requirements). | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

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| --- | --- | --- | --- | --- | --- |
| ++ | Specification points are all **quantitatively justified** with respect to the project aim(s) and **wider literature** (e.g. H&S, legal requirements, engineering standards, best practice, etc). With inclusion of **suitable** **references**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

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| --- | --- | --- | --- | --- | --- |
| ++ | There is clear **assessment** of the expected **challenge** posed by each specification point. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Each requirement includes a succinctly clear **explanation** of how it will be **tested** including the **criteria for success**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Specifications are shown to be both **attainable** (with the facilities available to the student) and **realistic** (in terms of the time frame of the project). | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Clear ambition to achieve specification **beyond** commercial-off-the-shelf or state-of-the-art research-grade system. There is evidence that such ambition is **realisable**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

## **Methodology – 10%**

|  |  |
| --- | --- |
| **Level** | **Criteria** |
| 0 | Section missing, or unable to meet the next rubric level. |
| Unsatisfactory | Student attempts to provide a development process for the project, with a limited inclusion of key tools and components, without consideration of the limitations related to these. |
| Pass | Student provides a suitable development process for the project, highlighting some key tools and components that will be used within each step, and outlining the obvious limitations related to these. |

**Pass requirement must be met before any elements below can be included.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Development process details all **relevant tools** that will be used with **suitable justification** for their choice. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Discussion of the **implications** of **inter-dependencies** between different steps. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| +++ | Each step of the methodology is **assessed** in terms of the **challenge** posed to the student based on their individual experience and skill set. **Additional tasks** related to these are explained (e.g. use of a piece of software may require additional tasks to become familiar). | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| +++ | **Limitations** are explained and assessed with **relation** to the project development (e.g. using a licenced software may incur cost but be beneficial if the student already has experience). | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Student effectively **combines/synthesizes/translates** existing methodologies leading to a **bespoke** solution which meets the specifications and **accounts** for all limitations. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

## **Risk Management and Mitigation – 20%**

|  |  |
| --- | --- |
| **Level** | **Criteria** |
| 0 | Section missing, or unable to meet the next rubric level.  Risks presented are not related to project management. |
| Unsatisfactory | Risks presented may be missing mitigation actions.  Risks presented may not be relevant to the project or very generic with little explanation. |
| Pass | Student provides a list of some obvious expected risks that could impact completion of the project and includes possible mitigation actions, although superficially considered. |

**Pass requirement must be met before any elements below can be included.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Includes risks **specific** to the project **methodology** accompanied by suitable **mitigation actions**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | The potential **impact** of risks on the project are **realistically quantified** in terms of time/cost/change in spec. Risks are **sorted** by impact. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Mitigation actions are **realistic** given the **resources** available to the project. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | The **likelihood** of risks occurring are **quantified** with a **method applied** to sort the **importance** of each risk. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | There is clear indication of **when** each risk is likely to occur in the project and this is **considered** as part of the mitigation actions. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | All critical risks to the project are **fully mitigated** and **quantified (rated) pre and post** mitigation. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

## **Time Plan – 20%**

|  |  |
| --- | --- |
| **Level** | **Criteria** |
| 0 | Section missing, or unable to meet the next rubric level. |
| Unsatisfactory | Time plan is very basic, may be missing Gantt chart and just given as a list of tasks. Tasks show little thought and either reproduce information from the supervisor project handout or are a repeat of the specification points. |
| Pass | Student provides a Gantt chart that outlines the expected progress of the project, broken down into major tasks. Gantt chart includes stages at which progress reviews will be carried out. |

**Pass requirement must be met before any elements below can be included.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| + | Completion points of **deliverables** and **milestones** indicated on chart. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| + | **Dependency** between tasks is clearly indicated and **explained**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| + | Clear **link** of Gantt chart tasks to project **specification** and **methodology**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| + | **Milestones** align with project review points and **explanation** is given for where the project is expected to be at **each review**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Gantt chart and explanation demonstrates **consideration** of **risks** and mitigations with use of **parallelisation**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Gantt chart has a **visible cycle** of develop, test, document. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | **Realistic** time planning and **work loading** (based on # hrs per week). | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Gantt chart **demonstrates** points of **uncertainty** (e.g. via error bars) and the **impact** on following tasks is **explained**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

## **Interview – 30%**

|  |  |
| --- | --- |
| **Level** | **Criteria** |
| 0 | Student did not attend interview. (Defence) |
| Unsatisfactory | Explanation of project is limited and confused. No coherent plan and/or risks presented. |
| Pass | Student is able to explain their project aim and expected outcome. The time plan for the project and potential risks are explained to the moderator. Questions may be unanswered or unsatisfactorily answered. |

**Pass requirement must be met before any elements below can be included.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Project aim is clearly explained, and when **questioned** student shows a good understanding of how the aim **will be met**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Student **convincingly** shows that the project can be **completed** with the **resources available to them**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | When **questioned** about **risks** to the project, student is able to demonstrate/discuss **beginning steps** that have been taken to **mitigate** these. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Student reflects on the **personal limitations** of their planning process and their **ability** to complete the project. Questioning shows that limitations are **convincingly** **managed**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Through questioning and presentation, the student can **convincingly justify** the project **undertaking**. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ++ | Given presentation (both **provided materials** and students **delivery**) is **effective** in its explanation of the project and plan. | | | | |
| Not present  (0%) | | Some  (40%) | Most  (60%) | Fully met  (80%) | Exceeded  (100%) |